EXISTING CONDITIONS SUPPORTING FIGURES & CONTENT

F

2023 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Existing Conditions Appendix

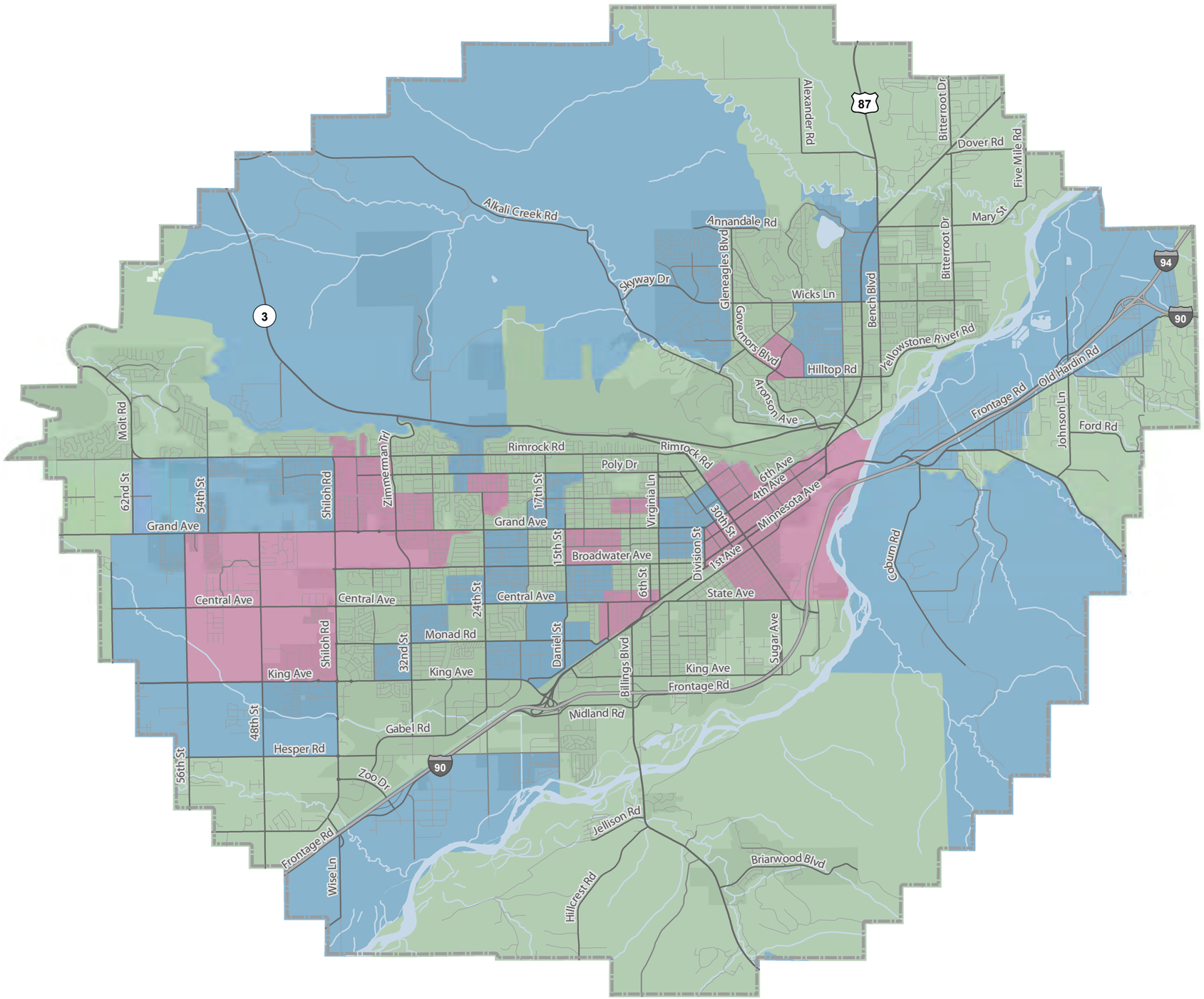
COMMUNITY & LAND USE

HOUSEHOLDS WITHOUT VEHICLES

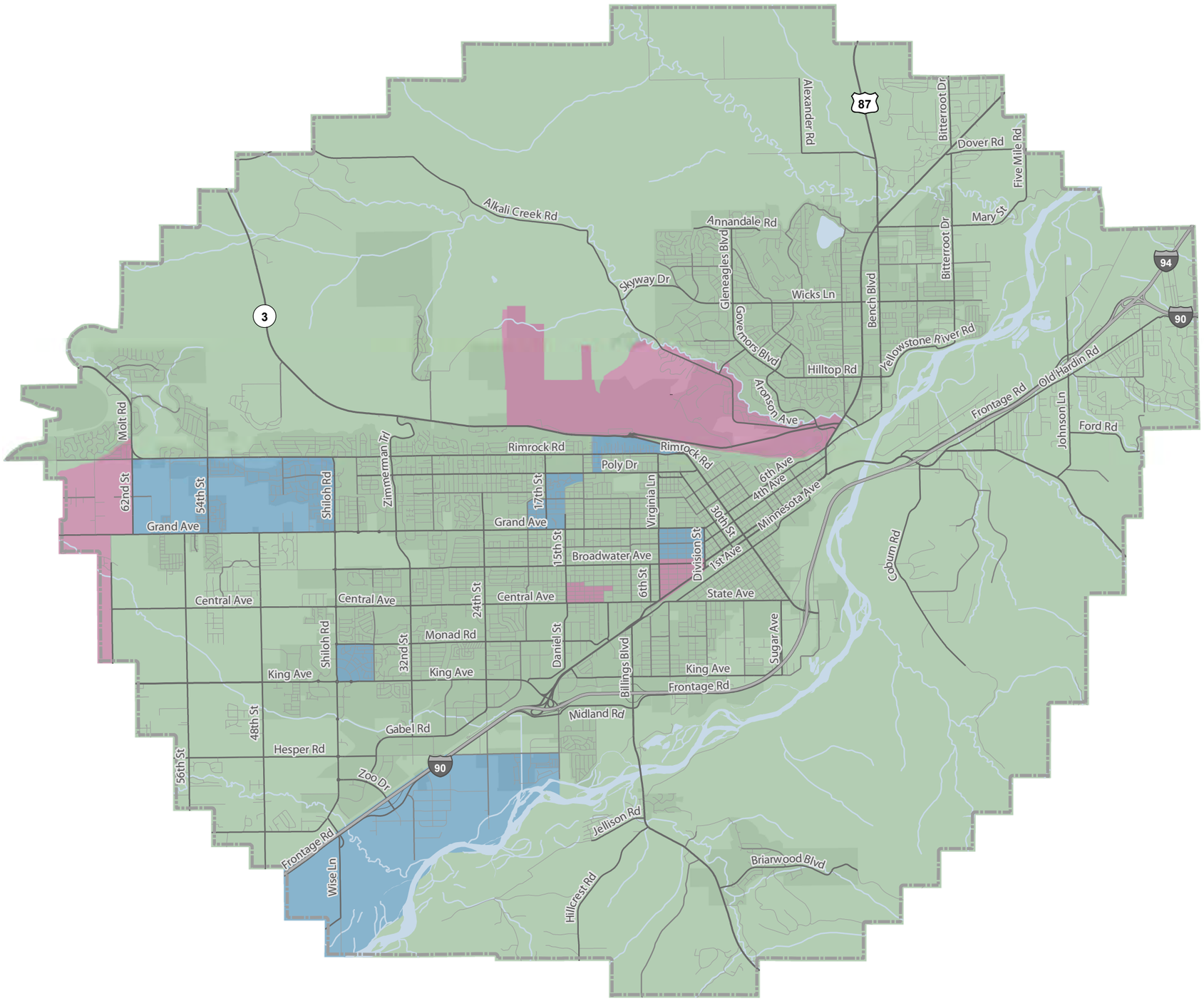
Percentage of Households without Vehicles by Block Group

