Connect 2045: PlanCheyenne Transportation Update

Community Assessment

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INTRODUCTION

The Cheyenne Metropolitan Planning Organization (MPO) was formed by the Governor of Wyoming in 1981 to oversee transportation planning purposes. Federal law requires that an MPO be formed to provide transportation planning for any urbanized areas with a population of 50,000 residents or greater.

The Cheyenne MPO encompasses approximately 215 square miles and provides transportation planning services to the region that includes the City of Cheyenne as well as adjacent rural and semi-rural portions of Laramie County. The 2019 population of the Cheyenne MPO is 89,429. The Cheyenne MPO region within the state of Wyoming is shown in **Map 1**, with a more detailed map of the Cheyenne MPO in **Map 2**.

This existing conditions analysis is a portion of the larger Long-Range Transportation Plan (LRTP), which defines the region's strategy for creating regional transportation system that accommodates the current mobility needs of residents, while also looking to the future. It is a 25-year multimodal plan developed in conjunction with the Cheyenne MPO member jurisdictions, Federal Highway Administration (FHWA), and Wyoming Department of Transportation (WYDOT).

What is a Long-Range Transportation Plan?

The LRTP is a long-term blueprint for the region's transportation system.

The plan fulfills federal requirements and serves as the region's transportation vision.

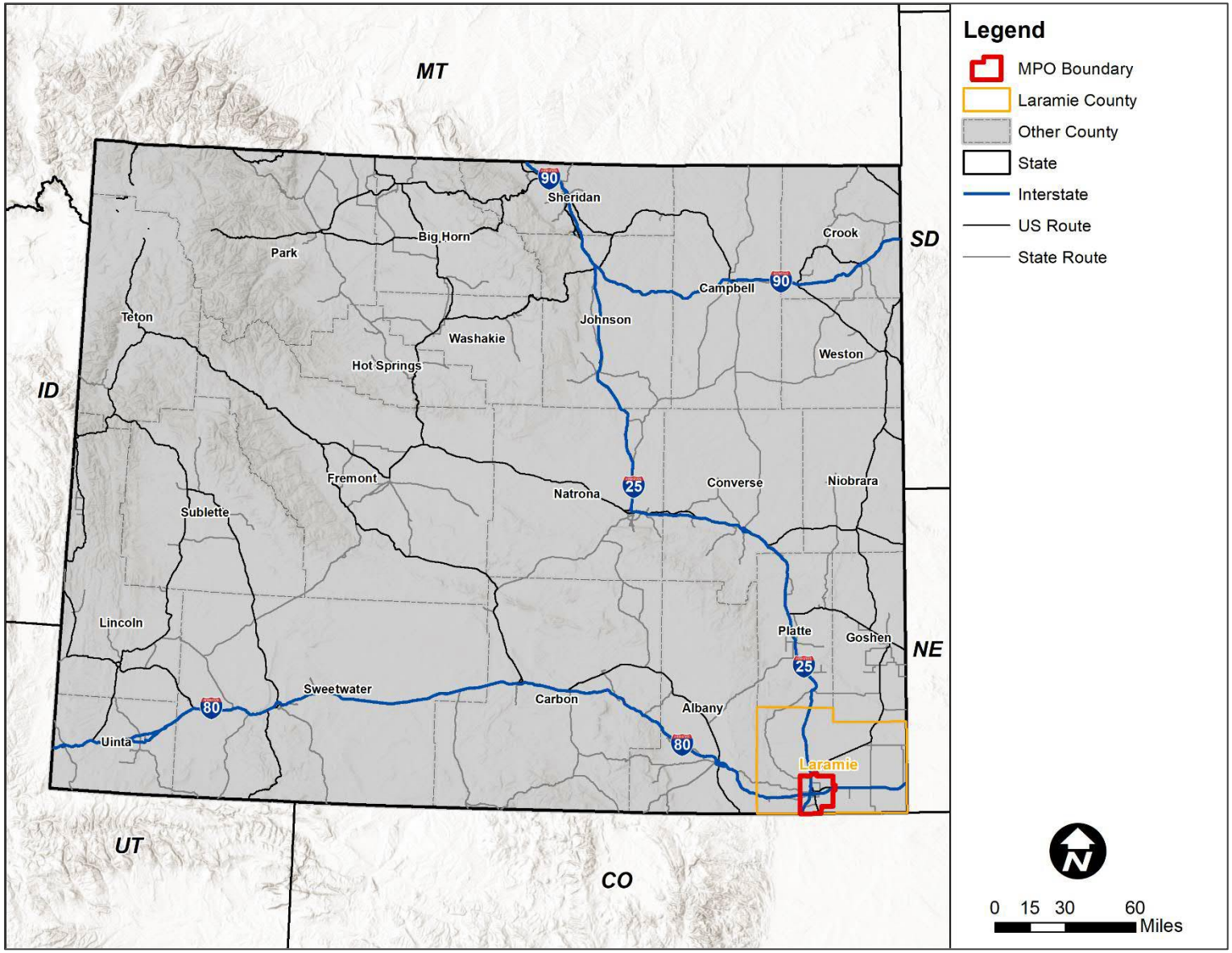
Federal funding cannot be allocated to transportation projects and programs unless they are included in this financially-constrained plan.

This plan is updated every five years to ensure that it continues to meet the needs of the region.

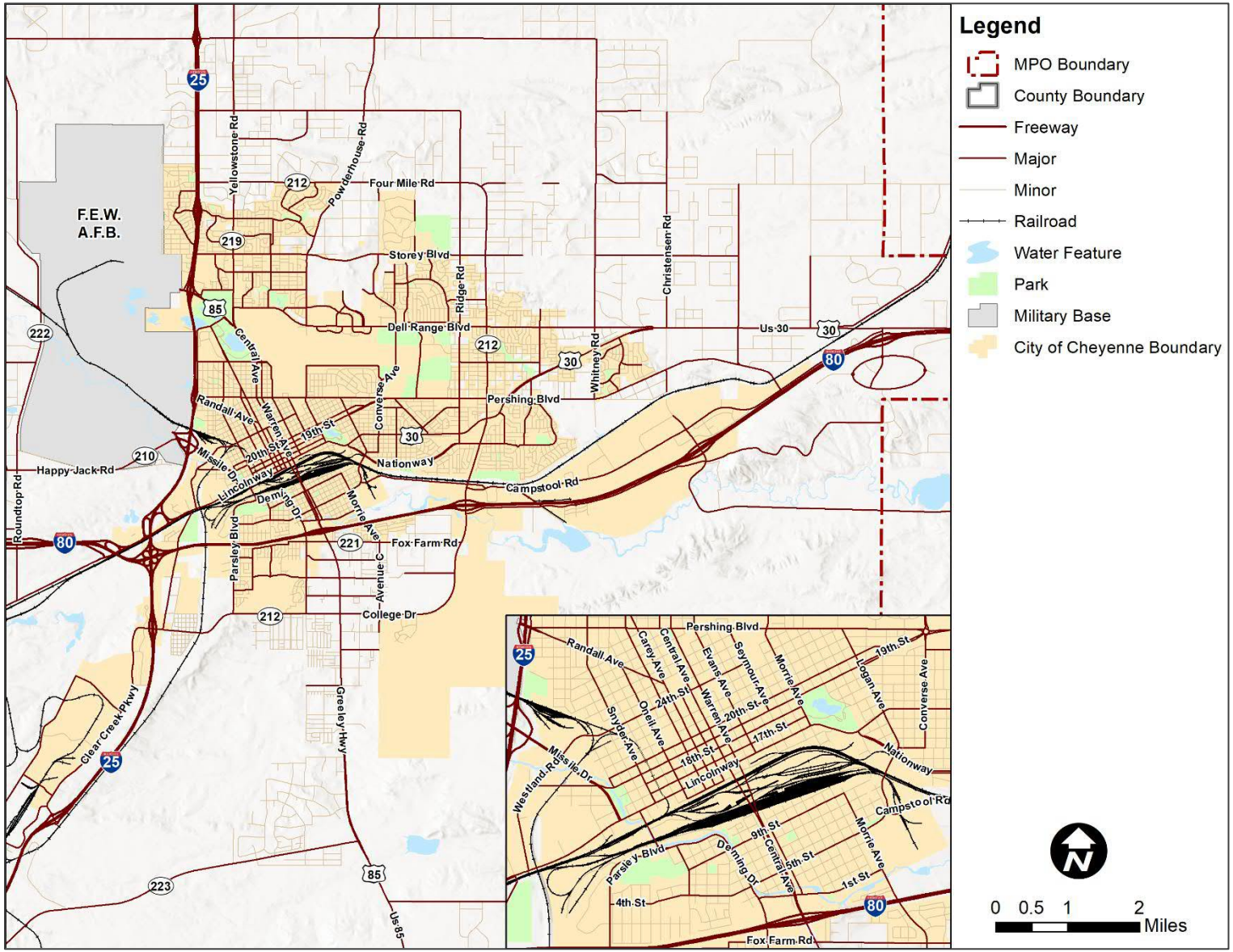
The LRTP addresses all modes of transportation, including automobile, bicycle, pedestrian, transit, truck, air, and rail movements. The LRTP is updated once every five years, enabling the plan to evolve as the region continues to grow and develop. This LRTP was prepared in accordance with all federal requirements.

