Central Montana Transportation Study

Needs and Objectives

MONTANA
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1.0 INTRODUCTION

The Montana Department of Transportation (MDT) is developing the *Central Montana Transportation Study* to create a comprehensive long-term management plan addressing the anticipated impacts of planned development and military activities in the region. The pre-Montana/National Environmental Policy Act (MEPA/NEPA) regional study is a collaborative process with MDT, the Federal Highway Administration (FHWA), military, local jurisdictions, resource agencies, and the public to identify transportation needs and potential solutions.

Needs and objectives for the *Central Montana Transportation Study* were developed based on a review of regional plans, input from stakeholders and the public, and baseline social, environmental, and engineering conditions described in the *Environmental Scan* and *Existing and Projected Conditions Reports* for the study area and each subarea. Detailed subarea locations, mapping, data sources, analysis periods, and quantitative findings are outlined in the *Access Management Plan: Great Falls – 57th St and US 87/89*, *Lewistown Existing and Projected Conditions Report*, *Old Havre Highway & US 87 Existing and Projected Conditions Report*, and the *US 87 Armington Junction – Otter Creek Canyon Existing and Projected Conditions Report.*

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 in **Section 4.0**. As projects are advanced from this study, needs and objectives may be incorporated in purpose and need statements for future MEPA/NEPA documentation.

1.1 Study Area

The study covers a broad area within Central Montana, with specific focus on the Great Falls and Lewistown urban areas as well as MDT's on-system routes providing access to United States Air Force (USAF) facilities. The study area spans a total of nine counties, including Cascade, Chouteau, Fergus, Judith Basin, Lewis and Clark, Pondera, Teton, Toole, and Wheatland. The study area boundary is illustrated in **Figure 1**.

In addition to evaluations encompassing the entire study area, multiple subcomponents focus on subareas of analysis. These include:

- **Access Management Plan**: 57th Street S from 2nd Avenue N to US 87/89 (Reference Post [RP] 7.5 to RP 8.4) and US 87/89 from 57th Street S to Secondary 227/228 (RP 87.4 to RP 90.4)
- **Lewistown Subarea Analysis**: MDT on-system routes and local routes within the urban boundary
- **Great Falls Subarea Analysis:** MDT on-system routes within the Metropolitan Planning Organization (MPO) planning area
- **Old Havre Highway & US 87 Analysis:** Old Havre Highway from 25th Avenue NE to US 87/15th Street and US 87 from 25th Avenue NE to Great Bear Avenue
- **US 87 Armington Junction – Otter Creek Canyon Analysis:** US 87 corridor between Armington Junction and Otter Creek Canyon (RP 0.0 to 7.2)