- 10.4% - 37.4%
- 3.6% - 10.3%
- 0% - 3.5%

Data Source: US Census Bureau 2020



LIMITED ENGLISH PROFICIENCY HOUSEHOLDS



Percentage of Limited English Proficiency Households by Block Group

- 2.6% - 7.7%
- 0.1% - 2.5%
- 0%

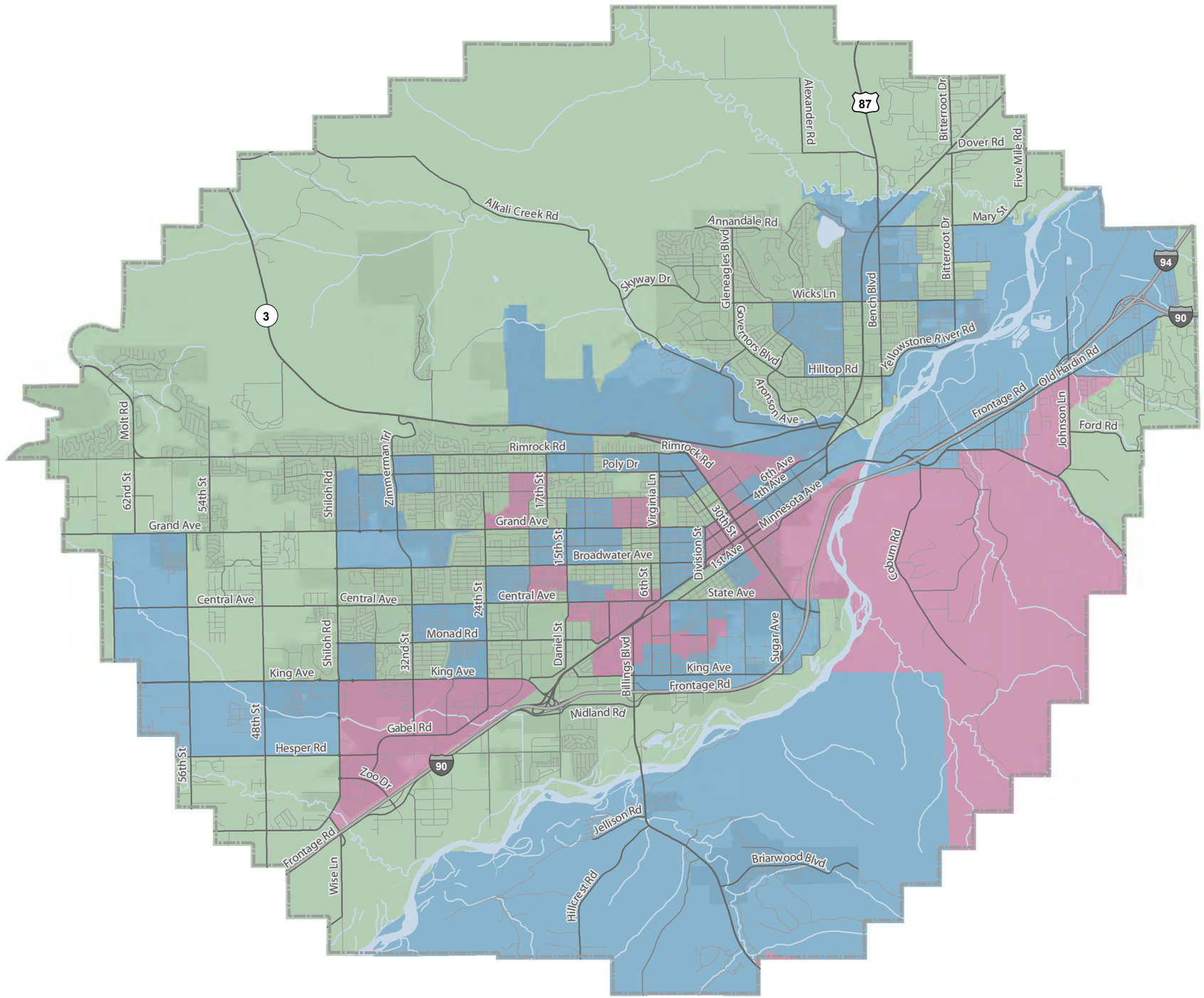
Data Source: US Census Bureau 2020

HOUSEHOLDS IN POVERTY

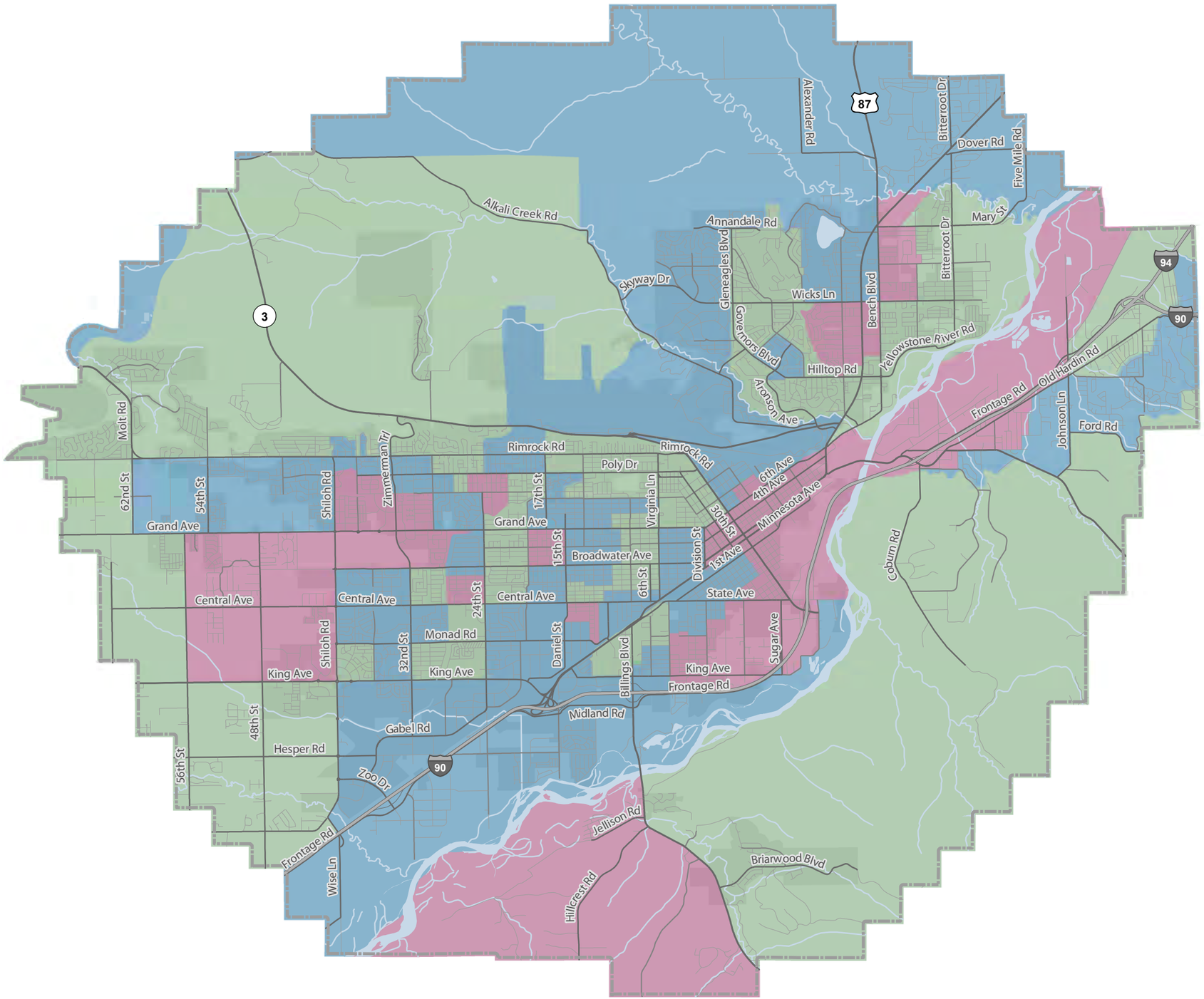
Percentage of Households in Poverty by Block Group

- 19.9% - 53.3%
- 9.1% - 19.8%
- 0% - 9%

Data Source: US Census Bureau 2020



DISABLED POPULATION



Disabled Adult Population Percentage by Block Group

- 21.8% - 36.9%
- 12.3% - 21.7%
- 0% - 12.2%

Data Source: US Census Bureau 2020

SAFETY

State Plans

TRANPLANMT (2017)

TranPlanMT, Montana's long-range transportation plan, was last amended in 2017. This plan cites safety as an overarching goal which is applied in nearly every MDT decision-making process for all projects and programs. The statewide plan lists the following eight goals to improve transportation system safety.

- Maintain infrastructure condition to provide safe conditions for the traveling public.
- Continue improvements to the safety rest area program to provide safe stopping locations for the traveling public.
- Target safety improvement projects to address crash pattern locations.
- Incorporate technology advancements in project development to improve safety.
- Leverage relationships with education, enforcement, emergency medical services, and engineering partners to foster a culture of safety on Montana roadways.
- Reduce unsafe driving behavior through targeted focus on transportation safety emphasis areas identified in Montana's *Comprehensive Highway Safety Plan*.
- Enhance crash data integration and analysis to support decision making and data-driven problem identification.
- Provide leadership in air traveler safety through promotion of flight safety, accident prevention, and air search and rescue programs.

