Central Montana Transportation Study

Existing and Projected Conditions Report

November 24, 2025

DRAFT

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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 will be 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.

The *Existing and Projected Transportation Conditions* technical memorandum provides a planning-level overview of transportation conditions within the region and identifies potential constraints and considerations that may influence the development of the regional management plan. The planning-level examination addresses demographic and economic conditions affecting traffic volumes, the physical transportation facilities, current and projected traffic conditions, and safety conditions. Findings are based on available data, field observations, geographical information systems (GIS) and aerial photography, and input from agencies and stakeholders.

1.1 Study Area

The study covers a broad area within Central Montana, with specific focus on the Great Falls and Lewistown areas as well as MDT's on-system routes providing access to United States Air Force (USAF) facilities. A total of nine counties are located within the study area, 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 will focus on subareas of study. These include:

- **Access Management Plan:** 57th Street S from 2nd Avenue N to US 87/89 and US 87/89 from 57th Street S to S-227/S-228
- **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 and 7.2)

This memorandum provides a high-level evaluation of transportation conditions for the entire study area, with a focus on the on-system roadway network and bridges. Additionally, in-depth evaluations of traffic operations, physical features, geometric conditions, and safety conditions were completed for the Lewistown, Old Havre Highway & US 87, US 87 Armington Junction – Otter Creek Canyon subareas, as documented in their respective *Existing and Projected Conditions Reports*. Separate evaluations with differing scopes were conducted for the Access Management and the Great Falls subareas.

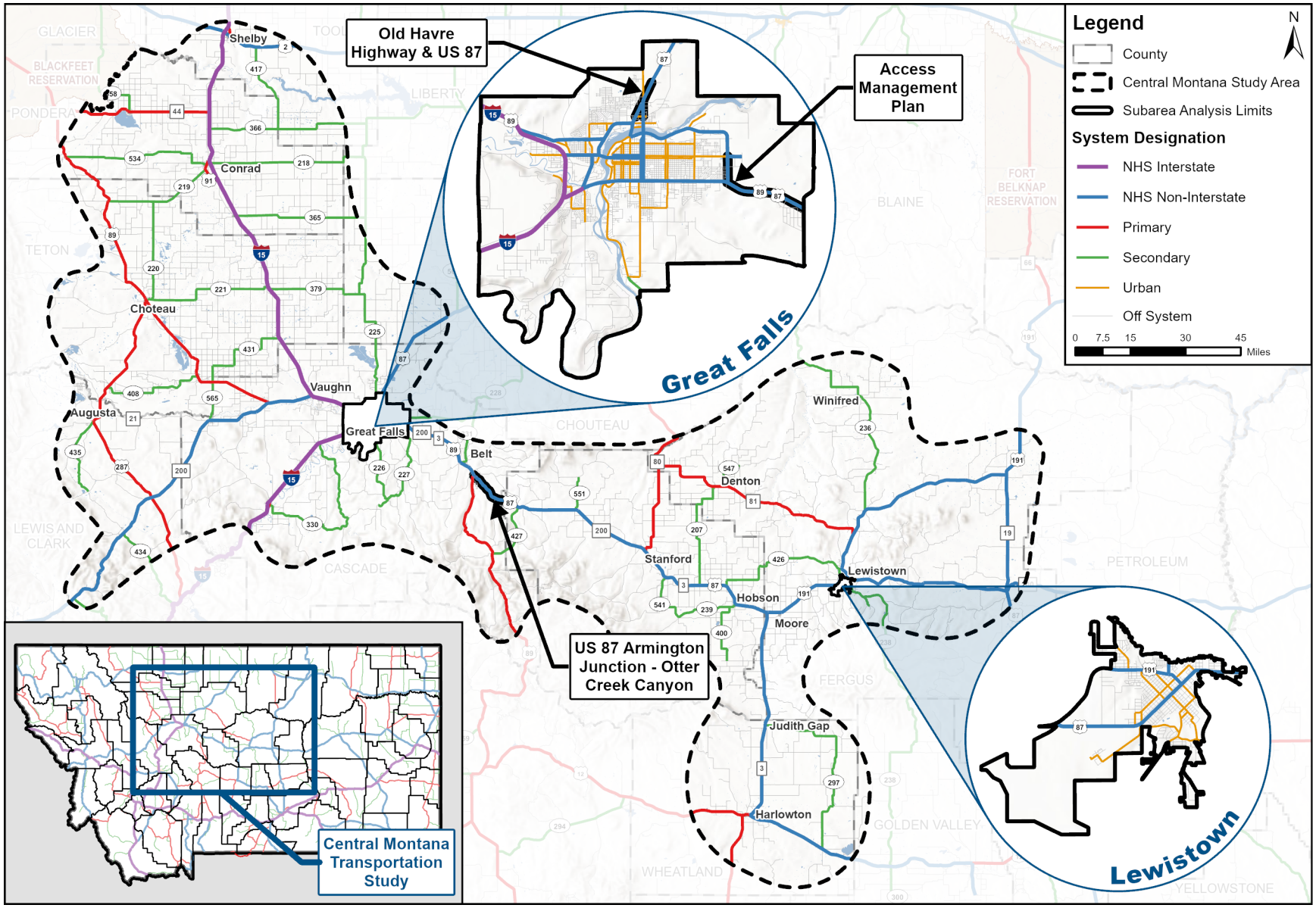

Figure 1: Study Area

1.2 Existing Plans, Regulations, and Development Projects

Understanding the broader planning landscape is essential for developing a coordinated and effective transportation strategy within the Central Montana study area. Multiple statewide, regional, and urban initiatives influence transportation and land use decisions, shaping development patterns, infrastructure investments, and policy priorities. Ongoing and planned development activities within and surrounding the Central Montana study area have the potential to influence transportation patterns, infrastructure demands, and mobility needs. Additionally, planning documents at the statewide, regional, and urban levels establish growth policies and land use priorities, providing context for transportation planning and investment decisions in the region. The following sections summarize key planning documents, programs, and projects that directly or indirectly impact the study area, offering insight into existing planning frameworks, planned improvements, and potential opportunities for alignment or integration.

1.2.1 MDT Statewide Planning

TranPlanMT

TranPlanMT,[1] last updated in 2017, defines MDT's policy direction for operating, preserving, and improving the state's transportation system over a 20-year period. It serves as the guiding document for MDT decisions, especially those related to investing limited transportation funds. The statewide planning process identifies Montana's transportation needs, evaluates future transportation concerns, and establishes policy goals and strategies. Given public and stakeholder feedback and analysis of various data sources, MDT developed a set of goals and strategies supporting the state's identified needs and priorities. Safety is the overarching goal for all projects and programs, with system preservation and maintenance, mobility and economic vitality, and accessibility and connectivity goals guiding investment decisions. Sensitivity to the environment and cost-effective management are underlying goals that inform decisions on a broad, department-wide basis.

Montana Comprehensive Highway Safety Plan

Montana's *Comprehensive Highway Safety Plan*[2] (CHSP) is a federally mandated strategic highway safety plan. The CHSP is updated on a five-year update cycle, with the current 2025 plan under development. The CHSP planning process establishes a comprehensive, multiagency framework to address safety for all road users on all Montana roads. The development process involves analyzing safety data, identifying emphasis areas, and determining strategic approaches to address transportation safety issues in areas of greatest need. The CHSP adopts the vision of zero fatalities and zero serious injuries on Montana's roads. To achieve this long-term vision, MDT identified four emphasis areas to focus resources and address the most significant safety concerns: roadway departure and intersection-related crashes; impaired driving; unrestrained vehicle occupant; and emergency response – after-crash care. Each year, MDT analyzes crash data and tracks progress toward achieving five safety targets and interim safety goals.

Montana Freight Plan

Montana's *Freight Plan*,[3] last updated in 2022 with minor revisions in 2024, aligns with *TranPlanMT* and supports national multimodal freight policy and goals. The plan details the role of freight movement in Montana's economy, identifies significant freight system trends, needs,

issues, and strategies for improvement, and provides a framework for transportation-related transportation investment decisions. Goals identified for the *Freight Plan* seek to address freight-related needs such as commercial vehicle safety, infrastructure condition, and system reliability while supporting environmental stewardship and network resiliency.

1.2.2 Military Planning and Development

US Air Force Sentinel Project

The U.S. Air Force has proposed the Sentinel[4] system as the replacement for the aging Minuteman III intercontinental ballistic missile (ICBM) system, modernizing the US land-based nuclear triad and extending its capabilities through 2075. The project involves Malmstrom Air Force Base (MAFB) in Montana, F.E. Warren Air Force Base in Wyoming, and Minot Air Force Base in North Dakota. As of summer 2025, off-base construction associated with the MAFB project was expected to involve the following efforts, however specific project components are subject to change as the project evolves:

- Renovate 15 missile alert facilities and 150 launch facilities
- Construct 31 communication towers (about five acres each)
- Acquire easements to install and maintain 1,277 miles of new utility corridors
- Install and maintain additional utilities within 1,750 miles of existing utility corridors
- Establish two workforce hubs in Great Falls and Lewistown
    - 50–60 acres in size
    - 2,500–3,000 residents during peaks for three to five years
- Establish construction laydown/staging areas in Augusta, Belt, Denton, Judith Gap, Lewistown, Stanford, Vaughn, and Winifred
    - About 13 acres in size
    - In place for three to five years

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. These corridors must provide connectivity between MAFB and missile sites, allowing access by military transportation support vehicles for the new Sentinel missiles that may require oversize or overweight permitting. The Sentinel project is currently in the design process, which will determine vehicle routing, sizing, loading, and trips associated with construction, operation, and maintenance activities.

Defense Access Road Program

The Defense Access Road (DAR) Program[5] has been an essential partnership between the Department of Defense (DOD) and the predecessors of FHWA since 1919, ensuring that military needs are considered in the nation's federal-aid highway program. This collaboration continued with the establishment of FHWA in 1966. The DAR Program helps address the unique transportation needs that arise due to defense activities, such as access and mobility requirements for military bases and facilities. Under this program, the military can contribute

to the costs of public highway improvements necessary to mitigate the impact of their operations on local transportation infrastructure. When a military base identifies a transportation need, it submits the request to the Military Surface Deployment and Distribution Command (SDDC) for evaluation. Once approved by Congress, funds are allocated through FHWA, and the project follows federal highway procedures.

FHWA collaborates with the Military SDDC to support the USAF's ICBM Program, specifically the Minuteman system. As part of the DAR Program, the DOD provides annual funding for the extraordinary maintenance of transporter erector routes, including tasks such as snow removal and regravelling, to ensure access to missile sites. Since its inception in 1957, the DAR Program has averaged $20 million per year in funding to maintain these critical transportation routes that support the nation's nuclear deterrence capabilities.

The National Defense Authorization Act (NDAA) for Fiscal Year 2024

The National Defense Authorization Act for Fiscal Year 2024[6] authorizes funding for military operations, construction projects, and defense programs, and sets the number of service members for the year. Section 362 establishes new regulations for antenna structure and energy projects with towers over 200 feet located within two nautical miles of active ICBM facilities. These projects are subject to national security risk assessments by the DOD and may be blocked if risks cannot be mitigated. However, the rule excludes structures built before the Act's enactment, including upgrades that do not increase height. The affected ICBM facilities include F. E. Warren, Malmstrom, and Minot Air Force Bases, along with their missile fields.

1.2.3 Urban Planning and Development

The 2024 Lewistown Plan

The *2024 Lewistown Plan*[7] was adopted on October 7, 2024, and provides a 20-year roadmap for Lewistown's development, replacing the *2006 Lewistown Growth Policy*. The updated plan addresses current challenges including housing affordability, infrastructure needs, and population growth while aligning with Montana's *Land Use Planning Act*. Central to the plan are guiding principles and a tiered land use strategy that encourage infill development in central areas while setting aside outer zones for future or rural use and conservation. It also lays out specific goals and policies that focus on land use and growth management, housing and childcare, transportation, economic development, natural and cultural resource protection, and infrastructure and community services. These are supported by a future land use map to guide zoning updates and planning decisions, which also include a planning area boundary displaying the extent of planning initiatives, as well as a newly defined urban services area to ensure fiscally responsible growth.

Implementation of these goals is guided by an action matrix prioritizing initiatives such as affordable housing incentives and infrastructure improvements, with oversight from the Lewistown Planning Commission. High-priority actions include updating zoning regulations, creating affordable housing incentives, and improving pedestrian and bicycle infrastructure by creating a regional transportation master plan that outlines goals, strategies, and projects for Lewistown. The plan also indicates a need for future transportation connections near the airport in response to new land use and zoning codes, future growth projections, and future housing needs. This framework aims to balance growth with preservation of Lewistown's rural character and natural environment, guiding the city's "re-growth" as a vibrant, sustainable community.

VACOM Lewistown Facilities

A German manufacturing company[8] announced in December 2023 its plans to locate a new American operational facility in Lewistown, with an eventual total investment of $90 million to create about 500 new jobs. VACOM fabricates and services highly specialized components and measurement technology for industrial clean room vacuum systems, serving industries such as chipmaking, aerospace, and research and development. Construction on a smaller facility began in September 2024 on Upper Spring Creek Road. A larger facility is anticipated south of the airport and may include a 40,000 square foot clean room and production space, along with a training center, a cafeteria, and a day care and kindergarten. The main operational facility will likely be constructed in a series of phases set for completion in 2029, although project timelines may be extended based on market conditions.

Lewistown Municipal Airport Economic Impact Study

In 2016, MDT conducted an economic impact study of Montana's airports that evaluated the role of Lewistown Municipal Airport (LMA) in supporting transportation, economic growth, and community activities.[9] LMA is a general aviation facility with historical significance as a World War II B-17 training base and contributes to the local economy by supporting diverse activities such as agricultural spraying, firefighting, medical evacuation, and corporate travel. The study aimed to quantify the airport's economic contributions through jobs, payroll, including aviation-related and non-aviation-related businesses, visitor spending, and capital expenditures on construction, while emphasizing its importance in fostering regional development, enhancing connectivity, and supporting community events.

Great Falls Long Range Transportation Plan

The recently completed *Great Falls Long Range Transportation Plan*[10] (LRTP) serves as a strategic guide for investing in the city's multimodal transportation systems over a 20-year planning horizon. The plan offers a comprehensive approach to improving transportation safety, efficiency, and accessibility for all users, focusing on both motorized and non-motorized networks. It seeks to strengthen existing infrastructure while planning for future connections to enhance safe and efficient travel, particularly between rapidly growing areas of the community. The LRTP addresses current and future land use, regional transportation issues, connectivity, sustainability, new technologies, transportation demand management, and environmental and fiscal constraints.

Several committed projects, which are already funded, were outlined in the plan, including road marking improvements, pavement preservation, pedestrian enhancements, bridge rehabilitation, and the accommodation of electric vehicles. The plan also recommended annual programs to maintain infrastructure and improve safety. Further recommended projects focused on pedestrian improvements, intersection upgrades, additional lanes, traffic calming measures, and road reconstructions to meet updated standards. These projects were designed to address current operational concerns, improve safety, and meet traffic demands projected for 2045. Additionally, the plan suggests further studies to inform future transportation planning and decision-making.

North Great Falls Sub-Area Transportation Study

The North Great Falls Sub-Area Transportation Study[11] was developed in 2022 in response to development occurring in the northwest portion of Great Falls and subsequent concerns about traffic impacts. The purpose of the study was to develop a vision for expansion of and improvements to the multimodal transportation network in the sub-area to maximize safety, accessibility, and efficiency for all users. The study identified nine short-term projects and six long-term projects for implementation in the sub-area based upon the future modeling and capacity analysis, safety analysis, and public input.

Great Falls Growth Policy Update

The City of Great Falls is initiating the update of its growth policy with the development of *Future Great Falls 2045,*[12] a document designed to guide decisions on growth, development, policy, and capital improvements. The update is an ongoing effort, with the new plan expected to be adopted in November 2025. The most recent growth policy, *City of Great Falls Growth Policy Update 2013-2025: Imagine Great Falls*, was initiated in December 2011 and adopted in August 2013. It emphasizes a desire to provide a safe, efficient, equitable and accessible transportation system, increase mobility and the access of citizens to transportation alternatives throughout the city, and encourage development in areas that can best accommodate it based on infrastructure and access.

Great Falls Planned Residential and Commercial Development

Several large-scale residential, commercial, and mixed-use projects are planned across Great Falls. Due to their size and scope, these developments are expected to influence the transportation network and mobility needs in the study area over the coming years.

- **The Falls:** A 100-acre mixed-use development at the northeast corner of 57th Street S and 10th Avenue S, extending north to 3rd Avenue S. Plans call for up to nearly 1,000 residential units, restaurants, retail and office space, hotels, and nearly 20 acres of open space.
- **Project Cardinal:** A 569-acre, 2-million-square-foot hyperscale data center campus planned adjacent to AgriTech Park and north of Malmstrom Air Force Base.
- **Little Shell Event Center & Resort:** Located on Hill 57 on the northwest side of Great Falls, the project is expected to feature a 200-room hotel, a 10,000-square-foot multi-purpose event space, a 9,700-seat arena, a 500-machine gaming facility, and multiple entertainment amenities.
- **Little Shell Housing Development:** An 18-acre housing project just south of Hill 57 and west of the Valley View subdivision, planned for single-family homes, duplexes, and ADA-accessible units for enrolled members of the Little Shell tribe.
- **Healthy Aging Center:** Benefis Health System is planning to construct a dedicated aging-services facility along 10th Avenue South, consolidating multiple health and support services in one location.

1.2.4 Rural Planning

Cascade County Growth Policy

The *Cascade County Growth Policy*,[13] completed in 2014, serves as a comprehensive plan to provide guidance on decisions regarding land development and public investments, including road and bridge infrastructure. The policy informs zoning and subdivision regulations to ensure decisions align with the policy's goals and objectives, one of which is to retain the presence of the US military in Cascade County. To resolve conflicts and promote mission compatible development, Cascade County partnered with other MAFB missile complex counties to complete a joint land use study in parallel to the growth policy development. In addition to the broad policy goals and objectives, the Planning Board and County Commission designed specific goals and objectives related to public infrastructure and service areas to address current and projected change and growth in the county. This includes Goal 6: Promote and maintain a transportation system that provides safety, efficiency, and is cost effective, which objectively helps ensure transportation planning, construction, and on-going maintenance activities support the growth policy.

Cascade County Malmstrom AFB Joint Land Use Study (JLUS)

The *Malmstrom AFB Joint Land Use Study*[14] (JLUS), completed in March 2012, was a proactive effort to ensure compatible growth and development between MAFB—including its nearly 25,000-acre missile complex, which closely aligns with the *Central Montana Transportation Study* area—and the surrounding communities. The JLUS was a collaborative planning process that involved key stakeholders working to identify compatible land uses and growth management strategies for areas adjacent to active military installations. The primary goal of the study was to protect the viability of current and future missions at MAFB and the missile complex while guiding regional growth and sustaining economic health, public safety, and welfare.

The JLUS had two unique study areas: one covering lands near MAFB and another focusing on areas within the missile complex, including the missile alert facilities and launch facilities. The missile complex refers to the network of silos and launch control centers where the Minuteman III ICBM are deployed. The study included a set of implementation strategies to address issues such as land use, noise, safety, frequency interference, vertical obstructions, endangered species, water quality, and ground transportation. For the missile complex, the study also addressed infrastructure, alternative energy, legislative initiatives, and trespassing. The study's main objectives were to understand issues and viewpoints, foster collaboration, and develop actions to mitigate impacts on both the installation and surrounding communities.

Chouteau County Growth Policy

The *Chouteau County Growth Policy*[15] provides a vision for the county that indicates how it wants to develop and make public investments over a 20-year planning horizon. It analyzes land use, natural resources, public facilities, local services, population, economics, and housing to identify local issues and devise appropriate policies to address those issues in a manner consistent with this vision. In terms of transportation, the plan's goals and objectives stress the importance of designing roads to provide safe and efficient travel, support emergency vehicle access, promote physical activity, and reduce taxpayer burden.

Fergus County Growth Policy

Fergus County's most recent growth policy was completed in 2022. This plan outlines the county's approach to growth and development which will influence transportation infrastructure and land use decisions as growth occurs in the region. The City of Lewistown, and a 4.5-mile jurisdictional area surrounding the incorporated city limits, are part of the City of Lewistown growth policy planning area which is defined by an interlocal agreement between the two entities.[16] This agreement has resulted in two different policy areas, with Fergus County's growth policy relying on Lewistown's growth policy for land use planning.

Lewis and Clark County Growth Policy

Lewis and Clarks County's current Growth Policy[17] provides a comprehensive framework for managing future growth while ensuring that the county's unique character and high quality of life are preserved for years to come. To account for the county's size and diversity, six planning areas were established to support the development of specific priorities for each distinct region of the county. The Augusta (home to 0.9 percent of the county's population) and Wolf Creek-Craig (0.7 percent of the county population) planning areas are the only areas of Lewis and Clark County that overlap the Central Montana study area. The vision and imperatives presented in the policy serve as guides for future county staff, elected officials, and citizen advocates when prioritizing projects or making decisions regarding investment or policy changes. The vision and imperatives are supported by goals, policies, and action items relating to the specific areas of public infrastructure focus. Policies relating to transportation and roads call for maintenance and replacement of critical infrastructure, enhancing multimodal connectivity, and promoting development patterns that support infrastructure sustainability.

Northcentral Montana Regional Plan

In February 2012, Opportunity Link, a consortium of 11 counties (Blaine, Cascade, Chouteau, Glacier, Hill, Judith Basin, Liberty, Phillips, Pondera, Teton, and Toole) and three reservations (Blackfeet, Fort Belknap, and Rocky Boy's), began working on a multi-year planning effort for the northcentral region of Montana. Community members were engaged over the next two years to develop a vision for the future, expressing a desire to maintain the friendly small town character of the region while creating communities where young adults can find good jobs and elders can age in place. The plan acknowledges the challenges of the rural region, with the high cost of long-distance transportation and lack of basic services in remote areas without adequate populations to support schools, medical clinics, and grocery stores. The plan supports multi-jurisdictional partnerships and an integrated approach to addressing issues of housing, transportation, health, and environment, providing a long-term vision for the region.

The plan's goals and strategies are grouped into five areas of focus including regional prosperity, community vitality, physical systems, social systems, and natural assets. The physical systems focus area addresses public infrastructure including roads, transit, sidewalks, and trails. The region prioritizes investments in physical systems that promote health and safety and support long-term cost effectiveness and lower environmental impacts.

Pondera County Growth Policy

In 2009, Conrad, Valier, and Pondera County initiated a joint growth policy effort, ultimately developing separate growth policies corresponding to each jurisdictional planning area. The *Pondera County Growth Policy*[18] is based on a vision of maintaining small town rural lifestyles while embracing economic development opportunities. The policy's primary goals provide direction for addressing key issues needed to achieve the vision, including land development patterns, public safety, and infrastructure. The county desires to continue supporting agricultural land uses, enhance emergency response, and provide cost efficient public infrastructure for the long-term. One of the strategies in the policy instructs the county to develop a capital improvements program to address county infrastructure and facilities, including roads and bridges.

Shelby-Toole County Community Transportation Safety Plan

In the summer of 2010, Shelby and Toole County collaborated to develop a *Community Transportation Safety Plan*[19] (CTSP) aimed at reducing the number of severe injury crashes within the county. The CTSP was designed to align with the statewide CHSP while addressing the specific needs of the local community. After analyzing crash data, stakeholders identified impaired and inattentive driving as key contributing factors and set a goal to reduce the county's average annual number of severe injury crashes by one-third by 2015, targeting no more than four such crashes per year. To achieve this goal, the community developed a series of targeted strategies to address distracted and impaired driving, along with clearly defined steps for implementation.

Sweetgrass Development Corporation Comprehensive Economic Development Strategy

The Sweetgrass Development Corporation is a private, non-profit corporation created to support economic development in the North Central Montana counties of Glacier, Cascade, Pondera, Teton, and Toole and the Blackfeet Nation. As a designated economic development district, the corporation is required to create a *Comprehensive Economic Development Strategy*[20] (CEDS) outlining a coordinated regional development strategy. A regional Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis identified several economic strengths, including a stable agricultural base, robust road and rail transportation systems, ample local infrastructure, and proximity to Glacier National Park. Key weaknesses included difficulties in recruiting and retaining skilled workers, a shortage of workforce housing, limited value-added agricultural production, and a lack of economic diversification. The goals and objectives of the CEDS emphasize that transportation is integral to economic development by fostering redevelopment opportunities, expanding services, enhancing quality of life, and promoting tourism.

Teton County Growth Policy

The 2023 *Teton County Growth Policy*[21] is an update to the 2016 Growth Policy, providing a vision for Teton County that indicates how it wants to develop and make public investments over the next 20 years. The policy provides a long-range focus to help decision makers set priorities and evaluate whether development proposals are consistent with this vision. The county's policy is aligned and coordinated with the City of Choteau's growth policy and the zoning regulations for the towns of Fairfield and Dutton. The policy's goals indicate that the county desires to preserve agricultural land while promoting development that is compatible with existing land uses and protects small town character. The county also strives to maintain and upgrade public infrastructure to support residents of all ages, incomes, and needs; specifically, to maintain roads and bridges efficiently, economically, and based on standard criteria.

1.3 Ongoing and Planned Transportation Projects

There are 91 MDT-led transportation projects within the study area that are either ongoing or expected to begin by the end of 2029, as detailed in **Table 1**. Reconstruction and resurfacing projects are the most common, followed by maintenance and safety improvements. The remaining projects involve bridges, culverts, and rehabilitation. This list is based on current, readily available information and may not include all planned or future projects within the study area.

Table 1: Ongoing and Planned Transportation Projects

Project	Type	Signed Route	Begin RP	End RP	Year	Status
Access Management Plan Subarea						
57th St - Great Falls	Resurface	57th St	7.50	8.41	2027	Planned
Lewistown Subarea						
1st Avenue S - Lewistown	Resurface	Route 238	0.00	0.38	2025	Ongoing
6th / Walnut / Ash - Lewistown	Bridge	6th / Walnut / Ash	0.76	1.05	2029	Planned
Airport Road - Lewistown	Resurface	Airport Rd	0.00	1.38	2024	Ongoing
Billings District ADA Upgrades	Miscellaneous	Route 238, US 310	N/A	N/A	2024	Ongoing
Dar Structures - Lewistown Area	Bridge	MT 81, Route 238, Route 297, Route 400	5.50	6.25	2025	Planned
MT-200 Bridges - Lewistown Area	Bridge	MT 200, US 87	95.00	120.00	2024	Ongoing
MT-200 Bridges - Lewistown Ewp#1	Bridge	MT 200, US 87	37.70	38.20	TBD	Ongoing
SF189 North D5 Safety Imprv	Safety	MT 200, MT 3, US 12, US 87	125.00	129.50	2024	Ongoing
Great Falls Subarea						
14th St / 15th St- Great Falls	Rehabilitation	US 87	0.30	1.06	2027	Planned
15th St - To Snyder Hill (MPO)	Maintenance	25th St NE	0.00	0.30	2024	Ongoing
16th St - To Park Dr (MPO)	Maintenance	2nd Ave N	1.79	2.90	2024	Ongoing
26th St - To 57th St (MPO)	Maintenance	10th Ave S	9.40	92.15	2024	Ongoing
37th St - To 16th St (MPO)	Maintenance	2nd Ave N	0.00	1.79	2024	Ongoing
6th St NW/Fox Farm Rd - GF	Rehabilitation	6th St NW And Fox Farm Rd	1.29	1.89	2025	Ongoing
6th St SW - Great Falls	Rehabilitation	6th St SW	0.00	1.29	2025	Ongoing
9th St NW - Great Falls	Reconstruction	9th St NW	0.00	0.57	2026	Planned
9th St S 10th Ave S - 13th Ave S (MPO)	Maintenance	9th St S	0.00	0.20	2024	Ongoing
Central - Vaughn Rd To 9th St NW	Rehabilitation	Central Ave W	0.23	0.78	TBD	Planned
Central Ave Curb Ramps - GTF	Miscellaneous	Central Ave	0.00	0.41	2027	Planned

Project	Type	Signed Route	Begin RP	End RP	Year	Status
Central Ave To NW Bypass (MPO)	Maintenance	Jack Club Rd	0.00	0.80	2024	Ongoing
Central Ave W To 10th St (MPO)	Maintenance	3rd St NE	0.44	1.20	2024	Ongoing
GF District ADA Upgrades	Miscellaneous	US 87	1.78	2.40	2025	Planned
Gore Hill Interchange - GTF	Reconstruction	I-15	277.60	278.50	2027	Planned
Great Falls - Northwest	Resurface	I-15, MT 200, US 89	278.50	285.92	2029	Planned
Great Falls Urban Pave Pres	Resurface	River Dr N, Park Dr N, Park Dr N/2nd St S, 6th St N, and 3rd Ave S	N/A	N/A	2024	Ongoing
I-15 Interchange To 21st St NW (MPO)	Maintenance	Central Ave W	0.00	0.30	2024	Ongoing
I-15 Interchange To Park Dr (MPO)	Maintenance	Central Ave W	0.00	1.80	2024	Ongoing
River's Edge Trail Connector Project	Safety	River Drive S	1.25	1.70	TBD	Ongoing
SF189 Pvmt Markings D3	Safety	MT 200, MT 3, US 12, US 287, US 87, US 89	92.25	95.71	2024	Ongoing
SF189 Turn Lane 34th Vaughn Rd	Safety	Vaughn Rd	0.35	0.65	2027	Planned
Smelter Ave NW To 3rd St NE (MPO)	Maintenance	Division Rd	0.00	0.26	2024	Ongoing
Smelter Ave To 3rd St NE-6th St NW (MPO)	Maintenance	Smelter Ave	0.00	0.90	2024	Ongoing
Warden Bridge Rehab - GF	Bridge	10th Ave S	95.00	95.20	2028	Planned
Watson Coulee Rd - Great Falls	Reconstruction	Watson Coulee Rd	0.00	0.24	2027	Planned
Old Havre Highway & US 87 Subarea						
Black Eagle NHS Routes - GF	Resurface	US 87	2.74	4.30	2027	Planned
River Dr S To 87N (MPO)	Maintenance	Snyder Hill	0.00	1.30	2024	Ongoing
US 87 Armington Junction – Otter Creek Canyon Subarea						
Armington Jct Rest Area Rehab	Resurface	MT 200, MT 3, US 87, US 89	71.05	71.09	2024	Ongoing
Great Falls Area Bridge Decks	Bridge	US 87	1.50	3.90	2028	Planned
Central Montana Study Area						
9th St - 10th Ave S (MPO)	Maintenance	River Dr	2.92	8.40	2024	Ongoing
Augusta - North	Reconstruction	US 287	39.80	46.80	TBD	Planned
Augusta - Southeast	Resurface	S 287	21.40	39.47	TBD	Ongoing
Big Spring Creek - Lewistown	Bridge	Big Spring Creek	0.80	0.95	TBD	Planned
Bowmans Corner - Northeast	Resurface	MT 200	109.09	116.83	TBD	Ongoing
Carter - South	Reconstruction	US 87	11.00	20.00	TBD	Planned
Cascade County Line - North	Reconstruction	Route 225	11.50	17.60	2028	Planned
Choteau - South	Reconstruction	US 89	34.00	40.40	2026	Ongoing