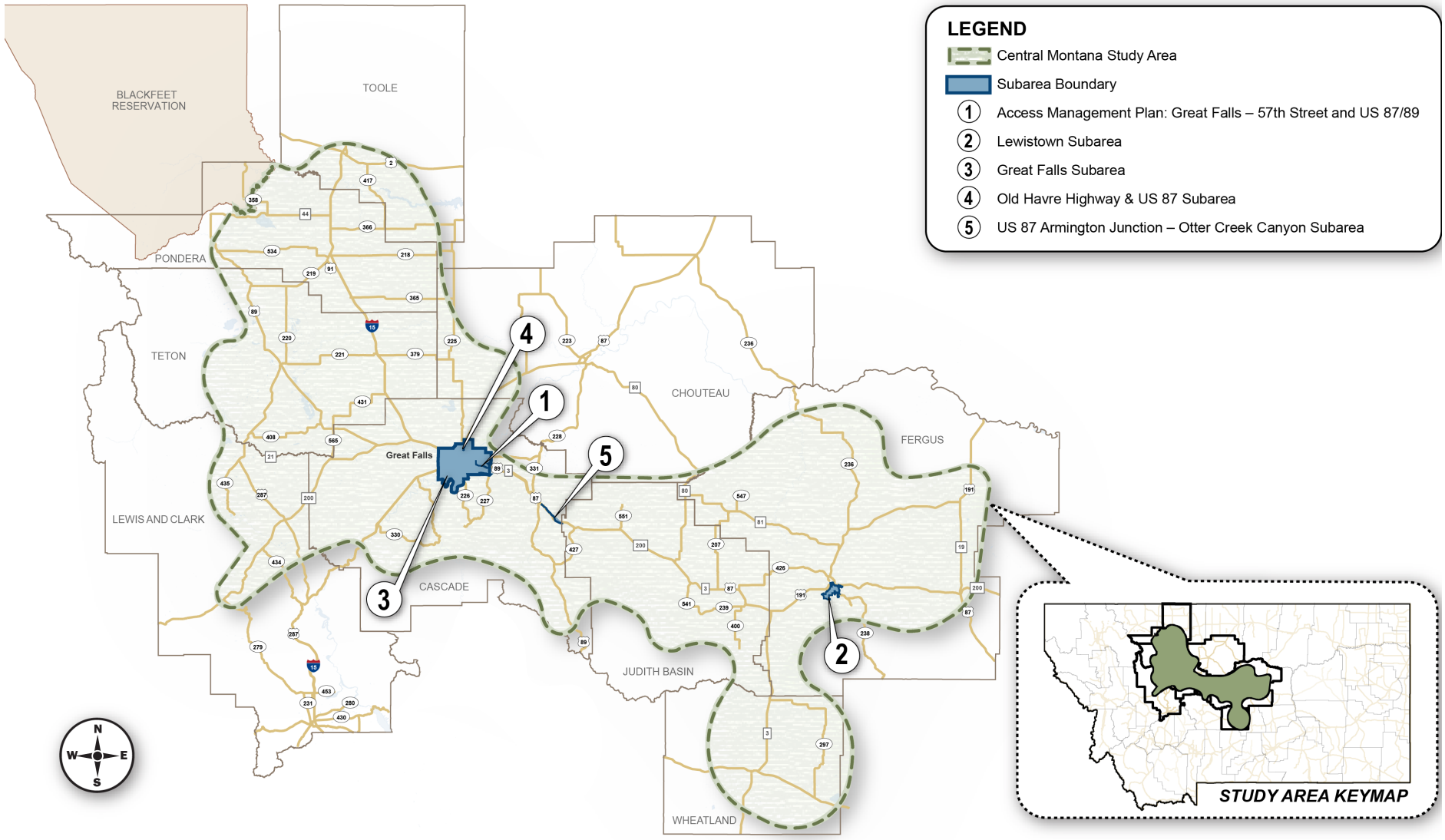

Figure 1: Central Montana Study Area

1.2 Relevant Statewide, Regional, and Urban Planning Efforts

Understanding the broader planning landscape is essential for developing a coordinated and effective transportation strategy within the Central Montana study area. Multiple planning initiatives influence transportation decisions by shaping development and travel patterns, infrastructure demands, and policy priorities. Planning documents also establish growth policies and land use priorities, providing context for transportation planning and investment decisions in the region.

Key statewide, regional, and urban sources listed in **Table 1** were considered in the development of needs and objectives for this study, offering critical insight into existing planning frameworks and potential opportunities for alignment or integration. In general, **Table 1** lists overarching purpose, vision, and goal statements, with many sources including additional strategies and objectives expanding on these topics as well as other considerations.

Table 1: Summary of Relevant Statewide, Regional, and Urban Planning

Source		Relevant Purpose, Vision, or Goal
MDT	MDT TranPlanMT (2017)	• Improve safety for all transportation users to achieve Vision Zero: zero fatalities and zero serious injuries. • Facilitate the movement of people and goods recognizing the importance of economic vitality. • Preserve access to the transportation network and connectivity between modes. • Preserve and maintain existing transportation infrastructure.
	MDT Comprehensive Highway Safety Plan (2020)	• Vision Zero: zero fatalities and zero serious injuries on any public roadway in the state of Montana.
	MDT Freight Plan (2022)	• Improve safety for freight operators and the traveling public. • Preserve and maintain existing transportation infrastructure, thereby ensuring infrastructure resiliency and the efficient movement of freight. • Provide efficient, cost-effective management and operation to accelerate transportation project delivery and ensure system reliability. • Support programs and efforts that promote network resiliency in response to the effects of extreme weather, and natural phenomenon.
Military	US Air Force Sentinel Project (Ongoing)	• Improvements to existing transportation and utility corridors and potential development of new corridors will be required to support construction, operation, and long-term maintenance of the Sentinel system. • Corridors must provide connectivity between Malmstrom Air Force Base (MAFB) and missile sites, allowing safe and efficient access by military transportation support vehicles for the new Sentinel missiles that may require oversize or overweight permitting.

Source		Relevant Purpose, Vision, or Goal
Military	FHWA Defense Access Road Program of Projects (2023)	• Provide a safe, reliable, and accessible gravel road network for USAF to access missile sites. • Maintain roads to provide for safe operation of USAF vehicles. • Support coordinated planning and decision-making by the agencies responsible for operation, maintenance, and access at defense facilities.
Urban Areas	Lewistown Plan (2024)	• Design a transportation network that emphasizes and integrates multiple modes of travel and serves existing population and activity centers. • Provide an efficient and interconnected road network. • Provide, maintain, and enhance public infrastructure, facilities, and services to meet the changing needs of the community.
	Great Falls Growth Policy (2013, *update pending*)	• Provide a safe, efficient, equitable and accessible transportation system. • Increase mobility and the access of citizens to transportation alternatives throughout the city. • Improve the ability of residents to travel from home to work, schools, shopping, employment centers and activity centers.
	Great Falls Long Range Transportation Plan (LRTP, 2024)	• Provide a safe, secure, and resilient transportation system. • Improve the reliability of the transportation system for the efficient movement of people and goods. • Improve the accessibility and connectivity of an equitable multimodal transportation system for all users. • Preserve and maintain the existing transportation system.
Rural Areas	Cascade County Growth Policy (2014)	• Retain the presence of the US military in Cascade County. • Promote and maintain a transportation system that provides safety, efficiency, and is cost effective.
	Cascade County MAFB Joint Land Use Study (2012)	• Protect the viability of current and future missions at MAFB and the Malmstrom Missile Complex, while at the same time guiding growth, sustaining the economic health of the region, and protecting the public health, safety, and welfare.
	Chouteau County Growth Policy (2017)	• Develop a transportation network and transit plan of construction, maintenance, and safety standards so that reliable access to various parts of the county is provided and to assure that farm to market transportation needs are met. • Provide adequate and timely emergency service to all county residents.
	Fergus County Growth Policy (2022)	• Maintain the existing county roads and bridges efficiently, economically, and based on standard criteria.