MONTANA COMPREHENSIVE HIGHWAY SAFETY PLAN (2020)

Montana's Comprehensive Highway Safety Plan (CHSP) establishes the framework of Vision Zero to endeavor towards zero fatalities and zero serious injuries on Montana roadways through four Emphasis Areas:

- Roadway Departure and Intersection-Related Crashes;
- Impaired Driving;
- Unrestrained Vehicle Occupant; and
- Emergency Response – After-Crash Care.

The CHSP is directly linked to the *TranPlanMT* goals of improving safety and reducing risk. To support these goals, the CHSP established the interim safety goal of **reducing fatalities and serious injuries on Montana's roads by half, from 952 in 2018 to 476 in 2030.** Additionally, the CHSP provides statewide data analysis and guidance, including the establishment of statewide targets for federal safety performance measures. The Billings MPO has agreed to adopt and support these statewide targets for performance measures that include:

- Annual reduction of 3 fatalities;
- Annual Fatality rate reduction of 0.041 per 100 million vehicle miles traveled (VMT) per year;
- Annual reduction of 41 serious injuries;
- Annual Serious Injury rate reduction of 0.114 per 100 million vehicle miles traveled (VMT) per year; and
- Annual reduction of 1 non-motorized fatality and serious injury per year.

Local Plans

COMMUNITY TRANSPORTATION SAFETY PLAN (2022)

The Community Transportation Safety Plan (CTSP) presents local crash data analysis to identify effective strategies for reducing crashes and mitigating risk in the City of Billings and Yellowstone County. The 2022 update to the CTSP focuses on a collaborative approach to implement the 4Es of Transportation Safety:

- Education
- Enforcement
- Emergency Medical Services
- Engineering

The Advisory Committee (AC) developed the safety strategies based on proven safety countermeasures and feedback received at the Safety Summit, Public Open House, and public comments. Safety efforts and initiatives will be championed by a Transportation Safety Oversight Committee. Additionally, each emphasis area will be championed by a local stakeholder with assistance from local safety partners. There are four emphasis areas, each with associated strategies. These include:

- Emphasis Area: All
  - Strategy 1: Establish Transportation Safety Oversight Committee
- Emphasis Area: Unrestrained Vehicle Occupants
  - Strategy 1: Support and enhance enforcement of seat belt and child safety seat laws.
  - Strategy 2: Increase youth and adult education to reinforce the importance of wearing a seat belt during every motor vehicle trip.
  - Strategy 3: Strengthen and support vehicle occupant protection laws to increase compliance.
- Emphasis Area: Impaired Driving
  - Strategy 1: Expand awareness of and access to safe alternative transportation such as a designated driver, rideshare, transit, or other options to decrease impaired driving.
  - Strategy 2: Reduce impaired driving through prevention education and training.
  - Strategy 3: Establish communication lines with safety partners to identify opportunities and increase probability for earlier intervention.
- Emphasis Area: Inattentive Driving / Speeding
  - Strategy 1: Increase law enforcement staff to proactively enforce speed limits and current distracted driving laws.
  - Strategy 2: Reduce speeding and distracted driving crashes through enhanced education.
  - Strategy 3: Encourage the development of a statewide law banning the use of electronic devices while driving.

BILLINGS SAFE ROUTES TO SCHOOL PLAN UPDATE (2022)

Building from the original 2011 Safe Routes to School (SRTS) Plan and additional efforts in the past decade, the SRTS Plan Update focuses on encouraging students and their families to walk and bike to school. The SRTS Plan Update evaluates walking and biking conditions and identifies barriers to recommend policy and programmatic changes, in addition to identify infrastructure improvements around elementary school neighborhoods in the City of Billings. The 'Six Es of Safe Routes to School' include:

- Engagement
- Equity
- Engineering
- Encouragement
- Education
- Evaluation

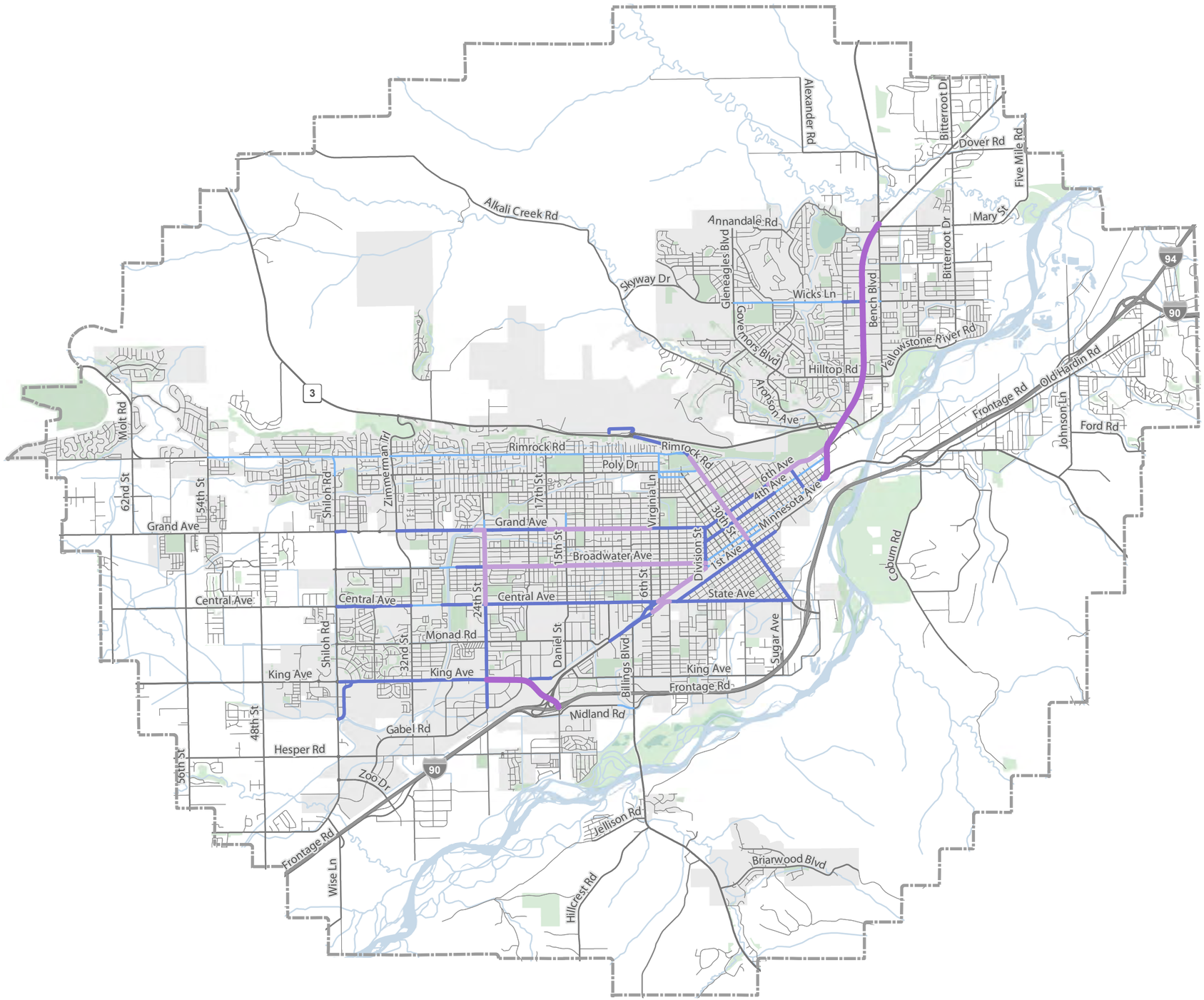
2023 BILLINGS URBAN AREA LONG RANGE TRANSPORTATION PLAN

Existing Conditions Appendix

TRANSPORTATION

Streets & Highways

NUMBER OF TRAVEL LANES

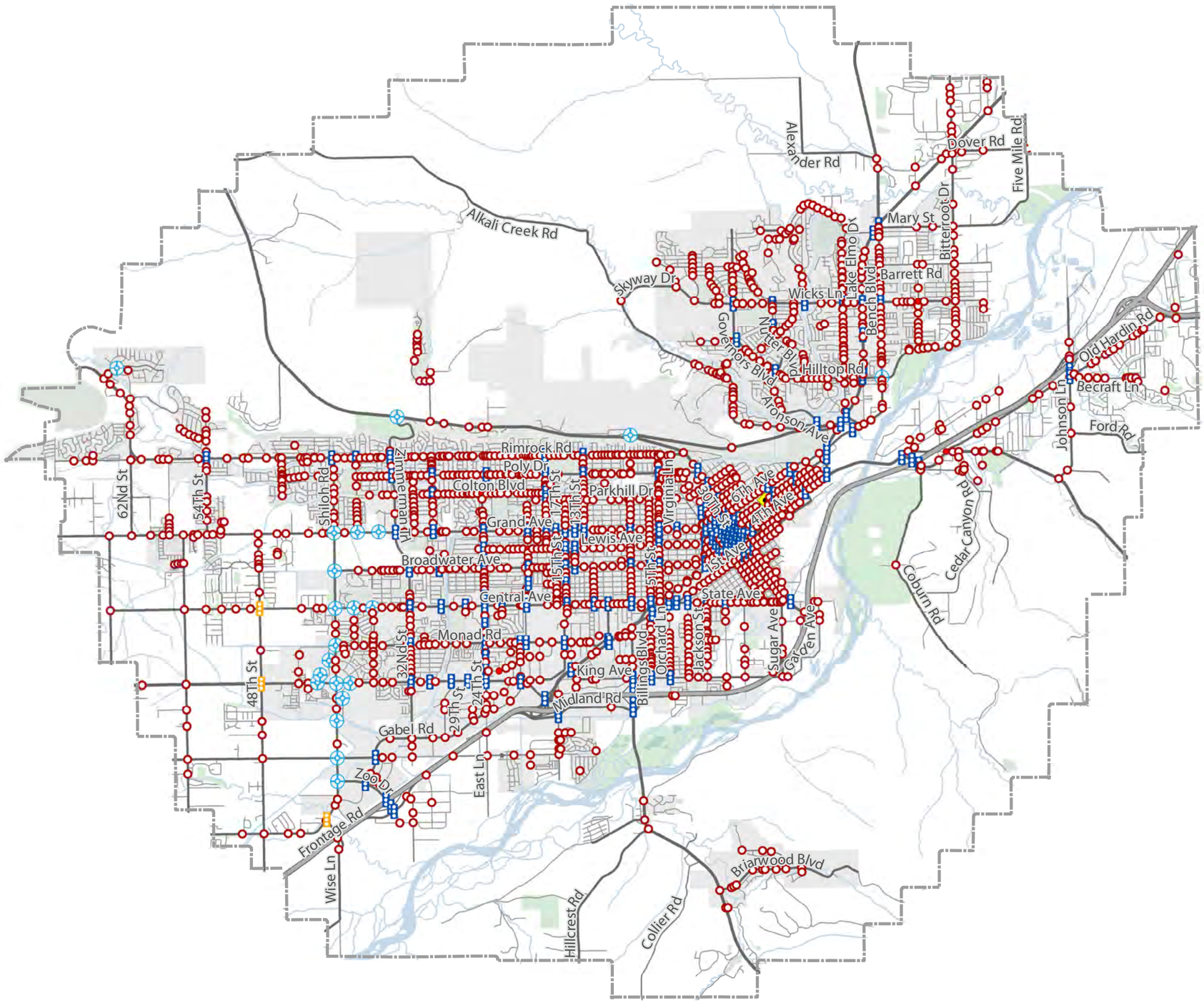


Number of Lanes

- 2
- 3
- 4
- 5
- 6

Source: Yellowstone County

INTERSECTION CONTROL



Intersection Control
- Signal
- All-Way Stop
- Stop
- Stop with Flashing Beacon
- HAWK Signal
- Rapid Rectangular Flashing Beacon
- Roundabout

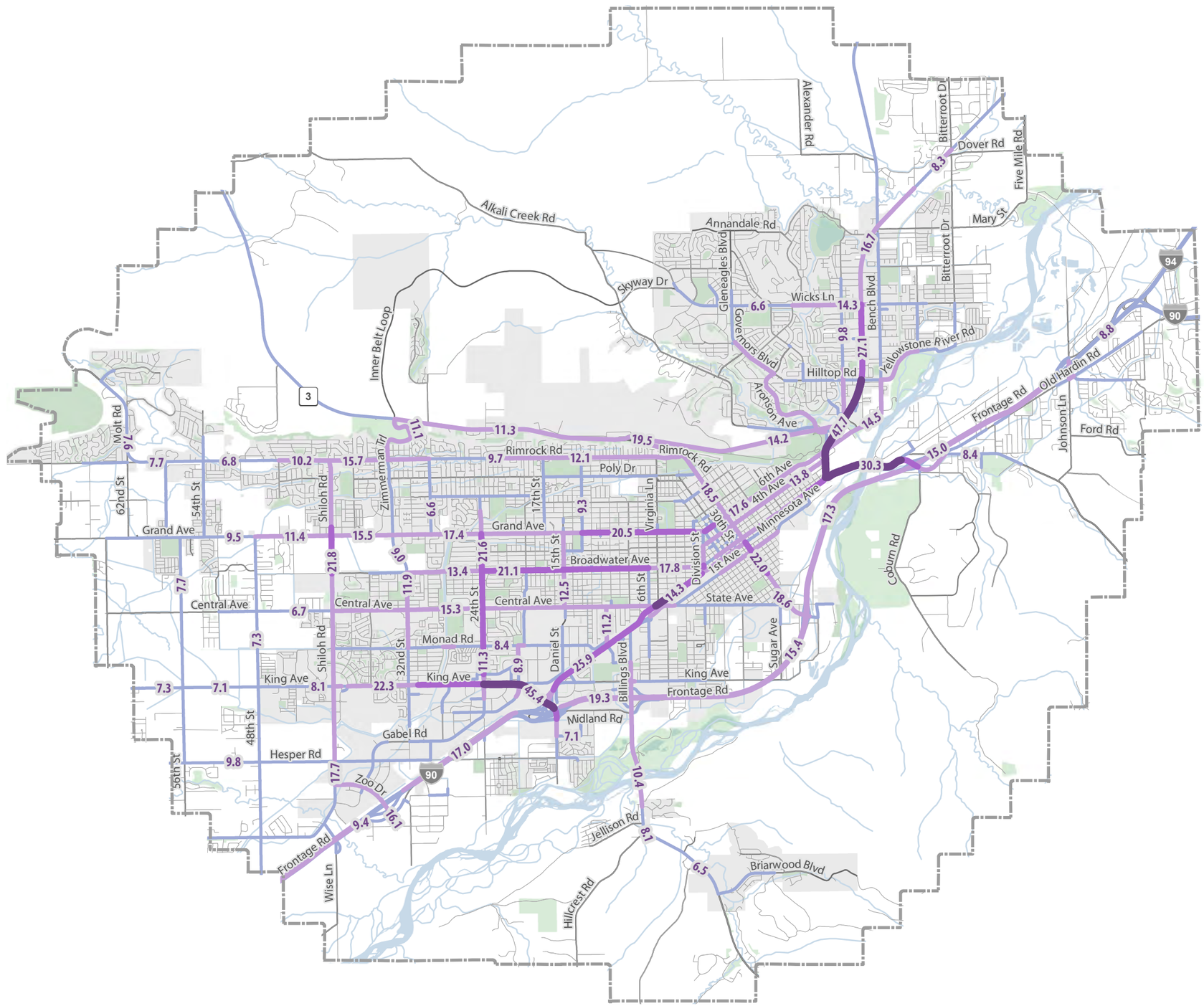
Data Source: Yellowstone County

EXISTING MODEL YEAR (2021) AVERAGE DAILY TRAFFIC (ADT)

2021 Model Volume

- 1 - 3,000
- 3,001 - 10,000
- 10,001 - 20,000
- 20,001 - 30,000
- 30,001 - 50,863

XX.X Average Daily Traffic Volume (x 1,000)



Transit

RECENT PLANS

MET Transit Development Plan Update (2022)

MET has undertaken an update to its 2016 Transit Development Plan. Adopted in September 2022, the Transit Development Plan (TDP) Update will "provide strategic guidance for a sustainable transit system to serve the community".[1] The core goal of the TDP is to assess current service and identify service improvement opportunities that fill gaps and address service challenges. The TDP establishes a framework for optimizing the opportunities presented by the Bipartisan Infrastructure Law (BIL), which is projected to increase available transit funding by nearly 30% over FAST Act levels. Key TDP recommendations include:

- Redesign the fixed route network through:
  - Relocating segments of selected routes to reduce service redundancy.
  - Removing/relocating low-ridership route segments to different corridors.
  - Combining separate route segments to create new routes.
  - Converting the fixed route network from a flag stop network to a designated stop network.
- Extending weekday service by one hour.
- Increasing service frequency on several routes.
- Increasing available drivers to ensure adequate breaks and continuous service for all routes.
- Further studying the creation of fixed route service between Billings and Lockwood.

Montana State Transit Management Plan (2020)

The Montana State Transit Management Plan (SMP)[2] is a comprehensive plan required by the Federal Transit Administration (FTA) that outlines how the MDT administers its federal transit funding, in addition to the goals, objectives, and responsibilities of the MDT Transit Section. For the MPO, the SMP outlines roles and responsibilities for receiving FTA funding to support MET.