Project	Type	Signed Route	Begin RP	End RP	Year	Status
Conrad - South	Resurface	I-15	0.00	5.18	2027	Planned
D3 Bridge Barriers	Safety	Route 241, Route 417	1.20	38.00	TBD	Planned
D5 Culverts - Missouri Breaks	Culvert	MT 19, MT 66, S 236, US 191	N/A	N/A	2026	Planned
D5 Culverts - Missouri Breaks	Reconstruction	MT 19, MT 66, S 236, US 191	N/A	N/A	2028	Planned
Denton - E & W	Resurface	MT 81	8.00	13.20	2025	Planned
Divide - West	Reconstruction	MT 200, US 87	85.99	91.29	TBD	Planned
Dutton - N & S	Resurface	I-15	309.20	12.58	2024	Ongoing
Fairfield To Power	Maintenance	Route 431	0.00	6.80	2025	Planned
Freezeout Lake - North	Reconstruction	US 89	28.36	34.00	2029	Planned
Geyser East	Maintenance	US 87	21.10	34.43	2025	Planned
Grass Range - West	Reconstruction	MT 200, US 87	107.91	112.77	TBD	Planned
I-15 Culvert - Shelby	Reconstruction	I-15	363.50	364.30	2024	Ongoing
I-15 Culverts - Vaughn Area	Reconstruction	I-15	291.50	296.70	2028	Planned
Jct MT 200 - Northwest (US-89)	Reconstruction	US 89	8.46	16.85	TBD	Planned
Jct MT-81 - South (MT-80)	Resurface	MT 80	49.93	60.27	2025	Planned
Jct S-219 - N & S (US-89)	Maintenance	US 89	59.60	10.86	2024	Ongoing
Kings Hill - North	Resurface	US 89	28.65	53.37	2024	Ongoing
Lammers Lane - North (S-297)	Reconstruction	Route 297	17.00	20.40	TBD	Planned
Lewistown - West	Resurface	MT 200, US 191, US 87	69.80	79.20	TBD	Planned
MT-21 Elk Creek/Hogan Bridges	Bridge	MT 21	0.00	0.80	2025	Planned
MT-80 Slide Repair - Arrow Creek	Safety	MT 80	47.00	49.00	2028	Planned
Muddy Cr - 10 M NE Farmington	Bridge	Muddy Creek	3.10	3.10	2027	Planned
North Of Augusta - North	Reconstruction	US 287	47.00	56.00	2029	Planned
Riceville - North & South	Resurface	US 89	60.20	69.96	2027	Planned
Roy - West	Resurface	US 191	26.58	34.98	2026	Planned
S-331 Slide Repair - Belt	Safety	Route 331	1.00	1.20	2027	Planned
SF 169 N57 Sldr Wid & Slp Flat	Safety	MT 200, US 87	93.90	97.20	2025	Planned
SF 179 Curve Widen N-24	Safety	MT 200	95.85	96.75	2027	Planned
SF 179 Shld Widen S Of Cntrvle	Safety	Route 227	7.10	8.60	2027	Planned

Project	Type	Signed Route	Begin RP	End RP	Year	Status
SF 209 Billings Dist Signs	Safety	MT 3, MT 72, Route 207, Route 236, Route 308, Route 314, Route 418, US 12, US 191, US 212	N/A	N/A	2024	Ongoing
SF 209 Great Falls Dist Signs	Safety	MT 200, Route 234, Route 240, Route 430, US 89	N/A	N/A	2025	Ongoing
SF189 Curve SW Of Conrad	Safety	Route 219	10.50	11.85	2027	Planned
SF189 Signing Safety D3	Safety	MT 200, MT 3, S 219, US 87	N/A	N/A	2025	Planned
Shelby-Sweetgrass Guardrail	Safety	I-15	354.32	397.90	2024	Ongoing
Slide Repairs - Great Falls Area	Safety	I-15, MT 200, MT 3, US 87, US 89	N/A	N/A	TBD	Planned
Sollid Rd Bridge - 20M E Conrad	Bridge	Route 218	10.50	11.00	2028	Planned
Timber Bridge Rehabilitation	Bridge	MT 200, MT 80, US 12, US 87	N/A	N/A	TBD	Planned
Turn Lanes - Windham	Safety	MT 200, MT 3, US 87	42.50	43.20	2027	Planned
US-89 Belts 5 Lane	Maintenance	US 89	74.80	81.90	2024	Ongoing
Valier - West	Rehabilitation	MT 44	4.00	10.10	2025	Planned
Valier Area Bridges	Bridge	Route 358, US 89	86.80	97.10	2027	Planned
Vaughn - North	Rehabilitation	I-15	291.33	301.42	TBD	Planned
Vaughn - West	Resurface	MT 200, US 89	0.00	8.46	TBD	Planned
Wheatland County Line - N	Reconstruction	US 191	28.27	37.86	2027	Planned

Source: MDT. 2025. Active Projects Map. https://mdt.maps.arcgis.com/apps/MapSeries/index.html?appid=8a296611c11b4eecba0d647842510ccb.
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2.0 DEMOGRAPHICS

This section provides an overview of the socioeconomic characteristics within the study area. It includes data from the nine counties and two urban areas identified in **Section 1.1**, along with comparative data for the State of Montana and the United States as a whole. Demographic and socioeconomic data were analyzed to assess recent trends in population, age distribution, employment, economic status, and commuting patterns. Historical and current demographic trends help define existing conditions and support forecasting methods, as there is a direct relationship between motor vehicle travel and socioeconomic factors. Due to the time lag in the availability of socioeconomic data, this analysis presents the most current information and highlights recent and potential changes within the area.

2.1 Population

A review of demographics within the study area is appropriate to understand historical trends in population and characteristics relevant to transportation planning. Population composition data is crucial as it may influence recommended improvements. For instance, a predominantly older population might necessitate specific transportation enhancements such as expanded transit services or improved pedestrian infrastructure. Similarly, areas with a high proportion of low-income residents or large numbers of adolescents may require different transportation considerations tailored to their unique needs.

2.1.1 Historic and Recent Population Trends

From 1970 to 2020, Montana's population has consistently grown, with a compound annual growth rate (CAGR) of 0.9 percent. From 2010 to 2022, Montana experienced the 11th highest population growth in the nation, at 13.3 percent. However, the populations of many counties and urban areas within the study area have declined since 1970. The only areas to experience growth during this period were Cascade County (0.06 percent), Lewis & Clark County (1.53 percent), and Teton County (0.40 percent). **Table 2** provides historical and current population estimates for the counties and urban areas within the study area, the state, and the nation.

According to the *Central Montana Socioeconomic Report*[22] prepared by MDT, Great Falls has remained the third most populated city in Montana (60,412 residents as of 2023). Cascade County has consistently ranked as the fifth most populated county in the state (84,601 residents as of 2023), while Lewistown and Fergus County have remained among the top 20 most populated areas since 2012.

Table 2: Population Change Since 1970

Area	1970	1980	1990	2000	2010	2020	Compound Annual Growth (1970 – 2020)
Cascade County	81,804	80,696	77,691	80,357	81,327	84,414	0.06%
Chouteau County	6,473	6,092	5,452	5,970	5,813	5,895	-0.19%
Fergus County	12,611	13,076	12,083	11,893	11,586	11,446	-0.19%
Judith Basin County	2,667	2,646	2,282	2,329	2,072	2,023	-0.55%

Area	1970	1980	1990	2000	2010	2020	Compound Annual Growth (1970 – 2020)
Lewis & Clark County	33,281	43,039	47,495	55,716	63,395	70,973	1.53%
Pondera County	6,611	6,731	6,433	6,424	6,153	5,898	-0.23%
Teton County	6,116	6,491	6,271	6,445	6,073	6,226	0.04%
Toole County	5,839	5,559	5,046	5,267	5,324	4,971	-0.32%
Wheatland County	2,529	2,359	2,246	2,259	2,168	2,069	-0.40%
Great Falls	60,091	56,725	55,097	56,690	58,505	60,442	0.01%
Lewistown	6,437	7,104	6,051	5,813	5,901	5,952	-0.16%
State of Montana	694,409	786,690	799,065	902,195	989,415	1,084,225	0.90%
United States	203.2M	226.5M	248.7M	281.4M	308.7M	331.4M	0.98%

Source: US Census Bureau & MT Census and Economic Information Center. 1970 – 2020. Population Estimates.

2.1.2 Study Area Population Characteristics

NEPA/MEPA requires federal, state, and local agencies to evaluate the potential social and economic impacts of proposed actions. Guidelines recommend considering effects on neighborhoods and community cohesion, social groups such as minority populations, local and/or regional economies, as well as potential growth and development resulting from transportation improvements. The information provided in this section aims to help identify populations that may be impacted by proposed improvements in the study area. **Table 3** summarizes recent population and demographic data for the nine counties and two urban areas within the study area, along with data for the State of Montana and the country for comparison. The data was obtained from the 2019 to 2023 *American Community Survey (ACS) 5-Year estimates*,[23] which provide detailed demographic, social, economic, and housing information by combining five years of survey data to offer reliable insights for smaller geographic areas.

Demographic trends across the study area show notable variations and similarities. All of the counties and urban areas have a predominantly White population, ranging from 95.7 percent in Wheatland County to 78.3 percent in Chouteau County. These figures are notably higher than the national average of 63.4 percent but are similar to the State of Montana, which has a White population of 85.7 percent. The percentage of American Indian residents in Montana is 5.7 percent, with most of the selected counties and urban areas having a lower percentage than the state. However, Chouteau and Pondera counties stand out with significantly larger Native American populations, each at 16.5 percent.

Teton County stands out for its high percentage of residents under 18 at 25 percent, while Wheatland County has the highest proportion of seniors aged 65 and over at 28.9 percent. Disability rates also show regional differences, with Lewistown having the highest percentage of people with disabilities at 19.2 percent, and Judith Basin County the lowest at 11.4 percent. Toole County has the highest male population at 59.9 percent, diverging from the more balanced ratios seen in other areas.

Table 3: Race, Age, Sex, and Disability Data

Population Characteristics		Cascade County	Chouteau County	Fergus County	Judith Basin County	Lewis & Clark County	Pondera County	Teton County	Toole County	Wheat-land County	Great Falls	Lewis-town	State of Montana	United States
Race	White	84.7%	78.3%	93.2%	91.7%	91.5%	79.3%	92.1%	84.9%	95.7%	84.8%	92.0%	85.7%	63.4%
	African American	1.5%	0.1%	0.6%	0.0%	0.6%	0.0%	0.4%	1.8%	1.3%	1.2%	1.1%	0.5%	12.4%
	American Indian	3.5%	16.5%	2.0%	1.2%	0.9%	16.5%	2.0%	5.9%	2.1%	4.1%	1.8%	5.7%	0.9%
	Asian	1.2%	0.1%	0.9%	0.0%	0.7%	0.3%	0.0%	1.0%	0.0%	1.0%	0.8%	0.8%	5.8%
	Other Race/ Combination	9.1%	4.9%	3.2%	7.1%	6.4%	3.9%	5.5%	6.4%	0.9%	9.0%	4.3%	7.2%	17.5%
	Hispanic or Latino (any race)	5.1%	3.0%	2.2%	5.9%	3.9%	2.3%	1.9%	4.3%	2.7%	4.9%	3.7%	4.4%	19.0%
Age	Under 18	22.5%	23.2%	20.7%	22.2%	21.4%	23.5%	25.0%	20.2%	21.9%	21.1%	21.6%	21.3%	22.2%
	18-64	58.2%	54.3%	54.6%	49.4%	58.7%	54.9%	51.8%	62.4%	49.2%	58.6%	51.5%	59.0%	61.0%
	65 and over	19.3%	22.5%	24.7%	28.3%	19.9%	21.6%	23.2%	17.4%	28.9%	20.0%	27.0%	19.7%	16.8%
Sex	Male	51.0%	49.8%	51.2%	54.2%	49.7%	50.3%	49.1%	59.9%	47.0%	49.5%	51.9%	50.7%	49.5%
	Female	49.0%	50.2%	48.8%	45.8%	50.3%	49.7%	50.9%	40.1%	53.0%	50.5%	48.1%	49.3%	50.5%
Disability Status*	% Persons with Disability	15.7%	12.8%	14.4%	11.4%	14.5%	18.4%	12.8%	17.1%	11.7%	17.3%	19.2%	14.3%	13.0%
	% Disabled (<18 years)	6.0%	3.6%	7.2%	0.7%	5.9%	8.8%	4.1%	3.9%	1.8%	7.0%	11.8%	4.7%	4.7%
	% Disabled (≥65 years)	31.2%	28.9%	27.6%	24.4%	29.9%	37.4%	34.2%	41.8%	29.4%	33.8%	30.5%	32.7%	32.9%
Total Population		**84,601**	**5,888**	**11,581**	**2,053**	**72,580**	**6,012**	**6,291**	**5,028**	**2,049**	**60,412**	**6,028**	**1.10M**	**332.3M**

Source: US Census Bureau. 2019-2023. ACS 5-Year Estimates.
**Disability status provided as a percentage of the noninstitutionalized population.*

2.1.3 Population Projections

Table 4 details past population growth trends in the region and country based on historic ACS data. The table also provides population projections out to 2035 from Regional Economic Models Incorporated (REMI), which utilizes 2021 vintage year data to forecast the population using the latest available demographic data, including birth rates, death rates, migration patterns, and other factors. The model provides projections at the national, state, and county levels. Population projections for Great Falls and Lewistown are based on the projected growth rates for Cascade County and Fergus County, respectively.

As shown in **Table 4**, Lewis and Clark County experienced a higher growth rate from the five-year ACS period ending in 2018 to the period ending in 2023 compared to the state. In contrast, Cascade County, Judith Basin County, and Teton County grew at a slower rate than Montana during the same period but outpaced the national average growth rate of 2.9 percent. All of these areas are also projected to have a slower growth rate than the state from 2025 to 2035.

Based on the 2025 and 2035 population projections, the only areas expected to increase in population over the 10-year period are Lewis and Clark County by 4.7 percent, Teton County by 2.9 percent, and Toole County by 4.3 percent. Although planned and future projects indicate that Great Falls and Lewistown may grow in the near future due to activities associated with the upcoming Sentinel project and VACOM development, REMI projections indicate Cascade and Fergus counties will experience negative growth rates of -1.6 percent and -3.0 percent, respectively. It remains uncertain whether projected development activities will result in growth that will be sustained long-term after these projects are completed, or rather if these growth trends will result in temporary fluctuations of seasonal workers, with an overall decline in permanent residents over the long-term.

Table 4: Population Change

Parameter	Cascade County	Chouteau County	Fergus County	Judith Basin County	Lewis & Clark County	Pondera County	Teton County	Toole County	Wheat-land County	Great Falls	Lewis-town	State of Montana	United States
2014-2018 5-year estimate	81,746	5,789	11,273	1,951	67,077	6,044	6,080	4,976	2,149	58,990	5,895	1.04M	322.9M
2019-2023 5-year estimate	84,601	5,888	11,581	2,053	72,580	6,012	6,291	5,028	2,049	60,412	6,028	1.11M	332.4M
2025 Projection	82,916	5,936	11,545	1,982	76,174	5,906	6,378	4,919	1,987	59,676	5,982	1.16M	338.0M
2030 Projection	82,060	5,843	11,410	1,940	78,745	5,828	6,481	5,011	1,896	59,060	5,912	1.20M	345.1M
2035 Projection	81,560	5,763	11,204	1,901	79,730	5,763	6,563	5,132	1,819	58,700	5,805	1.22M	350.9M
Population Change (2018-2023)	**3.5%**	**1.7%**	**2.7%**	**5.2%**	**8.2%**	**-0.5%**	**3.5%**	**1.0%**	**-4.7%**	**2.4%**	**2.3%**	**6.1%**	**2.9%**
Projected Population Change (2025-2035)	**-1.6%**	**-2.9%**	**-3.0%**	**-4.1%**	**4.7%**	**-2.4%**	**2.9%**	**4.3%**	**-8.4%**	**-1.6%**	**-3.0%**	**4.9%**	**3.8%**

Source: US Census Bureau. 2014-2018 and 2019-2023. ACS 5-Year Estimates.
Population Projection REMI. 2023 (2021 data vintage year). National Population Projections Tables: Main Series.
Note: Great Falls and Lewistown data are projected based on Cascade County and Fergus County projections.

2.1.4 Housing Characteristics

From the five-year ACS period ending in 2018 to the period ending in 2023, the number of housing units in the selected counties and urban areas grew at a slower rate than the state, except for Cascade and Lewis and Clark counties, as shown in **Table 5**. In most areas, as the number of housing units increased, the number of occupied housing units also rose. However, Teton County saw an increase in housing units but a decrease in occupancy, while Wheatland County exhibited the opposite, with a decrease in housing units and an increase in occupancy. Owner occupation rates increased in most of the areas, following the state trend of a 9.7 percentage point increase. Owner occupation ranged from 76.2 percent in Wheatland County to 61.5 percent in Lewistown, indicating that approximately one-third to one-quarter of occupied houses in the study area are rentals. Although the number of housing units decreased in five of the selected geographies between 2018 and 2023, the average number of bedrooms per house increased in all areas except for Lewistown, allowing for more occupants per home.

Table 5: Housing Occupancy and Tenure Characteristics

Subject		Cascade County	Chouteau County	Fergus County	Judith Basin County	Lewis & Clark County	Pondera County	Teton County	Toole County	Wheat-land County	Great Falls	Lewis-town	State of Montana	United States
2019-2023	Total Housing Units	39,248	2,868	6,008	1,233	33,837	2,753	2,942	2,323	1,159	28,333	3,047	522,939	142.3M
	Occupied Housing Units	34,909	2,212	5,200	907	30,655	2,240	2,452	1,823	865	26,010	2,823	452,683	127.5M
	Owner Occupied	*24,490*	*1,458*	*3,433*	*683*	*21,363*	*1,493*	*1,837*	*1,177*	*659*	*17,784*	*1,737*	*314,266*	*82.9M*
	Renter Occupied	*10,419*	*754*	*1,767*	*224*	*9,292*	*747*	*615*	*646*	*206*	*8,226*	*1,086*	*138,417*	*44.6M*
	Vacant Housing Units	4,339	656	808	326	3,182	513	490	500	294	2,323	224	70,256	14.9M
	% Owner-Occupied	70.2%	65.9%	66.0%	75.3%	69.7%	66.7%	74.9%	64.6%	76.2%	68.4%	61.5%	69.4%	65.0%
	Avg. # of Bedrooms	2.82	2.85	2.68	2.84	2.81	2.85	2.85	2.86	2.82	2.75	2.37	2.78	2.72
2014-2018	Total Housing Units	37,454	2,914	5,895	1,373	31,433	2677	2,930	2,376	1,197	27,858	3,246	505,685	136.4M
	Occupied Housing Units	33,685	2,256	4,975	923	27,800	2114	2,475	1,898	821	25,717	2,864	423,240	119.7M
	Owner Occupied	*21,665*	*1,472*	*3,583*	*676*	*19,054*	*1558*	*1,725*	*1,097*	*579*	*15,999*	*1,890*	*286,553*	*76.4M*
	Renter Occupied	*12,020*	*784*	*1,392*	*247*	*8,746*	*556*	*750*	*801*	*242*	*9,718*	*974*	*136,687*	*43.3M*
	Vacant Housing Units	3,769	658	920	450	3,633	563	455	478	376	2,141	382	82,445	16.7M
	% Owner-Occupied	64.3%	65.2%	72.0%	73.2%	68.5%	73.7%	69.7%	57.8%	70.5%	62.2%	66.0%	67.7%	63.8%
	Avg. # of Bedrooms	2.75	2.78	2.68	2.70	2.81	2.85	2.77	2.71	2.70	2.70	2.54	2.72	2.70
Change in Total Housing Units		**4.8%**	**-1.6%**	**1.9%**	**-10.2%**	**7.6%**	**2.8%**	**0.4%**	**-2.2%**	**-3.2%**	**1.7%**	**-6.1%**	**3.4%**	**4.4%**
Change in Occupied Housing Units		**3.6%**	**-2.0%**	**4.5%**	**-1.7%**	**10.3%**	**6.0%**	**-0.9%**	**-4.0%**	**5.4%**	**1.1%**	**-1.4%**	**7.0%**	**6.5%**
Change in Owner Occupancy Rate		**13.0%**	**-1.0%**	**-4.2%**	**1.0%**	**12.1%**	**-4.2%**	**6.5%**	**7.3%**	**13.8%**	**11.2%**	**-8.1%**	**9.7%**	**8.4%**
Change in Avg. # of Bedrooms		**2.3%**	**2.6%**	**-1.7%**	**5.2%**	**2.9%**	**-0.2%**	**2.7%**	**5.4%**	**4.4%**	**2.1%**	**-6.6%**	**2.1%**	**0.6%**

Source: US Census Bureau. 2014-2018 and 2019-2023. ACS 5-Year Estimates.

2.1.5 Personal Travel and Commuting Characteristics

The ACS provides estimates of the total share of workers aged 16 years and older who commute or work at home, transportation modes used by commuters, and mean travel times to work for commuters. **Table 6** presents commuting characteristics for workers in the nine counties and two urban areas. Similar statistics for the state and nation are provided for comparison.

According to ACS data for the 2019-2023 period, most workers in the study area had access to a personal vehicle and the majority of commuters drove alone to work, with the highest percentage in Great Falls at 79.5 percent. Wheatland County had the highest share of carpooling and walking, at 14.5 percent and 13.3 percent, respectively. Teton County had the highest proportion of workers who biked to work, at 1.1 percent, while Toole County had the highest percentage of workers using public transit, at 1.3 percent. Workers in Teton County and Judith Basin County experienced slightly longer commute times compared to other areas, but still less than the national average of 26.6 minutes.

Table 6: Mode of Transportation to Work

Subject	Cascade County	Chouteau County	Fergus County	Judith Basin County	Lewis & Clark County	Pondera County	Teton County	Toole County	Wheat-land County	Great Falls	Lewis-town	State of Montana	United States
% Workers 16+ Years with Access to 1+ Vehicle	97.1%	96.5%	92.6%	98.7%	97.7%	94.4%	98.0%	94.4%	100%	96.5%	88.2%	97.8%	95.7%
Number of Workers 16 Years and Older	40,658	2,494	5,617	992	35,740	2,508	2,859	2,109	825	29,150	2,570	532,519	157.65M
% Who Commuted to Work	93.0%	87.0%	83.8%	75.8%	87.1%	94.5%	86.7%	90.3%	78.3%	93.4%	96.0%	88.4%	86.5%
% Who Worked at Home	7.0%	13.0%	16.2%	24.2%	12.9%	5.5%	13.3%	9.7%	21.7%	6.6%	4.0%	11.6%	13.5%
Drove alone (car, truck, van)	77.9%	65.8%	61.6%	55.8%	69.2%	71.9%	64.0%	72.3%	49.6%	79.5%	75.6%	72.0%	70.2%
Carpooled	10.3%	11.7%	9.8%	6.6%	10.7%	8.4%	12.3%	7.3%	14.5%	9.8%	6.5%	9.6%	8.5%
Public Transportation (excluding taxicabs)	0.7%	0.6%	0.8%	0.0%	0.2%	0.1%	0.6%	1.3%	0.8%	0.8%	0.0%	0.6%	3.5%
Walked to Work	2.3%	7.7%	9.2%	12.1%	4.8%	12.1%	8.1%	8.1%	13.3%	1.3%	11.3%	4.0%	2.4%
Bicycled to Work	0.7%	0.1%	0.9%	0.0%	0.9%	0.0%	1.1%	0.0%	0.0%	0.8%	0.0%	1.0%	0.4%
Other means of commuting	1.1%	1.0%	1.5%	1.3%	1.4%	2.1%	0.6%	1.3%	0.0%	1.1%	2.6%	1.2%	1.5%
Mean Travel Time to Work (minutes)	**16.6**	**19.8**	**18.6**	**21.8**	**17.5**	**18.0**	**21.9**	**15.0**	**19.1**	**14.7**	**15.0**	**19.2**	**26.6**

Source: US Census Bureau. 2019-2023. ACS 5-Year Estimates.

2.2 Economic Conditions and Income Characteristics

Economic conditions and income characteristics play a critical role in shaping transportation needs and informing long-term planning decisions. Analyzing employment trends, dominant industries, and income distribution can offer some insight into transportation access and infrastructure demand. Understanding the economic landscape of the region can help ensure that transportation investments are aligned with community needs and support sustainable economic vitality over time.

2.2.1 Employment Industries

The nine counties within the Central Montana study area represent a diverse and regionally significant economic base, with Cascade and Lewis and Clark counties ranking as the fifth and sixth most populous counties in the state, respectively. The area's workforce is supported by a broad range of industries, with healthcare, education, retail trade, construction, and agriculture consistently ranking among the largest employment sectors. These industries contribute to a balanced economic landscape, with both urban and rural areas benefiting from a broad range of economic activities. **Table 7** presents the 2023 employment estimates by industry for the nation, state, nine counties, and two urban areas.

Educational services and healthcare lead as the top employment category in nearly every county, employing over 20 percent of the workforce across most geographies and peaking at nearly 30 percent in Great Falls and Lewistown. Retail trade also plays a major role, particularly in Cascade, Fergus, and Pondera counties, where it accounts for over 10 percent of total employment. Construction contributes a notable share of jobs in several counties, especially Wheatland (15.4 percent), Teton (11.6 percent), and Cascade (8.0 percent), reflecting ongoing development and infrastructure activity.

Agriculture remains a vital component of rural economies, particularly in Judith Basin, Chouteau, and Wheatland counties, where more than 24 percent of jobs are tied to farming, ranching, or related industries. Public administration stands out in Lewis and Clark County, where it accounts for 15.9 percent of employment, likely influenced by the presence of state government in Helena, the state's capital.

Tourism-related industries such as arts, entertainment, recreation, and accommodation are prevalent in Cascade County, Toole County, and Great Falls, where proximity to state parks, national forests, and other recreational amenities attract significant visitor spending. Non-resident visitors to the nine counties spent an average of 6.8 nights in 2023, higher than the state average of five nights, and generated substantial economic activity in local hospitality and service sectors.[24,25]

Looking ahead, planned and future developments indicate that the construction, manufacturing, and public administration industries will grow in the near future, but it is uncertain whether this growth will be sustained over time.

Table 7: Employment by Industry

Industry	Cascade County	Chouteau County	Fergus County	Judith Basin County	Lewis & Clark County	Pondera County	Teton County	Toole County	Wheat-land County	Great Falls	Lewis-town	State of Montana	United States
Agriculture, forestry, fishing, hunting, and mining	3.7%	28.9%	16.6%	35.5%	3.0%	20.1%	19.6%	13.2%	24.1%	2.6%	2.5%	5.5%	1.6%
Construction	8.0%	6.0%	9.7%	4.9%	8.2%	5.6%	11.6%	4.3%	15.4%	7.0%	6.0%	9.4%	6.9%
Manufacturing	5.2%	2.6%	4.8%	1.2%	2.4%	3.0%	3.1%	1.7%	5.3%	5.3%	5.4%	5.0%	9.9%
Wholesale trade	3.0%	2.0%	2.8%	2.2%	1.4%	6.1%	2.8%	0.1%	1.8%	2.9%	1.0%	2.0%	2.0%
Retail trade	13.6%	6.9%	11.7%	8.5%	10.4%	11.7%	6.9%	11.3%	9.8%	13.2%	14.9%	10.8%	10.6%
Transportation, warehousing, and utilities	4.7%	3.0%	6.9%	4.6%	2.3%	4.9%	4.4%	7.8%	4.5%	4.8%	9.3%	5.3%	6.0%
Information	0.7%	1.3%	1.0%	2.3%	1.7%	1.1%	3.2%	1.7%	0.7%	0.5%	2.1%	1.3%	1.9%
Finance, insurance, real estate, rental and leasing	5.9%	3.8%	3.1%	5.7%	6.6%	4.0%	3.3%	6.4%	1.3%	6.3%	3.4%	6.3%	6.6%
Professional, scientific, management, and administrative	7.5%	5.9%	7.0%	4.4%	9.0%	4.4%	5.2%	7.4%	4.6%	7.4%	8.2%	9.8%	12.8%
Educational services, health care and social assistance	26.4%	20.8%	20.7%	17.7%	25.4%	20.9%	21.2%	19.4%	17.7%	28.1%	29.6%	23.4%	23.5%
Arts, entertainment, recreation, and accommodation	10.0%	5.9%	7.1%	8.4%	9.1%	8.8%	8.2%	12.1%	2.6%	11.2%	6.9%	10.3%	8.8%
Other services, except public administration	5.8%	1.4%	5.9%	0.8%	4.5%	3.4%	5.5%	3.6%	3.9%	5.4%	7.3%	5.4%	4.8%
Public administration	5.6%	11.4%	2.8%	3.8%	15.9%	6.0%	5.0%	11.0%	8.3%	5.2%	3.2%	5.6%	4.6%

Source: US Census Bureau. 2019-2023. ACS 5-Year Estimates.

2.2.2 Employment Status and Income Measures

Table 8 presents ACS data on the employment status and estimated income levels of residents within the State of Montana, nine counties, and two urban areas within the study area for the 2019-2023 period. With a median household income of $74,543, Lewis and Clark County had the highest income among the selected areas, surpassing the statewide median. In contrast, Wheatland County and Lewistown reported lower median household incomes of $47,054 and $44,195, respectively, which were 33 percent and 37 percent below the statewide average. The lowest unemployment rate was found in Wheatland County at 0.9 percent. Judith Basin and Teton counties also had relatively low unemployment rates, at 1.5 percent. Pondera County and Lewistown had the highest unemployment rates at 6.5 and 6.8 percent, respectively, both higher than the national average.