Source		Relevant Purpose, Vision, or Goal
Rural Areas	Lewis and Clark County Growth Policy (2004, *update pending*)	• Maintain and improve the condition and operational level of service of the existing road system. • Guidelines to provide adequate emergency service access to county residents should be established.
	Northcentral Montana Regional Plan (2015)	• Invest in physical systems that meet the needs of the region's populace by promoting public health and safety and to achieve long-term cost-effectiveness. • Promote a safe and well-maintained road network that supports growth. • Provide alternatives to automobile travel such as transit, safe walking and biking routes, intermodal connections to air and rail, and car pools, with a focus on safety and accessibility for all residents.
	Pondera County Growth Policy (2011)	• Provide cost efficient and effective public infrastructure for the long-term.
	Shelby-Toole County Community Transportation Safety Plan (2011)	• Reduce average annual severe injury crashes within Toole County by one third by 2015, resulting in an average of no more than four severe injury crashes per year. • Emphasis Areas: Impaired Driving (Alcohol/Drugs) and Inattentive Driving
	Sweetgrass Development Corporation Comprehensive Economic Development Strategy (2017)	• Support maintenance and expansion of transportation infrastructure. • Work with state and federal leadership to maintain funding for maintenance and improvements to vital transportation routes to larger markets within the region.
	Teton County Growth Policy (2023)	• Maintain and upgrade public infrastructure as needed to serve county residents of all ages, incomes and special needs groups. • Maintain the existing county roads and bridges efficiently, economically, and based on standard criteria

2.0 STUDY AREA NEEDS

Overarching needs for the study area reflect existing and projected conditions findings, input from stakeholders, and relevant goals from other planning documents, programs, and projects. Needs are intended to guide the development and evaluation of improvement options, within the constraints of other limiting factors. As projects are advanced from this study, purpose and need statements will consider these factors as part of any required future environmental documentation.

Need 1: Improve Transportation Safety

Transportation safety is a top priority for MDT. Every year, preventable roadway crashes severely impact individuals and communities across the Central Montana region. To address the statewide issue of safety, MDT has adopted Vision Zero—a collaborative program striving to reach a goal of zero deaths and zero serious injuries on Montana's roadways. The program focuses on conducting data-driven problem identification, improving infrastructure, promoting safe behaviors, and fostering agency partnerships across transportation safety disciplines. In support of Vision Zero, this study applies detailed data analysis to examine crash patterns, understand contributing factors, and identify targeted safety improvements aimed at saving lives and reducing the severity of crashes.

Need 2: Accommodate Transportation Demands

The Central Montana region supports a wide range of roadway users, including local residents, commuters, freight haulers, emergency responders, maintenance crews, utility providers, agricultural and military vehicles, school buses, public transit services, and tourists. In serving these diverse demands, the transportation system must ensure reliable access to desired destinations, enable efficient movement of goods and services, and maintain connectivity between modes of travel. As populations and traffic volumes grow, increased congestion and travel times can threaten regional mobility and limit access to jobs, healthcare, education, and other essential services that support Central Montana’s quality of life and economic vitality. The study aims to identify strategic improvements in areas where existing infrastructure may not adequately meet existing or projected transportation demands.

Need 3: Ensure Infrastructure Resiliency

A resilient transportation system is essential within the Central Montana region. Over time, aging roads, bridges, and other transportation assets left unmaintained can hinder mobility, reduce access, and weaken regional connectivity. The area is also vulnerable to extreme weather events, natural disasters, and emergency incidents, which can severely disrupt travel and isolate communities. Additionally, the Central Montana transportation system plays a strategic role in supporting national security by providing critical access to military facilities. To proactively address surface transportation risks, the study focuses on improving infrastructure condition, providing system redundancy, and maintaining reliable access to prevent costly failures, minimize service disruptions, and strengthen regional and national security.

3.0 SUBAREA OBJECTIVES

Tailored objectives were developed to expand on the areas of need applicable to each subarea and to reflect the specific challenges facing each location. For each objective, generalized statements provide supporting information about unique conditions occurring in each subarea.

