MONTANA 3 BILLINGS
CORRIDOR STUDY

Appendix D

Existing and Projected Conditions Report

MONTANA 3 BILLINGS
CORRIDOR STUDY

DECEMBER 2025

EXISTING & PROJECTED CONDITIONS



Prepared for:

MONTANA MDT DEPARTMENT OF TRANSPORTATION

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1.0 INTRODUCTION

The Montana Department of Transportation (MDT) initiated a corridor study of Montana Highway 3 (MT 3) in Billings, between the highway's intersection with Apache Trail and the East (E.) Airport Road/North (N.) 27th Street intersection. The study's purpose is to develop a comprehensive long-range plan for managing the corridor and determine what could be done to improve the corridor based on needs, public and agency input, and financial feasibility. This is a collaborative process with local jurisdictions, resource agencies, MDT, Federal Highway Administration (FHWA), and the public to identify transportation needs and potential solutions given environmental constraints, financial feasibility, constructability, and corridor context.

This *Existing and Projected Conditions* report provides a planning-level overview of environmental and transportation system conditions along the planning study portions of MT 3. Information in this report was obtained from publicly available reports, websites, documentation, and on-site field review. Additional environmental information is contained in the *Environmental Scan* report.

If specific improvement options are advanced from this study, a feasibility study and an analysis for compliance with the National Environmental Policy Act (NEPA), Montana Environmental Policy Act (MEPA), and other applicable regulations will be completed as part of the MDT project development process. Information provided in this report may be incorporated into the NEPA and/or MEPA process.

1.1 Study Corridor Area

The MT 3 Billings study corridor is in the northwest part of Billings, within Yellowstone County, Montana. The study corridor includes 5.1 miles of MT 3 beginning at the intersection with Apache Road (Reference Post [RP] 8.1) and continues east to the intersection with E. Airport Road and N. 27th Street (RP 3.0). For the purposes of the planning study, the study corridor area limits include a 0.25-mile buffer from the centerline of the roadway, except in portions south of the road where the Rimrocks mark the boundary. Figure 1 shows the study corridor area and the highway system designation for roads in the area.

Highway system designation is established based on the functional classification of the route; the system designation is important as it affects the roadway's ability to receive different types of funding. MT 3 is designated as a national highway system non-interstate route and connects Billings to Great Falls. Zimmerman Trail and E. Airport Road are designated as urban highway routes.



Roundabout at Intersection of MT 3, E. Airport Road, and N. 27th Street

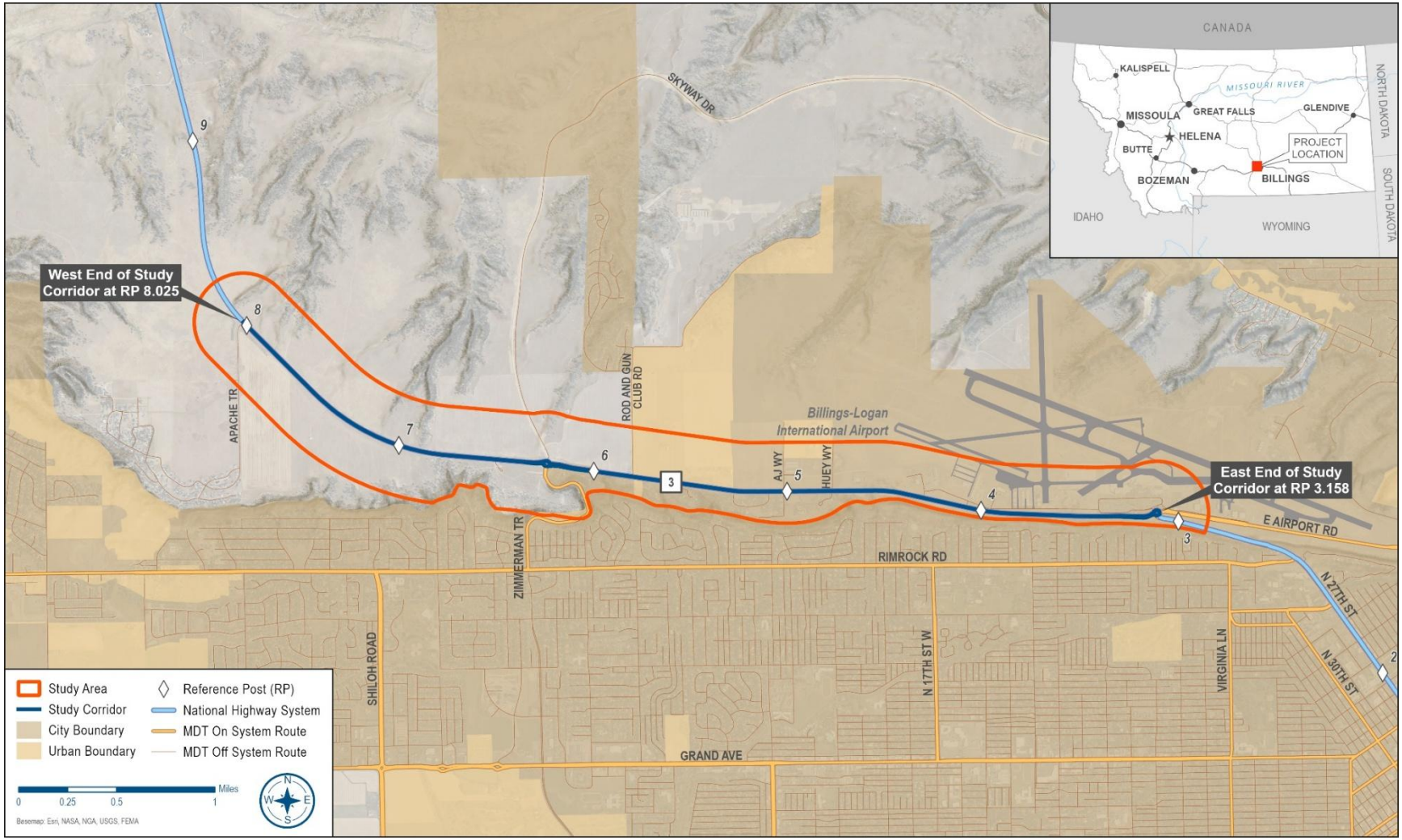


Figure 1: Study Corridor Area and System Designation

1.2 Study Background

MT 3 is the northwestern gateway to Billings. Within the project extent, the study corridor transitions from rural highway on the west end to urban arterial on the east end. The corridor has several residential housing subdivisions with trails and open spaces along the Rimrocks providing scenic overlooks of Billings. MT 3 is a high-volume corridor and traffic volumes are expected to rise with increases in employment and population growth expected north of the corridor. The land use along the corridor varies and includes agricultural, residential, commercial, and aviation land uses. The area south of the corridor is constrained by the Rimrocks. Connecting Great Falls to Billings, the corridor is part of the National Highway System and Strategic Highway Network, highlighting the importance of the route for defense mobility and truck traffic.

1.3 Related Plans and Studies

Several local transportation and land use plans exist that include the study corridor area. The following is a summary of local plans and regulations that include land use policy and transportation guidance.

- The **City of Billings Growth Policy**[1] was updated in 2016 and provides guidance for land use and development through defined goals and policies. The document also compares growth scenarios for the north and west parts of Billings to demonstrate the benefits and costs of alternative growth patterns.
- The **Billings Urban Area Long Range Transportation Plan**[2] (LRTP) was updated in 2023. The transportation plan establishes existing and projected conditions for the Billings area and identifies improvements needed to meet projected traffic demand. The 2023 update also includes an update to the travel demand model built for the Billings-Yellowstone County Metropolitan Planning Organization (MPO).
- The **Billings Land Use Plan and Future Land Use Map** is currently underway with expected completion in 2026. This plan will provide guidance on future land use and will review population growth, housing, local services, facilities, economic development, and natural resources within Billings. A separate **Skyway Drive Land Use Plan** is also anticipated, with plan development beginning in 2025.
- The **Billings Area Bikeway and Trails Master Plan**[3] was updated in 2017; the plan summarizes existing non-motorized facilities and identifies/prioritizes recommended non-motorized improvements in the Billings area.
- The **Highway 3 Corridor Planning Study**[4] was completed by the City of Billings in 2015. The study analyzed existing and future 2035 traffic conditions and provides recommended roadway, intersection, parking, and pedestrian improvements.
- The **Billings Logan International Airport Master Plan**[5] was completed in 2010. An update is underway, with anticipated completion in 2025 or 2026. The plan summarizes existing and future airport demand as well as planned airport expansions.
- The **Inner Belt Loop Corridor Study**[6] was completed in 2020, providing a vision for the recently completed Skyway Drive which connects the west end of Billings at the Zimmerman Trail roundabout to the Heights through a seven-mile corridor.
- The **Molt Road/Highway 3 Collector Road Planning Feasibility Study**[7] was completed in 2004 to evaluate the development of a connector road between Molt Road and MT 3. The *Billings LRTP* recommends an update to the 2004 feasibility study.

1.4 Related Projects and Planned Developments

There is one committed and one proposed pedestrian/bicycle project in the study corridor area:

- The **Stagecoach Trail** project is active/committed and will provide an 8-foot-wide pedestrian and bicycle path on the east side of Zimmerman Trail, from Rimrock Road to MT 3. This project is currently in design and construction is planned for 2028. This connection is part of the Marathon Loop, a 26-mile multi-use paved path around Billings.
- The **Yellowjacket Trail** proposed project will provide a pedestrian and bicycle path along N. 27th Street, from the E. Airport Road roundabout to Rimrock Road. Billings TrailNet is conducting a high-level feasibility study to identify the recommended configuration for this non-motorized connection.[8]

The two developments listed below are planned in the study corridor area on AJ Way and Huey Way. Additionally, new eastbound left-turn lanes and westbound right-turn lanes are anticipated on MT 3 at the AJ Way and Huey Way intersections to accommodate development traffic.

- The **Billings Readiness and Innovation Campus**[9] (BRIC) is a planned development located on the north side of MT 3 off AJ Way. The campus will consist of training and aviation support facilities for the Montana Army National Guard. The campus will be built-out in several phases, with opening year in 2026 and full build expected in 2050. The BRIC will accommodate drill weekend trainings, which will occur seven to 12 weekends per year. At full build in 2050, up to 880 personnel are anticipated at the BRIC during drill weekends. The traffic impact analysis for the BRIC recommends a roundabout at the MT 3 and AJ Way intersection to accommodate full build development traffic volumes.
- The **Yellowstone Landing Commercial Park**[10] (YLCP) development is planned on the north side of MT 3 with access provided via the AJ Way and Huey Way intersections. The development will consist of nine lots with commercial and light industrial land uses; full build-out is expected by 2029.
- The **Billings Logan International Airport Draft Master Plan**[11] shows that development is expected at the airport including terminal expansion, an additional runway and taxiway, a new parking garage and shuttle lot, and additional general aviation hangars. The airport also has plans to provide a frontage road connection north of MT 3 in the future, connecting Huey Way east to Southview Drive. Although still in the planning stage, airport developments are expected to impact traffic at the Southview Drive, Overlook Drive, and Huey Way intersections.

2.0 DEMOGRAPHICS

This section provides an overview of demographic and socioeconomic characteristics in the study corridor area. Demographic and socioeconomic information was reviewed to help determine recent trends in population, age, employment, economic status, and commuting characteristics for area residents. Historical and recent population trends in the area help define existing conditions and aid in forecasting techniques, as there is a direct correlation between motor vehicle travel and socioeconomic indicators. This section presents the most available recent data and indicates recent and potential changes in the area.

2.1 Population

Demographics were reviewed within the nine census tracts near the study corridor area, hereinafter referred to as the study area tracts. Figure 2 depicts the location of the study area tracts. This review is appropriate to gain an understanding of historical trends in population and population characteristics relevant to transportation planning. For example, an aging population may indicate a need for specific types of transportation improvements such as transit services and/or non-motorized infrastructure improvements.

2.1.1 Historical and Recent Population Trends

Table 1 provides historical and current population estimates. Between 1980 and 2020, Billings and Yellowstone County have outpaced the growth rate of both Montana and the United States (US). Over this 40-year period, Billings and Yellowstone County saw compound annual growth rates of approximately 1.41% and 1.06%, respectively. In contrast, Montana and the US grew at compound annual growth rates of 0.81% and 0.96%, respectively.

Table 1: Population Change Since 1980

Geographic Area	1980	1990	2000	2010	2020	Compound Annual Growth (1980-2020)
Billings	66,798	81,469	89,847	104,170	117,116	1.41%
Yellowstone County	108,035	113,157	129,352	147,972	164,731	1.06%
Montana	786,690	799,065	902,195	989,415	1,084,225	0.81%
United States	226.5M	248.7M	281.4M	308.7M	331.4M	0.96%

M = Million. Source: U.S. Census Bureau, American Fact Finder

2.1.2 Study Area Population Characteristics

NEPA/MEPA direct federal, state, and local agencies to assess potential social and economic impacts anticipated from proposed actions. Guidelines recommend consideration of impacts to neighborhoods and community cohesion, social groups including those with differing demographics, and local and/or regional economies, as well as growth and development that may be induced by transportation improvements.

Table 2 summarizes recent population and demographic data. Billings and Yellowstone County are slightly more racially diverse than the state, most notably with a higher proportion of those of Hispanic descent. However, the study area tracts are a less diverse area than Billings and Yellowstone County as a whole. For more specific information regarding demographics, refer to the Socioeconomics and Community Demographics section of the *Environmental Scan* report.

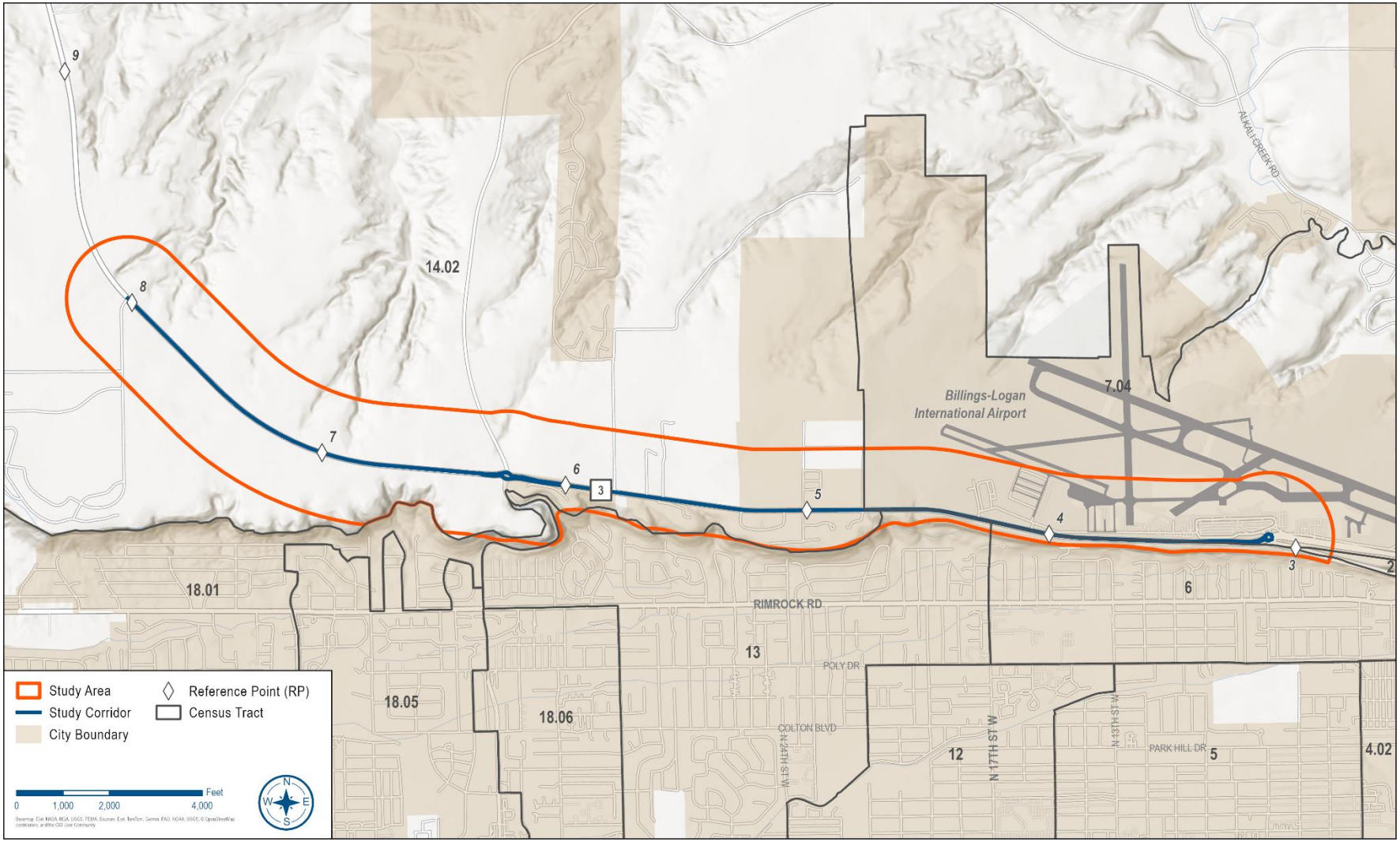


Figure 2: Study Area Census Tracts

Table 2: Race, Age, Sex, and Disability Data

		Study Area Tracts	Billings	Yellowstone County	Montana
Race	White	89.6%	83.2%	83.9%	84.1%
	African American	0.3%	0.5%	0.5%	0.5%
	American Indian	1.0%	4.2%	3.8%	5.5%
	Asian	0.7%	0.8%	0.8%	0.8%
	Hispanic or Latino	4.8%	7.2%	6.4%	4.4%
	Other	3.7%	4.1%	4.6%	4.7%
Age	Under 18	22.6%	22.5%	23.2%	21.3%
	18-64	54.5%	59.1%	59.0%	59.0%
	65 and over	22.9%	18.4%	17.8%	19.7%
Sex	Male	47.8%	49.5%	49.5%	50.7%
	Female	52.2%	50.5%	50.5%	49.3%
Disability Status	% With Disability	12.6%	14.5%	13.9%	14.3%
	% Disabled (<18 years)	4.1%	6.2%	6.2%	6.7%
	% Disabled (≥65 years)	70.6%	76.6%	75.9%	70.6%

Source: U.S. Census Bureau 2019-2023 American Community Survey (ACS) 5-Year Estimates[12]

Table 3 shows population trends by age group. The study area tracts have a higher elderly population, which includes individuals 65 and over, in relation to Billings, Yellowstone County, and Montana averages. Based on data from 2013 to 2023, the elderly population increased steadily within the study area tracts and decreased in number of individuals under 65 during the same period.