The percentage of the population living below the poverty level was highest in Wheatland County (23.7 percent), followed by Pondera County (22.9 percent), and Lewistown (20.6 percent). Lewis and Clark County (8.7 percent) and Teton County (10.5 percent) were the only areas with poverty rates lower than the state average (12.0 percent).

Table 8: Employment Status and Income Statistics

Characteristics of Population	Cascade County	Chouteau County	Fergus County	Judith Basin County	Lewis & Clark County	Pondera County	Teton County	Toole County	Wheat-land County	Great Falls	Lewis-town	State of Montana	United States
EMPLOYMENT													
Civilian Labor Force (16 years and older)	39,865	2,594	5,851	1,028	37,025	2,743	2,924	2,250	852	29,821	2,784	560,181	168,567,852
Employed %	97.0%	96.8%	96.5%	98.5%	96.5%	93.5%	98.5%	96.0%	99.1%	96.8%	93.2%	96.2%	94.8%
Unemployed %	3.0%	3.2%	3.5%	1.5%	3.5%	6.5%	1.5%	4.0%	0.9%	3.2%	6.8%	3.8%	5.2%
INCOME MEASURES													
Median Household Income	$66,203	$56,927	$59,731	$55,417	$74,543	$53,500	$67,766	$53,693	$47,054	$63,934	$44,195	$69,922	$78,538
Mean Household Income	$85,695	$79,363	$76,413	$87,541	$100,531	$72,053	$80,657	$77,412	$61,451	$80,952	$58,432	$94,544	$110,491
Per Capita Income	$36,562	$31,978	$34,970	$38,715	$43,263	$28,921	$31,794	$29,977	$27,719	$35,968	$28,830	$39,842	$43,289
Poverty Rate	13.2%	12.4%	14.9%	15.8%	8.7%	22.9%	10.5%	12.3%	23.7%	14.0%	20.6%	12.0%	12.4%

Source: US Census Bureau. 2019-2023. ACS 5-Year Estimates.

Note: Civilian labor force is defined as workers 16 years and over not in the Armed Forces. Unemployed percentage calculated based on total civilian labor force.

3.0 PHYSICAL FEATURES AND CHARACTERISTICS

Central Montana covers a broad and predominantly rural landscape stretching from the Rocky Mountain Front in the west to the Judith Mountains and open prairie in the east. The region is characterized by wide expanses of agricultural land, rolling hills, and isolated mountain ranges, with small towns and rural communities connected by a network of highways and secondary roads. I-15 serves as the primary north-south route, linking regional centers including Shelby, Conrad, and Great Falls with the Canadian border and the broader interstate highway system. East of I-15, US 87, US 89, and US 191 provide critical east-west and diagonal connections, supporting both local travel and regional freight movement across Central Montana. These national highways are supported by several interconnected secondary and state highways stretching across the rural landscape.

The area plays a dual role in both civilian and military mobility. In addition to supporting agriculture, energy, and general commerce, Central Montana is home to a large USAF missile field, operated out of MAFB. Missile silos are dispersed at remote sites throughout the region, requiring consistent year-round access for military and maintenance personnel. This defense infrastructure places unique demands on the transportation system, especially rural routes and gravel roads that link to more isolated parts of the missile field.

3.1 Roadway Surfacing

Roadway widths in the study area vary from 14 to 97 feet, as shown in **Figure 2**. Variations in total width are primarily due to differences in functional classification, lane configurations, lane widths, and shoulder widths, which are determined based on applicable roadway design criteria (as discussed in **Chapter 4**) and topographical constraints. I-15, the region's primary divided highway, typically features two 12-foot travel lanes in each direction, along with 10-foot outside shoulders and 4-foot inside shoulders, resulting in a paved width of 38 feet per direction. Most Montana state highways in the study area have a paved width of 24 to 31 feet, generally consisting of one 12-foot travel lane in each direction and shoulders ranging from 0 to 4 feet wide.

According to the *Bicycling the Big Sky Map,*[26] shoulder widths along I-15 and most of US 87 between Great Falls and Lewistown are generally greater than four feet. Exceptions include the Armington Junction corridor and a segment between Hobson and Moore, where shoulder widths are narrower. Across the broader study area, highways typically have shoulders ranging from two to four feet in width. However, several routes feature shoulders less than two feet wide, including US 89 north and south of Choteau, US 287 between Choteau and Augusta, US 87 north of Great Falls, the Kings Hill Scenic Byway, and Montana Highways 80 and 81 between Stanford, Denton, and Lewistown.

Figure 2 also identifies surface types across the study area. While the majority of the on-system highway network is paved, a number of secondary routes remain unpaved, including segments in Cascade County (S-227, S-330), Chouteau County (S-225, S-379, S-365), Fergus County (S-238), Judith Basin County (S-426, S-207, S-400), Lewis and Clark County (S-435), and Pondera County (S-534). In contrast, the vast majority of off-system routes, particularly in rural areas outside the Great Falls and Lewistown urban areas, remain graveled or unpaved.

Pavement condition indices are measured and tracked annually by MDT's Pavement Management System (PvMS). Data is collected across the state on state-maintained routes. Several pavement condition indices are monitored through the PvMS to determine the performance of the pavement, such as the presence and degree of cracking and rutting. The performance measures and corresponding indices, listed below, use a numerical scale from 100 (assigned to a new pavement with no flaws) to 0 (representing highly degraded pavement).

- **Ride Index (IRI):** Determined by using an internationally applied roughness index in inches per mile.
- **Rut Index (RI):** Rut measurements are taken approximately every foot and averaged into one-tenth mile reported depths.
- **Alligator Crack Index (ACI):** Measured by combining all load associated cracking.
- **Miscellaneous Cracking Index (MCI):** Calculated by combining all non-load associate cracking.
- **Overall Performance Index (OPI):** Determined by combining and placing various weighting factors on the IRI, RI, ACI, and MCI figures. The OPI is calculated to provide a single index describing the current general health of a particular route or system.

Figure 3 shows the current reported pavement conditions for state-maintained routes in the study area based on OPI. According to the *2024 Pavement Performance and Condition Report*,[27] the OPI ranges from 0 to 100, with values of 63 and above indicating good condition, values between 45 and 62 considered fair, and values below 45 indicating poor condition. A summary of the average indices by system designation is provided in **Table 9**. Condition data for other components of the roadway network, including gravel routes and off-system facilities, is not consistently available. While larger municipalities such as Great Falls collect and monitor pavement conditions on their local networks, most rural municipalities in Central Montana do not have formal data collection processes in place. As a result, pavement condition data outside the state-managed highway network is limited.

Table 9 indicates that about 62 percent of the surveyed transportation network in Central Montana is in good condition, while about 37 percent is in fair condition and less than two percent is in poor condition. Both the non-interstate NHS and primary systems mirror these distributions. The interstate system, on the other hand, is almost entirely rated as good (93.4 percent), with no segments being rated in poor condition. Approximately three-quarters of the urban routes are rated in good condition, with 15 percent of the system being rated as fair and 10 percent falling in the poor category. In contrast, the secondary system shows the most significant need for preservation with the smallest proportion of lane miles being rated as good (42.1 percent), 56.2 percent of the system rated as fair, and 1.7 percent as poor.

Table 9: Roadway Condition Indices

System Designation	Miles of Highway	Avg IRI	Avg RI	Avg ACI	Avg MCI	Avg OPI	% Good Condition	% Fair Condition	% Poor Condition
Interstate	266.4	81.2	68.7	99.8	92.1	68.5	93.4%	6.6%	0.0%
Non-Interstate NHS	465.1	75.8	65.6	98.7	89.8	64.7	62.4%	37.0%	0.7%
Primary	283.8	76.9	69.4	95.9	87.3	63.5	60.3%	37.1%	2.5%
Secondary	446.7	71.3	71.4	99.5	85.6	61.9	42.1%	56.2%	1.7%
Urban	38.3	74.8	72.4	92.3	87.9	63.9	73.8%	15.5%	10.7%
Total	**1,500.3**	**75.6**	**68.8**	**98.4**	**88.4**	**64.3**	**61.8%**	**36.8%**	**1.5%**

Source: MDT. 2024. Roadway Condition. https://gis.mtmdt.us/server/rest/services/MDTGIS/Pavement_Performance/MapServer/0.

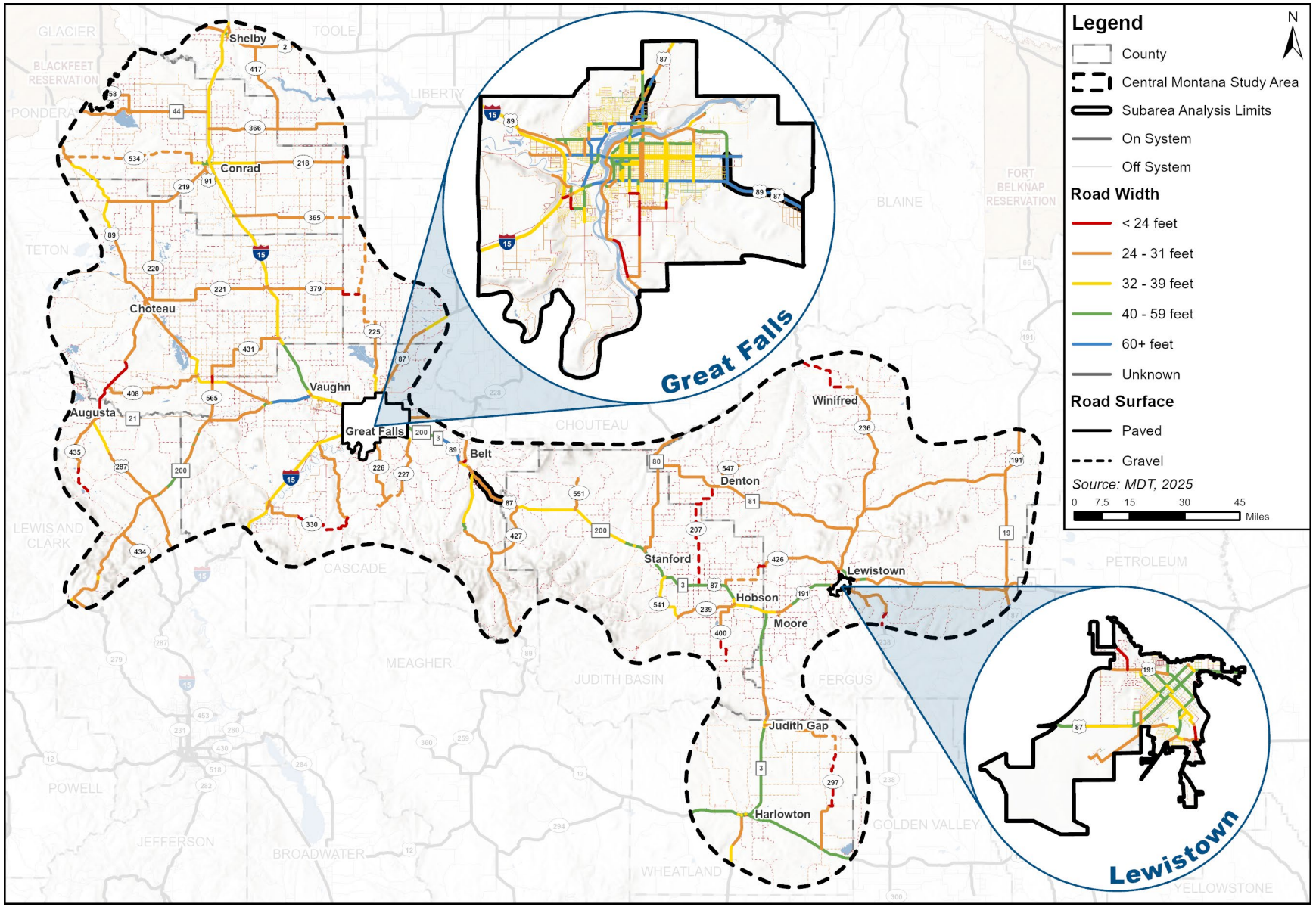

Figure 2: Roadway Surface and Width

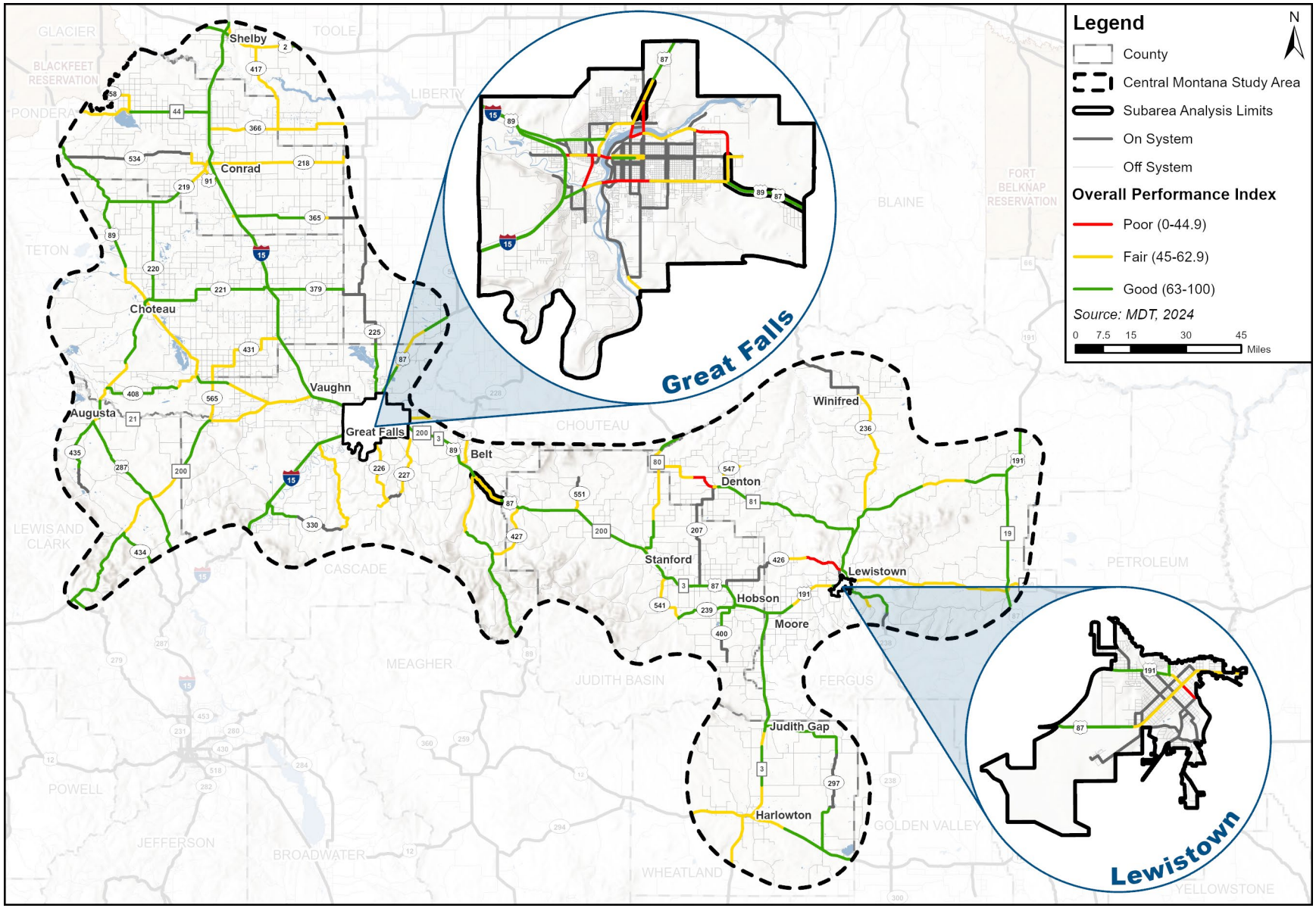

Figure 3: Pavement Condition

3.2 Access Management

Access management across the Central Montana study area reflects a range of roadway types, land use contexts, and historical development patterns. Interstates and major highway corridors, such as I-15, US 87, and MT 200, generally feature more formalized access management, particularly near interchanges and within urbanized areas. Outside these areas, access tends to be less regulated, with numerous field approaches, private driveways, and minor roadway connections intersecting highways. In many rural segments, access points may be closely spaced or skewed, and formal permitting or spacing requirements may not have been consistently applied.

Access management plays a critical role in both safety and operational performance. Unregulated or closely spaced access increases conflict points, thereby increasing crash potential, especially on high-speed rural highways. Skewed approaches can also be problematic. Ideally, driveways or side roads should intersect main routes as close to 90° as possible. Angles between 60° and 120° are considered acceptable, but skewed intersections are more susceptible to restricted sightlines, delayed decision-making, and turning-related collisions.

Beyond safety, poor access management degrades traffic flow. Frequent and uncontrolled turning movements disrupt through traffic, increasing travel times and reducing capacity. This is particularly true near urban boundaries, highway junctions, and areas experiencing spot development. Access management strategies, including driveway consolidation, restricted turning movements, improved intersection geometry, turn lanes, and controlled spacing, can significantly improve travel time reliability, preserve corridor capacity, and support smoother commuter, freight, and military movement along key routes.

All driveways, field approaches, and other connections to public streets and highways require an approved access permit, and in cases where significant impacts are anticipated, the Systems Impact Action Process (SIAP) may be required. MDT employs the SIAP to evaluate and enforce access management for new non-MDT projects impacting MDT facilities. Through SIAP, MDT coordinates with local jurisdictions and developers to accommodate access to and from the highway system by assessing the transportation impacts of new developments and identifying mitigation measures such as access modifications, turn lanes, or signal improvements.

As part of the *Central Montana Transportation Study*, MDT is completing an *Access Management Plan* to address congestion, capacity, and safety concerns on 57th Street S and US 87/89 on the east end of Great Falls. The plan will guide public agencies, landowners, and developers in land use and access planning when development, redevelopment, or construction projects occur in the subarea.

Figure 4 illustrates where formal access management plans have been adopted across the study area. These plans guide the location, design, and operation of driveways, median openings, signalized intersections, and street connections along key corridors. The primary purpose of access management plans is to improve safety and preserve the long-term operational efficiency of the transportation system. Access management planning can be initiated at either the state or local level. At the state level, MDT typically develops access management plans for roadways with statewide or national significance, such as interstates and national highways, under its jurisdiction. Local governments may also develop and adopt their own access requirements for corridors they construct and maintain. MDT's *Right-of-Way Manual* outlines the specific processes for developing and applying access management in Montana.[28]

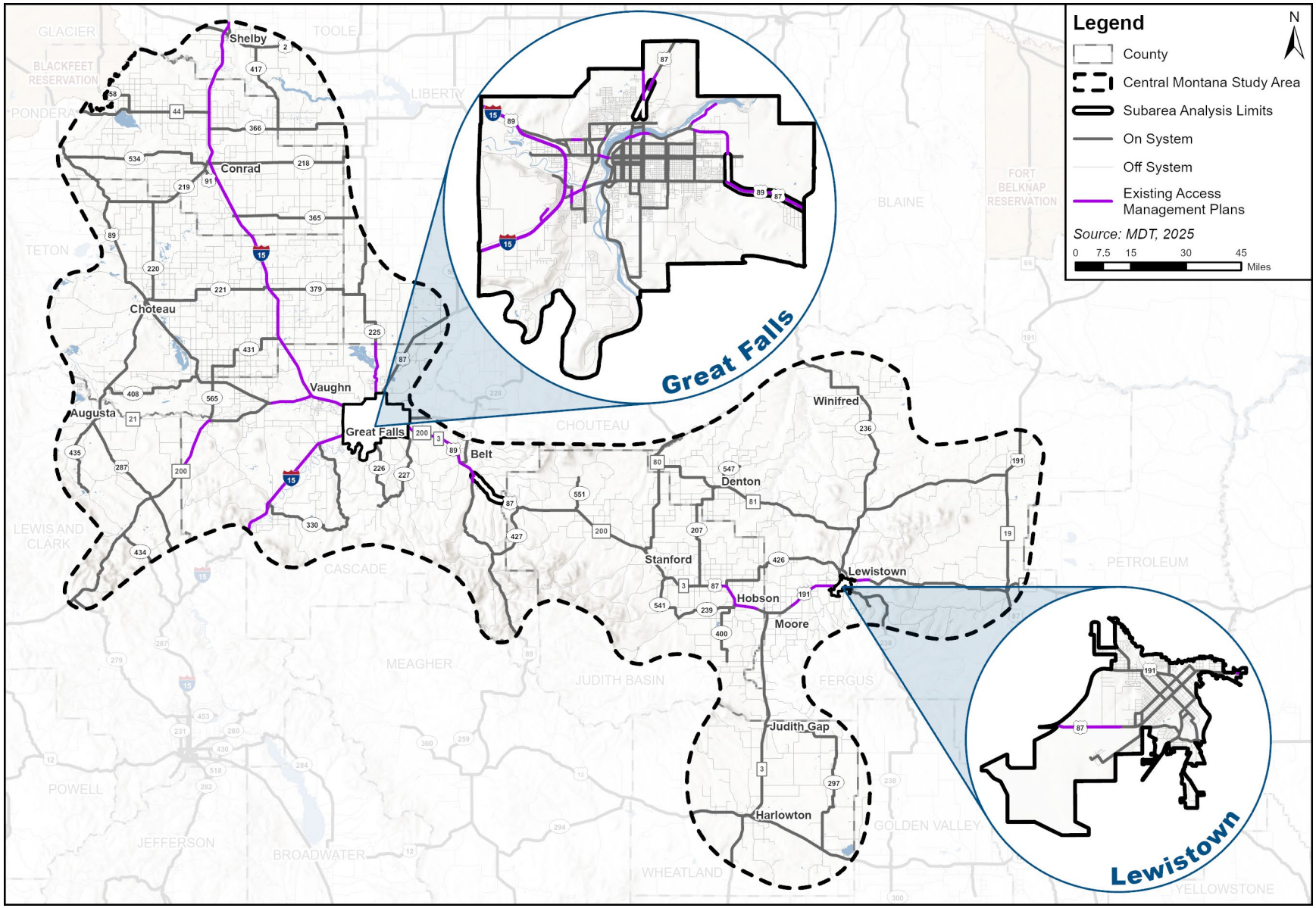

Figure 4: Access Management Plans

3.3 Posted Speeds

Speed limits are posted to protect the public by informing drivers of the authorized, allowable speed. Common speed limits are typically statutory, as stated in Montana Code Annotated 61-8-303, based on highway type. Some roadways have daytime and nighttime speed limits, where daytime speed limits are in effect from one-half hour before sunrise to one-half hour after sunset and nighttime speed limits are in effect at any other time. Unless otherwise posted, speed limits on MDT highways follow the guidelines outlined in **Table 10**.

Table 10: Montana Highway Speed Limits

Type of Highway	Cars and Light Trucks	Heavy Trucks
Interstate	80 mph	70 mph
Interstate Within Urbanized Areas*	65 mph	65 mph
Four-Lane NHS (10 miles in length or greater)	75 mph	70 mph
Two-Lane Highway	70 mph (65 mph at night)	65 mph
Two-Lane Within Urbanized Areas*	25 mph	25 mph

Source: MDT. 2019. Speed Limits. https://www.mdt.mt.gov/visionzero/roads/speed-limits.aspx.
Montana State Legislature. 2025. Montana House Bill 312. https://legiscan.com/MT/text/HB312/2025.
**Urbanized areas are areas with population of 50,000 or more and currently include Billings, Great Falls, Missoula, Helena, and Bozeman, as of the 2020 Census.*
Note: Speed limits are listed in miles per hour (mph)

The speed limits listed in **Table 10** may be altered by the Transportation Commission or a local authority. Decisions regarding appropriate speed limits are based, in part, on a process known as a speed study. During these studies, data is collected at various points along the roadway and analyzed to determine the 85th percentile speed, or the speed at which 85 percent of drivers travel at or below under ideal conditions. This 85th percentile speed is commonly used as a starting point for setting rational speed limits and is generally considered the maximum safe speed for that area.

There are 24 speed studies in the study area, with 12 completed between 2019 and 2024 and 12 ongoing.[29] Some of these studies are within the subareas, including one completed and three ongoing studies in the Great Falls subarea, one completed and one ongoing study in Lewistown, and one ongoing study in both the Access Management and Armington Junction subareas.

The study area includes speed limits ranging from 15 to 80 mph. The existing posted speed limits and locations of recent speed studies are shown in **Figure 5**.

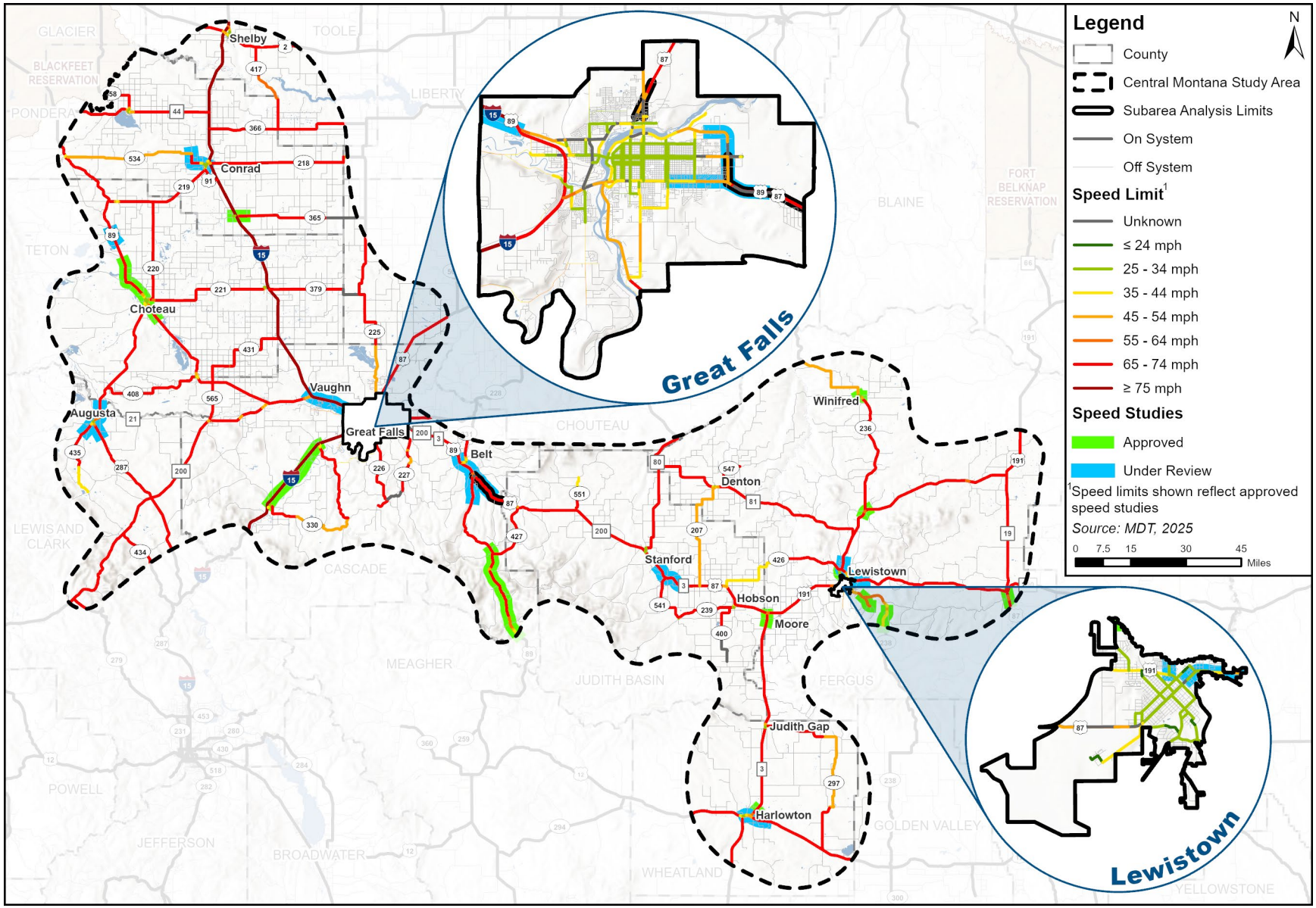

Figure 5: Posted Speed Limits

3.4 Maintenance and Operations

In general, MDT is responsible for the maintenance and operations of on-system routes in the study area. This includes both routine and preventative roadway maintenance, as well as the upkeep of signs and structures located within the highway right-of-way. The study area spans the Great Falls and Billings Maintenance Districts, with field activities coordinated, implemented, and managed by the Great Falls, Havre, and Lewistown Maintenance Divisions.

Maintenance operations are carried out by 19 smaller maintenance sections, as illustrated in **Figure 6**. Each section is supported by a section house, which serves as the base for personnel, equipment, and day-to-day activities. MDT also stockpiles essential materials such as sand and salt for roadway deicing. Most maintenance sections have one stockpile, while some have two or three, depending on operational needs.

Winter Maintenance

Winter snow and ice control responsibilities in the Central Montana study area are divided between MDT and local jurisdictions. MDT is responsible for routes it owns and maintains (on-system), while off-system, local routes, are typically maintained by individual cities and counties within their respective jurisdictions. For state-maintained roadways, MDT assigns levels of winter maintenance service based on factors such as average daily traffic (ADT) volumes, proximity to communities, roadway classification, and network significance.[30] These levels guide the extent and frequency of snowplowing, sanding, and de-icing activities during winter weather events to ensure safe and reliable travel conditions. MDT defines six levels of winter maintenance service, each corresponding to a different priority level:

- **Level I (Urban): All MDT-maintained roadways generally within or adjacent to a three-mile radius to towns or cities with an ADT greater than 5,000 vehicles per day (vpd)** - Snow plowing and anti-icing/de-icing operations may be continuous during and after the storm, with up to 24 hours of daily coverage to keep at least one lane in each direction open and achieve intermittent bare pavement in the primary travel lanes, clearing remaining lanes and shoulders as resources allow.
- **Level I-A: All interstate and other MDT-maintained roadways with ADT of greater than 3,000 vpd** - Snow plowing and sanding/de-icing operations may be continuous during the storm, with up to 19 hours of daily coverage, typically from 5:00 AM to 12:00 AM, to keep the roadway open and achieve intermittent bare pavement in the main driving lane, with remaining lanes and shoulders cleared as conditions and resources allow.
- **Level II: All MDT-maintained roadways with ADT of 1,000-3,000 vpd** - Snow plowing and sanding/de-icing should occur during the storm, with up to 17 hours of coverage per day, typically between 5:00 AM and 10:00 PM, to keep one lane in each direction open.
- **Level III: All MDT-maintained roadways with an ADT of 200-1,000 vpd -** When staffing and equipment are available, these routes may receive up to 15 hours of coverage per day, typically between 5:00 AM and 8:00 PM, to keep lanes passable.
- **Level IV: All MDT-maintained roadways with ADT of less than 200 vpd -** Snow removal conducted as staffing and equipment allow, during regularly scheduled working hours only.
- **Level V: Seasonal Roadways -** No scheduled winter maintenance activities.