3.1 Access Management: Great Falls – 57th St and US 87/89 Subarea

Access management is the coordinated planning, regulation, and design of access between roadways and land development. Access management strives to provide access to land development while preserving the flow of traffic in terms of safety, capacity, and speed by balancing the right of reasonable access to private property with the right of users to safe and efficient travel. Access management in support of this study is intended to guide public agencies, landowners, and developers in land use and access planning when development, redevelopment, or construction projects occur in the future along the 57th Street and US 87/89 corridors. Access management objectives align with Montana law, as outlined in Montana Code Annotated (MCA) 60-1-101.

Need 1: Improve Transportation Safety

Objective AM-1A: Promote safe and convenient transportation for both motorized and non-motorized users in support of Vision Zero.

- Two fatal crashes and two suspected serious injury crashes occurred within the subarea corridor. About one-third of all crashes resulted in some level of injury.
- The majority of crashes involved multiple vehicles. Common multi-vehicle crash types included right angle, rear-end, sideswipe, and left-turn.
- About two-thirds of crashes occurred at an intersection or were related to an intersection.
- Numerous access points are located throughout the corridor, contributing to increased crash risk due to frequent turning movements, overlapping conflict points, and challenging pedestrian crossings.

Need 2: Accommodate Transportation Demands

Objective AM-2A: Facilitate the free flow of traffic on an integrated transportation system.

- Both 57th St S and US-87/89 are functionally classified as principal arterials on the Non-Interstate National Highway System (NHS), with a greater emphasis on mobility as opposed to property access.
- Traffic volumes have been increasing along the subarea corridors, with steady growth projected over the next 20 years.
- Intersections operate adequately under current conditions, however one intersection is projected to approach failing conditions in the future.

- Roadway capacity and corridor travel time may be negatively impacted by conflicts associated with poorly defined driveways, closely spaced access points, and turning vehicles within the through traffic stream.

Objective AM-2B: Provide reasonable access to existing parcels along the study corridor.

- Land areas within the subarea currently include a mixture of residential, commercial, agricultural, and mixed uses. MAFB spans the northeast portion of the subarea, with limited direct frontage access onto the subarea corridors.
- Over a 20-year planning horizon, land areas adjacent to US 87/89 are expected to experience significant residential and job growth.
- Frontage property owners have a right to reasonable access to public highways, balanced against the right of highway users to safety and freedom of movement.
- Mobility is prioritized on 57th St S and US-87/89 based on their designations as principal arterials on the Non-Interstate National Highway System (NHS).

Objective AM-2C: Contribute to national defense.

- As part of the Sentinel project, 57th Street S and US 87/89 are anticipated to be used for construction and military vehicle routing between missile facilities and MAFB in Great Falls.
- Access-controlled corridors are desired by national defense interests due to their ability to reduce congestion, idling time, and delays, thereby supporting the efficient movement of military equipment and personnel along critical routes.

Objective AM-2D: Support preservation of property values, reduce costs of motor vehicle operations, and do not impede economic progress of citizens.

- Access management can have an overall positive economic impact on businesses in access-controlled corridors.
- Site-specific access solutions are desired that facilitate internal property traffic movements and accommodate appropriate land usage in support of transportation and economic activities associated with each property.
- Traffic congestion and delay caused in part by inefficient access can result in added fuel and motor vehicle operation costs.

3.2 Lewistown Subarea

Lewistown is expected to experience slow to moderate growth over the next two decades, with increasing housing pressures driven by population and employment changes associated with the arrival of the VACOM manufacturing facility and the Sentinel project. While the transportation network generally functions well with relatively few operational and connectivity issues, both temporary and permanent housing demand is expected to rise substantially. This will require strategic coordination between infrastructure and land use planning to support new residents and workforce personnel and to ensure that the transportation system continues to meet evolving community needs.

Need 1: Improve Transportation Safety

Objective LT-1A: Reduce fatalities and serious injuries in support of Vision Zero.

- Four suspected serious injury crashes occurred within the subarea.
- The majority of crashes involved multiple vehicles and were related to junctions.
- Common crash types included right angle, rear-end, fixed object, and sideswipe.
- About half of all crashes were reported as having occurred on wet, snowy, or icy/frost-covered roads.
- Crash clusters occurred on sharp horizontal curves, at uncontrolled intersections, and in areas with a concentrated mix of motorized and non-motorized traffic.

Objective LT-1B: Improve transportation safety for vulnerable populations.

- Older adults, individuals with disabilities, and low-income residents make up a significant portion of Lewistown's population and may face increased exposure to safety risks.
- Walking is a common mode for some residents despite car-dependence being the norm, highlighting the need for safe and accessible pedestrian infrastructure.
- Limited transit and low bicycle use suggest gaps in infrastructure or perceived safety concerns, particularly for those without access to a private vehicle.
- Local officials have expressed safety concerns about the circulation and interaction of vehicle and pedestrian traffic near local schools.