Table 3: Trend in Population Distribution by Age Groups

Age Group	Year	Study Area Tracts	Billings	Yellowstone County	Montana
% Under 18	2013	22.3%	22.6%	23.7%	22.4%
	2018	22.8%	23.0%	23.6%	21.8%
	2023	22.6%	22.5%	23.2%	21.3%
% 18-64	2013	60.4%	62.4%	61.9%	62.3%
	2018	56.6%	60.6%	60.3%	60.5%
	2023	54.5%	59.1%	59.0%	59.0%
% 65 and over	2013	17.3%	15.0%	14.4%	15.3%
	2018	20.6%	16.4%	16.1%	17.6%
	2023	22.9%	18.4%	17.8%	19.7%

Source: U.S. Census Bureau 2009-2013 ACS 5-Year Estimates, 2014-2018 ACS 5-Year Estimates, 2019-2023 ACS 5-Year Estimates

2.1.3 Population Projections

Table 4 lists population growth rates in Montana by decade. Between 2010 and 2023, Montana's population grew faster (14.5%) than the national average (8.5%). Notably, since 2020, Montana's population has grown at a substantially greater rate than in the previous decade (the 2010s) and currently ranks near the top among other states.

Table 4: Statewide Population Growth Rates and Ranks by Decade

Time Frame	Montana Yearly Growth Rate	Rank Among Other States
2010-2019	0.9%	16th
2020-2023	1.5%	3rd

Source: U.S. Census Bureau – 2010 Census, 2020 Census, and ACS 1-Year Estimates (2011-2019, 2021-2023)

Table 5 lists population growth from 2013 to 2023. Yellowstone County is Montana's most populated county with a population of 167,340 as of 2023 and makes up 15% of the state's total population. From 2013 to 2023, Yellowstone County's population grew faster than the state average at a rate of 11.4% versus 10.7%. Within Yellowstone County, Billings is the largest city with a population of 118,321 in 2023; Billings is also the most populated city in Montana with 10.7% of the state's population residing there. In the study area tracts, the population has grown by 10.5% since 2013, nearly the same rate as the state's growth. However, from 2018 to 2023, the study area tracts' population grew by 9.4%, while Billings grew by 8.1%, Yellowstone County grew by 6.0%, and the state grew by 6.1%.

Table 5: Population Growth

Time Frames	Study Area Tracts	Billings	Yellowstone County	Montana
2013 to 2023	**10.5%**	**11.8%**	**11.4%**	**10.7%**
2013 to 2018	1.1%	3.4%	5.1%	4.3%
2018 to 2023	9.4%	8.1%	6.0%	6.1%

Source: U.S. Census Bureau – ACS 5-Year Estimates (2009-2013, 2014-2018, 2019-2023)

Figure 3 depicts the actual percent change in population from 2010 to 2023 and the anticipated growth to 2040. Since 2010, the population growth rate of Yellowstone County and Billings has slightly exceeded the state's growth rate. This trend is expected to continue through 2040. Of note, the population of Billings experienced minor declines in 2017 and 2018 (0.3% average decrease) followed by a minor increase in 2019 (0.3%). Since 2020, Billings' population growth has rebounded and now slightly outpaces the state's growth rate, mirroring Yellowstone County's growth rate. On average, Yellowstone County's population is expected to grow at a rate of 1.2% per year from 2024 to 2040. This aligns with the 1.2% annual average population growth rate forecasted in the Billings-Yellowstone County MPO travel demand model.

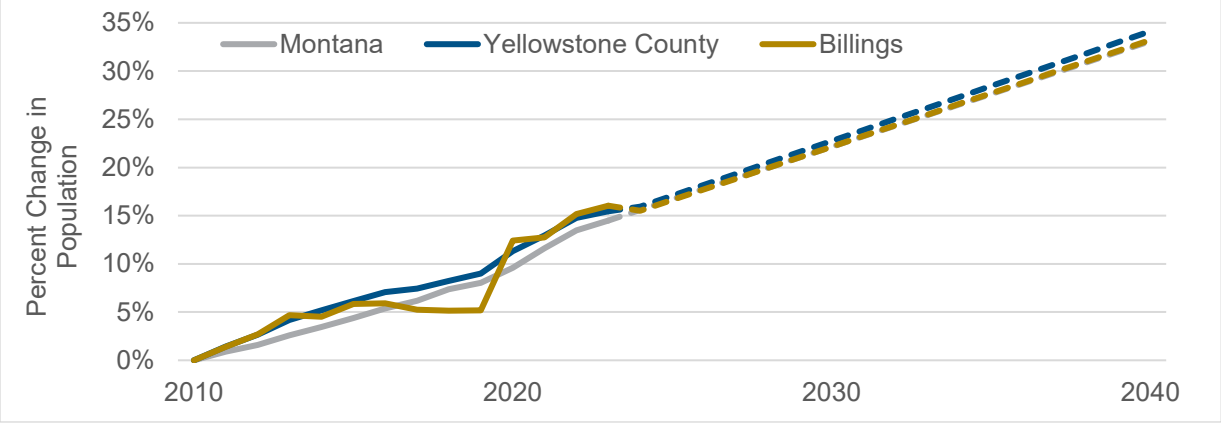


Figure 3: Population Growth From 2010 to 2040

Source: MDT, U.S. Census Bureau – ACS 1-Year and 5-year Estimates, Decennial Census

Of note, U.S. Census Bureau National Population Projections indicate that total US population growth is expected to slow and turn negative around 2080.[13]

2.1.4 Housing Characteristics

In 2023, Yellowstone County had the greatest number of housing units of all counties in Montana. Likewise, Billings has the most housing units (comprising about 15%) of all cities and towns in Montana. Notably, Billings has more housing units than all but three counties in Montana (Yellowstone, Missoula, and Gallatin County). The study area tracts contain approximately 24% of all housing units in Billings. Over the 10-year period 2013 to 2023, there has been higher growth in the number of housing units in study area tracts (14.6% increase), in Billings (15.7% increase), and in Yellowstone County (14.2% increase) than the state average (8.2% increase).

Table 6 lists the share of occupied and vacant housing units. From 2013 to 2023, the share of occupied housing units in the study area tracts has slightly decreased but is considerably higher than the state average.

Table 6: Share of Occupied and Vacant Housing Units in 2013 and 2023

	Study Area Tracts		Billings		Yellowstone County		Montana	
	2013	2023	2013	2023	2013	2023	2013	2023
% Occupied	98%	96%	95%	94%	95%	94%	84%	87%
% Vacant	2%	4%	5%	6%	5%	6%	16%	13%

Source: U.S. Census Bureau – ACS 5-Year Estimates (2018-2023)

2.1.5 Personal Travel and Commuting Characteristics

The U.S. Census Bureau provides estimates of the total share of workers aged 16 and older who commute or work at home, transportation modes used by commuters, and mean travel times for commuters. Table 7 presents commuting characteristics for workers in the study area tracts, Billings, and Yellowstone County. Statistics for Montana are also provided for comparison.

Table 7: Mode of Transportation to Work

Subject	Study Area Tracts	Billings	Yellowstone County	Montana
Percent of workers 16 years and older with access to a vehicle	99.4%	98.4%	98.5%	97.8%
Number of workers 16 years and older	20,242	93,219	83,606	532,519
Percent who commuted to work	91.3%	91.8%	92.0%	88.4%
Percent who work at home	8.7%	8.2%	8.0%	11.6%
Drove alone (car/truck/van)	72.4%	76.5%	77.9%	72.0%
Carpool	6.2%	10.5%	9.7%	9.6%
Public transportation (excluding taxi)	0.1%	1.0%	0.9%	0.6%
Walk to work	0.5%	2.3%	2.0%	4.0%
Bicycle to work	0.4%	0.5%	0.5%	1.0%
Other means of commuting	0.1%	1.0%	0.9%	1.2%
Mean travel time to work (minutes)	14.6	19.6	18.6	19.2

Source: U.S. Census Bureau – ACS 5-Year Estimates (2018-2023)

Based on data from 2018 to 2023, most commuting workers in the study area tracts had access to a personal vehicle and drove alone to work destinations. Workers in the study area tracts had a substantially shorter commute time compared to the other geographic areas presented, taking an average of 14.6 minutes.

2.2 Economic Conditions and Income Characteristics

2.2.1 Income and Poverty Rate

The median household income is significantly higher in Yellowstone County ($74,400), Billings ($71,855), and the study area tracts ($101,575) than the state ($69,922) as of 2023. The poverty rate is lower in Yellowstone County (10.2%), Billings (10.6%), and the study area tracts (6.7%) than the state (12%) as of 2023.

2.2.2 Employment Status

Table 8 lists the change in labor force between 2013 and 2023 and unemployment statistics. As of 2023, Billings and Yellowstone County have a higher percentage of its eligible workforce (defined as the population age 16 and over) in the labor force (66.2% and 66.1%, respectively) than the state (62.8%). However, the study area tracts have a lower percentage of labor force participants (62.0%). This is consistent with the study area tracts having a higher elderly population (individuals 65 and over) in relation to Billings, Yellowstone County, and Montana.

Despite the lower percentage in the labor force, the study area tracts have a slightly higher share of their labor force employed (97.2%) than the state (95.6%). Likewise, Billings and Yellowstone County have slightly higher shares of their labor force employed (96.5% in both areas) than the state. Additionally, the unemployment rate in the study area tracts (2.8%), Billings (3.5%), and Yellowstone County (3.4%) are lower than the state average (3.8%). These employment characteristics have changed over the period 2013 to 2023. Notably, in all areas, unemployment rates have significantly decreased as well as the labor force percentage, and the percent of labor force employed has increased.

Table 8: Change in Labor Force and Unemployment Statistics

Year	Study Area Tracts	Billings	Yellowstone County	Montana
	Percent in Labor Force			
2013	65.8%	68.4%	68.9%	64.7%
2023	62.0%	66.2%	66.1%	62.8%
Percent of Labor Force that is Employed				
2013	96.1%	94.6%	94.5%	92.0%
2023	97.2%	96.5%	96.5%	95.6%
Unemployment Rate				
2013	3.9%	5.3%	5.3%	7.3%
2023	2.8%	3.5%	3.4%	3.8%

Source: U.S. Census Bureau 2009-2013 & 2019-2023 ACS 5-Year Estimates

2.2.3 Employment Industries

Table 9 displays the percentage of the population employed by industry area for the study area tracts, Billings, Yellowstone County, and the state as of 2023. Bolded numbers indicate the top three employment industries in each area. There are mostly similar employment shares in each area, but the most noticeable difference is the study area tracts having a higher percentage of

employees in the Educational Services, Health Care, and Social Assistance industries compared to Billings as a whole.

Table 9: Percent of Employed Population by Industry and by Area for 2023

Industry	Study Area Tracts	Billings	Yellowstone County	Montana
Agriculture, forestry, fishing, hunting, and mining	2.1%	1.9%	2.8%	6.1%
Construction	7.4%	7.5%	8.5%	9.0%
Manufacturing	5.0%	3.7%	4.7%	4.8%
Wholesale trade	1.8%	2.6%	2.8%	2.2%
Retail trade	**9.7%**	**12.1%**	**12.4%**	**11.9%**
Transportation, warehousing, and utilities	5.8%	6.2%	6.2%	5.0%
Information	1.4%	1.7%	1.4%	1.5%
Finance, insurance, real estate, rental and leasing	7.6%	6.8%	6.2%	5.5%
Professional, scientific, management, and administrative	**11.6%**	10.6%	9.9%	9.6%
Educational services, health care and social assistance	**29.5%**	**26.2%**	**24.7%**	**23.3%**
Arts, entertainment, recreation, and accommodation	7.6%	**10.9%**	**10.3%**	**10.3%**
Other services, except public administration	5.9%	5.5%	5.7%	5.1%
Public administration	5.7%	3.9%	8.5%	6.5%

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

Table 10 displays the shift in employment in study area tracts from 2013 to 2023. Most notably, employment in the Educational Services, Health Care, and Social Assistance Industry and the Construction Industry had the greatest growth (increases of 4% and 2%, respectively). Conversely, Wholesale Trade Industry and Retail Trade Industry had the greatest decline in employment share (1.4% decrease and 3% decrease, respectively).

Table 10: Share of Civilian Employees in Study Area Tract Industries from 2013 to 2023

Industry	2013	2023
Agriculture, forestry, fishing, hunting, and mining	2.5%	2.1% (↓)
Construction	5.4%	7.4% (↑)
Manufacturing	4.7%	5.0% (↑)
Wholesale trade	3.2%	1.8% (↓)
Retail trade	12.7%	9.7% (↓)
Transportation, warehousing, and utilities	5.7%	5.8% (↑)
Information	2.1%	1.4% (↓)
Finance, insurance, real estate, rental and leasing	8.8%	7.6% (↓)
Professional, scientific, management, and administrative	11.4%	11.6% (↑)
Educational services, health care and social assistance	25.5%	29.5% (↑)
Arts, entertainment, recreation, and accommodation	8.6%	7.6% (↓)
Other services, except public administration	5.3%	5.9% (↑)
Public administration	4.0%	5.7% (↑)

Source: U.S. Census Bureau 2009-2013 & 2019-2023 ACS 5-Year Estimates

3.0 PHYSICAL FEATURES AND CHARACTERISTICS

This section describes existing physical features in the study corridor including land use, roadway characteristics, utilities, geotechnical conditions, drainage conditions, and alternative transportation modes.

3.1 Land Use and Right-of-Way

Land within the study corridor is predominantly privately owned; however, a considerable portion is managed by the State of Montana, City of Billings, and MDT. One small parcel within the confines of the Billings Logan International Airport (BIL) is under federal jurisdiction. No conservation easements were found within the area.

The western half of the study corridor is primarily developed for residential and crop production, and the eastern half is developed mainly for commercial purposes. The Billings Logan International Airport is the largest parcel. Zoning districts within the study corridor are demarcated by the Billings city limits at Zimmerman Trail (RP 6.25). Districts east of Zimmerman Trail fall within Billings city limits, while those west of Zimmerman Trail are designated by Yellowstone County. The existing zoning designations and land uses are shown in Figure 4 and outlined below.

- **Yellowstone County Zoning** encompasses the western third of the study corridor from Zimmerman Trail to the west. The majority of zoning in this area is agriculture, with Zimmerman Park designated as open space, parks, and recreation.
- **City of Billings Zoning** encompasses the eastern extent of the study corridor from Zimmerman Trail to the east. The Billings Logan International Airport and associated facilities are zoned primarily public-civic and institutional. The remainder of City-designated zoning north of MT 3 is predominantly agriculture, heavy commercial, and public campus. The southern side of MT 3 is mostly a mix of open space, parks, recreation and suburban neighborhood.

Proposed improvements carried forward from this study would need to consider potential impacts to adjacent private landowners, as well as potential impacts to adjacent land use, should new right-of-way or easements on adjacent lands, new access points, or changes in access be required. Based on historical right-of-way plans, existing MDT right-of-way along MT 3 varies from 100 to 140 feet wide within the study corridor area.[14]

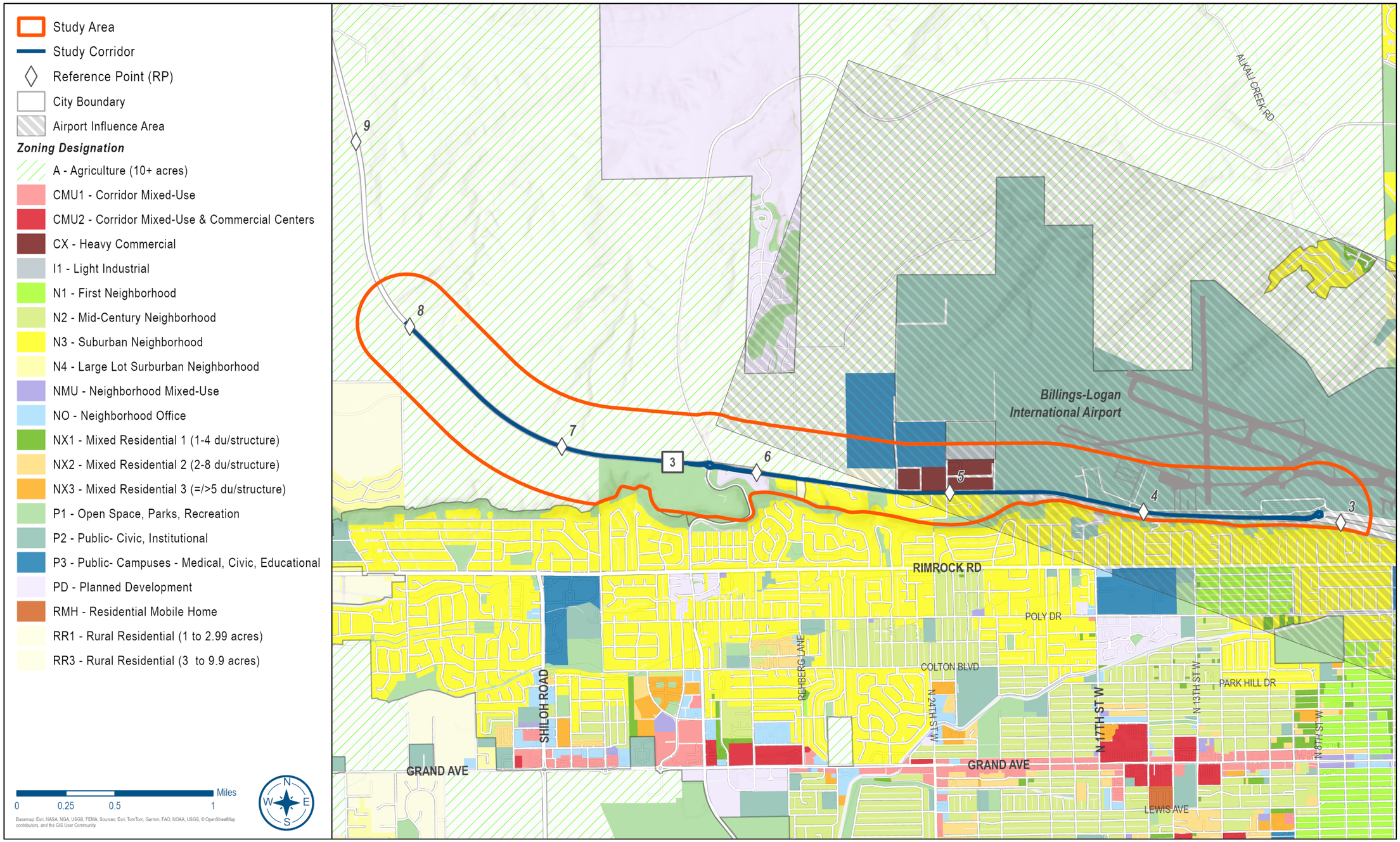


Figure 4: Zoning Designations

3.2 Functional Classification

Functional classification is a hierarchical system used to classify each road based on its relative emphasis on mobility versus land access. Arterials provide the greatest mobility but are intended to have limited access (i.e., higher travel speeds and volumes primarily serving long-distance travel). Local roads focus on land access and have limited mobility (i.e., lower travel speeds and volumes primarily serving adjacent land uses). Collector roads are an intermediate classification and provide a more balanced blend between mobility and access. Figure 5 shows the FHWA functional classification hierarchy.[15] Figure 6 depicts the functional classification for roads within the study corridor area. MT 3 is classified as a principal arterial, while Zimmerman Trail and E. Airport Road are classified as minor arterials.

