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RAPID TRIP 2050

METROPOLITAN TRANSPORTATION PLAN

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Chapter 1: Introduction

Introduction

The Rapid City Area Metropolitan Planning Organization

The Rapid City Area Metropolitan Planning Organization (RCAMPO) is the regional transportation policy-making organization serving the Rapid City, South Dakota Urbanized Area. RCAMPO leads a transportation planning program that is comprehensive, cooperative, and continuous and accounts for all aspects of the region's multi-modal transportation system including highways, transit, bike, and pedestrian networks as well as the facilitation of public participation and agency coordination related to these planning efforts. RCAMPO also acts as the main body in allocating federal transportation funds for improving and maintaining the region's multi-modal transportation system. The region governed by RCAMPO is illustrated in **Figure 1**.

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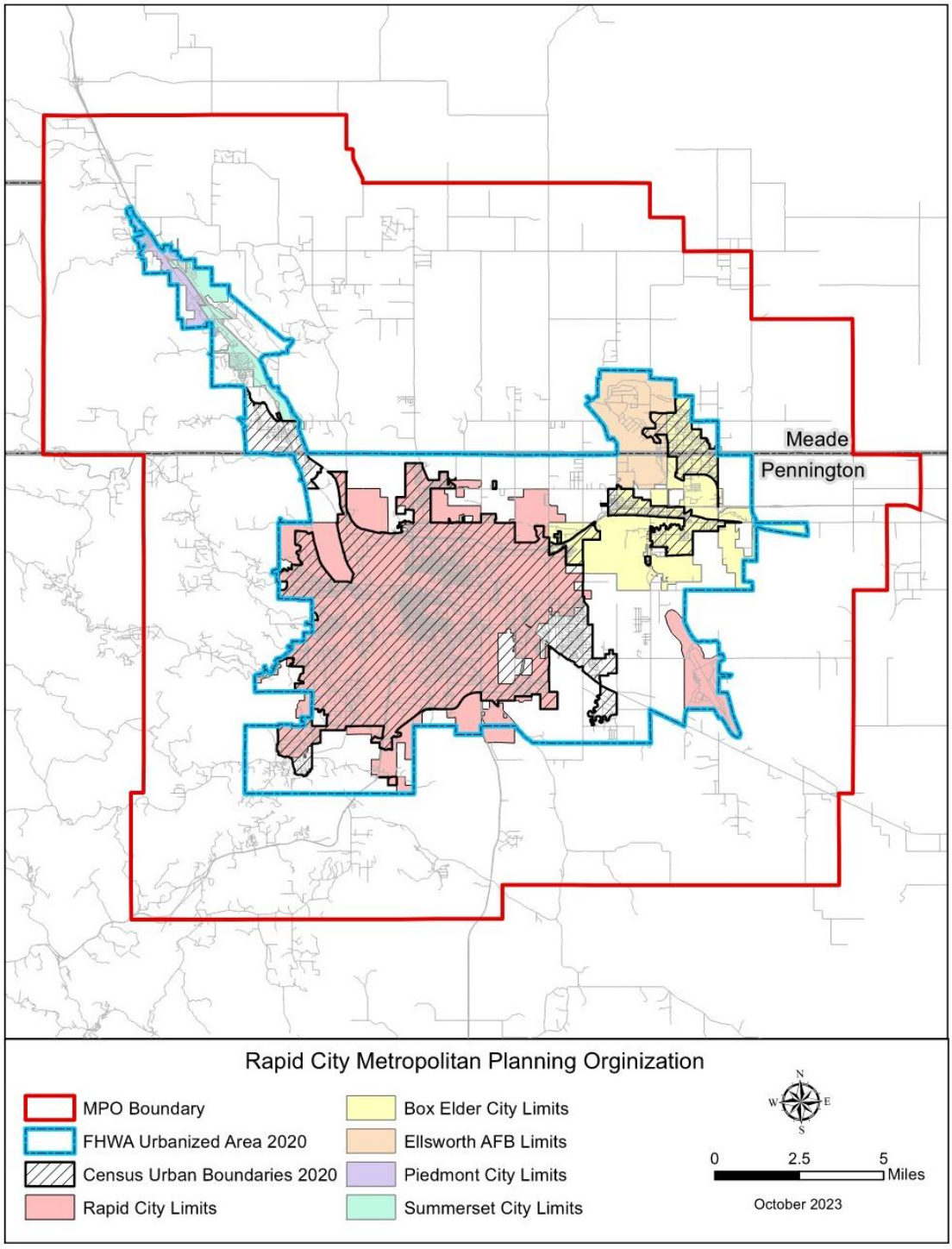
Figure 1: The Rapid City Area MPO



Source: Rapid City Area MPO

RCAMPO's Member Agencies and Governance

Acting as a regional agency, RCAMPO is comprised of a number of local public member agencies that collaborate in the provision of a performance-based, multi-modal planning program and the funding of regionally significant multi-modal transportation improvements. RCAMPO's member agencies include:

- City of Rapid City
- City of Box Elder
- City of Summerset
- City of Piedmont
- Ellsworth Air Force Base
- Unincorporated Areas of Black Hawk
- Developing Area of Pennington County
- Developing Area of Meade County
- Rapid Transit
- South Dakota Department of Transportation
- Federal Highway Administration
- Federal Transit Administration

Governance of RCAMPO is carried out by two committees who advise the MPO on the transportation planning process. The two main committees who oversee this governance include:

Executive Policy Committee (EPC)

Responsible for making transportation planning and improvement decisions. The EPC reviews recommendations of the TCC prior to making decisions. The EPC is comprised of representatives of RCAMPO's member agencies.

Technical and Citizens Committee (TACC)

Assist and advise the EPC on technical matters as it relates to transportation process elements. The TACC is represented by citizens, staff and other participating agencies responsible for or affected by the implementation of transportation plans, products, or improvements.

The Metropolitan Transportation Planning Process

The metropolitan transportation planning process is subject to federal regulations and guidelines initially established in the Fixing America's Surface Transportation Act (FAST Act) of 2015 and carried forward with the Metropolitan Planning Program contained within the Bipartisan Infrastructure Law (BIL), signed into legislation as the Infrastructure Investment and Jobs Act (IIJA), in 2021. The cornerstone of the Metropolitan Planning Program is the use of a performance-based planning approach that utilizes a continuing, comprehensive, and cooperative framework in making transportation investment decisions in the nation's metropolitan areas.

RCAMPO, in its role as the region's MPO, is required to publish and maintain a series of transportation planning documents per the current federal Metropolitan Planning Program. These documents include:

Document	Description
Metropolitan Transportation Plan (MTP) 	Establishes the framework for how RCAMPO will manage and operate its multi-modal transportation system over the next 25 years. Builds on public input and technical analyses to identify the goals, objectives, and strategies to achieve the region's long-range vision. Includes a list of fiscally constrained projects to improve the multi-modal transportation system over the next 25 years.
Transportation Improvement Program (TIP) 	Annual publication that identifies federally funded and regionally significant transportation improvements programmed in the region over the following 4 years. Integrates the MTP's fiscally constrained projects.
Unified Planning Work Program (UPWP) 	Annual publication that identifies RCAMPO's budget and work to be completed over the next 1-year period. Organized by major activity and task.
Public Participation Plan (PPP) 	Identifies how RCAMPO will ensure opportunities exist for the public and other interested parties to be involved in transportation planning activities. Also includes public participation policies adopted by RCAMPO.

The Metropolitan Transportation Plan

Content of the MTP

The MTP, referred to as Rapid Trip 2050, acts as RCAMPO's roadmap for the funding, operations, maintenance, and improvement of the region's multi-modal transportation system. Federal requirements set forth in 23 CFR § 450.324 require that the MTP:[1]

- Uses a planning horizon of no less than 20 years.
- Includes long- and short-range strategies/actions that provide for the development of an integrated multi-modal transportation system.
- Is updated every 5 years in air quality attainment areas; non-attainment areas must update their MTP every 4 years.
- Consult state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation.
- Is fiscally constrained.
- Provides a performance-based plan that promotes and supports the region, and South Dakota Department of Transportation's performance measures and targets.

Rapid Trip 2050 serves as an update to RCAMPO's 2045 MTP, Rapid Trip 2045, and looks to plan for the region's multi-modal transportation system through the year 2050. The Plan builds off Rapid Trip 2045 while integrating the findings of plans and studies completed by RCAMPO and it's member agencies since the adoption of the 2045 MTP.

Federal Metropolitan Planning Factors

An additional requirement of the MTP, per federal guidelines, is that the Plan considers and implements projects, strategies, and services that address the 10 metropolitan transportation planning factors:[2]

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase the accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic patterns;

[1] 23 CFR Part 450 Subpart C
[2] Ibid.

6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize preservation of the existing transportation system;
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation;
10. Enhance travel and tourism.

Federal Planning Emphasis Areas

Federal Planning Emphasis Areas (PEAs), first established by FHWA and FTA in 2014 and updated in 2021, are a series of topics related to the most pressing trends impacting planning at the state and regional level. FHWA and FTA encourage state transportation agencies and MPOs to integrate additional topics into their planning programs and work products such as the TIP, UPWP, and MTP. The current PEAs identified by federal transportation agencies are described in **Table 1**.

Table 1: Federal Planning Emphasis Areas

Planning Emphasis Area	Description
Tackling the Climate Crisis- Transition to a Clean Energy and Resilient Future	Ensure transportation plans and infrastructure investments help achieve national greenhouse gas reduction and net-zero emissions goals while increasing system resilience.
Equity and Justice40 in Transportation Planning	Advance racial equity and support for underserved and disadvantaged communities.
Complete Streets	Plan, develop, and operate streets and networks that prioritize safety, comfort, and access to destinations for all street users.
Public Involvement	Increase meaningful public involvement in transportation planning.
Strategic Highway (STRAHNET)/US Department of Defense (DOD) Coordination	Coordinate with DOD for transportation planning and project programming process infrastructure and connectivity needs for STRAHNET routes and public roads connecting to DOD facilities.
Federal Land Management (FLMA) Coordination	Coordinate with FLMA for the transportation planning and project programming process on infrastructure and connectivity needs related to access routes and other public roads and transportation services that connect to federal lands.
Planning and Environmental Linkages (PEL)	Implement PEL as part of the transportation planning and environmental review process.
Data in Transportation Planning	Incorporate data sharing and consideration into the transportation planning process.

Related Plans and Studies

In effort to provide an MTP that is comprehensive and reflects related planning efforts conducted within the RCAMPO region, a series of plans and studies within been reviewed as part of the Rapid Trip 2050 planning process. Key findings of these studies are integrated into this Plan. The plans and studies reviewed include:

RCAMPO Major Street Plan Analysis and Update (2024)

A planning-level review and prioritization of RCAMPO's existing Major Streets Plan (MSP) to recommend key MSP roadway segments for advancement to the conceptual alignment phase. These segments are considered as priority for future expansion of the region's street and roads network to accommodate future growth.

Rapid City Area Bike and Pedestrian Master Plan (2020)

Update to the 2011 Bicycle and Pedestrian Master Plan that provides a comprehensive and fiscally constrained plan for the region's active transportation network. The Bicycle and Pedestrian Master Plan was developed for integration into Rapid Trip 2045.

Plan Rapid City (2014)

Comprehensive Plan for the city of Rapid City that builds on community planning efforts to establish a clear vision and implementation plan for addressing local land use and growth, community livability, community safety and health, mobility, economy, parks and recreation, environment, and neighborhoods through the year 2035.

Pennington County Master Transportation Plan (2024)

Master Transportation Plan intended to correlate the County's growth with future transportation needs while identifying the needs of the County's existing transportation system. The Master Transportation Plan provides a long-range plan that effectively provides guidance for future transportation demands and maintenance responsibilities through the year 2045.

Mead County Master Transportation Plan (2022)

Update to the 2016 Master Transportation Plan that is intended to guide transportation investments and policies through 2045. The 2022 Master Transportation Plan was developed through a collaborative effort that involved stakeholders, agency partners, and community members to develop a blueprint for developing the future transportation system based on the community's goals and priorities.

City of Box Elder Comprehensive Plan (2014)

Comprehensive Plan for the city of Box Elder that provides a long-range planning framework, goals, objectives, and vision to guide detailed Master Plans for the individual components of the city's management. The planning horizon of the Comprehensive Plan is through the year 2030.

Summerset Comprehensive Plan (2016)

Comprehensive Plan for the city of Summerset that provides an action-oriented and strategic framework to realize the community's goals, and objectives, and vision over a 10-year planning horizon.

Rapid City Transit Development Plan (2022)

Rapid City's Transit Development Plan (TDP) provides strategic guidance for improving the region's public transit services sustainably while continuing to serve the needs of the community. The TDP acts as the basis for the transit element of RCAMPO's regional transportation plan. An update to the 2022 TDP is underway and will be completed shortly after adoption of the Rapid Trip 2050.

City of Rapid City Airport Master Plan Update (2015)

The city of Rapid City's Airport Master Plan Update serves as a guide for identifying future development needed to accommodate existing and future aviation demand through addressing current and forecasted safety, capacity, and compatibility needs. The plan update includes a long-term implementation plan, using a 20-year planning horizon, for addressing the facility's capital needs.

Cambell Street Structure Study (2022)

Study to analyze and recommend pedestrian-focused improvements to the Cambell Street corridor and surrounding streets to enhance walkability for nearby residents and employees, improve safety for everyone, and support future redevelopment.

South Dakota Department of Transportation Plans and Studies

Additional plans and studies conducted by the South Dakota Department of Transportation (SDDOT) were reviewed. Key long-range planning documents, including the state's Long Range Transportation Plan (2021) and State Freight Plan (2023) were reviewed to align Rapid Trip 2050 with state planning efforts. A range of sub-area and corridor studies were also reviewed with the purpose of incorporating key findings into the metropolitan transportation planning process.

Chapter 2: Engaging the Public

Public engagement was a key component of the Rapid Trip 2050, with the engagement goals centered on educating the public on the metropolitan transportation planning process, and receiving input on the issues, needs, and recommendations of the Plan. Strategies used to engage the public were designed for consistency with RCAMPO's current Public Participation Plan and sought to engage a diverse range of individuals, including the region's elderly, disabled, minority, and low income populations.

RCAMPO leveraged several approaches to soliciting feedback from the public throughout the development of Rapid Trip 2050. In addition the public engagement opportunities, a Study Advisory Team (SAT) for the Plan was created to provide feedback and direction on Rapid Trip 2050. To comply with federal metropolitan transportation planning regulations, coordination with federal, state and local agencies involved in land use management, natural resources, environmental protection, conservation, and historic preservation was conducted.

A complete record of the public engagement materials developed as part of Rapid Trip 2050 are found in **Appendix A**.

Rapid Trip 2050 Website

The Rapid Trip 2050 website served as the main source of information and opportunities for public participation throughout the development of the Plan. The website provided background information related to Rapid Trip 2050, including an outline of the metropolitan transportation planning process, MTP schedule, and agencies involved in its development.

The website also provided notice of public engagement events and housed the online components of the three Rapid Trip 2050 open houses. The website also included a list of resources that included links to Rapid Trip 2045, related plans and studies, active and on-going studies, and RCAMPO's partner agency sites.

Rapid Trip 2050 Outreach

The main channels used for the promotion of Rapid Trip 2050's public engagement opportunities included social media and the region's print media channels. Social media posts on the Rapid City Municipal Government Facebook page were the main medium for sharing updates on the Plan's progress and to notify the public on upcoming engagement opportunities. Public notices for open house events were published seven days in advance of each event in the Rapid City Journal, Black Hills Pioneer, and Native Sun News.

Engaging the Public – In-Person and Online Events

Public Open Houses

Public open houses (in person and online) were the main points of engagement with the public throughout the development of Rapid Trip 2050. A total of three open houses were held and aligned with major MTP milestones. Each open house had a corresponding online component that provided the materials and activities so individuals unable to attend the in-person events were able to participate and learn about Rapid Trip 2050 and its progress throughout its development.

Each open house was advertised through press releases in the region's major media outlets, including the Rapid City Journal, Black Hills Pioneer, and Native Sun News. Additional advertisement was done through the project website, flyers circulated in downtown Rapid City, and posts on partner agencies social media channels.

Open House #1 – Rapid Trip 2050 Background and Existing Issues

The first open house held as part of the Rapid Trip 2050 planning process occurred in October 2024 and was located at the Rapid City Council Chambers and Circle of Friends Community Room in City Hall.

The goal of the first open house was to provide attendees with an overview of the metropolitan transportation planning process and gather feedback on the multi-modal needs of the region's existing transportation system. Attendees were able to view a series of materials including a brief, pre-recorded presentation, informational boards that detailed the purpose and background of Rapid Trip 2050 and participate in a mapping exercise in which they were able to comment on issues and needs impacting multi-modal transportation today.

Key topics discussed in the first open house included issues related to roadway access and capacity, the need for deceleration lanes, and bicycle and pedestrian system needs. One notable topic related to the region's bicycle and pedestrian system was the need for more accessible travel options along busy streets.

The pre-recorded presentation, informational boards, and the map activity were made available on the project website on the same day of meeting and were open for a two-week period for individuals interested in participating in the open house but unable to attend the in-person event.

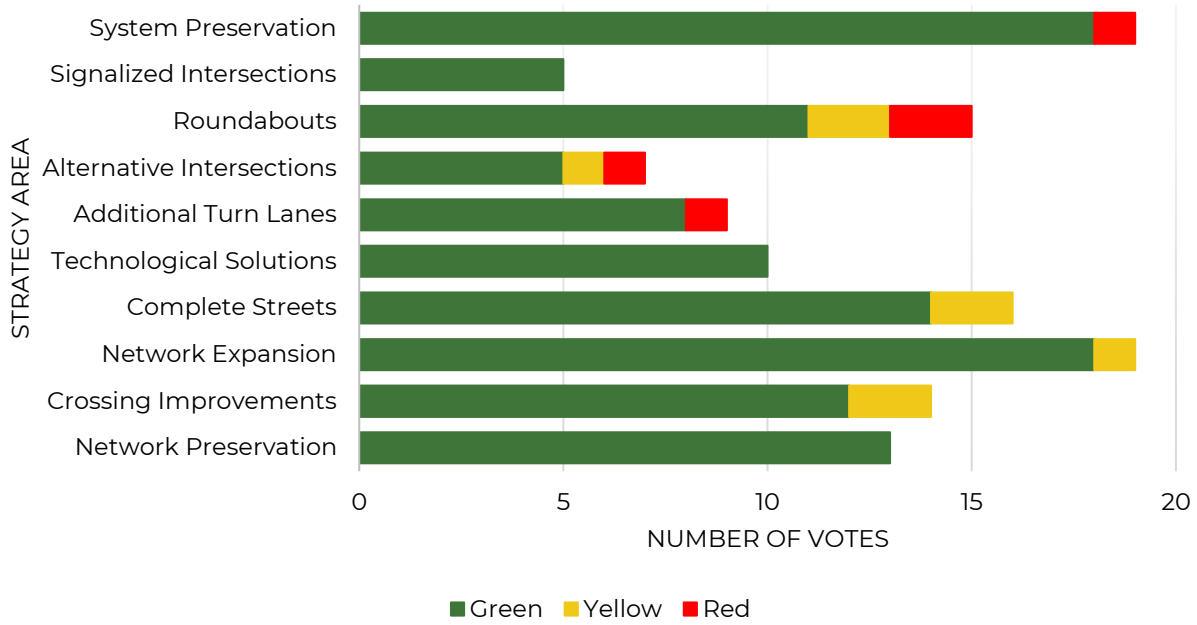
Open House #2 – Rapid Trip 2050 Baseline Conditions Findings and Potential Strategies

The second open house held as part of the Rapid Trip 2050 planning process occurred in March 2025 and was located at the Rapid City Council Chambers and Circle of Friends Community Room in City Hall.

The goal of the second open house was to provide attendees with an overview of the key findings from the baseline conditions analysis and gather feedback on potential strategies to be included in Rapid Trip 2050 to address existing and future multi-modal transportation needs. Attendees were able to view a series of materials including a brief, pre-recorded presentation, informational boards that detailed the key outcomes from the baseline conditions analysis and potential Rapid Trip 2050 strategies and participate in a voting activity that sought participant's preferences on the potential Rapid Trip 2050 strategies.

Key topics discussed in the second open house centered around the potential strategies that could be in included in the Plan and attendee's thoughts on them. These strategies looked at safety, traffic operations, system preservation, and bicycle and pedestrian topics. The voting activity included as part of the open house asked participants to indicate their preferences on each strategy through voting with colored stickers; a green sticker indicated support of the strategy, a yellow sticker indicated neutral support of the strategy, and a red sticker indicated the participant was not in support of the strategy. The final results of the activity are shown in **Figure 2**.

Figure 2: Public Priority Results of the Open House #2 Strategies Activity



The pre-recorded presentation, informational boards, and the map activity were made available on the project website on the same day of meeting and were open for a two-week period for individuals interested in participating in the open house but unable to attend the in-person event.

Open House #3 - Rapid Trip 2050 Draft Plan

The third open house held as part of the Rapid Trip 2050 planning process occurred in June 2025 and was located at the Rapid City Council Chambers and Circle of Friends Community Room in City Hall.

The goal of the third open house was to provide attendees with an overview of the draft Rapid Trip 2050 MTP and gather feedback on the draft MTP recommendations. Attendees were able to view a series of materials including a brief, pre-recorded presentation, informational boards that detailed the draft Rapid Trip 2050 recommendations, and an activity that invited attendees to leave input on the recommendations.

Study Advisory Team

The SAT created to guide the development of Rapid Trip 2050 was comprised of RCAMPO staff and representatives from RCAMPO's member agencies. Other agencies represented in the SAT included SDDOT and FHWA.

The SAT met several times throughout the development of Rapid Trip 2050 to provide feedback on materials drafted for the Plan, and to receive progress updates. Topics discussed with the SAT included:

- Kick off meeting to discuss scope, schedule, and methods and assumptions
- Existing transportation system conditions overview
- Review of materials for Public Open House #1, #2, and #3

MPO Committee Presentations

A series of presentations on the draft of Rapid Trip 2050 were held for RCAMPO's two main committees, including the EPC and TACC. These presentations were conducted in June 2025...

Chapter 3: Goals, Objectives, and Performance Measures

The goals and objectives of Rapid Trip 2050 serve as the basis for defining the vision of the region's future multi-modal transportation system. These goals and objectives seek to align with national and state planning priorities while providing objective and measurable means of evaluating the MTP's strategies and investments with how well they meet the region's vision for the future.

Rapid Trip 2050's goals and objectives build off those included in the 2045 MTP, and were refined based on the technical analyses, previous planning efforts, and community input received throughout the development of the 2050 MTP.

South Dakota's Transportation Vision and Goals

Rapid Trip 2050 seeks to reinforce South Dakota's long-range vision for the state's multi-modal transportation system. A review of the current statewide Long Range Transportation Plan, published in 2021, provides establishes this vision and articulates a series of goals that guide the LRTP.

SDDOT's vision, as stated in the LRTP, is:[3]

> *Achieve excellence in providing transportation facilities that meet the needs of the public, leading towards* ***Better Lives through Better Transportation, By Being the Best.***

The goals included in the LRTP are:

- Improve Transportation Safety and Security for all Modes of Transportation.
- Preserve and Maintain the Transportation System.
- Improve Mobility, Reliability, and Accessibility.
- Preserve South Dakota's Quality of Life.
- Support Economic Growth and Development.
- Promote Environmental Stewardship.
- Promote Innovative Transportation Technologies.

[3] South Dakota Department of Transportation, *2045 Long Range Transportation Plan.*

Rapid Trip 2050 Goals and Objectives

The goals and objectives of Rapid Trip 2050 build off those established in the 2045 MTP, which were developed through a performance-based planning approach. A continuation of this performance-based approach saw the refinement of these goals and objectives for Rapid Trip 2050 based on technical analysis, national and state transportation planning priorities, and public input received throughout the MTP development process. These goals and objectives are presented in **Table 2**.

Table 2: Rapid Trip 2050 Goals and Objectives

Goal Area	Objectives
Safety 	• Reduce rate and frequency of fatal and severe crashes. • Reduce frequency of crashes involving non-motorized users and vulnerable road users. • Utilize a safe systems approach to transportation facility design, operations, and incident management. • Safety investments focus on the High Priority Network.
System Preservation 	• Ensure sufficient financial resources are available for maintaining all Federal-aid bridges and roads. • Maintain transportation infrastructure in a state of good repair.
Multi-Modal Mobility and Accessibility 	• Multi-modal transportation investments support users of all ages and abilities. • Increase the connectivity of the region's bicycle and pedestrian network. • Increase transit ridership through the provision of quality transit services. • Coordinate transportation and land use planning efforts to support community interconnectedness.
System Efficiency and Reliability 	• Limit regional recurring peak hour congestion. • Maintain acceptable travel reliability on the Interstate and non-Interstate NHS. • Barriers to freight mobility are reduced. • Implement technology-based solutions to enhance system operations.
Economic Prosperity 	• Enhance access to regional employment opportunities. • Maintain access to regional tourism opportunities. • Transportation strategies and policies support regional economic development goals.

Environmental Sustainability and Resiliency

- Transportation projects limit impacts on the natural environment.
- Improve system resiliency against natural and manmade disasters.

Performance Measures and Targets

The performance management approach required by FHWA and FTA for metropolitan transportation planning dictates the use of performance data to guide decision-making and outcomes. The framework underlying the use of performance data was established under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and re-authorized with the passage of the FAST Act and IIJA and consists of a series of national performance measures. FHWA and FTA require state transportation agencies and MPOs to document their performance measures.

Federal Performance Measures

Federal performance measures that state transportation agencies and MPOs are required to conform to cover a range of transportation topics and include:

- Safety
- Asset conditions- bridges and pavement
- Congestion
- System reliability
- Freight reliability
- Emissions

Congestion performance monitoring is required only in urbanized areas with population exceeding 1 million while emissions performance monitoring is required only for designated nonattainment areas. Thus, RCAMPO is not required to monitoring and report performance for these topics.

State transportation agencies are required to identify performance measures that align with these topics and establish performance targets for each. MPOs have the option of adopting the statewide targets or developing their own locally tailored targets.

RCAMPO Performance Measures and Targets

Safety Performance Measures and Targets

RCAMPO has elected to support safety performance targets established by SDDOT. Reporting of safety performance is done on a 5-year rolling average. RCAMPO's current safety performance measures and targets are summarized in **Table 3**.

Table 3: RCAMPO Safety Performance Measures and Targets (2025)

Performance Measure	Target (2025)
Number of Fatalities	115.0
Rate of Fatalities per 100 million VMT*	1.17
Number of Serious Injuries	515.0
Rate of Serious Injuries per 100 million VMT	5.26
Number of Non-Motorized Fatalities and Serious Injuries	42.0

*VMT is Vehicle Miles Traveled

Source: South Dakota Department of Transportation

Bridge and Pavement Performance Measures and Targets

RCAMPO has elected to support bridge and pavement performance targets established by SDDOT, and coordinates with SDDOT in developing targets. RCAMPO's current bridge and pavement measures and targets are summarized in **Table 4**.

Table 4: RCAMPO Bridge and Pavement Performance Measures and Targets

Performance Measure	Target (2025)
Percent of NHS Bridges in Good Condition	20.0%
Percent of NHS Bridges in Poor Condition	5%
Percent of Interstate Pavement in Good Condition	62.6%
Percent of Interstate Pavement in Poor Condition	2.4%
Percent of Non-Interstate NHS Pavement in Good Condition	41.5%
Percent of Non-Interstate NHS Pavement in Poor Condition	1.5%

Source: South Dakota Department of Transportation

System and Freight Reliability Performance Measures and Targets

RCAMPO has elected to support system and freight reliability performance targets established by SDDOT, and coordinates with SDDOT in developing targets. RCAMPO's current system and freight reliability measures and targets are summarized in **Table 5**.

Table 5: RCAMPO System and Freight Reliability Performance Measures and Targets

Performance Measure	Target (2025)
Percent of Reliable Person Miles on the Interstate	90%
Percent of Reliable Person Miles on the Non-Interstate NHS	85%
Interstate Truck Travel Time Reliability Index	1.5

Source: South Dakota Department of Transportation

Chapter 4: Regional Profile

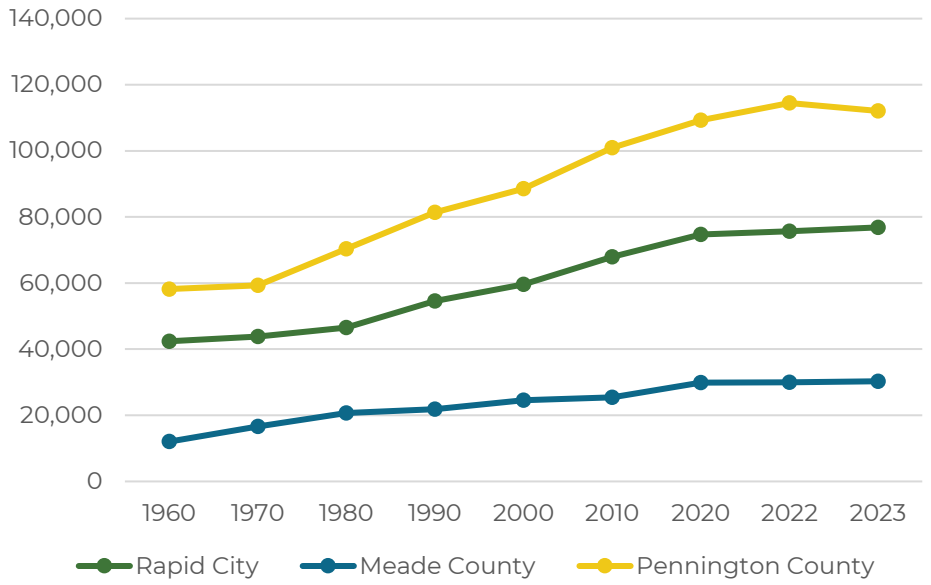
A regional profile that explores historic population and employment growth, current demographics, income and employment, and commuting characteristics for the RCAMPO region was developed to understand key socio-economic factors driving demand for multi-modal transportation. This chapter of Rapid Trip 2050 describes the current profile of the region's residents and workers.

Historic Population and Employment Growth

The population of the Rapid City Metropolitan Statistical Area (MSA) which includes all of Meade and Pennington Counties, was 151,064 in 2023.[4] In comparison to the 2010 population of 123,078, the total population of the MSA has grown by 22.75 percent, or 1.56 percent per year over a 13-year period.

The historical population growth for the City of Rapid City, Meade County, and Pennington County are shown below in **Figure 3**. Meade County had the highest annual growth rate of 1.5 percent, while Pennington County grew at a rate of 1.1 percent, and the Rapid City grew at a rate of 1.0 percent per year.

Figure 3: Population Growth in Rapid City, Meade and Pennington Counties, 1960-2023



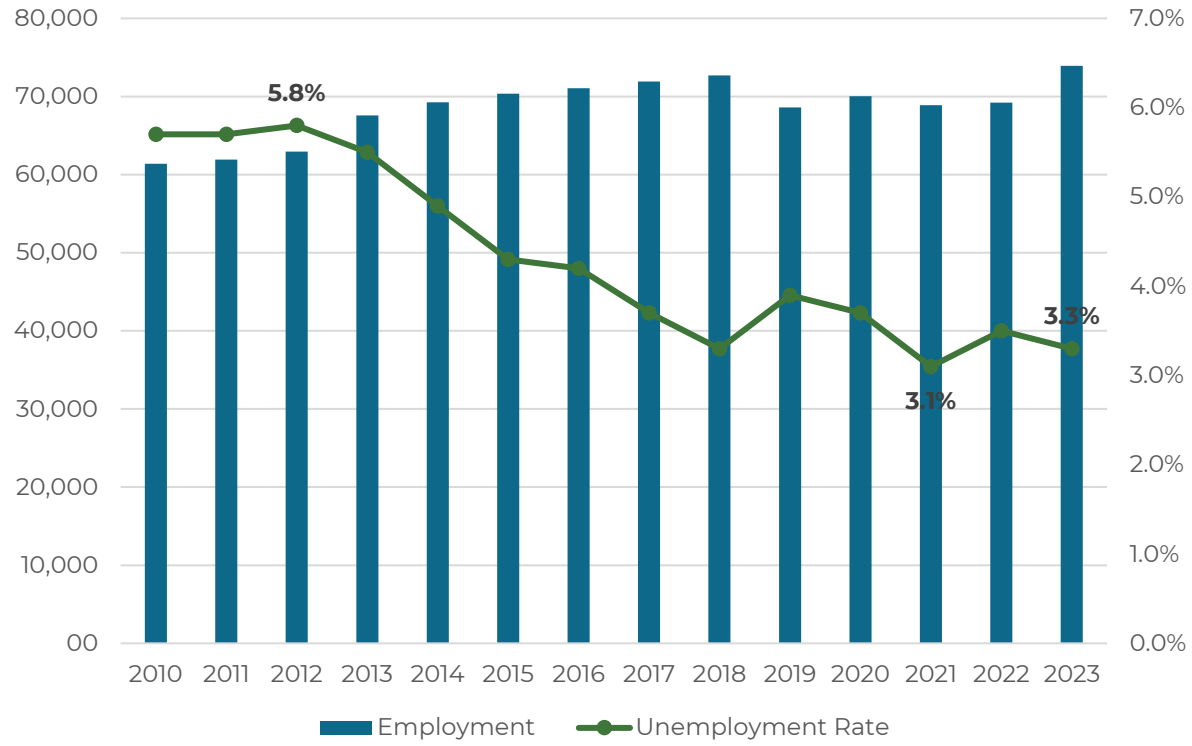
Source: United States (U.S.) Census Bureau 2020, American Community Survey 2023

While the number of employees in the Rapid City MSA has experienced annual fluctuations between 2010 and 2023 with generally increasing employment levels, unemployment rates have experienced an overall decline during this period. The

[4] American Community Survey S0101, 2012 and 2022 5-Year Estimates.

unemployment rate peaked at 5.8 percent in 2012 and reached its lowest point at 3.1 percent in 2021. **Figure 4** shows the trends for employment and unemployment trends for a 13-year period.

Figure 4: Employment and Unemployment Rates for the Rapid City Metropolitan Statistical Area, 2010-2023



Source: American Community Survey, 2023 5-Year Estimates

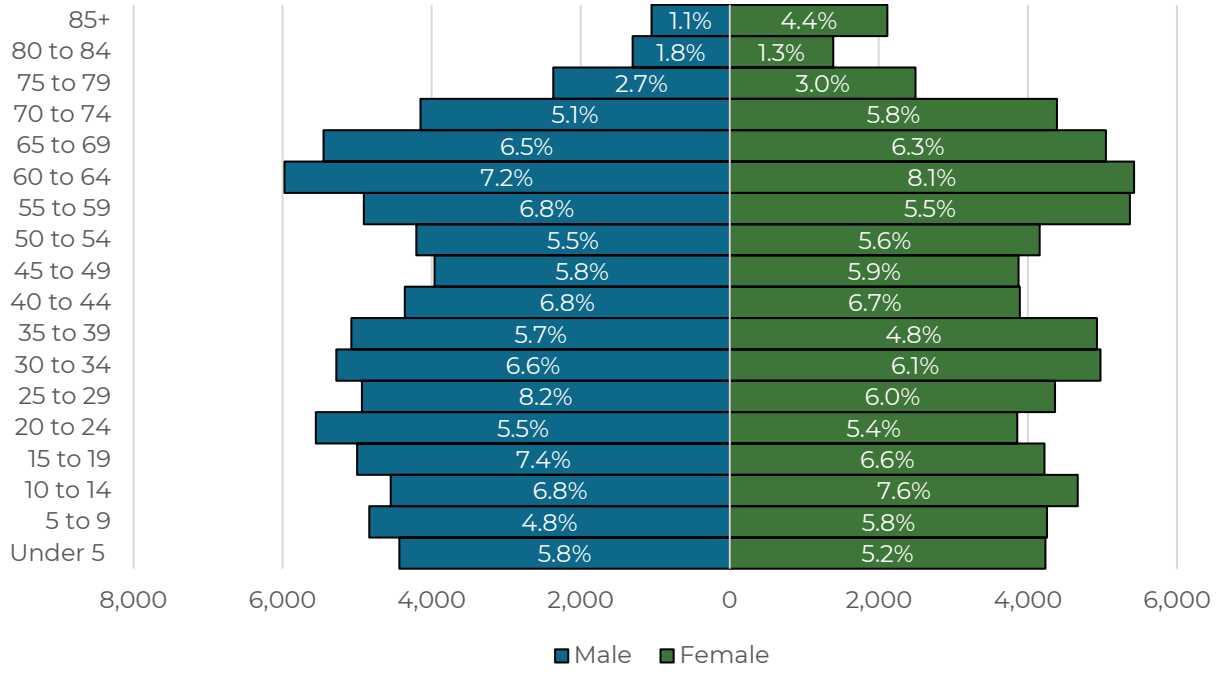
Current Demographics

The median age of the Rapid City MSA population in 2023 was 40.2. According to **Figure 5**, the largest portion of the population is age 60 to 64, while the smallest age group is 80 to 84. Specifically for males in the Rapid City MSA, the largest age cohort is males ages 25 to 29, and largest cohort of females is 60 to 64.

Key demographic facts of the Rapid City MSA include:

- Median age of Rapid City MSA: **40.7 Years**
  - Male: 38.4 Years
  - Female: 41.7 Years
- Share of population by sex:
  - Male: 51.44%
  - Female: 48.56%

Figure 5: Population Pyramid for the Rapid City Metropolitan Area, 2023



Source: American Community Survey, 2023 5-Year Estimates

Income and Employment

The median household income of the Rapid City metropolitan region in 2023 dollars was $71,985 which is slightly below the South Dakota median income of $72,421 and below the national median income of $78,538 as shown in **Table 6** below. While the Rapid City median household income is average compared to the state, 10.8 percent of the Rapid City population is considered as living below the poverty line in 2023. This is a significant decrease from the poverty level of 12.4 percent in 2019. **Table 6** shows percent of households living below poverty level by age.

Table 6: Comparison of Household and Family Median Income, 2023

	Household Income	Family Income
Rapid City MSA	$71,985	$90,806
South Dakota	$72,421	$93,579
United States	$78,538	$96,922

Source: American Community Survey, 2023 5-Year Estimates

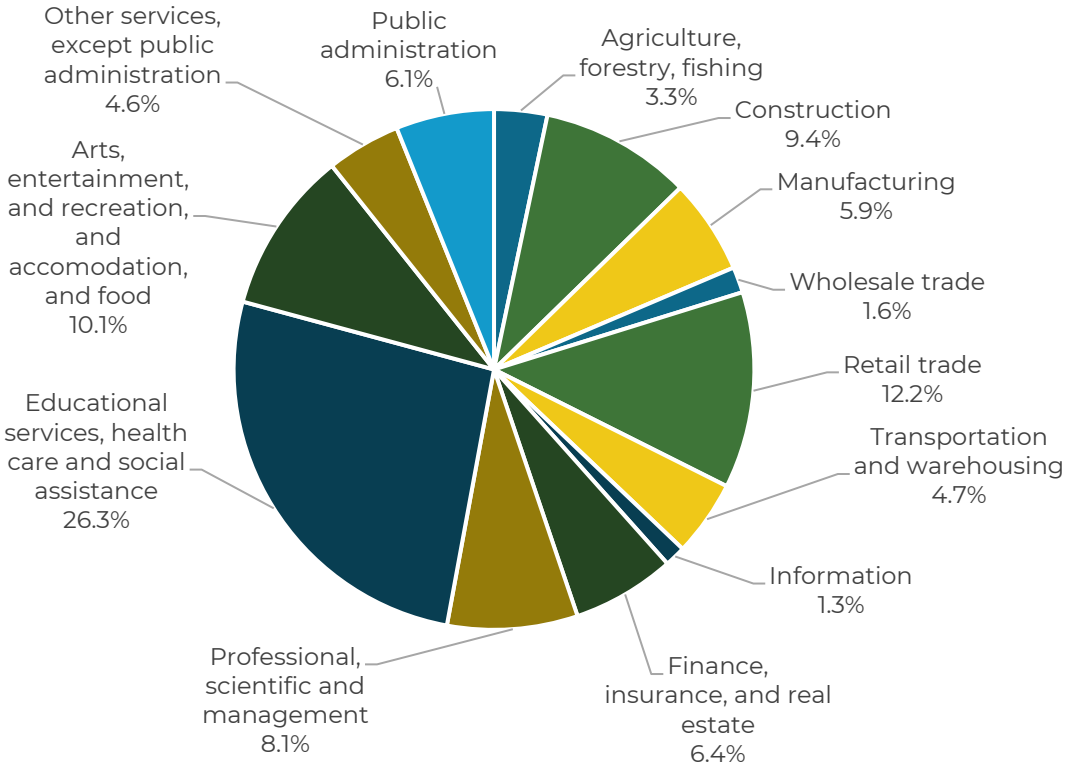
Table 7: Percent of Population Living Below the Poverty Level

Age Cohort	Population for Whom Poverty Status is Determined	Percent Below Poverty Level
Under 18 years	31,945	14.9%
18 to 64 years	85,714	10.0%
65 years and over	28,748	8.8%

Source: American Community Survey, 2023 5-Year Estimates

The 2023 Rapid City MSA labor force is composed of 79,180 individuals. The largest industry sector for employment in Rapid City is education, health care, and social assistance, at roughly 26 percent. The second highest share of jobs belongs to the retail trade industry. The information industry has the smallest share of employment in Rapid City. **Figure 6** summarizes occupation by industry for the Rapid City MSA in 2023.