Need 2: Accommodate Transportation Demands

Objective LT-2A: Improve the multimodal network.

- The subarea has limited dedicated on-street bike and pedestrian facilities, aside from sidewalks which are partially complete. The majority of crosswalks in Lewistown are undeveloped with no accommodations such as signing, striping, and connecting facilities.
- The Lewistown Recreational Trails System features several miles of off-street shared use paths and trails with a mix of paved, gravel, and natural surfaces.
- The City of Lewistown does not have a fixed-route bus system, but dial-a-ride services are offered by the Central Montana Shuttle.

Objective LT-2B: Support movement of large trucks and military convoys.

- The US 87 Bypass serves as a key freight corridor and designated truck bypass around Lewistown. Its junction with Main Street experiences high truck volumes and presents challenges for large vehicle movements due to limited turning space.
- As part of the Sentinel project, US 191 and US 87 are anticipated to be used for construction and military vehicle routing between Lewistown, Winifred, and outlying military facilities in the eastern portion of the MAFB missile field.
- Lewistown Municipal Airport is part of the National Air Commerce System for National Defense and Civil Aeronautics. Activity around the airport is expected to increase with VACOM and the Sentinel project.

Objective LT-2C: Align roadway classification with existing and future travel demand.

- MDT is currently conducting a statewide functional classification review project to ensure roadway classifications reflect current and anticipated functions across Montana.
- Future corridor designations should support evolving traffic patterns and improve north-south and east-west connectivity.
- Future transportation planning should reflect the differing impacts of short-term workforce surges and long-term population growth on travel demand and infrastructure needs.

Need 3: Ensure Infrastructure Resiliency

Objective LT-3A: Improve infrastructure condition.

- All bridges in Lewistown are rated as either fair or poor condition.
- The majority of the pavement in the subarea is in fair condition, with 1st Avenue being rated as poor/very poor condition.

Objective LT-3B: Promote system redundancy.

- Lewistown is a rural community traversed by two key transportation corridors (US 191 and US 87). Extended roadway closures due to severe weather, structural failure, traffic incidents, or other disruptions can severely impact community access, freight movement, and emergency response.

3.3 Great Falls Subarea

Anticipated growth tied to the Sentinel project, expansion of MAFB, and private development activities are expected to place increased pressure on the existing Great Falls area transportation network. While operational coordination for the Sentinel project is centered at MAFB, associated construction activity, haul routes, and workforce housing will have broader impacts across the Great Falls region. These activities are likely to place additional strain on transportation needs previously identified by the community, particularly in relation to system capacity, safety, and connectivity. Anticipated non-military development, including tribal, residential, industrial, and commercial growth in the northwest and southeast parts of the city, will further compound these pressures. This underscores the importance of coordinated planning and targeted improvements within the subarea.

Need 1: Improve Transportation Safety

Objective GF-1A: Ensure safety is incorporated into the design and development of new or improved transportation facilities.

- New alignments, roadway upgrades, or system enhancements must balance the safety needs of local travelers, including pedestrians, cyclists, and general traffic, with the operational requirements of MAFB and the movement of military convoys.
- Proactive design solutions that maintain or improve safety conditions relative to existing conditions are desired.
- Access management, intersection design, and multimodal accommodations are key considerations for any corridor-level improvements to reduce the potential for future safety concerns.

Objective GF-1B: Monitor evolving transportation conditions to proactively address emerging safety needs.

- Shifts in traffic volumes, military movements, and land use patterns may increase safety risks.
- Construction and development activities may introduce localized safety concerns that will benefit from early and ongoing coordination with local stakeholders.

Need 2: Accommodate Transportation Demands

Objective GF-2A: Support movement of military convoys.

- I-15, US 87, and rail lines throughout Great Falls are part of the nation's strategic military networks.
- MAFB is one of three USAF bases that operates, maintains, and secures intercontinental ballistic missiles, which are slated to be upgraded in the coming years through the Sentinel project, increasing military activity near the base.
- The USAF seeks adequate routes between MAFB, I-15 to the west, and US 87 to the north that will support the movement of military convoys.

Objective GF-2B: Improve east-west connectivity across Great Falls.

- There is potential for substantial new development in northwest Great Falls as well as on the southeast side of the city, adding to current strains on infrastructure. Improved or new east-west connections are desired to support development and address existing and projected congestion and safety concerns.
- The Missouri River bisects Great Falls, with four river crossings currently available. Continuous connections across the subarea require river crossings, provided either by upgraded existing or new bridges.

Need 3: Ensure Infrastructure Resiliency

Objective GF-3A: Support the development of a utility corridor.

- The USAF seeks to secure right-of-way to install fiber optic lines extending from MAFB to I-15 to support the Sentinel missile network.
- 10th Avenue S is not viable for a utility corridor given existing right-of-way constraints.

Objective GF-3B: Improve system redundancy.