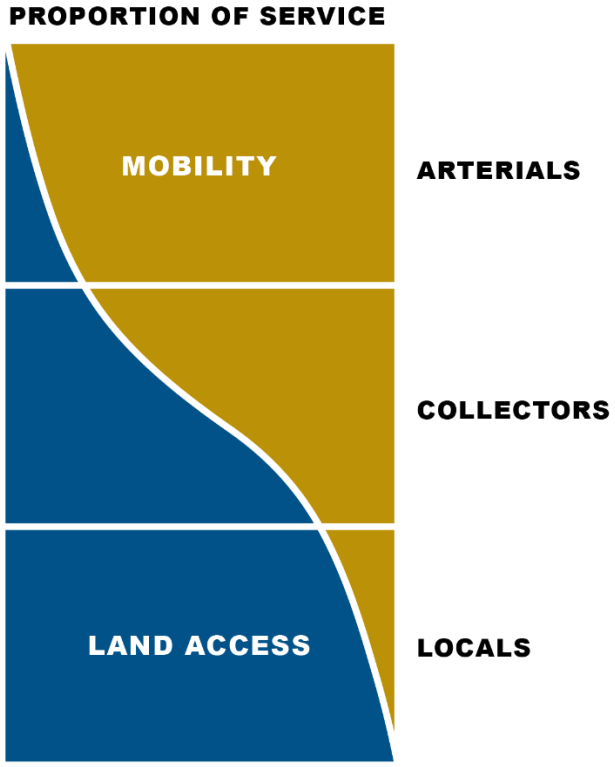


Figure 5: Mobility and Access Relative to Functional Classification



Figure 6: Functional Classification

3.3 Posted Speed Limits

Figure 7 depicts the posted speed limits in the study corridor area. The speed limit is 70 miles per hour (mph) on the west end of the corridor but decreases to 50 mph just west of Zimmerman Trail, then decreases to 45 mph just west of the E. Airport Road/N. 27th Street roundabout. The speed limit on Zimmerman Trail is 25 mph, while the speed limit on Skyway Drive is 45 mph.



Figure 7: Posted Speed Limits

3.4 Access Density and Access Control

Figure 8 depicts the access density along the study corridor. Access density is the number of driveways and minor intersections along a corridor; more access points can increase potential crashes and conflicts. For this study, the corridor was divided into quarter-mile segments and the number of approaches and intersections were counted on each segment. Access density is relatively low on the west end of the corridor. However, the nature of the corridor changes east of Zimmerman Trail, where there are more residential developments with direct access onto MT 3. MDT implemented access control on MT 3 in 1990.[16] The access control begins 0.3 miles east of Zimmerman Trail and extends west past the study corridor area at Apache Trail. An access management plan is being prepared for the MT 3 study corridor as part of the overall corridor planning study to guide future access along the corridor.

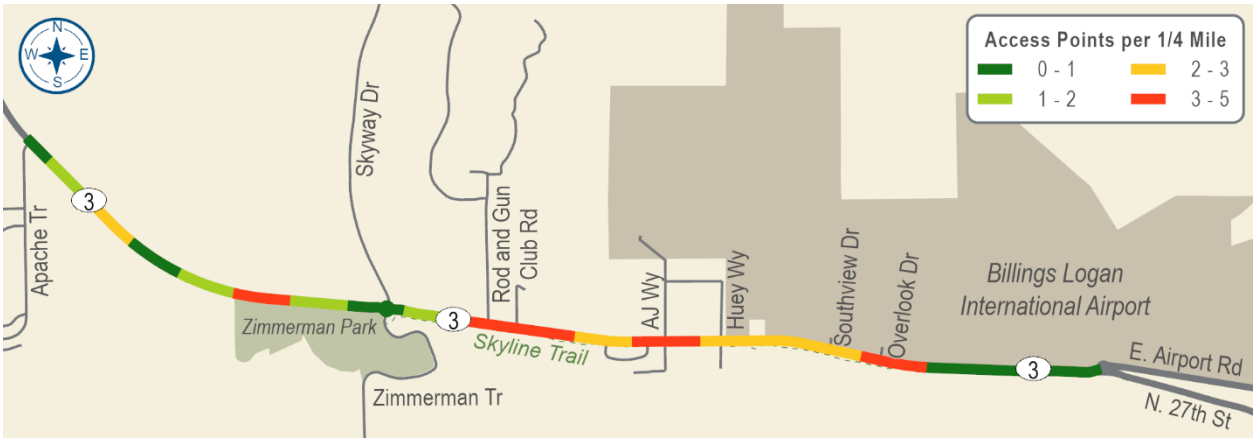


Figure 8: Access Density

Improvements Recommended in Related Plans and Studies

The 2015 *MT 3 Corridor Planning Study* recommended access control on MT 3, with a raised or depressed median extending from Zimmerman Trail to E. Airport Road. With the median recommended in the 2015 study, several intersections would be limited to three-quarter access where left and right-turn movements would be allowed onto the side street, but access to MT 3 from the side street would be limited to right-turns only.

3.5 Roadway Surfacing

The MDT Road Log contains data on roadway surfacing including widths and thicknesses along state routes. The typical section on MT 3 consists of two 12-foot-wide travel lanes with one travel lane in each direction, variable shoulder widths, and roadside ditches (no curb or gutter).

MDT conducts annual pavement monitoring. A variety of conditional assessments are conducted by MDT, consisting primarily of Ride, Rut, and Cracking. Specifically, these attributes are tracked as follows:

- **Ride Index (IRI)**: Roughness index measurement in inches per mile and converted to a 0 to 100 scale
- **Rut Index (RI)**: Rut depth measurement taken every foot and converted to a 0 to 100 scale
- **Alligator Cracking Index (ACI)**: Fatigue cracking measurement for all load-related cracks converted to a 0 to 100 scale
- **Miscellaneous Cracking Index (MCI)**: Fatigue cracking measurement for non-load-rated cracks converted to a 0 to 100 scale
- **Overall Performance Index (OPI)**: Factored overall performance score derived empirically from the previously noted indices and converted to a 0 to 100 scale

Table 11 summarizes pavement condition data collected by MDT. The OPI is a summary of the pavement's general condition. OPI scores of 63 to 100 are good, 45 to 62 fair, and less than 45 is considered poor. Based on the specified scaling to determine OPI, this section of the MT 3 corridor is generally rated on the low end of fair. The MT 3 corridor pavement was milled and overlaid in 2017 from RP 3.2 to 6.1 (Zimmerman Trail to E. Airport Road).

Table 11: Pavement Condition on MT 3

Begin RP	End RP	IRI	RI	ACI	MCI	OPI
3.0	4.0	78.45 Fair	100.00 Good	98.98 Good	94.41 Good	70.10 Good
4.0	5.0	85.99 Good	100.00 Good	99.54 Good	86.40 Good	68.29 Good
5.0	6.0	85.92 Good	100.00 Good	97.63 Good	84.79 Good	67.15 Good
6.0	7.0	76.97 Fair	100.00 Good	97.57 Good	86.13 Good	63.91 Good
7.0	8.1	87.90 Good	100.00 Good	99.91 Good	92.79 Good	72.69 Good

3.6 Maintenance and Operations

MDT is responsible for maintenance of MT 3 throughout the study corridor area. Responsibilities include repairs and preventative maintenance of the roadway, structures, and signs within the highway right-of-way.

3.6.1 Winter Operations

MDT maintenance personnel are responsible for winter snowplowing and sanding of MT 3. The MDT Maintenance Operations and Procedures Manual[17] provides classification of winter maintenance areas. MT 3, east of Zimmerman Trail, qualifies as a Level I facility. Level I facilities include roadways within or adjacent to a three-mile radius of towns or cities with an average daily traffic (ADT) greater than 5,000 vehicles per day (vpd). These routes may receive continuous snowplowing and anti-icing/de-icing operations throughout a storm event.

MT 3, west of Zimmerman Trail, qualifies as a Level I-A facility. This facility type includes interstate and other MDT-maintained roadways with an ADT greater than 3,000 vpd but less than 5,000 vpd. These routes may receive coverage up to 19 hours per day during a storm event, typically between the hours of 5:00 AM and 12:00 AM. Coverage of these facilities is at the discretion of the Area Maintenance Chief. The primary objective is to keep the roadway open to traffic and provide an intermittent bare pavement surface in the main driving lane as soon as possible.

3.6.2 Emergency Services

Coordination of public safety agencies is the responsibility of Yellowstone County Disaster and Emergency Services. These services include law enforcement, fire, ambulance, public works, volunteers, and other groups that may be associated with an emergency response.

Fire Station 1 of the City of Billings Fire Department responds to downtown Billings and north of the Rimrocks for fire, emergency medical services, and rescue calls. Station 1 is on the north side of downtown Billings.

Law enforcement is provided by the City of Billings Police Department and Yellowstone County Sheriff Department within the study corridor area. As a state route, the MT 3 corridor is patrolled by local law enforcement and Montana Highway Patrol.

Emergency response is provided by the local fire department and medical services are provided by Billings Clinic Hospital and St. Vincent Regional Health. Both medical facilities are on the north side of downtown Billings, within two miles of the MT 3 corridor.

MT 3 is part of the Strategic Highway Network and National Highway System, indicating the route may be used for emergency defense mobilization or evacuation.

3.7 Geotechnical Conditions

The study corridor area is north of the Rimrocks overlooking southeast Billings. The Rimrocks form the bluffs along the eastern margin of the Yellowstone River. They are the remnants of an offshore sandbar or barrier island environment formed by the Cretaceous Seaway that connected the Gulf of Mexico and the Arctic Ocean.[18] The Rimrocks are composed of Upper Cretaceous Eagle Sandstone that generally dips to the northeast at approximately 3 to 5 degrees. The Eagle Sandstone, a light brownish-gray to yellowish-brown massive sandstone, is very fine-grained to fine-grained, well-cemented, cross-bedded, contains some sandy shale beds up to 50 feet thick, and overall this geologic unit is 250 to 350 feet thick in the region.[19] It typically contains marine fossils and evidence of bioturbation (the process by which organisms rework soil and sediments). Underlying the Eagle Sandstone is the Upper Cretaceous Telegraph Creek Formation, a brownish to dark-gray shale to sandy shale with thin, interbedded sandstone beds that become thicker as it grades into the Eagle Sandstone. This unit is about 150 feet thick and outcrops locally at the base of the cliffs southwest of the study corridor area.[20]

Surficial soil deposits in this area are residual soils from the weathering Rimrocks and have been described as clayey and silty sands. Competent bedrock has been encountered as shallow as 10 feet below the existing ground surface. The depth to competent bedrock beneath soil deposits may vary within a few feet based on the degree of decomposition of the bedrock at any particular location.

The fine-grained silty/sandy soils along the study corridor area are likely frost-susceptible when moisture is present. These soil types often require additional subgrade preparation, and compaction may be more difficult during wet seasons when the subgrade soil exceeds its optimum moisture.

Rockfall from the Rimrocks has been a significant issue in Billings and has caused damage to public and private property. Stabilization techniques, such as rock dowels or bolts, have been locally used to reduce rockfall risk. The MT 3 corridor is not expected to be at risk of rockfall incidents as the project location is north of the rim of the cliffs. However, care should be taken to make sure construction activities along the MT 3 corridor do not disturb possibly loose or weak rock. Geotechnical investigations would be required for reconstruction or significant improvements to MT 3 to determine potential stability, erosion, subgrade support, and settlement concerns posed by surface geology and soil conditions.

Montana is a seismically active state; however, most seismic activity is concentrated in the mountainous western third of the state. Seismic activity in the Billings area is relatively low. According to data from the Montana Bureau of Mines and Geology, no active faults are mapped within the study corridor area. Only one magnitude 2.2 earthquake has been documented within the Yellowstone Valley, and this 2014 event was located over seven miles east of the study corridor area. In addition, the study corridor area is within a Seismic Hazard Zone that is less likely to experience significant ground-shaking.[21]

3.8 Drainage Conditions

The study corridor area is a section of highway with limited stormwater and drainage facilities. The area lies directly north of the Rimrocks, which are identified as a high-risk area for flooding and erosion-related issues. The area directly below the Rimrocks is residential and increasing the volume or peak flow of runoff over the Rimrocks should be avoided.

For the majority of the study corridor area, runoff is conveyed and discharged through a series of open ditches and culverts ranging from 18 to 30 inches in diameter. West of the MT 3 and Zimmerman Trail intersection, the topography generally slopes from south to north toward Alkali Creek. Five culverts cross under MT 3 in this section to drain the areas south of the road into intermittent drainages to the north; all lie within the Alkali Creek drainage. Seven culverts convey drainage from the roadside ditches through the approaches and driveways in this area. Drainage features in the western portion of the study corridor area are depicted in Figure 9.

East of the MT 3 and Zimmerman Trail intersection, nine culverts discharge into drainages that outfall over the Rimrocks into the City/County Drain and Yegen Drain basins. The majority of runoff discharges to the City/County Drain; only the area east of RP 3.7 discharges to Yegen Drain. Crossing culverts in this area discharge into, or directly above, residential areas. Increasing runoff volume or peak flow at these outfalls would increase flood and erosion risk for the properties south of the Rimrocks. A rock check dam was installed in 2023 with the construction of Skyline Trail that runs parallel to MT 3 to the south. This dam attenuates stormwater flows and reduces sediment transport before discharging to the City/County Drain basin. East of RP 3.9, the roadside ditch includes energy dissipators that slow runoff and reduce erosion. One crossing culvert near RP 3.4 conveys water from the south roadside ditch to the north. A ditch block immediately downstream of this culvert causes water to stack up to 1.5 feet higher than the culvert inlet. There are three paved parking lots in this area that include curb and gutter systems that outfall to the roadside ditches. Drainage features in the eastern portion of the study corridor area are depicted on Figure 10.

There are subsurface stormwater systems near the MT 3 and E. Airport Road / N. 27th Street roundabout and the MT 3 and Zimmerman Trail roundabout. In the immediate area of the roundabouts, curb and gutter conveys water to inlets before discharging to open ditches. The MT 3 and Zimmerman Trail area includes a stormwater detention pond northeast of the roundabout. Due to proximity of the study corridor area to Billings Logan International Airport, detention and retention ponds are regulated by the Federal Aviation Administration (FAA) as they have the potential to attract birds and create a hazard for aircraft. Overflow from the pond flows to the east before discharging over the Rimrocks through a 30-inch diameter crossing culvert to the City/County Drain basin. Historically, there have been drainage issues in the subdivision at this outfall and volume or peak flow of runoff should not be increased in this area. There are small subsurface systems near the east Masterson Circle approach and the Skyranch Drive approach. These systems consist of curb and gutter, inlets, manholes, and 12- to 24-inch diameter storm drainpipe that discharge into drainages that outfall over the Rimrocks to the City/County Drain basin.

The majority of the study area is within the Billings Municipal Separate Storm Sewer System (MS4). MS4s are regulated by the Montana Pollutant Discharge Elimination System. Requirements for the Billings MS4 are described in the City of Billings Storm Water Management Program.

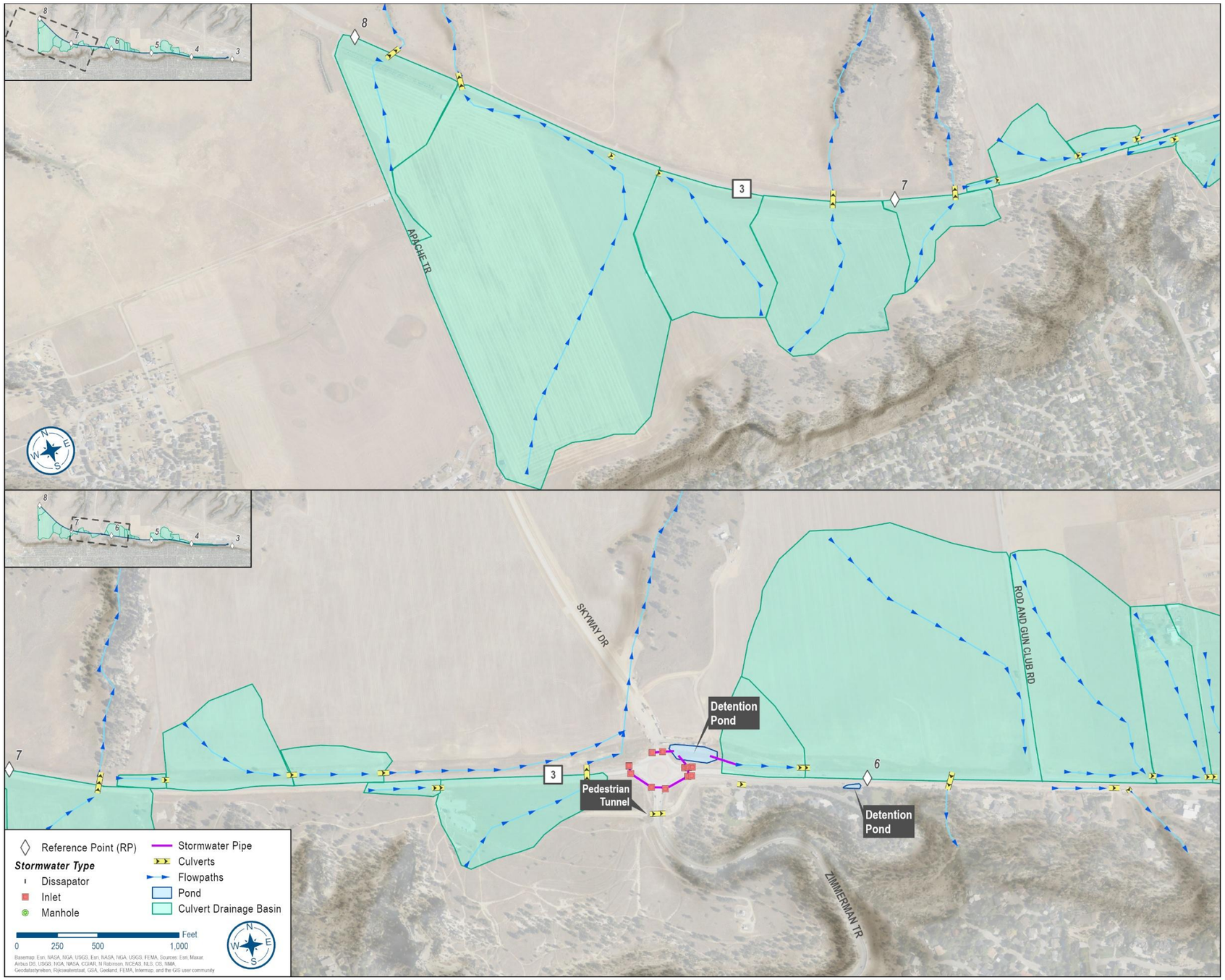


Figure 9: Existing Drainage Features (Western Half of Study Corridor Area)



Figure 10: Existing Drainage Features (Eastern Half of Study Corridor Area)

3.9 Utilities

Three sources of data were used to identify the utilities present in the study corridor area.