The existing conditions analysis reviews existing conditions for all modes of transportation, including walking, biking, riding transit, driving cars, and freight. This assessment provides the foundational state of the components of the regional transportation system, including its use and efficiency, condition, and safety features. This section also highlights demographic and economic development trends which have direct impacts on transportation demand, particularly land use characteristics such as location, density and type of development. The existing conditions highlighted in this chapter inform the creation of the regional transportation strategy throughout the planning process.

Map 1: Cheyenne MPO Location



Map 2: Cheyenne MPO Region



DEMOGRAPHICS AND LAND USE

Population, employment, demographics, and growth location helps define transportation needs and choices. As the population grows, the need for roadways to facilitate travel and mobility needs will also grow. This section summarizes current population and employment data as well as a projection of future (2045) population and employment.

ECONOMIC AND DEMOGRAPHIC FRAMEWORK

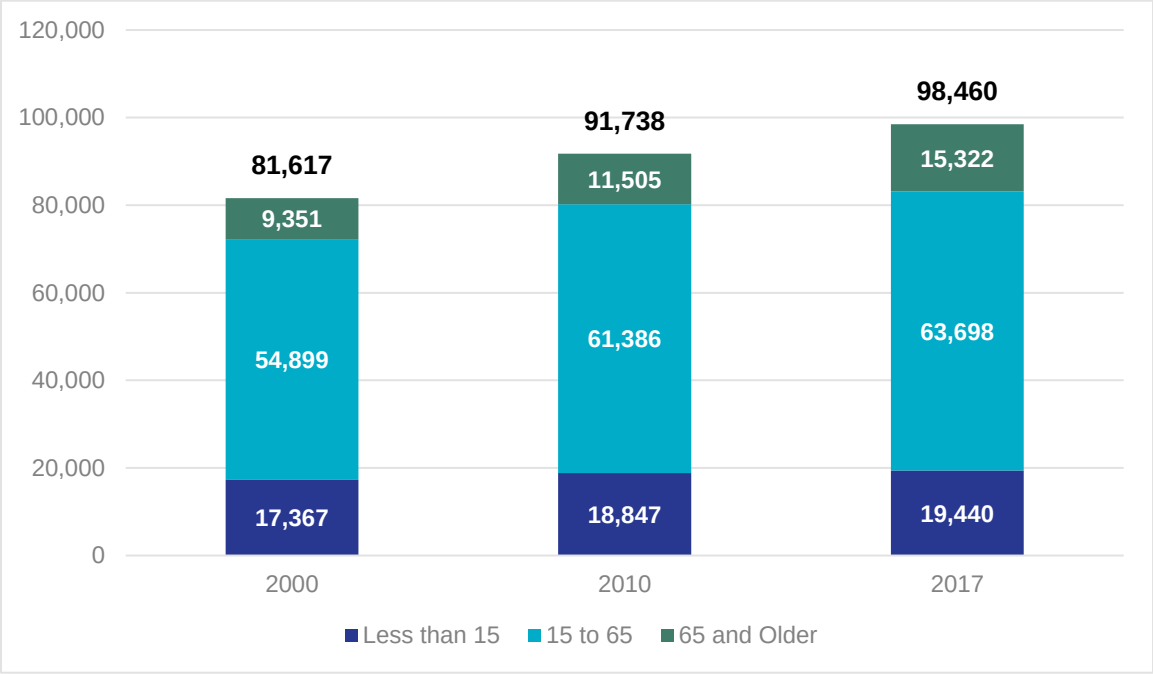
This section provides a summary of recent trends in population and employment characteristics within Laramie County. Additional detail on these trends is provided in **Appendix A: Demographic Characteristics**.

Population and Households

The total population of Laramie County in 2017 is estimated at approximately 98,500, as shown in **Figure 1**. Since 2000, the population has grown by roughly 16,800 people at an average annual rate of 1.0 percent. The fastest growing age cohort in Laramie County is the population 65 and older, which accounted for 57 percent total growth from 2010 to 2017. The population less than 15 years old saw the lowest rates of growth from 2000 to 2017. This may be a result of shifting preferences and economic pressures on millennials, driving many to delay having children.

In 2000, the population less than 15 years old and older than 65 (non-working age) made up roughly 33 percent of the total population, whereas in 2017 they now account for 35 percent the population. The growth in non-working age population is primarily due to aging baby boomers.

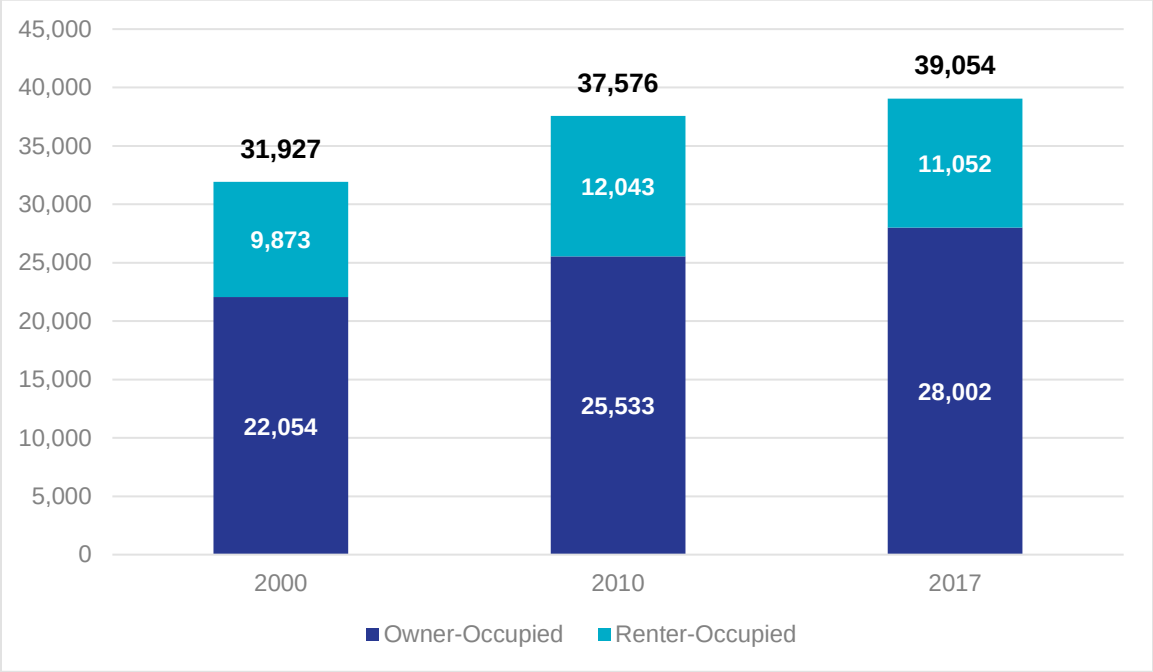
Figure 1: Laramie County Population by Age (2000-2017)



In 2017, Laramie County was estimated to have more than 39,000 households with 72 percent owners (approximately 28,000 households) and 28 percent renters (approximately 11,000 households), as shown

in **Figure 2**. Between 2000 and 2017, Laramie County grew by an estimated 7,100 households, which is around 420 new households per year. Laramie County housing unit growth has outpaced household growth, adding approximately 9,100 units from 2000 to 2017, or around 540 units per year.