Each MDT maintenance district evaluates and documents the assignment of maintenance levels as part of its annual winter operations planning. This tiered approach helps ensure that critical corridors remain accessible while allowing MDT to manage its personnel, equipment, and materials efficiently throughout the winter season. **Figure 6** illustrates current winter maintenance levels assigned to roadways within the study area. The only Level I routes are located in the Great Falls area. I-15, along with select routes within Great Falls and Lewistown, are classified as Level I-A. The US highways throughout the study area are primarily designated as Level II, while lower-class secondary and state highways are generally assigned Levels III and IV. No routes in the study area are classified as Level V.

Heavy Vehicle Operations

Heavy vehicle operations in the Central Montana study area are supported and regulated through a combination of infrastructure, enforcement, and seasonal restrictions aimed at preserving roadway integrity and ensuring safety. Motor Carrier Services (MCS), a division of MDT, operates a network of weigh station facilities throughout the state, including several in the study area. These include one permanently staffed Weigh-in-Motion (WIM) fixed scale at Armington Junction, which offers continuous vehicle monitoring without requiring a full stop and allows for full-service inspection capabilities, as well as one intermittently staffed fixed scale on I-15 southwest of Great Falls. There are also two mobile officer vehicle enforcement operations, which are portable scales that can be monitored periodically by law enforcement, as well as nine portable and five semi-portable scales, which can be deployed as needed for on-the-spot enforcement and seasonal operations.

In addition to state-managed enforcement, county road weight restrictions are commonly imposed during spring thaw periods or as needed to protect local roadways from damage caused by heavy loads. These restrictions vary by jurisdiction and are typically posted seasonally. Likewise, bridge load postings are enforced on structures that have weight limits based on structural capacity, which may restrict certain vehicle configurations or gross vehicle weights. Bridge load postings in the study area are further detailed in **Section 3.6**.

Emergency Services

Emergency services across the Central Montana study area are provided through a coordinated network of local, county, and state agencies. Given the region's vast rural landscape and dispersed population centers, emergency management relies on a combination of professional, volunteer, and mutual-aid partnerships to ensure effective coverage during routine incidents and large-scale emergencies. County-level emergency management organizations serve as the central coordinating entities for emergency planning, incident response, hazardous materials operations, fire protection, and emergency medical services (EMS).

In Cascade County, emergency services are managed under the umbrella of Cascade County Emergency Management Services, which collaborates closely with Montana Disaster and Emergency Services (DES). The county also works in partnership with rural EMS providers, volunteer fire districts, and the Community Emergency Response Team (CERT) programs based in towns throughout the county. The area includes coverage from the Black Eagle Fire Department, Great Falls Municipal Fire Department, Great Falls Police Department, Cascade County Sheriff's Office, and Montana Highway Patrol (MHP).

This multi-agency approach is mirrored throughout the region. In counties such as Chouteau, Fergus, Judith Basin, Pondera, Teton, Toole, Wheatland, and Lewis and Clark, emergency response is typically led by rural volunteer and municipal fire departments, local police, county sheriff's offices, and local ambulance services. These agencies frequently coordinate with regional DES offices, as well as MHP, especially along major highway corridors. Mutual aid agreements and inter-county coordination are essential in this low-density, high-travel environment where emergency resources can be spaced at long distances.

Emergency medical care for more serious incidents across the Central Montana study area is supported by a regional network of hospitals and clinics. In Cascade County, Benefis Health System in Great Falls serves as the primary medical provider and is designated as both a Level II Trauma Center and a State Regional Trauma Center, with an on-site helipad to support air ambulance transport. Great Falls Clinic also contributes to the region’s emergency care capacity.

Outside of Cascade County, several smaller facilities serve as trauma receiving centers. These include Logan Health in Shelby, Logan Health in Conrad, Benefis Teton Medical Center in Choteau, and Wheatland Memorial Hospital in Harlowton, each being a designated Trauma Receiving Facility. Wheatland Memorial Hospital has begun construction on a new 36,000-square-foot facility to replace its original building, which was constructed 74 years ago. The project is expected to be completed in February 2026. Central Montana Medical Center in Lewistown is recognized as a Community Trauma Hospital, offering more advanced care for patients in the eastern portion of the study area. Additional small clinics are located in towns such as Stanford, Denton, and Augusta, where they provide initial stabilization and coordinate patient transfers to higher-level trauma centers as needed.

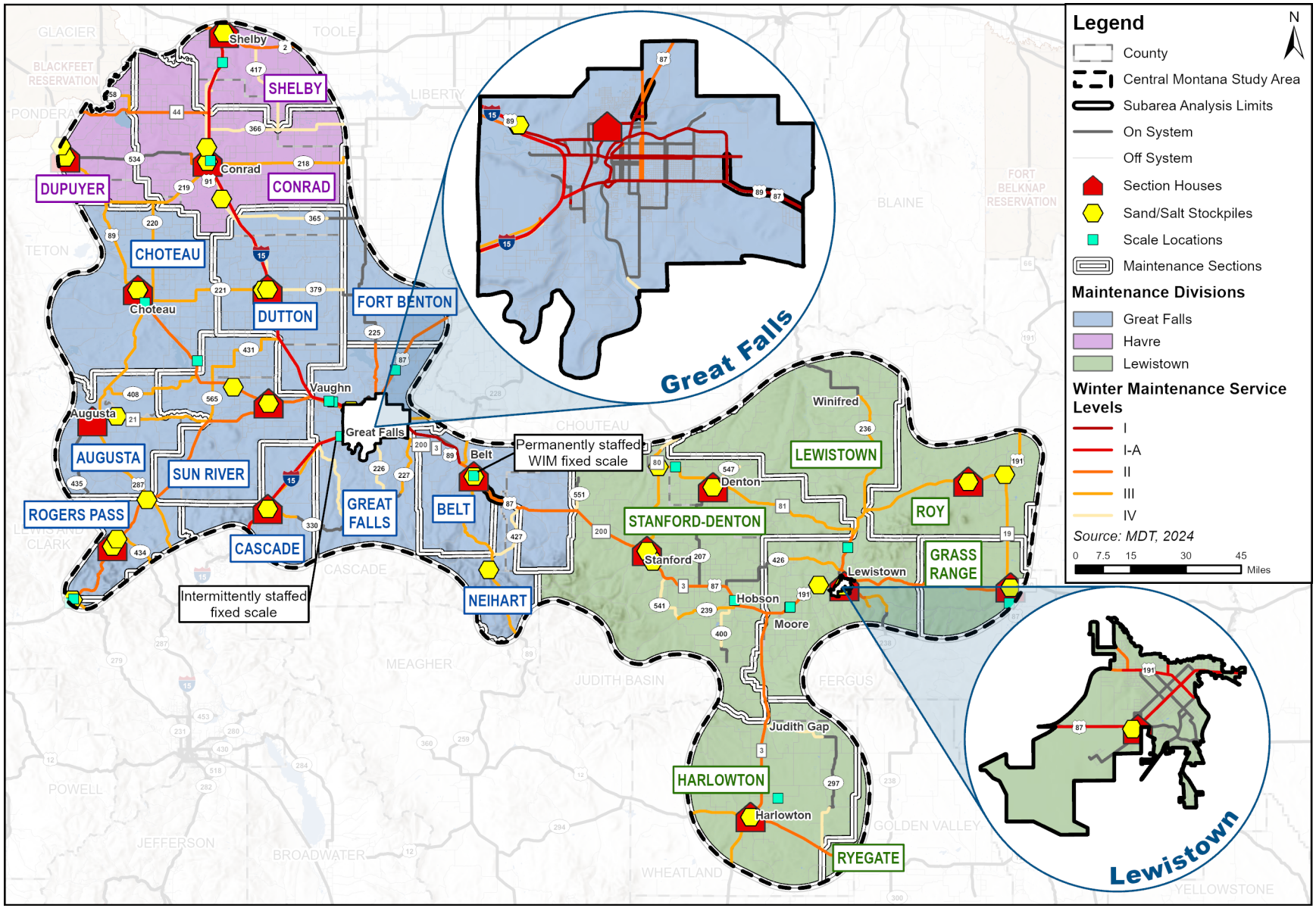

Figure 6: MDT Maintenance

3.5 Geotechnical Conditions

The Central Montana study area encompasses a wide range of geologic and topographic conditions, including expansive plains, rolling hills, isolated mountain ranges, and river valleys. Certain geologic materials are prone to slaking and slope instability, particularly when exposed in road cuts or disturbed by construction, while others are generally more stable but can still present risks where weathered or fractured. In lowland areas, particularly along the Missouri River and its tributaries, soils often exhibit variable moisture content and load-bearing capacity, which can lead to roadway settlement issues and increase frost heave potential. Parts of Pondera, Toole, and Teton counties contain mixed soil profiles with variable permeability and compaction behavior, further complicating construction and maintenance practices. Soils throughout the study area are often fine-textured and highly susceptible to erosion, especially on slopes steeper than a 2:1 (horizontal:vertical) ratio. Silty soils can be particularly challenging to stabilize and revegetate on steep embankments, while till-derived soils may be vulnerable to raveling and surface instability during freeze-thaw cycles or heavy precipitation events. These conditions underscore the importance of tailored design, construction, and maintenance approaches to address the geologic and soil variability across the region.

MDT has identified 102 individually rated rock slopes in the study area that have been cataloged and assessed in MDT's *Rockfall Asset Management Program* (RAMP).[31] Sites are rated as either 'A' or 'B', indicating a potential to produce a hazardous rockfall situation. Detailed ratings are only provided for 'A' sites. For 'A' sites, MDT defines an overall condition index score ranging from 1 to 100, with 1 being the worst and 100 being the best based on ditch effectiveness (or the ability of the roadside ditch to prevent rockfall from entering the adjacent roadway) and rockfall history at the location.

As illustrated in **Figure 7**, there are 54 'A' site and 48 'B' sites within the study area, they are primarily located in the central part of the study area including on MT 200 in Lewis and Clark County, I-15 through Wolf Creek Canyon, MT-330, SH-427, US 89, and a few spots near Belt and south of Lewistown. Of the 54 'A' sites, five are rated 1-Good with condition index ratings from 100 to 81, 16 are rated 2-Fair with condition index ratings from 80 to 61, 26 are rated 3-Fair with condition index ratings from 60 to 41, and seven are rated 4-Poor with condition index ranging from 40 to 21.

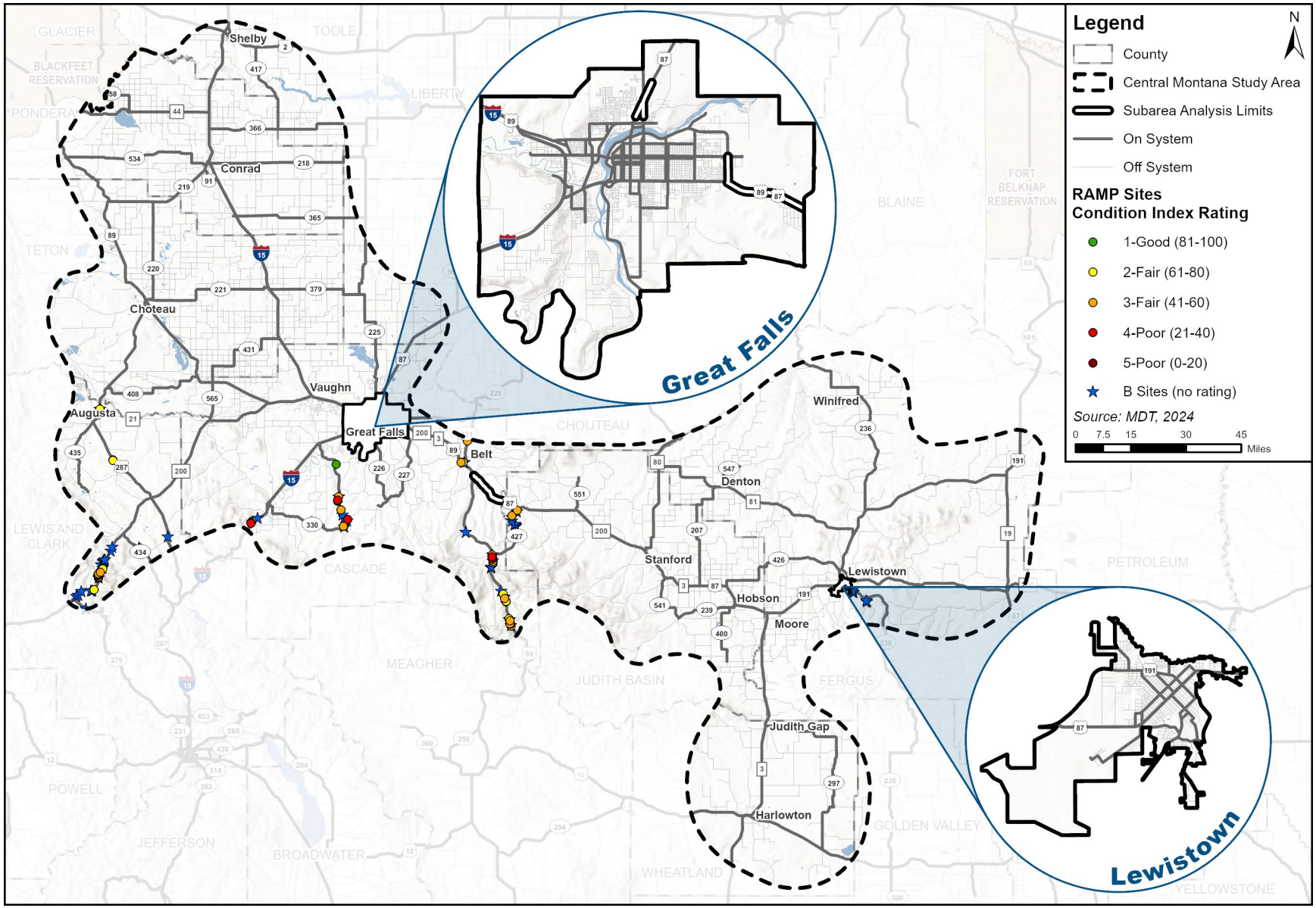

Figure 7: Geotechnical Conditions

3.6 Hydraulic Conditions and Structures

Bridges and culverts are critical structures for conveying transportation routes across water features such as rivers, streams, irrigation canals, and drainage channels. The integrity and functionality of these structures are vital for maintaining proper water flow and preventing flooding or erosion that could impact road safety and infrastructure. In the study area, hydraulic structures, including bridges and large culverts, are owned by various entities, including MDT, local city and county governments, and agencies like BNSF Railway, as shown in **Table 11**.

MDT's Bridge Program emphasizes asset management and preservation. MDT performs regular inspections of all in-service structures, regardless of ownership, in accordance with the National Bridge Inspection (NBI) Standards. All inspections are entered into Montana's Structure Management System database. This information is used to identify structures needing repair and inform funding decisions.

NBI item ratings are determined based on MDT inspections, and vary on a scale from 0-9, with 0 depicting an element that is out of service and beyond corrective action (repair) and 9 depicting an item that is new or in excellent condition as described in the *FHWA Coding Guide*.[32] An overall structure rating is given based on the lowest substructure or superstructure rating for the structure. **Table 11** tabulates the structural ratings for the bridges and large culverts in the study area. **Figure 8** shows the structures within the study area color coded based on their overall structural rating with inspection data from 2024. There are 714 structures in the study area, including 554 bridges and 160 large culverts. Of those structures, 69 have a poor (4 or less) rating while 341 structures have a ranking of fair (5-6). Additionally, 287 of the structures in the study area are rated good (7-8) and 6 are rated as new (9).

When a structure is constructed, its structural elements are designed to have a weight capacity to meet anticipated use. During inspections, signs of deterioration or damage that might reduce capacity are noted and a load, or weight, restriction may be recommended to preserve the integrity of the structure. Structures with load restrictions are noted in **Table 11** and **Figure 8**. There are 91 load-restricted structures in the study area. Of these, 80 are on off-system routes, and none are on the interstate system.

Table 11: Structure Ratings

System Designation	Total Structures		MDT Owned	City/County Owned	Railroad Owned	Overall Structural/Culvert Rating					Load Restrictions
	Bridges	Culverts				New (9)	Good (7-8)	Fair (5-6)	Poor (4 or Less)	Unknown	
Interstate	56	11	67	0	0	1	39	27	0	0	0
Non-Interstate NHS	88	62	147	1	2	0	84	56	7	3	4
Primary	51	31	81	0	1	1	44	35	1	1	2
Secondary	52	18	62	7	1	0	21	43	5	1	4
Urban	21	4	7	16	2	0	8	10	4	3	1
Off System	286	34	28	291	1	4	91	170	52	3	80
Total	**554**	**160**	**392**	**315**	**7**	**6**	**287**	**341**	**69**	**11**	**91**

Source: MDT. 2024. Bridge Management System.

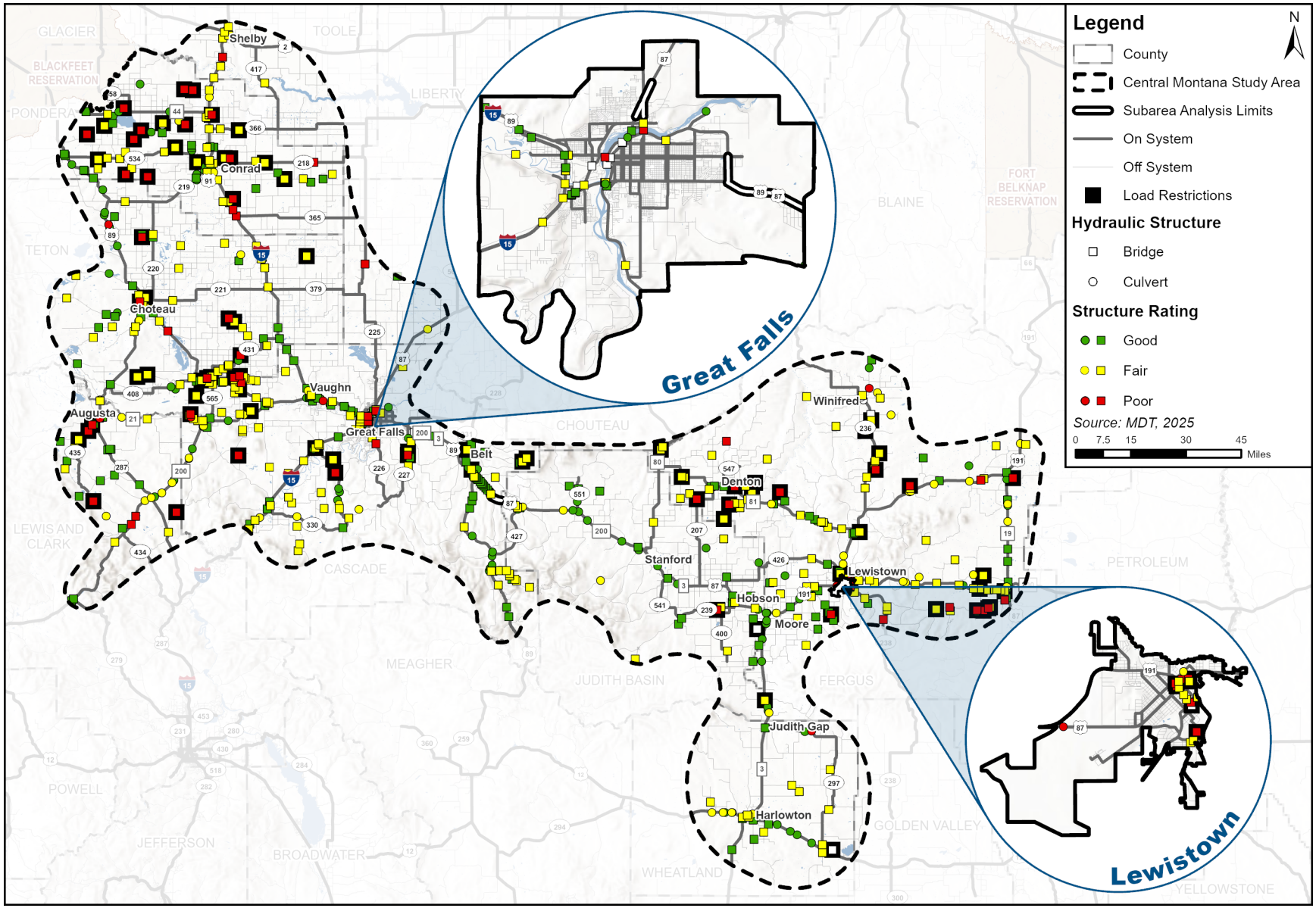

Figure 8: Hydraulic Structures

3.7 Utilities

Multiple utilities are present throughout the Central Montana study area, providing essential services such as electricity, natural gas, telecommunications, water, and wastewater infrastructure. Electrical service is supplied by regional providers including NorthWestern Energy, Fergus Electric Cooperative, and Marias River Electric Cooperative, with power typically distributed through overhead lines running parallel to major highways, occasionally crossing over or under the roadway. Natural gas services are available in more developed areas through underground distribution lines managed by providers such as Energy West and Montana-Dakota Utilities, though coverage is limited in many rural areas. Telecommunications infrastructure, including telephone, broadband internet, and cable TV, is provided by companies such as CenturyLink, Triangle Communications, and 3 Rivers Communications, with service delivered primarily through underground fiber or copper lines, supplemented by some overhead telephone lines in rural corridors. Water and sewer utilities are generally maintained by local municipalities or rural water districts, with service typically limited to incorporated towns and nearby subdivisions. In more remote areas, individual wells and septic systems are commonly used for domestic water and wastewater management. Utility infrastructure varies widely across the study area depending on development density, terrain, and proximity to population centers.

As part of the Sentinel project, existing utility corridors will be upgraded, and new utility corridors are anticipated. These corridors are designed to provide essential utilities to the main bases, missile alert facilities, launch facilities, and communication towers. **Figure 9** shows the locations of existing utility corridors and anticipated locations of proposed utility corridors based on the *Final Environmental Impact Statement for the Sentinel Deployment and Minuteman III Decommissioning and Disposal*.[33] Only those corridors following existing roadway alignments are shown.

Utility providers must obtain appropriate occupancy and/or encroachment permits prior to utility installation within MDT right-of-way. MDT's online Utilities Permitting Administration System facilitates the permitting process and maintains a repository of utility information including applicant name, utility location and size, utility service type, permit type, and approval date. If projects are advanced following this subarea analysis, coordination with utility owners may be required to address potential impacts on utility infrastructure and associated mitigation.

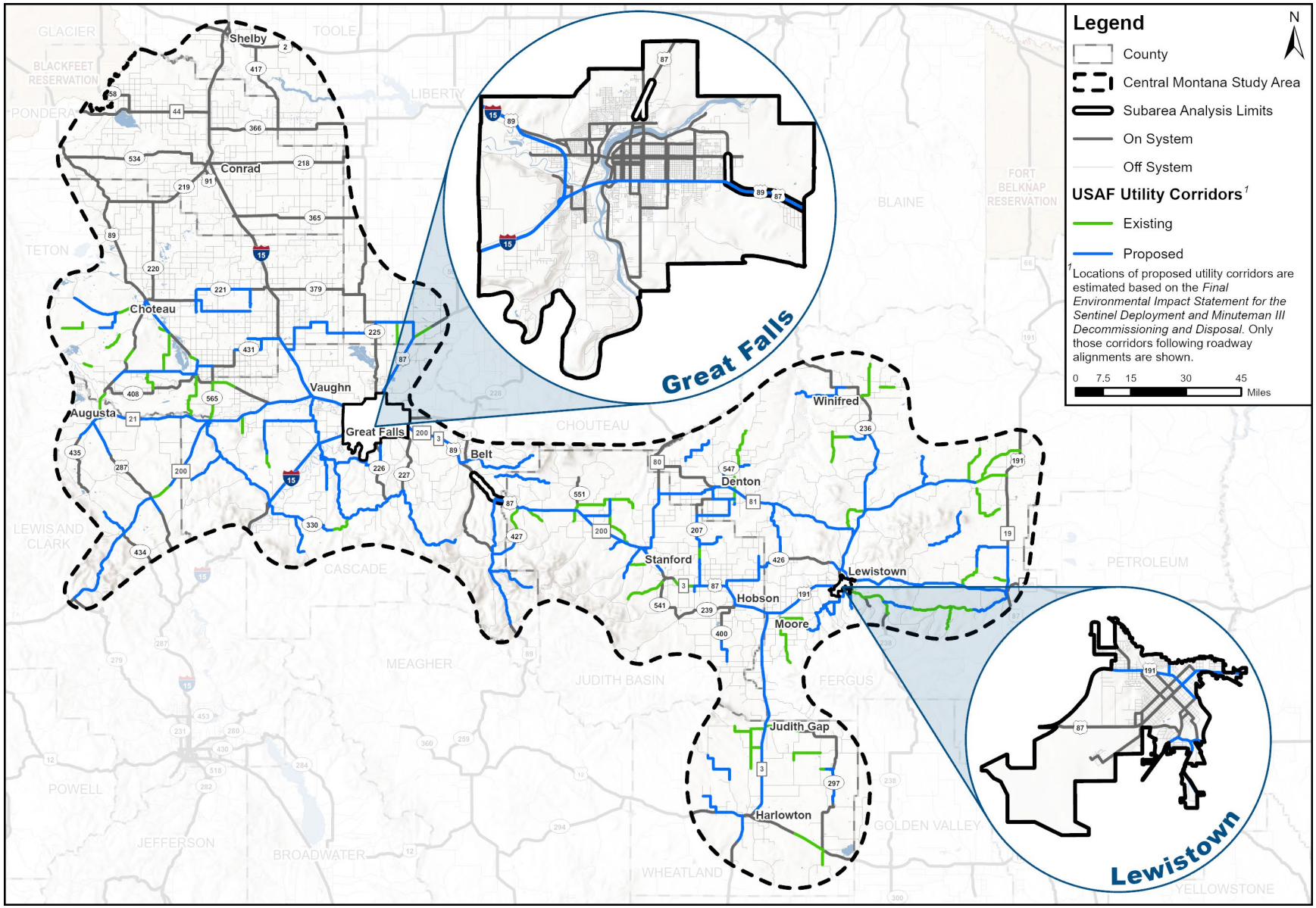

Figure 9: Existing and Proposed USAF Utility Corridors

3.8 Multimodal Transportation Facilities

Central Montana is served by a multimodal transportation system that supports the movement of people and goods across a variety of modes, including highway freight corridors, rail networks, transit services, passenger rail, and pedestrian and bicycle infrastructure. While the region is largely rural and characterized by long travel distances between communities, it plays a critical role in statewide and international freight movement and is anchored by key urban centers such as Great Falls and Lewistown. This section describes the existing multimodal facilities within the study area, focusing on the goods movement network, public transit services, Amtrak's long-distance passenger rail, and infrastructure supporting non-motorized travel. Together, these systems contribute to regional accessibility, economic activity, and multimodal connectivity throughout Central Montana.

3.8.1 Freight Network

Goods movement in Central Montana is facilitated by a multimodal freight transportation system that includes highways, railways, airports, intermodal facilities, and international trade corridors. This system plays a central role in enabling economic activity, supporting national defense operations, and ensuring regional accessibility. **Figure 10** summarizes the existing freight network in the study area.

The 2022 *Montana Freight Plan*[34] forecasts that total freight volume by weight for truck, rail, and air traffic either originating or terminating in Montana is forecast to grow by 30 percent between 2017 and 2050, from 88 million tons to 114 million tons. This growth is anticipated to impact all freight modes and facilities throughout the region. Forecasts show moderate growth on corridors such as I-15 and US 87, which connect from Canada to Great Falls, extending outwards towards Helena and Lewistown, with lower growth on other highways in the region. US 287, MT 200, MT 219, and MT 223 show slightly higher predicted growth than other minor highways in the study area.

National Freight System Designations

Central Montana's role in the national freight system is reflected in several federal designations. The region is included in the Interim National Multimodal Freight Network (NMFN), published by the USDOT in 2016, which identifies nationally significant highway and rail infrastructure. Within the study area, designated NMFN facilities include I-15, US 87, US 89, US 191, US 287, MT 44, MT 80, MT 81, and MT 200, along with all primary rail corridors.

The region is also part of the National Highway Freight Network (NHFN), which strategically prioritizes infrastructure investment on highway segments critical to freight movement. Within the study area, I-15 is designated as a component of the Primary Highway Freight System (PHFS). This designation informs federal funding eligibility and emphasizes the long-term significance of Montana's freight routes.