- City of Billings Geographical Information System (GIS) data
- MDT utility permit database records
- Montana 811 one-call utility locate system

The level of information provided by each of these sources varies. The Billings GIS information includes detailed mapping of water, sanitary sewer, and storm drain facilities. Specific attributes of these facilities are available, such as pipeline sizes and material types. The MDT utility permit information consists of a tabular list of utility occupancy and encroachment permits only within the highway right-of-way, identified by RP location(s). The Montana 811 one-call system is typically used to identify precise utility locations for excavation safety, but in this instance, an information-only request was made to simply identify the utility companies and utility types within the study corridor area.

3.9.1 Public Utilities

Figure 11 shows the existing water, sanitary sewer, and storm drain facilities in the study corridor area, along with the existing water tanks and pump stations. Of note, most of the existing storm drain and water pipelines in the airport parking and terminal areas are not shown for clarity.

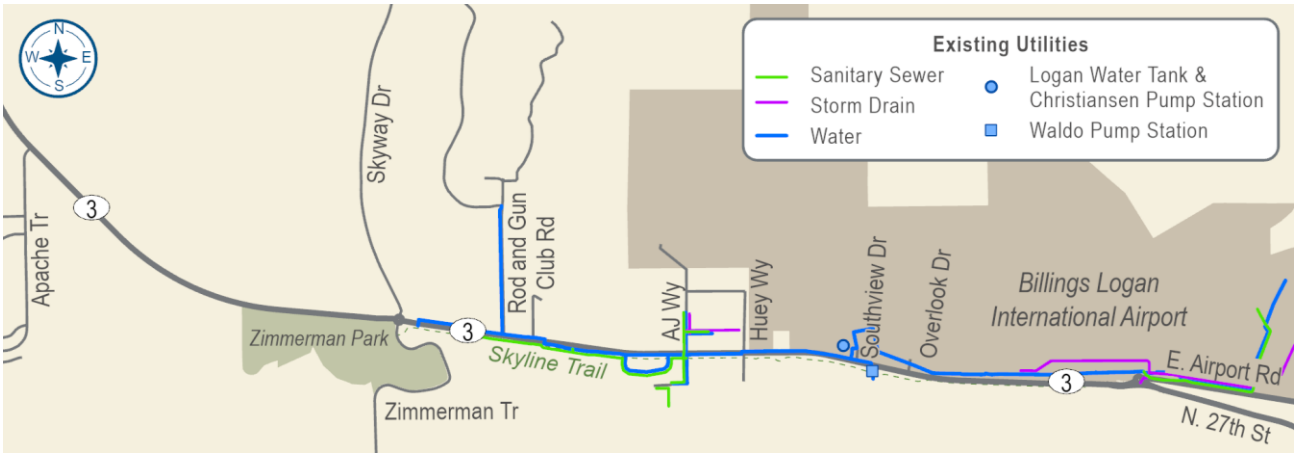


Figure 11: Existing Water, Sanitary Sewer, and Storm Drain Facilities

Water

The City of Billings operates the municipal water system that services the corridor segment from E. Airport Road to Zimmerman Trail. A 12-inch-diameter ductile iron water transmission main is installed from Waldo Pump Station, 120 feet south of MT 3 near the west edge of the airport, to Rod and Gun Club Road. At Rod and Gun Club Road, the water main transitions to 16-inch diameter and continues both north to serve the Rehberg Ranch subdivision and west to Zimmerman Trail. This transmission main crosses MT 3 three times, so it is both south and north of the roadway at various locations along the corridor. This area of the water system has a finite capacity until the City of Billings Zone 6 reservoir and transmission line is constructed, anticipated in fiscal year 2029, pending available funding.

Smaller-diameter water distribution mains serve the residential developments south of MT 3 and the various airport facilities to the north. These distribution mains contribute another three pipeline crossings of MT 3. The water system also contains numerous appurtenant facilities

along the pipeline routes, such as isolation valves, fire hydrants, and building service lines. A 100,000-gallon elevated steel water tank and the Christensen Pump Station are present approximately 200 feet north of MT 3 near the west edge of the airport.

There are limited rural residential and commercial buildings north of MT 3 between AJ Way and Zimmerman Trail outside Billings city limits and served by individual groundwater wells. West of Zimmerman Trail, there are no potable water facilities due to the lack of building development.

Sanitary Sewer

The sanitary sewer facilities within the study corridor area consist primarily of a low-pressure sewer system serving the residential developments south of MT 3 between Masterson Circle and Zimmerman Trail, as well as the private airport hangars north of MT 3 adjacent to AJ Way. The low-pressure sewer system consists of 2-inch- and 3-inch-diameter pipelines paralleling the highway along the south shoulder. Between Masterson Circle and Stoney Ridge Road, the sewer is collected in an 8-inch-diameter gravity sewer main. This sewer main crosses MT 3 once at Stoney Ridge Road. The sewer system also contains numerous manholes and individual building service lines. This sewer has limited capacity for future growth.

The east edge of the corridor has 8-inch-diameter gravity sewer mains that collect wastewater from the primary airport buildings. These sewer mains continue east along E. Airport Road outside the study corridor area. There are limited rural residential and commercial buildings north of MT 3 between AJ Way and Zimmerman Trail outside the Billings city limits that are served by individual septic tanks and drain fields. West of Zimmerman Trail, there are no sanitary sewer facilities due to lack of building development, other than a vault at Zimmerman Park approximately 220 feet south of MT 3.

Storm Drain

Underground storm drain facilities in the study corridor area are limited to the system of storm inlets, pipelines, and manholes throughout the developed areas of the airport north of MT 3. Drainage improvements that convey stormwater runoff along the highway itself consist of roadside ditches and culvert crossings throughout the entire corridor.

3.9.2 Private Utilities

Several private utilities exist in the study area including overhead power lines, buried power lines, communications, and natural gas.

Power

NorthWestern Energy and Yellowstone Valley Electric Co-operative both have electrical power facilities in the study corridor area. Overhead power lines and power poles are located along the north edge of the MT 3 right-of-way from Apache Trail to Rod and Gun Club Road and start again at Southview Drive for 1,900 feet east. Overhead power lines and power poles are located along the south edge of the MT 3 right-of-way from the Zimmerman Park entrance to Stoney Ridge Road and start again at Skyranch Drive for 700 feet east. Overhead power line crossings of MT 3 occur at the following locations:

- 3,200 feet southeast of the Apache Trail intersection
- 2,000 feet west of the Zimmerman Trail roundabout
- 1,400 feet east of the Rod and Gun Club Road intersection
- 200 feet and 700 feet east of the Skyranch Drive intersection
- 300 feet east of the Southview Drive intersection
- 700 feet west of the E. Airport Road roundabout

Buried power lines are also located parallel to and crossing MT 3 within the study corridor area. Determination of exact locations would require identification by a qualified utility location service. Subsurface power lines typically have a buried depth ranging from one to four feet below ground surface.

Communications

Entities owning communication utilities in the study corridor area include Lumen (formerly, or doing business as, CenturyLink, Qwest, US West, and others), AT&T, and Charter Communications. The communication facilities are primarily underground fiber optic and copper cables. Some communication cables may share overhead utility poles. Determination of exact locations of buried cables would require identification by a qualified utility location service. Subsurface communication lines typically have a buried depth ranging from one to four feet below ground surface.

Natural Gas

Montana Dakota Utilities owns natural gas facilities parallel to and crossing MT 3 within the study corridor area. These facilities are known to include 2-inch- to 4-inch-diameter gas main pipelines and smaller-diameter services. Determination of exact locations of buried gas pipelines would require identification by a qualified utility location service. Subsurface gas lines typically have a buried depth ranging from one to four feet below ground surface.

3.10 Other Transportation Modes

3.10.1 Transit

Figure 12 depicts existing transit routes within the study corridor area. The City of Billings MET Transit operates the Downtown Circulator bus route, which passes through the east end of the study corridor area. The Downtown Circulator provides a connection between downtown Billings and the airport terminal. The route extends to the Skyline Trail bus stop seasonally, from May 1 to September 30. The Downtown Circulator typically operates on weekdays with 15-minutes between buses from 5:45 a.m. to 8:00 p.m.

There are additional Billings transportation service providers, including MET Plus, Community Option Resource Enterprises, and Residential Support Services, which provide paratransit services to people with disabilities.

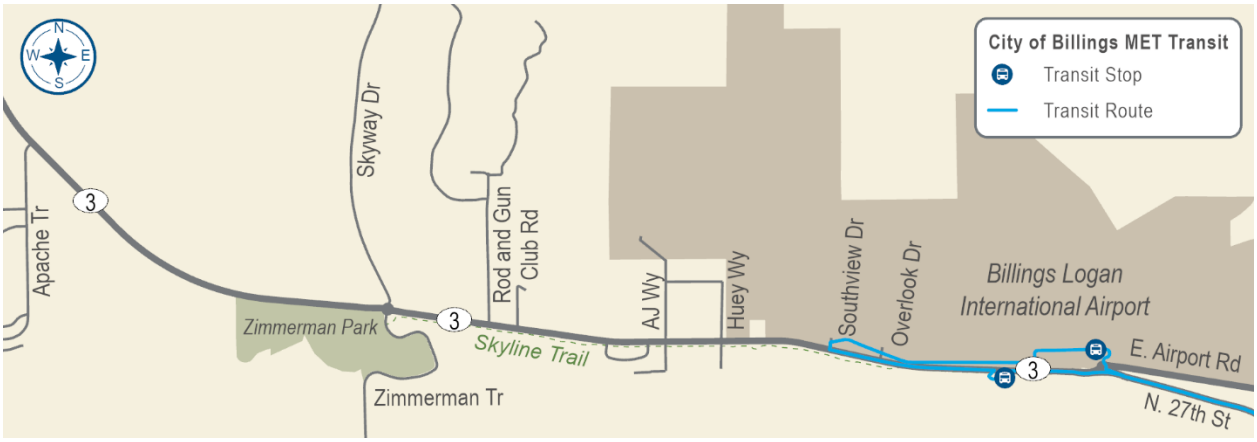


Figure 12: Transit Routes

3.10.2 Pedestrian and Bicycle Facilities

Figure 13 depicts the existing pedestrian and bicycle facilities within the study corridor area. Skyline Trail exists on the south side of MT 3 from Zimmerman Park east to Swords Park, east of the airport. A shared-use path also exists along the east side of Skyway Drive and connects to the Heights Neighborhood. A Rectangular Rapid Flashing Beacon (RRFB) exists on the east leg of the Zimmerman Trail roundabout to facilitate north-south pedestrian crossings. Two pedestrian/bicycle underpasses exist in the study corridor area, on the south leg of the Zimmerman Trail roundabout and the south leg of the E. Airport Road roundabout. A sidewalk exists on the north and south legs of the AJ Way intersection. Four paved parking areas exist south of MT 3 between Huey Way and E. Airport Road for visitors and trail users.



Figure 13: Pedestrian and Bicycle Facilities

The City of Billings collected trail counts on Skyline Trail (one mile west of Airport Road) from September 25 to October 14, 2024. An average of 179 pedestrians/bicyclists were observed per day on Skyline Trail during the 20-day period (ranging from 90 to 400 users per day). A trail count on the Skyway Drive path, just north of Zimmerman Trail, estimated an average of 53 non-motorized users per day from September 11 to 18, 2024 (ranging from 10 to 160 users per day).

The 2017 *Billings Area Bikeway and Trails Master Plan* evaluated the Bicycle Level of Traffic Stress (BLTS) on MT 3. For cyclists using the roadway, MT 3 has a BLTS of four, indicating cycling on the roadway is only acceptable by highly confident bicyclists. MT 3 has a Pedestrian Level of Traffic Stress (PLTS) of one east of Zimmerman Trail, indicating that the existing Skyline trail accommodates pedestrians of all abilities.

Pedestrian and Bicycle Connectivity

National Cooperative Highway Research Program (NCHRP) *Report 562*[22] and *Report 992*[23] provide tools to identify appropriate pedestrian and bicycle crossing treatments. Four main criteria are used to identify appropriate crossing treatment: peak hour pedestrian volumes, conflicting vehicle volumes, conflicting vehicle speed, and crossing distance. Based on the existing crossing characteristics, an RRFB or Pedestrian Hybrid Beacon are considered appropriate crossing treatments on the east leg of the Zimmerman Trail roundabout, along with marked crosswalks and signing.

Providing safe crossings for non-motorized users is key, given the number of regional trails which intersect in the study corridor area. Skyline Trail crosses several driveways providing access to residential developments along MT 3. City of Billings staff have noted that

nonmotorized safety is a concern at these access points along Skyline Trail and at the RRFB on the east leg of the Zimmerman Trail roundabout.

Committed or Proposed Improvements

There is one committed and one proposed pedestrian/bicycle project in the study corridor area:

- Stagecoach Trail: This project is active/committed and will provide an 8-foot-wide pedestrian and bicycle path on the east side of Zimmerman Trail, from Rimrock Road to MT 3. This project is currently in design and construction is planned for 2028. This connection is part of the Marathon Loop, a 26-mile multi-use paved path around Billings.
- Yellowjacket Trail: The proposed project will provide a pedestrian and bicycle path along N. 27th Street, from the E. Airport Road roundabout to Rimrock Road. Billings TrailNet is conducting a high-level feasibility study to identify the recommended configuration for this non-motorized connection.

Improvements Recommended in Related Plans and Studies

Several additional non-motorized connections are recommended in the study corridor area, per the *Billings LRTP* and 2017 *Billings Area Bikeway and Trails Master Plan* as follows.

- MT 3: Buffered bike lanes are recommended on MT 3 from Alkali Creek Road (three miles west of Apache Trail) to Zimmerman Trail. Bike lanes are recommended on MT 3 from Zimmerman Trail to E. Airport Road.
- Rod and Gun Club Road: Bike lanes are recommended on Rod and Gun Club Road north of MT 3, connecting to the existing Rehberg Ranch Trail.
- MT 3 / Zimmerman Trail Intersection: A pedestrian and bicycle underpass is recommended on the east leg of the Zimmerman Trail roundabout to allow for uninterrupted north-south crossings, connecting the Skyline Trail to the multi-use path along Skyway Drive.



Existing RRFB on the East Leg of the Zimmerman Trail Roundabout

3.10.3 Aviation Facilities

Aviation facilities along the study corridor include Billings Flying Service and Billings Logan International Airport. Billings Flying Service is located on AJ Way and provides aerial firefighting and heavy lift services. The Billings Logan International Airport (BIL) is a busy commercial service airport located on MT 3 near the E. Airport Road roundabout. The existing and projected aviation demand at BIL has been characterized using actual reported activity levels from the past 20 years and the FAA Terminal Area Forecast (TAF). Overall, the number of passenger enplanements, aircraft operations, and based aircraft are anticipated to grow annually. The actual growth rates in each area may be more modest than the forecast in the 2010 Airport Master Plan, but the trends project growth in aviation activity at BIL. The airport has several capital improvement projects scheduled in the near term to expand facilities and increase capacity.

Table 12 lists actual reported activity levels in the past 20 years (2003 through 2023) for passenger enplanements, aircraft operations, and based aircraft. Passenger enplanements are the number of revenue-generating passengers that boarded an aircraft at BIL each year. Passenger enplanements have fluctuated over the last 20 years but overall have grown at an average annual rate of 0.87% per year. Aircraft operations include the total takeoffs and landings at BIL. Operations show fluctuation over the 20-year period, with a general trend toward growth since 2013. Based aircraft are aircraft that are usually housed at BIL, and this number has grown at an average annual rate of 1.14% per year.

Table 12: Twenty-Year Aviation Activity History at BIL

Year	Passenger Enplanements	Percent Change Enplanements	Aircraft Operations	Percent Change Operations	Based Aircraft
2003	360,505		101,789		145
2008	422,494	17%	90,125	-11%	173
2013	387,773	-8%	76,032	-16%	167
2018	440,263	14%	88,304	16%	170
2023	428,868	-3%	99,748	13%	197

Source: FAA [24, 25, 26]

Expected Growth in Aviation Demand

The FAA develops the TAF, an official forecast of aviation activity for US airports that is used for planning purposes. Table 13 shows the recent history and anticipated trends for BIL according to the fiscal year 2024 TAF. Of note, the total operations shown in Table 13 are for fiscal year, while the total operations shown in Table 12 are for calendar year. The TAF indicates BIL will continue to experience modest growth in enplanements, operations, and based aircraft.

Table 13: Forecasted Growth in Enplanements and Operations at BIL

Year	TAF Enplanements	Annual Passenger Enplanements Growth	TAF Aircraft Operations	Annual Operations Growth
2020*	292,264		86,266	
2021*	345,852	18%	101,799	18%
2022*	380,514	10%	91,333	-10%
2023*	424,566	12%	97,121	6%
2024	461,856	9%	101,564	5%
2025	506,731	10%	107,773	6%
2026	515,135	2%	108,473	1%
2027	524,083	2%	109,208	1%
2028	533,216	2%	109,953	1%
2029	541,677	2%	110,675	1%
2030	550,108	2%	111,396	1%
2031	558,667	2%	112,125	1%
2032	567,354	2%	112,862	1%
2033	576,323	2%	113,611	1%
2034	585,319	2%	114,363	1%
2035	594,279	2%	115,116	1%

Source: Fiscal Year 2024 FAA TAF
*Data for 2020-2023 are actual reported statistics; data for 2024-2035 are forecasts

The 2023 to 2027 Airport Capital Improvement Plan indicates near-term projects (within the next five years) planned to increase parking capacity on the airside (for aircraft) and landside (for vehicles). BIL is planning to expand the cargo ramp and northside public ramp for aircraft parking. Vehicle parking at BIL has reached capacity during periods of high travel demand (e.g., spring break, summer, and holidays), resulting in vehicles parking on grassy areas along Overlook Drive, when parking areas become full.[27] The Capital Improvement Plan indicates that BIL will be planning and designing a vehicle parking garage to expand parking capacity.

Overall, actual reported enplanements, operations, and based aircraft trends, as well as the TAF, indicate aviation activity at BIL will continue to grow at a modest rate. A more detailed aviation demand forecast will be developed as part of the updated Airport Master Plan, to be completed in 2025 or 2026.