- The transportation network in Great Falls currently depends on a limited number of key arterial routes and Missouri River crossings. Any long-term closure due to structural failure, extreme weather, traffic incidents, maintenance, or acts of terrorism could significantly disrupt regional mobility and emergency response.
- Several bridges within Great Falls, including four of the five structures crossing the Missouri River, are in fair or poor condition. As these structures age, they may not meet future resiliency or load capacity needs without upgrades.

3.4 Old Havre Highway & US 87 Subarea

This subarea includes the complex intersection of Old Havre Highway and US 87, where unfavorable geometrics result in operational and safety issues. Traffic volumes at the intersection and on surrounding roadway segments have increased in recent years. Additionally, increased commercial and industrial development has occurred to the north and east, along with residential growth to the west. These trends are expected to continue and may be heightened by the planned improvements to MAFB and the overall impact of future developments.

Need 1: Improve Transportation Safety

Objective OHH-1A: Reduce fatalities and serious injuries in support of Vision Zero.

- One fatal crash and four suspected serious injury crashes occurred within the subarea.
- The majority of crashes involved multiple vehicles and were related to junctions.
- Common crash types included right angle, rear-end, and fixed object.
- A high percentage of severe crashes occurred on wet, snowy, or icy/frost-covered roads and during dark lighting conditions.

Objective OHH-1B: Improve roadway elements based on current design criteria and guidelines.

- Multiple geometric elements do not meet baseline criteria, including one horizontal curve, grades on 15th Street NE, turn lanes at two intersections, slopes along Old Havre Highway, and shoulders along Old Havre Highway and US 87.
- Poor intersection geometry contributes to restricted driver sight lines and driver confusion, increasing the risk of crashes.

Need 2: Accommodate Transportation Demands

Objective OHH-2A: Support movement of large trucks and military convoys.

- US 87 is a primary route into and out of Great Falls, and heavy vehicles make up a substantial portion of the traffic stream.
- As part of the Sentinel project, Old Havre Highway is anticipated to be used for construction and military vehicle routing between missile facilities and MAFB.

Objective OHH-2B: Improve intersection and corridor segment operations.

- Traffic volumes have been increasing throughout the subarea corridors, with future development anticipated to continue this trend.
- Multiple intersections currently operate poorly during at least one peak hour. Nearly all subarea intersections are projected to operate poorly during at least one peak time period in the future.
- Under projected traffic conditions, average network delay is anticipated to increase, the number of average stops per vehicle is expected to nearly double during both peak periods, and average speed is expected to decrease.

Objective OHH-2C: Accommodate multiple transportation modes.

- There are no sidewalks, shared use paths, or bike lanes along the subarea corridors, though the shoulders are wide enough in certain areas to provide space for bicycles to ride outside the travel lane.
- A sidewalk is present along 25th Avenue NE, with crosswalks at the intersections of both Old Havre Highway and 15th Street NE, however connections are not provided to the adjoining corridors.
- A Great Falls Transit District regular fixed route travels up 15th Street NE and turns east onto 25th Avenue NE at the south end of the subarea.

Objective OHH-2D: Maintain appropriate access to adjacent properties.

- Numerous public and private access points occur along the subarea corridors, providing access to developed and undeveloped land parcels. Some parcels have multiple accesses to adjacent roadways, and some private accesses are located in close proximity to public roadway intersections.
- An existing access control plan is in place for a 0.65-mile-long segment of US 87, designating the roadway as a controlled access highway facility and stating that owners of abutting land shall have no easement of access or only a limited easement of access.

Need 3: Ensure Infrastructure Resiliency

Objective OHH-3A: Improve pavement condition.

- Roadway pavement is in poor condition on all of the subarea roadway corridors.

3.5 US 87 Armington Junction – Otter Creek Canyon Subarea

The US 87 corridor is heavily used by freight and commercial vehicle traffic and serves as a critical route for local businesses and residences. The highway plays an important role in the regional economy, providing access to essential services, agricultural lands, and commercial enterprises. Concerns have been raised in this rural corridor due to its narrow width, poor roadside conditions, and limited passing opportunities, compounded by the nearby railroad tracks, Otter Creek, and challenging terrain.

Need 1: Improve Transportation Safety

Objective AJ-1A: Reduce wild animal-vehicle conflicts and accommodate livestock movement.

- Wild animal crashes were the most common type of single-vehicle crashes.
- Wild animal carcasses were collected and documented throughout the subarea corridor during the analysis period. The Montana Wildlife & Transportation Partnership planning tool indicates the subarea corridor has a moderate need for wildlife accommodations.
- Within the rural agricultural setting of the subarea, ranching operations require livestock movement across the highway.

Objective AJ-1B: Reduce roadside hazards and improve visibility.