Freight

[1] City of Billings. (2022). *MET Transit Development Plan 2022.* https://ci.billings.mt.us/DocumentCenter/View/47800/Billings-TDP_Draft_081112022
[2] Montana Department of Transportation. (2020). *Montana State Transit Management Plan.* https://www.mdt.mt.gov/publications/docs/plans/MONT-ST-MGMT-PLAN.pdf

NATIONAL HIGHWAY SYSTEM (NHS)

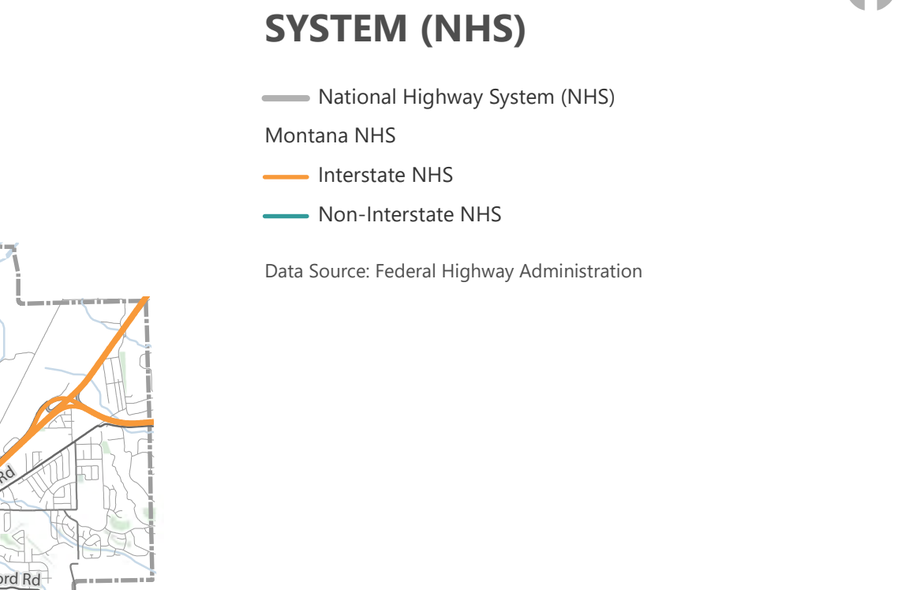
National Highway System (NHS)

Montana NHS

Interstate NHS

Non-Interstate NHS

Data Source: Federal Highway Administration



HEAVY VEHICLE PERCENTAGE

Heavy Vehicle Percentage

- >25%
- 15%-24.9%
- 5%-14.9%
- <5%
- 0

Data Source: Federal Highway Administraation, Montana Department of Transportation, Yellowstone County, City of Billings

The Heavy Vehicle Percentage (HVP) is calculated with average annual daily traffic (AADT) volumes provided by Montata Department of Transportation, utilizing the Federal Highway Administration's Vehicle Classification levels 5 - 13. HVP measures the percent of traffic volume moving freight goods.

Rail

Table 1 summarizes the characteristics and level of train activity at the main line BNSF rail crossings. The rail crossings on rail spurs are shown in the LRTP but are not included in this table.

Table 1. Railroad Crossing Characteristics

Location	Type	Status	Daily Through Movements (Switching Movements)	Roadway AADT at Crossing Location (2021)	Pedestrian Crossing Treatment
Shiloh Rd	Grade Separated (Railroad under)	-	36 (0)	2,143	N/A
Zoo Drive	Grade Separated (Railroad under)	-	36 (0)	9,784	N/A
King Avenue W	Grade Separated (Railroad under)	Active	36 (0)	40,131	N/A
Moore Ln	At Grade	Active	36 (0)	10,729	No
Montana Avenue	Grade Separated (Railroad under)	Active	36 (0)	16,764	N/A
6th Street/ Underpass Ave	Grade Separated (Railroad over)	Active	36 (0)	19,629	N/A
29th St	At Grade	Active	36 (10)	2,515	Yes
28th St or Broadway	At Grade	Active	36 (6)	2.532	Yes
27th St	At Grade (Highway)	-	36 (6)	10,825	Yes
N 21st Street	Grade Separated (Railroad over)	Active	36 (0)	1,399	N/A
N 13th Street	Grade Separated (Railroad over)	-	36 (0)	11,171	N/A

Location	Type	Status	Daily Through Movements (Switching Movements)	Roadway AADT at Crossing Location (2021)	Pedestrian Crossing Treatment
US 87	Grade Separated (Railroad over)	-	32 (0)	23,229	N/A
Steffes Rd	At Grade	Active	32 (0)	2,182	No
Klenck Ln	At Grade	Active	32 (2)	873	No
ExxonMobil Rd	At Grade	Active	32 (2)	1,206	No
Johnson Ln	At Grade	Active (No Gates)	32 (0)	399	No
Coulson Rd	At Grade	Active	32 (2)	1,730	No
Molt Rd	Grade Separated (Railroad over)	-	6 (0)	837	N/A

Source: Montana Department of Transportation, Federal Railroad Administration

EMERGING TECHNOLOGY READINESS

Plan & Policy Review

The City of Billings is currently undergoing a period of rapid growth in its adoption of emerging transportation technologies. The growth is characterized by Billings' exploration and adoption of the technologies, including:

- **Connected and Autonomous Vehicles (CAVs):** In April 2021, the Montana state legislature enacted HJ-10 to provide an interim study regarding autonomous vehicle use in the state.[3]
- **Electric Vehicles (EVs):** While the state of Montana has one of the lowest EV adoption rates in the US, statewide EV registrations have doubled since recordkeeping began in 2019. [4]
- **Transit Technology:** Transit technologies in Billings include real-time GPS tracking of MET Transit's fixed route buses[5] as well as complimentary wi-fi.[6]
- **Bike and Scooter Share:** Bike and scooter share do not currently operate in Billings, but the Billings Bike and Scooter Share Study, published in February 2021, provides a range of recommendations for program implementation. These recommendations include hybrid bike share with electric-assist bikes, a public owned/private operated system, achieving a Farebox Recovery Rate of 30%, and implementing equity programs.[7]
- **Transportation Network Companies (TNCs):** Transportation Network Companies, such as Uber and Lyft, operate in Billings, but are unregulated in most areas apart from Billings Logan International Airport. TNC drivers are directed to pick up passengers from arrivals and to not idle if the passenger is delayed.[8] Similarly, when dropping off TNC drivers should drop off passengers curbside, but not wait at the terminal following drop off. Additionally, Uber has a designated driver waiting area and pickup zone at Billings Logan International Airport.[9]

Gaps in addressing emerging technology in Billings include the lack of formal policy adoption for CAVs, no existing curbside management policies, and limited TNC operation policies outside of Billings Logan International Airport.

Applications of Emerging Technology

The Billings urban area is well-positioned for the adoption and growth of emerging technologies in the coming years. Existing applications of emerging technology include:

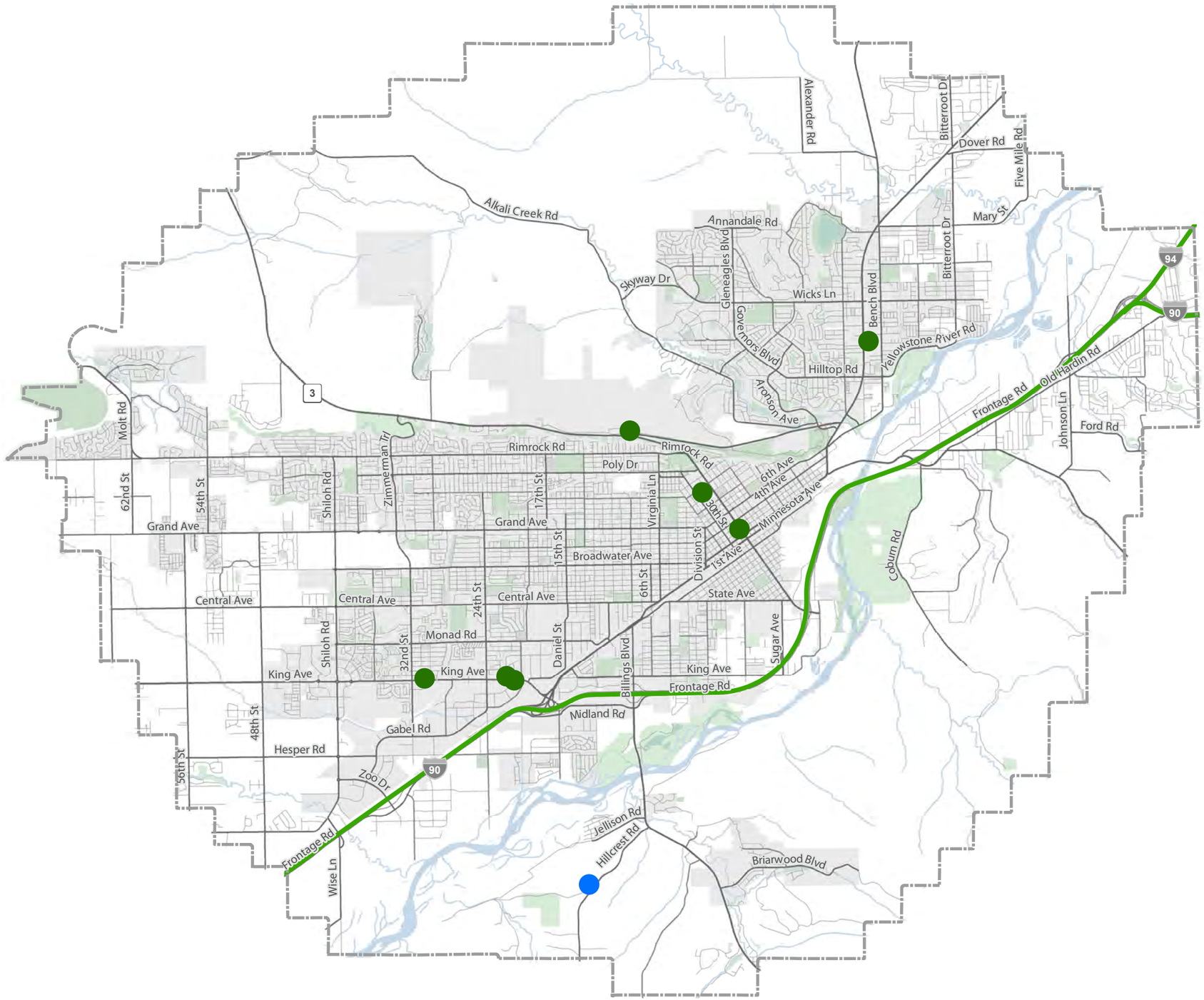
- **Electric Vehicle (EV) Charging Stations:** There are six EV charging stations located within the boundary of the Billings MPO.[10]