4.0 GEOMETRIC CONDITIONS

Existing roadway geometrics were evaluated and compared to current MDT standards. The analysis was completed based on a review of public information, MDT as-built drawings, GIS data, and field observations.

4.1 Design Criteria

The MDT *Road Design Manual*[28] (RDM) and *Baseline Criteria Practitioner's Guide*[29] establish design controls and general design criteria that influence the overall roadway design approach. A balanced design incorporates the baseline design criteria, adjusted to context of the facility as appropriate, while meeting the desired outcome of a project and being mindful of impacts related to the project. MDT classifies MT 3 as a principal arterial which is designed to accommodate higher traffic volumes, longer trip lengths, and provide fewer access points compared to a minor arterial or collector road. Table 14 lists baseline design criteria for MT 3.

Table 14: Design Standards

Design Element			MT 3, West of Zimmerman Trail	MT 3, East of Zimmerman Trail
Basic Design Parameters	Roadway Designation		Rural Principal Arterial	Urban Principal Arterial
	Posted Speed		70 mph	50 mph
	Design Speed (1)		70 mph	55 mph
	Design Vehicle		WB-67	
Roadway Cross Section Elements	Travel Lane Width (1)		12 feet	
	Shoulder Width (1)	Outside	6-8 feet	6 feet
		Inside	N/A	
	Cross Slope (1)	Travel Lane	2% Typical	
		Shoulder	2% Typical	
Roadside Cut Sections	Ditch	Inslope	6:1 (10-foot width)	4:1
		Width	10 feet minimum	Traversable V-ditch
		Slope	20:1 towards backslope	Traversable V-ditch
	Backslope Cut Depth at Slope Stake	0-5 feet	5:1	Varies
		5-10 feet	4:1	
		10-15 feet	3:1	
		> 15 feet	2:1	
Roadway Fill Slopes	Fill Height at Slope Stake	0-10 feet	6:1	Varies
		10-20 feet	4:1	
		20-30 feet	3:1	
		> 30 feet	2:1	
Alignment Elements	Stopping Sight Distance (1)		See RDM 2.8.1 & Appendix F.2	
	Intersection Sight Distance		See RDM 2.8.2 & Appendix F.3	
	Minimum Radius (1)		See RDM 3.2.3	
	Superelevation Rate (1)		e_{max} = 8.0%	e_{max} = 4.0%
	Maximum Grade (Level) (1)		3%	5%
	Minimum Vertical Clearance		17 feet	17 feet

(1) Controlling design criteria.

4.2 Roadway Typical Section

For most of the corridor, the roadway has a two-lane typical section, with one travel lane in each direction, and no curb or gutter. West of the Zimmerman Trail roundabout, the existing typical section includes two 12-foot-wide travel lanes and 8-foot-wide shoulders, providing a roadway surface width of 40 feet. East of the Zimmerman Trail roundabout, the roadway surface width decreases to 31 feet, including two 12-foot-wide travel lanes and 3.5-foot-wide shoulders. The 3.5-foot shoulder width east of Zimmerman Trail does not meet design standards, as the minimum shoulder width for a rural and urban principal arterial is 6 feet. MDT's Road Design Manual requires at least 5 feet of separation between the edge of roadway and shared use path, while the City of Billings requires at least 10 feet of separation for a path along a principal arterial.[30] Ten feet of separation is generally met in the existing condition where Skyline Trail runs along the south side of MT 3.

Existing cut slopes range from 1.5H:1V to 3H:1V, with surface slumps observed where cut slopes are steeper than 2H:1V. Cut slopes should be adjusted to meet design standards based on the total cut depth. The existing fill slopes are relatively shallow throughout the corridor. However, there are sections with larger fill heights adjacent to the Skyline Trail and adjacent to existing drainages. The fill slopes for these sections are approximately 2H:1V. Fill slopes should be adjusted to meet design standards based on the total fill height.

Improvements Recommended in Related Plans and Studies

The *Billings LRTP* recommends that the cross-section on MT 3 be widened from Apache Trail to E. Airport Road to provide one through lane in each direction, bike lanes, and center turn lanes where needed for future development. A speed study is recommended after the roadway widening is complete.

4.3 Roadway Alignment

A roadway alignment consists of both a horizontal alignment and a vertical alignment. A horizontal alignment consists of a series of straight lines, known as tangents, and curves to change direction. Consideration is also given to the degree of curvature, the rate of superelevation, and curve type. A vertical alignment consists of a series of straight grades and vertical curves. Consideration is given to the elevation change, the vertical curve type (either a crest or sag), and the rate of curvature (K-value). The K-value is the horizontal distance needed to produce a one percent change in gradient. The functional classification of the roadway and design speed dictate the specific geometric design criteria.

The E. Airport Road / N. 27th Street intersection was upgraded to a roundabout in 2010, while the Zimmerman Trail intersection was upgraded to a roundabout in 2019. Skyway Drive opened in mid-2024. Available as-built information provided by MDT included the following projects within the study corridor area, with the project completion date in parentheses.

- MT 3 from Zimmerman Trail to E. Airport Road – Resurfacing (2017)
- MT 3 / Zimmerman Trail Intersection - Flasher (1978, 2004) and Roundabout (2019)
- MT 3 / N. 27th Street / E. Airport Road Intersection (1964, 1986) and Roundabout (2010)

The horizontal alignment of the roadway in the study corridor is relatively straight with four curves. The existing horizontal alignment complies with current geometric design standards. The vertical alignment is generally flat and complies with current geometric standards. Vertical curves generally meet or exceed current geometric design standards. Proposed improvements carried forward from the corridor study should make sure that current alignment standards are met and consider design speed and terrain type.

5.0 TRAFFIC CONDITIONS

This section documents traffic conditions on the study corridor, including a review of existing and historical traffic volumes, anticipated future growth, and intersection operations with existing and future 2045 traffic volumes.

5.1 Daily Traffic Volumes & Expected Growth

Figure 14 depicts the 2023 annual average daily traffic (AADT) on the corridor and on major crossroads. Estimated AADT was obtained from MDT's short-term count sites within the study corridor area. The corridor volumes are highest between Zimmerman Trail and E. Airport Road, with an AADT of 12,300 vehicles per day. The daily volumes reduce significantly west of Zimmerman Trail. For reference, the planning level capacity of a two-lane urban arterial is 18,300 vehicles per day.[31]



Figure 14: 2023 AADT (Vehicles per Day)

The historical growth rate was analyzed over the 20-year period from 2004 to 2023 to estimate future traffic volumes. Historical AADT was obtained for the short-term count sites on MT 3. Of note, the AADT reported at short-term count sites is based on a seasonally adjusted 48-hour traffic count. Therefore, the AADT reported is only an estimate and can vary widely from year to year, based on the conditions during the traffic count.

Table 15 lists the locations of the short-term count sites within the study corridor area and the compound annual growth rate at each site. Figure 15 graphically depicts the data. Traffic growth on MT 3 was highest from 2004 to 2013 (2.8% average growth); however, growth slightly decreased from 2014 to 2023 (2.1% average growth). When considered in aggregate, the average growth rate over the last 20 years was equal to 2.6%. The 20-year growth rate is less impacted by randomness in the data, which can occur when analyzing shorter periods.

Table 15: Historical AADT and Growth Rate

Count Site	2004 AADT	2023 AADT	Growth Rate		
			2004-2013	2014-2023	2004-2023
MT 3 west of Zimmerman Trail	3,570	4,602	1.5%	1.0%	1.3%
MT 3 east of Zimmerman Trail	6,340	12,292	3.7%	2.8%	3.4%
MT 3 west of Airport Rd / 27th St	6,750	12,249	3.3%	2.4%	3.0%
Average Growth Rate for MT 3 Count Sites			**2.8%**	**2.1%**	**2.6%**

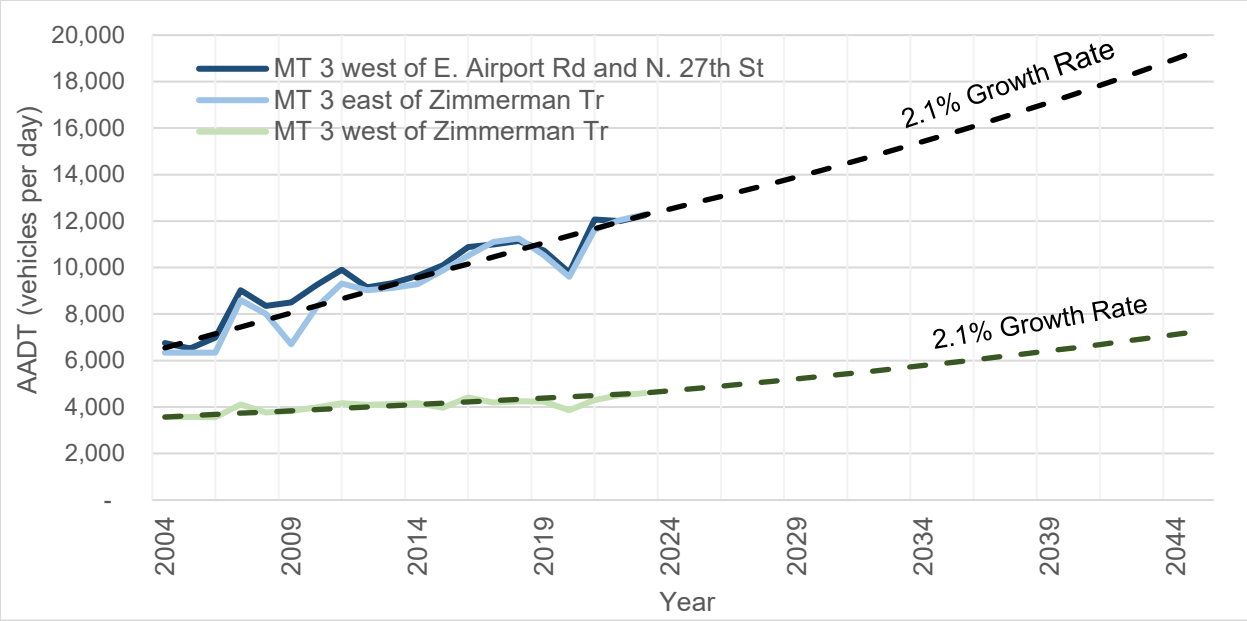


Figure 15: Historical and Projected AADT

The Billings-Yellowstone County MPO maintains a travel demand model which forecasts expected traffic growth in the Billings area. Table 16 lists the travel demand model's forecasted AADT and growth rate on MT 3. Averaged across all segments, the model projects 2.1% annual traffic growth on MT 3 within the study corridor area between 2021 and 2045. This 2.1% growth rate was used to estimate future 2045 traffic volumes.

Table 16: Forecasted Traffic Growth from MPO Travel Demand Model

Count Site	2021 AADT	2045 AADT	Growth Rate 2021-2045
MT 3 west of Zimmerman Trail	4,335	7,449	2.2%
MT 3 east of Zimmerman Trail	11,038	15,203	1.3%
MT 3 west of Airport Rd / 27th St	11,336	23,089	2.9%
Average Growth Rate for MT 3 Count Sites			**2.1%**

Figure 16 and Table 17 show the projected AADT in year 2045, assuming a compound annual growth rate of 2.1%. In 2045, the study corridor is expected to have 7,300 daily vehicles west of Zimmerman Trail and 19,400 daily vehicles east of Zimmerman Trail. Of note, the travel demand model does not include forecasted traffic associated with the BRIC and YLCP planned development north of MT 3 at AJ Way and Huey Way. These developments are expected to draw significant traffic to the study corridor area, particularly during drill weekends when the BRIC is fully built-out. The added traffic associated with these developments is discussed further in Section 5.7 (2045 Projected Intersection Operations).

Table 17: Forecasted 2045 AADT based on 2.1% Annual Growth Rate

Count Site	2023 AADT	2045 AADT
MT 3 west of Zimmerman Trail	4,602	7,270
MT 3 east of Zimmerman Trail	12,292	19,417
MT 3 west of Airport Rd / 27th St	12,249	19,349

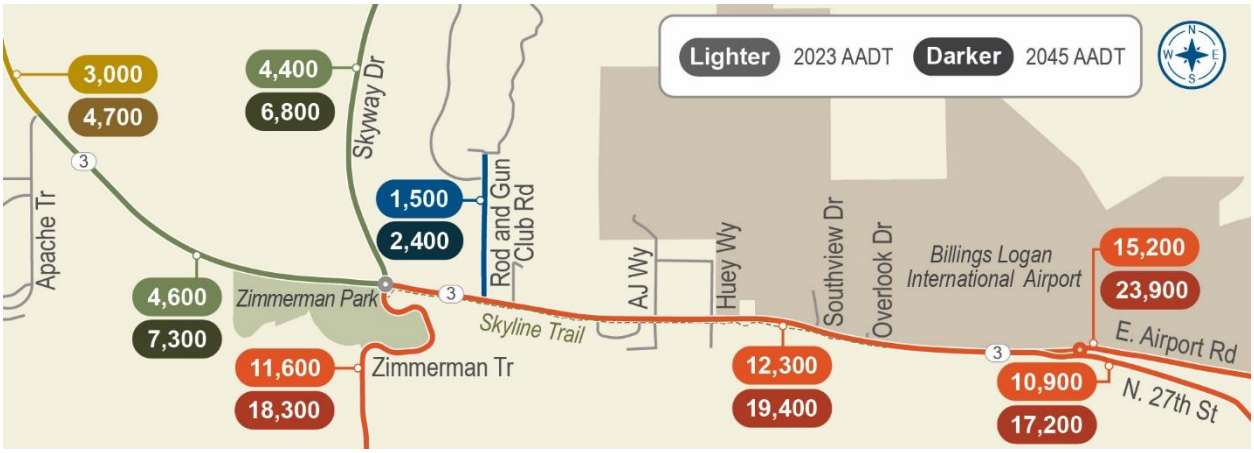


Figure 16: 2023 AADT and Projected 2045 AADT

5.2 Heavy Vehicle Traffic

Heavy vehicles generally include buses, delivery trucks, and semi-trailer trucks. Table 18 lists the two MDT short-term traffic count stations near the study corridor area with 24-hour vehicle classification data, including the percent and number of heavy vehicles. There are 13% heavy vehicles on MT 3 west of Apache Trail, while there are only 3% heavy vehicles on E. Airport Road east of the E. Airport Road / N. 27th Street roundabout. However, there are a higher number of heavy vehicles on the east end of the study corridor area compared to the west end.

Table 18: Percent and Number of Heavy Vehicles

Count Site	Count Date	% Heavy Vehicles	Number of Heavy Vehicles
MT 3 west of Apache Trail	July 16-17, 2024	13%	475
E. Airport Road east of MT 3	September 5-6, 2023	3%	575

5.3 Seasonal and Daily Variation

Figure 17 shows the seasonal variation in traffic volumes at the nearest MDT permanent count station (on Main Street north of Hilltop Road). The figure shows the monthly average daily traffic, along with the relative proportion of each month to the AADT. The spring and summer months (April to September) have the highest traffic volumes (e.g., August traffic volumes are 6% higher than annual average traffic volumes). Traffic volumes on MT 3 are expected to follow a similar trend, peaking during the summer months.

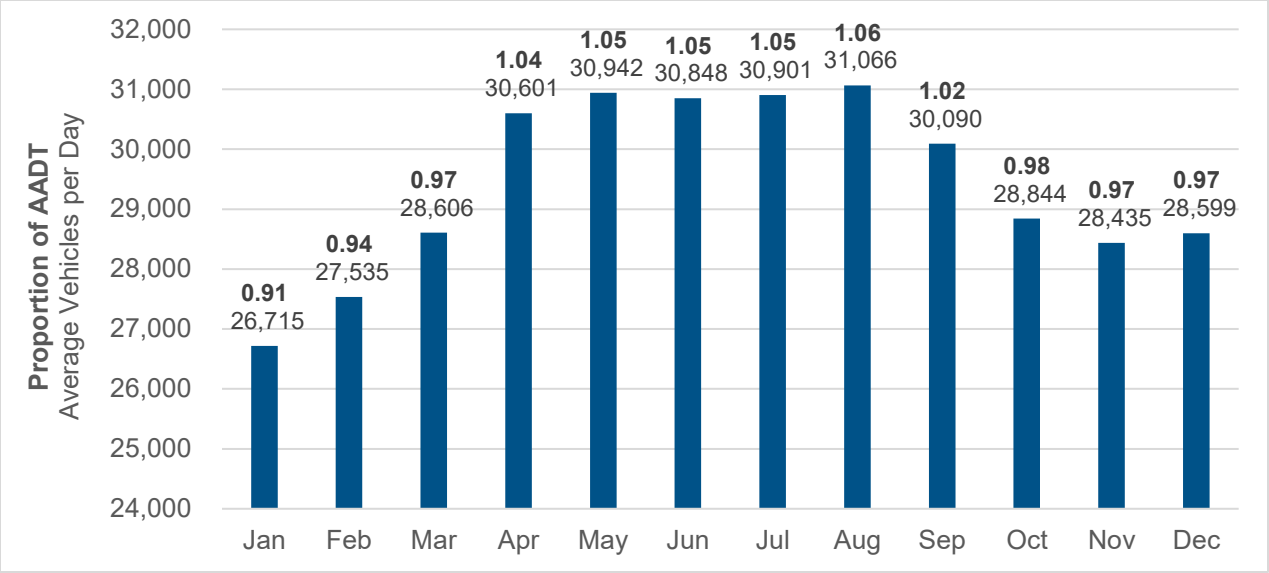


Figure 17: 2023 Average Daily Traffic on Main Street north of Hilltop Road

Figure 18 shows the traffic volume profiles for Thursday, Saturday, and Sunday, based on traffic counts collected at the MT 3 and AJ Way intersection between May 5 and 8, 2022. The AM peak hour occurred from 7:15 to 8:15 a.m. and the PM peak hour occurred from 4:30 to 5:30 p.m. Weekend traffic volumes peak in the middle of the day between 11:30 a.m. and 1:30 p.m.