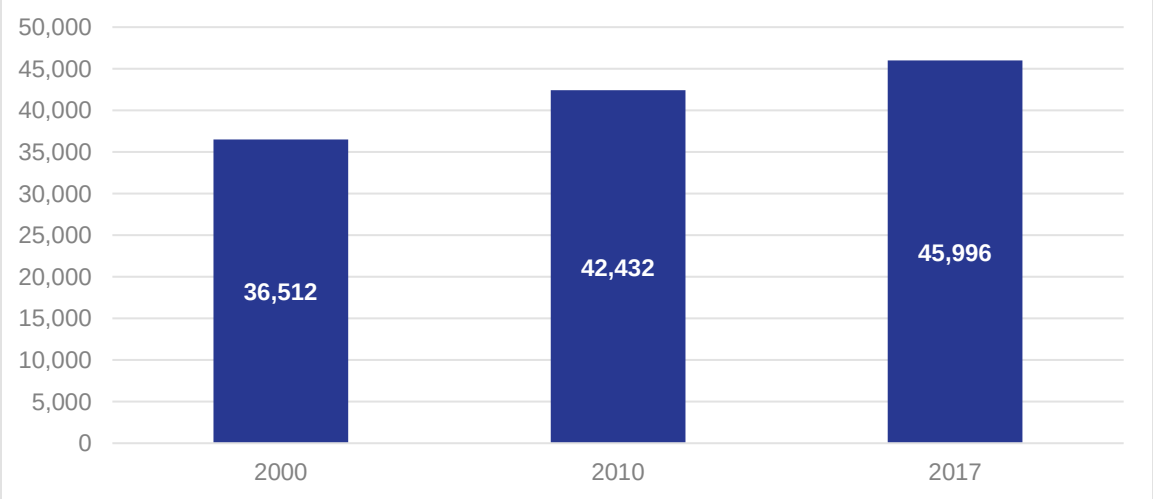
Figure 2: Laramie County Households (2000-2017)



Employment and Commuting

In 2018, Laramie County had nearly 46,000 wage and salary jobs, as shown in **Figure 2**. From 2000 to 2018, the county gained nearly 9,500 total jobs which is roughly equivalent to 500 jobs annually. The top three industries include health care and social assistance with 29 percent of growth (2,767 jobs), transportation and warehousing with 18 percent of growth (1,672 jobs), and accommodation and food services with 10 percent of total growth (909 jobs).

Figure 3: Laramie County Employment (2000-2018)



Compared to the State of Wyoming, Laramie County has a higher concentration of jobs in public administration, transportation and warehousing, information, finance and insurance, administrative and support services, professional, scientific, and technical services, and retail trade, as shown in **Figure 29**.

POPULATION AND EMPLOYMENT FORECASTS

This section summarizes forecasted employment, population, and household growth in the planning horizon from 2020 to 2045 for Laramie County and the Cheyenne Planning Area. Additional detail on these trends is provided in **Appendix A: Demographic Characteristics**.

Methodology

Employment-based forecasts are grounded in two growth scenarios, as shown in **Table 1**. For the purposes of long-range transportation planning, the high growth forecast is used for travel demand modeling to accommodate all of the potential forecasted growth from 2020 to 2045.

The primary economic driver impacting the higher growth forecast is a planned investment in upgrading and modernizing the Air Force's Ground Based Strategic Deterrent (GBSD) weapon system. Other assumptions in the Low and High forecasts include:

- **Significant County Employment Sectors**: Employment growth by industry is grounded in historic growth trends, the Bureau of Labor Statistics forecast rates for the U.S., and the State of Wyoming forecast rates by industry from the Wyoming Department of Workforce Services. Major employment sectors in Laramie County include mining, quarrying, and oil and gas extraction, utilities, transportation and warehousing, health care, and professional and technical services.
- **Government (GBSD; Military and Non-Military):** Historical growth rates are used to forecast the employment in the sectors impacted by GBSD in the low growth scenario, and increased growth rates are used to forecast employment in the sectors impacted by GBSD in the high growth scenario.
- **Demographics (Age Cohort):** Population forecasts by age are based on the state demographer forecast growth rates. However, in the high growth scenario, a higher rate of growth is shown for the population 65 and older until 2030.

Ground Based Strategic Deterrent (GBSD)

Congress has approved a $90 million investment for upgrading the nuclear triad missile defense systems that are located in Wyoming and Colorado (based out of F.E. Warren), in Montana (based out of Maelstrom AFB), and North Dakota (based out of Minot AFB).

These investments will be made to the GBSD triad sequentially over a 10 to 15-year time period. F.E. Warren AFB is estimated by local economic development officials to see major investment beginning in 2025. This effort is estimated to add 2,000 jobs to the Cheyenne Planning Area through a contract with a major military defense firm. This contract is expected to generate jobs in the following industries: construction, manufacturing, information, professional, scientific, and technical services, and public administration. In the High Growth Forecast, GBSD is expected to have a 15-year buildout beginning in 2025.

GBSD investments in F.E. Warren Air Force Base are expected; however, the timing of the project is not guaranteed. While Wyoming is considered the frontrunner to become the first site to see upgrades to the nuclear deterrent system, it is possible that the other two sites in Montana and North Dakota may see investment first. The uncertainty surrounding the GBSD investments is the foundation of the Low and High forecasts.

Table 1: Forecast Assumptions

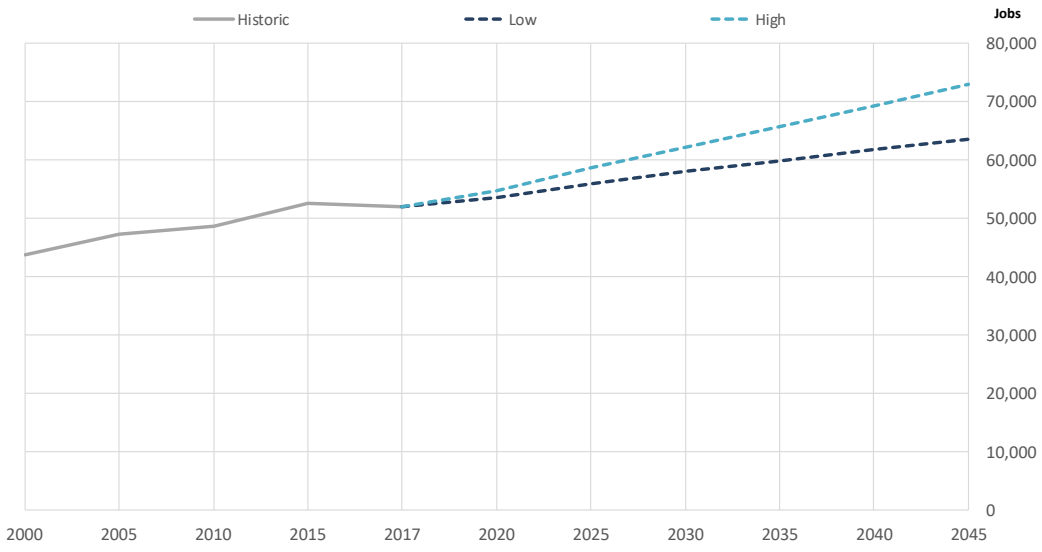
	Low Forecast	High Forecast
Significant County Employment Sectors		
Mining, Quarrying, and Oil and Gas Extraction	Low Increase	Low Increase
Utilities	Low Increase	Moderate Increase
Transportation and Warehousing	Moderate Increase	High Increase
Health Care	Moderate Increase	High Increase
Professional & Technical Services	Moderate Increase	High Increase
Government (GBSD; Military & Non-Military)		
Total Jobs	No Change	2,000
Employment Sectors Affected	N/A	Construction, Manufacturing, Information, Professional, Scientific and Technical Services, Public Administration
Phasing	N/A	2025 (15-year buildout)
Demographics (Age Cohort)		
Labor Force (16-65 Age Cohort)	Wage & Salary Forecast	Wage & Salary Forecast
<16 Age Cohort	State Demographer Rate	State Demographer Rate
>65 Age Cohort	State Demographer Rate	Adjusted Up

Source: Economic & Planning Systems

Employment

Laramie County is forecasted to add between 10,000 and 18,000 jobs from 2020 to 2045, as shown in **Figure 4**. In both growth scenarios, the top five industries for growth in the forecast horizon include health care and social assistance, transportation and warehousing, construction, accommodation and food services, and professional and technical services.

Figure 4: Laramie County Historic and Forecasted Employment (2000-2045)



Population and Households

Since 2010, the Cheyenne Planning Area has captured 86 percent of countywide population growth for an estimated population of approximately 89,400 in 2019, as shown in **Table 2**. Population density across Laramie County has increased from 34 persons per square mile in 2010 to 38 persons per square mile in 2019. Over the planning horizon, the Cheyenne Planning Area is estimated to capture the same portion of total Laramie County population growth (86%).