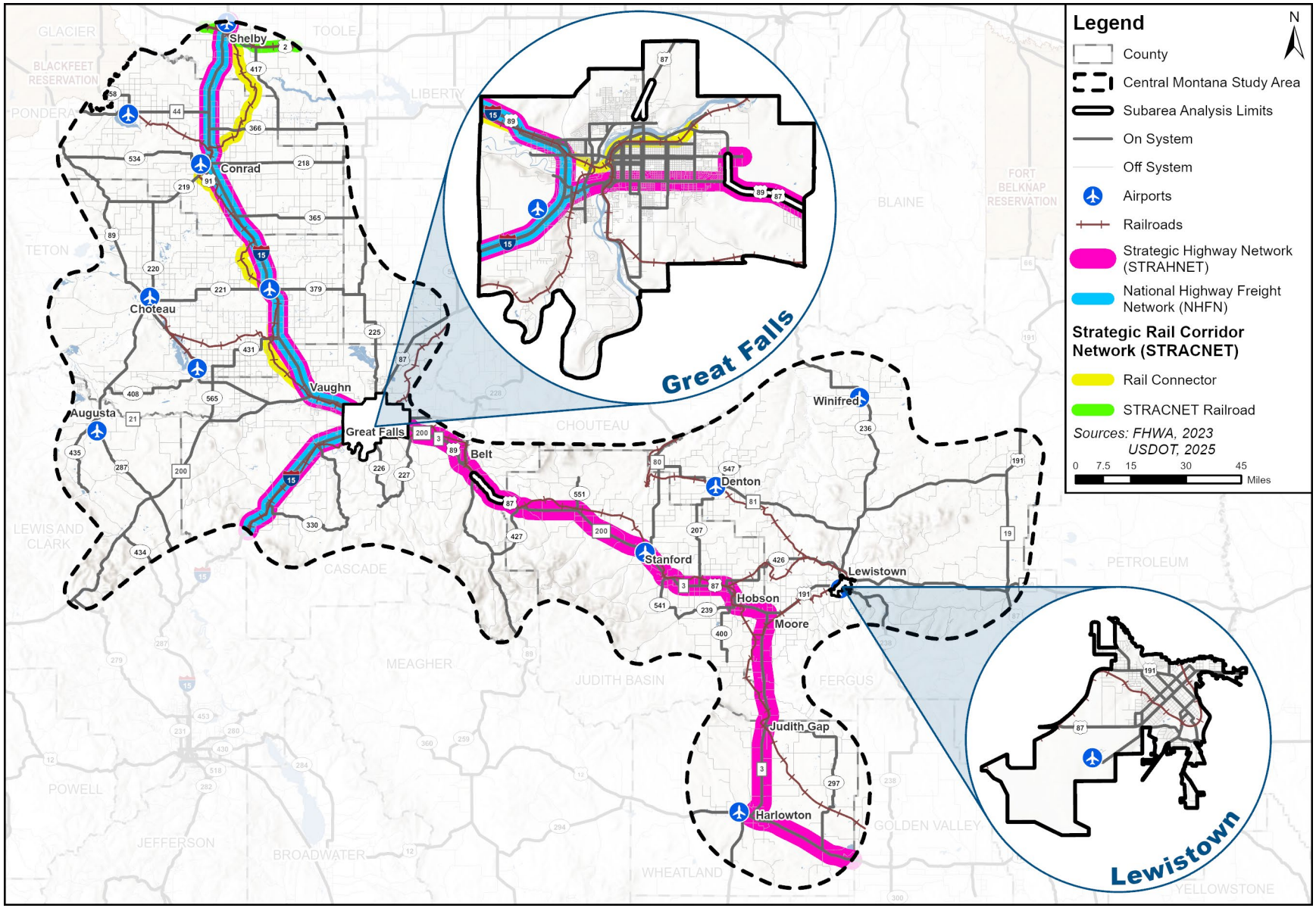

Figure 10: Freight Network

Rail Facilities

Montana's rail network encompasses more than 3,500 miles of active track and includes both Class I and regional carriers. BNSF Railway is the primary rail operator in the region, managing two key corridors. The first is a transcontinental east–west route paralleling US Highway 2, which connects to major intermodal hubs in Seattle, Spokane, St. Paul, and Chicago. The second is a north–south route extending from the Port of Sweetgrass through Great Falls and southeast along US 87 and US 191 to the Laurel area, forming a vital trade link between Montana, Canada, and the western United States.

Prior to January 2024, Montana Rail Link (MRL) operated as the second-largest freight carrier in the state, leasing nearly 900 miles of BNSF-owned track. As of that date, BNSF resumed direct operations on the majority of these segments. Railroad classes are defined by the Surface Transportation Board based on annual revenues. Class I facilities are the largest freight railroads with annual revenues nearing $1 billion, while Class II and Class III railroads have lower revenues and generally provide localized service, supporting agricultural and industrial freight. Within the study area, Class I rail alignments parallel I-15 from Sweetgrass to Great Falls with spurs connecting to Valier, Choteau, and Fairfield. Another Class I alignment follows US 87 from Fort Benton towards Lewistown and south adjacent to US 191 connecting to Harlowton. An inactive Class I BNSF line extends south from Great Falls to Helena along I-15. Supplemental Class II lines operated by Central Montana Rail, Inc. are located adjacent to MT 80 and MT 81 between Moccasin, Spring Creek Junction (north of Lewistown), and Geraldine.

Air Cargo Facilities

Air freight in Central Montana is supported by a network of public-use airports, including one commercial service facility, one state-owned facility, and 11 general aviation airports. Great Falls International Airport (GTF) is the region's principal commercial air cargo facility, handling approximately one-third of all air freight tonnage in Montana. The airport features a 10,502-foot primary runway, a 6,030-foot secondary runway, a control tower, and five terminal gates. Major air cargo operators at GTF include FedEx, UPS, Alpine Air, Corporate Air, and Empire Air. FedEx maintains its statewide hub at the airport and holds a contract with the U.S. Postal Service for distribution of first-class mail. The airport also supports international operations as a designated foreign trade zone and includes U.S. Customs and Border Protection facilities. In 2024, GTF recorded 186,778 passenger enplanements, representing a 5.35 percent increase over the previous year. [35]

Lewistown Municipal Airport (LMA), located on the southwestern edge of Lewistown, provides general aviation services and does not currently offer commercial airline service.[36] LMA supports private flights, agricultural aviation, emergency response, and flight training. It is part of the National Air Commerce System for National Defense and Civil Aeronautics. The airport features three runways, the longest at 6,100 feet, and handles approximately 15,348 annual operations with 45 based aircraft. Originally developed during World War II as a B-17 bomber training base, the airport played a role in testing and storing the top-secret Norden Bombsight. With the proposed Sentinel project and planned development at the VACOM facility, activity at the airport is expected to increase in the near term.

International Trade

The Port of Sweetgrass, located roughly 35 miles north of the study area, is Montana's largest international land port. In 2024, the port processed approximately 517,000 travelers and 260,000 loaded truck and rail containers.[37] Freight entering through Sweetgrass typically utilizes I-15, connecting southward to Montana's primary distribution corridors and linking to national markets.

I-15 is a designated corridor of both the Canamex and Camino Real international trade corridors across Montana. The Canamex Corridor was designated as a High Priority Corridor by Congress in the 1995 National Highway Systems Designation Act to facilitate trade between Canada, the United States, and Mexico and strengthen the nations' positioning in the global economy.[38] It follows I-15 across the entire state of Montana. The Camino Real Corridor runs north-south, beginning at the Port of Sweetgrass and extending south across the state along I-15 south to US 87, and east to I-90, and extending south, eventually ending in El Paso, Texas. These corridors support long-distance, cross-border freight flows, and integrate Montana's transportation system into broader continental trade networks.

Intermodal Facilities

Given the absence of navigable waterways, freight transfers in Montana occur primarily between truck, rail, and air. Intermodal and transload facilities enable efficient modal transitions and support regional freight consolidation. The Port of Northern Montana in Shelby offers truck-rail transload capabilities and is located within a designated foreign trade zone. Other agricultural bulk facilities located in Collins (Mountain View Coop), Moore (Peavy Co.), and Shelby (CHS Inc.) also support truck-rail transfers via BNSF.

Great Falls International Airport serves as the primary truck-air intermodal hub within the region. In addition to handling air cargo, the airport is also a foreign trade zone and hosts U.S. Customs and Border Protection facilities supporting international freight and commercial travel.

BNSF continues to invest in Montana's freight capacity by expanding rail and intermodal infrastructure. Since 2019, the company has identified and developed several rail-served, privately owned industrial sites that offer immediate development potential. Within the study area, certified sites exist in both Shelby and Great Falls, improving shippers' access to market-ready locations with multimodal connectivity.

Military Goods Movement and Strategic Networks

Central Montana's freight system also supports national defense functions. MAFB, located in Great Falls, is the only active-duty U.S. military installation in the state and is home to the 341st Missile Wing, which operates, maintains, and secures the Minuteman III ICBM system. MAFB is expected to support the Sentinel missile system in the coming years and currently employs more than 3,900 military and civilian personnel.

The base is connected to both the Strategic Highway Network (STRAHNET) and the Strategic Rail Corridor Network (STRACNET). STRAHNET corridors serving MAFB include I-15, and US 87 extending east of Great Falls to Moore then extending south along US 191. Within Great Falls, designated STRAHNET connectors include 10th Avenue S, 2nd Avenue N, and 57th Street S.[39] STRACNET access is provided via a rail connector that parallels I-15 between MAFB and Shelby, linking to the east-west STRACNET mainline along US Highway 2. Other rail lines extending from Great Falls to Lewistown and Harlowton are designated as "other railroads" within STRACNET.

Roadway connections between MAFB and GTF are essential for the transport of military equipment and supplies. The co-location of the Montana Air National Guard (MANG) and U.S. Army Reserve facilities near the airport further reinforces the strategic value of the multimodal freight network in supporting defense readiness. Designated DAR routes utilized by MAFB are integrated within STRAHNET and form part of the base's overall mission-critical logistics infrastructure.

3.8.2 Transit and Passenger Rail

Transit services in Central Montana provide essential mobility for residents in both urban and rural areas. These services facilitate access to employment, healthcare, education, and commercial destinations, particularly for individuals with limited or no access to personal vehicles. Transit also plays a supporting role in the region's broader multimodal transportation network.

Local Transit Services

The Great Falls Transit District (GFTD) operates seven fixed routes within the City of Great Falls, covering approximately 20 square miles. Routes operate six days per week and serve residential neighborhoods, commercial centers, and public institutions. GFTD also offers curb-to-curb paratransit service for individuals with disabilities who are unable to use the fixed-route system, in compliance with the Americans with Disabilities Act (ADA).

In Lewistown, rural transit is provided by the Central Montana Shuttle, operated by the Fergus County Council on Aging. The shuttle's dial-a-ride service operates on weekdays and primarily serves senior citizens and individuals with disabilities, though it is open to the general public. Service includes local transportation within Lewistown and limited trips to Great Falls and Billings.

Intercity Transit Services

Several intercity bus operators provide regional service through the study area. Salt Lake Express operates along the I-15 corridor from Great Falls to Idaho. North Central Montana Transit operates services north from Great Falls to Havre via US 87. Northern Transit Interlocal, based in Shelby, operates six fixed routes throughout northern and central Montana. These include connections north to Sunburst and Sweet Grass, west to Kalispell and Whitefish, and south to Valier, Conrad, and Great Falls.

Passenger Rail

Amtrak's Empire Builder provides the only intercity passenger rail service in Montana. Operating daily between Chicago and Seattle/Portland, the Empire Builder follows the Hi-Line corridor along US 2 in Montana. While the route only passes through a small portion of the study area, it serves nearby northern Montana communities and plays a role in statewide long-distance passenger travel and tourism.

3.8.3 Pedestrian and Bicycle Facilities

Pedestrian and bicycle infrastructure in Central Montana is generally limited and varies significantly between urban areas, small towns, and rural settings. Most non-motorized facilities are concentrated in and around the region's population centers, such as Great Falls, Lewistown,

and Shelby, where local jurisdictions have developed sidewalk networks, multi-use trails, and designated bicycle routes. Outside of these communities, non-motorized travel typically occurs on road shoulders or unpaved trails due to the rural character of the transportation network.

Urban Facilities

In Great Falls, the pedestrian and bicycle network includes a mix of on-street bicycle facilities, sidewalks, shared use paths, and natural surface trails. The city is anchored by the River's Edge Trail (RET), a 60-mile-long off-street system along the Missouri River with over 20 miles of paved paths and more than 35 miles of gravel trails. The pedestrian network includes over 600 miles of sidewalk and is generally well-developed in core neighborhoods, although gaps remain in outlying and recently annexed areas. The bicycle network, however, remains limited. The city currently has 4.1 miles of bike lanes, 4.9 miles of streets with sharrow pavement markings (some faded or unsigned), and 6.6 miles of signed bike routes without dedicated infrastructure. Additionally, approximately 4.2 miles of widened sidewalks supplement the trail system, though not all are designated as part of the RET. An ADA inventory completed in 2017 indicated that about 63 percent of the city's sidewalk curb ramps are non-compliant, highlighting continued needs for accessibility and connectivity improvements.

In Lewistown, pedestrian and bicycle infrastructure is more limited, with most non-motorized travel supported by an extensive off-street trail network rather than on-street facilities. The 24-mile Lewistown Recreational Trails System (LRTS) includes a mix of paved, gravel, and natural surface paths that connect schools, parks, and the downtown core. While the city lacks dedicated bike lanes, ongoing efforts have focused on expanding and upgrading the trail network, including paving key segments. Sidewalk coverage is concentrated in the downtown area but becomes fragmented in residential and peripheral areas.

Rural and Regional Connections

In rural areas of Central Montana, pedestrians and bicyclists primarily rely on highway shoulders and county roads for non-motorized travel. Although some state highways feature paved shoulders that can accommodate cyclists, these segments are not formally designated as bicycle routes and typically lack signage, striping, or separation from vehicular traffic. The *Bicycling the Big Sky* map, referenced earlier in **Section 3.2**, provides key information for cyclists, including shoulder widths, rumble strip locations, roadway grades, average traffic volumes by vehicle type, and proximity to services such as towns, campgrounds, rest areas, hospitals, and bicycle shops.

In the smaller rural communities within the study area, pedestrian and bicycle infrastructure is limited. Shelby has the most developed network of the rural towns, featuring the paved Roadrunner Recreation Trail and other shared use paths that connect key destinations, while towns like Stanford and Choteau are supported by nearby recreational trails. In most of the other communities, sidewalks provide the primary pedestrian facilities, though coverage can be inconsistent, and dedicated on-street bicycle facilities or paved paths are rare.

Usage data from Strava heat maps indicates low levels of bicycle activity along highway corridors in the study area, with moderate levels observed within the urban areas of Great Falls and Lewistown. Pedestrian activity is highest in these same urban centers, as well as in communities such as Conrad and Shelby, where sidewalk networks are more developed. Walking and running activities tend to occur over short distances within town boundaries, while cycling activity more frequently extends beyond city limits into surrounding rural areas.

4.0 GEOMETRIC CONDITIONS

This section presents baseline geometric design criteria applicable throughout the Central Montana study area, based on current MDT criteria and functional classifications. These criteria serve as reference values for evaluating roadway design elements across the region. While this section does not include a detailed, area-wide geometric analysis, more focused geometric reviews were conducted for the Old Havre Highway and Armington Junction subarea corridors using available as-built drawings, GIS data, aerial imagery, and supplemental field observations. The reviews identified existing roadway elements that do not meet current minimum design criteria, supporting future project scoping and design decision making.

4.1 Design Criteria

The MDT *Baseline Criteria Practitioner's Guide*[40] establishes quantitative design values, such as lane width, shoulder width, and design speed, that serve as the baseline for geometric design on all on-system and state highway projects in Montana. For most facilities (except the interstate system), baseline criteria are determined by functional classification rather than system designation. **Figure 11** illustrates the current federally approved functional classifications for the study area as of summer 2025. MDT is assessing the existing functional classification designation of all roadways within Montana to determine the classifications that best represent the current function of roadways across the state through the *2025-2026 Statewide Functional Classification Review Project*. The recommended functional classification changes are expected to be approved by the Montana Transportation Commission and FHWA by Spring/Summer 2026. As a result, the designations shown in **Figure 11** may be updated in the near future.

The *Practitioner's Guide* applies to all applicable on-system routes and state highways except for a defined set of exemptions, including some non-federally funded urban and secondary routes with local maintenance responsibility, Resurfacing, Restoration and Rehabilitation (3R) projects, and projects with approved scope-specific considerations. In areas where context-specific factors, such as urban setting, local land use, or multimodal needs justify different criteria, design teams may apply context-specific values in place of baseline criteria. Projects with narrowly defined scopes or geometric constraints may also be granted scope-specific exemptions. Deviations from baseline or context-specific criteria require formal documentation through a design exception or variance, per the guide's design deviation table.

The baseline criteria for on-system and state highway routes within the Great Falls and Lewistown urban areas should align with the current baseline design criteria for urban roadways, as presented in **Table 12**. All other on-system roadways and state highways within the study area should align with the rural baseline design criteria listed in **Table 13**. Baseline criteria should be used as the fundamental baseline, or starting point, for design values and dimensions. For projects advanced from this study, MDT and the engineer of record will evaluate project context and scope to determine the appropriate criteria to apply.

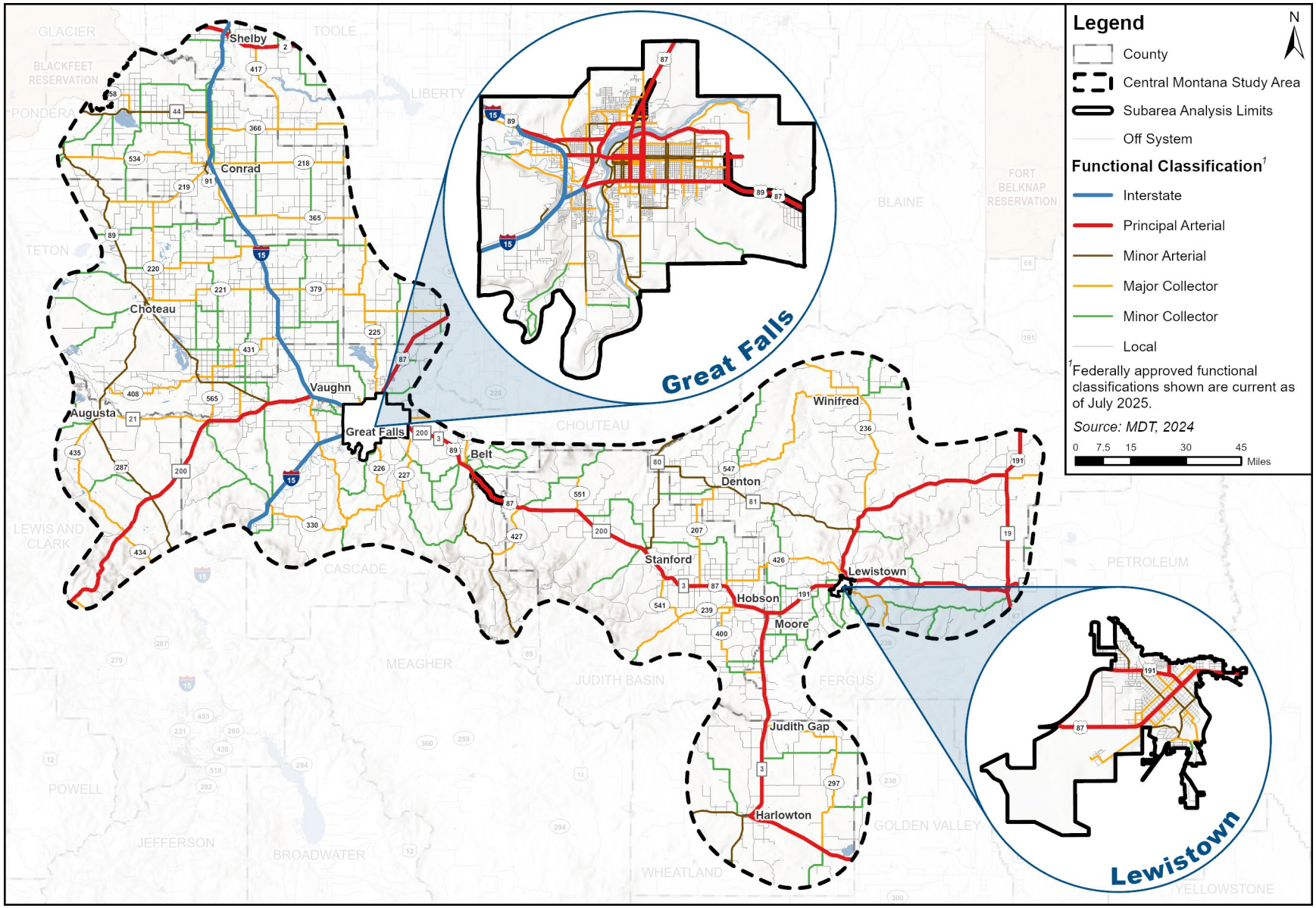

Figure 11: Functional Classification

Table 12: Baseline Criteria for Urban Roadways

Design Element			Interstate	Arterial				Collector		Local Roads	
				Principal		Minor					
				Curbed	Uncurbed	Curbed	Uncurbed	Curbed	Uncurbed	Curbed	Uncurbed
Design Control	Design Speed		50 - 70 mph	25 - 55 mph		25 - 55 mph		25 - 50 mph		25 - 30 mph	
Roadway Elements	Travel Lane Width		12'	12'		11'		10'		10'	
	Minimum Number of Lanes		2 in each direction	N/A							
	Shoulder Width	Curbside (RT)	10'	0'	6'	0'	4'	0'	4'	0'	2'
		Inside (LT)	4'	N/A							
	Cross Slope	Travel Lane	2%	1% - 4%	2%	1% - 4%	2%	1% - 4%	2%	2% - 3% Paved 2.5% - 7% Unpaved	1.5% - 2% Paved 2% - 6% Unpaved
		Shoulder	2%	1% - 4%	2%	1% - 4%	2%	1% - 4%	2%	2% - 3% Paved 2.5% - 7% Unpaved	1.5% - 2% Paved 2% - 6% Unpaved
Roadside Elements	Ditch	Inslope	6:1	4:1		4:1		4:1		4:1	
		Width	10'	Traversable V-ditch							
		Slope	20:1								
	Backslope Cut Depth		Varies								
	Fill Slopes										
	Median Width	Level	10'	4'							
		Rolling									
		Mountainous									
	Clear Zone		See RDM Section 9.2								
Alignment Elements	SSD applies to design speed ≥50 mph		Varies; calculate based on design speed								
	ISD		N/A	Varies; calculate based on design speed							
	Horizontal Alignment	Minimum Radius	Varies; calculate based on design speed								
		Spiral Curve Selection	See RDM Section 3.2	N/A							
		Superelevation Rate	e_{max}=8%	e_{max}=4%		e_{max}=4%		e_{max}=4%		e_{max}=4%	
	Vertical Alignment	Max. Grade Level	4% - 5%	5% - 7%				7% - 9%		15%	
		Max. Grade Rolling	5% - 6%	6% - 10%				8% - 12%			
		Max. Grade Mountainous	6% - 7%	8% - 12%				10% - 13%			
	Minimum Vertical Clearance		17'					16.5'		14'	
Loading Structural Capacity			HL-93								

Source: MDT. 2021. Baseline Criteria Practitioner's Guide.

Table 13: Baseline Criteria for Rural Roadways

Design Element			Interstate	Arterial		Collector	Local Roads	
				Principal	Minor	Major Collector	Paved	Gravel
Design Control	Design Speed (minimum)	Level	70 mph	70 mph	60 mph	60 mph	50 mph	40 mph
		Rolling	70 mph	60 mph	55 mph	50 mph	40 mph	30 mph
		Mountainous	50 mph	50 mph	45 mph	40 mph	30 mph	20 mph
Roadway Elements	Travel Lane Width		12'			11'	11'	12'
	Minimum Number of Lanes		2 in each direction	N/A				
	Shoulder Width		10' outside; 4' inside	Varies with AADT		Varies with AADT	1'	0'
	Cross Slope	Travel Lane	2%				2%	3%
		Shoulder	2%				2%	3%
Roadside Elements	Ditch	Inslope	6:1 (10' Width)			6:1 (10' Width) for DHV≥200; 4:1 (6' Width) for DHV<200		
		Width	10'			10'	V-Ditch	
		Slope	20:1 towards backslope					
		0-5'	5:1				4:1	
		5-10'	Level/Rolling 4:1; Mountainous 3:1				Level/Rolling 3:1; Mountainous 2:1	
		10-15'	Level/Rolling 3:1; Mountainous 2:1				Level/Rolling 2:1; Mountainous 1.5:1	
		>15'	Level/Rolling 2:1; Mountainous 1.5:1				1.5:1	
	Fill Slopes	Fill Height 0-10'	6:1			6:1 for DHV≥200; 4:1 for DHV<200	4:1	
		Fill Height 10-20'	4:1			4:1 for DHV≥200; 3:1 for DHV<200	3:1	
		Fill Height 20-30'	3:1				1.5:1	
		Fill Height >30'	2:1					
	Median Width	Level	50' minimum	See RDM Section 5.3				
		Rolling	50' minimum					
		Mountainous	10' minimum					
	Clear Zone		See RDM Section 9.2					
Alignment Elements	Stopping Sight Distance		See RDM Section 2.8					
	Intersection Sight Distance		N/A	See RDM Section 2.8				
	Horizontal Alignment	Min. Radius (e=8%)	See RDM Section 3.2.3					
		Spiral Curve Selection	e≥7%				N/A	
		Superelevation Rate	e_{max}=8%				e_{max}=8%	e_{max}=4%
	Vertical Alignment	Max. Grade Level	3%	3%	3%	5%	6%	7%
		Max. Grade Rolling	4%	4%	5%	7%	10%	10%
		Max. Grade Mountainous	6% for V<65 mph; 5% for V≥65 mph	7%	7%	10%	14%	16%
	Minimum Vertical Clearance		17'			16.5'	15.0'	
Loading Structural Capacity			HL-93					

Source: MDT. 2021. Baseline Criteria Practitioner's Guide.

5.0 TRAFFIC CONDITIONS

An evaluation of traffic conditions within the study area was conducted using data provided by MDT, along with supplemental field-collected data for the individual subareas. Turning movement counts (TMCs) were performed at various primary intersections within and near select subareas to provide a comprehensive understanding of traffic operations within some of the subarea corridors. The TMCs were conducted over 24-hour periods between fall 2024 and summer 2025. Additionally, mainline traffic volume data for both existing and historical conditions was provided by MDT at various locations within and near the subareas. The following sections present details on both the existing and projected traffic characteristics for the study area.

5.1 Average Daily Traffic

Traffic volumes are collected annually by the MDT Traffic Data Collection & Analysis section at approximately 6,000 active short-term traffic count sites located throughout the state. Additionally, traffic data is gathered daily at several continuous count station sites, which provide more comprehensive, uninterrupted monitoring.

Within the Central Montana study area, there are 1,008 short-term count sites and 12 continuous count sites, including nine Automatic Traffic Recorder (ATR) sites and three Weigh In Motion (WIM) sites. While short-term sites primarily capture volume data, many of the continuous count sites collect more detailed information such as vehicle classification, length, truck weight, and speed data. Continuous traffic data plays a crucial role in transportation planning. It is used to develop peak and design hour factors for highway geometric design, track monthly and annual traffic trends, and establish long-term traffic growth factors.

Figure 12 illustrates the 2024 Annual Average Daily Traffic (AADT) volumes across the study area roadways, based on data from all count sites, as well as the daily vehicle miles traveled (DVMT) for each county. DVMT is a measure of the total number of miles driven by all vehicles within a specific area over the course of a single day.

Table 14 summarizes the DVMT for each county and urban area within the Central Montana study area. The data is broken down by roadway system type, including interstate, non-interstate NHS, primary, secondary, urban, and off-system routes. The reported values reflect total DVMT for the full geographic extent of each county or urban area, encompassing both rural and urban segments. Consequently, the DVMT totals for counties such as Cascade and Fergus incorporate travel in the Great Falls and Lewistown urban areas, respectively. However, for several counties only partially covered by the study area, the DVMT values may overstate the actual traffic volumes within the Central Montana study area boundary.

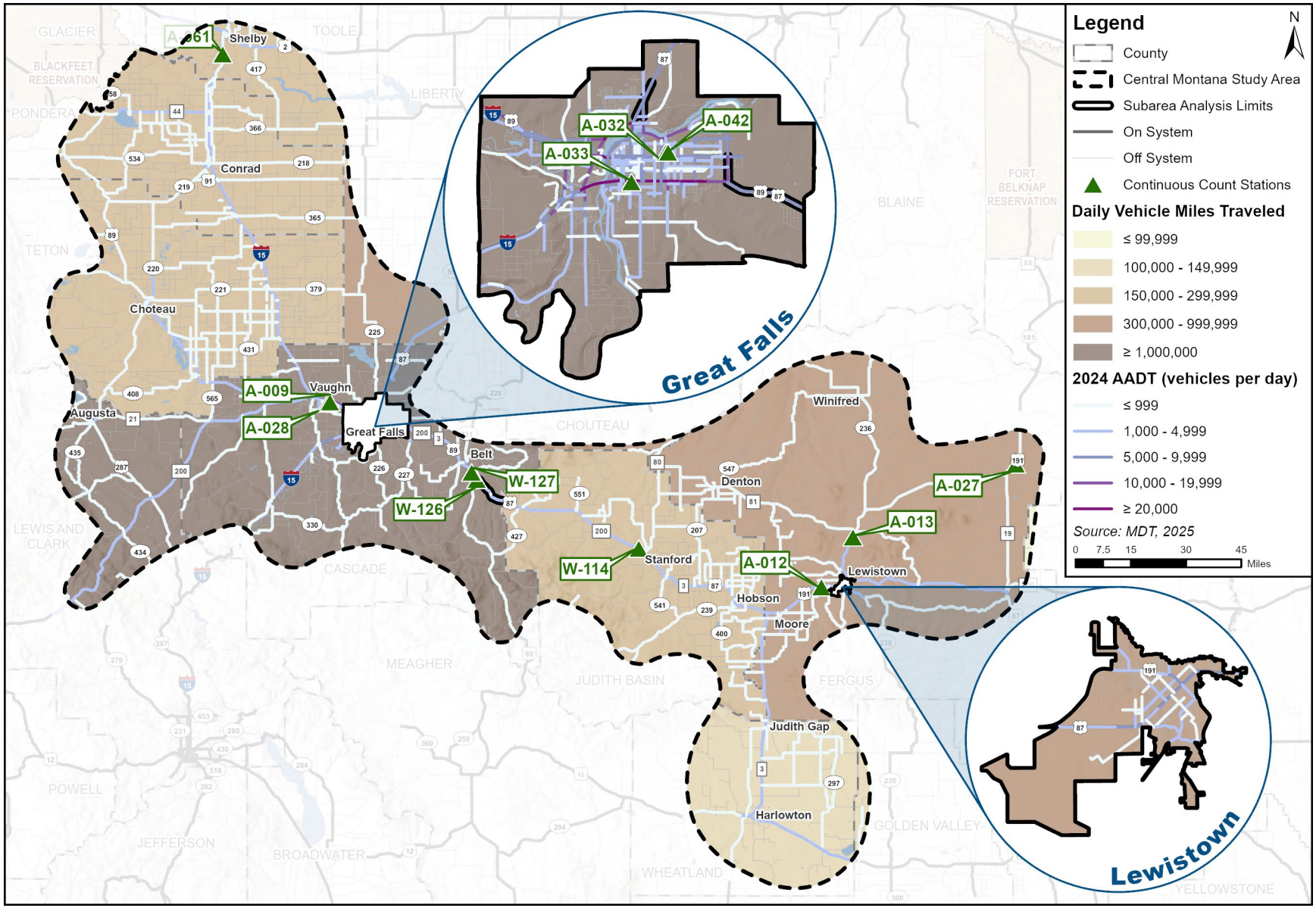

Figure 12: Traffic Data

Table 14: Daily Vehicle Miles Traveled by System

Jurisdiction	Interstate	Non-Interstate NHS	Primary	Secondary	Urban	On System Total	Off System	Total All Systems
COUNTIES								
Cascade	375,057	600,667	43,339	35,218	185,829	1,240,110	503,041	1,743,151
Chouteau	0	140,861	18,101	38,260	0	197,222	158,590	355,812
Fergus	0	223,365	15,351	30,163	12,525	281,404	154,507	435,911
Judith Basin	0	160,688	6,223	10,624	0	177,535	48,037	225,572
Lewis and Clark	353,193	393,708	28,388	90,496	308,861	1,174,646	533,035	1,707,681
Pondera	101,979	0	53,185	26,272	0	181,436	89,628	271,064
Teton	78,415	0	61,358	41,720	0	181,493	93,507	275,000
Toole	115,090	60,691	1,472	18,337	0	195,590	80,158	275,748
Wheatland	0	84,808	28,360	1,503	0	114,671	27,029	171,700
Total County DVMT	**1,023,734**	**1,664,788**	**255,777**	**292,593**	**507,215**	**3,744,107**	**1,687,532**	**5,461,639**
URBAN AREAS								
Great Falls	79,371	391,908	0	0	185,829	657,108	312,125	969,233
Lewistown	0	28,684	0	0	12,525	41,209	40,280	81,489
Total Urban DVMT	**79,371**	**420,592**	**0**	**0**	**198,354**	**698,317**	**352,405**	**1,050,722**

Source: MDT. 2024. Traffic by Counties Report. https://www.mdt.mt.gov/other/webdata/external/Planning/traffic_reports/tbcounties.pdf.
MDT. 2024. Traffic by Urban Report. https://www.mdt.mt.gov/other/webdata/external/Planning/traffic_reports/tburban.pdf.