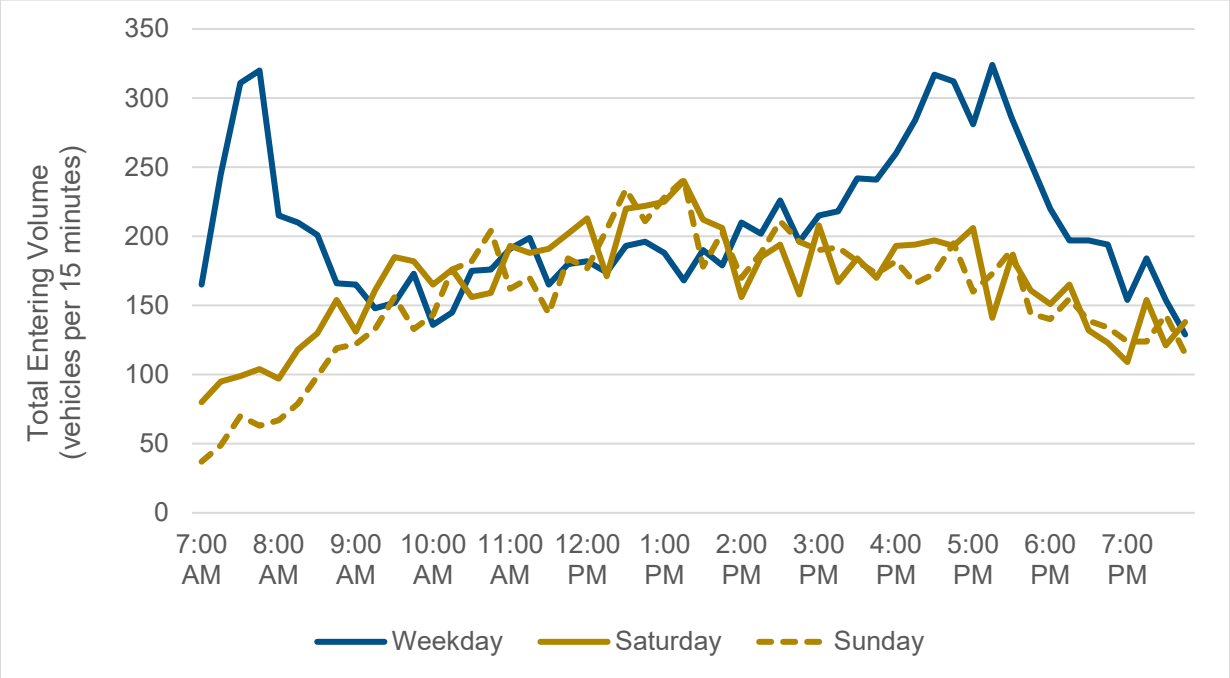


Figure 18: Weekday versus Weekend Total Entering Volume at MT 3 and AJ Way

5.4 Directional Traffic Patterns

Figure 19 and Figure 20 depict the directional distribution of traffic on the east and west ends of the MT 3 study corridor area, respectively. Traffic data on MT 3 east of Zimmerman Trail is from the 24-hour traffic counts collected in December 2024, while traffic data for MT 3 west of Apache Trail is from the MDT short-term traffic count station.

Volumes are relatively balanced on MT 3 east of Zimmerman Trail, with about 52% of traffic heading eastbound during the AM peak and 54% heading westbound during the PM peak. However, directional traffic volumes are less balanced during the peak hours on MT 3 west of Apache Trail where about 65% of traffic is heading eastbound during the AM peak and 62% of traffic is heading westbound during the PM peak.

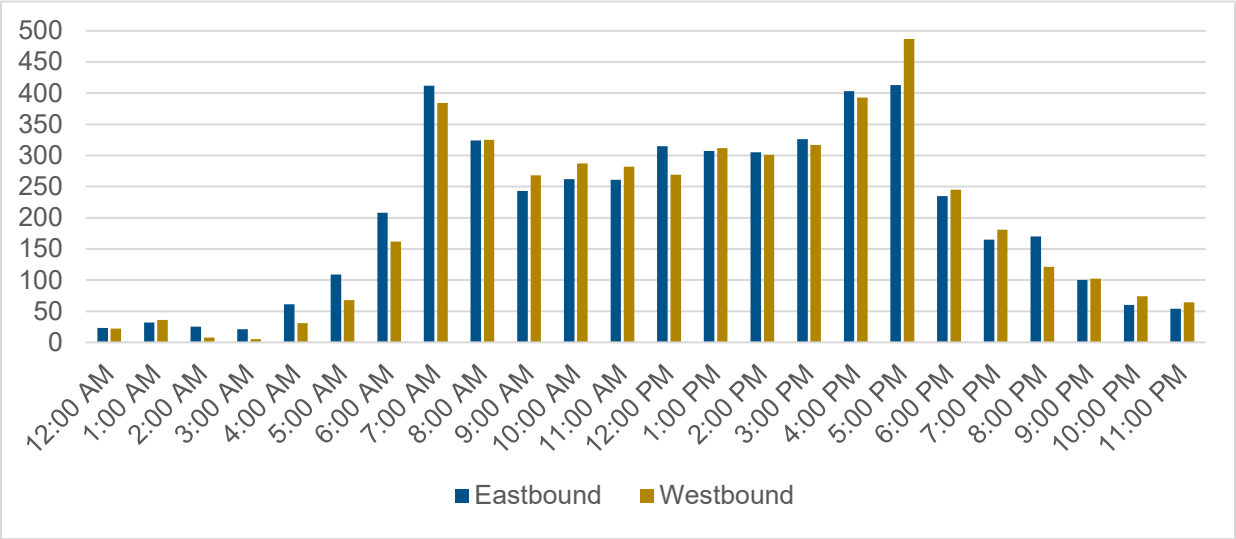


Figure 19: Directional Distribution of Traffic on MT 3 East of Zimmerman Trail

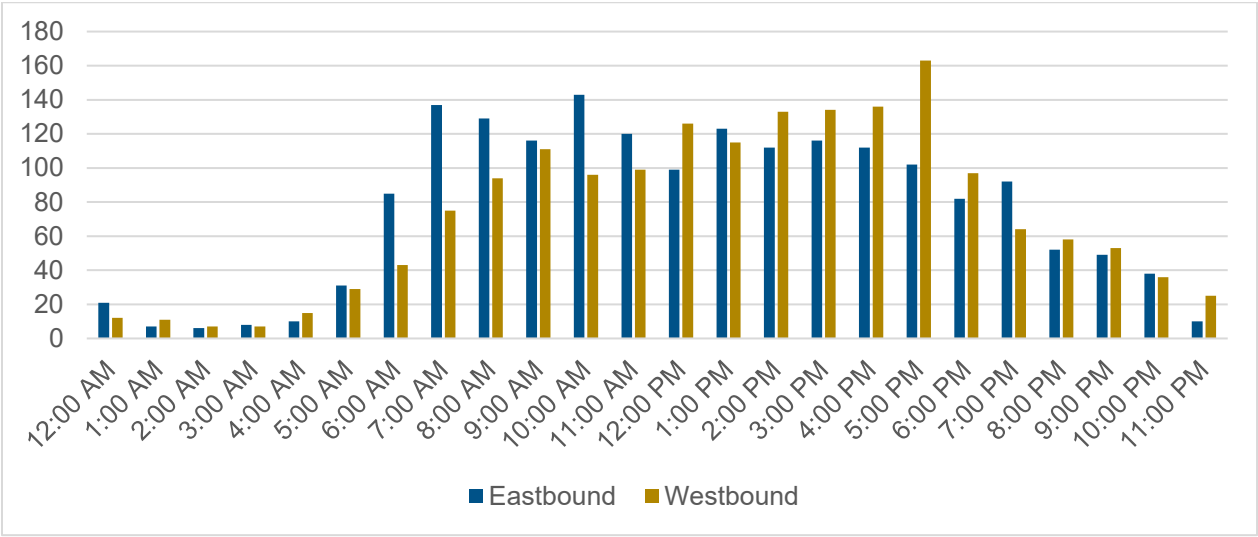


Figure 20: Directional Distribution of Traffic on MT 3 West of Apache Trail

5.5 Traffic Control and Intersection Configuration

Figure 21 shows the existing traffic control and intersection configuration at the study intersections.

Improvements Recommended in Related Plans and Studies

There are two planned lane improvements at AJ Way and Huey Way associated with the BRIC and YLCP developments. As part of the MDT Systems Impact Analysis Process (SIAP), the following two improvements are expected at AJ Way and Huey Way:

- MT 3 / AJ Way: Add new eastbound left-turn lane and westbound right-turn lane
- MT 3 / Huey Way: Add new eastbound left-turn lane and westbound right-turn lane

The BRIC traffic impact study recommended a roundabout at the AJ Way intersection to meet future traffic demand when the BRIC is fully built-out. The *Billings LRTP* recommends a roundabout at the Rod and Gun Club Road intersection to meet future traffic demand.

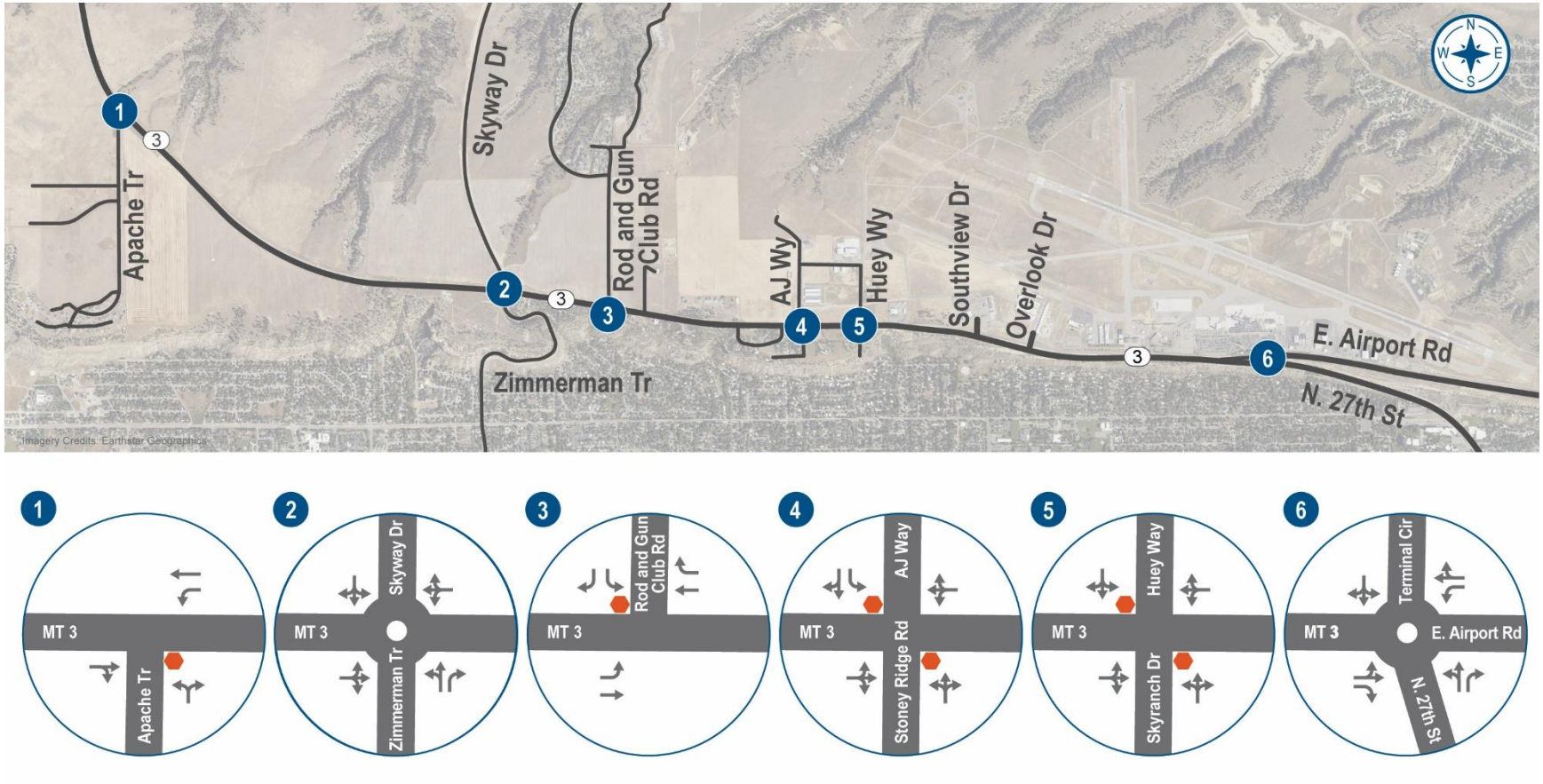


Figure 21: Traffic Control and Intersection Configuration

5.6 Existing Intersection Operations

Intersection level of service (LOS) was analyzed using SYNCHRO version 12 software. SIDRA version 9 was used to report the LOS and delay at roundabouts. LOS describes the quality of traffic operations and is a letter grade based on average control delay. LOS defines how well vehicle traffic flows along a street or road. LOS is graded from A to F, with LOS A representing free-flow conditions and LOS F representing severe congestion with stop-and-go flow conditions. Given the principal arterial classification and roadway context, the design year intersection LOS threshold is LOS D or better. Table 19 lists the LOS criteria for roundabout and two-way stop controlled (TWSC) intersections.

Table 19: LOS Criteria for Roundabouts and TWSC Intersections

LOS	Average Control Delay (Seconds / Vehicle)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Traffic counts were collected on Tuesday, December 10, 2024. Given December traffic volumes are lower than the annual average, a seasonal adjustment factor of 1.12 was applied to the traffic count data collected, following the Oregon Department of Transportation analysis procedures manual.[32] Figure 22 shows the existing turning movement volumes and LOS at the study intersections. Table 20 lists the delay in seconds per vehicle. Results are reported based on the Highway Capacity Manual 7th Edition methodology.

Table 20: Existing Peak Hour LOS and Delay (seconds/vehicle)

Intersection	Control	AM Peak	PM Peak
MT 3 / Apache Tr	TWSC	A/10	A/9
MT 3 / Zimmerman Tr	Roundabout	A/8	A/9
MT 3 / Rod and Gun Club Rd	TWSC	C/22	D/26
MT 3 / AJ Way	TWSC	D/27	C/24
MT 3 / Huey Way	TWSC	C/22	C/22
MT 3 / Airport Rd / 27th St	Roundabout	A/5	A/5

*Delay reported for overall intersection at roundabouts; Delay reported for critical movement at TWSC intersections (side street lane with the highest delay).

The Apache Trail intersection and the two roundabouts operate at LOS A in the AM and PM peak hours. The Rod and Gun Club Road and AJ Way intersections are currently operating at LOS D during either the AM or PM peak hour. At TWSC intersections, delay is reported for the side street approach lane with the highest delay. The overall intersection delay is reported at roundabouts. Of note, Overlook Drive and Southview Drive are TWSC intersections on MT 3 west of the E. Airport Road roundabout. These intersections provide access to the airport and also experience high side street approach delay during peak hours.

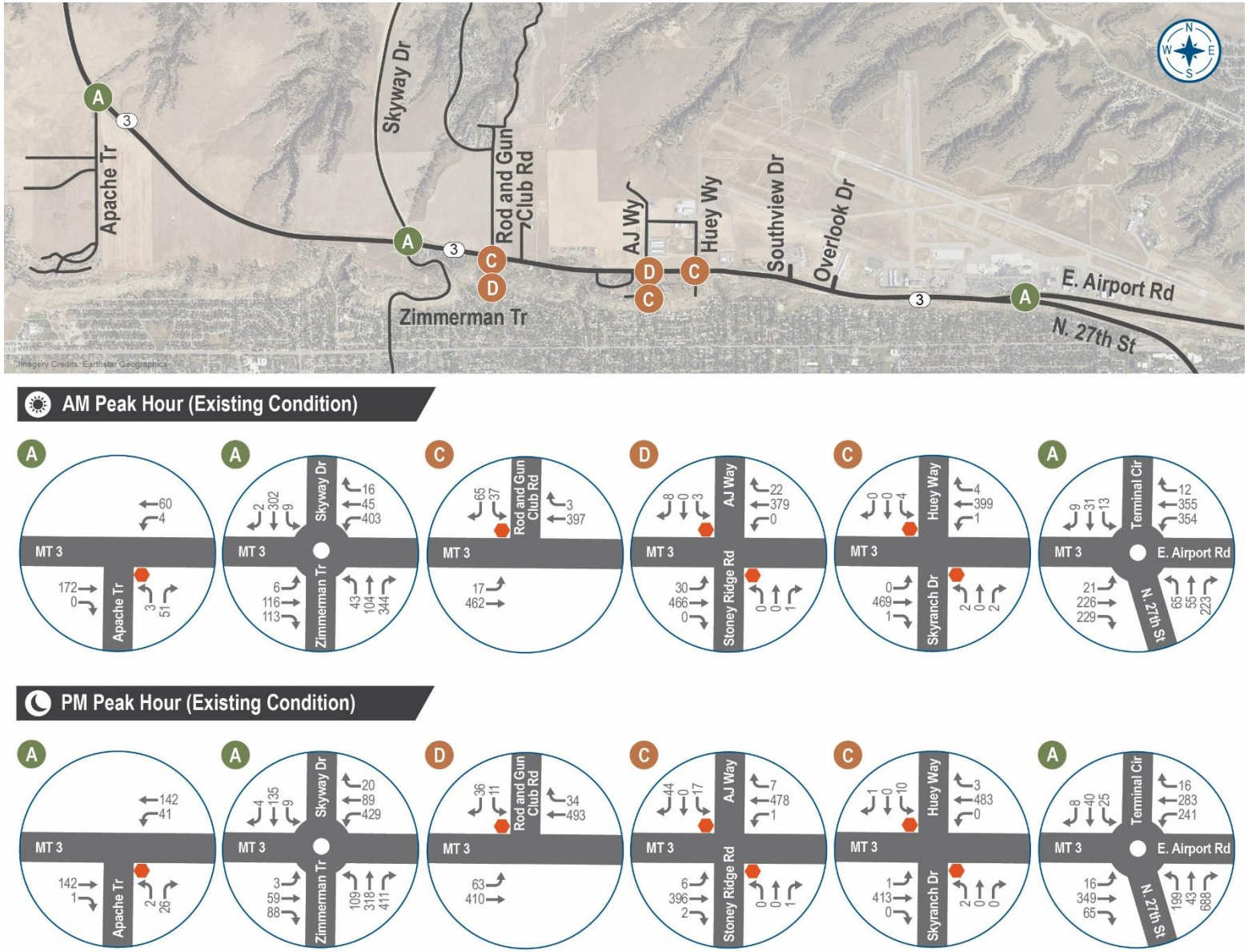


Figure 22: Existing AM and PM Peak Hour Traffic Volumes and LOS

5.7 2045 Projected Intersection Operations

Year 2045 traffic volumes were developed assuming a projected growth rate of 2.1% per year, while also including expected AM and PM peak hour traffic associated with the BRIC and YLCP developments. The BRIC and YLCP full-build development traffic volumes were obtained from the BRIC traffic impact study and add 267 new trips in the AM peak hour and 244 new trips in the PM peak hour. Origins and destinations for these new trips were assigned based on existing traffic patterns. Figure 23 shows the projected turning movements and LOS at study intersections in year 2045, with turning movements rounded to the nearest five. Traffic volumes less than seven vehicles per hour were not rounded, because a small increase in side street traffic can have a significant impact on delay results at TWSC intersections. Table 21 lists the forecasted LOS and delay at each intersection, with the existing traffic control and intersection configuration.