Table 2: Population Density (2010-2019)

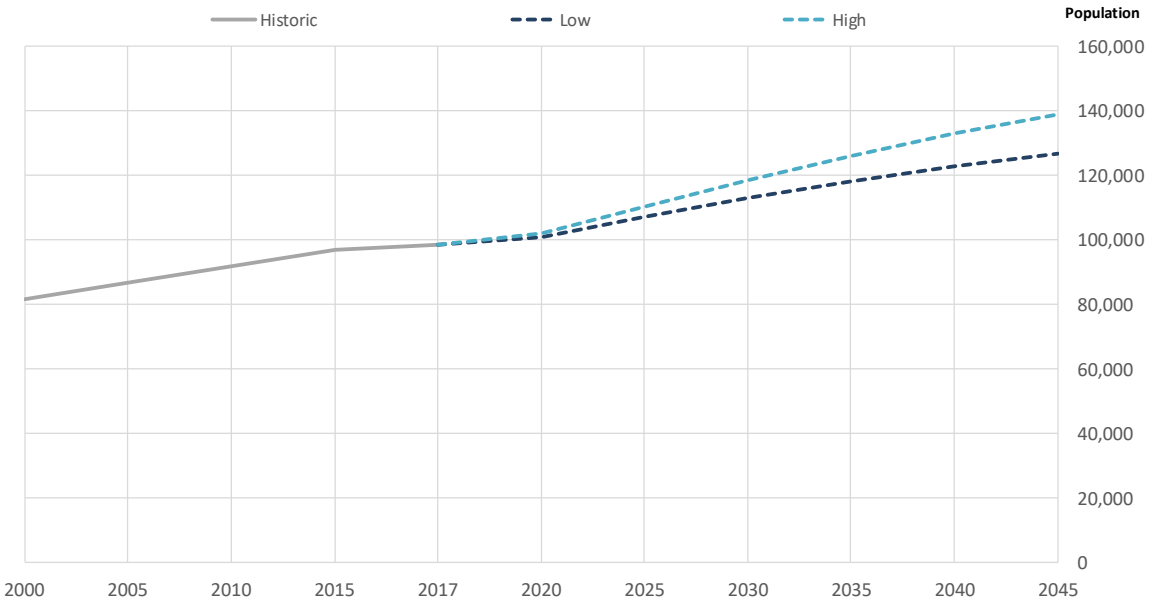
Description	Population		Population Density		2010-2019	
	2010	2019	2010	2019	2010	2019
Geography						
Cheyenne Planning Area (CPA)	81,163	89,429	382 persons/sq. mi.	416 persons/sq. mi.	8,266	86%
County (Outside CPA)	10,575	11,972	4.3 persons/sq. mi.	4.8 persons/sq. mi.	1,397	14%
Total Laramie County	91,738	101,401	34 persons/sq. mi.	38 persons/sq. mi.	9,663	100%
As % of Geography						
Cheyenne Planning Area (CPA)	88%	88%	-	-	-	-
County (Outside CPA)	12%	12%		-	-	-
Total Laramie County	100%	100%	-	-	-	-

Source: ESRI Business Analyst; Cheyenne MPO; Economic & Planning Systems

The Cheyenne Planning Area is forecasted to grow by 22,300 to 31,800 individuals from 2020 to 2045, as shown in **Figure 5**. Estimated population growth in the Cheyenne Planning Area is equivalent to approximately 9,600 to 13,500 new households and 9,300 to 13,500 new housing units by 2045, as shown in **Figure 6**.

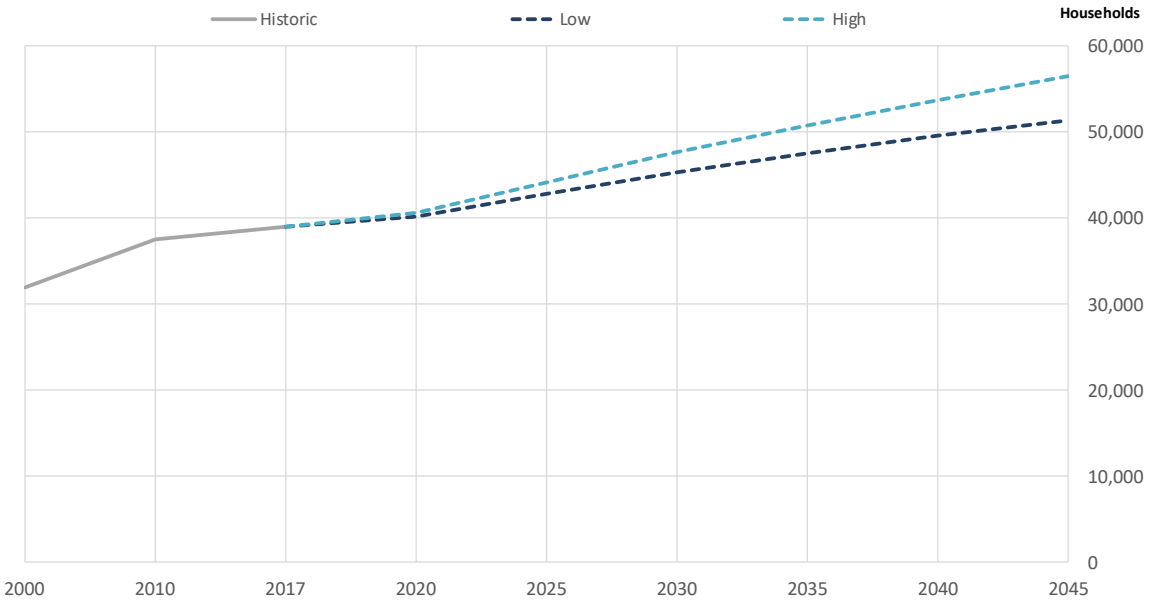
Forecasted growth results in an estimated 437 to 635 new housing units annually in Laramie County. Historic residential building permits in Laramie County averaged 533 units annually from 2000 to 2010 and 433 annually from 2011 to 2018. Future residential unit demand is dependent on the impact of the major employment investments, specifically the GBSD timeline.

Figure 5: Laramie County Historic and Forecasted Population (2000-2045)



Source: Economic & Planning Systems

Figure 6: Laramie County Historic and Forecasted Households (2000-2045)