[3] Montana State Legislature. *HJ 10 – Study of Autonomous Vehicle Use.* April 2021. https://leg.mt.gov/committees/interim/tic/hj-10/
[4] Montana Department of Environmental Quality. (July 2022). *Montana Electric Vehicle Infrastructure Deployment Plan*. https://deq.mt.gov/files/Energy/Transportation/MontanaElectricVehicleInfrastructureDeploymentPlan2022.pdf
[5] MET Transit. *Bus Tracker Links and Instructions.* N.d.
[6] MET Transit. *Complimentary Onboard Wi-Fi.* N.d.
[7] Billings-Yellowstone County MPO. *Billings Area Bike & Scooter Share Feasibility Study.* February 2021.
[8] Lyft. *Montana airport information for drivers.* N.d.
[9] Uber. *Instructions for driver-partners: Billings Logan International Airport.* N.d.
[10] U.S. Department of Energy. *Alternative Fuels Data Center.* Accessed July 2022. https://afdc.energy.gov/data/

- **Cellular and Broadband Access:** There is one cell tower located within the boundary of the Billings MPO.[11] Overall, the area has strong access to both cellular and broadband internet.[12] Broadband usage within the MPO ranges from approximately 50 percent to 70 percent.[13]
- **Alternate Fuel Corridors:** There are two alternate fuel corridors within the boundary of the Billings MPO that are both designated for EVs. These two corridors are I-90 and I-94.[14]

[11] Federal Communications Commission. *Cellular Towers.* December 2021.
[12] Federal Communications Commission. *Mobile LTE Coverage Map.* May 2021.
[13] Microsoft AI for Good Research Lab. *United States Broadband Usage Percentages Dataset.* October 2020. https://github.com/microsoft/USBroadbandUsagePercentages
[14] Federal Highway Administration. *Alternative Fuel Corridors.* March 2021. https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

EMERGING TECHNOLOGIES



Cellular Tower

Electric Vehicle Charging Station

Alternate Fuel Corridor - Electric Vehicle

Data Source: US Department of Energy, Federal Communications Commission, Federal Highway Administration

FCC data indicates that all Census tracts in the Billings urban area are covered by 4G LTE service. For this reason, cellular coverage is not depicted.

SECURITY & RESILIENCY

Background

FEDERAL REQUIREMENTS

There are several federal requirements associated with MPOs and the transportation planning process included in the 23 CFR Part 450 for Metropolitan Transportation Planning and Programming.[15] The planning process should:

- Increase safety and security of the transportation system for motorized and non-motorized users;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planning growth and economic development patterns;
- Emphasize preservation of the existing transportation system; and
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.

In carrying out the metropolitan transportation planning process, MPOs, States, and public transportation operators may incorporate or reference applicable emergency relief and disaster preparedness plans and strategies and policies that support homeland security, as appropriate to safeguard the personal security of all motorized and non- motorized users.

A local mitigation plan should be developed and prepared in compliance with federal, state and local hazard mitigation planning requirements published under 44 CFR Part 201.[16] The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding. The *Yellowstone County Multi-Hazard Mitigation Plan* (MHMP), which supersedes the 2017 *Multijurisdictional Pre-Disaster Mitigation Plan* (PDM), serves as the local mitigation plan for the Billings urban area. The local mitigation plan is updated every 5 years. The FEMA Disaster Mitigation Act of 2000 provides the legal basis for FEMA mitigation planning requirements for State, local and Tribal governments as a condition of mitigation grant assistance.[17]

STATE PLANS

Statewide security and resiliency considerations are outlined in several overarching planning documents and provide a basis for planning, response, and mitigation strategies for transportation infrastructure in Montana. These documents emphasize coordination of federal, state, and local agencies and identify appropriate policies, guidelines, and strategies for addressing natural and human-caused disasters as they relate to transportation infrastructure.

[15] Federal Highway Administration. *Code of Federal Regulations (23 CFR 450.306): Scope of the Metropolitan Transportation Planning Process*. Accessed September 5, 2022.
[16] Federal Emergency Management Agency. *Code of Federal Regulations (44 CFR 201.6): Local Mitigation Plans*. Accessed September 5, 2022.
[17] Federal Emergency Management Agency. (October 1, 2000). *Disaster Mitigation Act of 2000*.

Montana Department of Transportation

MDT plays a critical role in planning, managing, and leading statewide transportation security and resiliency strategies to prepare for and respond to natural or human-caused events. The responsibilities of MDT are identified by *the 2018 State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment* and include mitigating damage to transportation assets and evaluating hazard information when designing infrastructure. During a natural or human-induced extreme event impacting the Billings urban area, coordination with MDT is a critical component of an effective response to reduce loss of human life and damage to property. In addition to strategies for transportation security identified in the *TranPlanMT*, MDT has published several documents that identify transportation risks and outlines emergency procedures in the event of a natural or human-caused disaster. These include:

- **MDT Transportation Asset Management Plan** outlines a formal process for identifying, assessing, and prioritizing risks to Montana's surface transportation infrastructure.
- **MDT Maintenance Manual** outlines MDT procedures and best management practices for responding to incidents affecting state roadways and structures.
- **MDT Emergency Support Function Annex #1 Transportation** serves as a supplement to the 2017 MERF.

TRANPLANMT (2017)

Originally adopted in 1995 as *TranPlan 21*, and updated in 2017, *TranPlanMT* is the state's ongoing long-range planning effort between MDT, transportation stakeholders, and the public plan for the state's transportation future over a 20-year period. *TranPlanMT* outlines MDT's policy direction for operating, preserving, and improving Montana's transportation system and identifies strategies for MDT's future. A transportation system security section was created in the 2007 update and includes transportation security related goals and actions to support an efficient and effective statewide response in the event of a natural or human-caused disaster.

Montana Department of Military Affairs

MONTANA EMERGENCY RESPONSE FRAMEWORK (2017)

The Montana Emergency Response Framework (MERF) presents a structure for utilizing the emergency response and recovery resources of state, local, and other agencies.[18] It describes the activities necessary to prepare for and respond to events stemming from natural, technological, and man-made hazards and the roles and responsibilities of all participants dealing with these events. This plan also provides a comprehensive all-hazards plan designed to provide the basis for an effective and coordinated response to disasters and emergencies that impact the state.

[18] Montana Department of Military Affairs. (2017). *Montana Emergency Response Framework.* Disaster and Emergency Services. https://des.mt.gov/Preparedness/MERF-ESF

STATE OF MONTANA MULTI-HAZARD MITIGATION PLAN AND STATEWIDE HAZARD ASSESSMENT (2018)

This Plan, created by the Disaster and Emergency Services Division, outlines the state's primary hazard mitigation risks, strategies, and policies.[19] The document establishes a process for broad governmental and organizational involvement, provides a comprehensive and detailed hazard assessment, and demonstrates the overarching mitigation strategy for the State of Montana. This Plan also prioritized natural and human-made hazards by risk, including:

- Wildland and rangeland fire
- Flooding
- Earthquakes
- Drought
- Severe Weather
- Dam Failure
- Volcanic Ash
- Transportation Accidents and Hazardous Material incidents
- Disease (public health, agriculture, and wildlife)
- Landslide and Avalanche
- Terrorism, Violence, Civil Unrest and Cyber Security

This Plan also outlines the responsibilities of all state agencies, including the Montana Department of Transportation.