Table 21: 2045 Peak Hour LOS and Delay (seconds/vehicle)

Intersection	Control	AM Peak	PM Peak
MT 3 / Apache Tr	TWSC	B/11	B/10
MT 3 / Zimmerman Tr	Roundabout	F/52	F/79
MT 3 / Rod and Gun Club Rd	TWSC	F/126	F/112
MT 3 / AJ Way	TWSC	F/>300	F/>300
MT 3 / Huey Way	TWSC	F/73	F/187
MT 3 / Airport Rd / 27th St	Roundabout	B/11	B/12

*Delay reported for overall intersection at signalized intersections; Delay reported for critical movement at TWSC intersections (side street lane with the highest delay). Red text indicates the intersection is operating over capacity.

With no capacity improvements, the Apache Trail intersection and E. Airport Road / N. 27th Street roundabout are expected to operate at LOS B in 2045. All other intersections are expected to degrade to a failing LOS during both the AM and PM peak hour in 2045. The critical movement at the TWSC intersections are the southbound left-turns. This movement competes with eastbound and westbound vehicles for an adequate gap in traffic to access MT 3.

The Zimmerman Trail single-lane roundabout is also expected to fail in 2045. The highest delay is expected on the eastbound and southbound approaches, where there is a high conflicting circulating volume. *NCHRP Report 672: Roundabouts: An Informational Guide*[33] cites that more than one entry lane may be required for an approach, if the sum of the entry volume and conflicting circulating volume exceeds 1,300 vehicles per hour. This threshold is met on all approaches of the roundabout.

Of note, the delay reported is reflective of a typical weekday peak hour and does not reflect delay anticipated during drill weekends planned at the BRIC, occurring seven to 12 weekends per year. The Readiness Center at the BRIC has an anticipated opening year of 2035 and will significantly increase the number of personnel on campus during drill weekends. At full build-out in 2050, up to 880 personnel are anticipated at the BRIC during drill weekends. Therefore, delay is expected to be higher at all study intersections during drill weekends.

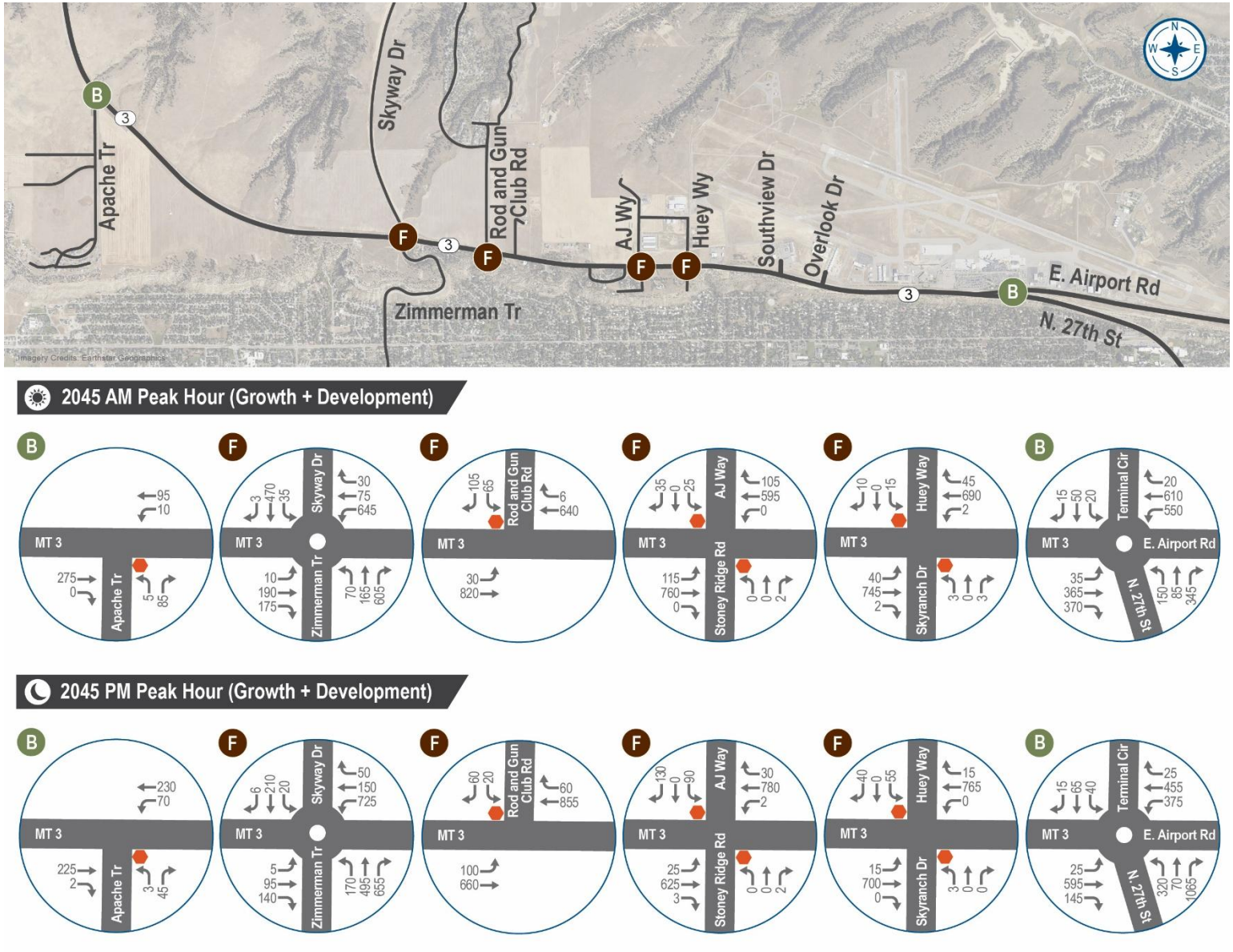


Figure 23: 2045 AM and PM Peak Hour Traffic Volumes and LOS

6.0 SAFETY

Five years of crash data along the study corridor were analyzed (January 1, 2019, to December 31, 2023). A total of 115 crashes were reported over the five years. It is important to note crash data is obtained from crash reports completed by police officers at the time of the crash. The data can be incomplete or inaccurate, as many crashes go unreported and the reporting of crash information can vary, depending on the reporting officer.

Disclaimer: 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.

6.1 Crash Trends

Figure 24 depicts the number of crashes per year on the corridor and the AADT on MT 3 (based on the average of the three count sites located on MT 3 within the study corridor limits). In the five-year period, crashes increased by 73% while AADT increased by about 14%. The increase in crashes can be partially attributed to increased traffic on MT 3. In addition, the Zimmerman Trail intersection was upgraded from a TWSC intersection to a roundabout in 2019. Roundabouts tend to have a higher crash frequency compared to stop controlled and signalized intersections. However, crashes at roundabouts tend to be lower speed and have a lower incident angle, which improves overall intersection safety by reducing crash severity.[34]

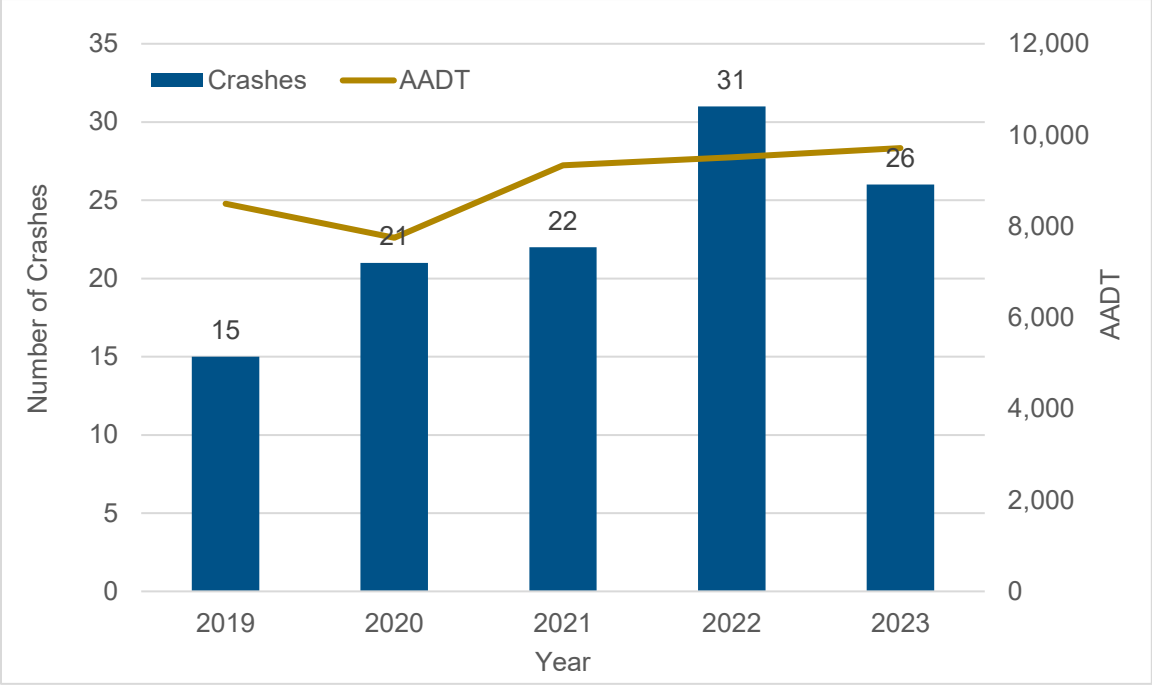


Figure 24: Crashes by Year

Figure 25 depicts crash data by time of day. Crashes occur most often during typical commuting hours in the morning and afternoon, with 18% of all crashes occurring from 7:00 to 10:00 a.m. and 21% occurring from 3:00 to 6:00 p.m. These periods coincide with heaviest weekday traffic volumes.

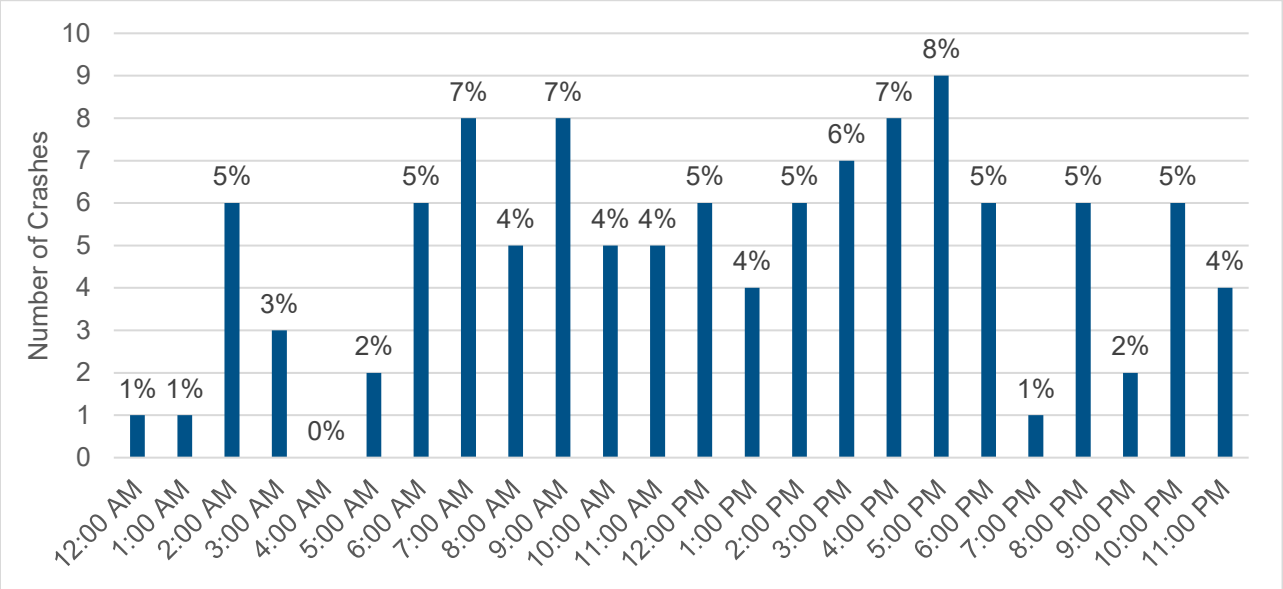


Figure 25: Crashes by Time of Day (2019 – 2023)

When analyzed by day of week, Fridays had the highest number of crashes. There was no clear trend in crash frequency when analyzed by month or season; overall, May and October had the highest number of crashes.

6.2 Crash Locations

Figure 26 depicts the density of crashes along the corridor and the location of fatal and injury crashes. About 51% of crashes occurred at intersections or were intersection-related. The crash density was highest at the Zimmerman Trail and E. Airport Road / N. 27th Street roundabouts. One fatal crash occurred at the E. Airport Road / N. 27th Street roundabout in August 2022.

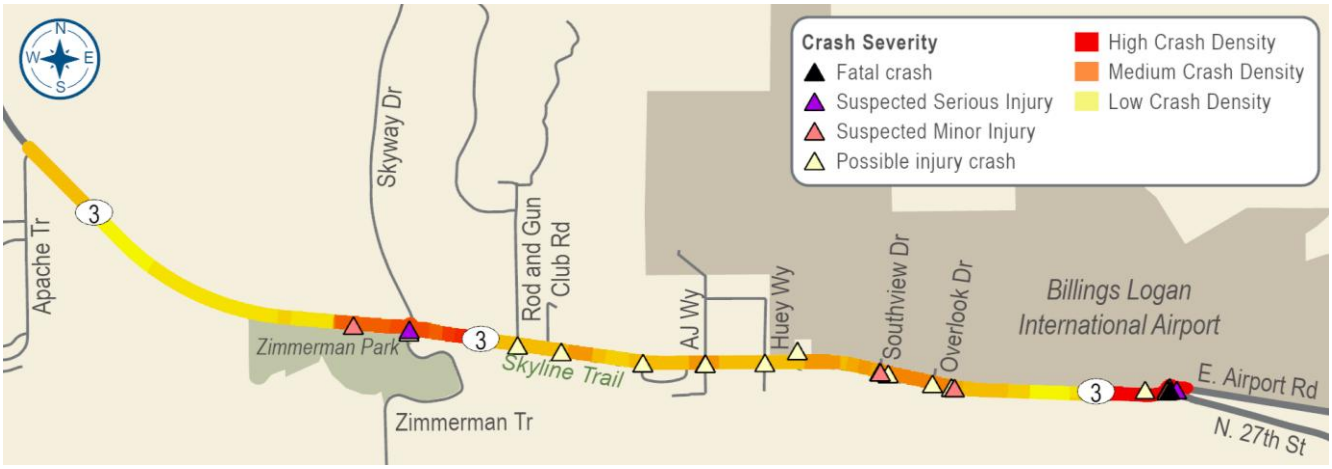


Figure 26: Crash Density (2019 – 2023)

6.3 Crash Severity

Crashes were categorized based on the severity of injuries reported. The most severe injury defines the severity of the crash. Figure 27 depicts the distribution of crash severity on the corridor. About 63% of crashes were property damage only (PDO) and 27% of crashes resulted in injury. Among the crashes that resulted in injury, 23 were categorized as possible injury crashes, six were categorized as minor injury crashes, and two were categorized as serious injury crashes.

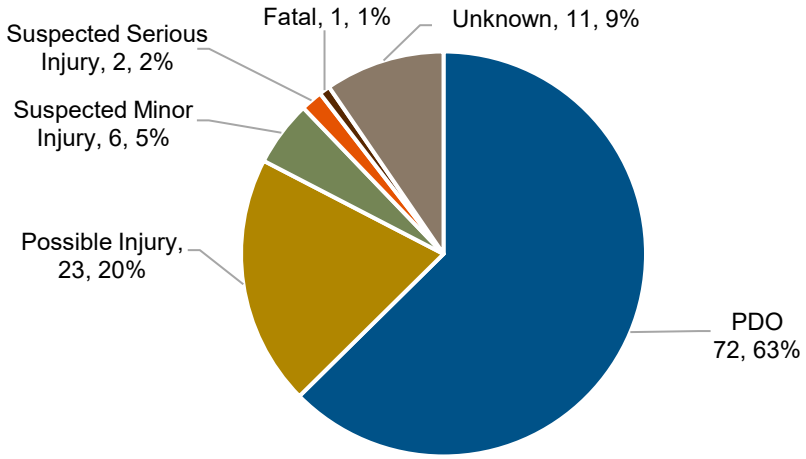


Figure 27: Crash Severity (2019 – 2023)

6.4 Crash Types

Figure 28 summarizes the types of crashes occurring on the corridor. Rear-end collisions account for about 25% of crashes. Fixed-object collisions were the second most common crash type, typically occurring at intersections. One bicycle crash was reported on the corridor over the five-year period, occurring at the MT 3 and E. Airport Road / N. 27th Street roundabout. The majority of the wildlife-vehicle collisions occurred on MT 3 west of Zimmerman Trail.

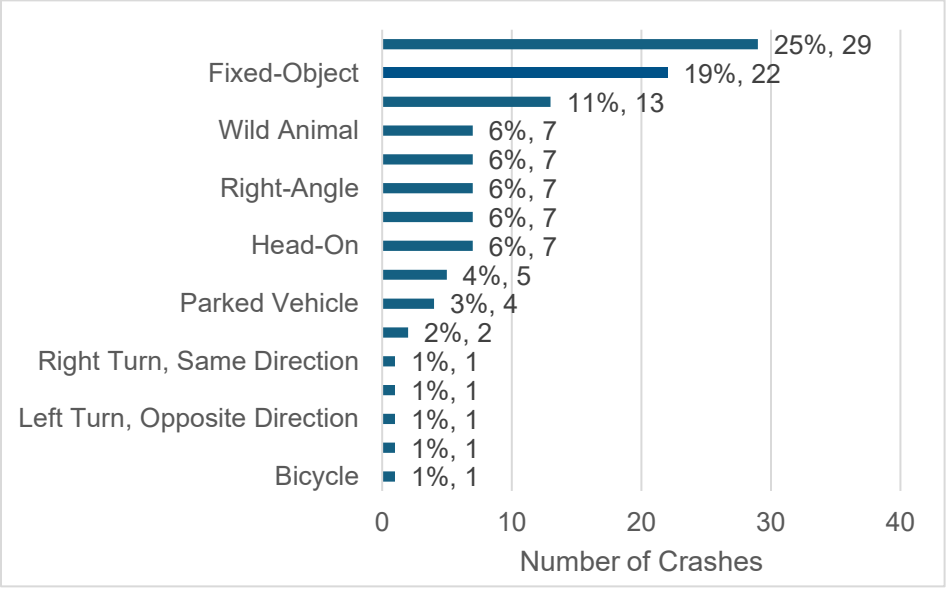


Figure 28: Crash Types (2019 – 2023)

6.5 Road and Lighting Condition

Figure 29 shows the road and lighting conditions during the crashes. About 29% of crashes occurred during wet, snowy, or icy road conditions. About 36% of crashes occurred during dawn, dusk, or dark conditions. Intersection lighting only exists at the Zimmerman Trail and E. Airport Road roundabouts.