Source: Economic & Planning Systems

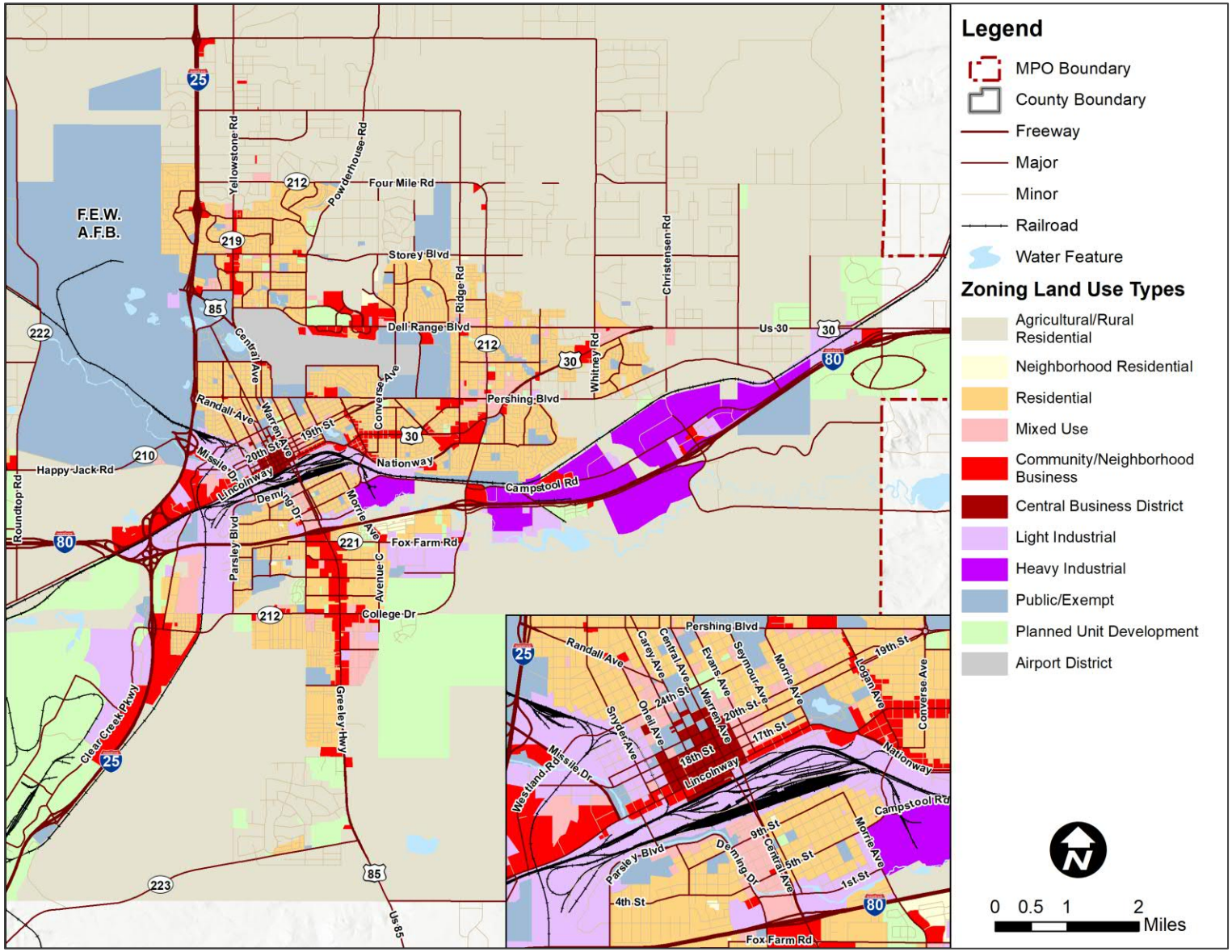
EXISTING LAND USE AND DENSITY

Existing land use for the Cheyenne MPO area was inventoried using available data from the MPO and current zoning and is displayed in **Map 3**. The MPO area in general is primarily agricultural and residential, with large lot rural residential being the predominant residential development pattern, particularly in unincorporated areas. Within the city limits, much of the area is zoned for residential, with supporting areas of community business or mixed-use business. Industrial use activity centers are zoned along the Interstate 80 (I-80) and Interstate 25 (I-25) corridors, with the Francis E. Warren Air Force Base occupying a large area west of I-25 and areas of public use surrounding the Cheyenne Municipal Airport.

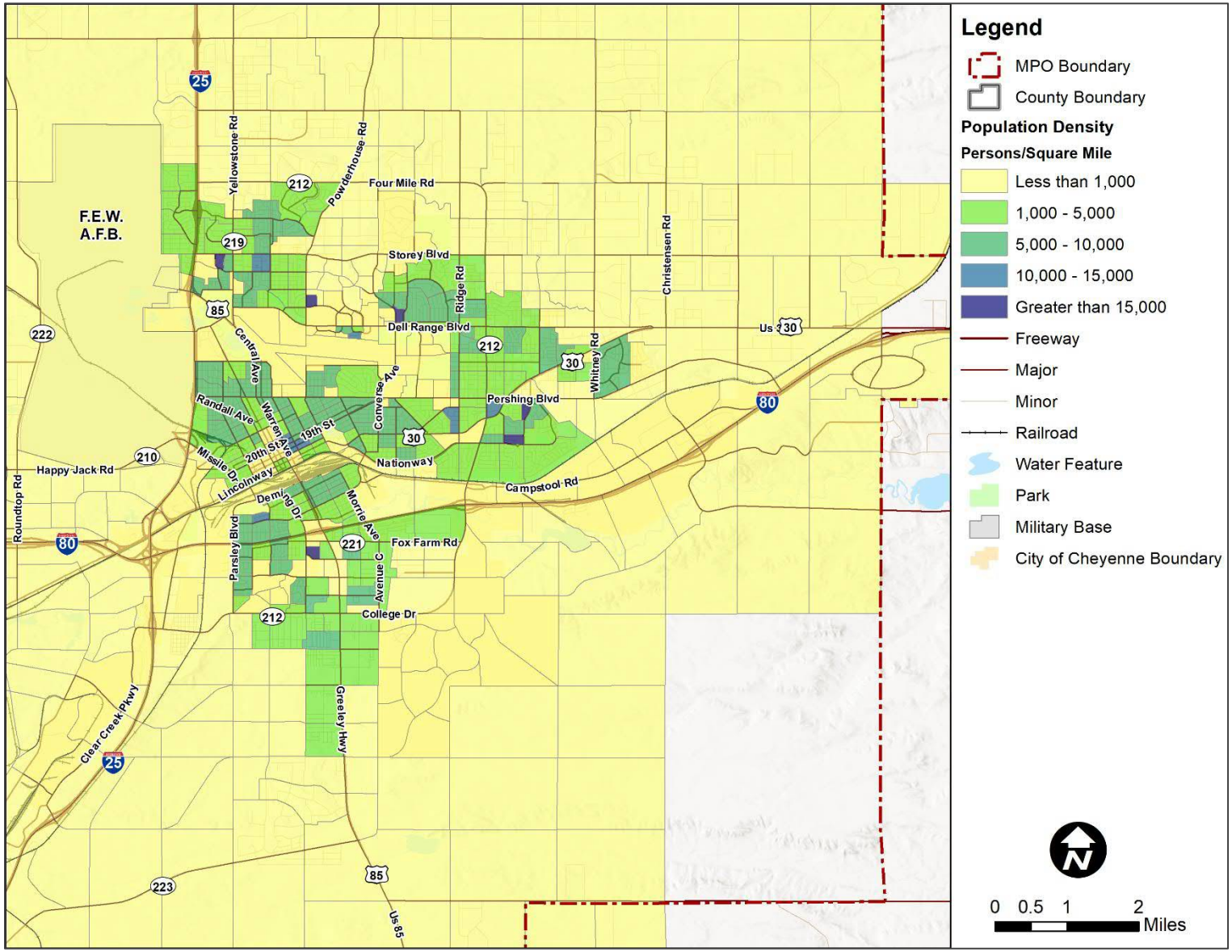
Current population densities are provided in **Map 4**, which is summarized by Traffic Analysis Zone (TAZ) from the regional travel demand model. Population densities are highest in the residential neighborhoods directly north and south of Downtown Cheyenne, as well as residential areas in the northeast and northern portions of the city.

Current employment densities are provided in **Map 5**, which is also summarized by TAZ. Employment densities are highest in Downtown Cheyenne and the cluster of state office buildings around the state capitol. Employment densities are also relatively high along the Dell Range Boulevard corridor, the US 85 corridor south of I-80, and the business parks located along the two interstates in the region.