- Single-vehicle crashes are common, including fixed object and roll over crashes.
- The proximity of rock outcroppings, railroad tracks, Otter Creek, and steep side slopes to the roadway in some locations may limit sight distance and restrict the ability to provide recommended clear zone widths. In some locations, guardrail has been installed along the roadside to shield drivers from hazards.
- Shoulders throughout most of the corridor do not meet baseline design criteria.
- South of the Armington Junction roundabout, vehicle acceleration, and limited sight distance contribute to increased safety concerns within an area currently striped for passing.
- A vertical curve located near a public approach does not meet baseline design speed criteria and has limited sight distance.
- Snow drifting has been reported in the corridor, and sight distance is obstructed in some locations by vegetation and roadway geometry.

Objective AJ-1C: Improve driver expectancy and promote safe driving maneuvers.

- Adverse road conditions were reported in more than half of all crashes.
- Solid centerline striping through some intersections may discourage appropriate turning movements and create confusion for drivers entering or exiting side roads.

Need 2: Accommodate Transportation Demands

Objective AJ-2A: Support movement of large trucks, agricultural vehicles, and military convoys.

- Heavy vehicles make up a substantial portion of the traffic stream.
- Agricultural vehicles use the highway corridor in support of ranching and farming operations.
- As part of the Sentinel project, US 87 is anticipated to be used for construction and military vehicle routing between Lewistown and MAFB in Great Falls.
- There are no passing lanes present within the subarea corridor. Striped zones allowing drivers to pass slow-moving vehicles are limited due to insufficient passing sight distance and other special conditions.

Need 3: Ensure Infrastructure Resiliency

Objective AJ-3A: Improve pavement and bridge condition.

- Roadway pavement within most of the subarea is in poor condition, with short segments in fair condition.
- Bridge decks within the subarea are rated as poor.

Objective AJ-3B: Accommodate emergency operations.

- Multiple turnouts are located within the corridor. Current roadway and bridge widths are narrow with limited available shoulder space for driver recovery, emergency vehicle access, safe roadside stopping, and general incident management.

3.6 Summary of Needs and Objectives

Table 2: Summary of Needs and Objectives

Subarea		Need	#	Objective
1	Access Management	1: Safety	AM-1A	Promote safe and convenient transportation for both motorized and non-motorized users in support of Vision Zero.
		2: Demand	AM-2A	Facilitate the free flow of traffic on an integrated transportation system.
			AM-2B	Provide reasonable access to existing parcels along the study corridor.
			AM-2C	Contribute to national defense.
			AM-2D	Support preservation of property values, reduce costs of motor vehicle operations, and do not impede economic progress of citizens.
2	Lewistown Subarea	1: Safety	LT-1A	Reduce fatalities and serious injuries in support of Vision Zero.
			LT-1B	Improve transportation safety for vulnerable populations.
		2: Demand	LT-2A	Improve the multimodal network.
			LT-2B	Support movement of large trucks and military convoys.
			LT-2C	Align roadway classification with existing and future travel demand.
		3: Resiliency	LT-3A	Improve infrastructure condition.
			LT-3B	Promote system redundancy.
3	Great Falls Subarea	1: Safety	GF-1A	Ensure safety is incorporated into the design and development of new or improved transportation facilities.
			GF-1B	Monitor evolving transportation conditions to proactively address emerging safety needs.
		2: Demand	GF-2A	Support movement of military convoys.
			GF-2B	Improve east-west connectivity across Great Falls.
		3: Resiliency	GF-3A	Support the development of a utility corridor.
			GF-3B	Improve system redundancy.
4	Old Havre Highway & US 87 Subarea	1: Safety	OHH-1A	Reduce fatalities and serious injuries in support of Vision Zero.
			OHH-1B	Improve roadway elements based on current design criteria and guidelines.
		2: Demand	OHH-2A	Support movement of large trucks and military convoys.
			OHH-2B	Improve intersection and corridor segment operations.
			OHH-2C	Accommodate multiple transportation modes.
			OHH-2D	Maintain appropriate access to adjacent properties.
		3: Resiliency	OHH-3A	Improve pavement condition.
5	US 87 Armington Junction – Otter Creek Subarea	1: Safety	AJ-1A	Reduce wild animal-vehicle conflicts and accommodate livestock movement.
			AJ-1B	Reduce roadside hazards and improve visibility.
			AJ-1C	Improve driver expectancy and promote safe driving maneuvers.
		2: Demand	AJ-2A	Support movement of large trucks, agricultural vehicles, and military convoys.
		3: Resiliency	AJ-3A	Improve pavement and bridge condition.
			AJ-3B	Accommodate emergency operations.

4.0 OTHER CONSIDERATIONS

Achieving the needs and objectives identified for this study may be affected by a range of constraints. The following considerations directly influenced the identification and evaluation of potential improvement options to ensure they are appropriate for the setting while meeting identified transportation needs and objectives. Additional consideration of these limiting factors will occur during subsequent development phases should projects advance.