As shown in **Table 14,** Cascade County records the highest total DVMT of all counties in the study area at approximately 1.74 million DMVT, largely due to its extensive interstate and NHS mileage, as well as its inclusion of the Great Falls urban area. Lewis and Clark County follows closely with 1.71 million DVMT, driven in part by the urban network in Helena, which lies outside the Central Montana study area boundary. The Great Falls and Lewistown urban areas contribute approximately 20 percent of the total DVMT reported for the nine counties within the study area. In total, counties generate about 5.46 million DVMT, while the study area's urban areas contribute just over 1.05 million DVMT. Interstate travel accounts for approximately 1.1 million DVMT, whereas off-system roads contribute 1.69 million DVMT, roughly 30 percent of the total nine-county DVMT. This data highlights the importance of local and rural roads in the region's daily travel patterns.

5.2 Seasonal and Daily Traffic Patterns

On average, January and February traffic volumes are the lowest of the year, at 76 percent and 80 percent of annual daily traffic, respectively. In contrast, June through September consistently exceeds 113 percent of AADT, with July showing the highest average at 117 percent, reflecting strong summer travel demand.

As shown in **Table 15**, seasonal fluctuation is most pronounced on rural corridors such as US 87/MT 200 near Lewistown (A-012) and US 191 near Roy (A-027), where summer traffic reaches 125 percent or more of AADT, and winter months drop to 70 percent or lower. This reflects the strong influence of weather, tourism, and agricultural activity in these regions. In contrast, urban locations in Great Falls, such as 25th Street N (A-032) and 10th Avenue S (A-033), show relatively stable month-to-month variation, generally ranging between 89 percent and 107 percent, indicating more consistent year-round commuter and local traffic.

Table 15: Monthly Traffic Volumes

Site ID	Route	Description	Percent of 2024 AADT												2024 AADT
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
A-009	I-15	7 Mi. W of Great Falls	78%	81%	91%	99%	103%	114%	118%	117%	110%	106%	94%	91%	9,215
A-012	US 87/MT 200	5 Mi. W of Lewistown	70%	73%	86%	95%	107%	119%	125%	119%	118%	111%	95%	83%	2,692
A-013	US 191	9 Mi. N of Lewistown	70%	74%	82%	94%	107%	115%	119%	109%	117%	118%	108%	87%	1,377
A-027	US 191	3 Mi. N of Jct MT 19 (Roy)	61%	72%	81%	91%	124%	120%	115%	114%	125%	118%	100%	81%	637
A-028	Vaughn S Frontage Rd	7 Mi. W of Great Falls	80%	77%	85%	98%	109%	116%	115%	114%	109%	103%	99%	97%	3,266
A-032	25th St N	Between 4th & 5th Aves N (Great Falls)	91%	95%	98%	103%	107%	107%	105%	106%	107%	105%	94%	83%	3,338
A-033	10th Ave S	Between 9th & 10th Sts S (Great Falls)	89%	93%	99%	102%	103%	107%	105%	106%	103%	102%	95%	97%	35,314
A-042	26th St N	Between 4th & 5th Aves N (Great Falls)	89%	92%	97%	105%	108%	107%	104%	106%	106%	104%	94%	89%	2,294
A-061	I-15	3.8 Mi. S of Shelby Interchange	79%	88%	95%	106%	105%	109%	115%	112%	106%	105%	90%	88%	3,092
W-114	US 87	1.5 Mi. W of Stanford	63%	70%	*	94%	103%	*	131%	123%	123%	111%	93%	83%	2,343
W-126	US 87	0.8 Mi. SE of US 89 (East Armington)	67%	69%	85%	96%	111%	129%	133%	*	118%	111%	94%	82%	1,199
Average			**76%**	**80%**	**90%**	**99%**	**108%**	**114%**	**117%**	**113%**	**113%**	**108%**	**96%**	**87%**	**5,888**

Source: MDT. 2024. Montana's Continuous Traffic Counter Report. https://www.mdt.mt.gov/other/webdata/external/Planning/atr/ATRBOOK24.pdf.
**Not enough valid day's data for monthly averages. Note: Site W-127 was down for construction, not enough days to make valid monthly report.*

Figure 13 shows the monthly percentage of the 2024 average annual traffic, averaged across all count sites for illustrative purposes. The figure also shows percentages averaged by day of the week.

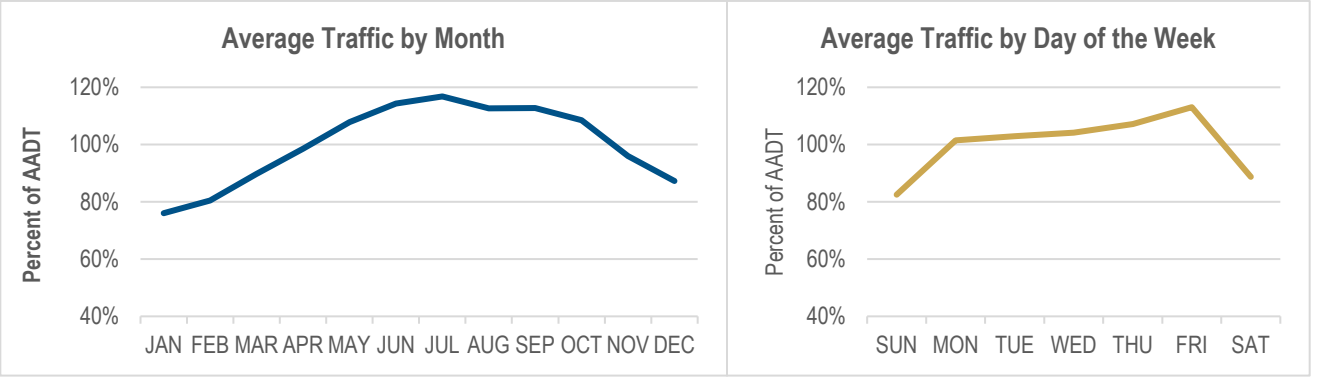

Figure 13: Temporal Traffic Trends

The day-of-week traffic distribution across the continuous count sites in the Central Montana study area is shown in **Table 16**. Overall, traffic is lowest on Sundays and Saturdays, averaging 83 percent and 89 percent of the annual average, respectively. In contrast, weekday volumes are consistently above average, peaking on Fridays at 113 percent of AADT, with Tuesday through Thursday ranging between 103 percent and 107 percent.

These trends are generally consistent across both rural and urban locations, though the degree of variation differs. For example, urban corridors in Great Falls show pronounced weekday peaks (up to 115 percent on Tuesdays and Wednesdays), with substantial drops on weekends, as low as 66–75 percent of AADT on Sundays. Rural routes, such as US 87 near Stanford (W-114) and US 87 near Armington (W-126), show a flatter weekly distribution, suggesting more consistent daily use. These patterns reflect the mix of commuter-based, service, and freight travel within the region. Weekday peaks align with work-related travel, while weekend reductions indicate lower discretionary or non-work-related demand.

Table 16: Daily Traffic Volumes

Site ID	Route	Description	Percent of 2024 AADT							2024 AADT
			SUN	MON	TUE	WED	THU	FRI	SAT	
A-009	I-15	7 Mi. W of Great Falls	82%	99%	102%	103%	107%	113%	93%	9,215
A-012	US 87/MT 200	5 Mi. W of Lewistown	79%	103%	103%	103%	106%	116%	90%	2,692
A-013	US 191	9 Mi. N of Lewistown	78%	105%	108%	104%	108%	112%	86%	1,377
A-027	US 191	3 Mi. N of Jct MT 19 (Roy)	106%	99%	89%	91%	102%	127%	89%	637
A-028	Vaughn S Frontage Rd	7 Mi. W of Great Falls	72%	106%	109%	110%	108%	111%	86%	3,266
A-032	25th St N	Between 4th & 5th Aves N (Great Falls)	66%	107%	115%	114%	114%	109%	75%	3,338
A-033	10th Ave S	Between 9th & 10th Sts S (Great Falls)	75%	102%	107%	107%	108%	112%	90%	35,314
A-042	26th St N	Between 4th & 5th Aves N (Great Falls)	71%	105%	113%	112%	111%	109%	80%	2,294
A-061	I-15	3.8 Mi. S of Shelby Interchange	82%	100%	103%	106%	107%	110%	92%	3,092
W-114	US 87	1.5 Mi. W of Stanford	95%	94%	91%	97%	106%	116%	99%	2,343
W-126	US 87	0.8 Mi. SE of US 89 (East Armington)	101%	97%	93%	98%	103%	110%	96%	1,199
Average			**83%**	**102%**	**103%**	**104%**	**107%**	**113%**	**89%**	**5,888**

Source: MDT. 2024. Montana's Continuous Traffic Counter Report. https://www.mdt.mt.gov/other/webdata/external/Planning/atr/ATRBOOK24.pdf.
Note: Site W-127 was down for construction, not enough days to make valid monthly report.

5.3 Historic Traffic Volumes

Figure 14 shows historic traffic volumes at the continuous count sites within the study area over the past 20 years, while **Table 17** presents the average growth rates for each of the sites over the past 20-, 15-, 10-, and five-year timeframes. In **Figure 14**, the AADT values at site A-033 are shown on a secondary axis due to being over five times as large as other count sites.

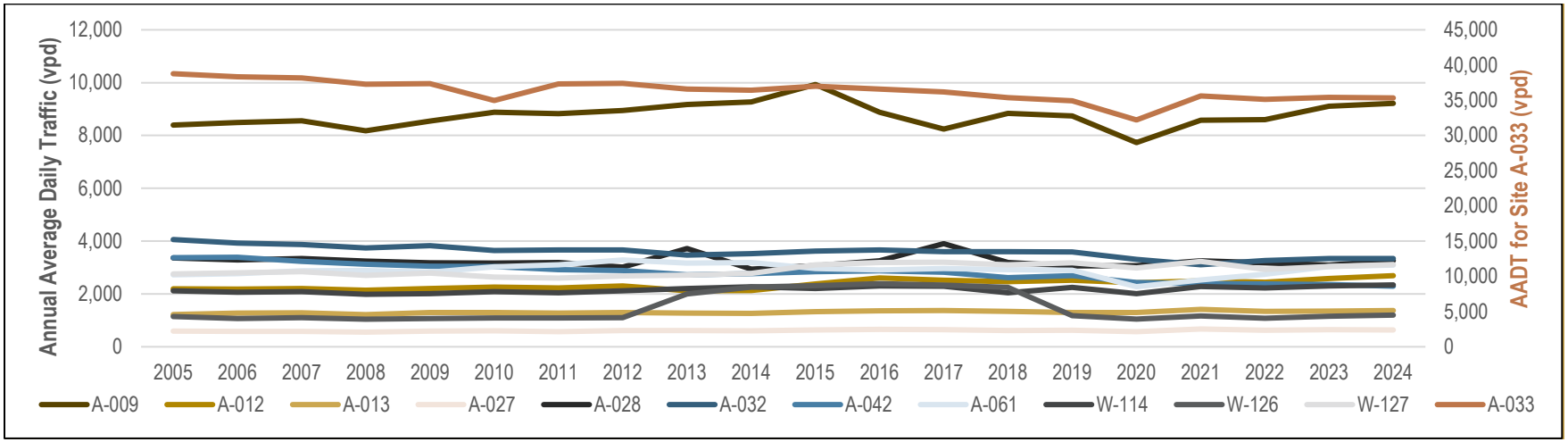

Figure 14: Historic Traffic Volumes

Table 17: Historic Traffic Growth

Site ID	Route	RP	Description	2005 AADT	2024 AADT	Annual Growth			
						20-Year (2005 – 2024)	15-Year (2010 – 2024)	10-Year (2015 – 2024)	5-Year (2020 – 2024)
A-009	I-15	286.36	7 Mi. W of Great Falls	8,390	9,215	0.15%	-0.29%	-0.30%	4.20%
A-012	US 87/MT 200	76.52	5 Mi. W of Lewistown	2,190	2,692	1.08%	1.27%	0.56%	2.48%
A-013	US 191	9.43	9 Mi. N of Lewistown	1,220	1,377	0.50%	0.46%	0.17%	0.66%
A-027	US 191	69.09	3 Mi. N of Jct MT 19 (Roy)	590	637	0.58%	0.45%	-0.16%	1.87%
A-028	Vaughn S Frontage Rd	3.33	7 Mi. W of Great Falls	3,360	3,266	-0.15%	-0.05%	-0.45%	0.72%
A-032	25th St N	0.50	Between 4th & 5th Aves N (Great Falls)	4,060	3,338	-0.99%	-0.86%	-1.43%	0.90%
A-033	10th Ave S	94.33	Between 9th & 10th Sts S (Great Falls)	38,770	35,314	-0.54%	-0.42%	-0.52%	1.80%
A-042	26th St N	2.09	Between 4th & 5th Aves N (Great Falls)	3,370	2,294	-1.92%	-1.89%	-2.71%	-1.26%
A-061	I-15	357.93	3.8 Mi. S of Shelby Interchange	2,720	3,092	-0.18%	-1.00%	-0.21%	8.28%
W-114	US 87	35.17	1.5 Mi. W of Stanford	2,120	2,343	0.58%	0.52%	0.36%	3.22%
W-126	US 87	0.81	0.8 Mi. SE of US 89 (East Armington)	1,147	1,199	0.99%	-1.77%	-9.75%	2.66%
W-127	US 89/87	72.28	0.5 Mi. NW of US 89 (West Armington)	2,760	3,110	0.87%	1.25%	-0.43%	0.20%
					Weighted Average	**-0.25%**	**-0.30%**	**-0.64%**	**2.23%**

Source: MDT. 2024. Traffic Count Database System. https://mdt.public.ms2soft.com/tcds/tsearch.asp?loc=Mdt&mod=. Calculations by RPA. 2025.

Historic traffic volumes at the continuous count sites in the study area illustrate a mix of long-term decline, modest growth, and a sharp recent rebound in volumes. Over the full 20-year period, the weighted average annual growth was slightly negative at -0.25 percent, with continued decline evident over the 15- and 10-year spans. However, the five-year period from 2020 to 2024 stands out with a large, positive weighted average increase of 2.23 percent annually.

This short-term growth is likely largely attributable to the impacts of the COVID-19 pandemic in 2020 when lockdowns and travel restrictions caused a steep drop in traffic volumes. As restrictions eased and activity resumed, traffic bounced back, creating an overstated appearance of growth when comparing 2024 levels to the unusually low 2020 baseline. This “bounce-back” effect is especially evident in segments like I-15 south of the Shelby Interchange (A-061), which posted an 8.28% annual increase, potentially due to resumed tourism from Canada, and in urbanized areas of Great Falls such as 10th Avenue S (A-033) and 25th Street N (A-032), where recent growth followed extended periods of decline. The pandemic’s effects appeared to be more pronounced in urban and suburban locations where traffic was more sensitive to shifts in commuting, schooling, and discretionary travel. In contrast, more rural, less densely populated areas of the study area, such as near Armington (W-127) or north of Lewistown (A-013), likely experienced less dramatic disruptions, with more stable traffic levels throughout the pandemic period and more modest five-year growth rates that likely reflect organic trends rather than recovery from suppressed volumes.

Looking at the full dataset, US 87/MT 200 west of Lewistown (A-012) shows the strongest and most consistent long-term growth at 1.08% annually over 20 years. Meanwhile, several urban segments in Great Falls, particularly 26th Street N (A-042), showed persistent declines across all timeframes, though some, like 25th Street N and 10th Avenue S, may be experiencing a partial recovery in the post-COVID years.

When viewed over the longer term, most locations in the study area exhibit either declining trends or stagnant growth. As the region prepares for increased traffic activity associated with the upcoming Sentinel deployment and other development activities, the apparent rapid growth from recent years may obscure emerging capacity or infrastructure challenges, particularly along key highway corridors. As Sentinel-related operations begin, a proactive and flexible approach to planning, especially on higher-volume routes like I-15 and US 87 and in areas near urban centers, can help ensure the transportation network remains safe, efficient, and resilient under future demands.

5.4 Heavy Vehicle Volumes

An evaluation of heavy vehicle traffic within the study area was conducted using data from MDT’s continuous count sites. The proportion of heavy vehicles in the traffic stream varies considerably across locations, reflecting differences in corridor function, surrounding land use, and regional freight activity. As shown in **Table 18**, heavy vehicle percentages range from as low as two percent on urban streets within Great Falls to nearly 50 percent on US 87 near the Armington Junction weigh station (W-126).

In terms of absolute truck volumes, activity is highest along major regional and interstate corridors. For instance, I-15 west of Great Falls (A-009) carries over 1,100 trucks daily, while the segment south of Shelby (A-061), despite having lower total traffic volumes, registers over 1,300 trucks per day, highlighting the importance of I-15 as a through-route for freight. Similarly, 10th Avenue S (A-033) in Great Falls, a

heavily traveled urban arterial, sees more than 1,000 daily trucks, even though its truck percentage is relatively low at 3.1 percent, indicating a broad mix of vehicle types in a dense urban setting.

Truck volumes are also substantial on certain rural corridors. US 87 near Stanford (W-114) and US 89/87 near West Armington (W-127) carry over 500 to 700 trucks per day, representing 22 to 24 percent of total traffic. These volumes highlight the role of US 87 and US 89 corridors in supporting regional freight movement through Central Montana. In contrast, smaller rural highways, such as US 191 north of Lewistown (A-013) and the Vaughn South Frontage Road (A-028), carry fewer than 200 trucks daily, though still serving critical local access and agricultural transport functions. In urban areas such as Great Falls, truck percentages are generally low, typically under four percent, carrying 50 to 100 trucks per day, primarily consisting of service vehicles and local deliveries.

These patterns emphasize the diversity of freight demand across the study area. Understanding these demands is essential for infrastructure investment, pavement design, and operational planning, especially in anticipation of traffic increases associated with the Sentinel deployment and other regional developments.

Table 18: Heavy Vehicle Volumes

Site ID	Route	RP	Description	2024 AADT	2024 Trucks	Heavy Vehicle Percentage
A-009	I-15	286.36	7 Mi. W of Great Falls	9,215	1,168	12.7%
A-012	US 87/MT 200	76.52	5 Mi. W of Lewistown	2,692	233	8.7%
A-013	US 191	9.43	9 Mi. N of Lewistown	1,377	187	13.6%
A-027	US 191	69.09	3 Mi. N of Jct MT 19 (Roy)	637	58	9.1%
A-028	Vaughn S Frontage Rd	3.33	7 Mi. W of Great Falls	3,266	116	3.6%
A-032	25th St N	0.5	Between 4th & 5th Aves N (Great Falls)	3,338	105	3.1%
A-033	10th Ave S	94.33	Between 9th & 10th Sts S (Great Falls)	35,314	1,093	3.1%
A-042	26th St N	2.09	Between 4th & 5th Aves N (Great Falls)	2,294	50	2.2%
A-061	I-15	357.93	3.8 Mi. S of Shelby Interchange	3,092	1,304	42.2%
W-114	US 87	35.17	1.5 Mi. W of Stanford	2,343	563	24.0%
W-126	US 87	0.81	0.8 Mi. SE of US 89 (East Armington)	1,199	563	47.0%
W-127	US 89/87	72.28	0.5 Mi. NW of US 89 (West Armington)	3,110	701	22.5%

Source: MDT. 2024. Traffic Count Database System. https://mdt.public.ms2soft.com/tcds/tsearch.asp?loc=Mdt&mod=.

5.5 Highway Operations

Given the size and complexity of the overall study area, conducting a full operational analysis of every corridor and intersection was not feasible. Instead, a focused approach was adopted, concentrating on the five subareas, which are known to exhibit operational challenges and elevated traffic volumes, and are anticipated to experience significant growth from VACOM activities, the forthcoming Sentinel deployment, and other known developments.

Within these subareas, traffic operations were analyzed in detail using a combination of turning movement counts (TMCs), level of service (LOS) assessments, highway capacity analysis, and corridor-level microsimulation modeling, tailored to the scope and nature of traffic concerns in each location. Comprehensive traffic operations data for the subareas are presented in the corresponding *Existing and Projected Conditions Reports*. Although these analyses do not encompass the entire study area, the targeted methodology allows for a deeper understanding of traffic dynamics in critical locations. The focused results also provide insight into system-wide performance trends, highlight congestion hotspots, and help identify multimodal and freight-related challenges that may be indicative of broader conditions.

5.5.1 Highway Level of Service

To evaluate roadway performance across the larger network, MDT uses the LOS concept to evaluate roadway performance, similar to a report card, where LOS A indicates free-flowing traffic and LOS F represents severe congestion. MDT's performance targets call for at least LOS B on the Interstate system and LOS C on NHS and Primary routes. LOS data for Interstate, NHS, and Primary routes across the state based on 2024 traffic data is shown in **Figure 15**.

Within the study area, all rural highways are shown to operate at LOS A, well within desired levels. In contrast, the urban areas of Great Falls and Lewistown experience more traffic, with various routes exhibiting LOS B and C. However, the operational status of all Interstate, NHS, and Primary routes within the Central Montana study area are shown to operate within desired levels based on MDT's performance targets. To address site-specific operational issues, MDT works closely with local governments to identify problem areas using LOS analyses, traffic volume data, and delay metrics. Identified deficiencies may be addressed through measures such as signal timing adjustments, intersection upgrades, access management, and in some cases, roadway widening to add capacity.

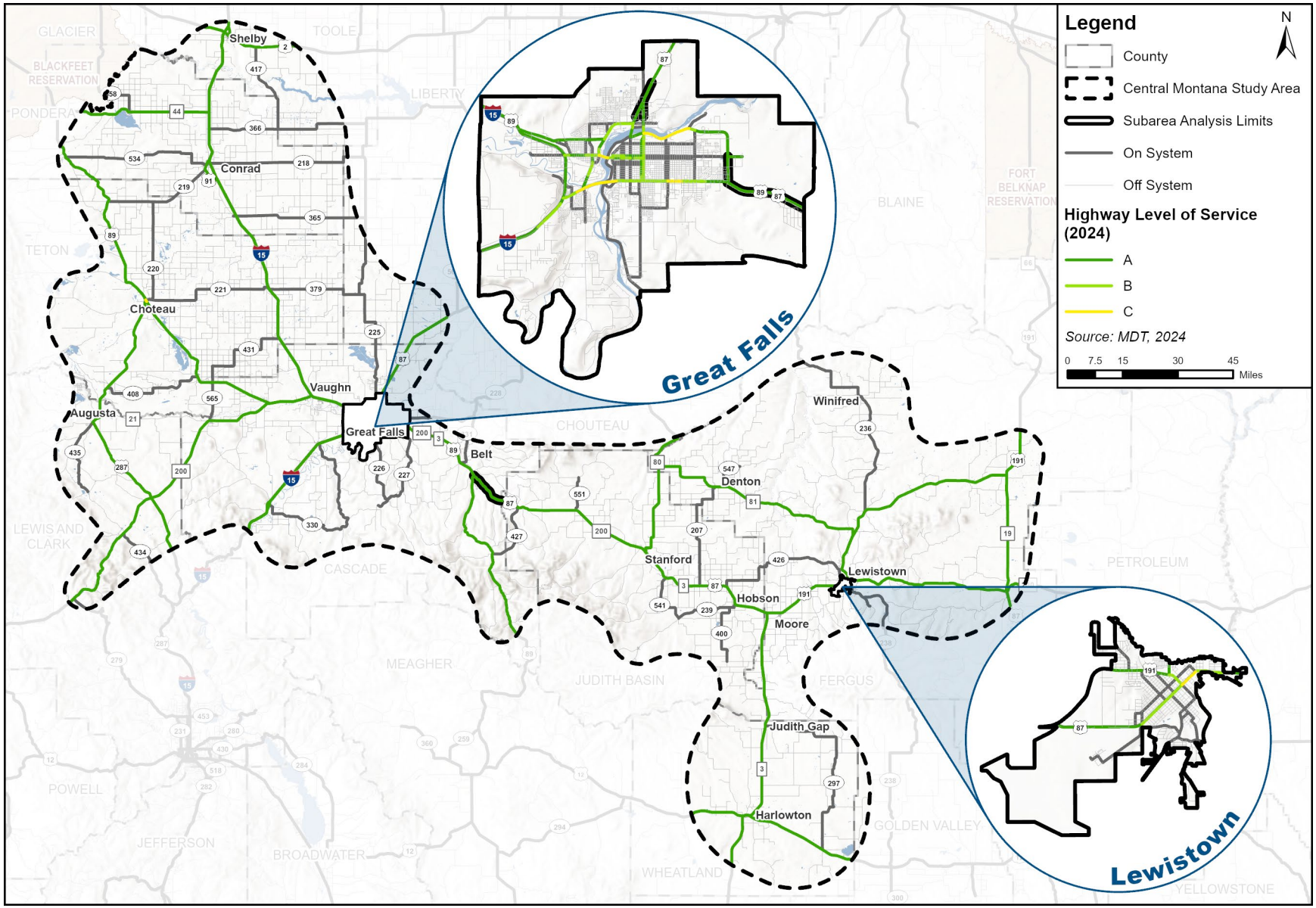

Figure 15: Montana Roadway LOS

5.5.2 Travel Time Reliability

Travel time reliability (TTR) refers to the consistency or predictability of trip durations over time. TTR measures the variability of travel times under the same conditions (route, time of day, and mode) and indicates how often actual travel times deviate from the expected or average. A highly reliable system has low variance, meaning users can plan their trip with confidence knowing it will take roughly the same amount of time each day.

FHWA uses the Level of Travel Time Reliability (LOTTR) metric to assess the dependability of travel times on the interstate and non-interstate NHS. LOTTR is defined as the percent of person-miles traveled on the system that are considered reliable, calculated as the ratio of longer travel times (80th percentile) to "normal" travel times (50th percentile). Data are collected in 15-minute intervals and reliability measures are grouped into three weekday peak periods (6–10 a.m., 10 a.m.–4 p.m., 4–8 p.m.) and one weekend period (6 a.m.–8 p.m.).

MDT establishes and reports reliability performance targets to FHWA. Strategies and policies supporting these targets are outlined in *TranPlanMT* and the *Montana Freight Plan*. For the 2022–2025 performance period, MDT's targets include maintaining 98 percent of interstate person-miles traveled and 80 percent of non-interstate person-miles traveled as reliable. Additionally, MDT has set an interstate truck travel time reliability index target of 1.30, with any value below 1.50 considered reliable at the national level.

In 2024, MDT's LOTTR metrics indicate generally reliable travel times across the state, with a few localized areas of concern. Mapping for the A.M. peaks only are shown in **Figures 16** and **17**.

- **A.M. Peak (6–10 a.m.)** – Most routes have reliable TTRs between 1.0 and 1.5. Notable exceptions include US 2 near Shelby (TTR between 1.5 and 2.05) and US 191/US 87 in and around Lewistown, where segments in all directions measure between 1.5 and 2.0. In Great Falls, most routes fall between 1.0 and 1.5, though some segments near busy intersections—such as the Malmstrom AFB entrance and Old Havre Highway—show higher variability (1.5–2.0).
- **Midday (10 a.m.–4 p.m.)** – Conditions are largely consistent with the A.M. peak period, with slight improvements on US 191 southwest of Lewistown and at intersections in Great Falls.
- **P.M. Peak (4–8 p.m.)** – TTR patterns mirror those observed in the A.M. peak.
- **Weekend (6 a.m.–8 p.m.)** – Reliability remains similar to A.M. peak conditions, with most routes between 1.0 and 1.5.

For **truck travel time reliability (TTTR)**, most NHS routes remain highly reliable (TTTR less than 0.5). Exceptions include:

- **A.M. Peak** – I-15 operates between 1.0 and 1.5, with one segment near Shelby rising to 1.5–2.0. I-315 in Great Falls exhibits a TTTR greater than 2.0.
- **Midday** – Patterns are essentially unchanged from the AM period.
- **P.M. Peak** – Similar to A.M. peak period, but with improved conditions on I-15 near Shelby.
- **Weekend** – Conditions mirror the P.M. period, with improvements on I-15 near Shelby maintained.