Figure 6: Occupation by Industry by the Rapid City MSA, 2023

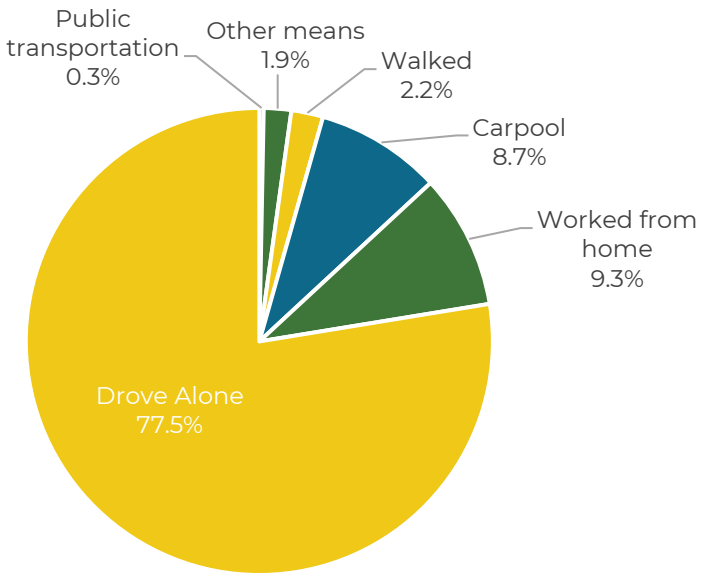


Source: American Community Survey, 2023 5-Year Estimates

Commuting Characteristics

According to **Figure 7**, 77.5 percent of commuters drive alone to work. An estimated 9.3 percent of workers in Rapid City worked from home in 2023. This is a significant increase as only 5.3 percent of residents worked from home in 2019, one year before the COVID-19 pandemic started. In 2023, only 2.2 percent of workers walked to work and 1.9 percent utilized other means.

Figure 7: Means to Work for Residents of the Rapid City MSA, 2023



Source: American Community Survey 2023 5-Year Estimates

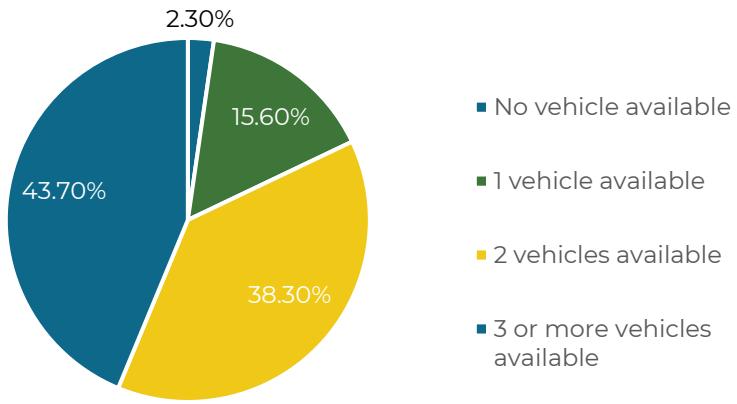
For roughly 39 percent of Rapid City workers, their journey to work takes less than 15 minutes, while 60 percent have a commute of less than 20 minutes. **Table 8** below summarizes the commute times for Rapid City workers in 2023. Additionally, **Figure 8** below shows that 97.6 percent of workers have access to at least one vehicle.

Table 8: Length of Commute for the Rapid City MSA, 2023

Commute Length	Total
Less than 10 minutes	18.6%
10 to 14 minutes	20.2%
15 to 19 minutes	21.7%
20 to 24 minutes	15.3%
25 to 29 minutes	5.8%
30 to 34 minutes	7.4%
35 to 44 minutes	3.3%
45 to 59 minutes	3.7%
60 or more minutes	3.9%

Source: American Community Survey, 2023 5-Year Estimates

Figure 8: Household Car Ownership, Rapid City MSA



Source: American Community Survey, 2023 5-Year Estimates

Intercity Commuting Patterns

Intercity commuting patterns were obtained from the U.S. Census Bureau Longitudinal Household-Employer Dynamics (LEHD) Program, which compiles Census data on employers and employees to better understand local economies. LEHD data for the Rapid City Area MPO was evaluated to identify commuting patterns into, within, and outside of the area.

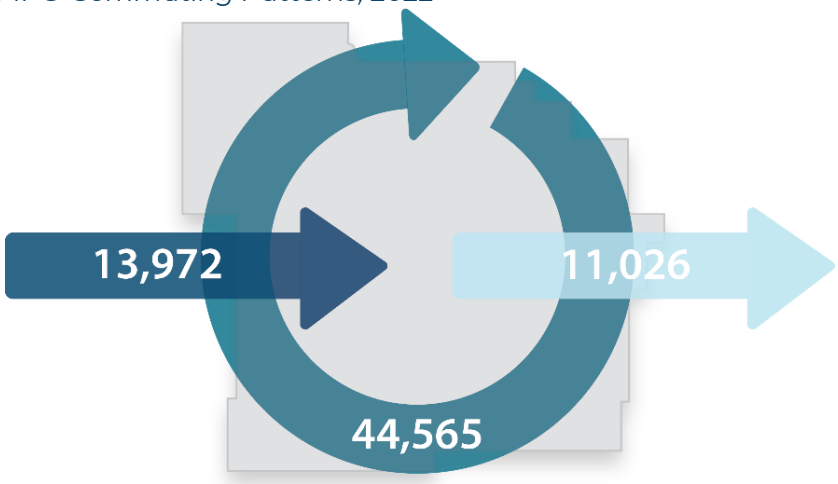
As shown in **Figure 9**:

- 44,565 residents in Rapid City both live and work within the MPO boundary.

- 13,972 people live outside of the Rapid City MPO area but work in the Rapid City MPO area.
- 11,026 MPO area residents work outside of the MPO area.

This signifies that Rapid City attracts and retains a good portion of employment of both residents of Rapid City, and those living outside the boundary, with only a small portion of residents seeking employment elsewhere.

Figure 9: RCAMPO Commuting Patterns, 2022



Source: U.S. Census Longitudinal Employer-Household Dynamics Program, 2022

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Chapter 5: Baseline Conditions

Baseline conditions of the MPO area's multi-modal transportation system were analyzed to assess the issues and needs transportation within the region today. In addition to the identification of multi-modal issues and needs that exist within the MPO area today, the establishment of existing conditions provides a baseline for evaluating future multi-modal transportation scenarios.

The elements of the multi-modal transportation system that were assessed as part of the baseline conditions analysis include:

Roadway Classifications	Safety	Traffic Operations	Asset Conditions	Freight	Bicycle and Pedestrian	Transit	Regional Connections

This chapter provides a summary of the baseline conditions report developed as part of the Rapid Trip 2050 MTP process. See **Appendix B** for the full report.

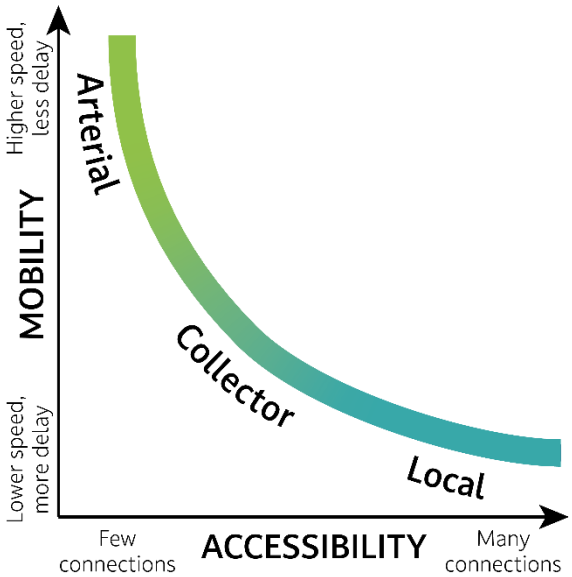
Rapid City Area MPO's Existing Streets and Roads Network

The MPO's streets and roads are a critical network that provide mobility and connectivity for the region's residents, workers, goods, and services. This section of the report discusses RCAMPO's current streets and roads network, including the key planning designations associated with the network.

Functional Classifications and the National Highway System

Functional Classifications

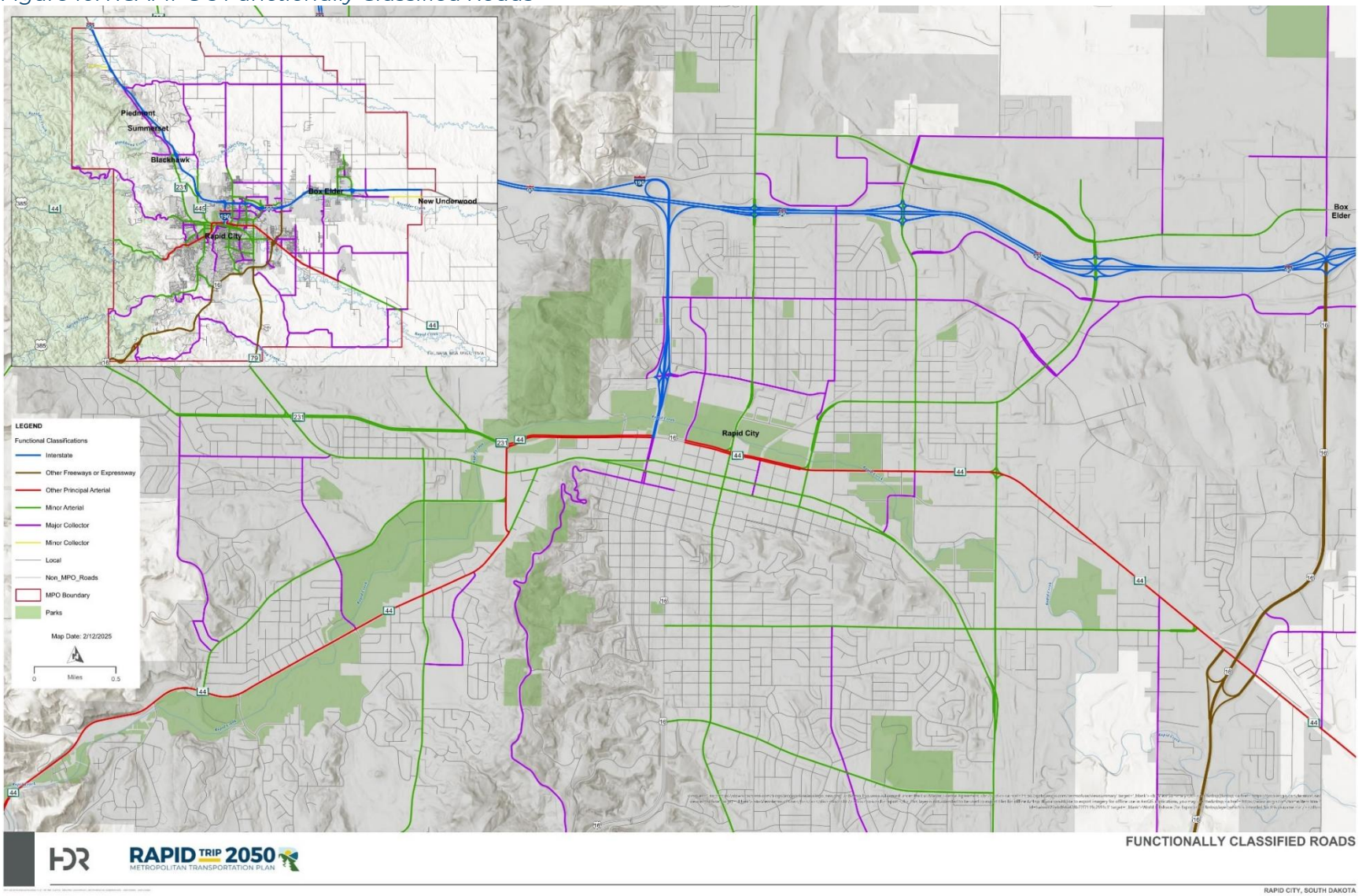
The federal planning designation for streets and roads is the functional classification system which categorizes streets and roads by the character of service they provide. The purpose of the functional classification system is to ensure that the streets and roads network provides the appropriate balance of



mobility and accessibility for system users.

Given the purpose of the functional classification system, the region's streets and roads range in character from higher-speed, limited-access highways to local streets that provide a high degree of access to adjacent land uses. **Figure 10** shows the region's functionally classified streets and roads network.

Figure 10: RCAMPO's Functionally Classified Roads



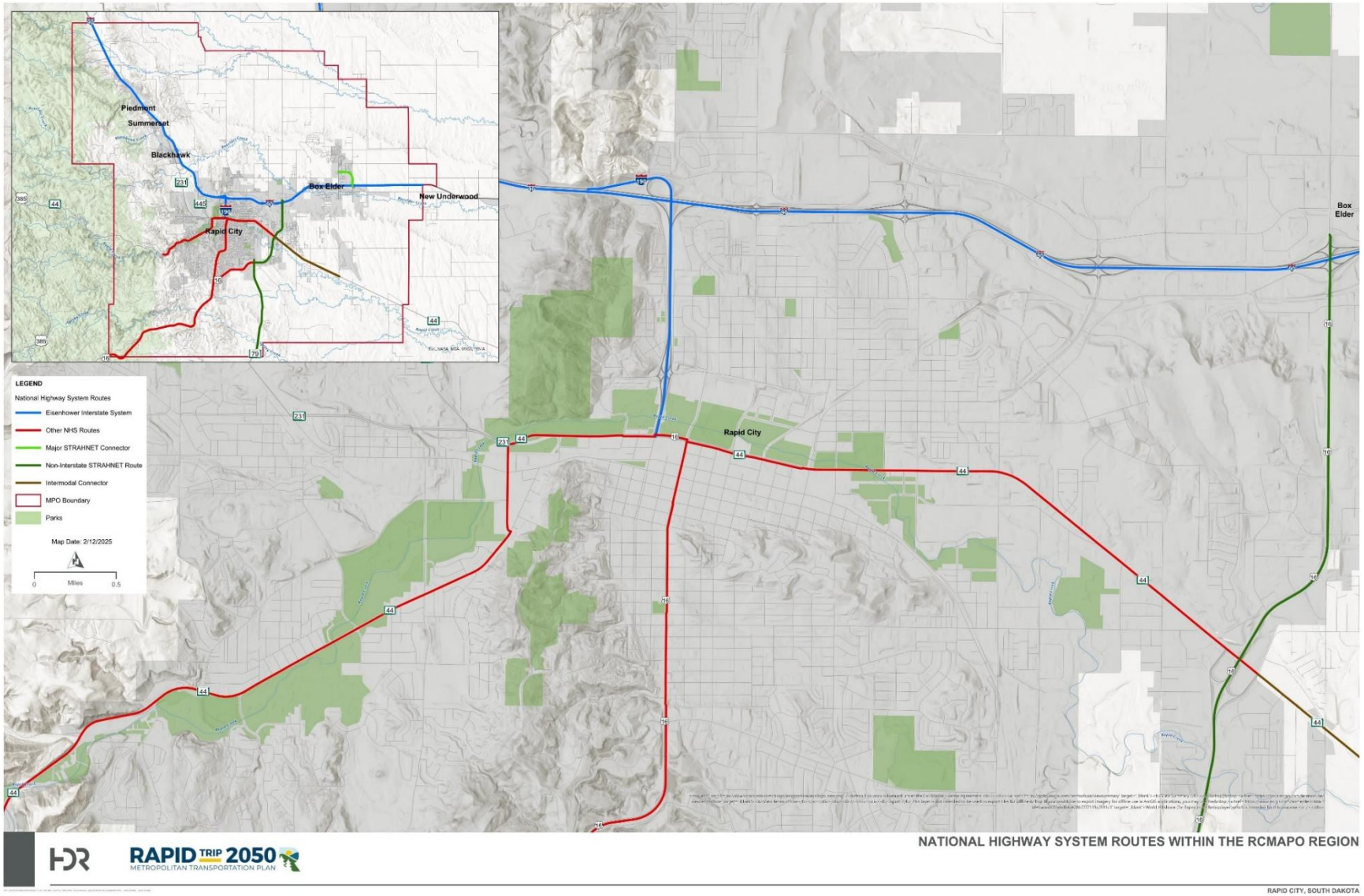
National Highway System

The National Highway System (NHS) is nationwide network of highways that was established to serve the mobility, economic, and defense needs of the United States. The NHS has several subnetworks that collectively comprise the system.

- **Interstate**: The Eisenhower Interstate System of highways.
- **Other Principal Arterials**: Urban and rural highways that facilitate access between arterial roads and other major transportation facilities.
- **Strategic Highway Network (STRAHNET)**: System of highways that provide strategic defense access, continuity, and emergency capabilities.
- **Major Strategic Highway Network Connectors**: Highways that provide access between major military installations and highways that are part of the STRAHNET system.
- **Intermodal Connectors**: Highways that provide access between intermodal facilities and the other subsystems of the NHS.

Figure 11 shows the streets and roads within the RCAMPO region that are designated as part of the NHS and its subsystems.

Figure 11: National Highway System Routes within the RCAMPO Region



Roadway Jurisdictions

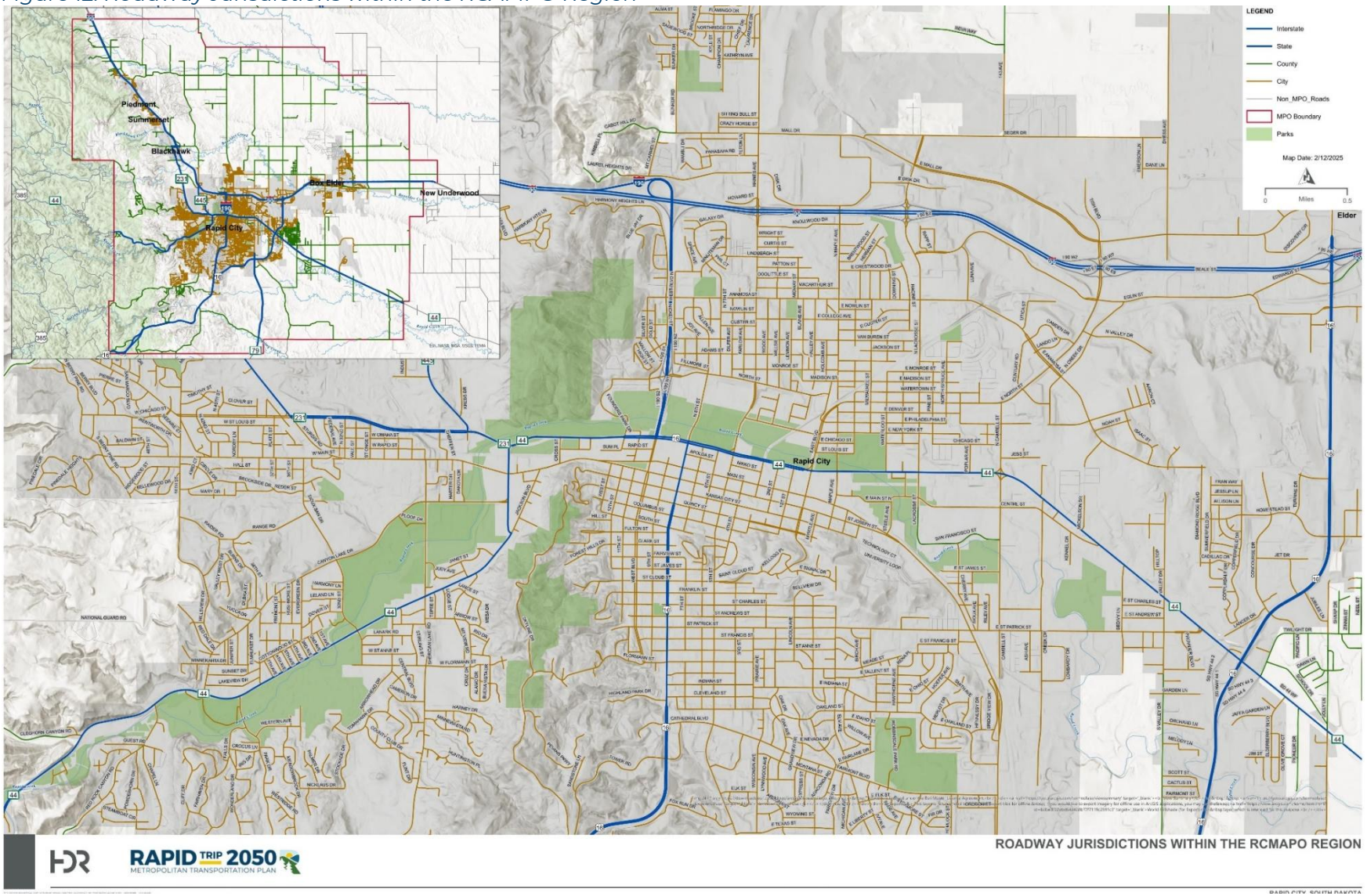
Roadway jurisdiction refers to the ownership of a given street or roadway. Ownership of transportation facilities determines which transportation agencies maintain that facility as well as eligibility for certain federal and state funding programs.

Data maintained by SDDOT for roadway jurisdictions was reviewed to identify ownership of streets and roads within the RCAMPO region and represent roadway jurisdiction information as of 2024. The agencies that oversee RCAMPO's streets and roads include:

- **State agencies**: South Dakota Department of Transportation
- **County agencies**: Pennington and Meade Counties
- **Local Agencies**: Rapid City, Box Elder, Summerset, Piedmont

State agencies are generally responsible for Interstate, U.S., and state highway routes while County agencies oversee non-state roadways outside of incorporated areas. Local agencies generally maintain non-state routes within incorporated areas. **Figure 12** shows roadway jurisdictions for the region's network of streets and roadways.

Figure 12: Roadway Jurisdictions within the RCAMPO Region



Safety

Rapid City is working on a Safety Action Plan (SAP) under the Safe Streets and Roads for All (SS4A) grant program from the US Department of Transportation. This is a program that utilizes the Safe System Approach (SSA) to achieve the goal of zero roadway deaths and serious injuries. The SSA program helps drive roadway systems towards zero deaths by focusing on six principles derived from five core elements. These six principles are:

- **Death / Serious Injury is Unacceptable** – Fatal and severe injury crashes are the most impactful and thus most desirable to reduce and eliminate.
- **Humans Make Mistakes** – Mistakes will happen, but the transportation system can be designed to allow for the inevitable mistake.
- **Humans are Vulnerable** – Humans are susceptible to death and injury while in the transportation network.
- **Responsibility is Shared** – All stakeholders share responsibility for safety.
- **Safety is Proactive** – Safety cannot simply be a reactive approach. Latent risk is present but not always obvious.
- **Redundancy is Crucial** – Without redundancy, any failure in the system may lead to death or serious injury. As previously stated, mistakes and failures will happen, so redundancy is crucial.

These principles are achievable through the five core elements of:

- **Safer Road Users** – All individuals who use the transportation network whether they be drivers, pedestrians, or transit riders.
- **Safer Vehicles** – Vehicles should be designed to minimize occurrence and severity of crash by using safety features.
- **Safer Speeds** – Humans are susceptible to fatalities and severe injuries. Reducing speeds is crucial to eliminating fatalities and severe injuries when crashes do occur.
- **Safer Roads** – Roadway design can add redundancy and create barriers for when mistakes happen by separating users in time and space.
- **Post-Crash Care** – When a crash does occur, emergency responders can provide critical care to minimize the severity of injuries and even prevent death.

The 2050 Metropolitan Transportation seeks to align with the recommendations of the SAP so that regional transportation safety is addressed through various planning activities in a coordination and continuous manner. To that end, the findings of the SAP safety analysis form the basis of the safety analysis for this baseline conditions analysis.

Federal Performance Measures for Traffic Safety

The RCAMPO is required to meet federal safety performance measures and is expected to show aimed improvements towards addressing safety in the region. By identifying high-crash intersections, targeted improvements can be made to improve safety throughout the region. The 2025 federal performance measures regarding safety are listed below:

- **Number of Fatalities:** The total number of persons suffering an injury resulting in death from a motor vehicle crash in a calendar year
  - **SDDOT 2025 Target**: 115.0 or less
- **Rate of Fatalities:** The ratio of total number of fatalities to number of vehicle miles traveled (VMT, in 100 million VMT).
  - **SDDOT 2025 Target**: 1.17 or less
- **Number of Serious Injuries**: The total number of persons suffering an incapacitating injury resulting from a motor vehicle crash.
  - **SDDOT 2025 Target**: 515.0 or less
- **Rate of Serious Injuries:** The ratio of total number of serious injuries to number of per 100 million VMT rate for a five-year average.
  - **SDDOT 2025 Target:** 5.26 or less
- **Number of Non-Motorized Fatalities and Serious Injuries**: The total number of non-motorized (bicyclists and pedestrians) suffering a fatal or serious injury resulting from a crash.
  - **SDDOT 2025 Target**: 42.0 or less

Baseline Safety Analysis

Baseline safety conditions for the RCAMPO region reviewed under the SAP effort reviewed crash data sourced from the SDDOT for the years 2019 through 2023. The analysis methodology is rooted in SSA, which focuses on both human mistakes and vulnerability to design systems with many different layers of protection. This section of the baseline conditions memorandum summarizes the key findings of the SAP Safety analysis.

Overall Safety Analysis findings

Based on SDDOT crash data for the years 2019 through 2023, there was a total of 7,996 crashes. Narrowing down to only crashes that contained fatalities or serious injuries (KA), the number of those events is 234 crashes.

Key Emphasis Areas

From the five years of crash data used for this analysis, the key factors evaluated to identify potential emphasis areas to focus on were:

- Road geometry
- Roadway user

- Environmental conditions

The emphasis are listed below with the percent of total crashes that they represent.

- 40% Angle crashes
- 36% Younger drivers (25 years old or younger)
- 36% Older drivers (65 years old or older)
- 30% Dark/Night crashes
- 25% Motorcycle involved
- 22% Vulnerable Road Users (VRU)
- 21% Alcohol impairment
- 19% Speed related

Traffic Operations

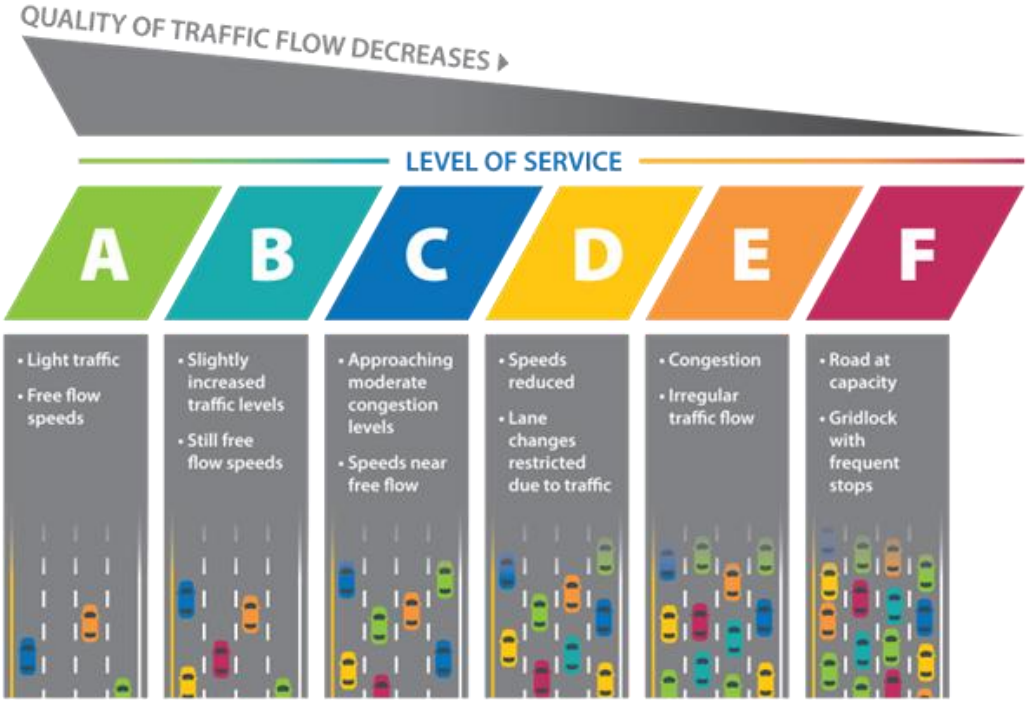
The baseline conditions analysis sought to understand how traffic operates in the RCAMPO region today and to identify issues associated with daily vehicular travel, especially as it pertains to AM and PM peak hour travel periods. Baseline traffic operations were analyzed from two perspectives:

- **Planning Level of Service (LOS)**: Capacity-based approach that evaluates current traffic volumes to the volume capacities the MPO's functionally classified streets and roads are designed to carry, assigning an LOS that reflects estimated levels of congestion during peak travel periods.
- **Travel Reliability**: Data-driven approach that compares observed travel speeds over a specified period to historic travel speeds to understand the variation between the two. A higher degree of variation implies a street or a road is "less reliable" and travelers may be unable to plan for expected potential speed reductions in their daily trips.

Planning Level of Service

The planning LOS analysis used to review current traffic operations in the RCAMPO region is based on Highway Capacity manual methodologies and compares daily traffic volumes to daily design capacities to calculate a volume-to-capacity (V/C) ratio. This ratio serves as an estimation of how a given street or road operates during a peak hour travel period. Based on the calculated V/C ratio, each street or road segment is assigned a letter grade (**Figure 13**) that indicates the level of service that facility operates at.

Figure 13: Level of Service Definitions

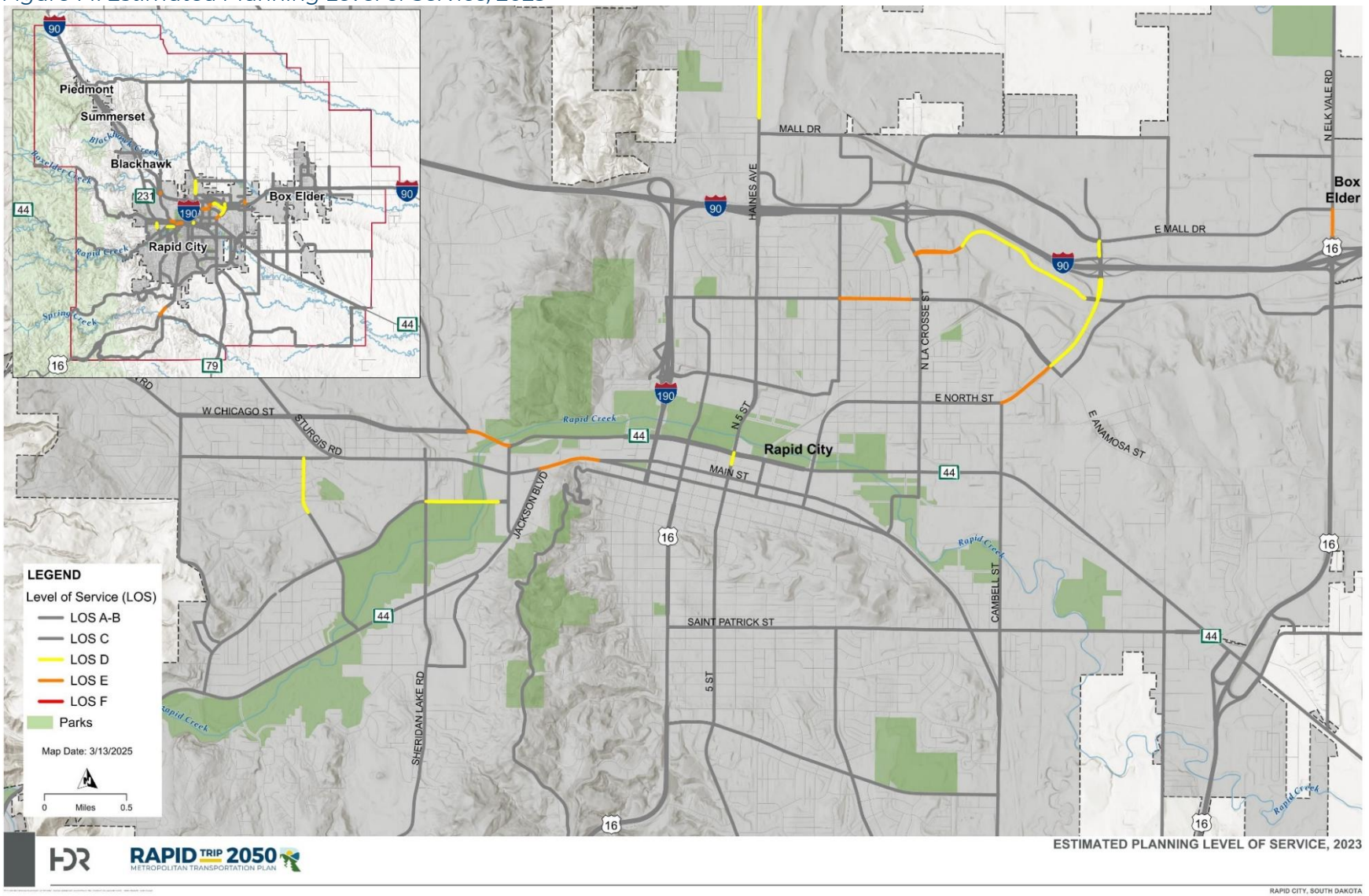


Estimated LOS for the MPO region was analyzed by comparing 2023 traffic counts with design capacities that were sourced from the Florida Department of Transportation's Quality Level of Service (FDOT QLOS) Manual and adapted to reflect local peak period conditions. The FDOT QLOS manual is valuable for an MTP like this because it is rooted in the Highway Capacity Manual but applies a series of simplifying assumptions so that regional analyses with daily traffic can be applied. The resulting LOS analysis is shown in **Figure 14**. As the figure shows, most of the roadways within RCAMPO are operating at an LOS B or higher, meaning peak hours traffic is operating with minimal congestion. The segments operating at a LOS C are operating with some congestion during peak hour travel periods, which is considered an acceptable peak hour LOS. The corridors identified as operating at LOS D or worse include:

Corridor	From	To	Estimated LOS
Haines Avenue	Sitting Bull Street	Country Road	**D**
E North Street	I-90 Ramp Terminal	E Mall Drive	**D**
Soo San Drive	Range Road	W Main Street	**D**
Canyon Lake Drive	Sheridan Lake Road	Mountain View Drive	**D**
Eglin Street	Luna Avenue	W of E North Street	**D**
E North Street	E Anamosa Street	I-90	**D**
Deadwood Avenue	Universal Drive	I-90 Ramp Terminal	**E**
N Elk Vale Road	I-90 Ramp Terminal	E Mall Drive	**E**
E Anamosa Street	N Maple Avenue	Racine Street	**E**
W Omaha Street	Deadwood Avenue	Mountain View Road	**E**
U.S. 16	Neck Yoke Road	0.5 miles north	**E**
Eglin Street	N Lacrosse Street	Luna Avenue	**E**
E North Street	N Campbell Street	E Anamosa Street	**E**

Corridors experiencing recurring peak hour congestion are potential candidates for future capacity projects, such as widening, additional turn lanes, access management, and additional enhancements that can improve peak-hour traffic flow conditions.

Figure 14: Estimated Planning Level of Service, 2023



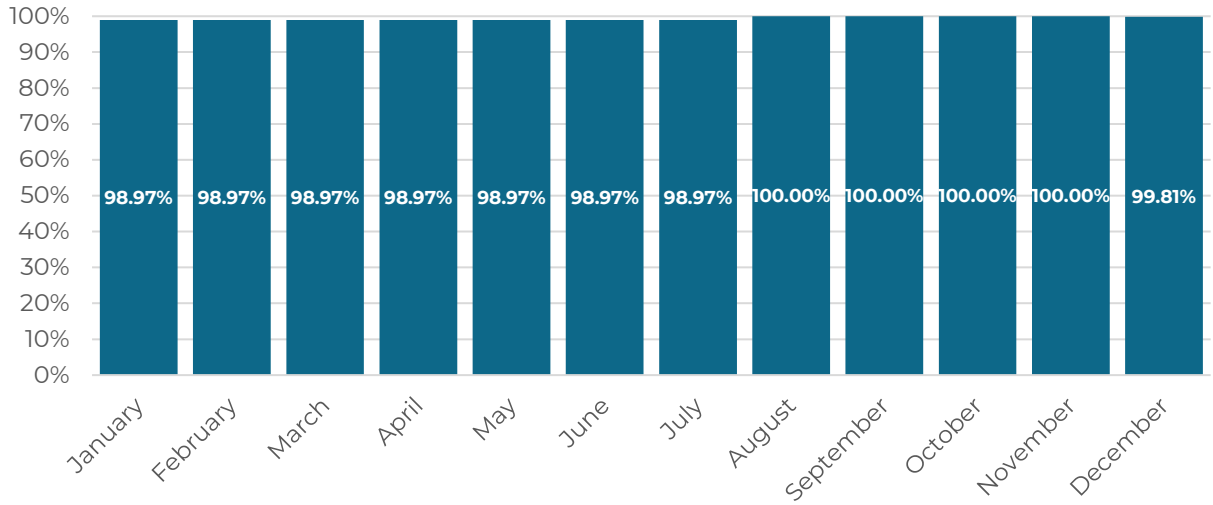
Travel Reliability

Travel reliability assesses the predictability of passenger and freight truck travel times across a corridor and is a measure RCAMPO is required to report. The idea behind analyzing travel reliability is to understand streets and roads that are unreliable or demonstrate unpredictable travel times; while a certain street or road segment may have recurring peak hour congestion issues, the ability of travelers to anticipate delay and build this consideration into their trip planning would indicate that the segment is reliable. Passenger travel reliability is reported to FHWA using the Level of Travel Time Reliability (LOTTR) measure, while freight truck travel reliability is reported using the Truck Travel Time Reliability Index (TTTRI).

Data sourced from the National Performance Management Research Dataset (NPMRDS) was reviewed for the year 2024 to evaluate monthly passenger and freight truck travel reliability performance of RCAMPO's NHS. **Figure 15** through **Figure 17** tracks the percentage of reliable Interstate and non-Interstate NHS person-miles traveled and reliable Interstate truck-miles traveled by month.

Figure 15 summarizes monthly performance for the reliability of person-miles traveled on the Interstate system within the MPO region during 2024. As the figure indicates, monthly performance on the Interstate system was at 98.97% or better each month, with several months recording 100% of person-miles traveled as reliable.

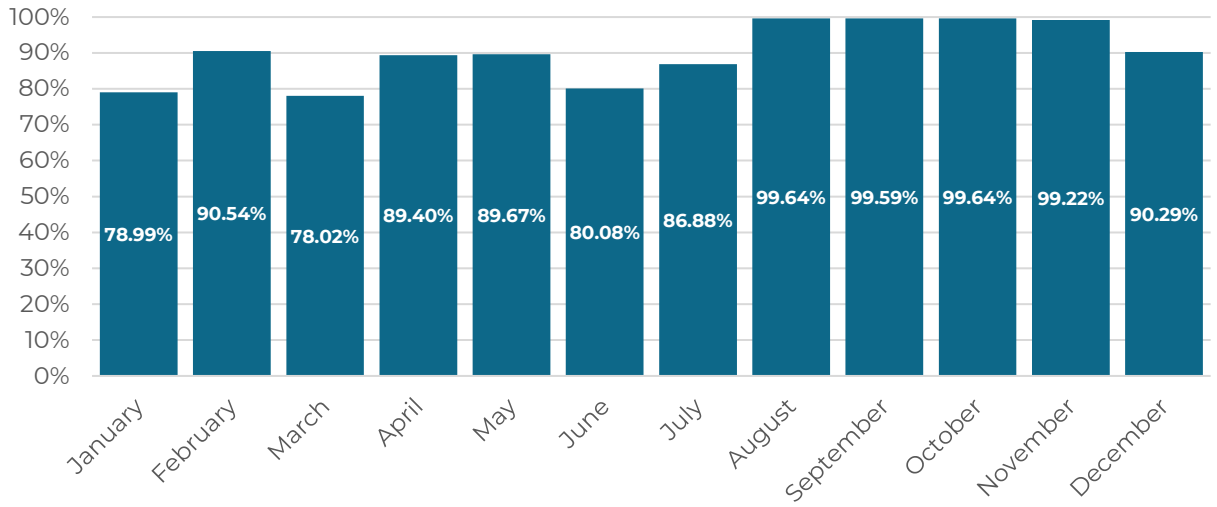
Figure 15: Percent of Interstate Person-Miles Traveled that Were Reliable by Month, 2024



Source: National Performance Management Research Dataset, 2024

Figure 16 summarizes monthly performance for the reliability of person-miles traveled on the non-Interstate NHS system within the MPO region during 2024. As the figure indicates, monthly performance on the non-Interstate system experienced substantial fluctuations when compared to the Interstate system, which can be attributed to a range of factors impacting travel conditions including construction, winter weather, and crashes.

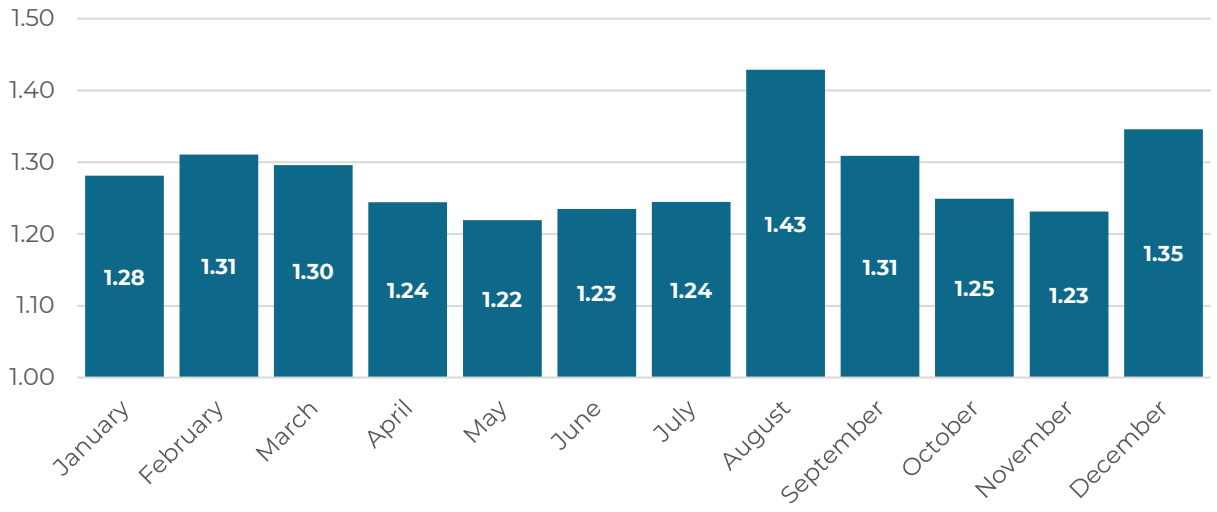
Figure 16: Percent of non-Interstate NHS Person-Miles Traveled that Were Reliable by Month, 2024



Source: National Performance Management Research Dataset, 2024

Figure 17 summarizes monthly TTTR performance on the Interstate system within the MPO region during 2024. As the figure indicates, monthly TTTR performance on the Interstate system ranged from a low of 1.22 in May to a high of 1.43 in August; it is noted that a TTTR value of 1.25 or below is considered reliable.