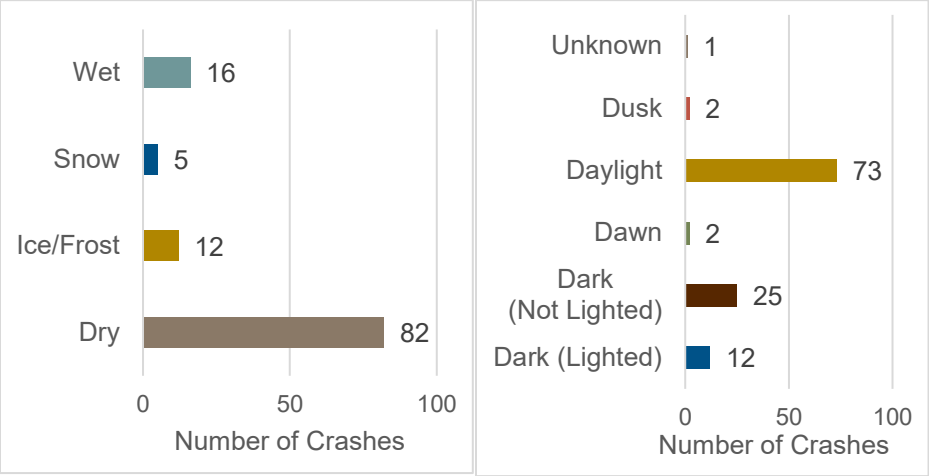


Figure 29: Road and Lighting Conditions (2019 – 2023)

6.6 Intersection Crash Severity

Table 22 lists the total number of crashes and the crash severity at each of the study corridor intersections. The E. Airport Road / N. 27th Street roundabout experienced the highest number of crashes, followed by the Zimmerman Trail roundabout. The Zimmerman Trail roundabout had one suspected serious injury crash, involving a sideswipe opposite direction collision. The E. Airport Road / N. 27th Street roundabout had one fatal crash involving a sideswipe opposite direction collision and one suspected serious injury crash involving driving too fast for conditions.

Table 22: Crash Severity at Study Corridor Intersections (2019 – 2023)

Intersection	PDO	Minor or Possible Injury	Suspected Serious Injury	Unknown	Fatal	Total
MT 3 / Apache Tr	4	0	0	0	0	**4**
MT 3 / Zimmerman Tr	18	3	1	3	0	**25**
MT 3 / Rod and Gun Club Rd	4	1	0	0	0	**5**
MT 3 / AJ Way	0	1	0	0	0	**1**
MT 3 / Huey Way	2	1	0	1	0	**4**
MT 3 / Airport Rd / 27th St	25	10	1	4	1	**41**

6.7 Intersection Crash Rates

Table 23 lists the crash rate at each study corridor intersection. The crash rate provides more information than crash frequency alone, as it factors in the number of vehicles entering an intersection. This makes the crash rate an effective tool for comparing the relative safety of one intersection to another. The crash rate equation is provided below. Intersection crash rate is the number of crashes occurring per million entering vehicles.

$$\text{Intersection Crash Rate} = \frac{\text{Total Number of Crashes} * 1{,}000{,}000\ \text{Vehicles}}{\text{Vehicles per Day} * \text{Number of Years} * 365\ \text{Days per Year}}$$

Table 23: Crash Rates at Study Corridor Intersections (2019 – 2023)

Intersection	Total Crashes	Vehicles per Day *	Crash Rate
MT 3 / Apache Tr	4	3,884	0.56
MT 3 / Zimmerman Tr	25	12,710	1.08
MT 3 / Rod and Gun Club Rd	5	10,623	0.26
MT 3 / AJ Way	1	10,217	0.05
MT 3 / Huey Way	4	9,972	0.22
MT 3 / Airport Rd / 27th St	41	18,508	1.21

* Vehicles per day estimated based on AADT estimates at MDT short term count stations. If not available, AADT was estimated based on recent traffic counts, assuming 10% of daily traffic occurs in the peak hour.

The intersection crash rate is significantly higher at the Zimmerman Trail and E. Airport Road / N. 27th Street roundabouts, compared to all other study corridor intersections.

6.8 Intersection Crash Types

Table 24 provides a breakdown of crash types at each study corridor intersection. Rear-end and fixed-object collisions were the most common intersection crash types. Right-angle and rear-end collisions were the most common crash types at the TWSC intersections. A high number of sideswipe same-direction crashes occurred at the E. Airport Road / N. 27th Street roundabout.

Table 24: Crash Types at Study Corridor Intersections (2019 – 2023)

Intersection	Rear End	Fixed Object	Side Swipe		Right Angle	Head On	Roll Over	Right Turn		Bicycle	Parked Vehicle	Other	Total
			Same Dir	Opp Dir				Opp Dir	Same Dir				
MT 3 / Apache Tr	-	1	-	1	1	-	1	-	-	-	-	-	**4**
MT 3 / Zimmerman Tr	8	8	2	2	2	2	1	-	-	-	-	-	**25**
MT 3 / Rod and Gun Club Rd	2	1	-	-	1	-	-	-	-	-	-	1	**5**
MT 3 / AJ Way	1	-	-	-	-	-	-	-	-	-	-	-	**1**
MT 3 / Huey Way	1	-	1	-	1	-	-	-	-	-	-	1	**4**
MT 3 / Airport Rd / 27th St	8	7	9	2	1	3	1	1	1	1	1	6	**41**
Total	**20**	**17**	**12**	**5**	**6**	**5**	**3**	**1**	**1**	**1**	**1**	**8**	**80**

7.0 AREAS OF CONCERN AND CONSIDERATION

This section summarizes key areas of concern and consideration for the corridor, which were identified based on a comprehensive review of existing corridor conditions.

7.1 Demographics

Key demographic findings include:

- Between 1980 and 2020, Billings and Yellowstone County saw compound annual growth rates of approximately 1.41% and 1.06%, respectively. In contrast, Montana and the US grew at compound annual growth rates of 0.81% and 0.96% respectively during the same 40-year period.
- Within the study area tracts, 89.6% of the population is white which exceeds the Billings, Yellowstone County, and Montana averages. The next largest population within the study area tracts is Hispanic and Latino which makes up approximately 4.8% of the population.
- The study area tracts have a higher elderly population, which includes individuals 65 and over, in relation to Billings, Yellowstone County, and Montana averages.
- Within the study area tracts, 99.4% of workers aged 16 and older have access to a vehicle, and 72.4% drive to work alone, which is on par with averages from Billings (76.5%), and Yellowstone County (77.9%).
- Educational Services, Healthcare, and Social Assistance are the most common employers within the study area tracts, consistent with Billings, Yellowstone County, and Montana.

7.2 Transportation System

This section summarizes key findings and areas of concern related to physical features, geometric conditions, traffic conditions, and traffic safety.

Physical Features and Characteristics

- The speed limit is 70 mph on the west end of the corridor but decreases to 50 mph just west of Zimmerman Trail, then decreases to 45 mph just west of the E. Airport Road/N. 27th Street roundabout.
- Access density is relatively low on the west end of the corridor. However, the nature of the corridor changes east of Zimmerman Trail, where there are more residential developments with direct access onto MT 3. An access management plan will be prepared for MT 3 as part of this corridor study to guide future access along the corridor.
- Geotechnical investigations would be required for reconstruction or significant improvements to MT 3 to determine potential stability, erosion, subgrade support, and settlement concerns posed by surface geology and soil conditions.
- The study corridor area has limited stormwater facilities and any increase in runoff volume or peak flow over the Rimrocks should be avoided to protect the residential area below.
- Multiple public and private utilities exist in the study corridor area. Public utilities include the municipal water system, sanitary sewer facilities, and underground storm drain facilities. Private utilities include overhead power lines, buried power lines, communications, and natural gas.

- Several bicycle and pedestrian facilities exist in the study corridor area, including Skyline Trail on the south side of MT 3 and the multi-use trail along the east side of Skyway Drive. There is one committed and one proposed pedestrian/bicycle project in the study corridor area, which would add new multi-use trails along Zimmerman Trail and N. 27th Street.
- Providing safe crossings for non-motorized users is key, given the number of regional trails which intersect in the study corridor area. Skyline Trail crosses several driveways providing access to residential developments along MT 3. City of Billings staff have noted that nonmotorized safety is a concern at these access points along Skyline Trail and at the RRFB on the east leg of the Zimmerman Trail roundabout.
- For cyclists using the roadway, MT 3 has BLTS of four, indicating cycling on the roadway is only acceptable by highly confident bicyclists.

Geometric Conditions

- East of the Zimmerman Trail roundabout, the typical roadway section on MT 3 consists of two 12-foot-wide travel lanes with one travel lane in each direction, 3.5-foot-wide shoulders, and roadside ditches (no curb or gutter). The typical section widens west of Zimmerman Trail, providing 8-foot-wide shoulders.
- The existing 3.5-foot shoulder width east of Zimmerman Trail does not meet design standards, as the minimum shoulder width for a rural and urban principal arterial is 6 feet.
- Existing horizontal and vertical curves generally meet or exceed current geometric design standards.

Traffic Conditions

- The corridor is currently operating under capacity with the highest volumes experienced between Zimmerman Trail and E. Airport Road, at an AADT of 12,300 vehicles per day. The Rod and Gun Club Road and AJ Way intersections are currently operating at LOS D during either the AM or PM peak hour. Both intersections are TWSC with the southbound left-turn movement experiencing the greatest delay while waiting for an adequate gap to enter MT 3.
- Over the last 20 years, traffic has grown at a rate of 2.6% per year on the corridor. The City of Billings-Yellowstone County MPO travel demand model forecasts 2.1% annual traffic growth on MT 3 over the next 20 years. This 2.1% growth rate was used, in addition to forecasted BRIC and YLCP development traffic, to estimate 2045 traffic volumes. In 2045, all study intersections are expected to fail during the AM and PM peak hour, except for the Apache Trail and E. Airport Road / N. 27th Street intersections.

Safety

- A total of 115 crashes were reported on MT 3 between 2019 and 2023. About 63% of crashes were property damage only and 27% of crashes resulted in injury. One fatal crash occurred over the five-year period at the E. Airport Road / N. 27th Street roundabout.
- When analyzed by intersection, the crash frequency and crash rate is significantly higher at the Zimmerman Trail and E. Airport Road / N. 27th Street roundabouts, compared to all other study corridor intersections.

7.3 Environmental Constraints

Environmental constraints are summarized based on information provided in the *Environmental Scan* report.

Physical Environment

- Some land adjacent to the MT 3 corridor is publicly held by the State of Montana or the federal government.
- The study corridor area contains some soils classified as farmland of statewide importance or prime farmland if irrigated that may be subject to protections under the Farmland Protection Policy Act.
- There are five underground storage tanks and one hazardous waste generator within or adjacent to the study corridor area.
- A carbon monoxide maintenance area has been designated within the Billings area. The study corridor area falls within the designated limits of the carbon monoxide maintenance area from RP 3.1 to approximately RP 6.8.

Biological Resources

- At least 14 species of noxious weeds have been documented within the vicinity of the study corridor area.
- The forested drainages surrounding the western extent of the study corridor area and the ponderosa pine studded sandstone outcroppings along the southern margins of the study corridor area provide suitable habitat for a range of mammals, birds, reptiles, and invertebrates.
- Between RP 6 and RP 8 on MT 3, there may be a correlation between wildlife-vehicle crashes and the segments with forested drainages to the north and agricultural lands to the south.
- Monarch butterfly and Suckley's cuckoo bumble bee, which are both proposed for listing under the Endangered Species Act, were identified as potentially occurring within the study corridor area. No designated critical habitat for either species was present in the corridor.

Social and Cultural Resources

- Of the nine census tracts evaluated for the study corridor area, all race-related demographics are consistent with those for Yellowstone County and Montana.
- Of the nine census tracts evaluated for the study corridor area, eight census tracts had notably lower percentages of people below the poverty level. One census tract, Census Tract 12, had 17.6% of persons within the block group earning below poverty level, which is relatively higher than the rest of the study corridor area. However, the study corridor area as a whole does not have a notably high concentration of low-income persons.
- Zimmerman Park, Skyline Trail, Rimrock Trail (primitive trail along N. 27th Street) and several public parcels along the Rimrocks are publicly owned recreational resources. All of these resources are south of MT 3 within the study corridor area and may be subject to Section 4(f) of the U.S. DOT Act of 1966.

- Within the study corridor area, 42 historic sites were identified with 17 determined eligible for listing on the National Register of Historic Places (NRHP), 9 ineligible for listing, and the remaining 16 are undetermined. Any impacts to NRHP eligible sites would be protected under the provisions of Section 4(f) of the U.S. DOT Act of 1966.
- Sensitive noise receptors were identified within the study corridor area and primarily include adjacent residential properties and parks. These receptors are found from approximately RP 3 to RP 7 on the south side of MT 3.

REFERENCES

[1] City of Billings Growth Policy, August 2016.
https://www.billingsmt.gov/DocumentCenter/View/33048/2016-City-of-Billings-Growth-Policy---adopted?bidId=

[2] Billings Urban Area Long Range Transportation Plan, July 2023.
https://billingslrtp.com/project-documents

[3] Billings Area Bikeway and Trails Master Plan, 2017.
https://www.billingsmt.gov/DocumentCenter/View/34091/Billings-Bikeway-and-Trails-Master-Plan

[4] Highway 3 Corridor Study, April 2015.
https://www.billingsmt.gov/DocumentCenter/View/26772/Hwy-3-Study

[5] Billings Logan International Airport Master Plan, March 2010.
https://www.flybillings.com/1412/Master-Plan

[6] Inner Belt Loop Corridor Study, November 2020.
https://www.billingsmt.gov/DocumentCenter/View/45108/2020-Inner-Belt-Loop-Corridor-Study_Final

[7] Molt Road/Highway 3 Collector Road Planning Feasibility Study, June 2004.
https://www.billingsmt.gov/DocumentCenter/View/1993/Molt-Hwy-3-Final-Study-Report

[8] Billings TrailNet, Yellowjacket Trail. https://www.billingstrailnet.org/yellowjacket-trail/

[9] Billings Readiness & Innovation Campus (BRIC) Traffic Impact Study, December 2023.

[10] Yellowstone Landing Commercial Park (YLCP) Traffic Impact Study, April 2021.

[11] Billings Logan International Airport Draft Master Plan, City of Billings. 2025.
https://www.flybillings.com/1412/Master-Plan

[12] U.S. Census Bureau, American Community Survey Data.
https://www.census.gov/programs-surveys/acs/data.html

[13] U.S. Census Bureau, National Population Projection Tables, 2023.
https://www.census.gov/data/tables/2023/demo/popproj/2023-summary-tables.html

[14] Montana Department of Transportation, Right of Way Projects Map.
https://mdt.maps.arcgis.com/apps/mapviewer/index.html?webmap=d3eef1ea580144e9973558de6d192ad0&extent=-124.6497,40.2424,-92.196,52.6802

[15] Federal Highway Administration, Functional Classification Guidelines, 1989.
https://gpsinformation.info/roundabout/Guides/UrbanRuralDefinition.htm

[16] Montana Department of Transportation, Access Control Map. Designation of Limited Access Highway, Project Number F 53-1(8)6, Billings-Northwest, 1990.
https://www.arcgis.com/apps/mapviewer/index.html?webmap=9c222004955944a286c736e268112842

[17] Montana Department of Transportation, Maintenance, Operations, and Procedures Manual, December 2009. https://www.mdt.mt.gov/publications/docs/manuals/mmanual/chapt9c.pdf

[18] Montana Department of Transportation, The Shore of an Ancient Sea Road Sign. https://www.mdt.mt.gov/travinfo/docs/roadsigns/ShoreAncientSea.pdf

[19] Montana Bureau of Mines and Geology. Geologic map of the Billings area, Yellowstone County, Montana, 2002. https://www.mbmg.mtech.edu/mbmgcat/public/ListCitation.asp?pub_id=10216&#gsc.tab=0

[20] Montana Bureau of Mines and Geology. Geologic Map Series No. 59, Billings 30' x 60' Quadrangle, 2000. https://www.mbmg.mtech.edu/pdf_100k/billings-gm59.pdf

[21] Montana Bureau of Mines and Geology. Earthquakes in Montana – Interactive Map. https://gis-data-hub-mbmg.hub.arcgis.com/apps/655d7f4b3c074ac182396bd0a0569f14/explore

[22] NCHRP Report 562: Improving Pedestrian Safety and Unsignalized Crossings. National Cooperative Highway Research Program, 2006. https://nacto.org/wp-content/uploads/2010/08/NCHRP-562-Improving-Pedestrian-Safety-at-Unsignalized-Crossings.pdf

[23] NCHRP Report 992: Guide to Pedestrian Analysis. National Cooperative Highway Research Program, 2022. https://nacto.org/wp-content/uploads/2010/08/NCHRP-562-Improving-Pedestrian-Safety-at-Unsignalized-Crossings.pdf

[24] FAA Passenger Boarding, Enplanement Data. https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/previous_years#2019

[25] FAA Operations Network (OPSNET), Airport Operations Standard Report. https://aspm.faa.gov/opsnet/sys/Airport.asp

[26] FAA National Plan of Integrated Airport Systems (NPIAS). https://www.faa.gov/airports/planning_capacity/npias/current/historical

[27] Parking problems at Billings airport after record numbers since pandemic, KTVQ, December 2024. https://www.ktvq.com/news/local-news/billings-airport-experiences-parking-overflow-after-record-numbers-since-pandemic

[28] Montana Department of Transportation, Road Design Manual, September 2016. https://www.mdt.mt.gov/other/webdata/external/cadd/RDM/50-RDM-COMPLETE.pdf

[29] Montana Department of Transportation, Baseline Criteria Practitioner's Guide, March 2021. https://www.mdt.mt.gov/other/webdata/external/cadd/RDM/STANDARDS/BASELINE-CRITERIA-PRACTITIONERS-GUIDE.pdf

[30] City of Billings, Subdivision Regulations, October 2024. https://www.billingsmt.gov/DocumentCenter/View/1506/City-Subdivision-Regulations?bidId=

[31] Transportation Research Board, Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis, 2022.

[32] Oregon Department of Transportation, Analysis Procedures Manual, February 2025. https://www.oregon.gov/odot/Planning/Documents/APMv2.pdf

[33] NCHRP Report 672, Roundabouts: An Informational Guide, Second Edition. National Cooperative Highway Research Program, 2010. https://nacto.org/docs/usdg/nchrprpt672.pdf

[34] Crash Modification Factor Clearinghouse, Conversion of Intersection to Roundabout. https://cmfclearinghouse.fhwa.dot.gov/results.php?qst=roundabout