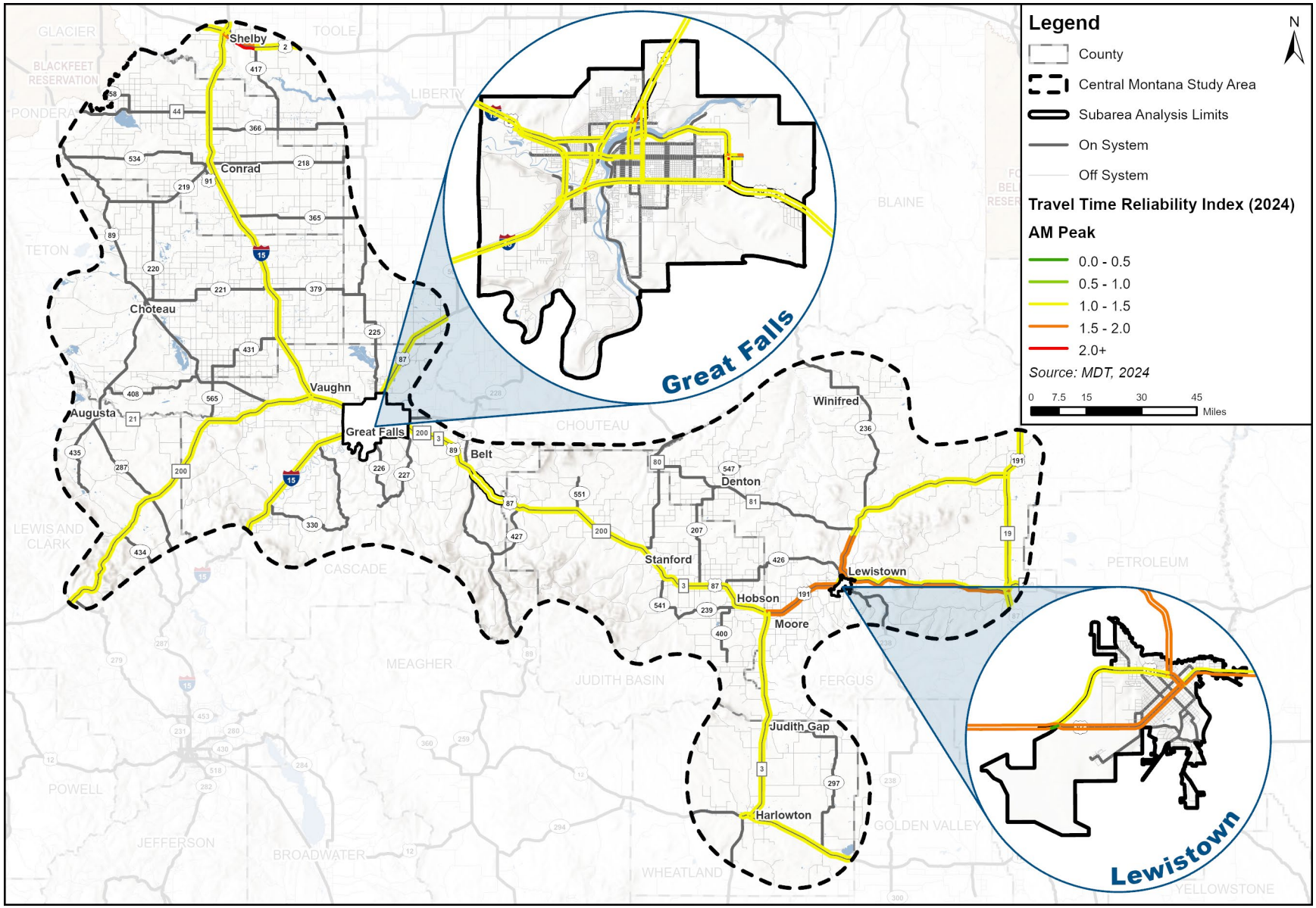

Figure 16: Travel Time Reliability - AM Peak

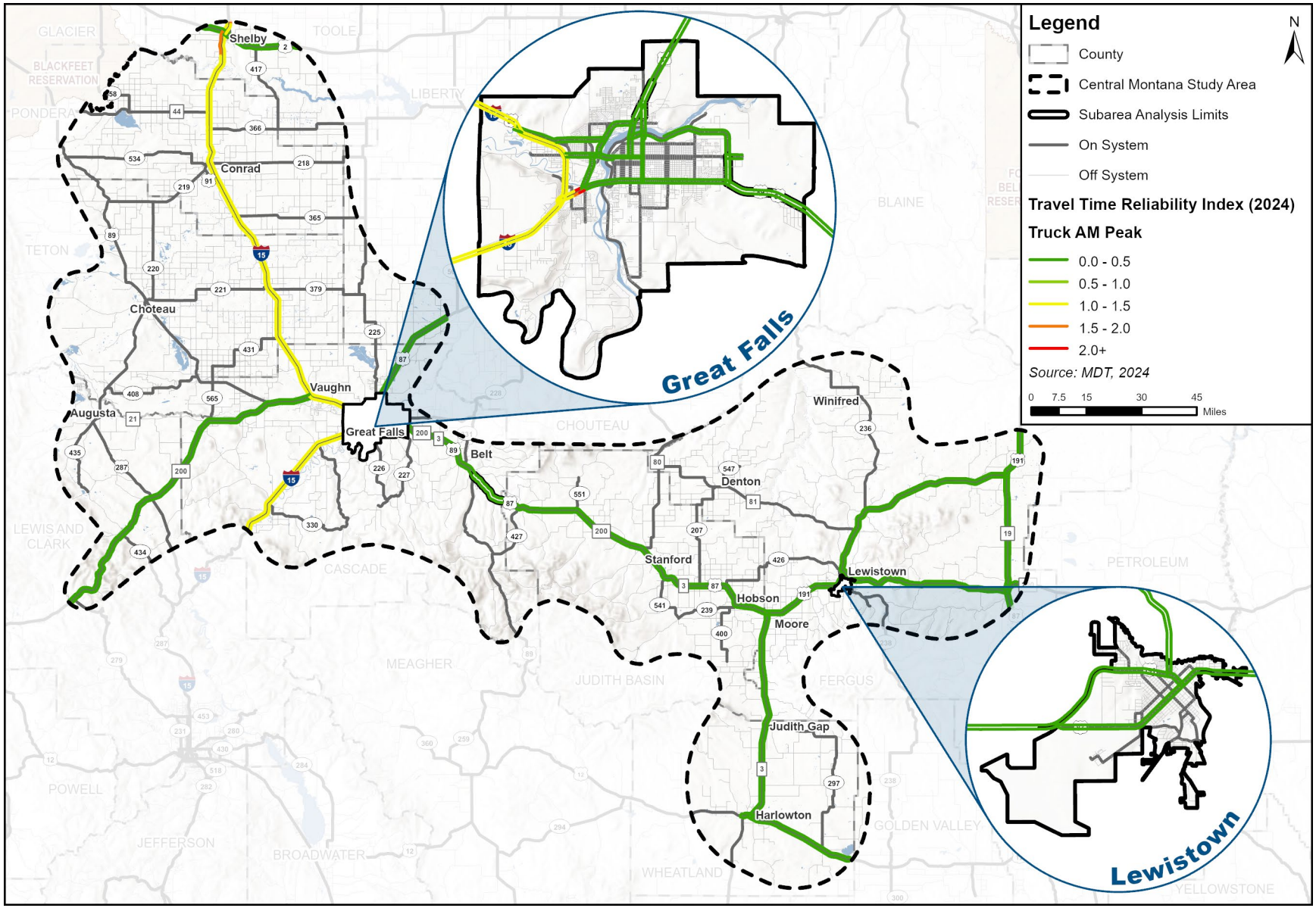

Figure 17: Truck Travel Time Reliability - AM Peak

6.0 SAFETY CONDITIONS

Crash data for the Central Montana study area was provided by the MDT Traffic and Safety Bureau for the five-year period between January 1, 2019, and December 31, 2023.[i]

This information includes data from crash reports submitted to the MHP from their patrol officers and from local law enforcement agencies. The crash reports are a summation of information from the scene of the crash provided by the responding officer. Some of the information contained in the crash reports may be subjective. Any crash records from other law enforcement agencies that were not reported to or by the MHP were not contained in the database and are not included in this analysis.

6.1 Data Limitations

Although crash data can help identify trends in behavioral and circumstantial contributors to crashes within the study area, there are some limitations to the data. A primary limitation is unreported and unknown data. Many crash records include various fields left blank. Occasionally, a report will have “unknown” listed rather than a blank field. Without this information, it may be difficult to capture the complete picture of what happened in crashes. Similarly, many crashes, especially those where individuals and vehicles are unharmed, do not get reported to the police. Underreporting can limit the ability to properly and effectively manage road safety, since the analyses in this report are based only on reported crash data.

Another limitation may be reporting inconsistencies. Although protocol has been established and training for filling out crash reports is provided to law enforcement, there may still be discrepancies or errors in the reporting. Often, the available crash data does not present the full picture. The data analysis in the following sections is based solely on the information contained in the crash records. These records are evaluated as reported, with no attempts made to correct errors or fill in missing information.

In addition, the crash data provided by MDT included only crash-level details and did not contain specific information on the vehicles or persons involved. This lack of granularity makes it difficult to fully assess behavioral circumstances that may have contributed to the incidents. Furthermore, due to the large size of the study area, the analysis presented offers broad trend observations rather than identifying specific, location-based safety concerns. To help contextualize and interpret the data more effectively, many of the analyses were conducted to compare trends among all crashes versus severe (fatal or suspected serious injury) crashes, urban versus rural crashes, and on-system versus off-system crashes.

[i] *Pursuant to 23 U.S.C. § 407, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of Title 23, U.S.C., or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data. This publication is not intended to waive any of the State of Montana’s rights or privileges under 23 U.S.C. § 407.*

6.2 Crash Location

The crash locations were plotted using the latitude and longitude assigned to each record. According to the records, a total of 12,897 crashes were reported within the study area during the five-year analysis period. The crash records were reviewed to identify trends, contributing factors, and characteristics as discussed in the following sections. The spatial distribution and density of crashes within the study area are illustrated in **Figure 19.**

Crashes are primarily concentrated in the urban centers of the study area, accounting for 67 percent of all reported crashes. Great Falls and Lewistown are the only urban areas within the study area. The remaining 33 percent of crashes occurred in rural parts of the study area. Rural crashes were concentrated along the highest-volume highways in the study area, including I-15, US 87, US 89, US 191, and MT 200.

By county, the majority of crashes occurred in Cascade County (77 percent), followed by Fergus County (nine percent) and Teton County (four percent). Within city boundaries, approximately 58 percent of all crashes occurred in the City of Great Falls, three percent in Lewistown, and one percent in Shelby. In total, 37 percent of all crashes took place outside of established city limits.

In terms of roadway jurisdiction, 61 percent of crashes occurred on MDT's on-system routes, while 37 percent occurred on off-system routes. Among the on-system crashes, the largest share occurred on non-interstate NHS routes (33 percent of all crashes), followed by urban routes (13 percent) and interstates (eight percent), as shown in **Figure 18**. Approximately 52 percent of the roadways where crashes occurred are under the jurisdiction of the state highway agency (MDT). About 42 percent of the crashes took place on roadways under city jurisdiction, and five percent occurred on county-maintained roadways. Although most on-system routes are maintained by MDT, some cities and counties maintain on-system routes within their jurisdictions, especially in urban fringe areas. The remaining one percent of crashes occurred on roadways maintained by other agencies, including the Bureau of Fish and Wildlife, Bureau of Land Management, U.S. Park Service, and other entities such as state parks, forests, or reservation agencies.

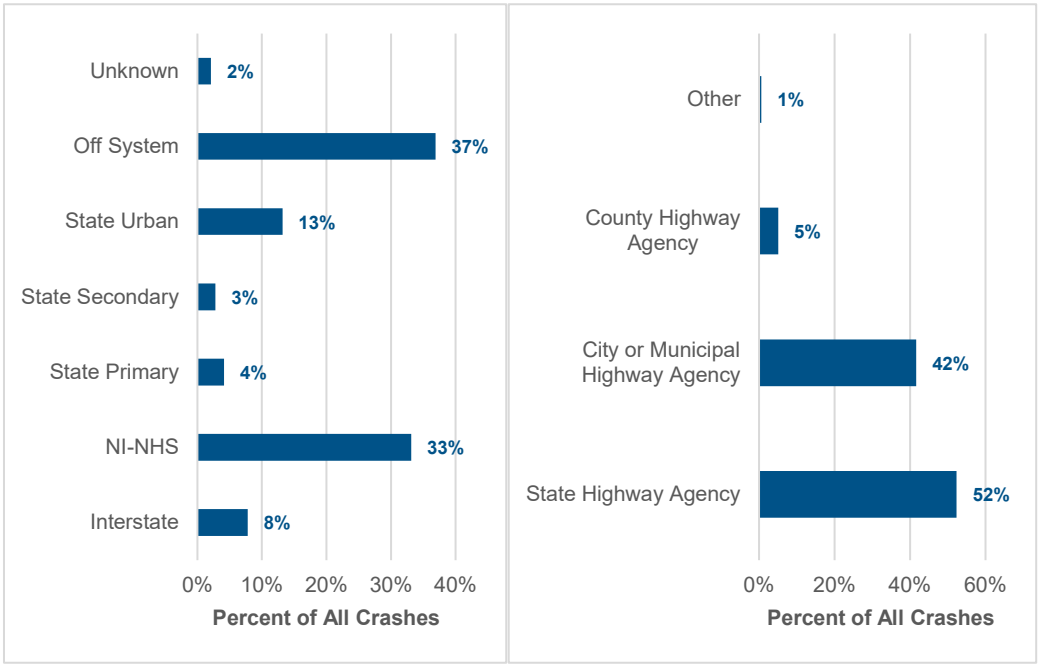

Figure 18: System Class and Roadway Owner

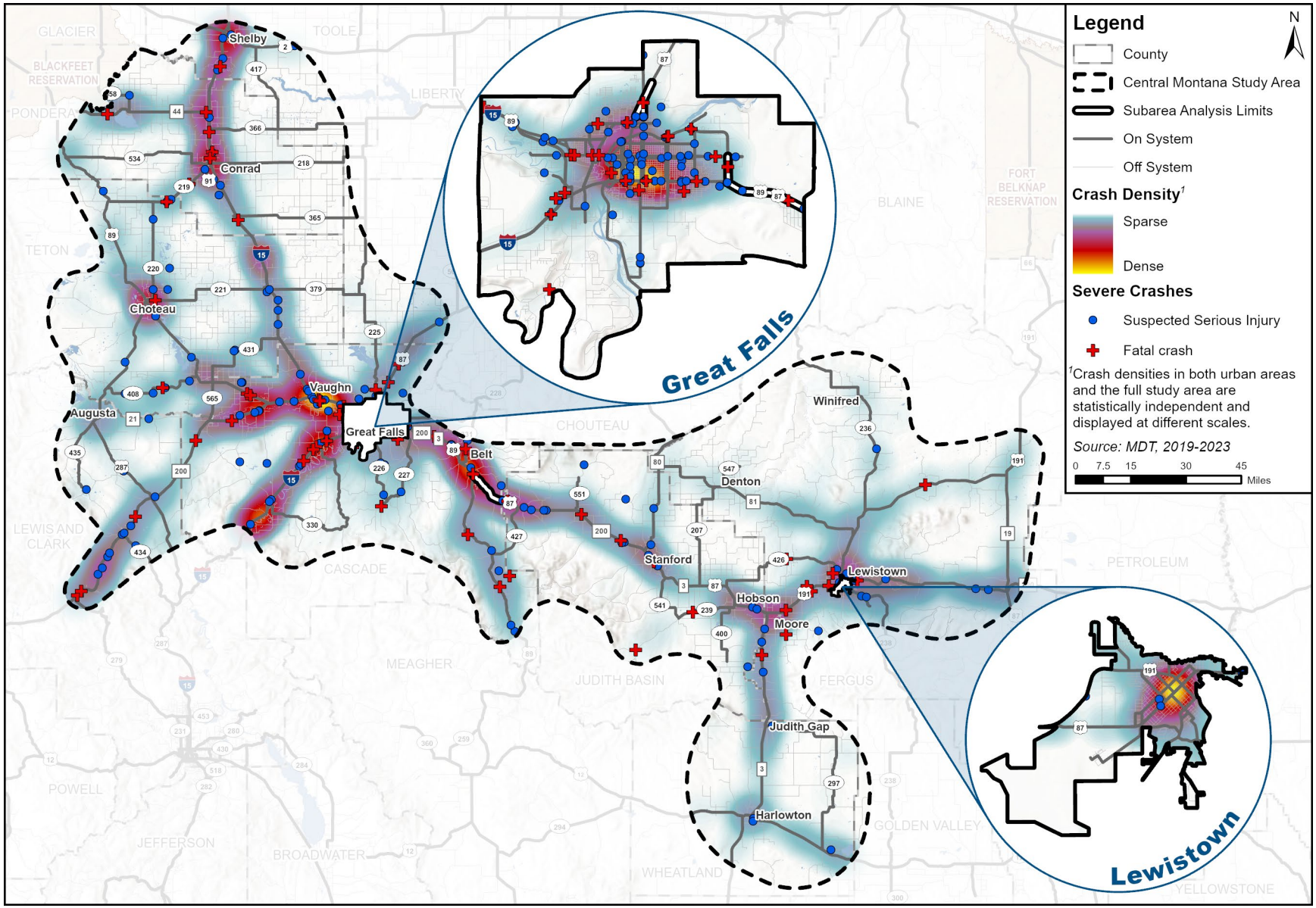

Figure 19: Crash Density and Severe Crashes

6.3 Crash Severity

Crashes can be categorized by the severity of injuries reported. The most severe injury defines the severity of the crash. For example, if a crash results in a single fatality and a minor injury, the crash would be defined as a fatal crash. Crash severity includes, from least severe to most, property damage only (PDO), possible injury, suspected minor injury, suspected serious injury, and fatal injury. Severe crashes include those resulting in a fatality or suspected serious injury.

The distribution of reported crash severity is presented in **Figure 20**. There were 76 fatal crashes and 206 suspected serious injury crashes, composing less than three percent of all crashes. The locations of severe crashes were shown previously in **Figure 19**. There were 1,073 suspected minor injury crashes (eight percent) and 1,261 possible injury crashes (10 percent). Over 700 crashes, approximately six percent had unknown severity. The remaining 9,568 crashes (74 percent) resulted in PDO.

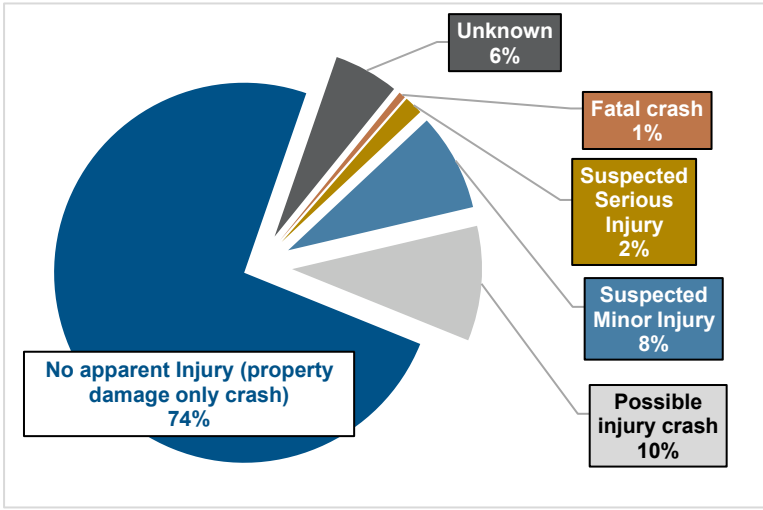

Figure 20: Crash Severity

Severe crashes display a different urban-rural distribution compared to all crashes. While 67 percent of all crashes occurred in urban areas and 33 percent occurred in rural areas, this pattern is reversed for severe crashes, where only 35 percent occurred in urban areas and 65 percent occurred in rural areas.

In contrast, the distribution of severe crashes by roadway system is similar to the distribution observed for all crashes. Approximately 68 percent of severe crashes occurred on MDT's on-system routes, 28 percent on off-system routes, and the remaining four percent on routes with unknown jurisdiction.

6.4 Crash Period

Each crash record includes the date and time when the crash occurred. This information can be used to determine seasonal and other time dependent trends. Time of day data was analyzed to determine if any specific trends were present.

As illustrated in **Figure 21**, the distribution of all reported crashes remained relatively consistent between 2019 and 2023, with the highest numbers occurring in 2019, 2021, and 2022, each accounting for approximately 21

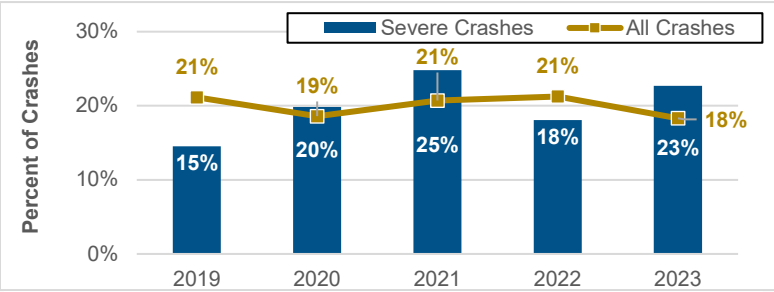

Figure 21: Crashes by Year

percent of total crashes. A slight decline was observed in 2020 (at 19 percent), likely influenced by reduced travel during the COVID-19 pandemic, followed by a decrease to 18 percent in 2023. In contrast, the distribution of severe crashes shows greater year-to-year variability and an overall increasing trend. Severe crashes made up only 15 percent of the total in 2019 but rose to 20 percent in 2020 and peaked at 25 percent in 2021. Although this percentage dipped slightly in 2022 to 18 percent, it increased again in 2023 to 23 percent.

Figure 22 illustrates the distribution of crashes by month and day of the week across multiple categories: all crashes, severe crashes, urban and rural crashes, and on- and off-system routes. Monthly trends for urban/rural areas and system designations follow a similar pattern, with the highest number of crashes occurring during the winter months (November through February), followed by a decline in the spring and a gradual increase through the summer, peaking in July. In contrast, severe crashes exhibit the opposite pattern, with the lowest percentages in winter months and a steady rise through the warmer months, reaching a peak in August.

Day-of-week trends reveal that crashes are most frequent on weekdays, with Monday through Friday accounting for approximately 78 percent of all crashes, and 22 percent occurring on weekends. However, severe crashes are more prevalent on weekends, with Saturday and Sunday comprising 31 percent of all severe crashes. In rural areas, crashes are more evenly distributed across the week, though Fridays account for the highest share (16 percent). Other characteristics, including urban/rural and system type distinctions, show only minor deviations from the overall crash distribution.

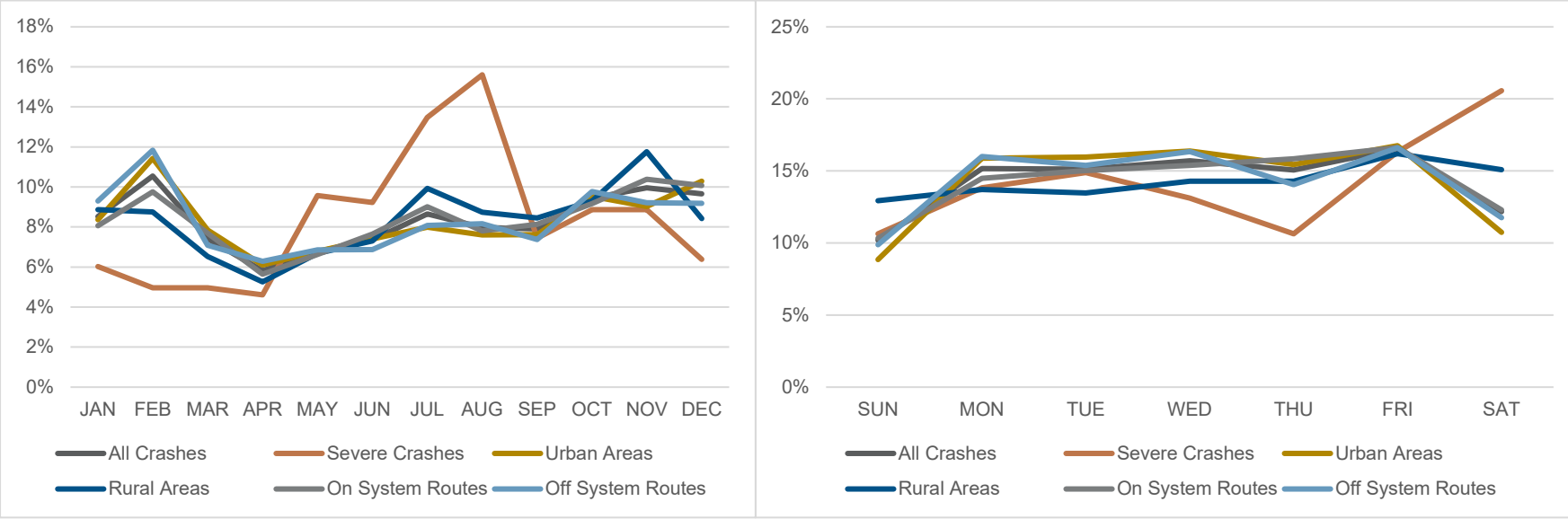

Figure 22: Crashes by Month and Day of the Week

Figure 23 illustrates the hourly distribution of crashes throughout the day. The pattern for all crashes reveals multiple distinct peaks: 8:00 AM, 12:00 PM, 3:00 PM, and 5:00 PM. These times generally align with typical commute periods, lunch breaks, and school-related traffic. After 5:00 PM, crash frequency declines steadily into the evening hours. Severe crashes follow a similar overall pattern but show a notably higher incidence during late evening and early morning hours.

Crash trends by system type closely mirror the overall crash distribution, with peaks occurring at the same times. However, urban and rural areas exhibit distinct hourly patterns. In rural areas, there is an early peak around 7:00 AM, followed by a midday dip and then sharper increases in the late afternoon and evening, with secondary peaks at 5:00 PM and 8:00 PM. In contrast, urban areas reflect the general trend seen in the all crashes dataset, with concentrated peaks during morning commutes, midday (lunchtime), school dismissal hours, and the evening commute.

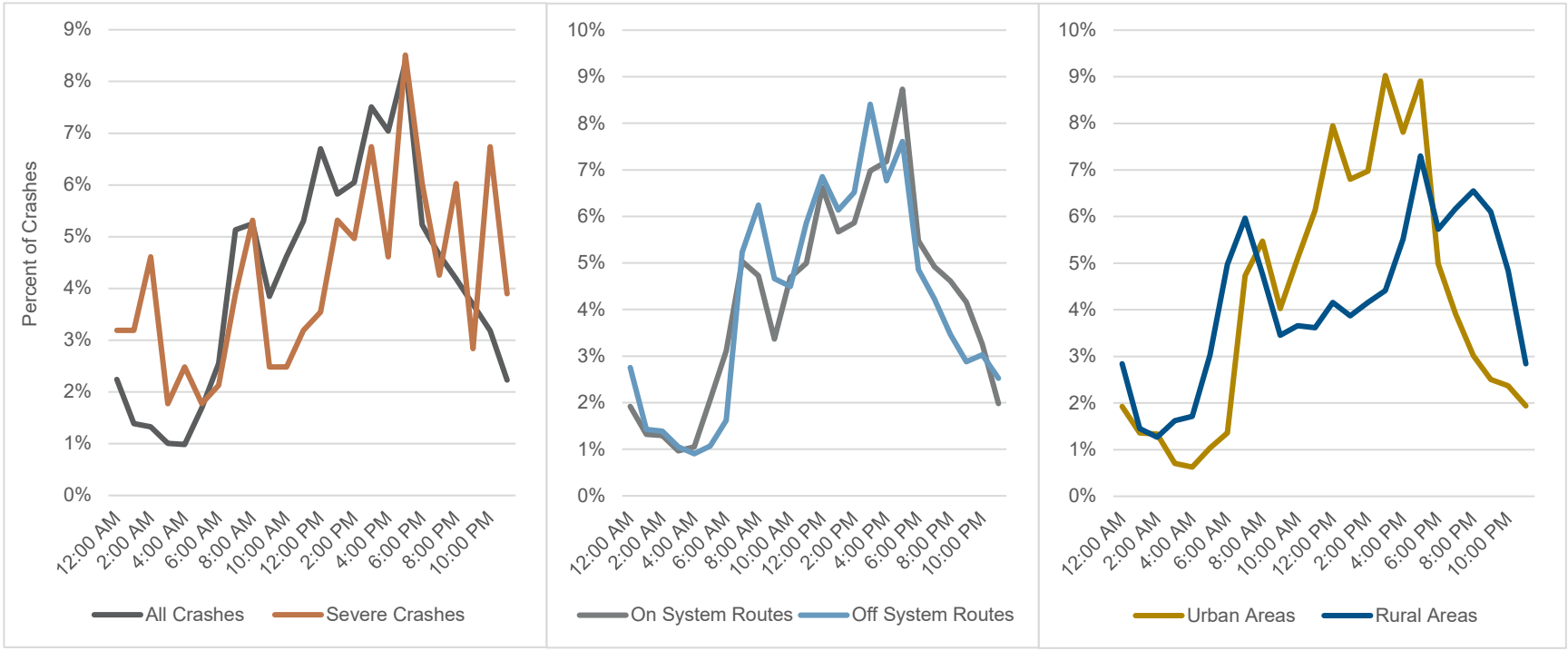

Figure 23: Hourly Crash Trends

6.5 Crash Type

Crash types were grouped into two categories: single- and multiple-vehicle crashes. Single-vehicle crashes, which involve only one vehicle, accounted for 38 percent of all reported crashes. The most frequent single-vehicle crash types were fixed object crashes (14 percent of all crashes), followed by wild animal crashes (13 percent), and roll over crashes (seven percent).

In contrast, multiple-vehicle crashes, which involve two or more vehicles, made up 62 percent of all crashes. The most common types within this category were rear end crashes (20 percent of all crashes), followed by right angle crashes (19 percent), sideswipe collisions (11 percent), and crashes involving left- or right-turn maneuvers (four percent).

As shown in **Figure 24,** the most prevalent crash types overall were rear end and right angle collisions, reflecting the dominance of multiple-vehicle incidents in the dataset. However, for severe crashes, the distribution shifted notably, where roll overs (34 percent), fixed object crashes (17 percent), and right-angle collisions (14 percent) were most common. This indicates that severe crashes were more likely to be single-vehicle events.