Figure 17: Interstate Truck Travel Reliability by Month, 2024



Source: National Performance Management Research Dataset, 2024

Asset Conditions

Asset conditions refer to the current physical conditions of RCAMPO's bridge structures and street and roads pavement. The review of baseline asset conditions was conducted to reflect RCAMPO's federal performance measure reporting requirements that obligate the MPO to report annual conditions of Interstate and non-Interstate bridge structures and pavement.

Pavement Conditions

Preserving existing pavement conditions is a major responsibility of RCAMPO and its member jurisdictions as annual maintenance costs comprise a large share of annual transportation expenditures. Baseline pavement conditions for the Interstate and non-Interstate MPO were reviewed using 2023 Highway Performance Monitoring System (HPMS) data reported for the state of South Dakota.

To align with federal performance measure reporting for pavement conditions, the 2023 HPMS data for the state of South Dakota was analyzed to derive "Good," "Fair," and "Poor" condition ratings. These ratings are calculated based on each Interstate and non-Interstate segments pavement data that looks at pavement roughness (IRI), rutting, cracking, and faulting; based on the data recorded for each of these factors, a composite condition rating is assigned to each segment. **Figure 18** shows the resulting Interstate and non-Interstate pavement condition ratings. **Table 9** summarizes pavement conditions for the Interstate and non-Interstate NHS by condition rating.

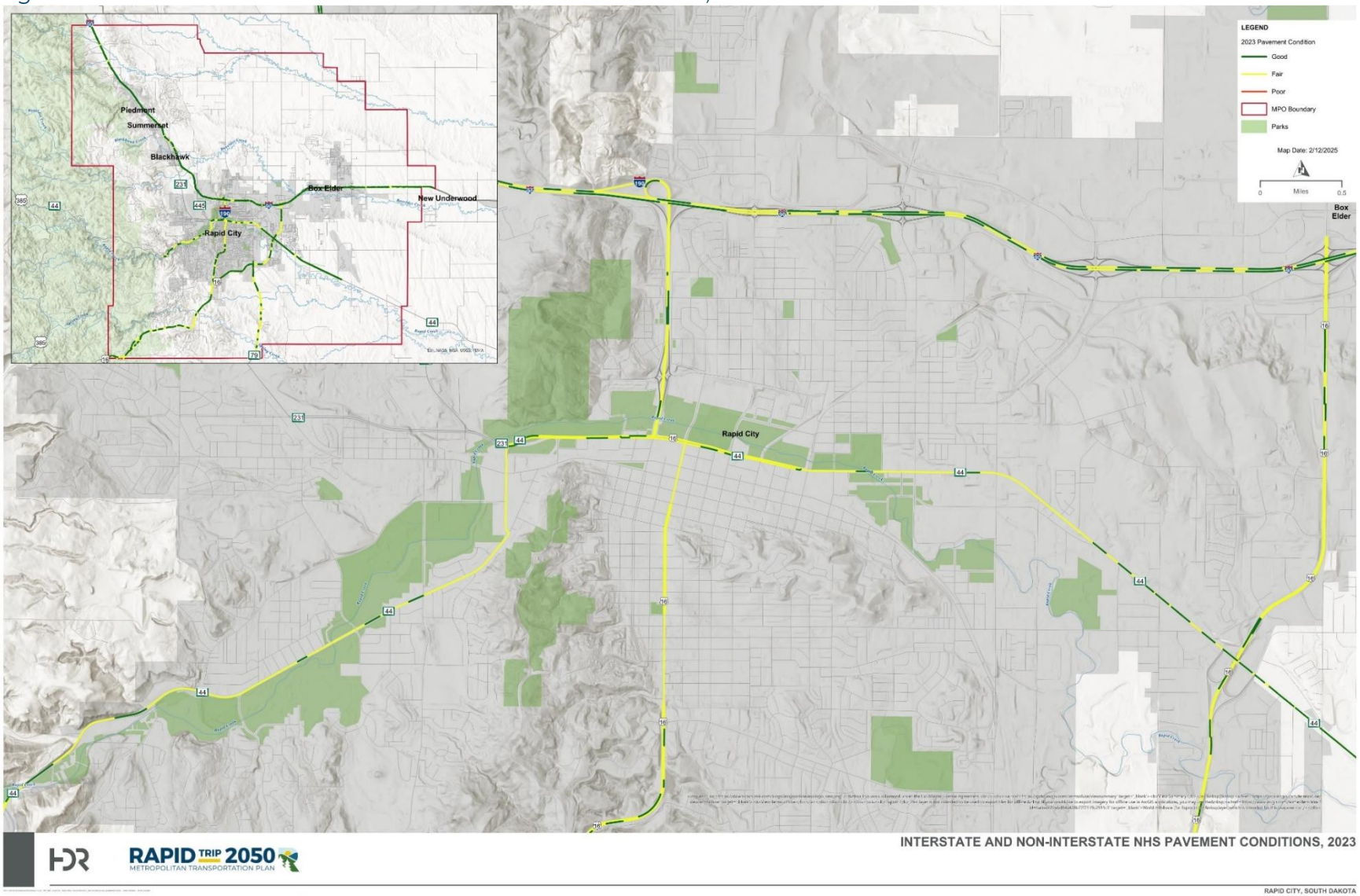
Table 9: Pavement Conditions for RCAMPO's Interstate and Non-Interstate NHS Routes, 2023

System	Good		Fair		Poor	
	Lane Miles	Percent of Lane Miles	Lane Miles	Percent of Lane Miles	Lane Miles	Percent of Lane Miles
Interstate	226.36	56.1%	176.98	43.9%	0.00	0.0%
Non-Interstate NHS	126.71	24.5%	390.81	75.5%	0.00	0.0%

Source: Federal Highway Administration, Highway Performance Monitoring System

As **Figure 18** shows, all Interstate and non-Interstate NHS pavements were rated as being in at least Fair condition. Most Interstate route pavement was rated as being in Good condition with several locations demonstrating Fair condition. Non-Interstate NHS routes show a wider variation in terms of Good and Fair pavement conditions.

Figure 18: Interstate and Non-Interstate NHS Pavement Conditions, 2023



Bridge Conditions

Bridges serve a key role in transportation networks as they provide connectivity across geographic or other physical barriers. Today, there are 171 bridge structures registered with FHWA's National Bridge Inventory (NBI). Registration with the NBI is required for any publicly owned bridge or culvert longer than twenty feet and located on a public street or road.

Federal performance measure reporting requirements obligate RCAMPO to report the condition of all Interstate and non-Interstate NHS structures using a Good, Fair, or Poor rating that is based on the most inspection report for the structural elements of each facility. Each structural element is rated on a scale of 0, or failed condition, to 9, or excellent condition, and the overall bridge condition is determined by the lowest-rated structural element. Good, Fair, and Poor scores are considered to be:

- **Good**: Lowest rated structural element is 7 or higher.
- **Fair**: Lowest rated structural element is between 5 or 6.
- **Poor**: Lowest rated structural element is 4 or lower.

NBI data for the RCAMPO region was reviewed to understand the current conditions of the MPO's bridge structures. Overall, a total of 171 structures are within the RCAMPO boundary with 51 of these bridges found on the NHS and the remaining 120 designated as non-NHS bridges as shown in **Table 10**. In terms of structure conditions by deck area, roughly 44 percent of NHS bridges are rated as being in Good condition while approximately 56 percent are rated as being in Fair condition (**Table 11**).

Figure 19 shows the locations and conditions of RCAMPO's bridge structures.

Table 10: RCAMPO's NHS and Non-NHS Bridges by NBI Condition Rating

Condition	NHS Bridges		Non-NHS Bridges		All Bridges	
Good	20	39.2%	45	37.5%	65	38.0%
Fair	31	60.8%	65	54.2%	96	56.1%
Poor	0	0.0%	10	8.3%	10	5.8%
Total	**51**		**120**		**171**	

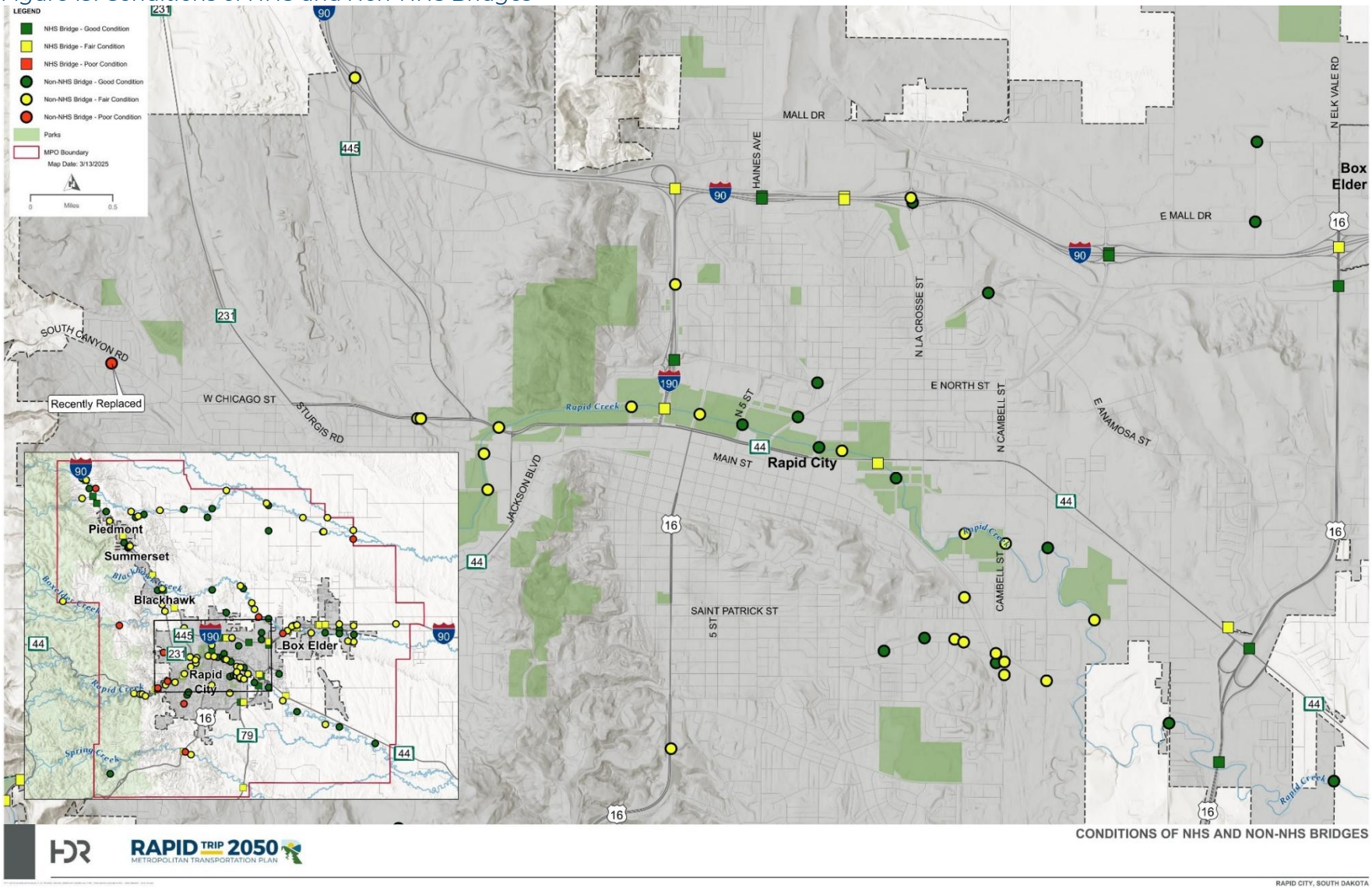
Source: Federal Highway Administration, *National Bridge Inventory*

Table 11: RCAMPO's NHS and Non-NHS Bridge Deck Areas by NBI Condition Rating

Condition	NHS Bridges Deck Area		Non-NHS Bridges Deck Area		All Bridges Deck Area	
Good	19,654	43.7%	12,988	25.7%	32,642	34.2%
Fair	25,302	56.3%	35,567	70.3%	60,869	63.7%
Poor	-	0.0%	2,071	4.1%	2,071	2.2%
Total	**44,955**		**50,626**		**95,582**	

Source: Federal Highway Administration, *National Bridge Inventory*

Figure 19: Conditions of NHS and Non-NHS Bridges



Multi-modal System Conditions

RCAMPO's current transportation system goes beyond the streets and roads network and includes freight, bicycle and pedestrian, transit, and intercity modes that provide additional mobility options for system users. This section of the report summarizes the region's existing multi-modal transportation system.

Freight System

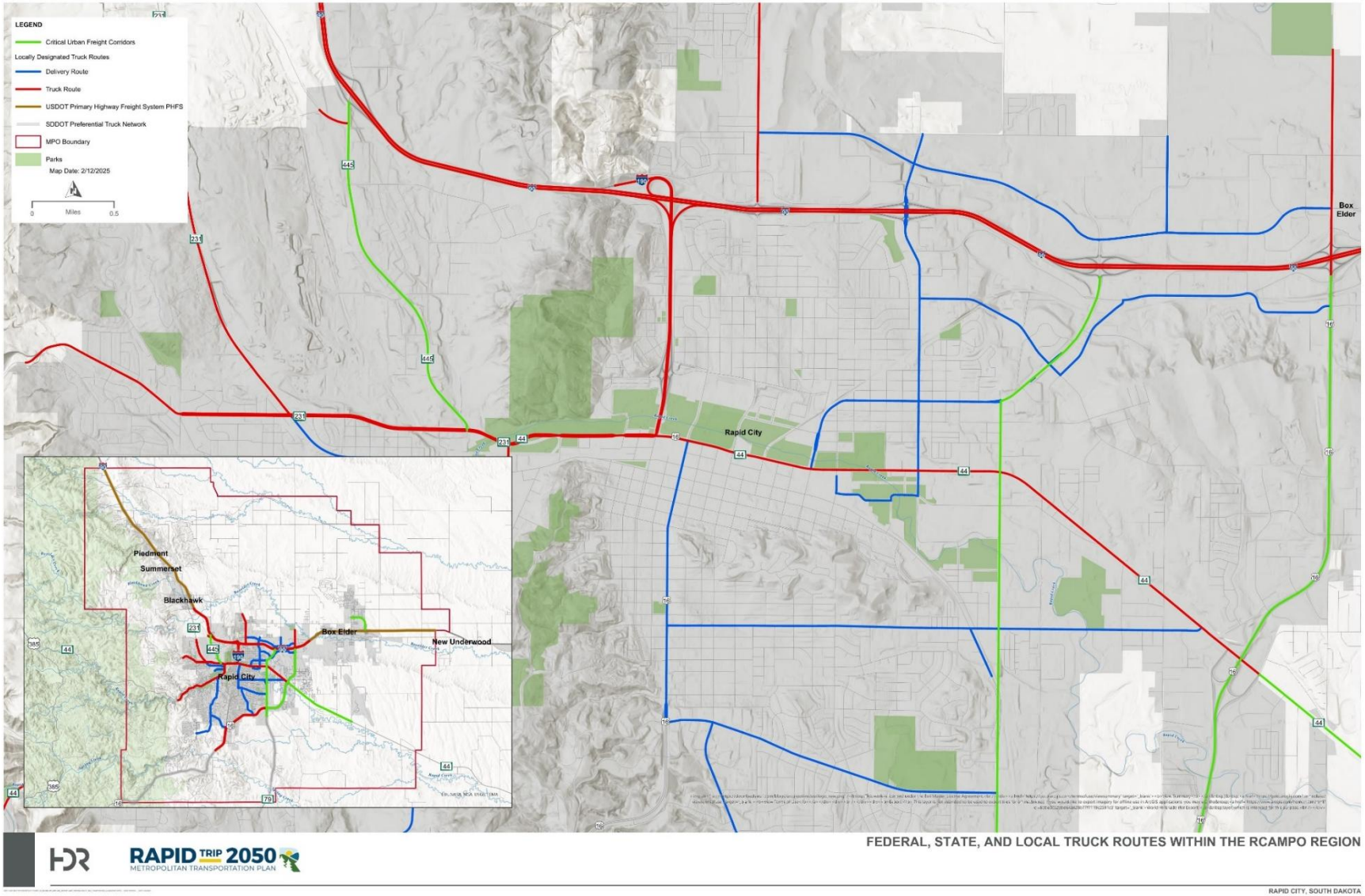
The region's multi-modal freight network is a key driver of the regional economy it facilitates the movement of goods and services via trucks, rail, air, and pipelines.

Highway Freight

The major highway freight facilities within the RCAMPO region include a series of federally- and locally-designated routes that serve the mobility and connectivity needs of freight trucks traveling in and through the region.

Federal, state, and locally designated freight routes within the RCAMPO region are shown in **Figure 20**.

Figure 20: Federal, State, and Local Truck Routes within the RCAMPO Region



Rail Freight

Rail freight plays a critical role in supporting South Dakota's economy. Within the context of the RCAMPO region, freight rail activities are operated by the Class II regional railroad Rapid City, Pierre, and Eastern Railroad (RCPE), which is a Class II railroad that owns 577.6 miles of trackage within the state.[5] **Figure 21** shows the RCPE line located within the MPO boundary.

Locations at which railroads cross highways or other streets and roads illustrate important interactions between modes. Safety for vehicle and train users is a paramount concern as crashes involving these modes often result in serious injuries or even fatalities. Within the RCAMPO region there are 59 public rail crossings, and 53 of these are at-grade while the remaining 6 are positioned as railroad under crossings (**Table 12**). **Figure 21** shows RCAMPO's public rail crossings by crossing position.

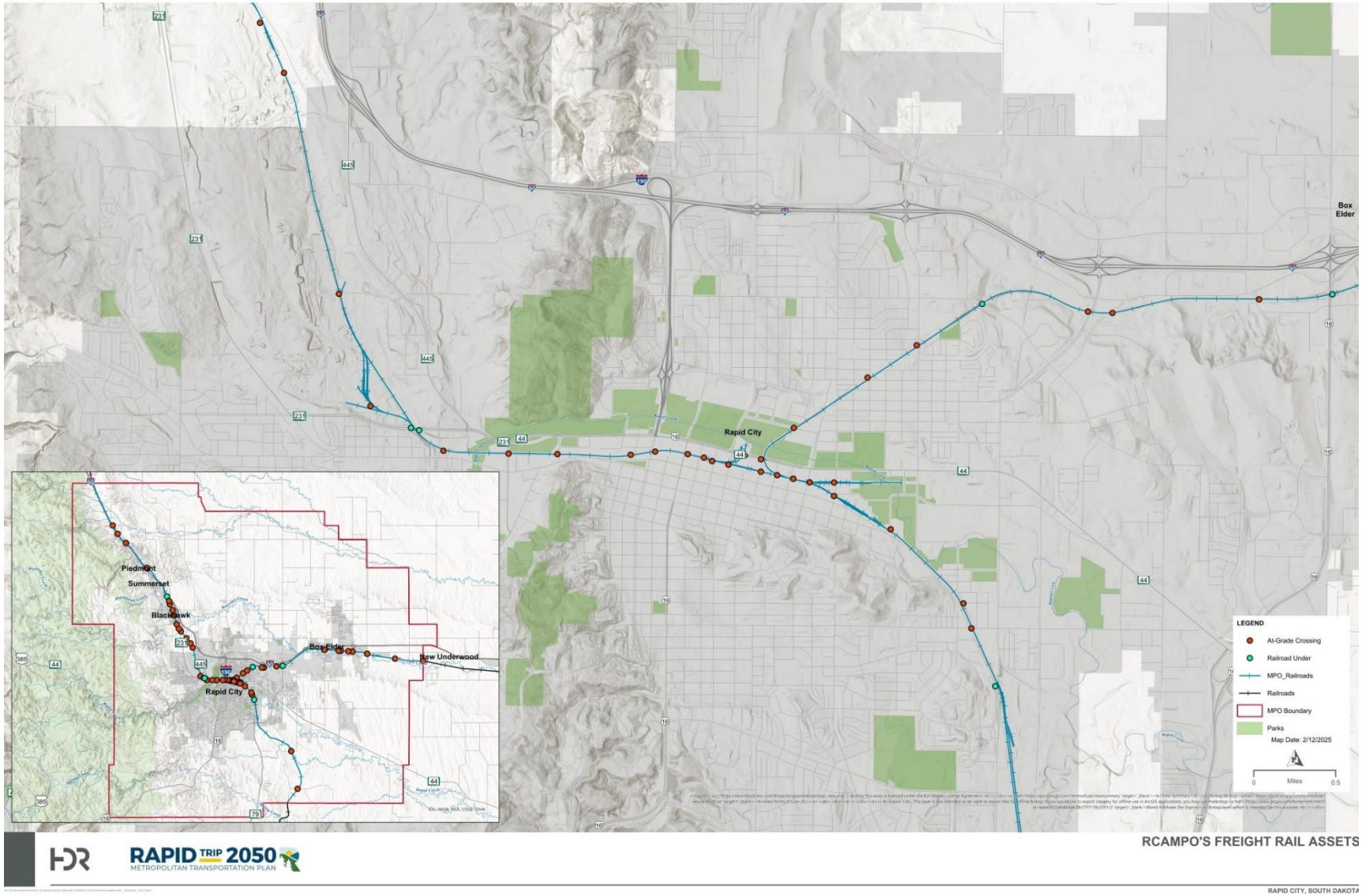
Table 12: Public Rail Crossings in the RCAMPO Region

Crossing Position	Count
At-Grade	53
Railroad Under	6
Total	**59**

Source: Federal Railroad Administration, FRA Safety Map

[5] South Dakota Department of Transportation, *2022 South Dakota State Rail Plan.*

Figure 21: RCAMPO's Freight Rail Assets



Air Freight

Air freight services within the RCAMPO region are facilitated at the Rapid City Regional Airport. These air freight services are operated by two carriers—FedEx and UPS. South Dakota's 2023 State Freight Plan notes that historically, statewide air freight activities have been limited compared to other more populous states but the role of this freight mode has risen within the cities of Rapid City and Sioux Falls. As the RCAMPO region continues to grow and evolve, air freight is expected to continue increasing its role in the region's freight system owing to the rise in the e-commerce.

All-cargo landed weight data is a measure of air freight activities across the nation's airports and is collected annually by the Federal Aviation Administration (FAA). FAA reports this information for qualifying airports, and 2023 was the first year in which the Rapid City Airport qualified for inclusion on the list based on all-cargo landed weight at the facility which totaled 19,860,100 pounds.[6]

Pipelines

Pipelines are transportation facilities that play a key role within national and local freight systems through efficiently transporting liquid and gas products, such as petroleum and natural gas, over long distances. Today, there are two active pipelines within the RCAMPO region:

Pipeline Operator	Product Type	Location
Magellan Pipeline Company	Hazardous Liquid	Pennington County
WBI Energy	Gas Transmission	Pennington County; Meade County

[6] Federal Aviation Administration, *Calendar Year 2023 All-Cargo Landed Weight.*

Bicycle and Pedestrian System

RCAMPO's bicycle and pedestrian network provides connections and access to regional destinations while supporting active transportation modes. This review of existing bicycle and pedestrian facilities is based on RCAMPO's 2020 Bicycle and Pedestrian Master Plan and identifies key active transportation infrastructure for the region's bicyclists and pedestrians.

Existing Bicycle Facilities

Users of RCAMPO's regional bicycle network can use a range of facilities found throughout the area. This bicycle infrastructure includes off-street facilities such as shared-use paths, separated bikeways, and sidepaths, as well as on-street facilities including bike lanes, paved shoulders, and sharrows/shared lane markings. **Table 13** summarizes the types of bicycle facilities that exist within the RCAMPO region today.

Table 13: Existing On-Street and Off-Street Bicycle Facilities within the RCAMPO Region

Facility Type	Description
On-Street Facilities	
Bike Lane	- Dedicated space within right-of-way for preferential use by bicyclists. - One-way facilities that typically carry bicycle traffic in the same direction as motorized traffic. - Used in locations with limited right-of-way, lower travel speeds and volumes.
Shoulder Bikeway	- Portion of the roadway contiguous with the traveled way that accommodates stopped vehicles, emergency use, and lateral support of subbase, base, and surface courses. - Often used by bicyclists.
Sharrow/Shared Lane Marking	- Marking alerts road users to the lateral position bicyclists are likely to occupy within the traveled way to be most visible to drivers and to help avoid conflicts with parked cars. - Used in locations to connect adjacent bicycle facilities and along neighborhood bikeways. - Can provide wayfinding guidance for bicyclists.
Off-Street Facilities	
Shared Use Path	- Physically separated from motorized traffic by an open space or barrier within the right-of-way or within an independent right-of-way. - Designated typically for two-way pedestrian and bicycle traffic. - Often run parallel to roadways, following alignment through natural areas and parks and along corridors with limited crossings like waterfronts, creeks, and current/former railroad lines.
Separated Bike Lane	- Physically separated lane for bicycles using a vertical element within a buffer area such as bollards, parked vehicles, raised curbs, or landscaping/plants. - Used in locations where physical protection and separation is required to improve bicyclist comfort. - Also known as a cycle track or protected bikeway.

Source: Rapid City Area MPO, 2020 Bicycle and Pedestrian Master Plan

Figure 22 shows the existing bicycle network for the RCAMPO region based on the facilities identified in the 2020 Bicycle and Pedestrian Master Plan. This network was updated to include two additional shared use paths that were constructed since the publication of the 2020 Bicycle and Pedestrian Master Plan, based on a review of RCAMPO's 2021 through 2025 Transportation Improvement Programs (TIPs). These facilities include:

- **Campbell Street (Rapid City)**, from Rocker Drive north to E Omaha Street/Highway 44
- **Briggs Street (Box Elder)**, from Patriot Drive south to Villa Drive, Villa Drive from Briggs Street east to N Ellsworth Road, N Ellsworth Road south to Frontage Road
- **E Omaha Street/Highway 44**, from Cambell Street to Mickelson Drive

Existing Pedestrian Facilities

The RCAMPO's predominate network for pedestrian activity is the area's sidewalk system that can be found along the region's arterial, collector, and local streets and roads. Sidewalks are found along both sides of certain streets and roads within the region while others have sidewalk facilities on only one side.

Supplementing the region's sidewalk network are RCAMPO's collection of shared-use paths and sidepaths that also facilitate mobility for pedestrians, especially in natural recreation areas such as parks.

Figure 23 shows RCAMPO's existing pedestrian network.

Figure 22: Existing Bicycle Facilities

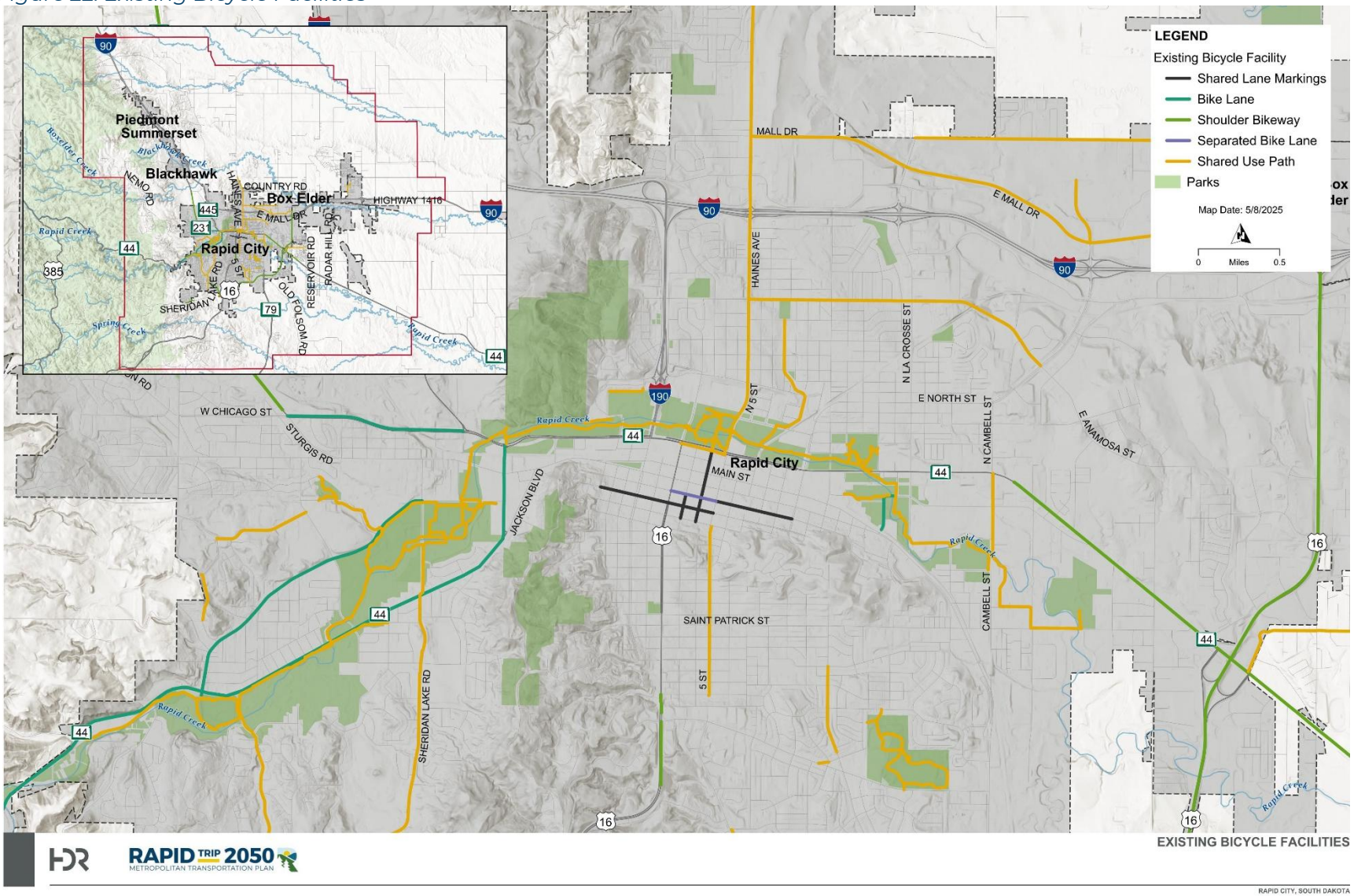
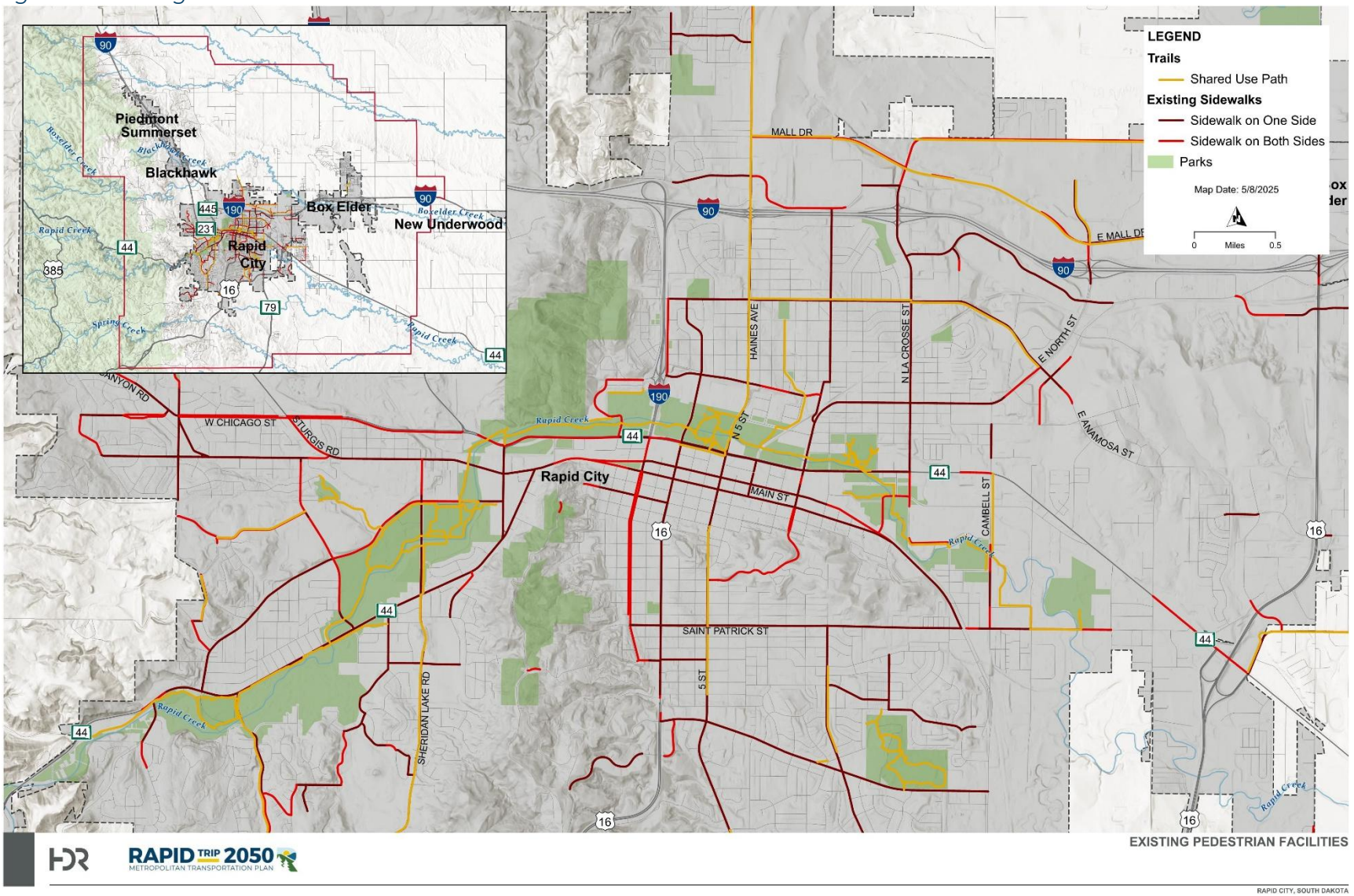


Figure 23: Existing Pedestrian Facilities



Transit System

Public transit services within the RCAMPO region include fixed-route and door-to-door paratransit (Dial-a-Ride) services, as well as a seasonal City View Trolley service oriented to tourists that offers guided tours of local points of interest.[7] Fixed-route and Dial-a-Ride services are operated by Rapid Transit System (RTS), which is the region's public transit agency. Additional non-RTS operated transit services are in the RCAMPO region and include Prairie Hills Transit, which operates deviated fixed-route and demand-response services to communities surrounding the city of Rapid City, and non-profit organizations such as Black Hills Works, the YMCA, and Youth and Family Services.

The main document governing public transit planning within the RCAMPO region is the MPO's Transit Development Plan (TDP) that provides strategic guidance for planning and implementing service and capital improvements for RTS. RCAMPO's current TDP was adopted in 2022.

Transit System Overview

Rapid Transit System Fixed-Route

RTS' current fixed-route service includes 6 regular routes that run on weekdays and Saturdays. Each route acts as an alternating loop beginning and ending at the Milo Barber Transportation Center in downtown Rapid City. Weekday service begins at 6:20 AM and final service departs at 5:25 PM. Saturday service begins at 9:50 AM and final service departs at 4:15 PM.

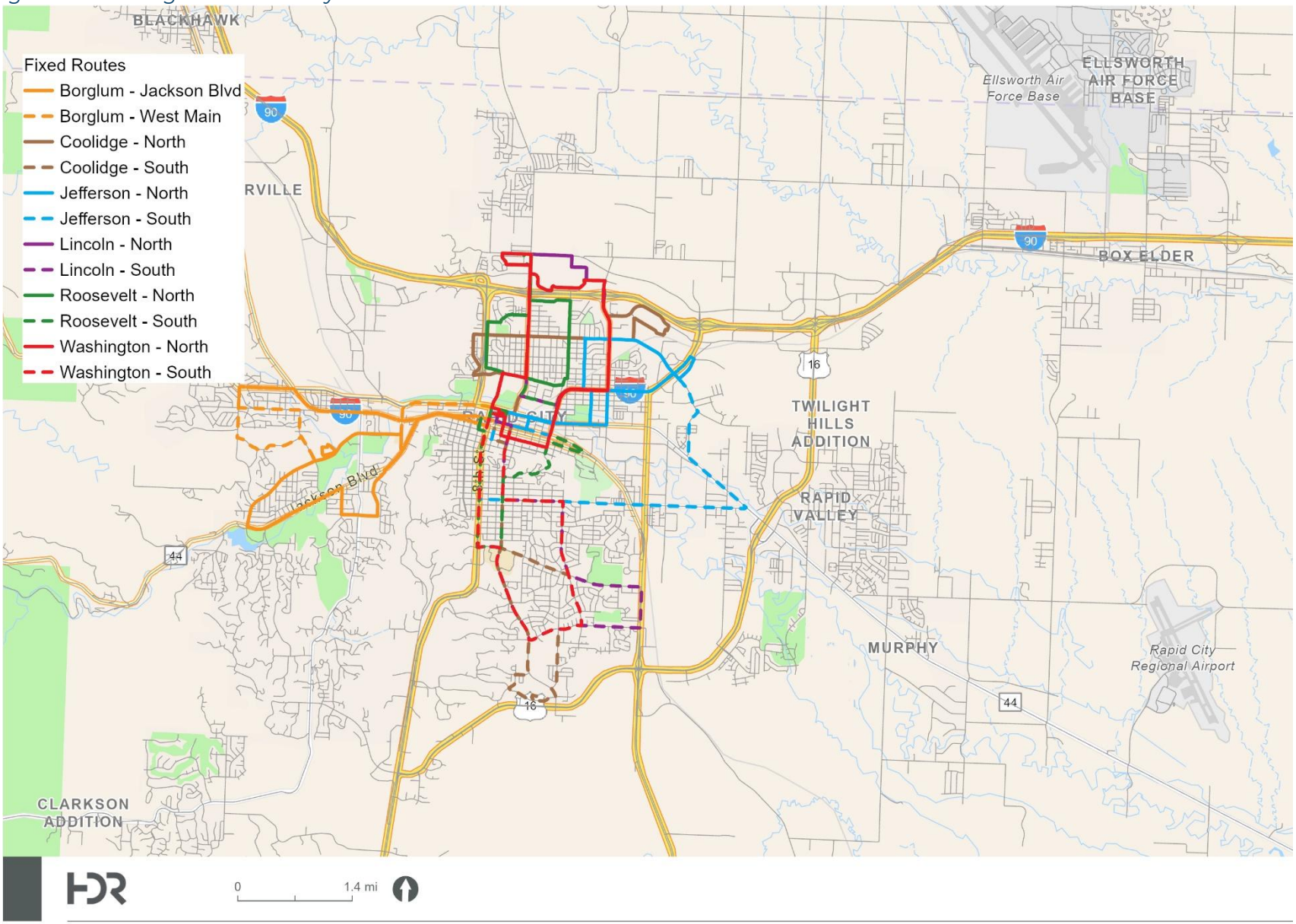
Figure 24 illustrates RTS' current fixed-routes.

Rapid Transit Dial-a-Ride

RTS' current Dial-a-Ride service is intended provide transit services to individuals unable to use fixed-route services due to disability. Qualified users of this service can schedule rides to anywhere within the limits of Rapid City between the hours of 6:20 AM to 5:40 PM on weekdays, and 8:00 AM to 5:40 PM on Saturdays.

[7] Rapid City Metropolitan Planning Organization, *2022 Transit Development Plan.*

Figure 24: Existing Fixed-Route System



Intercity Transportation

Besides the use of personal vehicles to travel between the Rapid City Area and other cities, there are additional intercity travel choices to and from the area.

Aviation

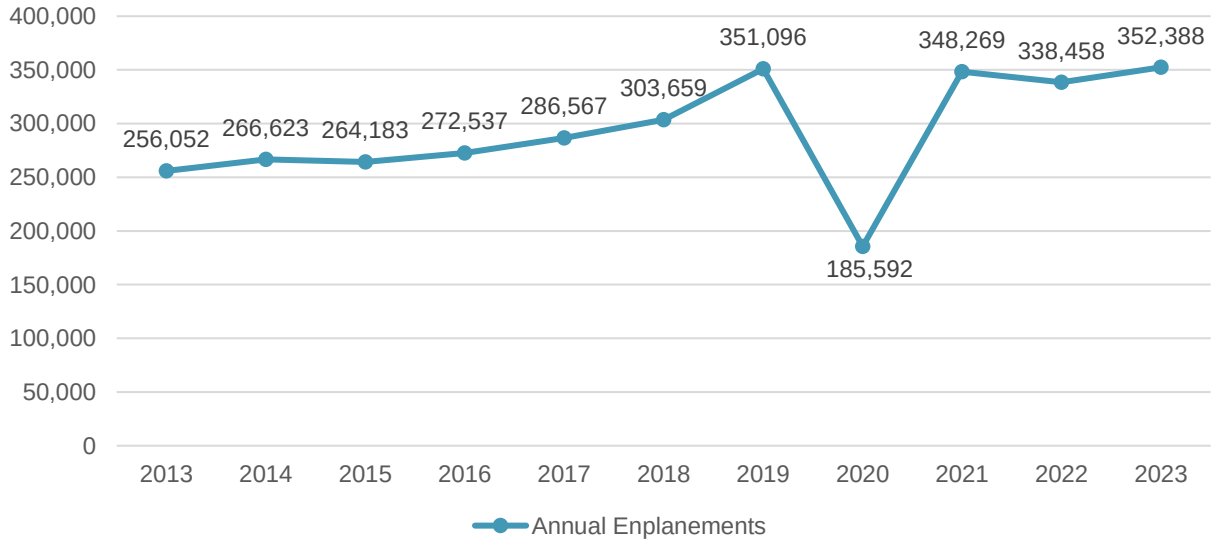
The Rapid City Regional Airport is the only commercial and general aviation airport within the Rapid City MPO area and is the second largest airport in South Dakota. The airport serves as important gateway for regional travelers, including visitors to popular nearby destinations such as the Black Hills and Mount Rushmore National Memorial.