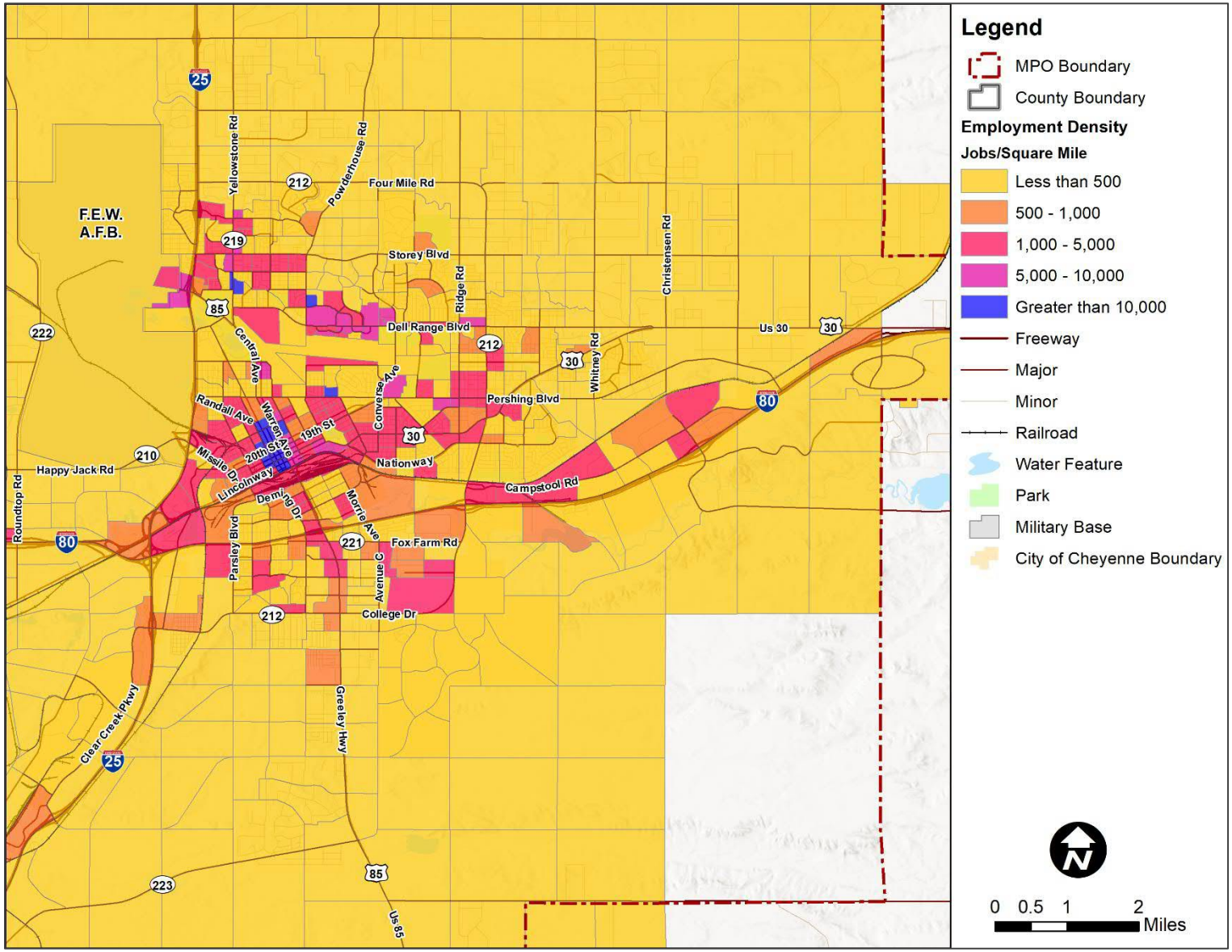
Map 3: Existing Land Use



Map 4: Current Population Density



Map 5: Current Employment Density



FUTURE LAND USE

The Future Land Use Plan from 2014 provides a land use framework for future development in the Cheyenne Area. It is not intended to change stable neighborhoods, but rather outline places where new development will occur in the future, including some redevelopment areas. The land use categories outlined in the plan allow future neighborhoods and activity centers to become distinctive, diverse places with a mix of compatible activities. Additionally, the categories provide some flexibility to respond to market conditions over the coming years.

Urban Service Boundary

The future land uses are planned for all areas within the Urban Service Boundary (USB). Generally, the USB follows the sewerable boundary where water and sewer can be provided. Most urban development will occur within this area. While much of the land within the USB is already developed in the City of Cheyenne, a considerable amount of vacant land remains that will become the community's future neighborhoods. New urban residential neighborhoods, within supporting businesses and services, will be directed into this area that is generally contiguous with existing development. The USB and anticipated major growth areas are shown in **Map 6**.

Future Land Use Categories

The future land uses categories are grouped under five major groups: Agricultural and Rural, Urban Residential, Mixed-Use, Business and Industry, and Civic and Other Activities. The future land use map is shown in **Map 7**.

Agricultural and Rural Areas

The areas illustrated as agricultural in Laramie County outside of the City of Cheyenne contain vast undeveloped areas. The future land use plan promotes continued ranching and farming in these areas, rather than rural residential development. Rural residential will continue to be a choice north of the City of Cheyenne.

Agriculture/Rural Category

The primary uses in these areas are farming, ranching, and other agricultural related uses, including farm animals, are appropriate. Agricultural related business and ranch support services are encouraged, along with very low-density residential lots. Wind energy generation and other energy production may be appropriate as well.

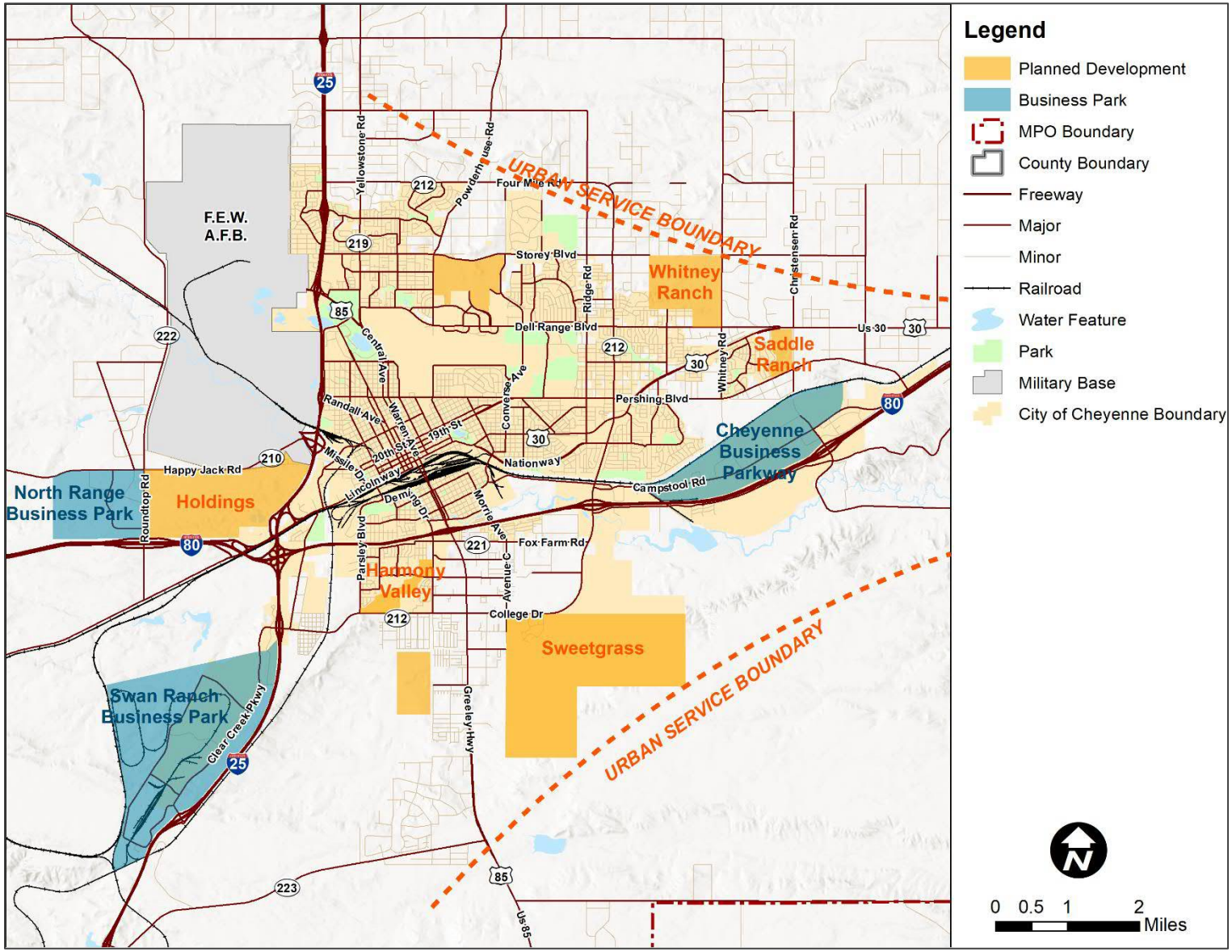
The southern part of the planning area, outside of the Urban Service Boundary is primarily dedicated to farming or agriculture related services.