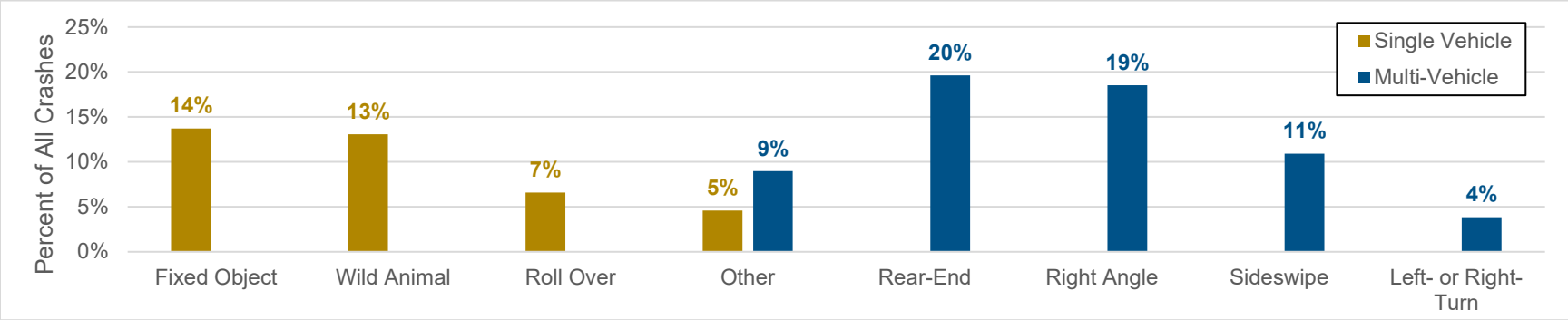

Figure 24: Crash Type Distribution

Crash type trends also varied by location context. In urban areas, rear end (27 percent) and right angle (26 percent) crashes were most frequent, which is typical of higher-traffic environments with signalized intersections and stop-and-go conditions. In rural areas, crash types were dominated by wild animal crashes (36 percent), fixed object collisions (21 percent), and roll overs (18 percent), indicating a higher prevalence of single-vehicle incidents.

System designation appeared to have less effect on crash characteristics. On MDT's on-system routes, crashes most often involved rear end collisions (21%) and wild animal crashes (20%), compared to off-system routes where right angle crashes (25%) and rear end crashes (17%) were more common. These patterns reflect a mix of single- and multiple-vehicle crashes across systems, with system classification having lower influence on dominant crash types.

6.6 Junction Relation

Crash types are often closely associated with their relation to a junction, such as an intersection or driveway access. Therefore, analyzing the relationship between crash locations and junctions can help identify systemic safety concerns within the study area.

Of the nearly 13,000 total reported crashes, approximately 38 percent occurred at or were related to intersections, while an additional four percent occurred at driveway access points. About 58 percent of crashes were non-junction related. When examining severe crashes, the distinction becomes even more pronounced with 72 percent occurring at non-junction locations, 25 percent related to intersections, and three percent related to driveways.

Crash location patterns also vary by setting. In rural areas, 90 percent of crashes occurred at non-junction locations, with fewer than 10 percent linked to intersections or driveways. In contrast, urban areas exhibited a more balanced distribution, with 36 percent of crashes occurring at intersections, an additional 17 percent classified as intersection-related, and only 42 percent occurring at non-junction locations. These findings, visualized in **Figure 25**, reinforce the earlier crash type analysis, as intersections serve as common conflict points for vehicle paths, leading to a higher concentration of multiple-vehicle crashes in urban areas where intersection density is greater.

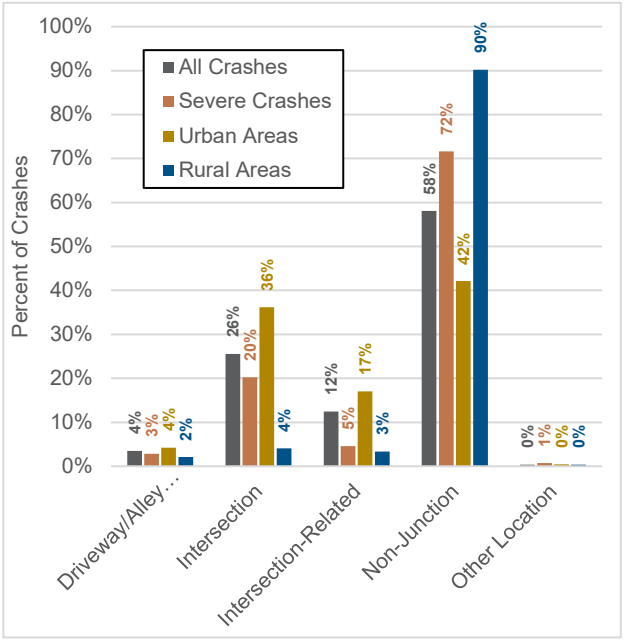

Figure 25: Junction Relation

6.7 Environmental Factors

Crash data within the Central Montana study area was analyzed to identify potential trends related to environmental factors, including weather, road surface, and lighting conditions. The distribution of crashes by each of these factors is presented in **Figure 26**.

Weather Conditions

Weather was reported as either clear or cloudy in 84 percent of all crashes, with clear conditions accounting for 60 percent and cloudy conditions 24 percent. Among severe crashes, approximately 90 percent also occurred during clear or cloudy weather. Adverse weather, including rain, snow, or other/unknown conditions, was reported in 16 percent of all crashes, with snow contributing 11 percent and rain two percent. These trends were consistent across both urban and rural areas, with most crashes in each setting occurring in either clear or cloudy weather. No notable differences were observed between on-system and off-system routes regarding weather-related crash distribution.

Road Surface Conditions

Road surface condition was reported as dry in 68 percent of all crashes, with an even greater share of severe crashes (81 percent) occurring on dry pavement. Crashes occurring under adverse road conditions, including snow (12 percent), ice/frost (12 percent), and wet surfaces (six percent), accounted for approximately 30 percent of all crashes compared to 17 percent of severe crashes. When comparing by location, urban areas experienced slightly more crashes under adverse road conditions (32 percent) than rural areas (27 percent). Similarly, off-system routes experienced a slightly higher proportion of adverse-condition crashes (34 percent) compared to on-system routes (29 percent), though the overall trends were consistent with the broader dataset.

Lighting Conditions

Most crashes (65 percent) occurred during daylight, while 17 percent occurred at night without street lighting, and 12 percent occurred in darkness but with lighting present. In contrast, severe crashes were more common under low-visibility conditions, with 32 percent occurring at night without lighting, and six percent in dark but lighted conditions. Lighting-related trends varied somewhat by location. Urban crashes predominantly occurred in daylight (72 percent), whereas rural crashes were more evenly distributed, with only 49 percent during daylight and 40 percent at night without lighting. On-system and off-system routes exhibited lighting condition patterns similar to those of the overall dataset.

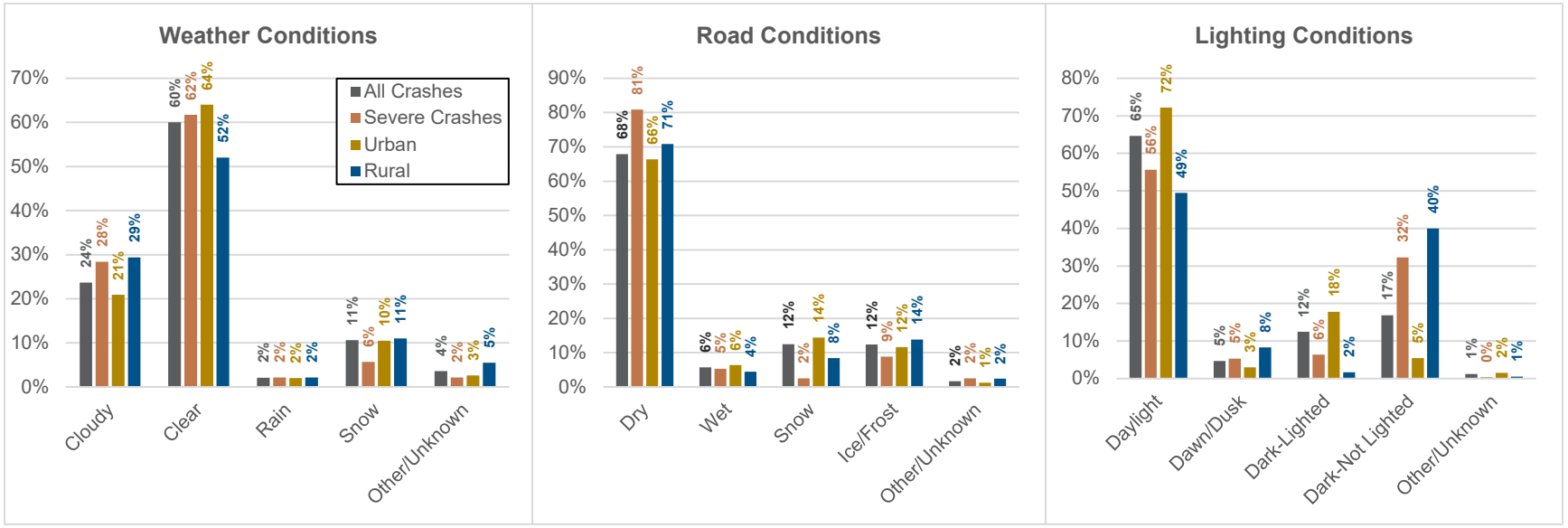

Figure 26: Environmental Factors

6.8 Roadway Factors

Crash data was analyzed to assess how roadway characteristics, including posted speed limits, grade and curvature, number of lanes, and shoulder width, influenced crash occurrences and severity within the study area, as summarized in **Figures 27** and **28**.

Speed Limits

Speed limits were evaluated as a factor influencing crash severity. Crashes on roads with speed limits between 26 and 35 mph accounted for 27 percent of all crashes, while those on roads signed at 25 mph or less made up another 29 percent. However, these lower-speed areas accounted for only 15 percent and 12 percent of severe crashes, respectively.

In contrast, higher-speed corridors exhibited a considerable share of severe crashes. Roadways posted at 61 to 75 mph accounted for 22 percent of all crashes but nearly half (46 percent) of all severe crashes. Likewise, roads posted above 75 mph represented six percent of all crashes but 10 percent of severe crashes. These findings highlight a potential correlation between speed and crash severity.

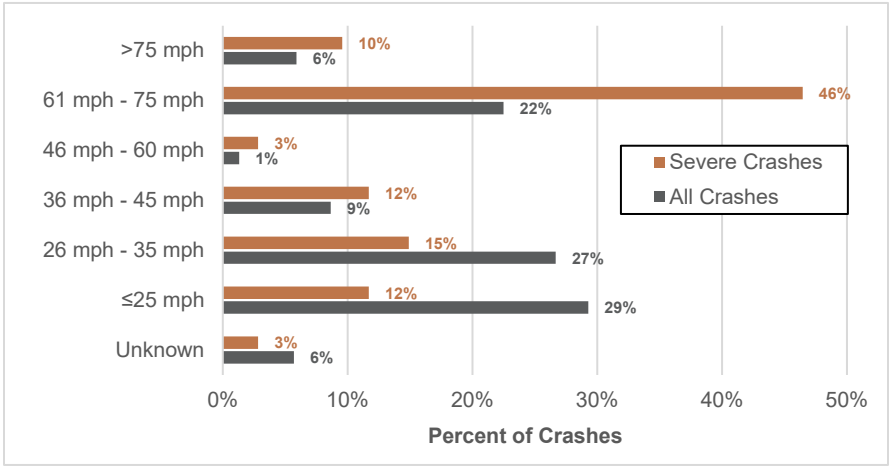

Figure 27: Speed Limits

Roadway Grade and Alignment

Within the study area, 76 percent of all crashes and 55 percent of severe crashes occurred on straight, level roadways. Crashes on straight segments with grade accounted for 14 percent of all crashes and 17 percent of severe crashes. Meanwhile, curved roadways, particularly curves with grade, showed a smaller crash frequency (four percent of all crashes) but were associated with a disproportionate share of severe crashes (12 percent). Similarly, curved, level roadways made up five percent of all crashes, but 16 percent of severe crashes.

Number of Lanes

Most crashes occurred on two-lane roadways, which are typical for rural highways and local corridors in the region. Specifically, 73 percent of all crashes and 77 percent of severe crashes took place on two-lane segments. Four-lane roads represented 17 percent of crashes overall, and 16 percent of severe crashes. Roadways with one lane or three lanes accounted for a small share of crashes, while six-lane roadways accounted for five percent of all crashes, but only two percent of severe crashes. These figures suggest that while two-lane roads experience the highest volume of crashes, they are also associated with a higher share of severe incidents, likely due to their extensive presence in the network.

Shoulder Width

The majority of crashes occurred on roadways with five- to eight-foot shoulders, accounting for 48 percent of all crashes. However, only 27 percent of severe crashes occurred on roadways with these wider shoulders, suggesting that wider shoulders may help mitigate crash severity. In contrast, crashes on roadways with no shoulder (zero feet) made up just 18 percent of all crashes, but represented 32 percent of severe crashes, indicating a notable increase in severity risk in areas with no lateral recovery space. Roads with one- to four-foot shoulders were associated with 27 percent of all crashes and 29 percent of severe crashes, while shoulders eight feet or wider showed the lowest overall crash representation at seven percent, and 11 percent of severe crashes.

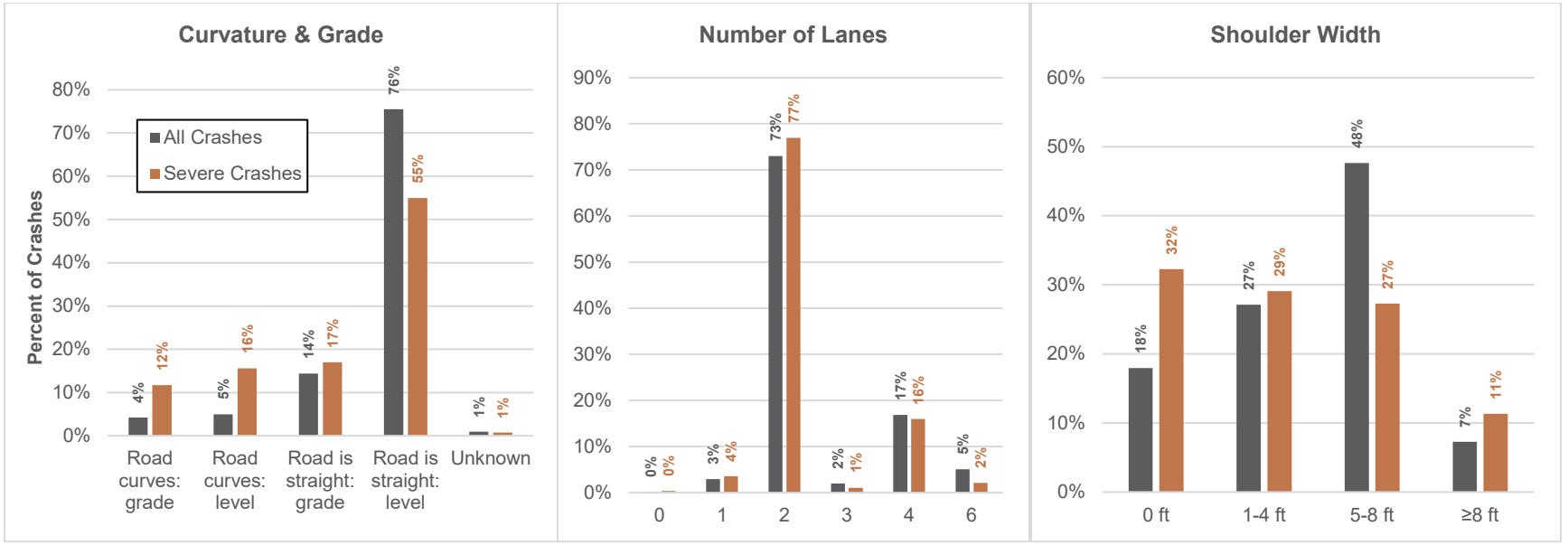

Figure 28: Roadway Characteristics by Crash Severity

6.9 Other Factors

While specific behavioral data about drivers and vehicles involved in crashes was not available for the study area, several critical factors could be identified from the crash-level dataset. These include non-motorist involvement, impaired driving, and commercial vehicle involvement.

Non-Motorist Involvement

Over the five-year study period, 165 crashes involved pedestrians or bicyclists, representing approximately one percent of all crashes. However, non-motorist crashes accounted for a disproportionately high share of all severe crashes (at eight percent), including nine fatal crashes and 13 suspected serious injury crashes.

These types of crashes were more prevalent in urban areas, where 2 percent of urban crashes involved a pedestrian or bicyclist, compared to 0.4 percent in rural areas. This urban-rural divide is also reflected in the overall distribution, where 1.1 percent of all crashes in urban areas involved non-motorists versus just 0.1 percent in rural areas. Additionally, non-motorist crashes occurred more frequently on off-system routes than on-system routes, indicating a heightened risk in local street networks where pedestrians and cyclists are more active.

Driver Impairment

Impaired driving is defined as operating a vehicle while under the influence of drugs or alcohol.[41] In Montana, driving under the influence is when the driver's blood alcohol concentration is 0.08 or higher. Impairment of marijuana in Montana is defined as exceeding a five nanogram per milliliter threshold for tetrahydrocannabinol (THC) in blood for anyone operating a motor vehicle. Impaired driving was reported in seven percent of all crashes within the study area. The role of impairment in severe crashes was even more pronounced, with 39 percent of severe crashes involving an impaired driver, including 34 fatal crashes and 75 suspected serious injury crashes.

While a higher percentage of impaired driver crashes occurred in rural areas (8 percent) compared to crashes in urban areas (6 percent), 62 percent of all impaired driver crashes occurred in urban areas. Impaired driving crashes were relatively evenly distributed between on-system routes (53 percent) and off-system routes (43 percent), suggesting no strong spatial bias toward state-maintained highways or local roads.

Commercial Vehicle Involvement

Commercial vehicle involvement was noted in four percent of all crashes in the study area and in approximately six percent of severe crashes, which included seven fatal crashes and 10 suspected serious injury crashes. These crashes were more common in rural areas than urban areas, and more frequently occurred on MDT's on-system routes than off-system routes. This spatial trend suggests that commercial vehicle-involved crashes are more likely to occur on rural MDT highways, where commercial and freight traffic is typically higher, compared to urban routes or local streets.

7.0 AREAS OF CONCERN AND CONSIDERATION

This section provides a list and description of areas of concern and consideration within the study area. These areas were identified primarily through review of public databases, past planning documents, and other resources. More discussion has been provided in the previous sections, and it is reiterated here as appropriate.

7.1 Demographics

- The populations of most counties and urban areas within the study area have declined since 1970. The only areas to experience growth over the last 50 years were Cascade County (0.06 percent), Lewis & Clark County (1.53 percent), and Teton County (0.40 percent).
- All of the counties and urban areas have a predominantly White population, ranging from 78.3 percent in Chouteau County to 95.7 percent in Wheatland County. Chouteau and Pondera counties have noteworthy Native American populations, each at 16.5 percent.
- Teton County has the highest percentage of residents under 18 (25 percent), while Wheatland County has the highest proportion of seniors aged 65 and over (28.9 percent).
- Lewistown has the highest percentage of people with disabilities (19.2 percent), and Judith Basin County the lowest (11.4 percent).
- Toole County has the highest male population (59.9 percent) compared to more balanced gender ratios seen in other areas.
- Lewis and Clark County grew at a higher rate between 2018 and 2023 than the state while Cascade, Judith Basin, and Teton counties grew at a slower rate than Montana but outpaced the national average growth rate. Based on 2035 population projections, the only areas expected to experience positive growth rates are Lewis and Clark, Teton, and Toole counties. Cascade and Fergus counties are projected to experience negative growth rates of -1.6 percent and -3.0 percent, respectively.
- Between 2018 and 2023, the number of housing units in the selected geographies grew at a slower rate than the state, except for Cascade and Lewis and Clark counties. Owner occupation rates increased in most of the areas over the five-year period with approximately one-third to one-quarter of occupied houses in the study area being rentals.
- Most workers in the study area have access to a personal vehicle and the majority of commuters drive alone to work. Wheatland County has the highest share of commuters who carpool and walk, while Teton County has the highest proportion of workers who bike to work and Toole County has the highest percentage of workers using public transit.
- The area's workforce is supported by a diverse economy led by educational services, healthcare, and social assistance, which make up the largest share of employment across the study area. Other major industries include retail trade, construction, and agriculture, along with public administration and tourism-related sectors such as arts, entertainment, recreation, and accommodation.
- Lewis and Clark County had the highest income among the selected areas, while Wheatland County and Lewistown reported median household which were 33 percent and 37 percent below the statewide average.
- The lowest unemployment rate was reported in Wheatland County (0.9 percent), while Lewistown had the highest (6.8 percent).

- The percentage of the population living below the poverty level was highest in Wheatland County, Pondera County, and Lewistown. Lewis and Clark and Teton counties were the only areas with poverty rates lower than the state average of 12.0 percent.

7.2 Transportation Conditions

Physical Features and Characteristics

- I-15 serves as the primary north-south route while US 87, US 89, and US 191 provide critical east-west and diagonal connections across the study area.
- Roadway widths in the study area vary from 14 to 97 feet, depending on factors such as functional classification, lane configurations, lane widths, and shoulder widths, determined by roadway design criteria and topographical constraints.
- The majority of the on-system highway network is paved, with some unpaved secondary routes, while the majority of off-system routes are unpaved, except in the urban areas. Most of the pavement is in good or fair condition, with less than two percent of roadway miles being classified as poor condition.
- Aside from I-15 and major highways in and around the urban areas, the majority of the routes in the study area do not have access management plans in place.
- The study area includes speed limits ranging from 15 to 80 mph based on statutory guidelines. Speed limits may be modified with a speed study. There are 24 recently completed or ongoing speed studies in the study area.
- MDT oversees the maintenance of on-system routes managed by the Great Falls, Havre, and Lewistown divisions, with 19 maintenance sections supported by section houses and stockpiled materials for winter operations.
- MDT assigns six levels of winter maintenance based on road type and traffic volume, with specific coverage hours for snowplowing and de-icing activities.
- MCS enforces weight restrictions and uses 18 scales to monitor heavy vehicle operations. MDT oversees bridge load postings based on structural capacity. Counties may implement spring weight restrictions to prevent damage.
- Emergency response is managed through municipal, county, and state coordination, with volunteer agencies and mutual-aid partnerships playing a large role.
- MDT has identified 102 hazardous rock slopes within the study area. Of the 54 rated sites, five are rated good, 42 are rated fair, and seven are rated poor.
- There are 714 structures in the study area, including 554 bridges and 160 large culverts. Of these, 69 structures have a poor rating, 341 are rated fair, 287 are rated good, and six are rated as new.
- There are 91 load-restricted structures in the study area; 80 of these are on off-system routes, and none are on interstates.
- Multiple utilities are present throughout the Central Montana study area, providing essential services such as electricity, natural gas, telecommunications, water, and wastewater infrastructure.

- The Sentinel project will upgrade existing utility corridors and create new ones to support bases, missile alert facilities, launch sites, and communication towers.
- The region supports freight traffic and military defense with key highways, rail corridors, and air cargo facilities, facilitating national and international trade.
- Various transit operators provide local and regional transit services, while Amtrak's Empire Builder offers long-distance passenger rail.
- Great Falls and Lewistown have developed pedestrian and bicycle infrastructure, while rural areas rely on highway shoulders, low-volume county roads, and trails for non-motorized travel. In smaller communities, the pedestrian network is generally limited to sidewalks, while formal bicycle facilities are rare, aside from recreational trails.

Geometric Conditions

- MDT's baseline criteria establish design values for geometric features according to roadway functional classification and urban/rural context. Deviations from baseline criteria may be allowable but require formal documentation through a design exception or variance.
- MDT is reviewing and updating Montana's roadway classifications through the *2025-2026 Statewide Functional Classification Review*, with expected changes by February 2026.

Traffic Conditions

- Within the Central Montana study area, there are 1,008 short-term count sites and 12 continuous count sites.
- Cascade County has the highest total DVMT, with urban areas (Great Falls and Lewistown) contributing significantly to overall DVMT in their respective counties.
- Traffic volumes are lowest in January and February (76 to 80 percent of AADT), while summer months, especially July, see the highest volumes (exceeding 113 percent of AADT).
- Traffic is lowest on weekends, with Sundays at 83 percent and Saturdays at 89 percent of AADT, while weekdays consistently exceed average volumes, peaking on Fridays at 113 percent of AADT.
- Traffic volumes in the study area have shown a mix of long-term decline, modest growth, and sharp declines during COVID, with recent increases likely driven by pandemic recovery.
- The proportion of heavy vehicles in the traffic stream varies considerably across locations, reflecting differences in corridor function, surrounding land use, and regional freight activity, ranging from as low as two percent in urban areas to nearly 50 percent on US 87 near the Armington Junction weigh station.
- Most rural highways in the study area operate at LOS A while urban areas in Great Falls and Lewistown experience more congestion, with some routes operating at LOS B or C. All routes meet operational performance targets.
- TTR metrics exceed typical reliability thresholds near Shelby (US 2, I-15), Lewistown (US 191/US 87), and Great Falls (I-315 and key intersections).

Safety[ii]

- Crashes are primarily concentrated in the urban centers of the study area, accounting for 67 percent of all reported crashes.
- A total of 61 percent of crashes occurred on MDT's on-system routes, with the largest share occurring on non-interstate NHS routes (33 percent of all crashes).
- There were 76 fatal crashes and 206 suspected serious injury crashes in the study area, composing less than three percent of all crashes.
- While 67 percent of all crashes occurred in urban areas and 33 percent in rural areas, 35 percent of severe crashes occurred in urban areas and 65 percent occurred in rural areas.
- The highest number of crashes occurred during the winter months (November through February), however, severe crashes were highest in the summer months (June through August).
- Crashes were most frequent on weekdays, with Monday through Friday accounting for approximately 78 percent of all crashes. Severe crashes were more prevalent on weekends, with Saturday and Sunday comprising 31 percent of all severe crashes.
- Common crash times generally align with typical commute periods, lunch breaks, and school-related traffic. Urban and rural areas exhibit somewhat distinct hourly patterns.
- Multiple-vehicle crashes made up 62 percent of all crashes, with the most common crash types being rear end, right angle, and sideswipe crashes. Severe crashes were more likely to be single-vehicle events with rollovers and fixed object crashes being the most common.
- About 58 percent of crashes were non-junction related. Severe and rural area crashes were more likely to be non-junction related as well (72 percent and 90 percent, respectively).
- Adverse weather conditions were reported in 16 percent of all crashes. Crashes occurring under adverse road conditions, including snow, ice/frost, and wet surfaces, accounted for approximately 30 percent of all crashes. Severe crashes were less likely to occur under adverse weather and road conditions.
- Most crashes (65 percent) occurred during daylight, while severe crashes were more common under low-visibility conditions, with 32 percent occurring at night without lighting, and six percent in dark but lighted conditions.
- Roadway features may help indicate crash risk given historic trends. Roads with speed limits between 61-75 mph accounted for 22 percent of all crashes but 46 percent of severe crashes. While most crashes (76 percent) occurred on straight, level roads, curved or hilly roads, especially those with grade, had a disproportionate share of severe crashes. Roads with wider shoulders (five to eight

[ii] *Pursuant to 23 U.S.C. § 407, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of Title 23, U.S.C., or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data. This publication is not intended to waive any of the State of Montana's rights or privileges under 23 U.S.C. § 407.*

feet) had fewer severe crashes, while roads with no shoulder (zero feet) had a higher severity risk, representing 32 percent of severe crashes.

- Non-motorist crashes, involving pedestrians or cyclists, represented one percent of all crashes but eight percent of severe crashes, with urban areas and off-system routes seeing higher involvement.
- Impaired driving was reported in seven percent of all crashes, but 39 percent of severe crashes, with impairment being more common among rural area crashes than urban area crashes.
- Commercial vehicles were involved in four percent of all crashes and six percent of severe crashes, with these incidents more common in rural areas and on MDT's on-system routes.

7.3 Environmental Conditions

Environmental constraints are summarized based on information provided in the *Central Montana Transportation Study Environmental Scan.*[42]

Physical Environment

- The study area consists of 53 percent private land and 47 percent public land, with a predominance of agricultural and grassland areas, along with urban centers and small rural towns.
- About 37 percent of the land in the study area is designated as important farmland.
- There are nine watersheds in the area, with nine impaired lakes and several impaired streams. There are approximately 320,000 acres of irrigated land, supported by two irrigation projects (dams) and numerous private ditch companies.
- Groundwater resources include nearly 46,000 wells, including 375 public water supply wells.
- Floodplain mapping has been completed in Lewis and Clark, Cascade, Wheatland, and Fergus counties, and Special Flood Hazard Areas are present in all four.
- The area contains 103,440 mapped wetlands, totaling 146,830 acres.
- Hazardous substances in the area include three national and 82 state superfund sites, along with 457 storage tanks, 70 hazardous waste generators, 22 solid waste sites, 10 septic disposal sites, 253 opencut mining permits, and 692 abandoned mining sites.
- The entire area meets air quality standards for all criteria pollutants.
- Baseline noise levels range from 26.7 to 50.8 decibels, and transportation-related noise ranges from 45.0 to 104.8 decibels.

Biological Resources

- Vegetation includes agricultural lands, native grasslands, forests, and shrublands, along with multiple noxious weeds and aquatic invasive species.

- The region is home to abundant wildlife, including antelope and deer, with several managed areas such as wildlife refuges and wildlife management areas. It also serves as important habitat for species like the greater sage-grouse, migratory birds, and other species of concern.
- There are nine threatened species, one endangered species, and two proposed species in the region.

Social and Cultural Resources

- Recreational resources include national forests, state parks, fishing access sites, campsites, and wildlife management areas.
- Recorded historic and cultural resources include 23 historic buildings, two historic bridges, seven historic districts, one historic landmark, and one historic trail, with additional unrecorded sites potentially present.
- Properties potentially protected under Section 4(f) of the Transportation Act are present throughout the study area, including public parks, recreation areas, wildlife refuges, and historic sites, while 154 properties are protected under Section 6(f), with the highest concentration in Cascade County (52 properties).
- The study area boasts mountains, rivers, and scenic byways, making it a visually appealing region.

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