Airlines and connections to the Rapid City Regional Airport include:

- **Allegiant Air**: Flights to Phoenix, AZ, Orlando, FL, Las Vegas, NV, and Los Angeles, CA
- **American Airlines**: Flights to Charlotte, NC, Chicago, IL, and Dallas, TX
- **Delta Airlines**: Minneapolis, MN
- **United Airlines**: Chicago, IL and Denver, CO
- **Sun Country Airlines**: Minneapolis, MN (summer months only)

Figure 25 displays the annual enplanements at the Rapid City Regional Airport between 2013 and 2023. As shown in the figure, enplanements were on a steady increase between 2013 and 2019, until taking a sharp decrease in 2020 due to the COVID-19 pandemic. In 2021, enplanements increased close to the 2019 level, and have remained steady between 2021 and 2023. Enplanements grew from a 2022 level of 338,458 to 352,388 in 2023, and have begun to exceed pre-pandemic levels.

Figure 25: Annual Enplanements for the Rapid City Regional Airport, 2013 - 2023



Source: Federal Aviation Administration, Rapid City Area Airport

Intercity Bus System

The primary intercity bus service provider for the RCAMPO region is Jefferson Lines, with the bus depot located in downtown Rapid City. Jefferson Lines connects Rapid City to other regional communities such as Pierre, Sioux Falls, Brookings, and Gillette, WY.

Source: Jefferson Lines

Passenger Rail

Passenger rail services are not currently offered within the RCAMPO region.

Chapter 6: Future Trends and Needs

As the RCAMPO region continues to grow and evolve, it is essential to gain an understanding of how this future growth could impact travel demand and the operation and condition of the region's multi-modal transportation system through the year 2050. This chapter of Rapid Trip 2050 describes future growth forecasts and the resulting estimation of this growth on future travel demand.

Anticipated Growth in the RCAMPO Region Through 2050

Future growth estimates for RCAMPO's population, number of households, and number of jobs were developed through the compilation of future land use plans for RCAMPO's member agencies. The growth estimates represent forecasts that use a base year of 2022 and extend through Rapid Trip 2050's planning horizon year of 2050. It is noted that the growth forecasts are not intended to guide decision-making related to future land use and zoning, but rather provide a baseline for analyzing the future performance of the region's multi-modal transportation system.

Forecasted growth in RCAMPO's population, households, and employment is summarized in **Table 14**. The region's population is anticipated to grow from 112,394 in 2022 to just over 131,000 by the year 2050, marking a total growth of 16.6%. Growth in the region's number of households is expected to follow a similar trend, from a 2022 level of 55,018 to 64,324 in 2050 or 16.9%. Regional employment forecasts show a slightly lower growth rate when compared to population and households, growing from a 2022 level of 75,281 to 85,291 in 2050 or a total growth of 13.3%.

Table 14: Forecasted Growth in RCAMPO Population, Households, and Employment 2022-2050

Measure	2022	2050	Total Growth	Percent Total Growth
Regional Population	112,394	131,080	18,686	16.6%
Regional Households	55,018	64,324	9,306	16.9%
Regional Employment	75,281	85,291	10,010	13.3%

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Figure 26: Growth in RCAMPO Households, 2022-2050

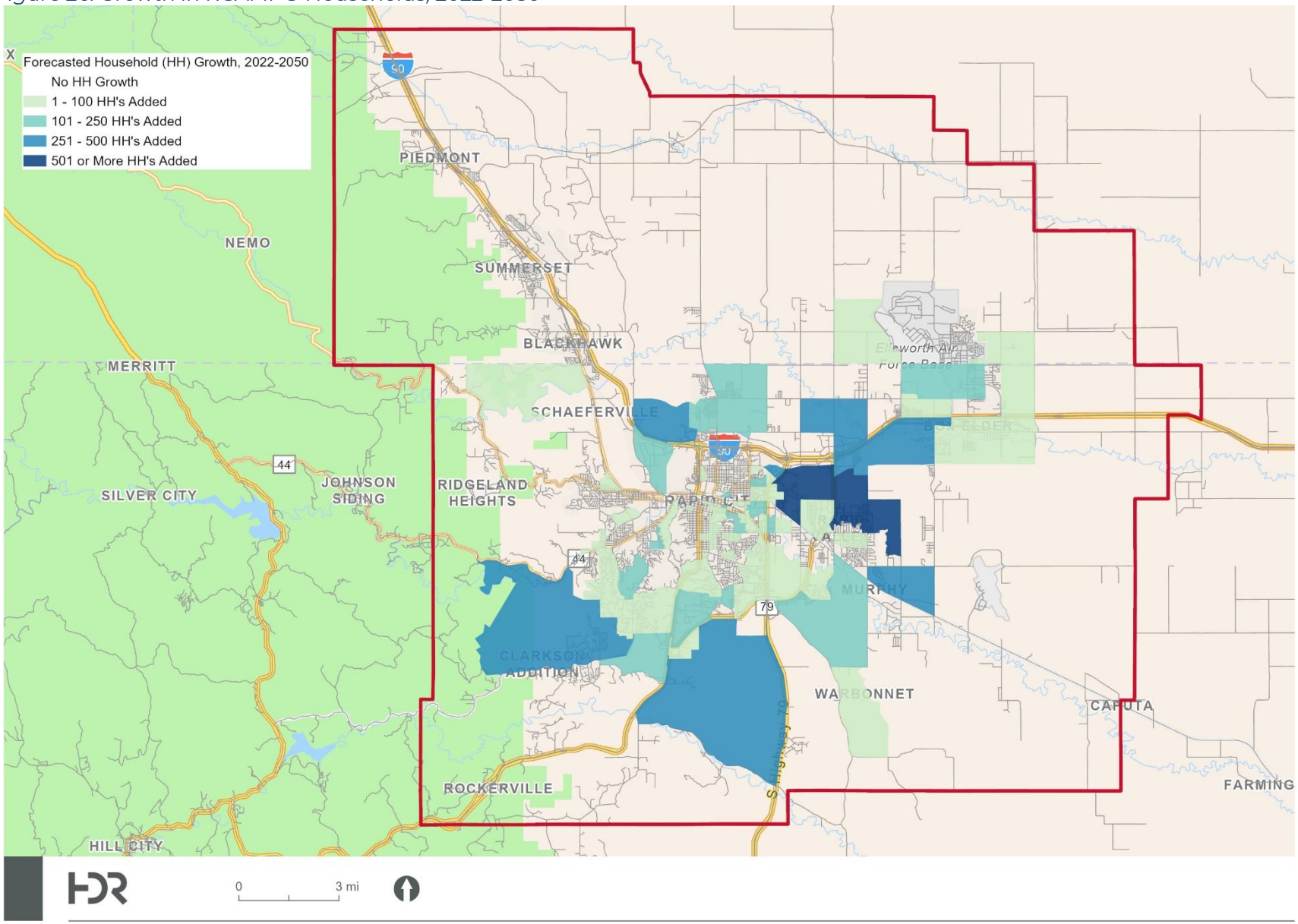

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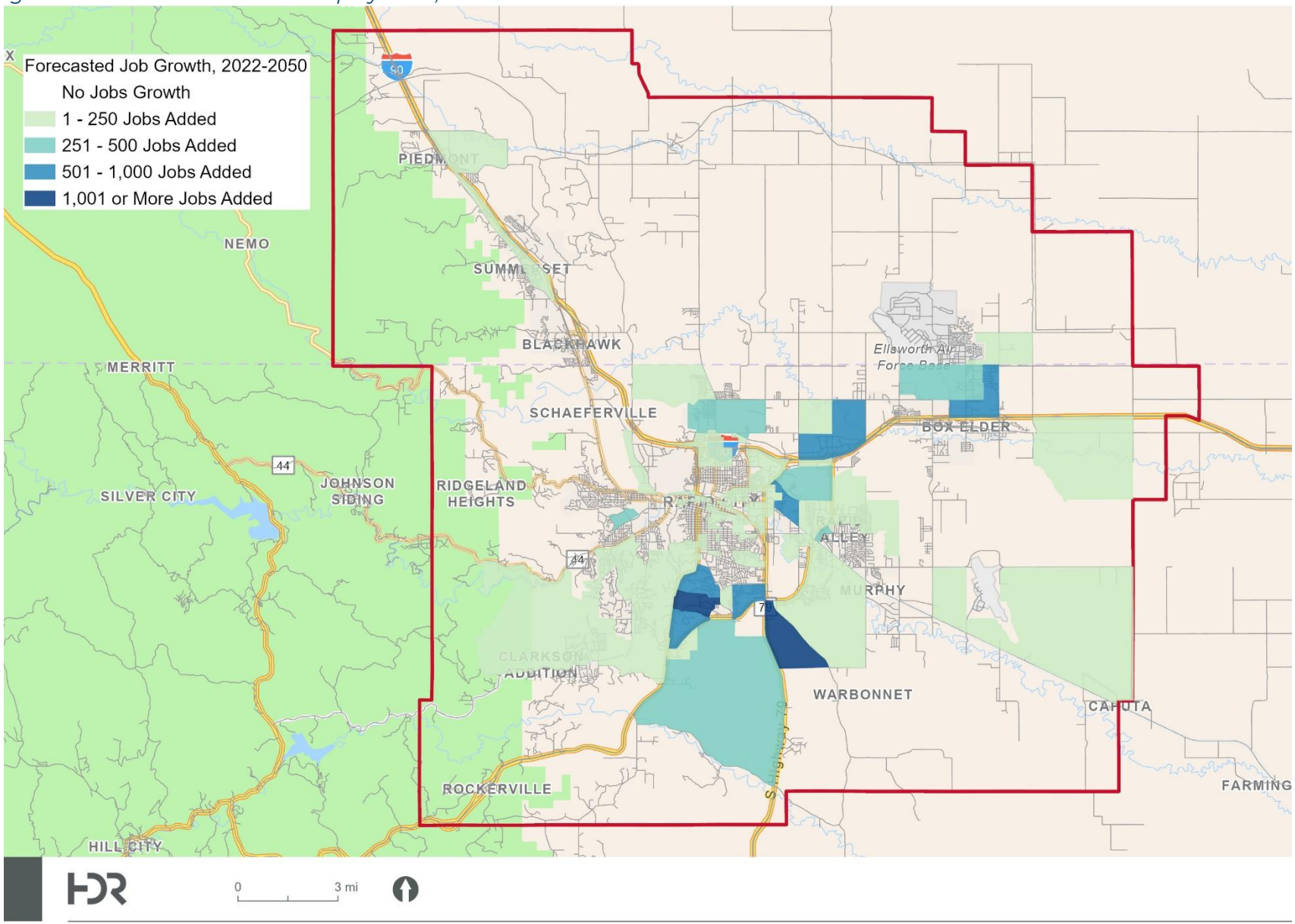
Figure 27: Growth in RCAMPO Employment, 2022-2050



Travel Demand Model

RCAMPO's Travel Demand Model (TDM) was updated as part of the development of Rapid Trip 2050, with 2022 serving as the base year and 2050 as the horizon year. The TDM is a planning tool that simulates travel and estimates travel demand based on socio-economic data such as households and jobs, and characteristics of the existing and planned transportation system. Additional information on the TDM is available in **Appendix C**.

Future Year 2050 Existing Plus Committed Scenario

The "existing plus committed" (E+C) scenario assesses the impact of the region's future growth on travel demand. The E+C scenario assumes no major improvements to the existing transportation network beyond those currently under construction, or programmed for construction in the MPO's current TIP. The major improvements included in the E+C scenario network include:

- **US 16** at Rockerville Road intersection improvements
- **US 16** at Hillside Country Cabins and Silver Mountain Road intersection improvements
- **E Mall Drive** from Seger Drive to Bennett Road extension
- **Twilight Drive** from Ennen Drive to Radar Hill Road extension
- **Sheridan Lake Road** from Catron Boulevard to Corral Drive capacity improvements

E+C Traffic Growth and Forecasted Operations

Future year traffic operations for the 2050 E+C scenario were analyzed to gain insight into how estimated household and job growth could impact future travel demand under the E+C condition. The first analysis looked at forecasted growth in traffic volumes between the year 2022 and 2050. **Figure 28** illustrates how traffic volumes are expected to grow between 2022 and 2050 under the E+C scenario.

Supplementing the analysis of forecasted growth in traffic volumes was a look at estimated traffic operations for the E+C scenario. The future year traffic operations were analyzed using the same approach outlined in the Baseline Conditions chapter. Future year traffic volumes were derived from the forecasts estimated in the E+C scenario modeled traffic flows while the capacities used to calculate future year LOS were carried forward from the existing LOS analysis; capacities for any roadways that were identified as having planned capacity improvements in the E+C scenario were updated to reflect their future conditions. **Figure 29** presents the estimated future LOS under the E+C scenario.

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Figure 28: Forecasted Growth in Traffic Volumes for the E+C Traffic Scenario

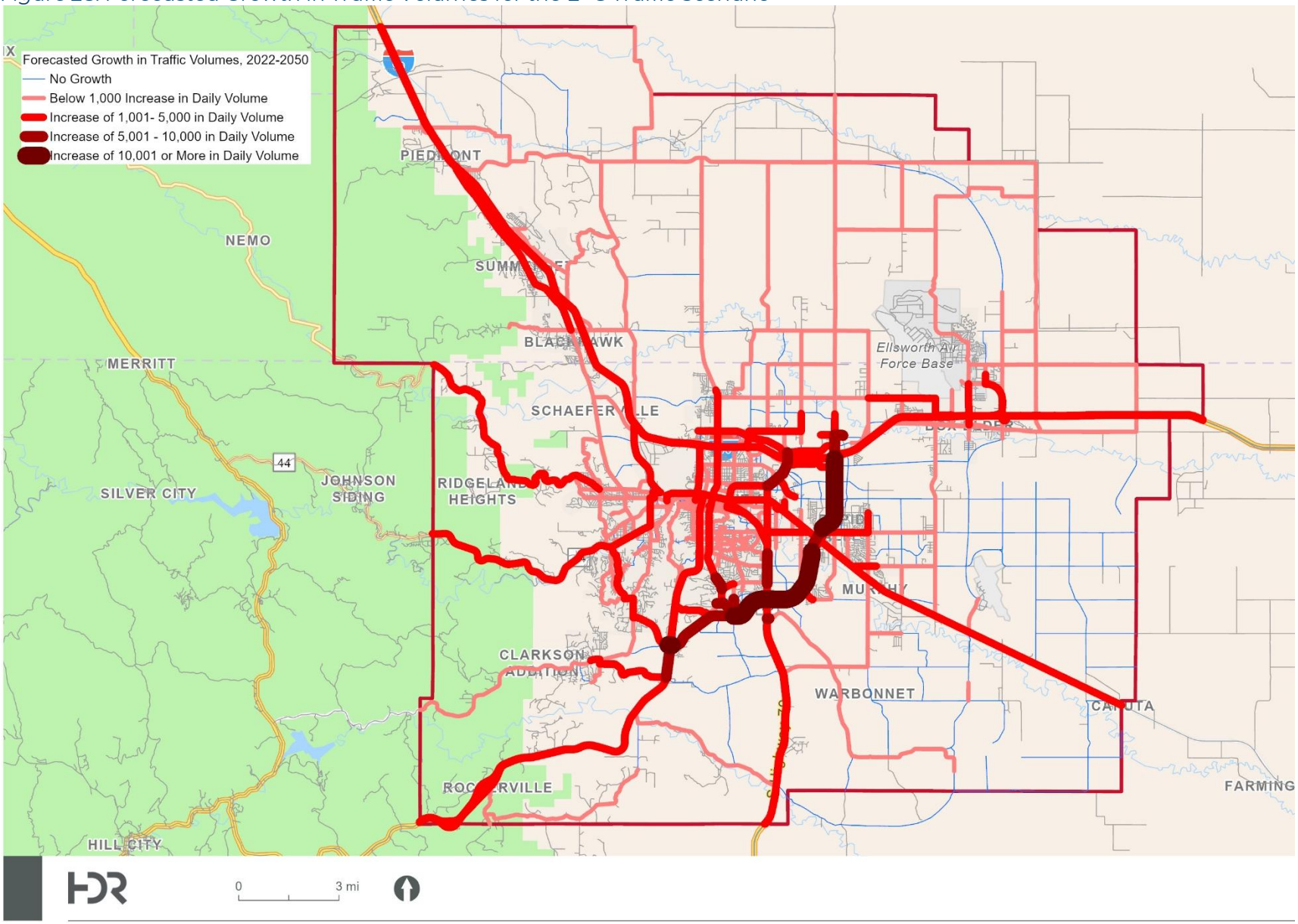

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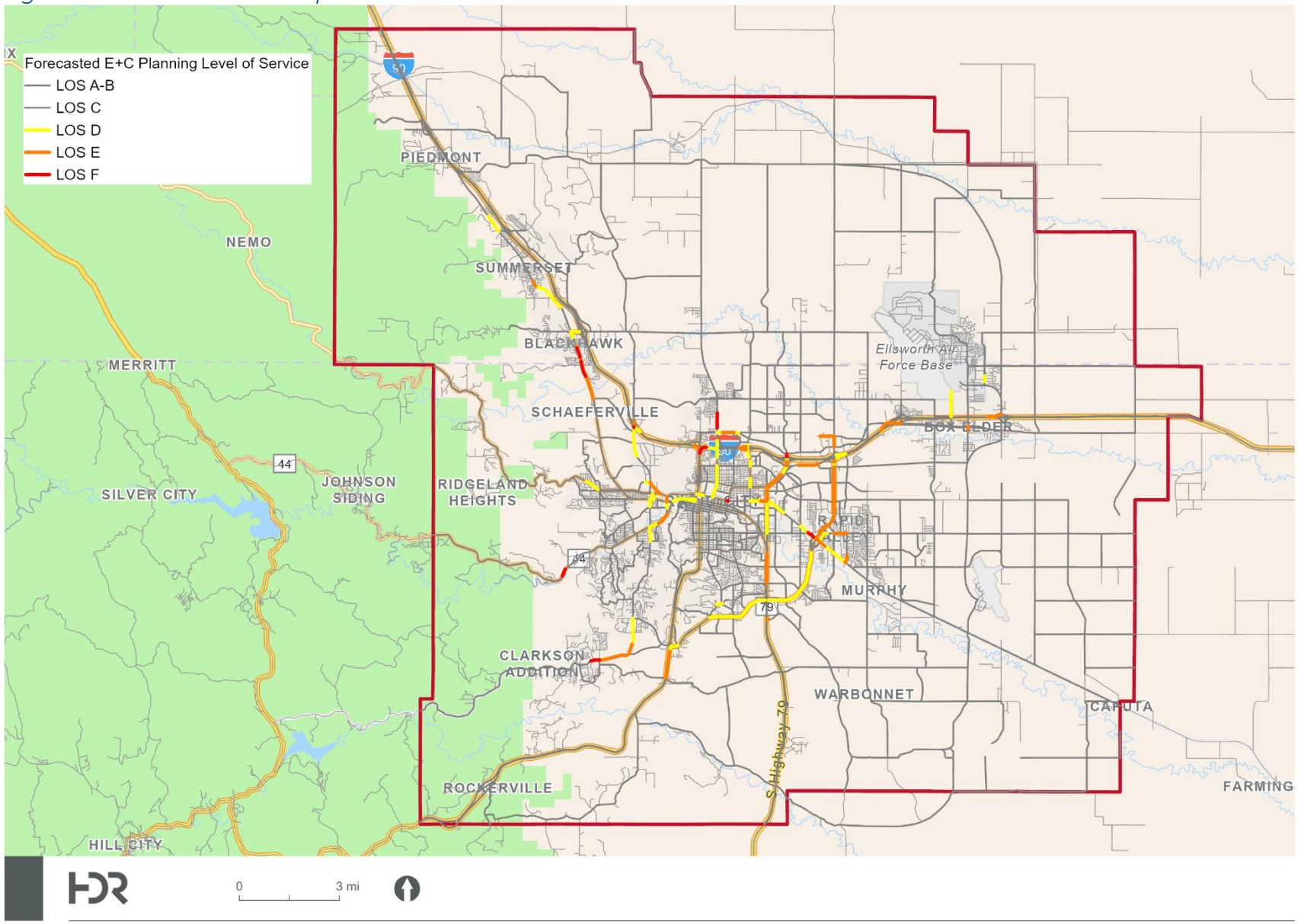
Figure 29: Forecasted Traffic Operations for the E+C Traffic Scenario



E+C System Performance

The TDM provides indicators of system performance for the base and future year scenarios, which are reported using the following metrics:

- **Total System Trips**: Number of daily vehicle trips made on the TDM network.
- **Vehicle Miles Traveled**: Total daily distance driven by vehicular trip takers on the TDM network.
- **Vehicle Hours Traveled**: Total daily amount of time spent driving by vehicular trip takers on the TDM network.
- **Average Trip Length**: Average length of the daily trips made on the TDM network.
- **Average System Speed**: Average speed at which vehicles travel during daily trips on the TDM network.

Table 15 provides the system performance results for the E+C scenario.

Table 15: System-Level Performance of the E+C Travel Demand Scenario

Performance Metric	2022	2050	Change (2022-2050)
System Trips	585,816	682,815	+17%
VMT	2,566,067	3,280,800	+28%
VHT	68,504	85,430	+25%
Average Trip Length (miles)	4.4	4.8	+9%
Average System Speed (MPH)	37.5	38.4	+2%

Emerging Trends and Technologies

The transportation industry is undergoing a transformative shift driven by rapid advancements in technology and evolving societal trends. Emerging technologies such as autonomous vehicles, Mobility as a Service (Maas), and electric vehicles are revolutionizing how we move people and goods. As communities and regions strive for more efficient solutions, these technologies promise to reshape the future of transportation, making it smarter, safer, and more sustainable.

This section of the MTP provides an overview of the main trends and technologies impacting multi-modal transportation today.

Emerging Transportation Trends

Increased Safety Focus

The transportation industry has placed an elevated importance for travel safety in recent years. The overall trend for the past several decades had seen a steady decline in the number of traffic-related fatalities. In 1972 there were more than 56,000 fatalities on U.S. roads; that had declined to just over 35,000 fatalities by 2014. Unfortunately, those trends have reversed since 2015 where the number of traffic fatalities increased by 32% by 2021.

The time period between pre-COVID-19 (2016-2019) and post-COVID-19 (2020-2023) saw an increase of 11.2% in fatal crashes. South Dakota during that time saw fatal crashes increase from 477 between 2016 and 2019 to 566 between 2020 and 2023.

Table 16: Number of Fatal Motor Vehicle Crashes, Pre-and Post-Covid-19 Pandemic

	Number of Fatal Motor Vehicle Crashes 2016-2019	Number of Fatal Motor Vehicle Crashes 2020-2023	% Change
U.S.	136,714	152,796	11.2%
South Dakota	477	566	18.7%

Source: South Dakota Motor Vehicle Crash Summary, 2023

The COVID-19 pandemic played a significant changed vehicle and pedestrian safety trends and had a negative effect on driver behavior, facilitating increased crashes and crash severity. In 2020, despite a reduction of total crashes on the roadways and a reduction in overall traffic volume due to the pandemic, there was a significant increase in fatal crashes compared to pre-pandemic levels. The severity of these crashes also rose, with a higher proportion categorized as severe or fatal.

Crashes involving bicyclists and pedestrians have seen a similar trend as bicyclist fatalities across the United States have increased significantly from pre- to post-pandemic, seeing a rise of 31.5%. Pedestrian fatalities have also seen a notable increase. Pedestrian fatalities nationwide rose 14.3% from pre-to post-pandemic.

Table 17: Bicycle and Pedestrian Fatalities Percent Change Pre- and Post- 2020

	2016-2019	2020-2023	% Change Pre-to Post-COVID 19
Bicycle Fatalities - US	3,389	4,947	31.5%
Pedestrian Fatalities - US	24,801	28,942	14.3%
Bicycle Fatalities – South Dakota	1	3	*
Pedestrian Fatalities – South Dakota	35	56	*

Safety Regulation

Over the past 20 years, hundreds of U.S. jurisdictions have adopted Complete Streets policies, with two-thirds of states now designing roads to be safe and accessible for all users. Complete Streets policies facilitate street configurations and facilities such as sidewalks, bike lanes, bus lanes, crosswalks, and accessible pedestrian signals.

Stemming from funding allocated from the Bipartisan Infrastructure Law of 2021 (BIL), the Safe Streets and Roads for All (SS4A) grant funding program allocated $1 billion to fund local efforts to reduce roadway crashes and fatalities, particularly for pedestrians and cyclists. In 2019, fatalities among VRUs accounted for 34% of total traffic fatalities. Seventy-seven percent of pedestrian fatalities occur after dark, 65% happen on arterial roadways, and 75% occur outside of an intersection. SS4A funds support efforts to reverse the upward trend of bicycle and pedestrian fatalities by offering financial and policy planning assistance to states and communities.

The National Roadway Safety Strategy (NRSS) aims for zero traffic deaths through the Safe System Approach, but traffic fatalities rose by 12% from 2020 to 2021, totaling 31,720 deaths in the first nine months of 2021. To combat these trends, several proven safety countermeasures that reduce fatal crashes have been identified by the Federal Highway Administration. As examples, installing roundabouts can reduce fatal crashes by 82%, while adding bike lanes can decrease total crashes by up to 49%. Enhanced lighting at intersections can reduce pedestrian nighttime injury crashes by 42%, and rumble strips on rural roads can cut head-on fatalities by 44–64%.

Roads and Bridge Conditions

There are over 4 million miles of public roads, including interstates, state highways, and local roads with 72 percent being rural roadways. The total number of miles of both urban and rural roadways in the U.S. has increased over time, although miles of unpaved roads have decreased.

From 2011 to 2022, the percentage of rural road mileage classified as “rough” remained mostly consistent. Only 5 percent of rural higher-function roads (such as interstates and other arterial highways) have poor ride quality, compared to approximately 19 percent of similar roads in urban areas. This difference is generally attributed to the higher level of activity and wear on urban roads. South Dakota currently maintains 82,000 miles of public roads, with 66% being in good condition.

According to the Bureau of Transportation Statistics’ National Bridge Inventory, in 2024 the United States had over 615,000 bridges. This includes bridges on public roads such as Interstate highways, U.S. highways, state and county roads, and publicly accessible bridges on federal and tribal lands. Between 2010 and 2024, the number of bridges in poor condition across the nation decreased by 17,225, reducing the percentage of such bridges from about 10 percent to around 7 percent. There are approximately 5,887 bridges in South Dakota, with 16.4% being structurally deficient as of 2024.

Public Transportation

In 2022, almost 3,000 urban, rural, and tribal government transit agencies offered a range of travel options. Public transportation systems, including buses, subways, and commuter trains, Transit ridership has not fully recovered to pre-COVID-19 levels, dropping from 9.9 billion in 2019 to 4.5 billion in 2021, a reduction of 55 percent, before recovering to 7.0 billion in 2023. Rapid Transit in Rapid City is the main transit provider for the RCAMPO area, and saw a 21% increase in transit ridership between 2021 and 2023, demonstrating an increase in ridership to pre-COVID-19 pandemic levels.

Rail

The freight and passenger rail networks are crucial to maintaining the supply chain and connecting people to jobs and amenities, especially in densely populated areas. The United States has approximately 140,000 miles of freight railroad lines and over 21,400 miles of Amtrak passenger rail lines. The United States rail network has not experienced growth over the last twenty years, but efforts are underway to modernize the existing rail infrastructure to enhance safety and security. The Rapid City, Pierre, and Eastern Railroad (RCPE), a Class II railroad, operates a rail line within the MPO boundary.

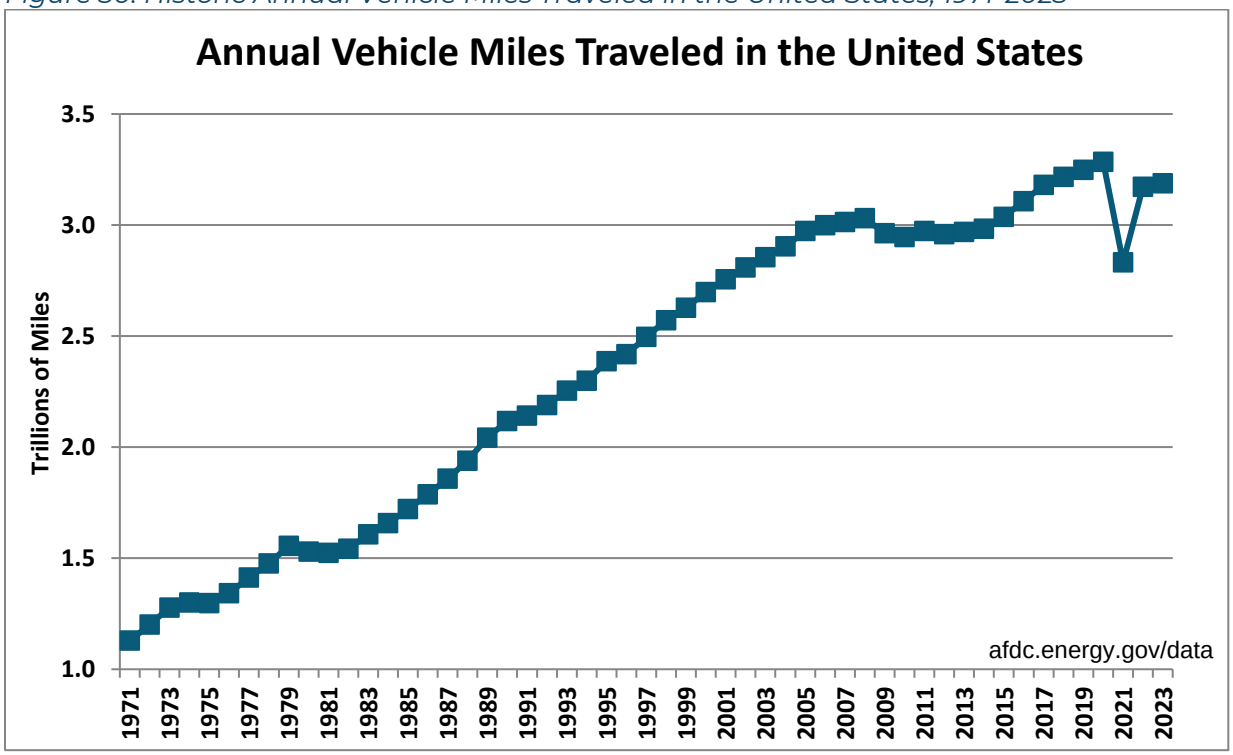
Airports

In 2023, the United States had about 20,000 airports, ranging from rural grass landing strips to large paved multiple runway airports. Over the last decade runway pavement conditions have been nearly constant. In 2022, 80 percent of pavements were rated in good condition, 18 percent fair, and 2 percent poor. Major reductions in air passenger travel occurred during the COVID-19 pandemic. U.S. airports handled about 5.7 million commercial airline flights in 2020, 56 percent of the number of flights handled in 2019 (10.2 million). The number of commercial flights rebounded to 8.7 million in 2022 and 9.3 million in 2023. Air freight tonnage increased by 17.1 percent from 2019-2021, likely due to increased e-commerce during the COVID-19 pandemic, but decreased 11.4 percent from 2021-2023.

Travel Demands

Historically there has been a steady increase in the total vehicle miles traveled nationwide. In 2022, households reported 37% fewer person trips and 32% fewer vehicle trips compared to 2017. This decline was also reflected in the significant drop in both person miles of travel (PMT) and vehicle miles of travel (VMT). Travel behaviors shifted with the COVID-19 pandemic, with 30% of workers and 15% of students traveling less frequently than they did before the COVID-19 pandemic. The surge in e-commerce also played a role in these changes, as online shopping doubled from 2017 to 2022. This increase in online shopping led to fewer in-person trips, particularly for shopping and errands. Historic annual VMT for the years 1971 through 2023 are shown in **Figure 30**.

Figure 30: Historic Annual Vehicle Miles Traveled in the United States, 1971-2023



U.S. commuting trends show a decline in solo driving, with 69.2% of U.S. workers driving alone to work in 2023, down from 80.7% in 2018. Public transit commuting in the United States is experiencing an increase since COVID-19. Walking and biking to work has remained relatively stable. Working from home experienced a sharp increase as a result of the COVID-19 pandemic and has begun to decrease as more employers are implementing return-to-work policies. Commuting trends in South Dakota generally mirror national trends. In 2023, 76.0% of workers drove alone to work, down from 81.5% in 2018. Carpooling in South Dakota dipped during the COVID-19 pandemic. Public transportation and walking commutes were relatively stable, while working from home rose dramatically pre- to post-pandemic in South Dakota with 9.8% doing so in 2023 versus 5.0% in 2018.

Table 18: United States and Iowa Commuting Trends

	2018	2019	2020	2021	2022	2023
Unites States						
Drove Alone	80.7%	75.9%	69.0%	67.8%	68.7%	69.2%
Carpool	9.8%	8.9%	7.9%	7.8%	8.6%	9.0%
Public Transit	1.3%	5.0%	3.2%	2.5%	3.1%	3.5%
Walk	1.5%	2.7%		2.2%	2.4%	2.4%
Bicycle	0.2%	0.5%		0.4%	0.5%	0.5%
Worked at Home	5.2%	5.7%	15.8%	17.9%	15.1%	13.8%
South Dakota						
Drove Alone	81.5%	79.8%	77.2%	76.1%	78.6%	76.0%
Carpool	9.4%	9.0%	7.3%	7.8%	7.1%	9.1%
Public Transit	0.6%	0.4%	0.3%	0.4%	0.5%	0.7%
Walk	2.0%	3.2%	--	3.2%	2.5%	3.1%
Bicycle	0.2%	0.4%	--	0.3%	0.2%	0.3%
Worked at Home	5.0%	6.1%	10.2%	11.1%	9.9%	9.8%

Bureau of Transportation Statistics, State Transportation by the Numbers | Bureau of Transportation Statistics

Flexible work schedules and working from home have reduced peak-hour demand, leading to 9 million fewer peak-hour commuters in 2022 compared to 2019, easing congestion during the most congested hours. This shift has impacted commuting behaviors, contributing to a drop in solo driving and straining traditional commute forecasting models. Average one-way commute times increased slightly to 26.4 minutes in 2022, still below the 2019 peak of 27.6 minutes. (U.S. Census Bureau, 2022)

The United States has seen significant increase in its aging population, with over 54 million Americans aged 65 and older in 2022. This demographic shift has resulted in travel pattern changes across the country. As people age, their travel frequency diminishes, leading to a noticeable reduction in overall travel demand per capita. This trend is particularly pronounced among those over the age of 75, where both vehicle miles traveled (VMT) and the number of person trips drop significantly. Along with stagnant overall population growth and the increase in remote or hybrid working conditions, per capita travel metrics such as trips per person and VMT per driver have seen a downward trend. (National Household Travel Survey, 2022)

Emerging Transportation Technologies

The U.S. transportation system is undergoing a transformative shift, driven by the advent of emerging technologies. Innovations such as electric and autonomous vehicles, micromobility, and connected vehicle technologies are revolutionizing the way we travel and transport goods. These advancements promise to enhance the efficiency, safety, and sustainability of the transportation system. As these technologies continue to evolve, they hold the potential to reshape the nation's infrastructure, making transportation more interconnected and environmentally friendly.

Electric Vehicles

Electric vehicles, which encompass battery electric or plug-in/hybrid electric vehicles, continue to have an increasing share of vehicles on roadways. **Table 19** compares electric vehicle registrations for the U.S. and state of South Dakota for the years 2021 and 2023. From 2021 to 2023, there was a 154 percent increase in the number of electric vehicles registered in the United States. There were approximately 3.5 million electric vehicles on U.S. roads by the end of 2023, a 57.1% increase from the 1.5 million in 2021. From 2021 to 2023 there was a 143% increase in the number of registered EVs in South Dakota. While a relatively low number, this rate of increase is higher than the nationwide percentage increase.

Table 19: Electric Vehicles Registered – U.S. and Iowa

	2021	2023	% Change
United States	1,500,000	3,500,000	57.1%
South Dakota	700	1,700	142.9%

Alternative Fuels Data Center: TransAtlas

Along with the emerging use of electric vehicles in the U.S. is the installation of electric vehicle charging stations, especially on interstates and high-volume roadways. The BIL established the National Electric Vehicle Infrastructure (NEVI)

program that provided $5 billion to assist states in creating a nationwide EV fast charging network of stations no more than 50 miles apart. As of mid-August 2024, there were 69,436 public charging stations with 195,522 ports, of which 10,842 were fast chargers with 44,714 charging ports, a 37.1 percent increase in the number of fast-charging stations and a 34.0 percent increase in the number of ports. Additionally, the BIL provided for $2.5 billion in grants for technical assistance, $5 billion in support for low and no-emission transit buses, and $5 billion in support for electric school buses.

In 2023, transit vehicles continued to transition to cleaner alternatives. The majority of transit buses, however, are still powered by internal combustion engines. Over the past two decades, approximately half of the diesel-powered transit buses in the United States have been replaced by alternatives powered by natural gas, biodiesel, or hybrid-electric powertrains. Supported by the Bipartisan Infrastructure Law and programs such as the Federal Transit Administration's Low and No Emission Program and the Grants for Bus and Bus Facilities Program, the U.S. electric bus fleet grew 12 percent from 2022 to 2023 (Error! Reference source not found.).

Table 20: U.S. Zero-Emission Bus Fleets: 2021–2023

Bus type	2021	2022	2023	Increase, 2022 to 2023	Percent increase, 2022 to 2023
Battery electric	3,168	5,269	5,775	506	9.6
Fuel cell electric	129	211	372	116	76.3
Full size TOTAL	3,297	5,480	6,147	667	12.2
Small TOTAL	615	876	1,010	134	15.3

Source: US DOT Bureau of Transportation Statistics, Transportation Statistics Annual Report 2024

Connected and Autonomous Vehicle Technologies

Connected and Automated Vehicles (CAV) leverages both Connected Vehicle (CV) and Automated Vehicle (AV) technologies by communicating with nearby vehicles and infrastructure thus providing vehicle automation to make driving decisions.

Connected Vehicles (CV) are "connected" to receive and send alerts by communicating in the following ways:

- **Vehicle-to-Vehicle (V2V)**: Information on speed, location, and heading.
- **Vehicle-to-Infrastructure (V2I)**: Information on signal timing, work zones, crashes, congestion, and weather conditions.
- **Vehicle-to-Pedestrian (V2P)**: Information between vehicles and non-motorized crosswalks and bicyclists.
- **Vehicle-to-Everything (V2N to V2E)**: Data is transmitted to a central location for analysis, including demand management, travel times, and incident response.

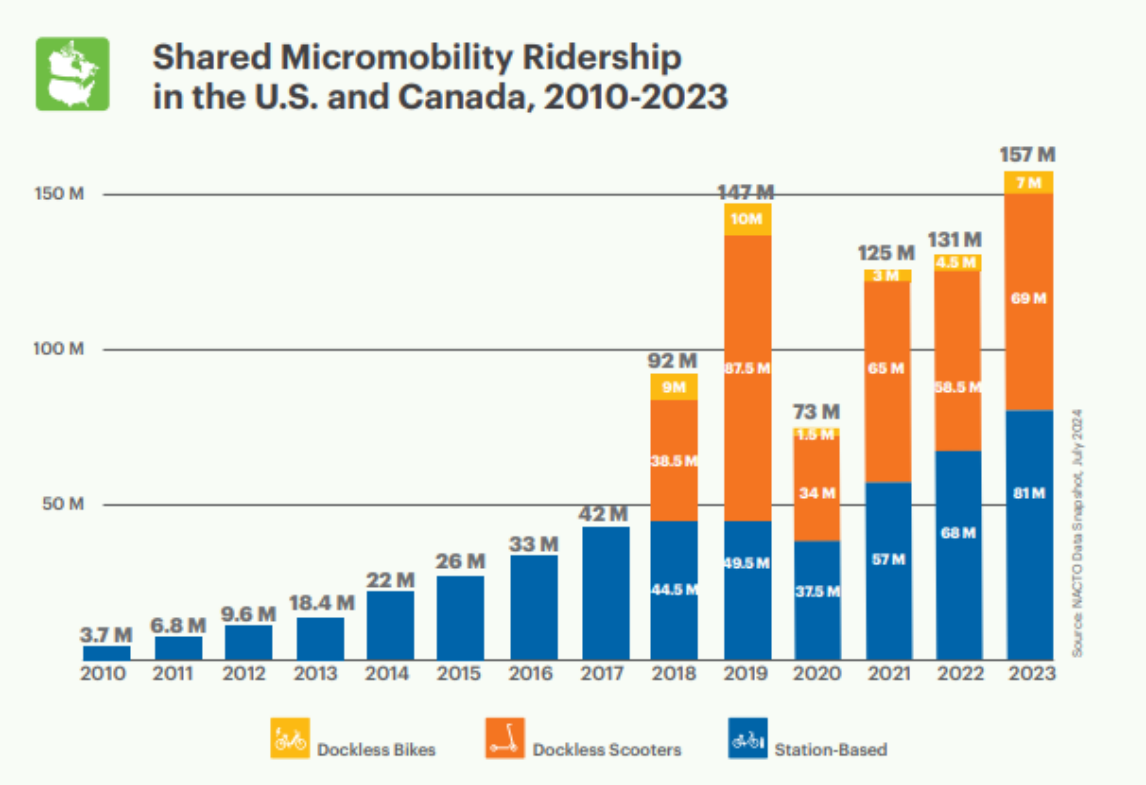
Automated Vehicles (AV) are driverless or self-driving vehicles that are artificial intelligence or computer-driven and do not require a human to operate the vehicle safely. There are six levels of driving automation ranging from 0, or no automation, to 5, full automation. Most newer cars today have some automation, usually Level 1 (Driver Assistance) or Level 2 (Partial Driver Automation). Fully autonomous vehicles are in research and testing stages but are not available to the public. It is anticipated that additional automated features will be available to consumers over time as safety and reliability testing ensures roadworthiness. (California Department of Transportation, 2025)

Development of autonomous freight corridors and driverless trucks have made great strides in research, development, and implementation. In early 2024, Aurora Innovation, Inc., began deploying fully autonomous trucks and driverless operations along a corridor along Interstate 45 between hubs in Dallas and Houston. As additional autonomous freight corridors are implemented, autonomous heavy-duty trucks are projected to account for 13 percent of trucks on U.S. roads by 2025, according to McKinsey projections. (Axios, 2025)

Micromobility

In 2023, a total of 157 million trips were taken on shared micromobility across the U.S. and Canada, marking an increase from 131 million trips in 2022. Of these, 133 million trips occurred in the U.S., representing a 16% growth. This figure surpasses the pre-pandemic peak of 147 million trips in 2019. Since 2010, over 887 million trips have been taken on shared bikes and scooters. The COVID-19 pandemic caused a 36% drop in micromobility systems between 2019 and 2021. However, ridership rebounded by 2021, with scooter systems showing the strongest recovery. By 2023, both system availability and ridership had surpassed pre-pandemic levels (**Figure 31**).