Local, State, and Federal Interests

Multiple counties, cities, towns, and small communities are located across Central Montana. Additionally, the study area includes lands and facilities managed by a diverse range of state, federal, military, and local agencies. All of these entities and their respective constituents have a vested interest in safe, reliable transportation facilities and potential temporary and permanent impacts associated with MDT improvement projects and construction and maintenance activities. Through collaborative efforts, MDT strives to maintain strong partnerships with government agencies and other stakeholders to enhance the planning and project development processes by considering feedback, identifying mutual goals, building local support, minimizing adverse impacts to affected communities, and delivering effective transportation projects that meet the needs of all users.

Permanent Resource Impacts

Numerous environmental resources occur within the nine-county Central Montana study area, including multiple surface water and wetland features, terrestrial and aquatic species and habitat, state parks, federally designated threatened, endangered, and proposed species, and various recreational and cultural resources. Additionally, agricultural lands, private residences, and commercial developments lie adjacent to transportation facilities, with the potential to be impacted by improvement projects.

MDT is responsible for ensuring regulatory compliance for actions that affect the built and natural environment during planning, project development, construction, and maintenance activities. MDT identifies resources within proposed project limits, evaluates potential project impacts, and determines measures to avoid, minimize, or mitigate impacts in compliance with local, state, federal, and tribal laws, regulations, and policies. MDT works to optimize planning and design decisions by balancing transportation needs with responsible, cost-effective stewardship of the environment. This process involves regulatory compliance with the intent to incorporate environmental sensitivity and sustainability as integral aspects of project decisions and design.

If improvements are advanced from this planning study into project development, an analysis for compliance with NEPA/MEPA and other applicable federal and state regulations will be completed. Information provided in this study is intended to help support future environmental compliance and project development processes. All appropriate environmental documentation and regulatory permitting would be conducted prior to project construction.

Construction Feasibility and Temporary Impacts

Physical constraints such as topography, groundwater levels, surface water features, geology, and soils can influence the feasibility of constructing an ideal transportation solution. Challenging physical conditions may result in the need for specialized equipment or materials or costly stabilization and reinforcement treatments. Steep slopes may require substantial earthwork or retaining features to assure slope stability, while high groundwater and seismic risks can directly affect structural foundation design for roads and bridges. Poor soils may require ground improvement techniques or deep foundations to adequately support transportation infrastructure and minimize settlement potential. All of these factors must be considered during the identification and evaluation of potential improvements.

Temporary impacts to the traveling public must also be addressed to ensure user safety, mobility, and accessibility during construction periods. Planning for maintenance of traffic must be conducted to manage vehicle and pedestrian/bicycle flow safely through or around active work zones. Temporary traffic control measures such as signage, barriers, flaggers, and detour routes can help minimize travel disruptions and ensure the safety of both travelers and construction personnel. When properly planned and executed, these measures can help reduce the frequency and severity of travel delays, routing changes, and access restrictions to homes, businesses, and emergency services.

Context, Function, and Use

Within the Central Montana study area, agricultural lands extend alongside native grasslands, forested areas, urban centers, and small rural towns. Public roadways span throughout, serving long-distance travel across vast rural landscapes while also providing property access and connections to community centers. Each roadway segment serves a unique function based on its specific environmental and community setting. Through context sensitive solutions, MDT employs a collaborative, interdisciplinary approach that balances and considers a full range of stakeholder interests in providing a transportation facility that fits its natural and human environment. MDT uses this approach to preserve and enhance scenic, aesthetic, historic, and environmental resources while improving or maintaining safety, mobility, and infrastructure conditions. The result ensures compatibility of land use and transportation features consistent with community values and priorities.

Cost and Funding Availability

Across Montana, transportation needs outpace available funding. To ensure successful implementation, the anticipated cost of improvements must be weighed against the availability of potential funding sources. Primary funding for highway improvements within the Central Montana study area may come from federal transportation sources coupled with state matching funds as applicable. Projects eligible to receive funds from MDT's core funding programs for National Highway System (NHS) routes must support progress toward the achievement of national performance goals including improving infrastructure condition, improving safety, reducing congestion, increasing system reliability, and facilitating freight movement. Smaller-scale enhancements such as intersection improvements and non-motorized accommodations may be eligible for other federal funding sources. If one or multiple projects are found eligible for federal or state funds, the Montana Transportation Commission and MDT will decide how to distribute limited funding to address highway improvement needs across the state. When funding

has been identified, projects will be included in the annual Statewide Transportation Improvement Program (STIP), which identifies proposed transportation projects programmed for the next five years and associated obligated funding.

Additionally, funding contributions may be secured through partnerships with other entities. For example, improvements specifically intended to accommodate and support the Sentinel project could benefit from collaborative planning with military officials. Private developers involved in projects near the study corridors could help fund infrastructure improvements or mitigation measures to address transportation concerns related to their developments. Non-profit organizations may have access to specialized grants or direct donations aimed at conservation efforts, which could support projects like wildlife crossings.

It may be several years before sufficient funds are identified for improvements. No specific funding sources have been secured for improvements within the Central Montana study area.