MONTANA INTEGRATED PREPAREDNESS PLAN (2021)

This Plan outlines the strategies and programs created to address the highest priority items that emerged from the *Montana Threat and Hazard Identification and Risk Assessment* in 2019 (scheduled to be updated in 2022), which includes transportation-related incidents such as wildfire, floods, and chemical/hazardous material release, among others.[20] The *Montana Integrated Preparedness Plan* and the *Multi-Hazard Mitigation Plan* work jointly to address risks in Montana.

LOCAL PLANS

Local plans are supplements to statewide planning efforts and establish guidance and coordination at the county- and city-level.

Yellowstone County Multi-Hazard Mitigation Plan (2019)

Yellowstone County along with the Cities of Billings and Laurel and Town of Broadview developed a Multi-Hazard Mitigation Plan (MHMP) in response to federal requirements of the Disaster Mitigation Plan (MHMP).[21] The Yellowstone County Multi-Hazard Mitigation Plan was updated in 2019 from the previous Pre-Disaster Mitigation Plan (PDM) in 2012. The MHMP identifies probably natural and man-made hazards to Yellowstone County and establishes goals, policy updates, and projects that could reduce the impacts of potential hazards.

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[19] Montana Department of Military Affairs. (2018). *Update State of Montana Multi-Hazard Mitigation Plan & Statewide Hazard Assessment.* Disaster and Emergency Services. https://drought.unl.edu/archive/plans/GeneralHazard/state/MT_2018.pdf

[20] Montana Department of Military Affairs. (2021). *Montana Integrated Preparedness Plan.* Disaster and Emergency Services Division. https://des.mt.gov/Preparedness/Final-MT-Integrated-Preparedness-Plan-2021.pdf

[21] Yellowstone County, City of Billings, City of Laurel, Town of Broadview. (2019). *Multi-Hazard Mitigation Plan.* https://www.yellowstonecountymt.gov/des/plans/Multi_Hazard_Mitigation_Plan_2019.pdf

Yellowstone County Emergency Operations Plan (2019)

The Emergency Operations Plan (EOP) provides public officials of Yellowstone County, the City of Billings, City of Laurel, and Town of Broadview an organizational framework for mitigating disaster and protecting lives and property during a disaster or emergency. The plan outlines responsibilities of all local agencies and officials during a disaster or emergency in accordance with MCA.[22]

Potential Hazards

CLIMATE CHANGE

Climate trends and future projects are a critical component of long-term transportation planning. Severe weather events can severely damage or deteriorate transportation assets and disrupt operations, mobility, and emergency response if damages are significant. The *Montana Climate Assessment* (2017) is a stakeholder-driven, science-based assessment that provides information about climate trends and future climate projects for the State of Montana by region. The *Montana Climate Assessment* concluded that Montana's average temperature is projected to increase in all climate scenarios.[23] There will be more extreme heat days throughout the state with the greatest increases in southern Montana. Seasonal precipitation patterns are also expected to change. Over time, climate change will increase the frequency and intensity of weather events.

> *The Montana Climate Assessment concluded that the average temperature statewide is projected to increase in all climate scenarios, with more extreme heat days and changing precipitation patterns.*

The Billings urban area is already experiencing the impacts of changing precipitation and temperature patterns in recurring major flooding events that damage transportation assets and significantly impact mobility. Due to the multitude of scenarios that could play out in the short- and long-term future, planning and preparing transportation infrastructure for climate events is becoming increasingly difficult because historic weather trends are no longer dependable indicators for future events. At the same time, it is critical for transportation agencies to address the rising costs of climate-related events to transportation assets and human lives.

The 2020 *Montana Climate Solutions Plan* provides several recommendations for enhancing resilience of transportation to climate change, shown in Table 2.[24] The *Climate Solutions Plan* was developed by the Montana Climate Solutions Council and provides recommendations to the governor, legislature, and citizens of Montana on strategies to reduce GHG emissions, prepare the state for climate impacts,

[22] Yellowstone County. (2019). *Emergency Operations Plan.* https://www.yellowstonecountymt.gov/Des/plans/EOP_2019.pdf
[23] Whitlock C, Cross W, Maxwell B, Silverman N, Wade AA. (2017). *Montana Climate Assessment*. Bozeman and Missoula MT: Montana State University and University of Montana, Montana Institute on Ecosystems. 318 p. doi:10.15788/m2ww8w http://live-mca-site.pantheonsite.io/sites/default/files/thumbnails/image/2017-Montana-Climate-Assessment-lr.pdf
[24] Montana Department of Environmental Quality. (August 2020). *Montana Climate Solutions Plan.* Montana Climate Solutions Council. https://deq.mt.gov/files/DEQAdmin/Climate/2020-09-09_MontanaClimateSolutions_Final.pdf

foster innovation across Montana's economy, and address the needs of communities in transition through appropriate economic development and workforce strategies.

Table 2. Montana CSP Recommendations Related to Transportation

Topic	Recommendations
(1) Preparing Montanans for Climate Impacts	Adapt Montana's Built Environment to Climate Change
(2) Strategies to Reduce Greenhouse Gas Emissions	■ Improve Statewide Transportation Management to Foster Alternatives and Support the Needs of Communities ■ Explore Opportunities for Passenger Rail

Source: Montana Department of Environmental Quality

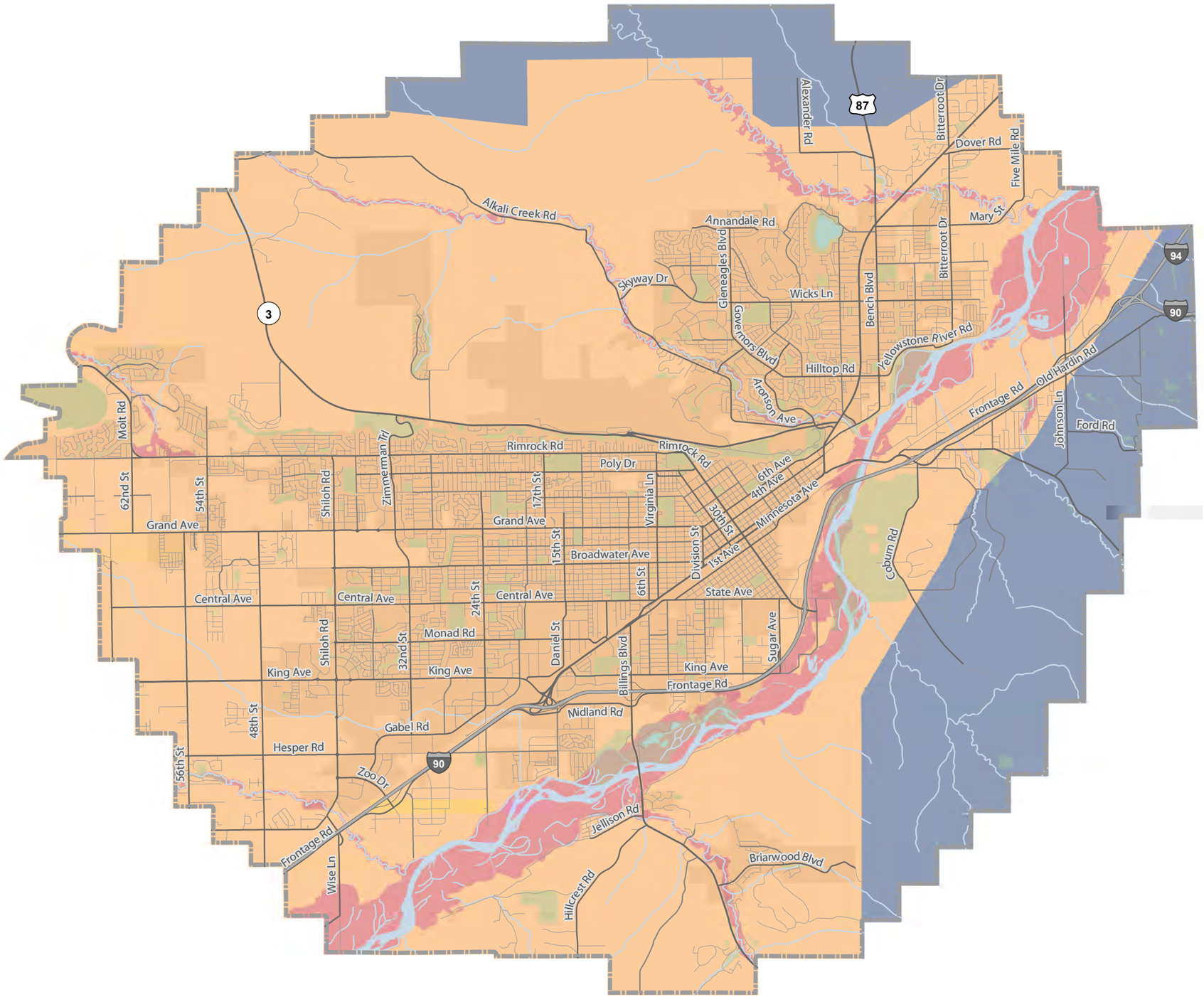
FLOOD HAZARD RISK

Located directly in the Yellowstone River watershed, the Billings urban area is faced with flood risk from both the river and its many tributaries. Utilizing the FEMA National Flood Hazard data, flooding risk for the MPO is displayed in Figure 28. Most areas designated as 'High Flood Risk' within the Billings urban area are contained in parks and green spaces. However, I-90 parallels the river throughout the city, which poses a substantial risk to the transportation infrastructure in the event of a flood. Similarly, Alkali Creek Road is also located in a 'High Flood Risk' zone. Additionally, most of the residential, commercial, and industrial areas within the MPO boundary are designated as 'Moderate Flood Risk', which indicates a serious potential for flood damage throughout the urban area.