Figure 31: Shared Micromobility in the U.S. and Canada, 2010-2023



Source: National Association of City Transportation Officials, *Shared Micromobility Report: 2023*

Shared Bikes & E-Bikes (Station-Based)

Station-based bike share ridership in the U.S. increased to 61 million trips in 2023, up from 53 million in 2022. E-bike trips saw a significant rise of 40%, reaching 28 million in 2023, and now account for 46% of station-based bike share trips. E-bikes are notably more popular than pedal bikes in systems that offer both options. In Los Angeles, e-bikes were used eight times more often than pedal bikes, while in New York City, e-bike usage was four times higher.

The top station-based systems by ridership include:

- **Citi Bike (NYC)** – 35 million trips
- **BIXI (Montreal)** – 12 million trips
- **Divvy (Chicago)** – 6 million trips

Dockless E-Scooters and E-Bikes

In 2023, there were 69 million dockless e-scooter trips, marking a 15% increase from 2022. Notably, 40% of all e-scooter trips occurred in just 10 cities, including Los

Angeles, Denver, Seattle, Austin, Washington, D.C., and Atlanta. However, policy restrictions and vendor withdrawals have impacted some programs. For instance, San Diego experienced a dramatic drop in trips from 3 million in 2022 to 360,000 in 2023 due to these factors. In the U.S., dockless e-bike trips rose to 6.7 million in 2023, up from 4.5 million in 2022. E-bike usage surged particularly in cities with warm weather and extended service hours.

Bike share costs have risen significantly since 2019, mostly due to higher operational and maintenance costs compared to traditional pedal bikes. Annual e-bike passes now range from over $100 to $200, even in publicly owned systems. E-bike surcharges add $0.10 to $0.22 per minute, with average rides costing $7 or more. Average e-scooter and dockless e-bike trips last 11 to 12 minutes yet cost over $6 more than public transit. Public investments are crucial for long-term sustainability.

Trip density is highest in cities with protected bike lane networks and dense station placement. Cities with top-performing systems invest in protected lanes and slow-speed streets strategically co-locate stations near homes, transit, and major destinations.

Elasticity In Micromobility Use

Scientists and scholars from the University of California-Irvine reviewed 29 studies that estimated elasticities, or measures of sensitivity between shared mobility system (SMS) ridership and changes in various factors such as income, infrastructure, and land use. This metric allows us to predict how investments or policy changes might influence ridership patterns. Land use and transit access were found to be the strongest predictors of shared micromobility demand and that shared systems underperformed in low-income or underserved areas without subsidies or public support.

Key Elasticity Findings from the Analysis:

- **Median Household Income**: Higher-income areas see higher ridership rates.
- **Population Density**: Higher population density correlates with increased usage.
- **Employment Density**: Denser job centers drive more ridership—especially during commuting hours.
- **Bike Lane Length**: Expanding protected bike infrastructure has a strong positive effect on micromobility usage.
- **Metro/Subway Station Proximity**: Placing shared mobility systems near transit hubs encourages usage.

- **Topography**: Elevation negatively affects use, which justifies e-bike deployment in hilly cities.

Mobility as a Service

Mobility as a Service (MaaS) is a comprehensive mobility solution that enables travelers to access different transportation options via a single digital platform. It allows users to plan, book, and pay for journeys across various modes, including public transportation, ridesharing, and car and bike-sharing, aiming to offer seamless and flexible mobility tailored to individual needs.

As cities continue to grow and expand, congestion continues to increase and creates the demand for integrated mobility solutions. Continued growth in the use of smartphones, advancements in artificial intelligence, and increasing environmental challenges are some of the factors fueling the adoption of MaaS solutions. The market outlook between 2025-2035 in North America is expected to grow significantly, with projections indicating a robust compound annual growth rate of 38 percent from 2025 to 2035. The market's exponential growth is attributed to the widespread adoption of subscription-based transport models, increasing investments in electric and autonomous vehicles, and rising consumer preference for cost-effective and flexible mobility solutions.

Various examples of MaaS implementations exist across the United States, including adoption of smartphone apps to purchase fares and plan trips and microtransit partnerships. Dallas Area Rapid Transit (DART) received FTA funds to explore a pilot microtransit program, and in 2023 DART fully implemented GoLink, an on-demand trip service in partnership with Uber that allows for curb-to-curb service within a designated area.

Internet of Things

The Internet of Things (IoT) is transforming transportation by connecting various devices and systems to enhance efficiency, safety, and convenience. Key applications include efficient traffic management through smart traffic lights and sensors, automated toll and ticketing systems using RFID tags, and real-time fleet management for tracking and diagnostics. IoT also enables smart parking solutions, guiding drivers to available spaces, and enhances public transit by providing accurate arrival times and improving service reliability. Overall, IoT makes transportation systems more interconnected and intelligent, leading to better resource utilization, improved safety, and enhanced user experiences.

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Chapter 7: Rapid Trip 2050 Strategies

Rapid Trip 2050 strives to address the issues and needs facing the region's existing multi-modal transportation system while anticipating future issues and needs that could arise as the region continues to grow and evolve. To address this existing and potential future issues and needs, a series of locally tailored strategies were identified through technical analysis, public input, and findings of recently completed and ongoing transportation plans and studies within the region. The strategies identified informed the development of Rapid Trip 2050's universe of alternatives and are summarized in this chapter.

The specific strategies identified throughout the development of Rapid Trip 2050 are described below by mode, and include:

Rapid Trip 2050 Strategies
System Safety
Traffic Operations
System Preservation
Bicycle and Pedestrian

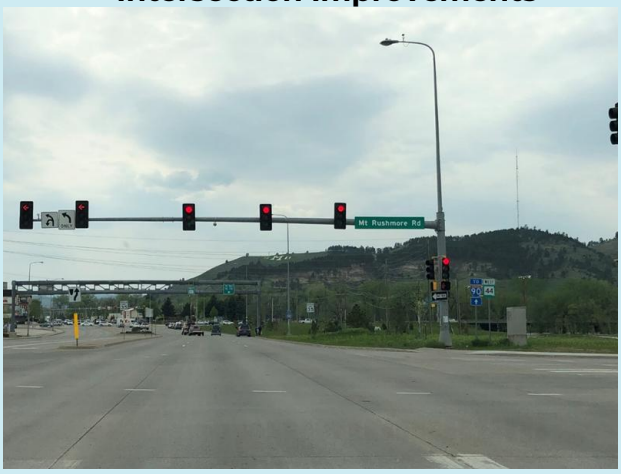
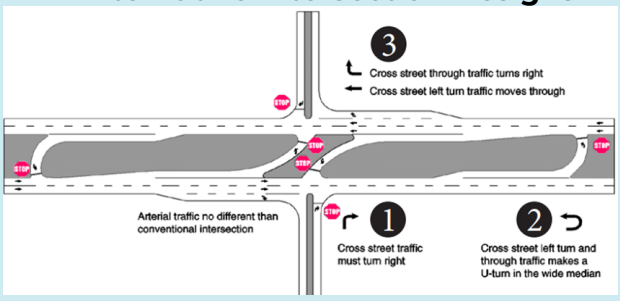
System Safety

Providing a safe multi-modal transportation system is a primary goal of Rapid Trip 2050. The effort to plan for a future multi-modal transportation system that addresses the safety needs of all users is further emphasized through the city of Rapid City's current Safety Action Plan (SAP) that aims to develop a framework and plan to identify high priority safety locations and provide short-, mid- and long-term projects for future implementation that address the major safety issues identified within the city.

The opportunity to align Rapid Trip 2050 with the SAP has allowed for the MPO and its member agencies to approach safety through a synergistic process that places a priority on planning for a safe future. The safety strategies included in Rapid Trip

2050 were identified due to their ability to overlap recommendations that will be published as part of the final SAP.

Rapid Trip 2050's safety strategies mainly focus on intersection locations, which are key points of focus for addressing safety issues and needs. These strategies include:

Rapid Trip 2050 Safety Strategies	
Intersection Improvements 	Installation of traffic signals, turn lanes, controlled access, and signal timing improvements.
Roundabouts 	Installation of roundabouts at appropriate intersections to facilitate safe conditions while maintaining adequate traffic operations.
Alternative Intersection Designs 	Implementation of alternative intersection designs such as reduced conflict intersections or Michigan left turns to reduce traffic exposure.

Traffic Operations

Traffic operations strategies seek to improve existing and potential future congestion-related issues through infrastructure solutions such as additional lane capacity as well as management solutions like technological enhancements and complete streets. As the region continues to growth, this growth is expected to exacerbate existing congestion issues under a no-build scenario while potentially giving rise to additional congestion issues in the future.

The traffic operations strategies identified through the development of Rapid Trip 2050 include:

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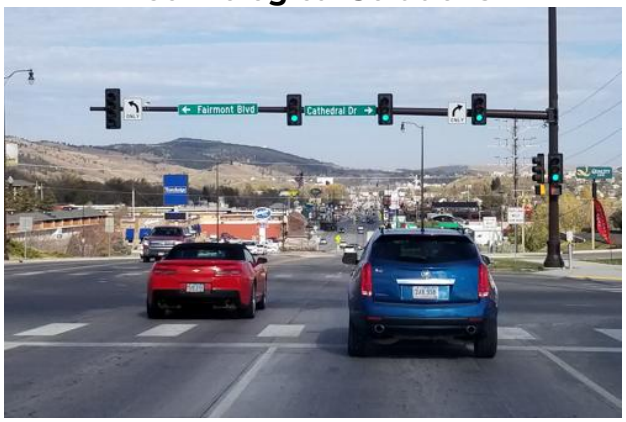
Rapid Trip 2050 Traffic Operations Strategies

Additional Lane Capacity

Construction of additional travel lanes or turn lanes.

Technological Solutions



Management-focused solutions that implement technologies such as intelligent transportation systems (ITS), travel demand management, and traveler information services.

Complete Streets

Design-based approach that provides safe, convenient, and context sensitive transportation facilities for users of all ages and abilities.

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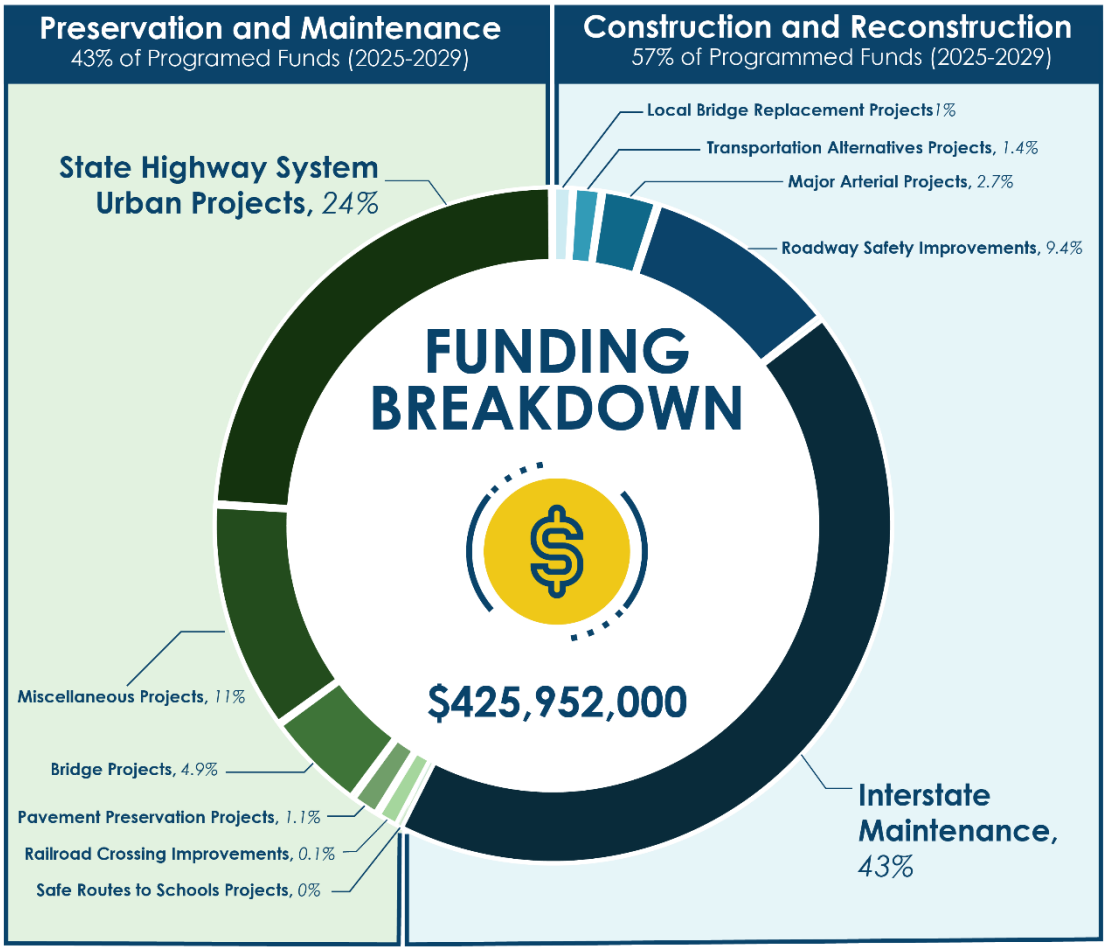
System Preservation

System preservation refers to the management and preservation of RCAMPO's existing transportation assets including streets, roads, and bridges, and seeks to balance investments in system expansion with effort to preserve existing infrastructure. System preservation is a priority of RCAMPO as transportation revenues are limited and the need to preserve the infrastructure of today is vital to maintaining the multi-modal transportation system in a state of good repair.

Figure 32 demonstrates the current balance between preservation and maintenance and construction and reconstruction focused programmed improvements for the RCAMPO region over the years 2025 through 2029. As the figure indicates, roughly 43 percent of planned federally-funded programmed improvements are focused on preservation and maintenance while approximately 57 percent of programmed improvements are for construction or reconstruction of transportation facilities.

Figure 32: Preservation and Maintenance versus Construction and Reconstruction in the RCMAPO Area, 2025 - 2028



Source: Rapid City Area MPO, *2025-2028 Transportation Improvement Program*

Bicycle and Pedestrian

The nature of Rapid Trip 2050 as a multi-modal-focused plan has guided the development of bicycle and pedestrian strategies that can be leveraged to enhance travel conditions for non-motorized users of the transportation system. These strategies include:

Rapid Trip 2050 Bicycle and Pedestrian Strategies	
Network Expansion 	Construction of new facilities such as sidewalks, shared use paths, and bike lanes.
Crossing Improvements 	Implementation of crossing improvements for pedestrians such as curb extensions, mid-block crossings, pedestrian signals, and Rapid Rectangular Flashing Beacons (RRFBs).
Network Preservation 	Preservation projects for existing bicycle and pedestrian facilities such as pavement rehabilitation, trail overlays, resurfacings, and restriping of bike lanes and pavement markings.

Revisiting the 2020 Bicycle and Pedestrian Master Plan

The Rapid City Metropolitan Planning Organization (MPO) completed the *Rapid City Metropolitan Area Bike and Pedestrian Master Plan Update* in August 2020. This plan set forth a vision that stated:

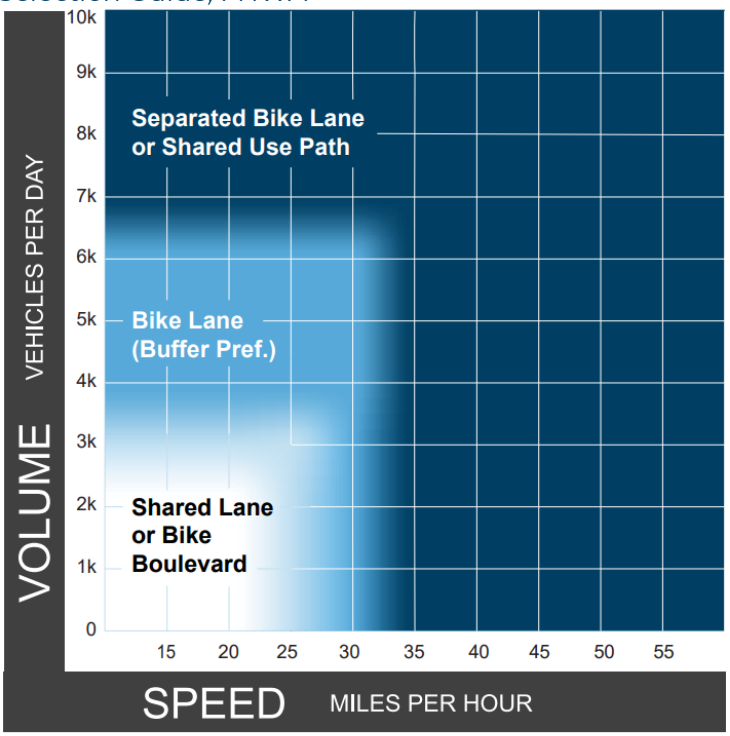
> ***Rapid City will enhance transportation choices by developing a network of safe and comfortable on-street and off-street bicycle and pedestrian facilities that provide connections to destinations throughout the city.***

This plan evaluated the bicycle level of comfort, equity impacts, and demand based upon density, destinations, and socioeconomic factors.

The overall vision and goals of the 2020 plan are still applicable to the current conditions in Rapid City. However, some of the details related to the bicycle facility design need to be updated due to changes in best practices, which continue to evolve as new techniques are studied and evaluated.

Additionally, there has been an industry-wide shift to create "all ages and abilities" networks, such that anyone who is interested in biking and walking can feel comfortable when doing so. This type of comfort is created by developing dedicated space for people to bike and buffering or providing a vertical separation for that space when the traffic volumes and speeds are higher. Separation is also important for the safety and comfort level of people walking. The Federal Highway Administration's *Bikeway Selection Guide* provides general guidance on how the level of separation increases as traffic speed and volume increases, as shown in Figure 33.

Figure 33: Bikeway Selection Guide, FHWA



Notes

1 Chart assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.
2 Advisory bike lanes may be an option where traffic volume is <3K ADT.
3 See page 32 for a discussion of alternatives if the preferred bikeway type is not feasible.

Based upon updated best practice guidance, the recommended changes to the 2020 plan are as follows:

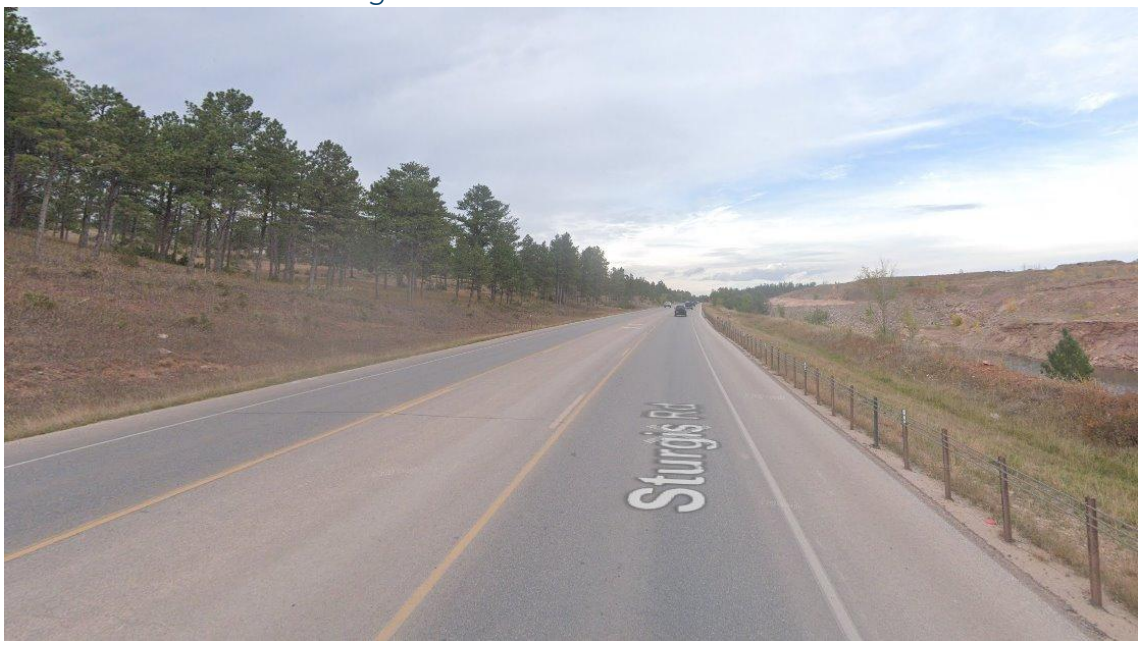
1. **Remove shared lanes/wide lanes from list of facility types**
   The 2020 plan included two similarly sounding, but substantially different, facility types: Sharrows/Shared Lane Markings and Shared Lanes (including wide outside lanes).

   Sharrows/shared lane markings are appropriate on very low volume and low speed streets in which people biking and people driving can share the same space and travel about the same speed.

   Shared Lanes, particularly wide outside lanes, are no longer recommended for people biking. These create a situation in which motor vehicles may be traveling fast and the people biking do not have enough room as they are squeezed between the motorists and the edge of the road. If there is room for a bicyclist in this location, a bike lane should be painted, preferably buffered or separated, and signed.

2. **Distinguish paved shoulders from bike lanes**
   The plan conflated paved shoulder and bike lanes in mapping. Paved shoulders may be used by people biking in rural settings; however, per the MUTCD, they may not be signed or use symbols to designate them as bike lanes. This is because they must retain their function as a shoulder space for vehicular emergencies, enforcement, maintenance, or avoidance or recovery maneuvers. Shoulder bikeways may be suitable for stronger or more confident riders; however, they are not considered a comfortable facility for all ages and abilities. When paved shoulders are provided, if a rumble strip is also provided, it should be under the painted line so that it does not encroach into the space available for people to bike. A paved shoulder example is along Sturgis Road (**Figure 34**). There are no bicycle lane symbols, signage, or accommodations through intersections.

Figure 34: Paved Shoulders on Sturgis Road



Bike lanes include pavement markings and signage and are typically found in urban contexts where a shoulder is not needed. A bike lane example is along Canyon Lake Drive (Figure 35). There are bike lane symbols and signs.

Figure 35. Standard Bike Lane on Canyon Lake Drive

3. **Upgrade bike lanes with buffers when possible**
   While conventional bike lanes may be used, a painted buffer of 2 to 3 feet is preferred to improve level of comfort.

4. **Update bike boxes**
   Bike boxes may be used along with bike lanes to allow space in front of a travel lane at a signalized intersection. FHWA has now approved bike boxes, and they are described in the MUTCD. While they may help to facilitate a left turn for people biking, the preferred method for left turns is now a two-stage turn box. Figure 36 provides an example bicycle box.

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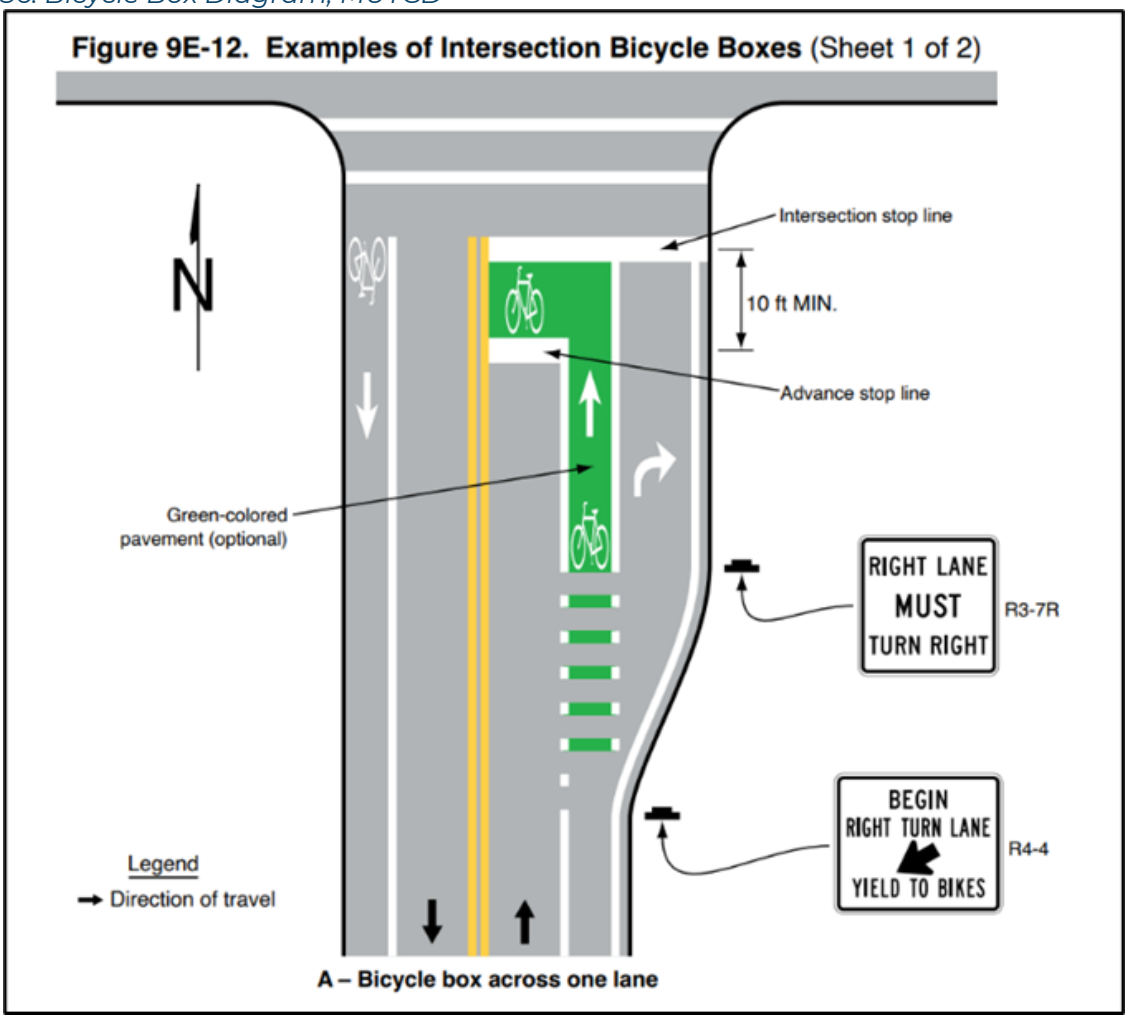
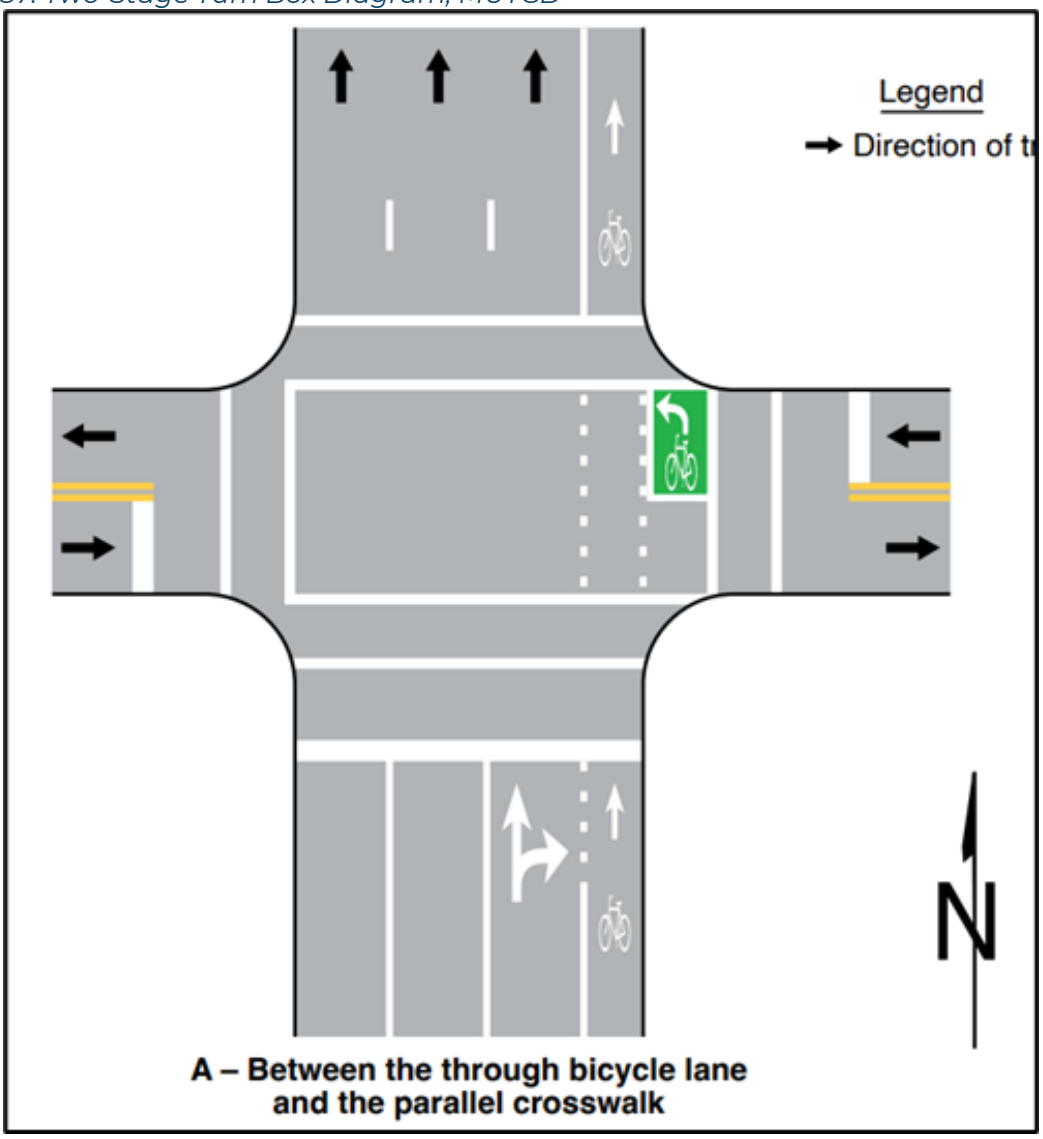
Figure 36: Bicycle Box Diagram, MUTCD



5. **Update two-stage turn boxes**
   Two-stage turn boxes are used along with bike lanes at signalized intersections to help people biking cross one direction at a time. The box is located in a space which does not have conflict with any other modes of travel. FHWA has now approved two-state turn boxes, and they are described in the MUTCD. Figure 37 provides an example two-stage turn box.

Figure 37: Two-Stage Turn Box Diagram, MUTCD



6. **Update bike signals**
   Bike signals are needed for counterflow bicycle traffic or situations in which people biking would not follow the vehicular signal, such as a protected bicycle signal phase, on the right side of a right-turn only lane, or midblock if there are not parallel motor vehicle movements. These are now approved in the MUTCD.

7. Review Goals and Actions

The Bicycle and Pedestrian Master Plan notes that it should be reviewed and updated every five years. This includes reviewing the status of the goals and associated actions and reviewing the status of infrastructure projects. This section reviews the goals and actions.

Goal 1. Support bicycling and walking as viable transportation modes in Rapid City.

Table 21 is the fiscally constrained active transportation project list from the last plan. Items in green have been completed. Items in gold have not been completed.

Table 21: Status of RCAMPO's 2020 Bicycle and Pedestrian Master Plan Fiscally Constrained Bicycle and Pedestrian Projects

General Type	Corridor	Limits	Length (mi)	Improvement Type	Priority Level
On-Street	Milwaukee St	Crestwood Drive - E New York Street	1.00	Shared Lane	High
Sidewalk	Cambell St	E St. Patrick St - E St. Charles St	0.13	Sidewalk, One Side	High
Sidewalk	East Blvd	CR Rail Systems - Rapid St	0.04	Sidewalk, One Side	High
Sidewalk	North St	N 1st St - East Blvd N	0.11	Sidewalk, One Side	High
On-Street	N Maple Ave/E Philadelphia St	Leonard "Swanny" Swanson - Cambell Street	1.17	Shared Lane	High
On-Street	Mt. Rushmore Rd	North Street - Omaha Street	0.44	Buffered Bike Lane	High
Sidewalk	W Omaha St	Mountain View Rd - 12th St	0.69	Sidewalk, One Side	High
On-Street	Apolda St	Mt Rushmore Road - 6th Street	0.19	Shared Lane	High

Table 18 continued

General Type	Corridor	Limits	Length (mi)	Improvement Type	Priority Level
Sidewalk	E Saint Patrick St	E St. Joseph St - Cherry Ave	0.03	Sidewalk, Both Sides	High
On-Street	North St	West Boulevard N - N 1st Street	0.87	Buffered Bike Lane	High
Sidewalk	W Main St	Cross St - Highway 44	0.56	Sidewalk, One Side	High
On-Street	E Fairlane Dr	Elm Avenue - Robbinsdale Park	0.25	Shared Lane (sidepath constructed instead of shared lane)	High
Sidewalk	North St	Wood Ave - N 2nd St	0.18	Sidewalk, One Side	High
On-Street	Franklin Ave/Belleview Dr/E St Andrew St	West Boulevard - 5th Street	0.55	Shared Lane	High
On-Street	5th St	Omaha St - Columbus St	0.45	Separated Bikeway	High
On-Street	N Maple Ave	Disk Drive - Anamosa Street	0.57	Buffered Bike Lane	High
On-Street	Van Buren St	Allen Avenue - Milwaukee Street	0.99	Shared Lane	High
Sidewalk	E Main St	Maple Ave - Steele Ave	0.35	Sidewalk, One Side	High
Sidewalk	Cambell St	E St. James St - Rocker Dr	0.16	Sidewalk, One Side	High
Sidewalk	Tower Rd	0.03 Miles North of Don Williams Dr - 0.05 Miles South of 225th St	0.06	Sidewalk, One Side	Medium

Table 18 continued

General Type	Corridor	Limits	Length (mi)	Improvement Type	Priority Level
Sidewalk	**E North St**	**I-90 Entrance - E Mall Dr**	**0.11**	**Sidewalk, One Side**	**Medium**
Sidewalk	**3rd St**	**0.01 Mile South of Rapid St - 0.01 Mile North of Rapid St**	**0.02**	**Sidewalk, Both Sides**	**Medium**
		Total	**8.92**		

- Complete any priority bikeway or sidewalk projects – The segment of Sheridan Lake Road from Corral Drive to Catron Boulevard is being reconstructed from a three-lane to five-lane cross section with 10-foot-wide sidepath on the west side of the road and 5-foot-wide sidewalk on the east. Sheridan Lake Road Reconstruction. This project was not listed in the prior active transportation plan and was noted as having an existing shared use path at that time.
  - Cambell Street (east side shared use path) – Rocker Drive to SD 44/E Omaha Street. This was not part of the fiscally constrained plan, but was a high priority project.
- Complete any medium priority bikeway or sidewalk projects – The City completed one medium priority project.
  - SD 44/E Omaha Street (north side shared use path) – Cambell Street to Mickelson Drive. This was part of a medium priority project to construct a shared use path from Cambell Street to Twilight Drive but was not part of the fiscally constrained plan.

Greenway Path

- Incorporate bike or pedestrian facilities into any other projects – No additional bikeways or pedestrian facilities were incorporated into any other projects.
- Seek new funding sources for bike or pedestrian projects – The City received a Transportation Alternatives Program grant for the Parks and Recreation Department to rebuild a segment of pathway in Mary Hall Park, which is programmed for 2027. The City plans to use the findings of the Comprehensive Safety Action Plan to identify bicycle and pedestrian safety improvements which could be funded with future funding to be applied for through the Safe Streets and Roads for All program.
- Minimize disruption to people biking and walking by providing alternate routes during construction – Yes, the City provides alternative routes when construction disrupts a bikeway or walkway whenever possible. During construction on

Sheridan Lake Road, the pathway on the west side of Sheridan Lake Road remained open during construction while the sidewalk on the east side of Sheridan Lake Road from Catron Boulevard to Summerset Drive was closed. The east sidewalk from Summerset Drive north to Corral Drive remained open.

Goal 2. Promote bicycling and walking in the Rapid City area by improving awareness of bicycle and pedestrian facilities and opportunities.

- Install signs to assist with wayfinding – No work has been done to advance this action.
- Make biking and walking resources available on the city's website – The City Parks Department has a bike path map on the website at index.php. There is also some information posted on bike path rules: Parks/Urban Forestry | Rapid City South Dakota. To promote biking for transportation, the city could post information about bicyclists' rights and responsibilities when traveling on the road and how to safely bike with traffic.
- Reduce the number of bike and pedestrian crashes – From 2014 through 2018, there were 221 crashes and 11 fatalities for people walking and biking. The total number of bicycle and pedestrian crashes decreased from 2019 through 2023 to 208 crashes. However, there were 13 fatalities. The results of the Comprehensive Safety Action Plan will provide strategies to reduce fatalities and serious injuries.
- Promote the availability of bicycle racks on Rapid Ride buses – No work has been done to advance this action. This could be updated with a video of how to load and unload your bicycle from the front bus rack. During May, National Bike Month, riders with a bicycle could ride for free.
- Apply for Bicycle Friendly Community through the League of American Bicyclists – No work has been done to advance this action. This action should wait until progress has been made on the other actions. However, the Bicycle & Pedestrian Advisory Committee and City staff should be familiar with the criteria so that they can work toward fulfilling it.
- Create a standing Bicycle & Pedestrian Advisory Committee (BPAC) – No work has been done to advance this action. However, the City has been coordinating with the Black Hills Bike Club to coordinate their goals with the city's various planning efforts. Creating a BPAC should be a priority so that the committee can help to advance the other actions.

Goal 3. Integrate bicycle and pedestrian planning into Rapid City's Planning Processes.

- Review and update the Bicycle and Pedestrian Master plan project and program priorities every 5 years – Yes, this work is currently in progress.
- Revise the street criteria manual to include bike facilities based on road classification – The Engineering Department has been working on updating the street criteria manual, but the need for bicycle facilities and the type of facility are currently addressed on a case-by-case basis.

- Adopt a complete streets policy – No work has been done to advance this action. The City is currently working on a Safety Action Plan that will also recommend developing a complete streets policy.

Rapid City Master Transportation Plan (MTP) Bike Ped Updates Needed

The new MTP should integrate changes including:

- Add Safe System Approach
- Bicycle and Pedestrian project priorities (5-year update)
  - Assess need for new routes
  - Assess need to fill sidewalk gaps
  - Assess priority of creating low-stress corridors
- Estimated costs
- Funding section
- Fiscally constrained plan

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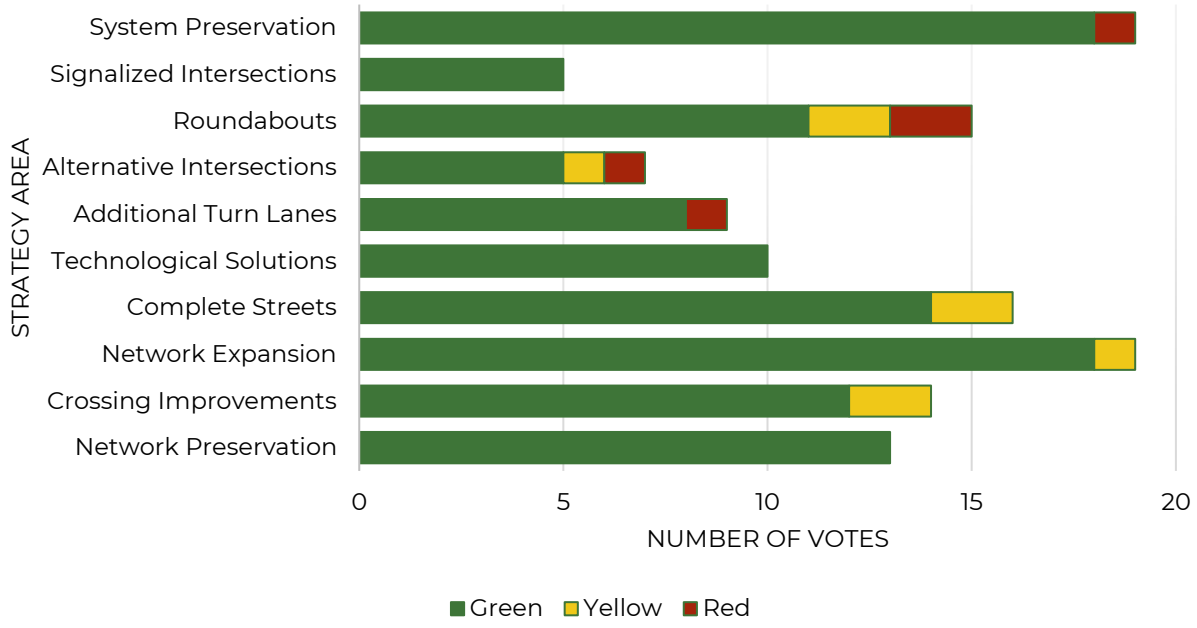
Public Input on Rapid Trip 2050 Strategies

The second open house held as part of the Rapid Trip 2050 development process occurred on March 20, 2025 and sought public input on the strategies identified as part of the MTP. Attendees at the open house were asked to provide their preferences on the range of strategies described above using green, yellow, and red stickers, with green representing preference for the strategy, yellow representing a neutral preference, and red representing a strategy that was not preferred by the attendee. **Figure 38** presents the results for the 19 attendees who participated in the activity.