Rural Residential Category

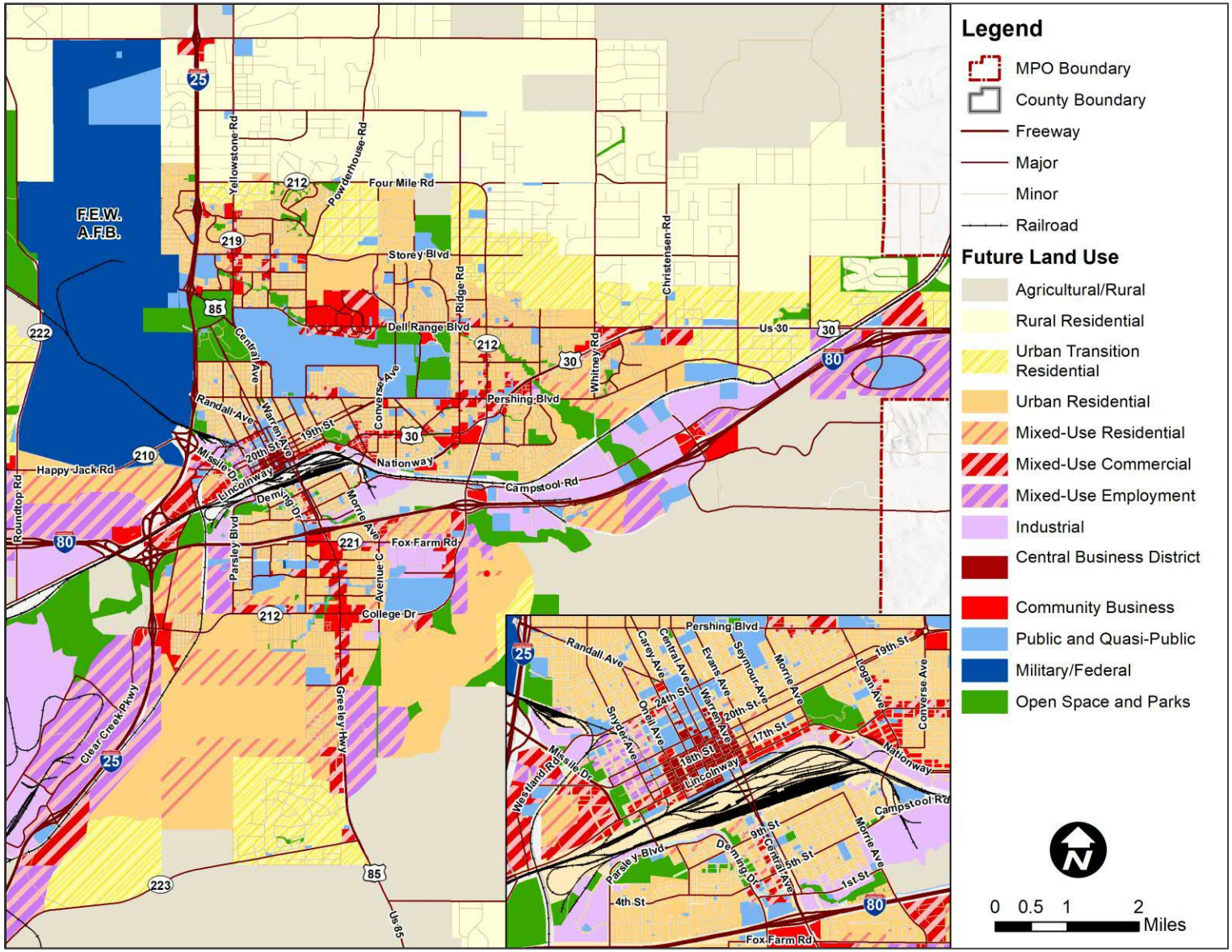
The Rural Residential category allows single family residences on individual large lots. Supporting and complementary uses, including open space and recreation, equestrian uses, schools, places of worship, and other public uses are appropriate

The Future Land Use Plan shows this type of development to the north in Laramie County, north of the City of Cheyenne.

Map 6: Major Growth Areas



Map 7: Future Land Use Map



Urban Residential

Cheyenne's residential areas have a variety of characteristics and densities. The locations of future residential areas will be designed to protect and strengthen existing and proposed neighborhoods.

Urban Transition Residential Category

The Urban Transition Residential category provides for a limited range of lower density residential uses, blending urban and rural standards. Supporting and complementary uses, including open space and recreation, equestrian uses, schools, places of worship, and other public or civic uses are also appropriate in this category.

The Urban Transition Residential is generally planned along the northern edge of the City of Cheyenne where some large lot development has already occurred on well and septic systems. It also occurs at the "edge" of other parts of the Urban Service Boundary. The category allows for a blend of "urban" neighborhood housing with more "rural" characteristics, such as larger lots.

Urban Residential Category

The Urban Residential category allows for a broader variety of residential types, including single-family residences, duplexes, patio homes, townhomes, condominiums, and apartments. Supporting and complementary uses, including open space and recreation, schools, places of worship, and other public or civic uses are encouraged.

Urban Residential is shown in established neighborhoods and newly developing neighborhoods within the Urban Service Boundary.

Mixed-Use

Cheyenne's Downtown historic core traditionally had mixed-use development – where offices, homes, and shopping coexisted in one discrete area. However, more recent development trends in the community have shifted away from this pattern of mixed-use. The future land use plan promotes mixed-use development patterns to maintain Cheyenne's identity, to create livable neighborhoods and safe and inviting pedestrian environments, and to stimulate development and revitalization of some areas.

Mixed-Use Residential Emphasis Category

The Mixed-Use Residential category promotes self-supporting neighborhoods that primarily contain housing. These mixed-use areas should also include a mix of retail, offices, and light trade. A range from 10 percent to 30 percent of the site area should be allocated to business and industry uses that are related to the neighborhood.

Mixed-Use Residential is located near activity centers and near or along arterials and collector streets throughout the City. The intent is to allow for vertical or horizontal mix of uses on sites, including some multi-family residential.

Mixed-Use Commercial Emphasis Category

The Mixed-Use Commercial category is intended to promote a range of land uses, with primarily retail, office, light industrial, and live- work designed as an "activity center". Apartments and townhomes and other residential uses are also encouraged as part of the mix of uses.

Mixed-Use Commercial areas are located near principal arterial or minor arterial streets or transit facilities and can become larger activity centers if they meet the Mixed-Use Activity Center criteria.

Mixed-Use Employment Emphasis Category

The Mixed-Use Employment category promotes a range of land uses, with primarily office and light industry designed in a business campus setting. The campus should include open space, parks and plazas, and pedestrian walkways.

Mixed-Use Employment areas are located primarily in the south west area of the plan area, in the Holdings, Swan Ranch Business Park, and North Range Business Park areas.

Business and Industry

The business and industry categories on the Future Land Use Plan have a variety of uses, development intensities, and characteristics that generally do not include much, if any, potential residential development.

Industrial Category

Offices, distribution and warehouses, and manufacturing and fabrication are appropriate in this category. Supporting retail uses and services are also appropriate in this category.

This category encompasses the heavier and light industrial areas and generally provides a location where less restrictive regulations are applied. This category is primarily located along the I-80 andI-25 corridors.

Central Business District Category

The Central Business District is intended for a variety of commercial businesses and civic uses in downtown. Business uses are smaller scale and not dependent on direct vehicular access.

The Central Business District is the City of Cheyenne's historic core. This category is only found in the downtown area of the City.

Community Business Category

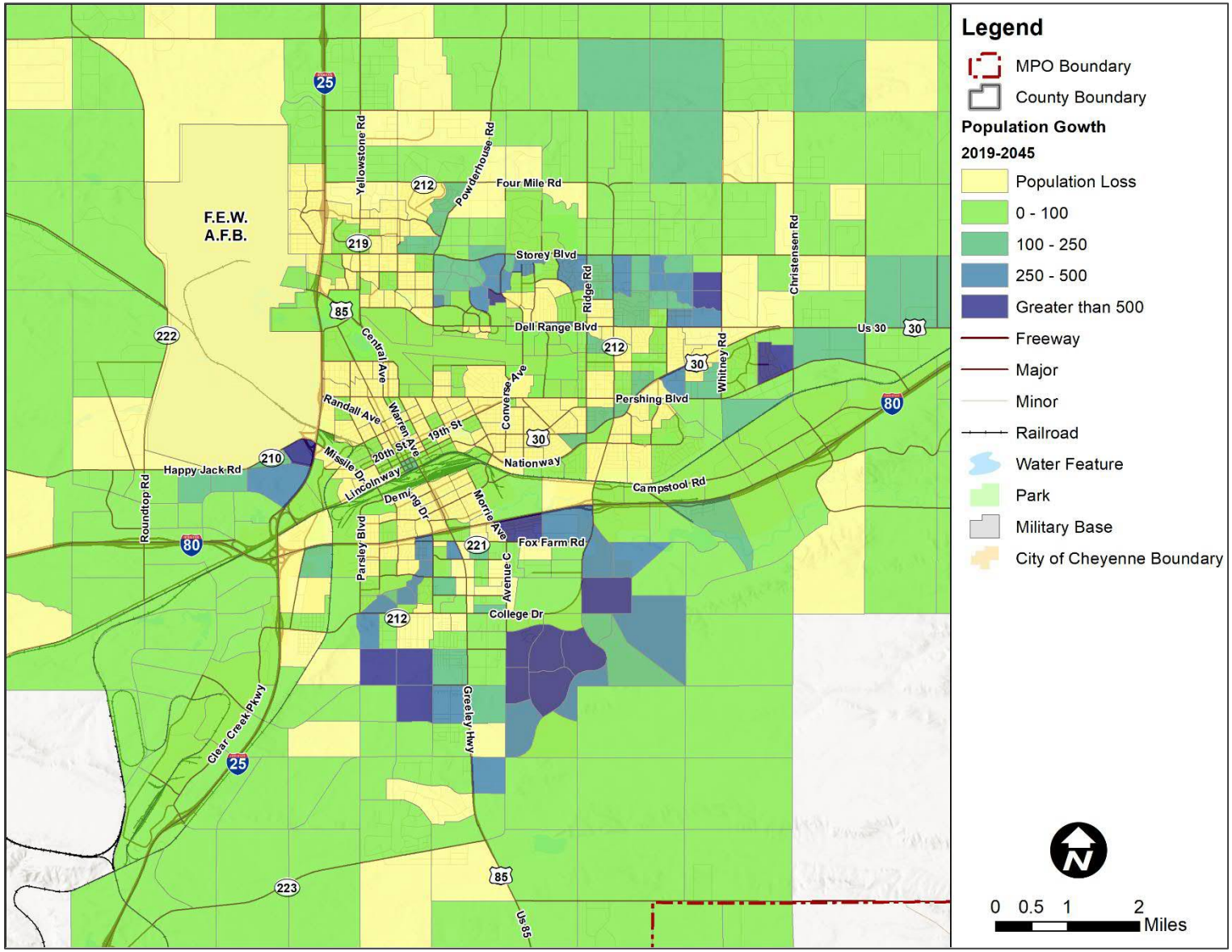
General retail to serve neighborhoods and the community and region is appropriate in the Community Business category. This category also allows for offices. It may also include, but is not limited to, general retail and office, large tenant retail (i.e., "big boxes"), and regional malls.