It is important to note that Yellowstone County, along with the Montana Department of Natural Resource Conservation and FEMA, is currently working on a Floodplain Mapping Update, to provide more accurate information regarding the risk flooding poses to critical infrastructure. Hydrology and survey work is currently underway and finalized FEMA National Flood Hazard data is expected to be completed in 2025.[25]

[25] Montana Department of Natural Resource Conservation. (September 2021). *Yellowstone County Floodplain Mapping Update: Project Kickoff Meeting*. http://dnrc.mt.gov/divisions/water/operations/floodplain-management/bytr/20210915_Yellowstone.pdf

FLOOD RISK



Flood Hazard Risk

- High Flood Risk
- Moderate Flood Risk
- Undetermined Flood Risk
- Park

Data Source: Federal Emergency Management Agency, Montana Department of Fish, Wildlife, & Parks

Figure XX. Flood Risk

WILDFIRE RISK

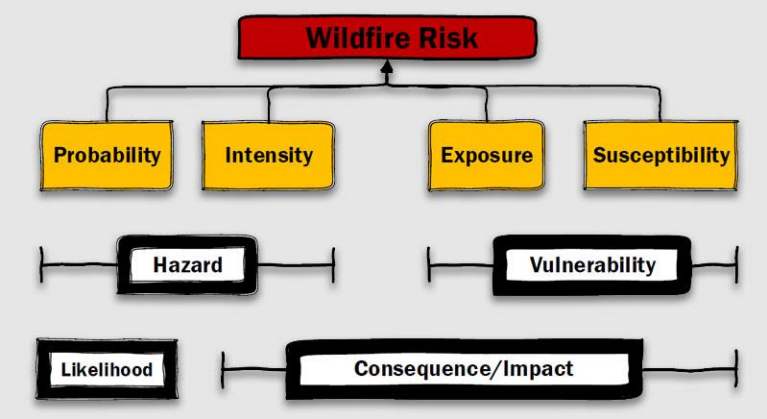


Exhibit 1. Wildfire Risk (Source: Montana DNRC)

In the past twenty years, the Billings urban area has experienced multiple wildfire events. Since the 2018 LRTP, there have been several large wildfires in the MPO boundary, including the 2019 Mountain View fire, the 2020 Coburn fire, the 2020 Island fire, the 2020 Lost fire, the 2020 Hoskins fire, the 2021 Buffalo fire, and the 2021 Sub Station fire, among others.[26] To better understand the risks that wildfire poses to human lives and critical infrastructure, the Montana Department of Natural Resource Conservation created the *Montana Wildfire Risk Assessment*, a data tool that quantifies and maps wildfire risk.[27] Wildfire risk encompasses the likelihood of a fire burning, the intensity of a fire if one should occur, the exposure of assets and resources based on their locations, and the susceptibility of those assets and resources to wildfire. A community's wildfire risk is the combination of likelihood and intensity ('hazard') and exposure and susceptibility ('vulnerability'), as demonstrated in Exhibit 1. Figure 29 displays the Wildfire Risk posed to the Billings urban area's critical infrastructure. The wildfire risk is based on a score of the probability, intensity, exposure, and susceptibility factors, which is then visualized using percentiles to represent risk. These categories include:

- **Extreme Risk**: Wildfire risk is extreme to all mapped resources and assets, including people and property, critical infrastructure, and surface drinking water. This category represents the top >95th percent of values across the landscape.
- **Very High Risk**: Wildfire risk is very high to all mapped resources and assets, including people and property, critical infrastructure, and surface drinking water. This category represents the top 90th to 95th percent of values across the landscape.
- **High Risk**: Wildfire risk is high to all mapped resources and assets, including people and property, critical infrastructure, and surface drinking water. This category represents the 70th to 90th percentile of values across the landscape.
- **Moderate Risk**: Wildfire risk is moderate to all mapped resources and assets, including people and property, critical infrastructure, and surface drinking water. This category represents the 40th to 70th percentile of values across the landscape.
- **Low Risk**: Wildfire risk is low to all mapped resources and assets, including people and property, critical infrastructure, and surface drinking water. This category represents the 0 to 40th percentile of values across the landscape.

In the Billings urban area, the MWRA has designated most of the residential, commercial, and industrial areas as Very High Risk, with outlying recreational and residential areas as Moderate Risk.

[26] CalTopo. (2022). *Billings Area Fire History*. https://caltopo.com/map.html#ll=45.76393,-108.56346&z=11&b=om&a=fire
[27] Montana Department of Natural Resources & Conservation. (2022). Montana Wildfire Risk Assessment. https://mwra-mtdnrc.hub.arcgis.com/

Figure XX. Wildfire Risk

Resiliency

In *NCHRP 777: A Guide to Regional Transportation Planning for Disasters, Emergencies, and Significant Events* introduces several foundational principles for transportation planners that supports the development of a resilient transportation network, displayed in Exhibit 2.[28] A focus on resilience planning supports the development of adaptable strategies that sustain transportation operations under a variety of circumstances. Improving and maintaining existing infrastructure and introducing innovative projects that can withstand and adapt to the impacts of one or more weather events is an important component of building a resilient network. Conducting vulnerability and risk assessments, analyzing performance of assets in future weather scenarios, emphasizing projects that improve safety along key evacuation routes, implementing natural infrastructure to enhance flood protection, and evacuation planning and preparation are examples of strategies that would support project prioritization and planning for resilience projects. Additionally, FEMA has recently updated its *Local Mitigation Planning Policy Guide* which outlines additional planning and policy requirements and guidance for communities to improve their resiliency.[29]

Exhibit 2. NCHRP 777 Resilient Transportation Network Principles

MONTANA'S RESILIENCE FRAMEWORK FOR COMMUNITIES

Supported by the Montana Department of Commerce, the Montana Ready Communities Initiative (MRCI) developed *Montana's Resilience Framework for Communities* to support community resilience in the face of natural, human-caused, and economic challenges. The MRCI defines **resilience** as the ability of individuals, communities, and systems to adapt and thrive in the face of adverse events and challenges. The *Resilience Framework* identifies opportunities for incorporating community resilience into hazard mitigation plans, economic development plans, and other long-term planning documents in the Montana context.

Coordination

The Yellowstone County Disaster and Emergency Services is an integrated effort to prevent or minimize the seriousness of emergencies and disasters and to plan and coordinate the community's response to them should they occur. This effort requires establishing partnerships among professional emergency management personnel to prevent, respond to, and recover from disasters. Coordination is a key factor in establishing an emergency management program, and continual improvement saves lives and

[28] Transportation Research Board. (2014). *Report 777: A Guide to Regional Transportation Planning for Disasters, Emergencies, and Significant Events*. National Cooperative Highway Research Program. https://www.trb.org/Publications/Blurbs/171087.aspx
[29] Federal Emergency Management Agency. (April 2022). *Local Mitigation Planning Policy Guide*. https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-policy-guide_042022.pdf

reduces losses from disasters. The Yellowstone County Disaster and Emergency Services are responsible for:

- Developing and updating emergency plans,
- Coordinating communications of emergency responders,
- Maintaining a county-wide system of alerting sirens,
- Maintaining the emergency operations center,
- Participating and coordinating exercises with all emergency responders,
- Recommending an emergency declaration or disaster declaration to the policy bodies of city and county government, preparing disaster declaration resolutions, serving as the City and/ or County's authorized agent for FEMA declare disasters (e.g., floods of 1978 and 1997), and managing the authorized emergency levy, and
- Serving as the County Fire Warden and administrator of the rural fire protection program.