As the figure shows, a high proportion of attendees indicated a preference for system preservation, complete streets, and bicycle and pedestrian strategies. Discussions held with attendees also highlighted interest in creating safer and more accessible options for bicyclists and pedestrians along the region's higher volume streets and roads.

Figure 38: Public Input on Rapid Trip 2050 Strategies

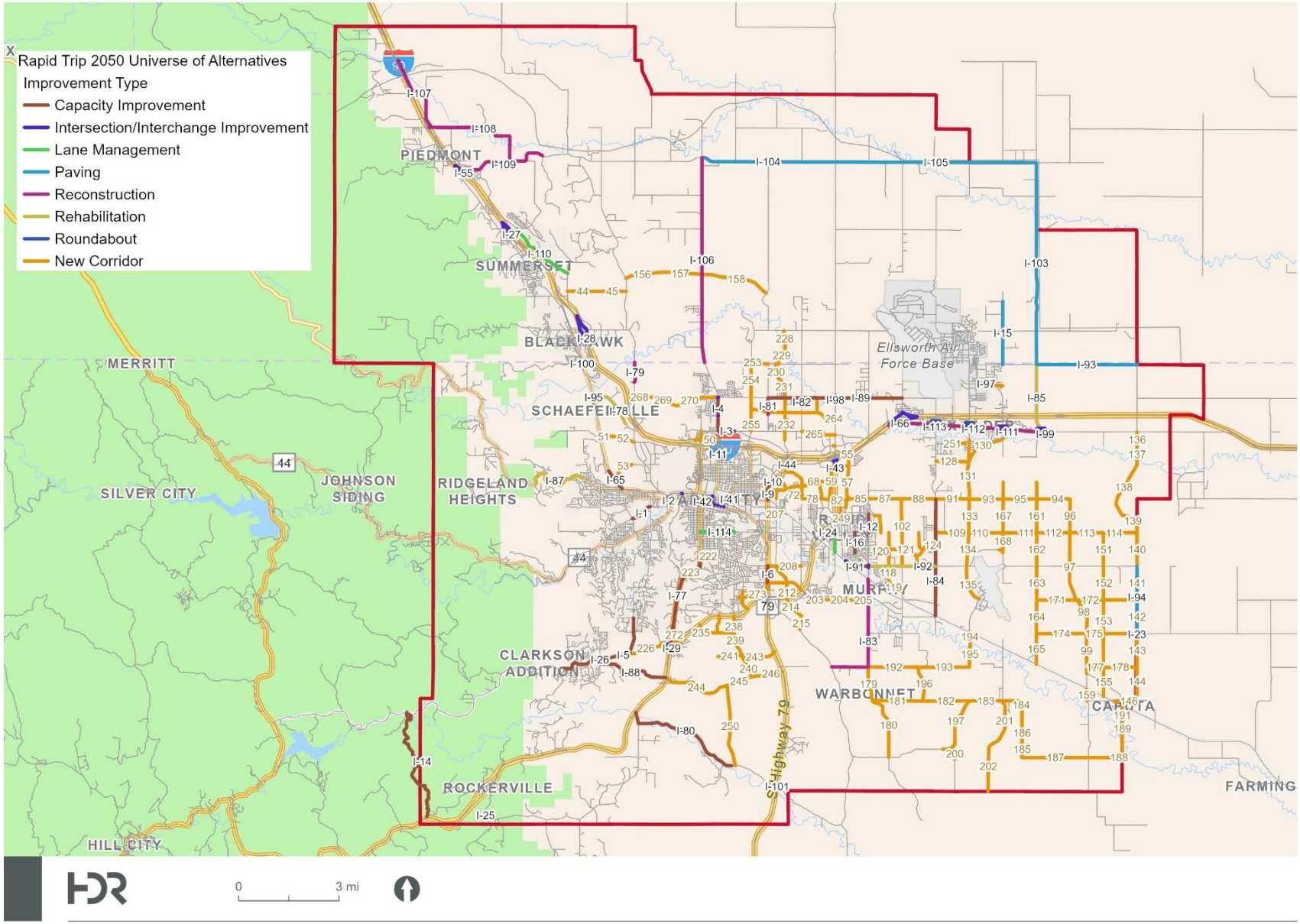


Developing Rapid Trip 2050's Universe of Alternatives

The basis of developing Rapid Trip 2050's universe alternatives began with a review of the alternatives developed for Rapid Trip 2045. These alternatives were evaluated to determine recent multi-modal improvements that have been implemented since the publication of the 2045 MTP, and compared to travel demand model results and recent studies to identify a list of potential projects for the 2050 MTP.

Rapid Trip 2050's fiscally constrained plan built off this universe of alternatives to identify individual fiscal constraint projects. **Figure 39** shows the full range of alternatives. Refer to **Appendix D** for further detail on Rapid Trip 2050's universe of alternatives.

Figure 39: Rapid Trip 2050 Universe of Alternatives



Chapter 8: Funding Plan

Federal metropolitan transportation planning regulations outlined in 23 CFR 450.324 require MTPs to provide an estimation of reasonably expected transportation revenue levels that the MPO and local agencies could receive over the life of the Plan. This estimation of reasonably expected future transportation revenue levels provides the roadmap for the implementation of the MTP and acts as the underlying basis for the Plan's fiscal constraint. Additionally, the federal metropolitan transportation planning regulations require a system-level estimate of reasonably expected costs and revenues associated with the operation and maintenance of Federal-aid highways and public transportation services.

This chapter describes the funding plan for Rapid Trip 2050, including a discussion of key federal, state, and local sources of transportation revenues, a review of historic federal, state, and local transportation revenues programmed by RCAMPO and its member agencies, and forecasts of reasonably expected future transportation revenues.

The RCAMPO Region's Funding Ecosystem

Federal Highway Funding Programs

Federal highway funding programs provide critical revenues for multi-modal transportation improvements within the RCAMPO region. Revenues received from federal programs are typically received by South Dakota Department of Transportation (SDDOT) who then coordinates with the state's MPOs, local agencies, citizens, and other stakeholder groups to program them on an annual basis.

The key federal funding programs that provide annual revenues for transportation improvements in the RCAMPO region are described below:[8]

- **Surface Transportation Block Grant Program (STBG)**: Flexible funding that may be used for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge, and tunnel projects on any public road, and pedestrian and bicycle infrastructure.
- **Transportation Alternatives Projects (TAP)**: Competitive grant funding for specific activities that enhance the intermodal transportation system and provide safe alternative transportation options.
- **National Highway Performance Program (NHPP)**: Funding to preserve and improve the conditions and performance of the Interstate System, the National

[8] South Dakota Department of Transportation, *2025-2028 Statewide Transportation Improvement Program.*

Highway System (NHS), and for construction of new facilities on the Interstate and NHS.

- **Highway Safety Improvement Program (HSIP)**: Funding to achieve a reduction in traffic fatalities and serious injuries on all public roads, including non-state-owned public roads and roads on tribal lands.
- **Bridge Formula Program (BFP)**: Funding for the replacement, rehabilitation, preservation, and protection of structures on the state and local highways.
- **Railway-Highway Crossings Program (Section 130)**: Funding for the elimination of hazards at railway-highway crossings.

Federal Transit Funding Programs

Federal transit funding programs are the main source of revenues for the operation, maintenance, and capital investments of the nation's public transportation providers. In its role as the region's main public transportation agency, Rapid Transit System (RTS) receives federal transit revenues from several programs administered by the Federal Transit Administration (FTA) annually. The key programs providing revenues for public transportation include:

- **Section 5307 Urbanized Area Formula Program**: Funding for transit capital and operating assistance, and transportation-related planning.
- **Section 5310 Enhanced Mobility for Seniors and Individuals with Disabilities**: Funding for the purpose of assisting nonprofit groups with meeting the mobility needs of seniors and individuals with disabilities.
- **Section 5339 Bus and Bus Related Facilities**: Funding for the purchase and rehabilitation of buses and related equipment, and the construction of bus-related facilities.

State Funding Programs

State transportation revenues made available for multi-modal transportation improvements are sourced from several funding programs. These funds are generally used to provide a state match on federal funds programmed and include:

- **Motor Fuel Excise Tax**: Funding provided through the collection of fuel excise taxes on motor fuel, special fuel, aviation fuel and alternative fuel when used to propel a motor vehicle.
- **Vehicle Excise Tax**: Funding provided through the collection of vehicle excise taxes associated with tax, title, and registration fees of vehicles registered within the state.
- **Non-Operating Revenue**: Funding that is not directly related to the operation of the state's transportation system, including transfers from other state agencies, surplus property sales, and federal grant funds.
- **Miscellaneous Revenue**: Funding collected from miscellaneous sources.

Local Funding Programs

Local transportation revenues are another critical source of funding used to match federal funds for the implementation of multi-modal transportation improvements as well as non-federal regionally significant improvements. RCAMPO's member agencies rely on a broad range of local revenue sources to program federally funded projects as well as non-federal local projects programmed in Capital Improvement Plans (CIPs) and County 5-Year Highway Plans.

Regionally Significant Projects

The Federal Highway Administration (FHWA) defines regionally significant projects as those on a facility that serves regional transportation needs and would normally be included in the modeling of the metropolitan area's transportation network.

The main sources of local transportation revenues may include:[9]

- **Assessments**: Funding from cost recoveries levied against real property based upon the cost of improvements by local agencies.
- **Bond Funds**: Funding derived from the issuance of general obligation bonds or revenue bonds by local agencies.
- **Enterprise Funds**: Funding from cost recoveries from user fees or surcharges against real property based upon the cost of improvement by the local agency.
- **Federal Funds**: Funding from grants or loans from the federal government.
- **General Fund**: Funding collected from local agencies General Fund that accounts for all revenues and expenditures of general property taxes, first penny sales tax, licenses and permits, etc.
- **Other Funds**: Funding from special revenue or trust funds that account for revenues restricted for specific purposes.
- **State Funds**: Funding from grants or loans from the state of South Dakota.
- **Sales Tax (2nd Penny)**: Funding from the additional one percent tax levied on gross receipts of retail businesses and services within the city of Rapid City's jurisdiction.
- **Tax Increment Financing (TIF)**: Funding collected from the application of TIF withing the region.
- **User Fees**: Funding collected from fees charged for goods and services to recover the costs associated with providing those goods and services, including transit fares and bus advertising.

[9] Rapid City Area Metropolitan Transportation Planning Organization, *Transportation Improvement Program FY2025-2028.*

Historic Funding Trends Analysis

Programming Multi-Modal Investments in the RCAMPO Region

SDDOT Funding Categories

Multi-modal transportation investments within the RCAMPO region are programmed on annual basis through SDDOT's Statewide Transportation Improvement Program (STIP), RCAMPO's Transportation Improvement Program (TIP), and capital planning activities conducted by RCAMPO's member agencies. These investments draw on revenues sourced from the federal, state, and local funding programs previously described.

To understand how these funds have been programmed in the RCAMPO region, historical trends have been organized using SDDOT's existing funding categories which are presented in **Table 22**. The table includes the associated federal funding program(s), if applicable, that provided revenues in support of past projects programmed in the RCAMPO region.

Table 22: SDDOT's Funding Categories

Category	Description	Associated Federal Funding Program(s)
Interstate Maintenance	Maintenance of South Dakota's Interstate routes. Projects selected by SDDOT.	NHPP STBGP BFP
Major Arterial	Improvements for South Dakota's major arterial network. Projects selected by SDDOT.	NHPP
State Highway Urban System	Improvements for South Dakota's state highways in urban areas. Projects selected by SDDOT.	NHPP STBGP
Bridge	Improvements or construction of bridge structures. Projects selected by local agencies.	NHPP STBGP BFP
Railroad Crossing Improvement	Improvements at locations of railroad crossings. Projects selected by SDDOT or local agencies.	Section 130
Roadway Safety Improvements	Safety improvements to reduce fatal and serious injury crashes. Projects selected by SDDOT or local agencies.	HSIP
Pavement Preservation	Projects to preserve existing highways, streets, and roads. Projects selected by SDDOT.	NHPP STBGP
County Secondary and Off System	Improvements to county secondary and off system roads. Projects selected by local agencies.	STBGP
Local Bridge Replacement	Replacement of locally owned bridge structures. Projects selected by local agencies.	BFP
Transportation Alternatives	Enhancements for active transportation modes. Projects selected by SDDOT or local agencies.	TAP

Source: South Dakota Department of Transportation, *2025-2028 Statewide Transportation Improvement Program.*

Historic Funding Trends for SDDOT's Funding Categories

The analysis of historic funding trends for SDDOT's funding categories provides insight into how RCAMPO and its member agencies allocate annual transportation revenues and provides a basis for estimating reasonably expected future transportation revenues that comprise the fiscal constraint of Rapid Trip 2050.

The historic trends analysis for SDDOT's funding categories was developed based on a review of RCAMPO's annual TIP publications for the years 2019 through 2025. Each annual TIP document provides the amount of funding programmed for each funding category during each year of the TIP's four-year period. Each funding category's four-year amounts of programmed funds were averaged to represent an annual amount of category funds for each TIP year between 2019 and 2025; these amounts represent the historic average annual amount of federal funds programmed for SDDOT-sponsored projects by annual TIP.

Table 23 shows the historic average annual funding amounts programmed in the RCAMPO region between 2019 and 2025 for the key SDDOT funding categories.

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Table 23: Historic Average Annual Funding Levels for SDDOT's Funding Categories

SDDOT Funding Category	2019	2020	2021	2022	2023	2024	2025	2019 – 2025 Average
Interstate Maintenance	$4,224,500	$4,427,000	$8,171,250	$9,902,000	$17,318,000	$28,987,500	$38,654,000	**$16,000,000**
Major Arterial Projects	$0	$0	$10,750	$863,250	$1,215,250	$1,648,750	$2,234,250	**$900,000**
State Highway System Urban Projects	$2,579,250	$2,839,750	$10,750	$875,000	$7,988,750	$13,464,250	$20,090,250	**$6,800,000**
Bridge Projects	$72,750	$0	$13,000	$33,500	$1,393,500	$3,183,250	$4,049,750	**$1,200,000**
Railroad Crossing Improvements	$11,250	$11,250	$180,000	$146,250	$337,500	$157,500	$112,500	**$100,000**
Roadway Safety Improvements	$2,048,250	$3,151,000	$2,586,750	$3,899,500	$7,319,500	$7,686,250	$8,779,000	**$5,100,000**
Pavement Preservation Projects	$1,570,750	$1,396,750	$1,338,750	$1,398,250	$2,074,250	$1,869,250	$957,250	**$1,500,000**
County Secondary and Off System Projects	$1,113,250	$1,113,250	$0	$0	$0	$0	$0	**$300,000**
Local Bridge Replacement Projects	$0	$0	$223,750	$223,750	$223,750	$0	$0	**$100,000**
Transportation Alternatives	$140,250	$152,000	$196,750	$196,750	$0	$8,346,000	$1,195,000	**$1,500,000**
Total	**$11,760,250**	**$13,091,000**	**$12,731,750**	**$17,538,250**	**$37,870,500**	**$65,342,750**	**$76,072,000**	**$33,500,000**

Source: Rapid City Area Metropolitan Planning Organization, *Transportation Improvement Programs 2019-2025*

Historic Funding Trends for RCAMPO's Member Agencies

The analysis of historic funding trends for RCAMPO's member agencies was based on reviews of local CIPs and 5-Year Highway Plans, as well as information reported in RCAMPO's historic annual TIP publications.

Local CIPs and 5-Year Highway Plans provided the annual amounts of transportation funds programmed by each of RCAMPO's member agencies while the MPO's annual TIP publications provided each agency's annual levels of investment in non-federally funded improvements that were of regional significance. Historic annual funding trends for the cities of Rapid City and Box Elder, and Pennington and Meade Counties were identified through the reviews of these documents.

The approach to developing the historic local funding trends analysis was to average each member agency's annual level of programmed local dollars listed in their respective improvement program published between 2019 and 2025 to serve as a historic annual baseline. Through averaging the total level of funds programmed during each annual improvement program's four-year period, the analysis better able to account for instances of substantial year-to-year fluctuation in the amounts of funds programmed.

Table 24 presents the historic average annual levels of transportation funds programmed in each of the member agency's jurisdiction between 2019 and 2025 while **Table 25** demonstrates the historic average annual trends related to each agency's investment in non-federally funded regionally significant multi-modal transportation improvements during this same time period.

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Table 24: Historic Annual Average Amounts of Local Funds Programmed by RCAMPO's Member Agencies, 2019-2025

Agency	2019	2020	2021	2022	2023	2024	2025	2019 – 2025 Average
City of Rapid City	$8,419,500	$10,233,473	$5,078,427	$11,799,020	$22,871,363	$10,606,943	$10,256,671	**$11,300,000**
City of Box Elder	$3,715,750	$4,894,500	$7,979,250	$2,466,250	$10,074,750	$1,389,922	$15,875,000	**$6,600,000**
Pennington County	$10,510,500	$5,255,350	$3,332,967	$6,102,935	$2,062,063	$12,970,000	$11,340,884	**$7,400,000**
Meade County	$4,380,750	$4,418,000	$1,039,500	$1,239,500	$3,525,000	$4,000,000	$5,687,500	**$3,500,000**
Total	$27,000,000	**$24,800,000**	**$17,400,000**	**$21,600,000**	**$38,500,000**	**$29,000,000**	**$43,200,000**	**$28,800,000**

Source: Rapid City Area Metropolitan Planning Organization, *Transportation Improvement Programs 2019-2025*

Table 25: Historic Annual Average Amounts of Local Funds Invested in Regionally-Significant Improvements by RCAMPO's Member Agencies, 2019-2025

Agency	2019	2020	2021	2022	2023	2024	2025	2019 – 2025 Average
City of Rapid City	$2,725,000	$4,475,223	$2,111,693	$6,105,068	$10,074,611	$6,101,338	$10,256,671	**$6,000,000**
City of Box Elder	$800,000	$4,250,000	$7,500,000	$187,500	$1,000,000	$1,389,922	$15,875,000	**$4,400,000**
Pennington County	$2,050,000	$300,000	$300,000	$2,425,000	$1,666,500	$3,362,500	$1,053,384	**$1,600,000**
Meade County	$1,175,000	$825,000	$950,000	$1,150,000	$3,487,500	$4,000,000	$5,687,500	**$2,500,000**
Total	**$6,800,000**	**$9,900,000**	**$10,900,000**	**$9,900,000**	**$16,200,000**	**$14,900,000**	**$32,900,000**	**$14,500,000**

Source: Rapid City Area Metropolitan Planning Organization, *Transportation Improvement Programs 2019-2025*

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Future Revenues

Baseline Levels for Forecasting Future Revenues

Baseline revenue levels used as the basis for forecasting future transportation revenues within the RCAMPO region were developed through the review of historic trends for SDDOT's funding categories and RCAMPO's member agency's CIPs and 5-Year Highway Plans.

SDDOT Funding Categories

Baseline revenue levels for the SDDOT funding categories reflect the average annual historic revenues programmed for each as published in RCAMPO's 2019 through 2025 TIP documents. **Table 26** provides the baseline revenue level used as the basis for forecasting future revenues for SDDOT's funding categories. Note that Interstate Maintenance and Major Arterial categories are excluded from **Table 26**; further detail on this exclusion is found in the **Revenue Growth Rates and Assumptions** section.

A second item of note is the baseline revenue level for the TA category was adjusted to account for the inclusion of a statewide TA projects line item included in RCAMPO's 2024 and 2025 TIPs that identified $8.3 million in TA funding. The majority of the $8.3M in statewide projects occurred outside of the MPO area. It was recognized that this programmed amount inflated the average annual amount of TA dollars actually spent in the RCAMPO region so these programmed amounts were withheld and annual average TA amounts programmed in the region throughout the analysis period was adjusted down to $300,000 per year (a reasonable estimate of how much of the statewide total was spent in the RCAMPO region).

Table 26: Baseline Revenue Levels for SDDOT Funding Category Forecasts

SDDOT Funding Category	Baseline Revenue
State Highway System Urban Projects	$6,800,000
Bridge Projects	$1,200,000
Railroad Crossing Improvements	$100,000
Roadway Safety Improvements	$5,100,000
Pavement Preservation Projects	$1,500,000
County Secondary and Off System Projects	$300,000
Local Bridge Replacement Projects	$100,000
Transportation Alternatives	$300,000

Local Funding Programs

Baseline revenue levels for RCAMPO's member agencies capital programs were derived following a similar approach to the SDDOT funding categories wherein the

historic revenues programmed by the cities of Rapid City and Box Elder, and Pennington and Meade Counties, were averaged across the 2019 through 2025 analysis period. Once the annual averages were calculated, they were then averaged across the analysis period to derive a baseline revenue level for each member agency. These baseline revenues are shown in **Table 27**.

Table 27: Baseline Revenue Levels for RCAMPO's Member Agencies Forecasts

Agency	Baseline Revenue (2025$)
Rapid City	$11,300,000
Box Elder	$6,600,000
Pennington County	$7,400,000
Meade County	$3,500,000

Revenue Growth Rates and Assumptions

The assumed growth rate applied for forecasts for SDDOT's funding category revenues and local capital planning revenues was 2.0%. Several additional assumptions were made when forecasting future revenue capacities. These assumptions included:

- SDDOT's Interstate Maintenance and Major Arterial categories were excluded from the forecasts as projects programmed under these categories are at the sole discretion of SDDOT.
- Roadway Safety Improvement funds, funded mainly under HSIP, programmed in the RCAMPO region through 2050 was assumed to be cyclical to reflect how these funds are programmed in the region. The underlying assumption in forecasting future Roadway Safety Improvement revenue capacity was that RCAMPO would receive these funds for a single project every five years; at which five-year interval, the 2% growth rate was applied to the previous revenue capacity.
- Revenue capacities for each member agency's capital improvement forecasts were assumed to remain flat in each of the Rapid Trip 2050 time bands; when transitioning into each succeeding time band, the 2.0% growth rate was applied for the first year for that time band and the revenue level was not grown until the next time band was reached.
- Future member agency revenue capacities were organized into non-regionally significant and regionally significant buckets based on the historic allocations of revenues programmed by each member agency for non-regionally significant and regionally significant projects. Further details are available in the Revenue Forecasts section below.

Rapid Trip 2050 Time Bands

Time bands were identified for the purpose of organizing future forecasted revenues into distinct periods that reflect year of expenditure (YOE) values, and for organizing the implementation of fiscally constrained projects. Rapid Trip 2050's time bands are:

- **Short-Term**: 2025 - 2030
- **Mid-Term**: 2031 - 2040
- **Long-Term**: 2041 - 2050

Revenue Forecasts

Revenue capacity forecasts for the SDDOT funding categories and RCAMPO's member agency capital improvement programs were developed by applying the 2.0% annual growth rate factor to the baseline revenue levels presented in **Table 26** and **Table 27**. These revenue forecasts form the basis of Rapid Trip 2050's fiscal constraint.

SDDOT Funding Categories

Revenue capacity forecasts for the SDDOT funding categories that provide annual federal and state funding for improving the RCAMPO's multi-modal transportation system are summarized in **Table 28**.

As **Table 28** shows, short-term revenue capacities for SDDOT's funding categories were forecasted to equal $70.1 million in the short-term period, $123.7 million in the mid-term period, and $179.6 million in the long-term period. This amounts to a total revenue capacity of $373.4 million through the life of Rapid Trip 2050.

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Table 28: Forecasted Revenue Capacities for SDDOT Funding Categories, 2025-2050

Time Band	State Highway System Urban Projects	Bridge Projects	Railroad Crossing Improvements	Roadway Safety Improvements	Pavement Preservation Projects	County Secondary and Off System Projects	Local Bridge Replacement Projects	Transportation Alternatives	Total
Short-Term (2025-2030)	$42,895,223	$7,569,745	$630,812	$5,100,000	$9,462,181	$1,892,436	$630,812	$1,892,436	**$70,073,646**
Mid-Term (2031-2040)	$74,700,012	$13,182,355	$1,098,530	$10,508,040	$16,477,944	$3,295,589	$1,098,530	$3,295,589	**$123,656,588**
Long-Term (2041-2050)	$111,366,924	$19,652,987	$1,637,749	$10,932,565	$24,566,233	$4,913,247	$1,637,749	$4,913,247	**$179,620,699**
Total	**$228,962,159**	**$40,405,087**	**$3,367,091**	**$26,540,605**	**$50,506,359**	**$10,101,272**	**$3,367,091**	**$10,101,272**	**$373,350,934**

Local Agency Capital Improvement Programs

Revenue forecasts for RCAMPO's member agencies through the year 2050 are summarized in **Table 29**.

As **Table 29** shows, the city of Rapid City is anticipated to have $67.8 million available in short-term revenues for capital improvements while forecasted revenues for the mid- and long-term periods are anticipated to be $115 million and $117 million, respectively. Forecasted revenues for the city of Box Elder are anticipated to equal just under $40 million in the short-term, $67 million in the mid-term, and $68 million in the long-term.

Pennington County's forecasted short-term revenues were estimated to equal $44.4 million while mid-term revenue forecasts were estimated to be $75 million. Long-term revenue forecasts for Pennington County are expected to equal $77 million. Forecasted revenues for Meade County were estimated to be $21 million in the short-term period, $36 million in the mid-term period, and $37 million in the long-term period.

Table 29: Revenue Forecasts for RCAMPO's Member Agencies Capital Improvements, 2025-2050

Time Band	Rapid City	Box Elder	Pennington County	Meade County	Total
Short-Term (2025-2030)	$67,800,000	$39,600,000	$44,400,000	$21,000,000	**$172,800,000**
Mid-Term (2031-2040)	$115,000,000	$67,000,000	$75,000,000	$36,000,000	**$293,000,000**
Long-Term (2041-2050)	$117,000,000	$68,000,000	$77,000,000	$37,000,000	**$299,000,000**
Total	**$299,800,000**	**$174,600,000**	**$196,400,000**	**$94,000,000**	**$764,800,000**

Revenues for Regionally Significant Non-Federally Funded Projects

RCAMPO's member agencies report the annual amount of capital improvement funds programmed for regionally significant non-federally funded projects in RCAMPO's annual TIP publications. Federal metropolitan transportation planning regulations require RCAMPO to include regionally significant projects in its annual TIP publications.

The estimation of each member agency's allocation of capital improvement funds to regionally significant projects was based on an analysis of the historic proportion of annual capital improvement funds to regionally significant projects as reported in RCAMPO's TIP publications for the years 2019 to 2025. **Table 30** provides the historic

proportions of local capital improvement funds programmed for each member agency.

Table 30: Historic Proportion of Local Capital Improvement Funds Programmed for Regionally Significant Projects

Agency	Proportion of Funds for Regionally Significant Projects
Rapid City	50.8%
Box Elder	47.5%
Pennington County	24.3%
Meade County	53.3%

To estimate future funding capacities for non-federally funded regionally significant projects, these proportions were applied to the revenue forecasts shown in **Table 29**. The resulting forecasted future revenue capacities for non-federally funded regionally significant projects through 2050 are summarized in **Table 31** while the remaining revenue forecasts for non-regionally significant projects are summarized in **Table 32**.

Table 31: Forecasted Revenue Capacities for Regionally Significant Projects, 2025-2025

Time Band	Rapid City	Box Elder	Pennington County	Meade County	Total
Short-Term (2025-2030)	$34,455,300	$18,812,477	$10,798,540	$11,198,558	**$75,264,876**
Mid-Term (2031-2040)	$58,441,881	$31,829,191	$18,240,777	$19,197,529	**$127,709,378**
Long-Term (2041-2050)	$59,458,261	$32,304,254	$18,727,198	$19,730,793	**$130,220,506**
Total	**$152,355,442**	**$82,945,923**	**$47,766,515**	**$50,126,880**	**$333,194,760**

Table 32: Forecasted Revenue Capacities for Non-Regionally Significant Projects, 2025-2025

Time Band	Rapid City	Box Elder	Pennington County	Meade County	Total
Short-Term (2025-2030)	$33,344,700	$20,787,523	$33,601,460	$9,801,442	**$97,535,124**
Mid-Term (2031-2040)	$56,558,119	$35,170,809	$56,759,223	$16,802,471	**$165,290,622**
Long-Term (2041-2050)	$57,541,739	$35,695,746	$58,272,802	$17,269,207	**$168,779,494**
Total	**$147,444,558**	**$91,654,077**	**$148,633,485**	**$43,873,120**	**$431,605,240**

Operations and Maintenance

Operations and maintenance (O&M) refers to the expenditures incurred by RCAMPO and its member agencies for recurring daily service and repair needs necessary to maintain the multi-modal transportation system. Federal metropolitan transportation planning regulations require the MTP to contain system-level estimates of costs and revenue sources that are reasonably expected over the life of the Plan to adequately operate and maintain Federal-aid highways and public transportation.

Consideration of O&M needs is a core component of RCAMPO's annual TIP process and the MPO provides O&M cost estimates in each of its annual TIP publications. These cost estimates are developed through coordination with SDDOT and RCAMPO's member agencies and provide a solid basis for forecasting reasonably expected O&M costs through the life of Rapid Trip 2050.

Historic O&M Cost Trends

Historic trends related to RCAMPO and its member agency's annual O&M costs for the years 2019 through 2025 were reviewed based on past TIP publications. O&M cost information is available for SDDOT, the cities of Rapid City, Box Elder, and Summerset, and Meade and Pennington Counties; it is noted that Summerset publishes O&M information in RCAMPO's annual TIP publications but does not include information pertaining to capital improvements, so this agency was excluded from the historic and future revenue capacity forecast analyses. **Table 33** summarizes the historic O&M costs each agency estimated for past TIP publications.

As **Table 33** shows, SDDOT's historic O&M cost estimates remained static at $2.1 million per year between 2019 and 2025. The City of Box Elder's historic estimated annual O&M costs were $950,000 for the years 2019 through 2022, before declining to $295,000 in 2022 and remaining at this level through 2025. The city of Rapid City's historic estimated annual O&M costs saw a significant increase in 2023, growing from $6.1 million for the years 2019 through 2022 to $18.3 million for the years 2023 through 2025. The city of Summerset's historic estimated annual O&M costs were reported as $75,000 for each year between 2019 and 2025.

Historic estimated annual O&M cost estimates for both Meade and Pennington Counties were static between 2019 and 2023; while Meade County's historic estimated annual O&M costs remained at just over $5 million in 2024 and 2025, Pennington County's historic estimated annual O&M costs increased from a 2019 through 2023 level of $8.7 million to $15.5 million in the years 2024 and 2025.

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Table 33: Historic Estimated O&M Costs for RCAMPO's Member Agencies, 2019 - 2025

Agency	2019	2020	2021	2022	2023	2024	2025
SDDOT	$2,100,000	$2,100,000	$2,100,000	$2,100,000	$2,100,000	$2,100,000	$2,100,000
Box Elder	$950,000	$950,000	$950,000	$950,000	$295,000	$295,000	$295,000
Rapid City	$6,119,587	$6,119,587	$6,119,587	$6,119,587	$18,270,430	$18,270,430	$18,270,430
Summerset	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
Meade County	$5,086,366	$5,086,366	$5,086,366	$5,086,366	$5,086,366	$5,086,366	$5,086,366
Pennington County	$8,673,603	$8,673,603	$8,673,603	$8,673,603	$8,673,603	$15,500,000	$15,500,000
Total	**$23,004,556**	**$23,004,556**	**$23,004,556**	**$23,004,556**	**$34,500,399**	**$41,326,796**	**$41,326,796**

Source: Rapid City Area Metropolitan Planning Organization, *Transportation Improvement Programs 2019-2025*

Forecasted O&M Costs

To understand the potential costs associated with operating and maintaining the region's future transportation system, future annual O&M cost forecasts were developed for each of RCAMPO's member agencies.

Forecast Baseline, Growth Rates, and Assumptions

O&M cost forecasts were calculated based on the historic annual cost estimate trends for RCAMPO's member agencies (as shown in **Table 33**). The baseline revenue level used to forecast future annual O&M costs reflects each local agency's cost estimated reported for the year 2025 and are shown in **Table 34**.

Table 34: Baseline Revenue Level for Annual O&M Cost Forecasts

Agency	Baseline Revenue (2025 $)
South Dakota Department of Transportation	$2,100,000
Box Elder	$295,000
Rapid City	$18,270,430
Summerset	$75,000
Meade County	$5,086,366
Pennington County	$15,500,000

Forecasted O&M costs by RCAMPO member agency were organized into Rapid Trip 2050 time bands to demonstrate fiscal constraint and provide an estimation of the fiscal resources that will likely be available to RCAMPO's member agencies through the year 2050.

The main assumption underlying the forecasted O&M costs was a conservative growth factor as the historic trends for each of RCAMPO's member agencies showed relatively low growth over the 2019 through 2025 analysis period. Carrying forward this trend, it was assumed that each member agency's O&M costs would remain static through each MTP time band, with a growth rate of 1.5% applied to the first year of the succeeding time band to reflect some increase in costs over the life of Rapid Trip 2050.

Forecasted O&M Costs

Forecasted O&M costs for RCAMPO's member agencies are summarized by time band in **Table 35**.

Table 35: Forecasted O&M Costs for RCAMPO Member Agencies by Time Band

Time Band	SDDOT	Box Elder	Rapid City	Summerset	Meade County	Pennington County	Total
Short-Term (2025-2030)	$10,500,000	$1,475,000	$91,352,150	$375,000	$25,431,830	$77,500,000	**$206,633,980**
Mid-Term (2031-2040)	$21,315,000	$2,994,250	$185,444,865	$761,250	$51,626,615	$157,325,000	**$419,466,979**
Long-Term (2041-2050)	$21,634,725	$3,039,164	$188,226,537	$772,669	$52,401,014	$159,684,875	**$425,758,984**
Total	**$53,449,725**	**$7,508,414**	**$465,023,552**	**$1,908,919**	**$129,459,459**	**$394,509,875**	**$1,051,859,943**

Chapter 9: Fiscally Constrained Plan

The development of a fiscally constrained plan is a main requirement per Federal Metropolitan Transportation Planning and Programming guidelines. This requirement states that the MTP must identify a list of future transportation projects that can be implemented given the estimation of reasonably expected future transportation revenues. In the context of the MTP, this means that future year project costs must fall within forecasted future transportation revenues.

Rapid Trip 2050's Fiscally Constrained Plan

The development of Rapid Trip 2050's fiscally constrained plan is based on the forecasted future revenues presented in **Chapter 8: Funding Plan** and the calculation of future Year of Expenditure (YOE) costs that represent forecasted project costs tied to the anticipation date of implementation for projects selected for inclusion in the fiscally constrained plan.

Inclusion in the fiscally constrained plan was based on project consistency with plan goals and objectives, how project costs fit with anticipated year-of-expenditure budgets, where the project fit within a practical project development timeframe, and placing an emphasis on maintaining and operating the federally supported transportation system.

Committed Projects

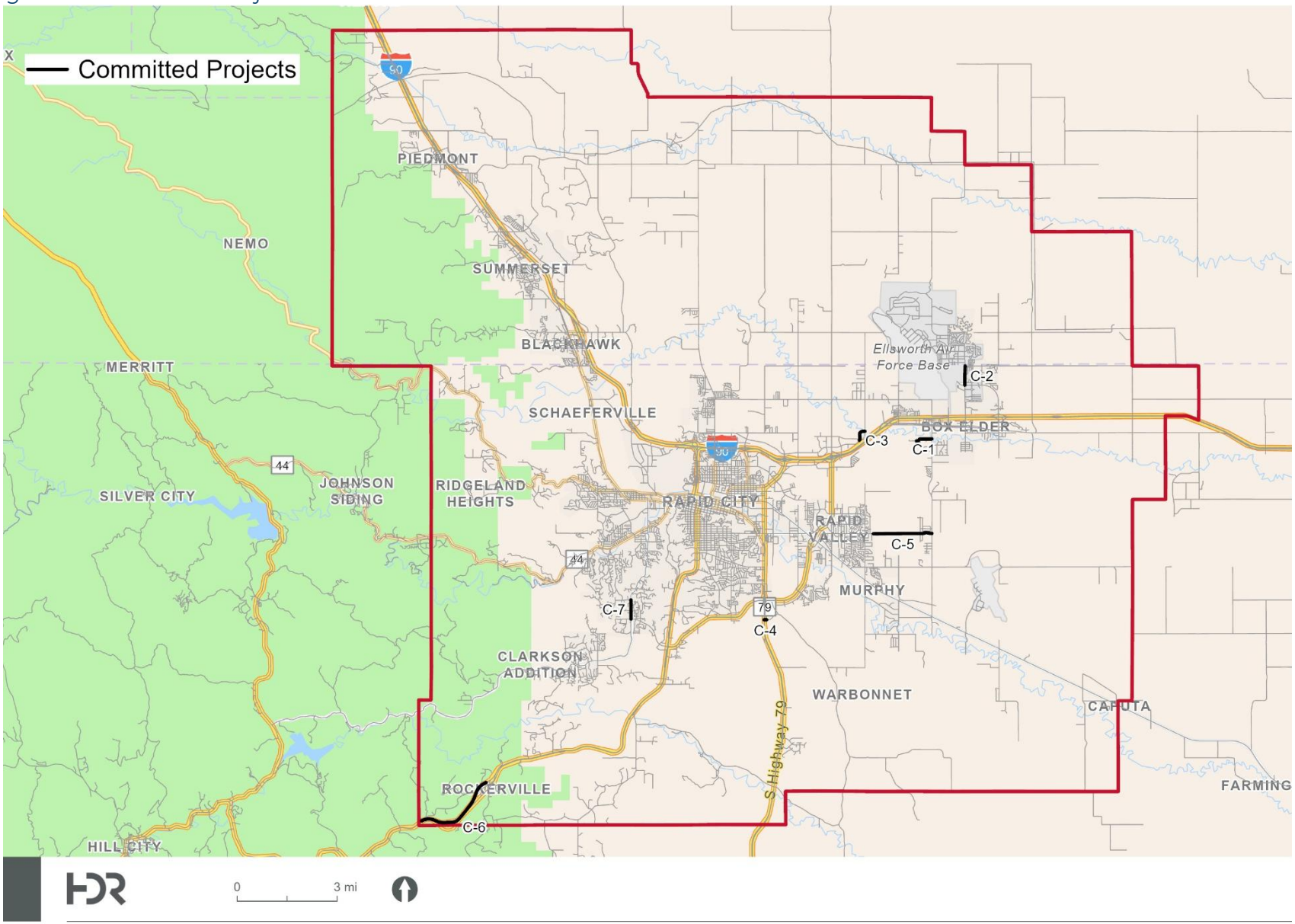
Major capital projects identified in RCAMPO's 2025-2028 TIP publication or member agency CIPs are considered committed for implementation. These projects reflect the first phase of the fiscally constrained plan. While the list of committed projects is not an exhaustive listing of all projects included in RCAMPO's TIP and member agency's CIPs, they are considered to be major projects that impact system capacity and are included in the future TDM's E+C network.

Table 36 details the committed projects while **Figure 40** presents their locations within the RCAMPO region.

Table 36: Committed Projects

ID	Corridor	From	To	Description
C-1	W Sunnydale Road	Radar Hill Road	Alpha Omega	Paving to 2-lane road.
C-2	N Ellsworth Road	Liberty Boulevard	225th Street	Add signals at Liberty Boulevard and 225th Street.
C-3	E Mall Drive	Seger Drive	Bennett Road	Extend E Mall Drive to Bennett Road.
C-4	Old Folsom Road	SD 79		Install traffic signal.
C-5	Twilight Drive	Twilight Drive	Radar Hill Road	Extend Twilight Drive to Radar Hill Road.
C-6	US 16	Silver Mountain Road	Rockerville Road	Grading, modify intersections, install turn lanes, lighting.
C-7	Sheridan Lake Road	Catron Boulevard	Corral Drive	Widen from 3-lane to 5-lane section.

Figure 40: Committed Projects



System Maintenance Requirements

Preservation of existing transportation infrastructure is a priority of Rapid Trip 2050. While the funding plan discussed in **Chapter 8**: Funding Plan presents estimated O&M costs related to the daily operations and maintenance of the existing multi-modal transportation system, there is a need to consider long-term requirements related to managing pavement and bridge structures. The plan balances future transportation revenues between improvements that expand the multi-modal transportation system and preserving sufficient funds to preserve and maintain existing assets. **The plan has set aside future revenues for project that will utilized federal monies to account for state of good repair project not explicitly called out in this plan**.

SDDOT directs programming of NHPP funds for the preservation of the state highway system. As this is state-directed according to needs across the entire state, individual preservation projects that would be candidates for funding under the NHPP are not identified as part of the fiscally constrained plan. The identification and programming of future NHPP-funded projects will be undertaken by SDDOT.

Analysis of future revenue capacities conducted as part of Rapid Trip 2050 demonstrates that RCAMPO anticipates sufficient revenue capacity to preserve and maintain multi-modal transportation assets, including “3R” projects that resurface, restore, and rehabilitate that preserve and extend the life of highway assets.

Fiscally Constrained Plan

Multi-modal transportation improvements included in Rapid Trip 2050’s fiscally constrained plan represent priority investments for RCAMPO and its member agencies that will leverage anticipated future annual revenues from federal STBG and TAP sources. The fiscally constrained plan provides an implementation schedule built around Rapid Trip 2050’s short-, mid-, and long-term time bands.

Project costs are presented in terms of 2025 dollars and a calculated YOE cost based on the estimated time of implementation. Included with the fiscally constrained projects is the anticipated source of federal funding and anticipated project sponsor.

A summary of how Rapid Trip 2050’s fiscally constrained plan allocates locally-directed STBG funds is in **Table 37**. The table compares the amount of locally-directed STBG funds anticipated to be available to RCAMPO and its member agencies to the level of STBG funds expended on fiscally constrained projects by time band. It shows that sufficient funds are available for the projects, with the difference assumed to serve as revenue capacity for preservation projects across each time band.

Table 37: Comparison of Locally-Direct STBG Revenues and Expenditures by Rapid Trip 2050 Time Band

Time Band	STBG Budget Expansion	STBG Expenditures-Local Expansion	STBG Balance Preservation Budget
Short-Term	$44,787,659	$0	**$44,787,659**
Mid-Term	$77,995,601	$81,272,000	**$41,511,260**
Long-Term	$116,280,170	$82,072,000	**$75,719,431**

Fiscally constrained roadway projects identified for the short-term are summarized in **Table 38** and **Figure 41** while short-term bicycle and pedestrian projects are summarized in **Table 39** and **Figure 42**.

Mid-term roadway projects are summarized in **Table 40** and **Figure 43** while mid-term bicycle and pedestrian projects are summarized in **Table 41** and **Figure 44**.

Long-term roadway projects are summarized in **Table 42** and **Figure 45** while long-term bicycle and pedestrian projects are summarized in **Table 43** and **Figure 46**.

Table 38: Short-Term Roadway Improvements

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
I-29	US 16	At Catron Boulevard		Interchange	$43,840,000	$46,060,000	$36,848,000	$9,212,000	STBG/ NHPP	SDDOT
I-17	I-90	At Exit 63/Box Elder		Interchange	$27,400,000	$28,790,000	$23,032,000	$5,758,000	NHPP	SDDOT
I-55	I-90	At Exit 46/Elk Creek Road		Interchange	$27,400,000	$28,790,000	$23,032,000	$5,758,000	NHPP	SDDOT
I-35	W Main Street	At Mountain View Road		Safety Improvements	$70,000	$70,000	$56,000	$14,000	HSIP	Rapid City
I-39	Main Street	At Mount Rushmore Road		Safety Improvements	$480,000	$500,000	$400,000	$100,000	HSIP	Rapid City
I-40	5th Street	At E St. Patrick Street		Safety Improvements	$480,000	$500,000	$400,000	$100,000	HSIP	Rapid City
I-65	Sturgis Road	W Chicago Street	Pine Hills Drive	Capacity Improvement	$4,520,000	$4,750,000	$3,800,000	$950,000	STBG-State	SDDOT
I-77	US 16	Catron Boulevard	Tower Road	Capacity Improvement	$19,660,000	$20,660,000	$16,528,000	$4,132,000	STBG-State	SDDOT
				Short-Term Total	**$123,850,000**	**$130,120,000**	**$104,096,000**	**$26,024,000**		

Figure 41: Short-Term Roadway Improvements

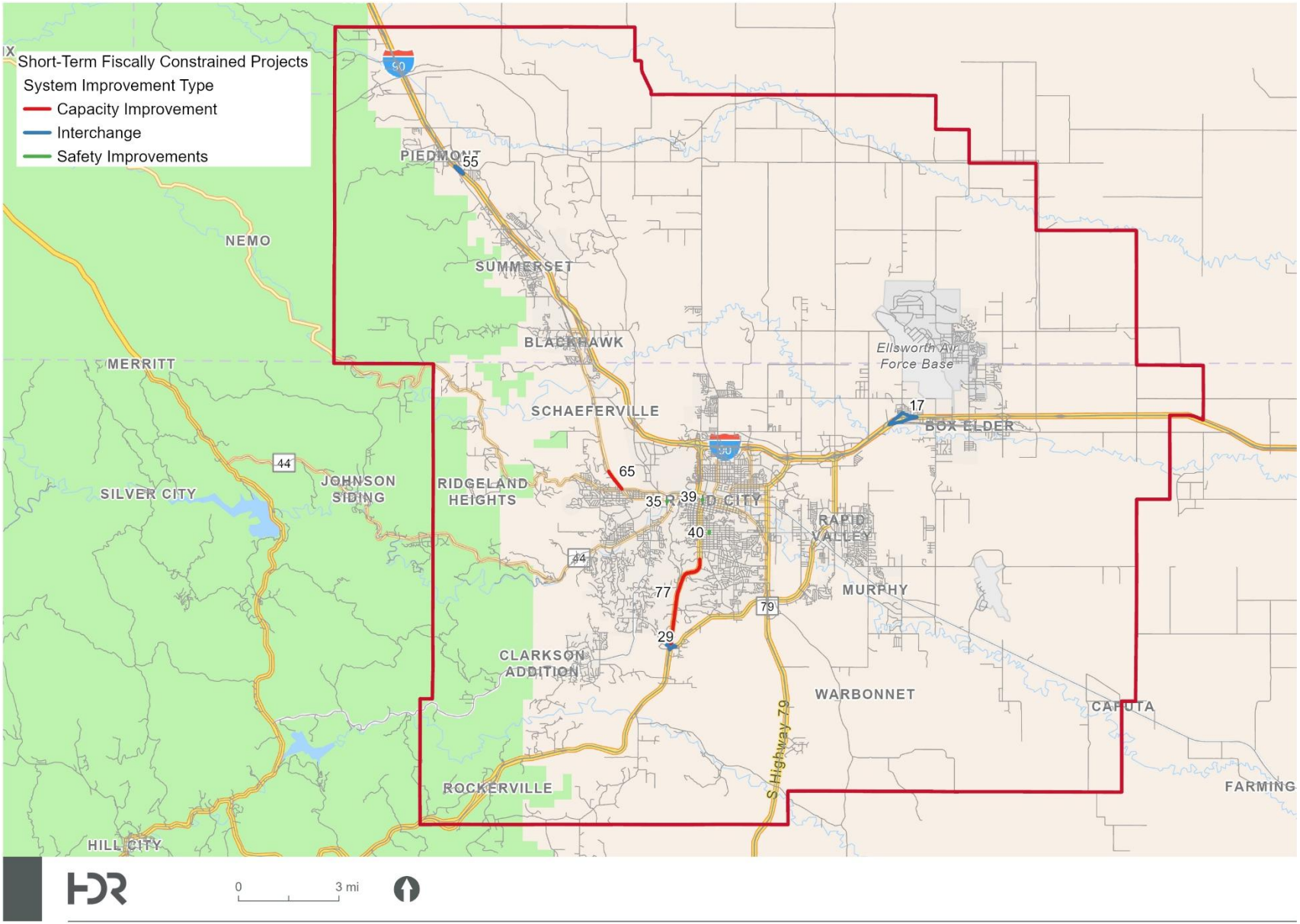


Table 39: Short-Term Bicycle and Pedestrian Improvements

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
2143	Cambell Street	E St. Patrick Street	E St. Charles Street	Sidewalk: Sidewalk, One Side	$70,000	$70,000	$56,000	$14,000	TAP	City of Rapid City
P504	North Street	West Boulevard N	N 1st Street	On-Street: Buffered Bike Lane	$180,000	$190,000	$152,000	$38,000	TAP	City of Rapid City
P521	Van Buren Street	Allen Avenue	Milwaukee Street	On-Street: Buffered Bike Lane	$200,000	$210,000	$168,000	$42,000	TAP	City of Rapid City
1499	E Saint Patrick Street	E St. Joseph Street	Cherry Avenue	Sidewalk: Sidewalk, Both Sides	$30,000	$30,000	$24,000	$6,000	TAP	City of Rapid City
P463	Anamosa Street	Haines Avenue	Silver Street	Off-Street: Shared Use Path	$1,090,000	$1,150,000	$920,000	$230,000	TAP	City of Rapid City
P122	Argyle Street	Jackson Boulevard	W Flormann Street	Off-Street: Shared Use Path	$350,000	$370,000	$296,000	$74,000	TAP	City of Rapid City
				Short-Term Total	**$1,920,000**	**$2,020,000**	**$1,616,000**	**$404,000**		

Figure 42: Short-Term Bicycle and Pedestrian Improvements

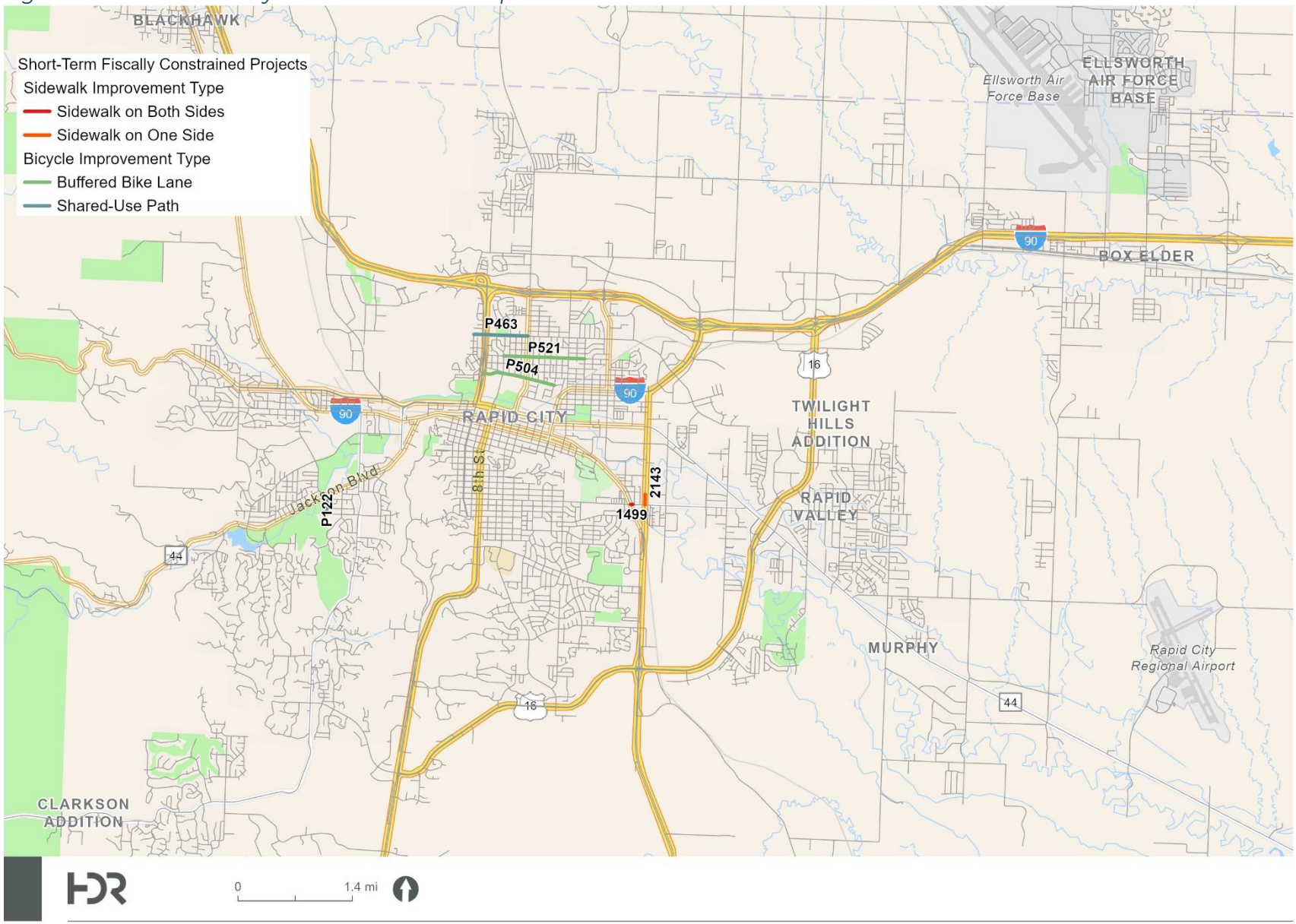


Table 40: Mid-Term Roadway Improvements

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
226	Les Hollers Road	Catron Boulevard	Sheridan Lake Road	New Corridor	$7,330,000	$9,020,000	$7,216,000	$1,804,000	STBG Payout	Rapid City/ Pennington County
235	South Growth Area Road	Catron Boulevard	5th Street	New Corridor	$8,430,000	$10,380,000	$8,304,000	$2,076,000	STBG Payout/ Developer	Rapid City/ Pennington County
238	5th Street Extension	US 16	South Growth Area Road	New Corridor	$3,430,000	$4,220,000	$3,376,000	$844,000	STBG Payout/ Developer	Rapid City/ Pennington County
220	Elm Avenue	Field View Drive	Elk Vale Road	New Corridor	$4,110,000	$5,060,000	$4,048,000	$1,012,000	STBG Payout/ Developer	Rapid City
72	Anamosa Street	Creek Drive	Valley Drive	New Corridor	$5,270,000	$6,490,000	$5,192,000	$1,298,000	STBG Payout/ Developer	Rapid City
67	Philadelphia Street	Anamosa Street	Valley Drive	New Corridor	$3,150,000	$3,880,000	$3,104,000	$776,000	STBG Payout/ Developer	Rapid City
I-6	Cambell Street	Minnesota Street	Fairmont Boulevard	Capacity Improvement	$1,710,000	$2,110,000	$1,688,000	$422,000	STBG Payout/ Developer	Rapid City

Table 40 continued

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
I-25	S Rockerville Road	At Neck Yoke Road		Intersection Improvement	$70,000	$90,000	$72,000	$18,000	HSIP	Pennington County
I-26	Sheridan Lake Roadd	At Dunsmore Road		Intersection Improvement	$550,000	$680,000	$544,000	$136,000	HSIP	Pennington County
62	Valley Drive	Creek Drive	Philadelphia Street	New Corridor	$5,210,000	$6,410,000	$5,128,000	$1,282,000	STBG Payout/ Developer	Rapid City
64	Valley Drive	Philadelphia Street	Anamosa Street	New Corridor	$2,530,000	$3,110,000	$2,488,000	$622,000	STBG Payout/ Developer	Rapid City
78	Anamosa Street	Valley Drive	Elk Vale Road	New Corridor	$6,890,000	$8,480,000	$6,784,000	$1,696,000	STBG Payout/ Developer	Rapid City
217	Minnesota Avenue	Cambell Street	Elk Vale Road	New Corridor	$11,030,000	$13,580,000	$10,864,000	$2,716,000	STBG Payout/ Developer	Rapid City
I-9	Cambell Street	E Omaha Street	E North Street	Capacity Improvement	$10,000,000	$12,310,000	$9,848,000	$2,462,000	STBG-State	Rapid City
I-10	North Street	Cambell Street	Anamosa Street	Capacity Improvement	$1,710,000	$2,110,000	$1,688,000	$422,000	STBG Payout	Rapid City

Table 40 continued

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
I-14	Boulder Hill Road	At Silver Mountain Road		Intersection Improvement	$270,000	$330,000	$264,000	$66,000	STBG Payout/ Developer	Pennington County
212	Creek Drive	Southern Terminus	E Minnesota Street	New Corridor	$7,600,000	$9,360,000	$7,488,000	$1,872,000	STBG Payout/ Developer	Rapid City
272	Promise Road/Healing Way	US 16	US 16B	New Corridor	$4,360,000	$5,370,000	$4,296,000	$1,074,000	STBG Payout/ Developer	Rapid City
				Mid-Term Total	**$93,140,000**	**$114,670,000**	**$91,736,000**	**$22,934,000**		

Figure 43: Mid-Term Roadway Improvements

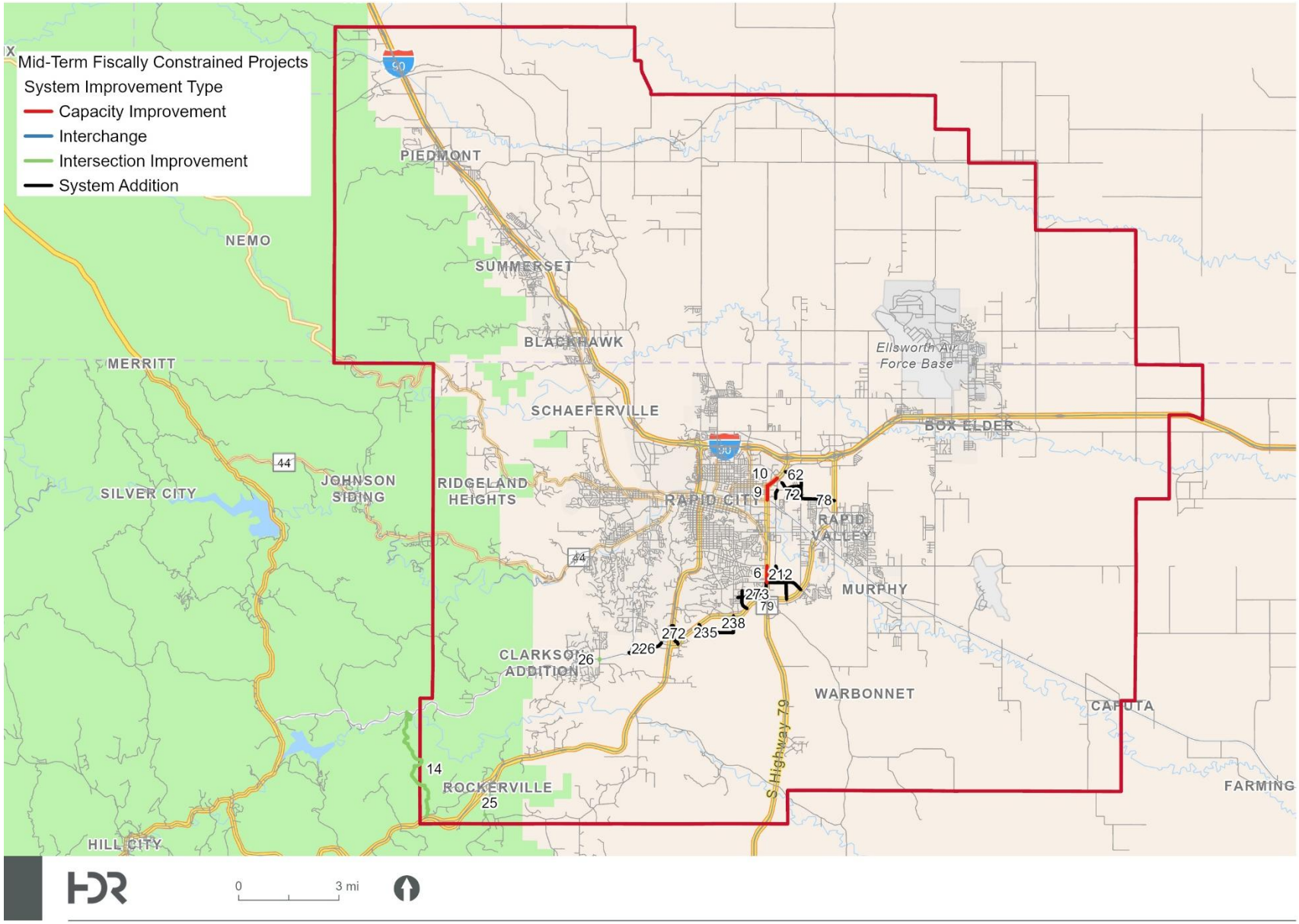


Table 41: Mid-Term Bicycle and Pedestrian Improvements

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
P085	N Maple Avenue	Disk Drive	Anamosa Street	On-Street: Buffered Bike Lane	$120,000	$150,000	$120,000	$30,000	TAP	City of Rapid City
P081	Milwaukee Street	Crestwood Drive	E New York Street	On-Street: Buffered Bike Lane	$210,000	$260,000	$208,000	$52,000	TAP	City of Rapid City
P082	N Maple Avenue/E Philadelphia Street	Leonard "Swanny" Swanson	Cambell Street	On-Street: Buffered Bike Lane	$240,000	$300,000	$240,000	$60,000	TAP	City of Rapid City
P384	Apolda Street	Mt Rushmore Road	6th Street	On-Street: Buffered Bike Lane	$40,000	$50,000	$40,000	$10,000	TAP	City of Rapid City
P522	Franklin Avenue/ Belleview Drive/E St. Andrew Street	West Boulevard	5th Street	On-Street: Buffered Bike Lane	$110,000	$140,000	$112,000	$28,000	TAP	City of Rapid City
2180	North Street	N 1st Street	East Boulevard N	Sidewalk: Sidewalk, One Side	$60,000	$70,000	$56,000	$14,000	TAP	City of Rapid City
2177	North Street	Wood Avenue	N 2nd Street	Sidewalk: Sidewalk, One Side	$90,000	$110,000	$88,000	$22,000	TAP	City of Rapid City

Table 41 continued

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
P400	5th Street	Cleveland Street	Texas Street	Off-Street: Shared Use Path	$1,450,000	$1,790,000	$1,432,000	$358,000	TAP	City of Rapid City
P544	Hawthorne Avenue	Meade Street	E Oakland Street	Off-Street: Shared Use Path	$550,000	$680,000	$544,000	$136,000	TAP	City of Rapid City
			Mid-Term Total		**$2,870,000**	**$3,550,000**	**$2,840,000**	**$710,000**		

Figure 44: Mid-Term Bicycle and Pedestrian Improvements

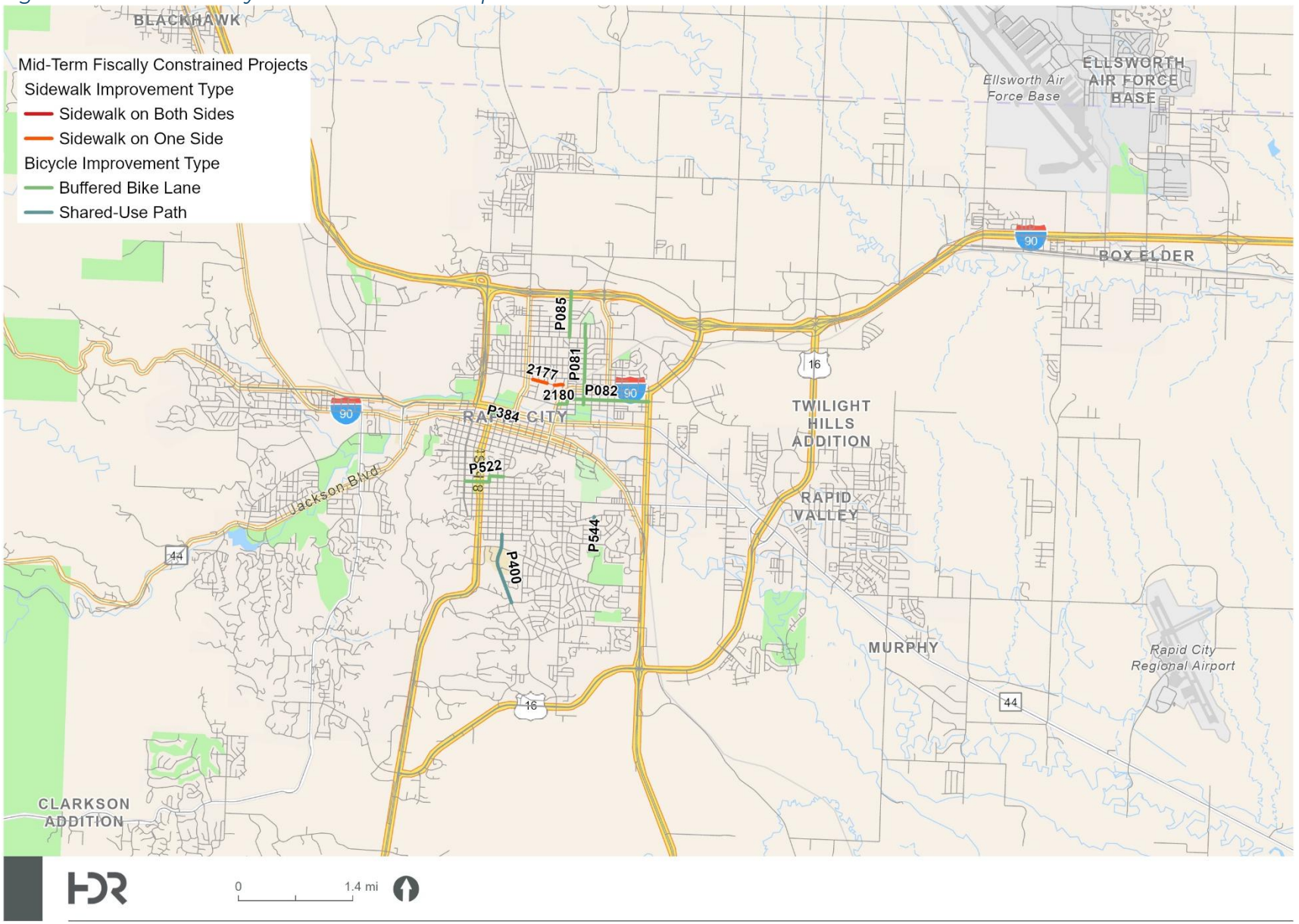


Table 42: Long-Term Roadway Improvements

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
57	Degeest Drive	Cheyenne Boulevard	Bernice Street	New Corridor	$6,780,000	$10,170,000	$8,136,000	$2,034,000	STBG Payout/ Developer	Rapid City /Box Elder
59	Turbine Drive	Eglin Street	Anamosa Street	New Corridor	$6,710,000	$10,070,000	$8,056,000	$2,014,000	STBG Payout/ Developer	Rapid City
61	Concourse Drive	Philadelphia Street	Anamosa Street	New Corridor	$3,700,000	$5,550,000	$4,440,000	$1,110,000	STBG Payout/ Developer	Rapid City
68	Philadelphia Street	Valley Drive	Elk Vale Road	New Corridor	$7,120,000	$10,690,000	$8,552,000	$2,138,000	STBG Payout/ Developer	Rapid City
82	Anamosa Street	Elk Vale Road	Degeest Drive	New Corridor	$2,470,000	$3,710,000	$2,968,000	$742,000	STBG Payout/ Developer	Rapid City
85	Anamosa Street	Degeest Drive	E 53rd	New Corridor	$6,850,000	$10,280,000	$8,224,000	$2,056,000	STBG Payout/ Developer	Rapid City
208	Fairmont Boulevard	Cambell Street	Elk Vale Road	New Corridor	$7,120,000	$10,690,000	$8,552,000	$2,138,000	STBG Payout/ Developer	Rapid City

Table 42 continued

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
237	South Growth Area Road	Elk Vale Road	South Growth Area Road	New Corridor	$3,560,000	$5,340,000	$4,272,000	$1,068,000	STBG Payout/ Developer	Rapid City/ Pennington County
239	5th Street Extension	South Growth Area Roads		New Corridor	$5,000,000	$7,500,000	$6,000,000	$1,500,000	STBG Payout/ Developer	Rapid City/ Pennington County
265	Seger Drive	Dyes Avenue	Elk Vale Road	New Corridor	$6,990,000	$10,490,000	$8,392,000	$2,098,000	STBG Payout/ Developer	Rapid City/ Pennington County
			Long-Term Total		**$68,360,000**	**$102,590,000**	**$82,072,000**	**$20,518,000**		

Figure 45: Long-Term Roadway Improvements

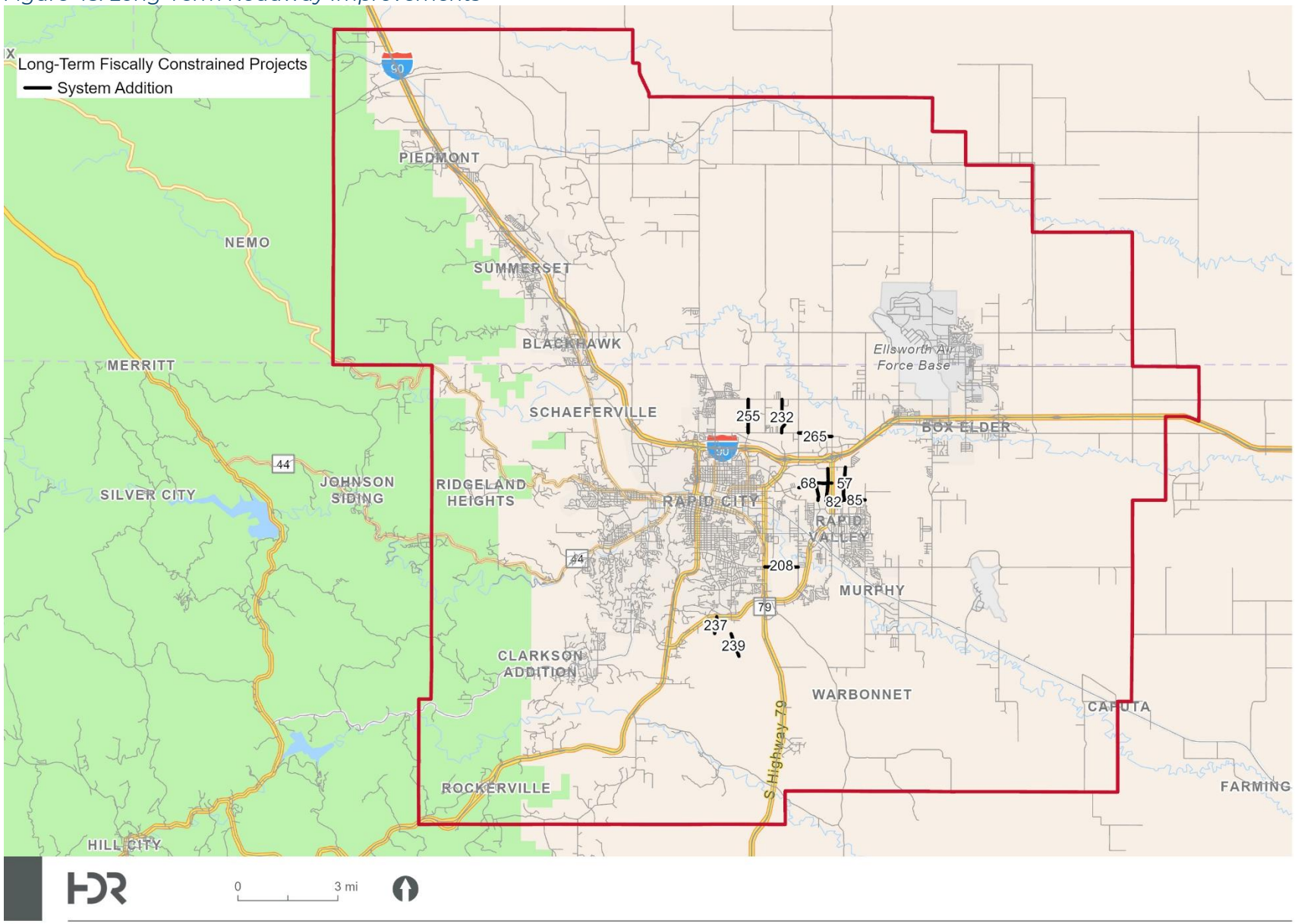
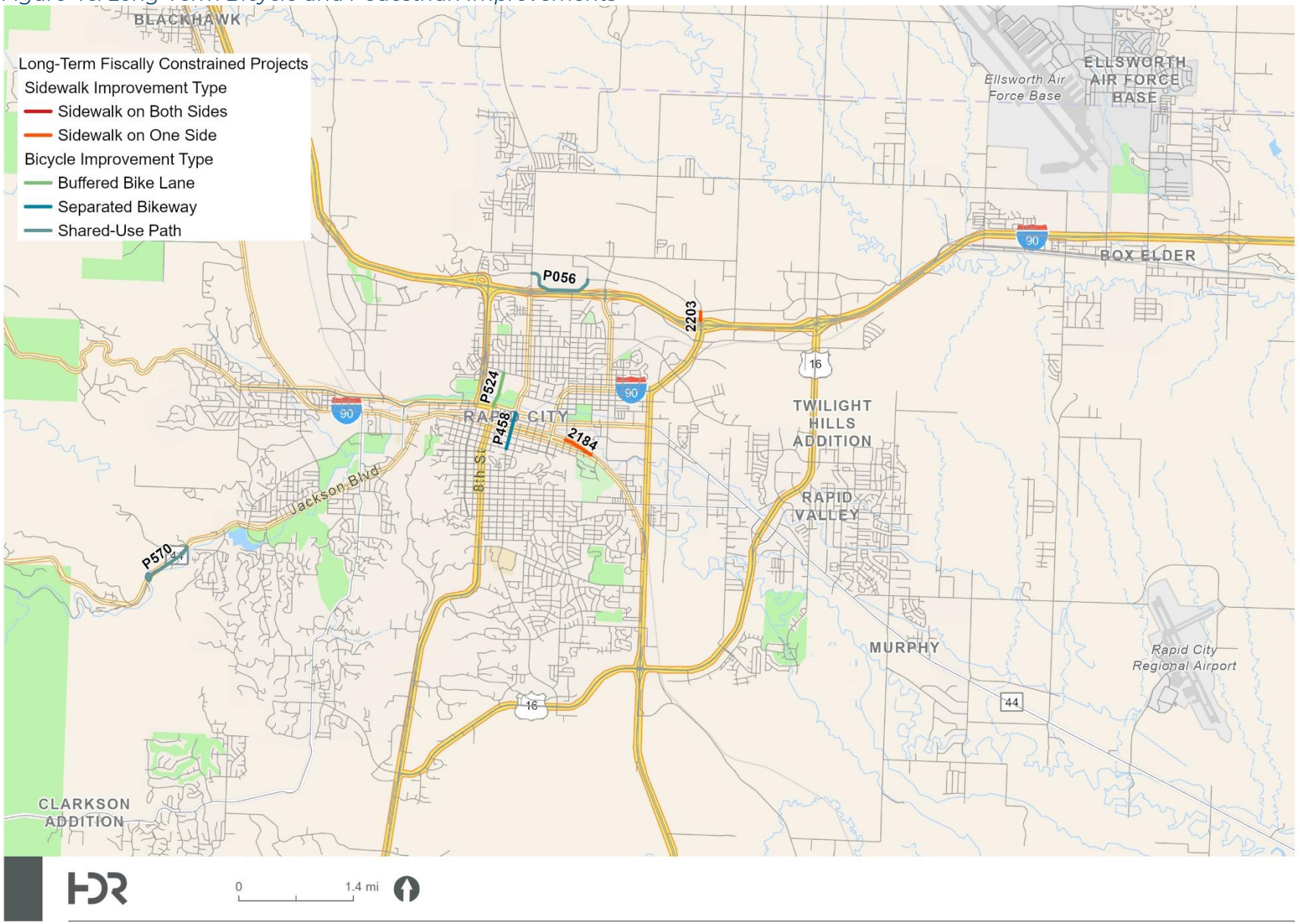


Table 43: Long-Term Bicycle and Pedestrian Improvements

ID	Corridor	From	To	Project Type	Cost (2025 $)	Cost (YOE $)	Federal Share (YOE $)	Non-Federal Share (YOE $)	Funding Source	Potential Sponsor(s)
P458	5th Street	Omaha Street	Columbus Street	On - Street: Separated Bikeway	$630,000	$950,000	$760,000	$190,000	TAP	City of Rapid City
P524	Mt. Rushmore Road	North Street	Omaha Street	On-Street: Buffered Bike Lane	$90,000	$140,000	$112,000	$28,000	TAP	City of Rapid City
2184	E Main Street	Maple Avenue	Steele Avenue	Sidewalk: Sidewalk, One Side	$180,000	$270,000	$216,000	$54,000	TAP	City of Rapid City
2203	E North Street	I-90 Entrance	E Mall Drive	Sidewalk: Sidewalk, One Side	$60,000	$90,000	$72,000	$18,000	TAP	City of Rapid City
P570	Jackson Boulevard	Cliffside Park	Existing Trail	Off-Street: Shared Use Path	$1,240,000	$1,860,000	$1,488,000	$372,000	TAP	City of Rapid City
P056	Maple Avenue	Haines Avenue	Disk Drive	Off-Street: Shared Use Path	$1,460,000	$2,190,000	$1,752,000	$438,000	TAP	City of Rapid City
				Long-Term Total	**$3,660,000**	**$5,500,000**	**$4,400,000**	**$1,100,000**		

Figure 46: Long-Term Bicycle and Pedestrian Improvements



Chapter 10: Environmental Review

A desktop review of available data was completed to analyze potential environmental resources within the Rapid City MPO Boundary. The resources considered are generally consistent with the National Environmental Policy Act (NEPA), its implementing regulations, and Federal Highway Administration (FHWA) guidelines. The following sections summarize resources that are considered red flag environmental resources with separate regulatory drivers. Coordination with these agencies was completed as part of the environmental screening process. Further coordination would be required for each project. The following sections describe each resource category, along with the approach and limitation for each category.

Archaeological and Historical Resources

The National Historic Preservation Act (NHPA) of 1966 produced a regulatory framework, mandating review of federally funded and permitted projects to determine any potentially adverse impacts to historic properties and cultural resources. Section 106 of the NHPA requires projects to avoid impacts to sites listed under the National Register of Historic Places (NRHP) and properties which are potentially eligible for inclusion under the NRHP. If impacts to these sites cannot be avoided, then efforts to minimize and mitigate impacts to the greatest extent possible are required.

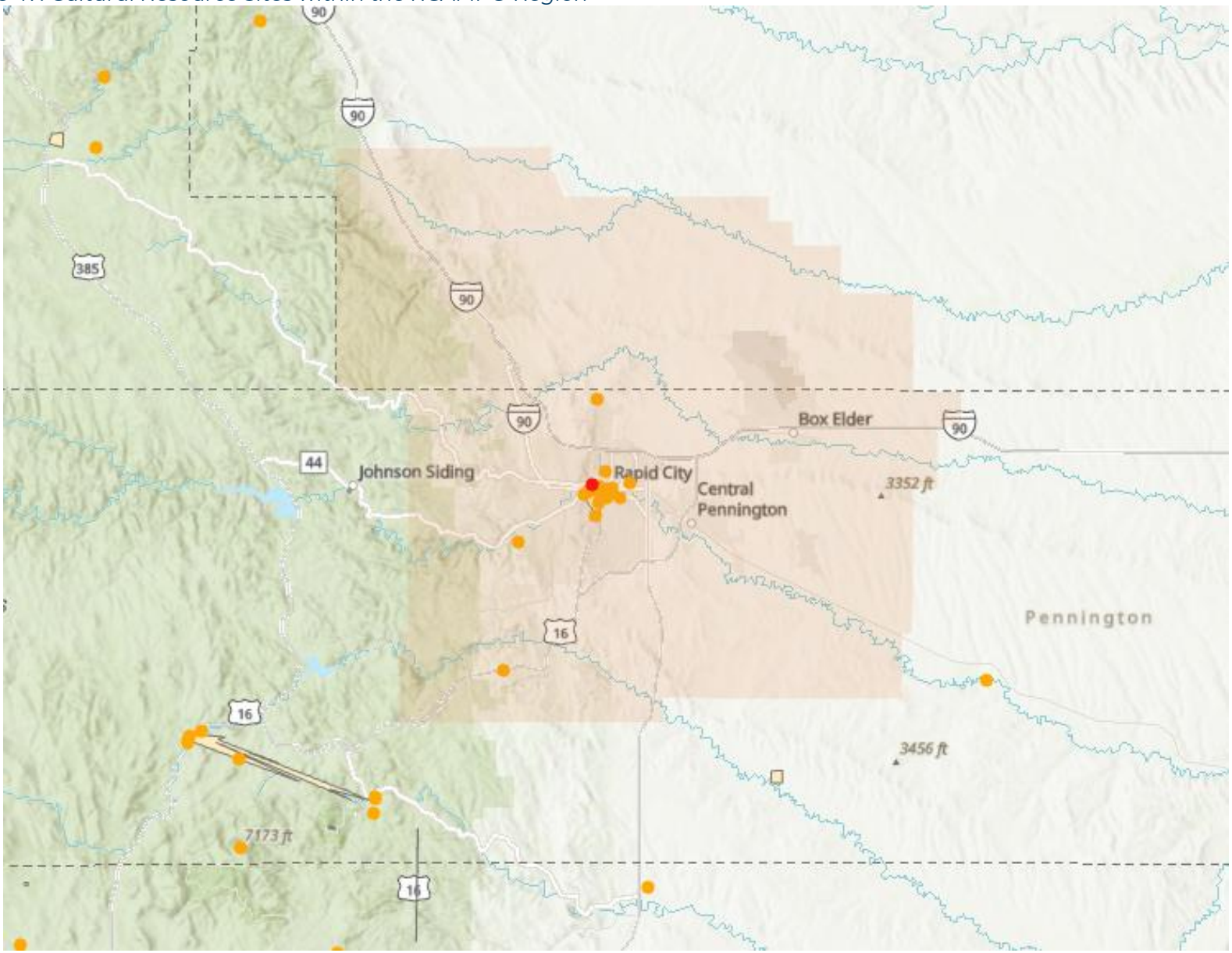
Approach: A review of NRHP-listed sites provided by the U.S. National Park Service (NPS) was completed to identify potential historic properties and cultural resources within the MPO. A Level I cultural literature search was not completed during this review because of the size of the MPO region. Within the Rapid City MPO boundary, there is potential for historic and cultural resources and projects planned within the MPO region may require consultation between the FHWA, South Dakota Department of Transportation (SDDOT) and the South Dakota State Historic Preservation Office (SDSHPO).

The review of NPS data resulted in 28 sites located within the region that have been listed or determined to be eligible for listing under the NRHP. Shapefiles of these sites were imported into ArcGIS and can be compared against future project concepts to determine the potential for impacts to historic properties and cultural resources.

Limitations: The MPO should engage with FHWA, SDSHPO, and SDDOT early in project planning, to coordinate the applicability of Section 106 and to conduct a Level I cultural resource literature search from SDSHPO. When appropriate, the MPO should anticipate that a Level III cultural resource inventory will be conducted in the field, including identification of archaeological, architectural, and traditional cultural

properties which may be affected by the project. When historic properties are identified, the MPO should anticipate that avoidance or mitigation of adverse effects to such properties would be required. Impacts to historic properties as a result of a FHWA-funded project may be considered protected under Section 4(f) of the U.S. Department of Transportation Act of (DOT Act) 1966. **Figure 47** identifies Cultural Resource Sites throughout the MPO area.

Figure 47: Cultural Resource Sites within the RCAMPO Region



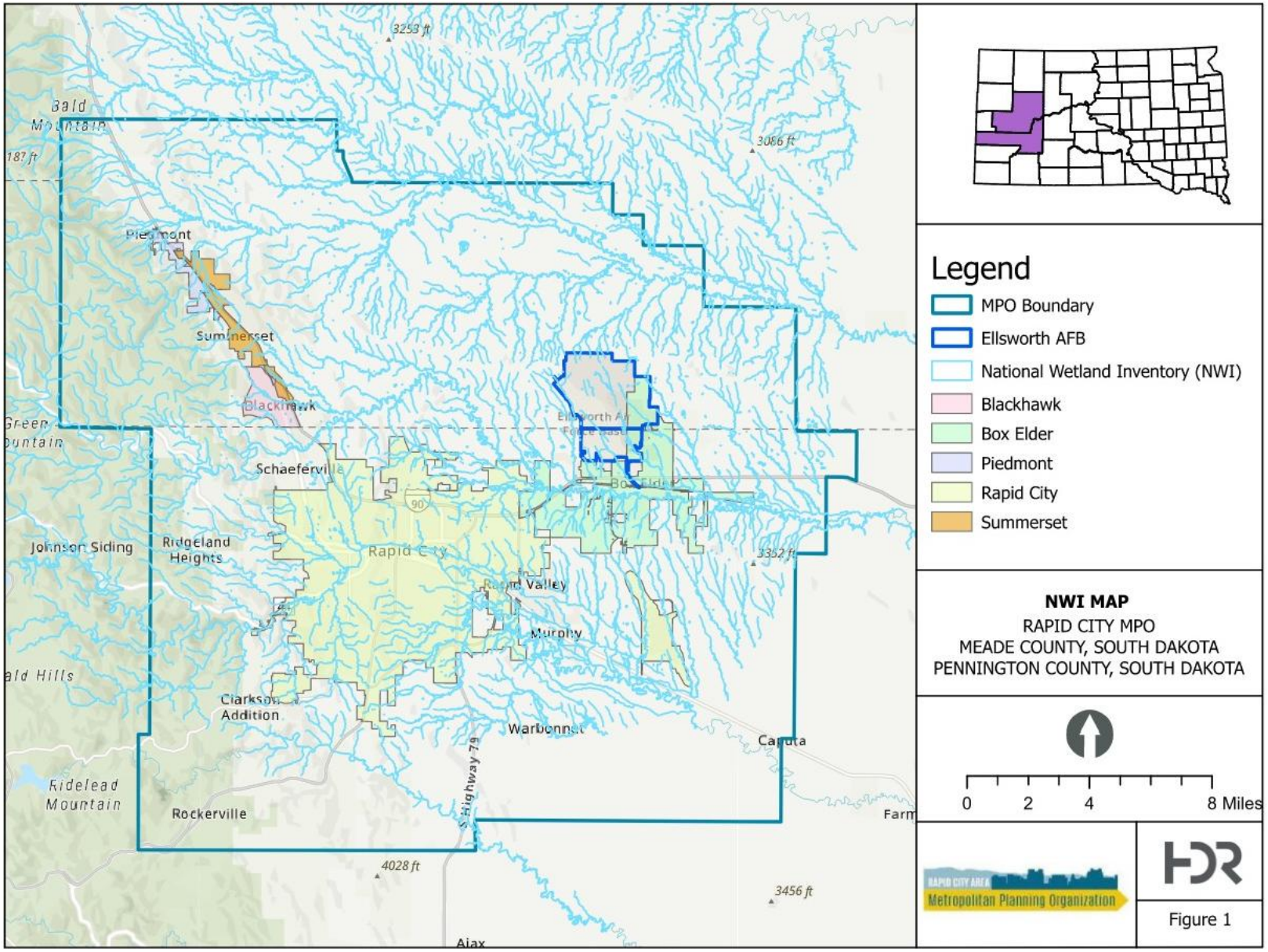
Wetlands and Waters of the United States

Wetlands and other Waters of the United States (WOUS) are protected under Section 404 of the Clean Water Act and Executive Order 11990 Protection of Wetlands. These regulations require avoidance of all permanent wetland impacts or, where avoidance is not possible, minimization to the greatest extent possible. When permanent impacts to jurisdictional waters cannot be avoided, a Section 404 permit will be required from the US Army Corps of Engineers (USACE). Any project that would result in permanent impacts of generally 0.10 acres or more will require a wetland mitigation plan. Under Section 404, there are generally two types of permits: Nationwide Permits (NWP) and individual permits. Projects impacting more than 0.5 acres would require an individual permit.

Approach: Available data from the US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data aerial imagery was reviewed within the MPO area to identify potential aquatic resources and to determine potential project impacts. The review identified several wetlands within the city limits and adjacent to Rapid City. Because the NWI provides an estimate of wetlands based on soil type and aerial photography, these boundaries serve as guidance for further identification of wetland areas; aquatic resource delineations would be required for each future project located in these areas.

Limitations: Wetlands and WOUS will need to be considered for each project. Early in project planning, an onsite aquatic resource delineation of the project area is recommended to confirm the boundaries of wetlands and WOUS and to coordinate with the USACE to determine the current jurisdictional status of delineated aquatic resources. Inventoried wetlands within the RCAMPO region are shown in **Figure 48**.

Figure 48: Wetlands within the RCAMPO Region



Wildlife/Threatened and Endangered Species

Various federal laws have been established to protect wildlife, including: the Endangered Species Act (ESA); the Migratory Bird Treaty Act (MBTA); and the Bald and Golden Eagle Protection Act (BGPA).

Approach: Those species listed under the ESA would need to be considered for each project. A review of ESA-listed species within the MPO was completed utilizing the USFWS Information for Planning and Consultation (IPaC) tool. There are six ESA-listed species with potential to occur within the MPO (**Table 44**).

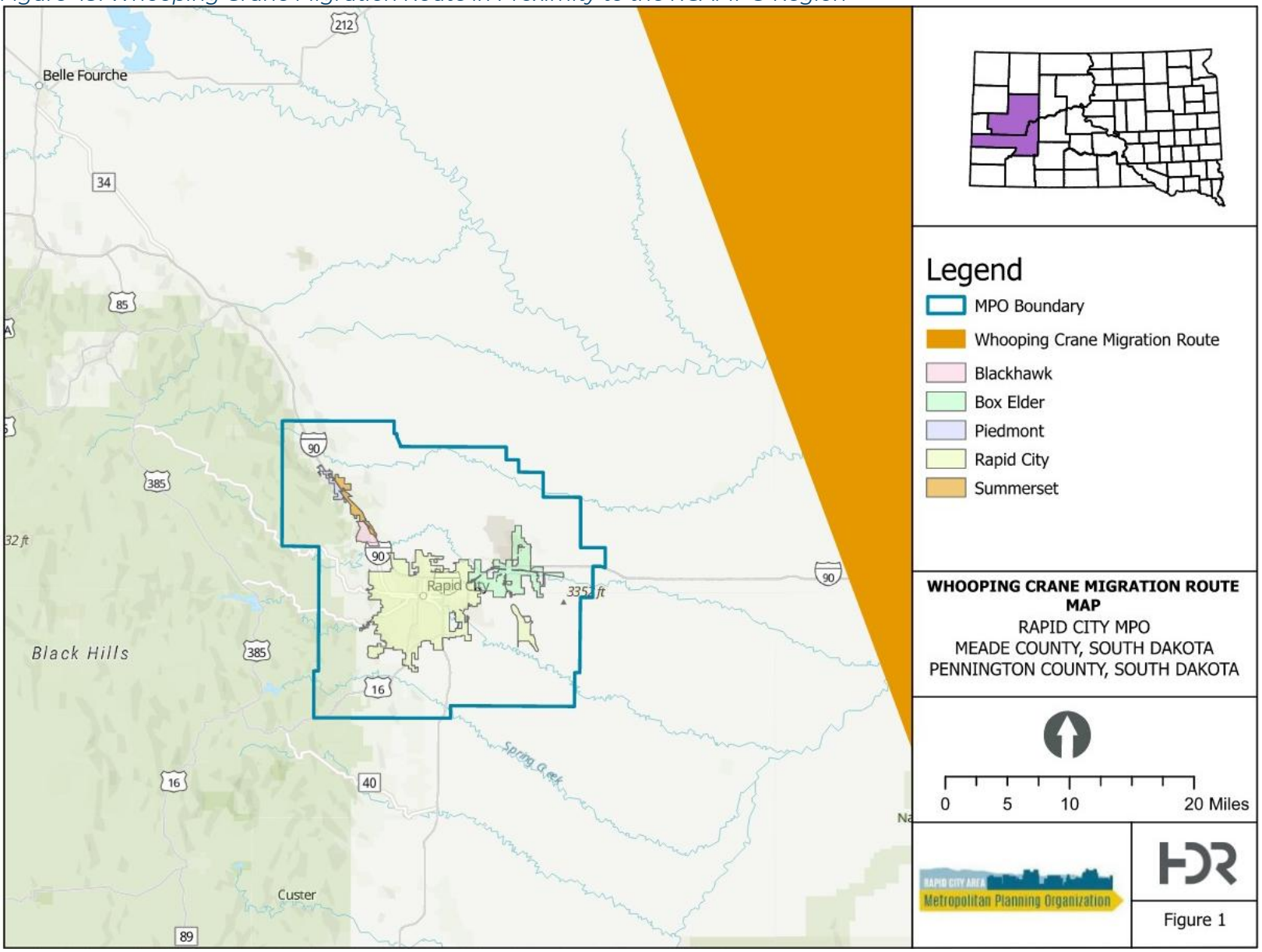
Table 44: Threatened and Endangered Species with Potential to Occur within the RCAMPO Region

Common Name	Scientific Name	ESA Status
Northern long-eared bat	Myotis septrionalis	Endangered
Tricolored bat	Perimyotis subflavus	Proposed Endangered
Rufa red knot	Calidris canutus rufa	Threatened
Monarch butterfly	Danaus Plexippus	Proposed Threatened
Suckley's cuckoo bumblebee	Bombus suckleyi	Proposed Endangered
Western regal fritillary	Argynnis idalia occidentalis	Proposed Threatened

The MPO area is highly developed with commercial, industrial, and residential land uses. Much of the region is developed and habitat for many of the species identified in IPaC is not available within the MPO boundary. There are no designated critical habitats for any ESA-listed species within the MPO. The northern long-eared bat (NLEB) is a Federally-listed endangered species with known occurrence in the Black Hills area. The NLEB will use a variety of habitat features to roost, including trees generally with a diameter at breast height (DBH) of 3" or greater, caves, rock fissures, and other karst features. Additionally, NLEB will occupy man-made structures such as abandoned buildings, bridges, and culverts.

Limitations: Consultation with USFWS would be required to determine which ESA-listed species have the potential habitat within each future project location. Coordination with SDGFP would be recommended regarding impacts to state-listed sensitive species. Additionally, coordination with USFWS would be required for any project on USFWS property. Location of the MPO relative to the whooping crane migratory corridor are shown in **Figure 49**.

Figure 49: Whooping Crane Migration Route in Proximity to the RCAMPO Region



Parks and Recreation Properties

The U.S. Department of Transportation Act (DOT Act) of 1966 included a special provision—Section 4(f)—which is intended to protect publicly owned parks, recreational areas, wildlife and waterfowl refuges, or historical sites. Similarly, Section 6(f) protects state and locally sponsored projects that were funded as part of the Land and Water Conservation Fund (LWCF).

Approach: The LWCF website was reviewed to identify the use of Section 6(f) grants in the MPO area. Publicly owned parks and recreation areas are present within the MPO area. Public spaces within the City of Rapid City that have received LWCF grant money are subject to Section 6(f) regulations. Additionally, if the projects proposed in these alternatives receive FHWA funds, the projects themselves will be subject to Section 4(f) consultation.

Limitations: There have been several grants received at a variety of public parks and recreational trails within the MPO. Areas within the MPO area that could impact City parks or recreational trails would need to be further reviewed to determine potential for a Section 6(f) impact. Due to the use of LWCF grants, it is recommended that consultation occur with Rapid City Parks and Recreation or any other necessary entity with each project to determine the location of improvements to determine whether the park area impacted will be subject to Section 6(f) or Section 4(f) regulations. **Figure 50** and **Figure 51** present the area's park locations and bicycle paths while **Figure 52** highlights the boundaries of the Black Hills National Forest.

Figure 50: Parks within the RCAMPO Region

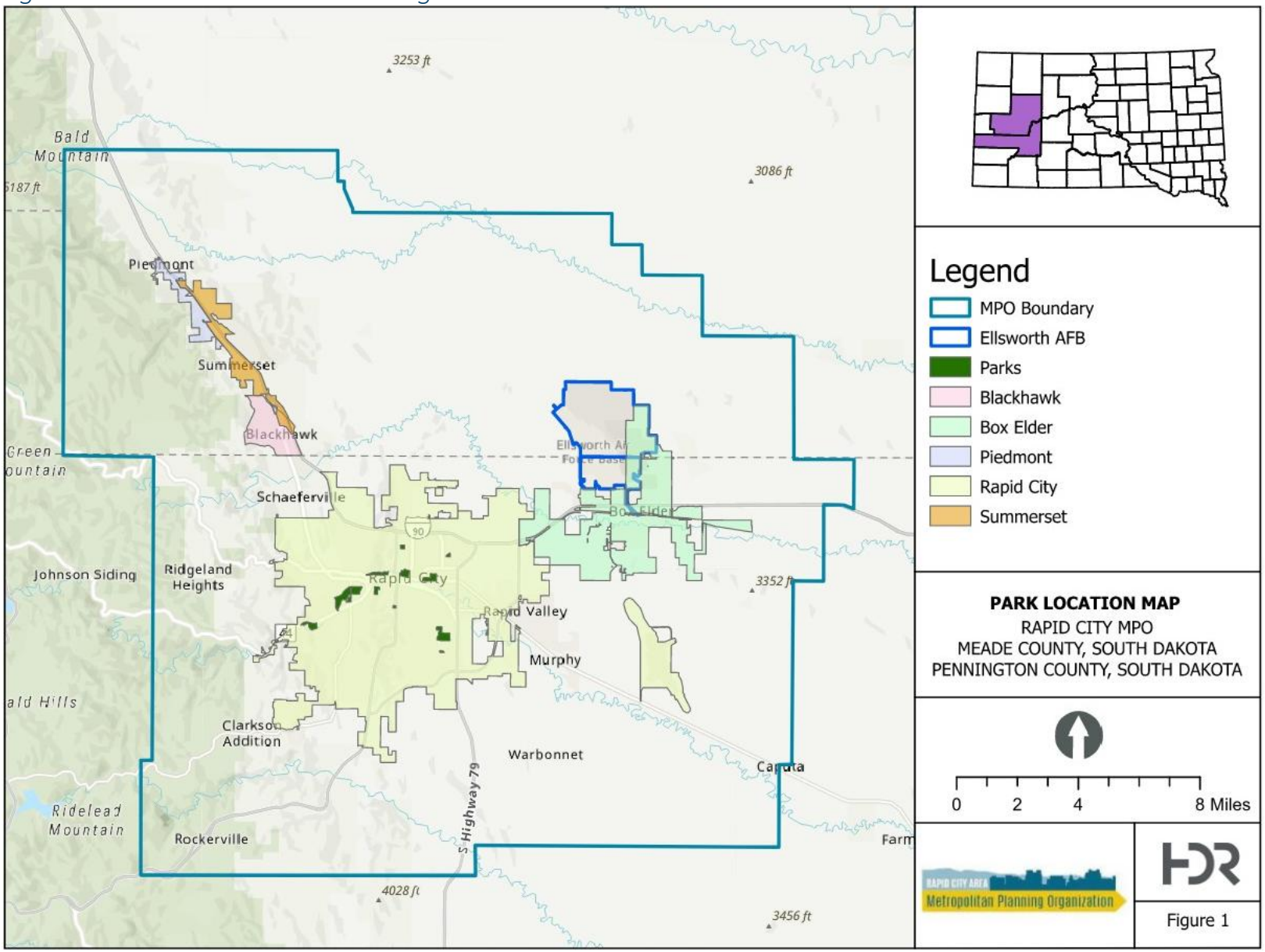


Figure 51: Bike Paths within the RCAMPO Region

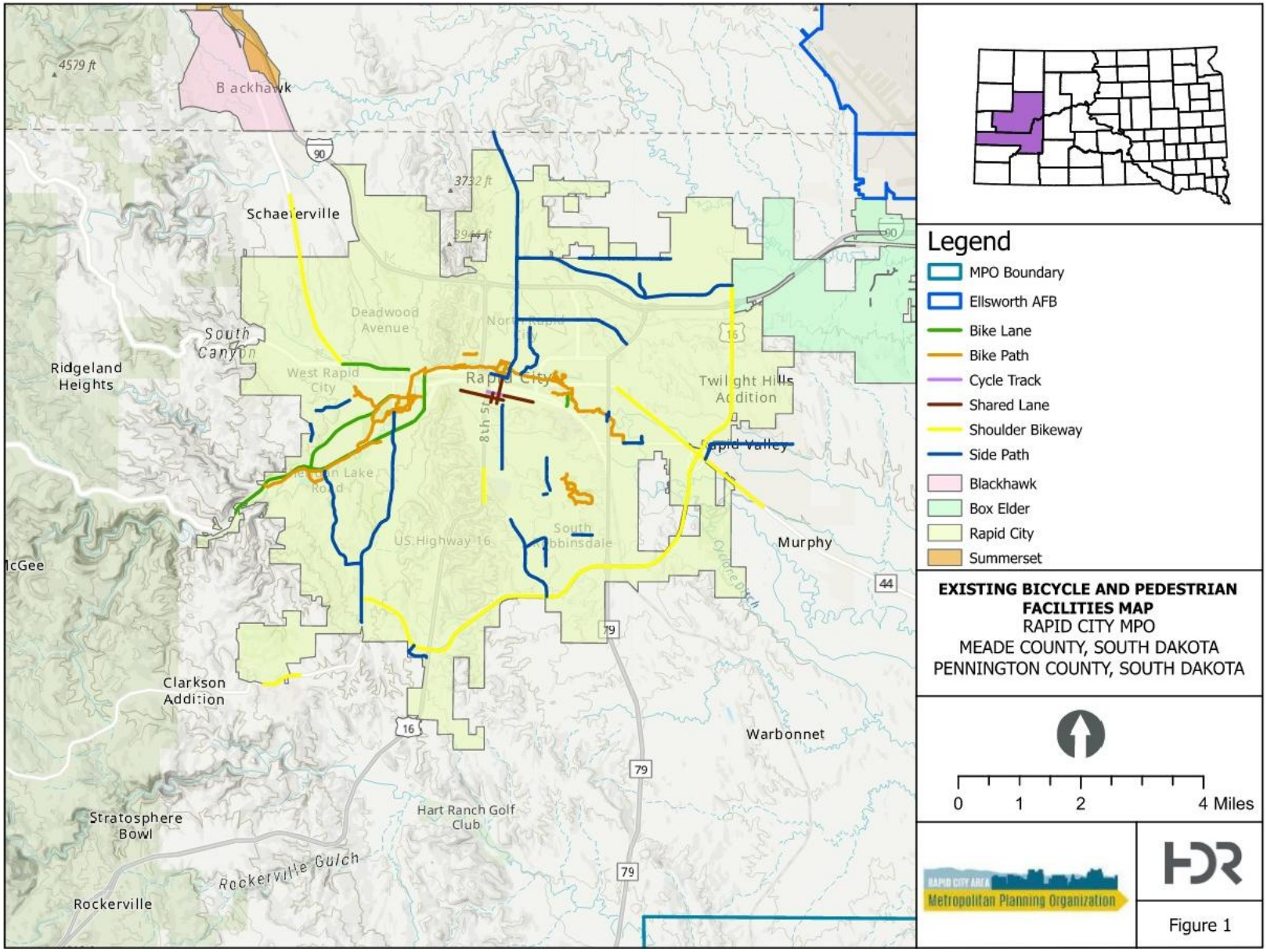
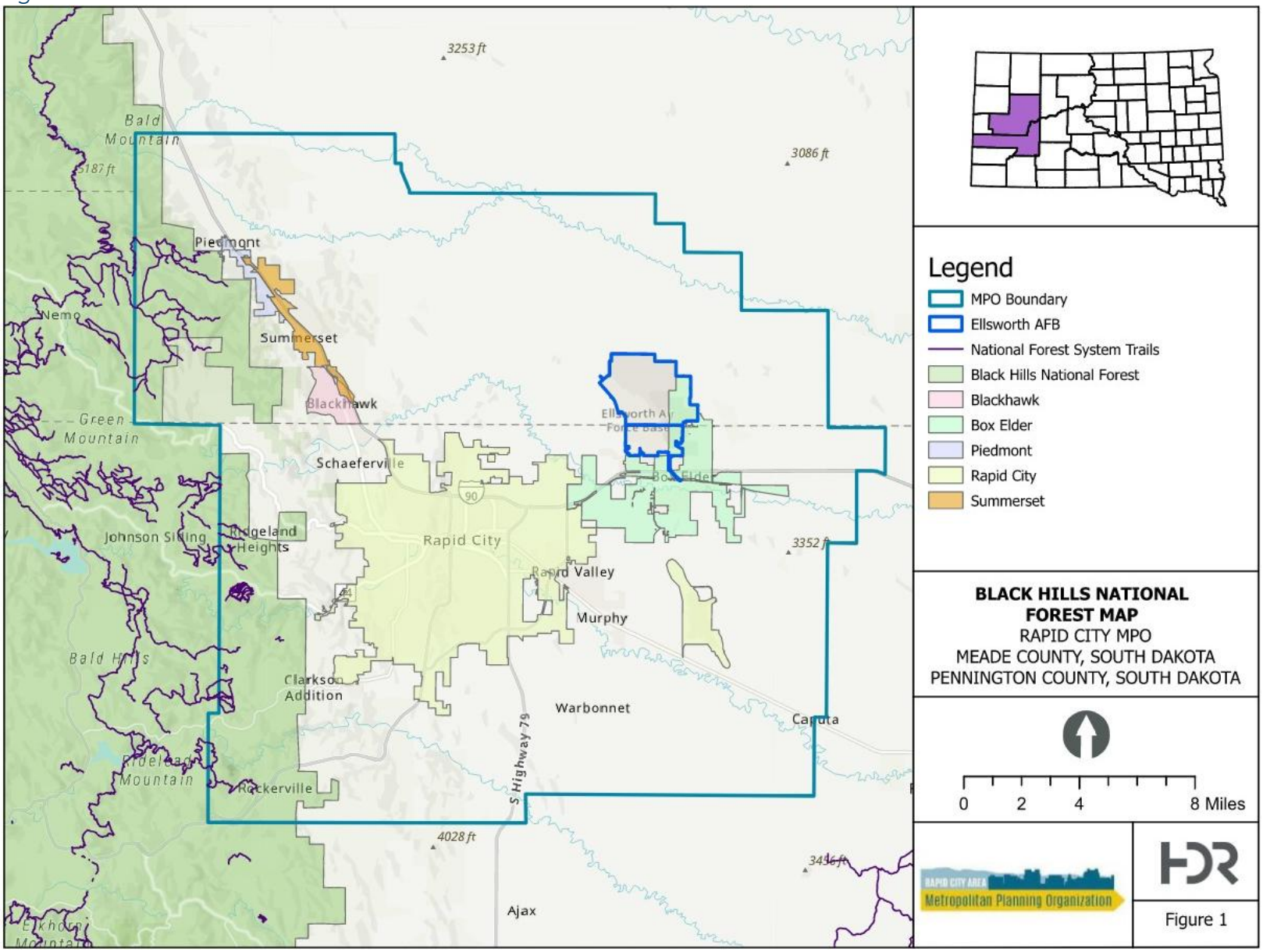


Figure 52: Boundaries of the Black Hills National Forest



Floodplain and Floodways

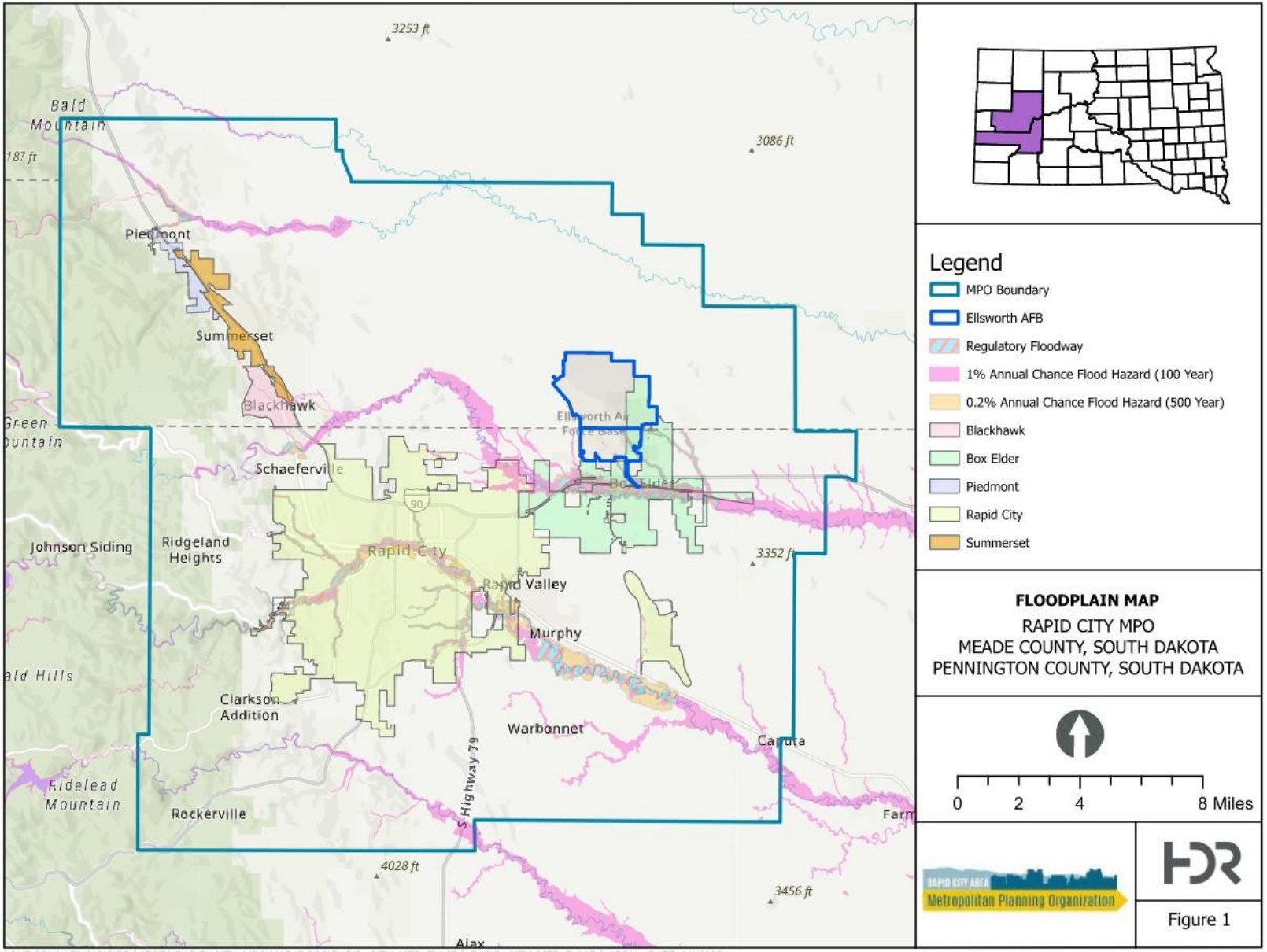
Floodplains are the lands on either side of a watercourse that are inundated when a channel exceeds its capacity. The National Flood Insurance Program (NFIP) encourages state and local governments to adopt sound floodplain management programs. The City has been a participating member of the Federal Emergency Management Agency (FEMA) Flood Insurance Program since 1998. The current Pennington County Flood Insurance Study (FIS) that includes the City is dated June 3, 2013.

The main floodways and floodplains within the MPO area are those associated with Rapid Creek, Box Elder Creek, Spring Creek, and Elk Creek and their tributaries.

Approach: FEMA flood maps were evaluated and floodplain and floodways were determined.

Limitations: If any projects would involve areas associated with FEMA or FIS, a floodplain permit may be required if the floodplain would be encroached upon. A Floodplain Development Application would be completed for the project and the City would obtain a Floodplain Development Permit. **Figure 53** shows the locations of floodplains throughout the RCAMPO region.

Figure 53: Floodplains within the RCAMPO Region



Regulated/Hazardous Materials

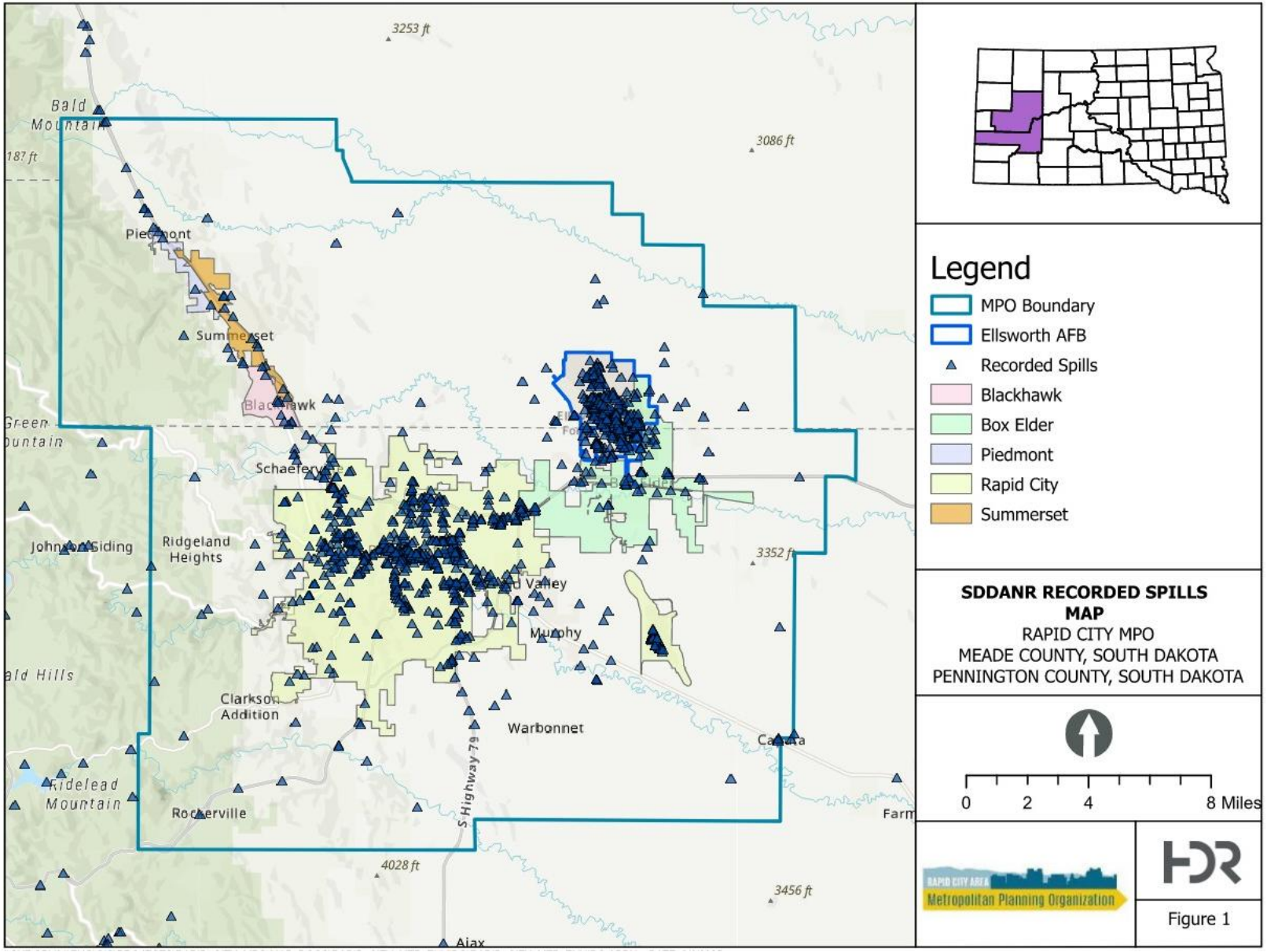
Hazardous materials include substances or materials that the EPA has determined to be capable of posing an unreasonable risk to health, safety, or property. Hazardous materials may exist within the MPO area at facilities that generate, store, or dispose of these substances, or at locations of past releases of these substances. Examples of hazardous materials include asbestos, lead based paint, heavy metals, dry-cleaning solvents, and petroleum hydrocarbons (for example, gasoline and diesel fuels), all of which could be harmful to human health and the environment.

Approach: The South Dakota Department of Natural Resources (SDDNR) Environmental Events Database website was reviewed for the region to identify any areas that could be of concern for projects such as contaminated soils, hazardous waste site, and buried tanks.

Limitations: Information for hazardous material should be reviewed at the time of a proposed project to identify any potential new hazards that may have occurred from the time of the study to a project.

Spill incidents that occurred in the region and recorded by SDDNR are shown in **Figure 54**.

Figure 54: SDDNR Spills Recorded within the RCAMPO Region



Environmental Mitigation Activities

Avoidance and mitigation measures may need to be developed for the project to mitigate for adverse effects to environmental resources. The following summarizes potential avoidance, minimization, and mitigation measures for each resource.

- **Archaeological and Historical Resources** – Archaeological and historical resources would need to be identified and measures to avoid, minimize, or mitigate adverse effects would need to be developed. Archaeological and historical resources would also be considered Section 4(f) properties if eligible for the National Register of Historic Places (see also Parks and Recreation Properties).
- **Wetlands and Waters of the U.S.** – A formal field delineation of the entire Study Area would be completed to determine final impacts. Impacts on wetlands and other waters of the U.S. would be avoided if feasible and then minimized to the extent possible. For wetlands and other waters of the U.S. that cannot be avoided, a U.S. Army Corps of Engineers Section 404 Permit, with Section 401 Water Quality Certification from SDDENR, would be obtained for authorization of fill activities in jurisdictional wetlands or other waters of the U.S. Wetland mitigation would need to be identified, if required, for impacts as part of the Section 404 permitting process.
- **Water Quality** – If needed, a Stormwater Pollution Prevention Plan would be developed and National Pollutant Discharge Elimination System permits would be obtained prior to construction to reduce impacts to water quality. Per the Stormwater Pollution Prevention Plan and Pollutant Discharge Elimination System permits, best management practices would be implemented to protect water quality including, but not limited to:
  - Sediment and erosion controls.
  - Filtering runoff in vegetated swales before reaching surface water.
  - Re-vegetating disturbed areas as soon as possible after construction.
  - Servicing and staging equipment away from surface water.
- **Wildlife/Threatened and Endangered Species** – Measures to minimize impacts to vegetation and wildlife would be coordinated with the South Dakota Department of Game, Fish, and Parks and USFWS as needed. Impacts to threatened or endangered species would be avoided, or if unavoidable impacts would occur coordination with USFWS on appropriate mitigation measures would take place.
- **Parks and Recreation Properties** – Section 4(f) resources, including parks and recreation areas, would be identified within the study area. Impacts from the project on these properties would be avoided, if possible. If the project alternative would result in a "use" of a Section 4(f) property, then coordination would need to occur with the official with jurisdiction. Section 6(f) properties would be identified

within the study area and avoided, if possible. If avoidance is not possible, coordination with the SDGFP would be required.

- **Floodplains and Floodways** – Impacts to designated floodplain zones within the study area would be evaluated. If encroachments to floodplain zones cannot be avoided, a Floodplain Permit would be coordinated with the local floodplain administrator.
- **Regulated/Hazardous Materials** – Construction best management practices may be included to minimize impacts from regulated/hazardous materials on the project. The contractor would be alert for large areas of soil staining, buried drums, or USTs and coordinate with SDDENR if any obvious contamination is found prior to continuing work in those areas.

The priority horizon projects were screened against the criteria above for which data were available. **Table 45** presents the results of the screening for each priority horizon roadway project. A black **X** denotes that the corresponding project may impact the environmental resource listed, or if further investigation will be required to determine impacts to the environmental resource.

Table 45: Summary of Potential Impacts by Environmental Resource

Location	Archaeological & Historical Resources	Wetlands and WOUS	Parks and Recreation Properties	Floodplains/ Regulated Floodway	*Potential T&E Habitat
5th St south of Watts Ln	--	X	--	--	X
Anamosa to Elk Vale, and from Elk Vale to Reservoir Rd	--	X	--	--	X
Creek Drive from Philadelphia to Omaha	--	X	--	--	--
Creek Drive to US16B/Elk Vale Road	--	X	--	--	--
E Enchanted Pines Dr from 5th St to Parkview Dr	--	X	--	X	--
E Minnesota St from Cambell to Elk Vale Rd	--	X	--	--	X
E Minnesota St from Duckhorn St to Jolly Ln	--	X	--	X	--
E Philadelphia St to Elk Vale Rd	--	X	--	--	--
Elm Ave south to Catron Boulevard	--	X	--	X	--
Fairmont Blvd from Cambell to Elk Vale Rd	--	X	--	X	--
Healing Way from Addison to Moon Meadows	--	X	--	--	--
Healing Way from US16B/Catron to Promise Rd	--	--	--	--	X
Les Hollers Way (option 1)	--	X	--	--	X
Les Hollers Way (option 1C)	--	X	--	--	X
N La Crosse St north to Country Road	--	X	--	--	--
Seger Dr from Elk Vale Rd to Dakota Craft Dr	--	X	--	--	--

*There is no designated critical habitat for any T&E species within the MPO. This column refers to the presence of forested lands, grasslands, or other non-disturbed areas which may potentially contain habitat for T&E and other wildlife species.

Chapter 11: Federal Compliance

The development of Rapid Trip 2050 supports the regulations and requirements articulated in 23 CFR §450.324 Development and Content of the Metropolitan Transportation Plan. Per these requirements, Rapid Trip 2050 provides:[10]

- Current and project transportation demand of persons and goods in the metropolitan area over the period of the MTP;
- Existing and proposed multi-modal transportation facilities that should function as an integrated metropolitan transportation system;
- A description of performance measures and performance targets used in assessing the performance of the transportation system;
- A system performance report evaluating the condition and performance of the transportation system;
- Operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods;
- Assessment of capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure, provide for multi-modal capacity increases based on regional priorities and needs, and reduce the vulnerability of the existing transportation infrastructure to national disasters;
- Transportation and transit enhancement activities;
- Design concept and design scope descriptions of all existing and proposed transportation facilities;
- Discussion of types of potential environmental mitigation activities and potential areas to carry out these activities;
- A financial plan that demonstrates how the adopted transportation plan can be implemented;
- Pedestrian walkway and bicycle transportation facilities.

[10] 23 CFR Part 450.324

Table 46 consists of a matrix that demonstrates the alignment of Rapid Trip 2050's goals with the Metropolitan Transportation Planning Factors:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase the accessibility and mobility of people and freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize preservation of the existing transportation system;
9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation;
10. Enhance travel and tourism.

Table 46: Rapid Trip 2050 Goal Alignment with the Federal Transportation Planning Factors

Goal Area	Objective	1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;	2. Increase the safety of the transportation system for motorized and non-motorized users;	3. Increase the security of the transportation system for motorized and non-motorized users;	4. Increase the accessibility and mobility of people and freight;	5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic patterns;	6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;	7. Promote efficient system management and operation;	8. Emphasize preservation of the existing transportation system;	9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation;	10. Enhance travel and tourism.
Safety	Reduce rate and frequency of fatal and severe crashes.		**X**								
	Reduce frequency of crashes involving non-motorized users and vulnerable road users.		**X**								
	Utilize a safe systems approach to transportation facility design, operations, and incident management.		**X**								
	Safety investments focus on the High Priority Network.		**X**								

Table 46 continued

Goal Area	Objective	1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;	2. Increase the safety of the transportation system for motorized and non-motorized users;	3. Increase the security of the transportation system for motorized and non-motorized users;	4. Increase the accessibility and mobility of people and freight;	5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic patterns;	6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;	7. Promote efficient system management and operation;	8. Emphasize preservation of the existing transportation system;	9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation;	10. Enhance travel and tourism.
System Preservation	Ensure sufficient financial resources are available for maintaining all Federal-aid bridges and roads.							X	X		
	Maintain transportation infrastructure in a state of good repair.							X	X		

Table 46 continued

Goal Area	Objective	1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;	2. Increase the safety of the transportation system for motorized and non-motorized users;	3. Increase the security of the transportation system for motorized and non-motorized users;	4. Increase the accessibility and mobility of people and freight;	5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic patterns;	6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;	7. Promote efficient system management and operation;	8. Emphasize preservation of the existing transportation system;	9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation;	10. Enhance travel and tourism.
Multi-Modal Mobility and Accessibility	Multi-modal transportation investments support users of all ages and abilities.				X		X				
	Increase the connectivity of the region's bicycle and pedestrian network.				X		X				
	Increase transit ridership through the provision of quality transit services.				X		X				
	Coordinate transportation and land use planning efforts to support community interconnectedness.				X	X	X				

Table 46 continued

Goal Area	Objective	1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency;	2. Increase the safety of the transportation system for motorized and non-motorized users;	3. Increase the security of the transportation system for motorized and non-motorized users;	4. Increase the accessibility and mobility of people and freight;	5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic patterns;	6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;	7. Promote efficient system management and operation;	8. Emphasize preservation of the existing transportation system;	9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation;	10. Enhance travel and tourism.
System Efficiency and Reliability	Limit regional recurring peak hour congestion.				X						X
	Maintain acceptable travel reliability on the Interstate and non-Interstate NHS.				X						X
	Barriers to freight mobility are reduced.	X			X		X				
	Implement technology-based solutions to enhance system operations.							X			
Economic Prosperity	Enhance access to regional employment opportunities.	X			X	X					
	Maintain access to regional tourism opportunities.	X				X					X

	Transportation strategies and policies support regional economic development goals.	X					X					

Table 46 continued

Goal Area	Objective	1. Support the economic vitality of the metropolitan area, especially by	2. Increase the safety of the transportation system for	3. Increase the security of the transportation system for	4. Increase the accessibility and mobility of people and freight:	5. Protect and enhance the environment, promote energy	6. Enhance the integration and connectivity of the transportation	7. Promote efficient system management and operation:	8. Emphasize preservation of the existing transportation	9. Improve the resiliency and reliability of the transportation	10. Enhance travel and tourism.
Environmental Sustainability and Resiliency	Transportation projects limit impacts on the natural environment.					X				X	
	Improve system resiliency against natural and manmade disasters.					X				X	

Appendix A: Engaging the Public

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Appendix B: Baseline Conditions Report

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Appendix C: Travel Demand Model Documentation

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Appendix D: Rapid Trip 2050 Universe of Alternatives

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Appendix E: Current Transportation Improvement Program

Appendix F: Methods and Assumptions