The Community Business category encompasses retail centers that provide shopping services in the community and region. These areas are general at interstate interchanges or at the intersection of an arterial or state highway, or at two arterials.

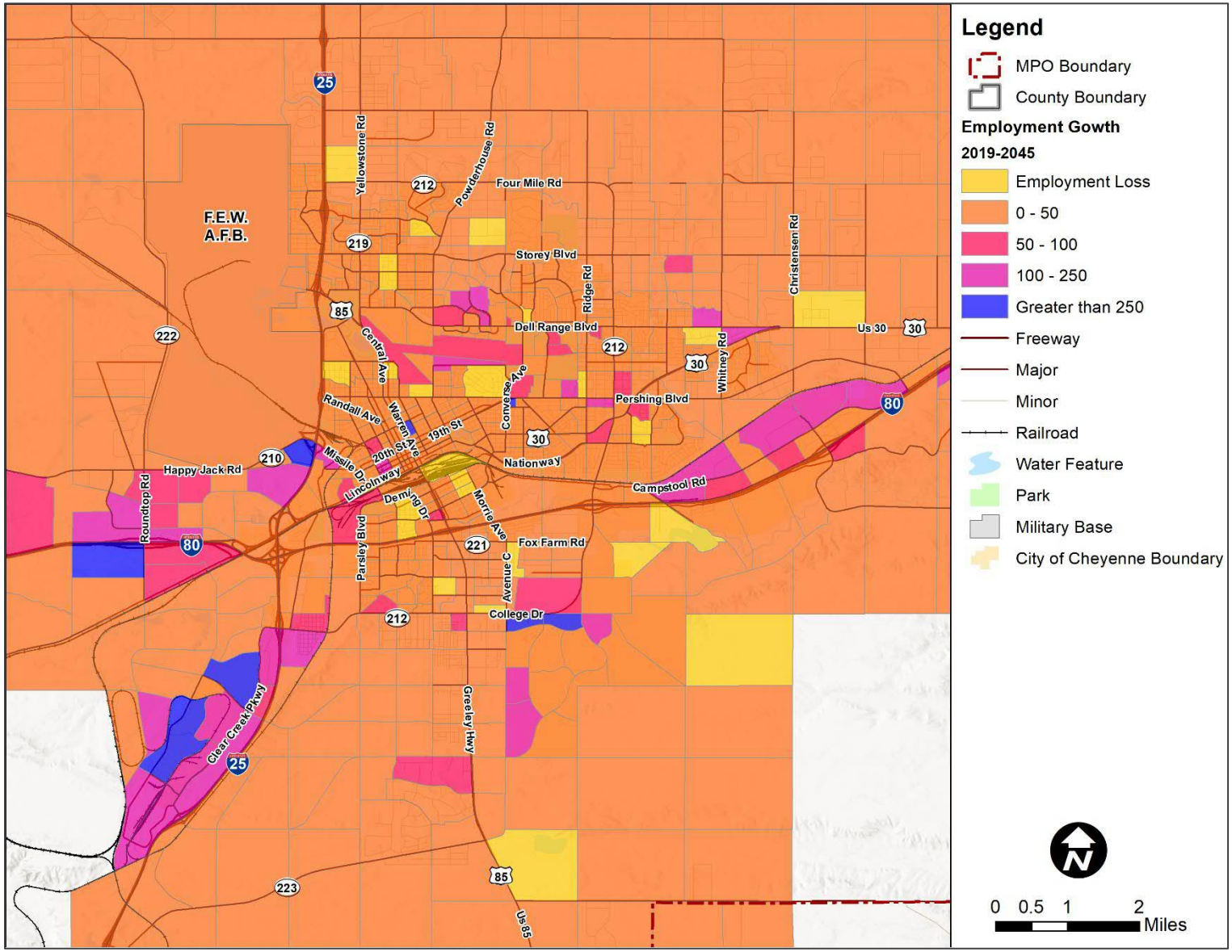
Future Growth

Map 8 and **Map 9** show the forecasted growth in population and employment between 2019 and 2045, respectively. This growth is summarized by TAZ and forms the underlying demographic information for the regional travel demand model (TDM). The forecasted growth largely aligns with the growth areas shown in **Map 6**.

Map 8: Forecasted Population Growth (2019-2045)



Map 9: Forecasted Employment Growth (2019-2045)

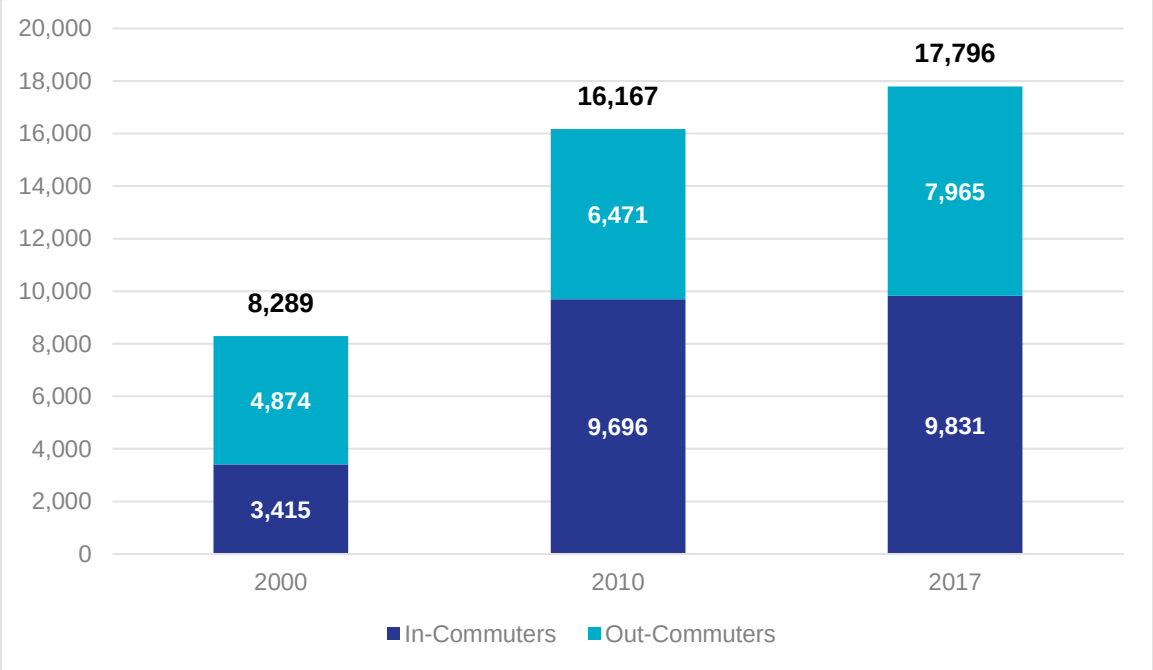


COMMUTING TRENDS

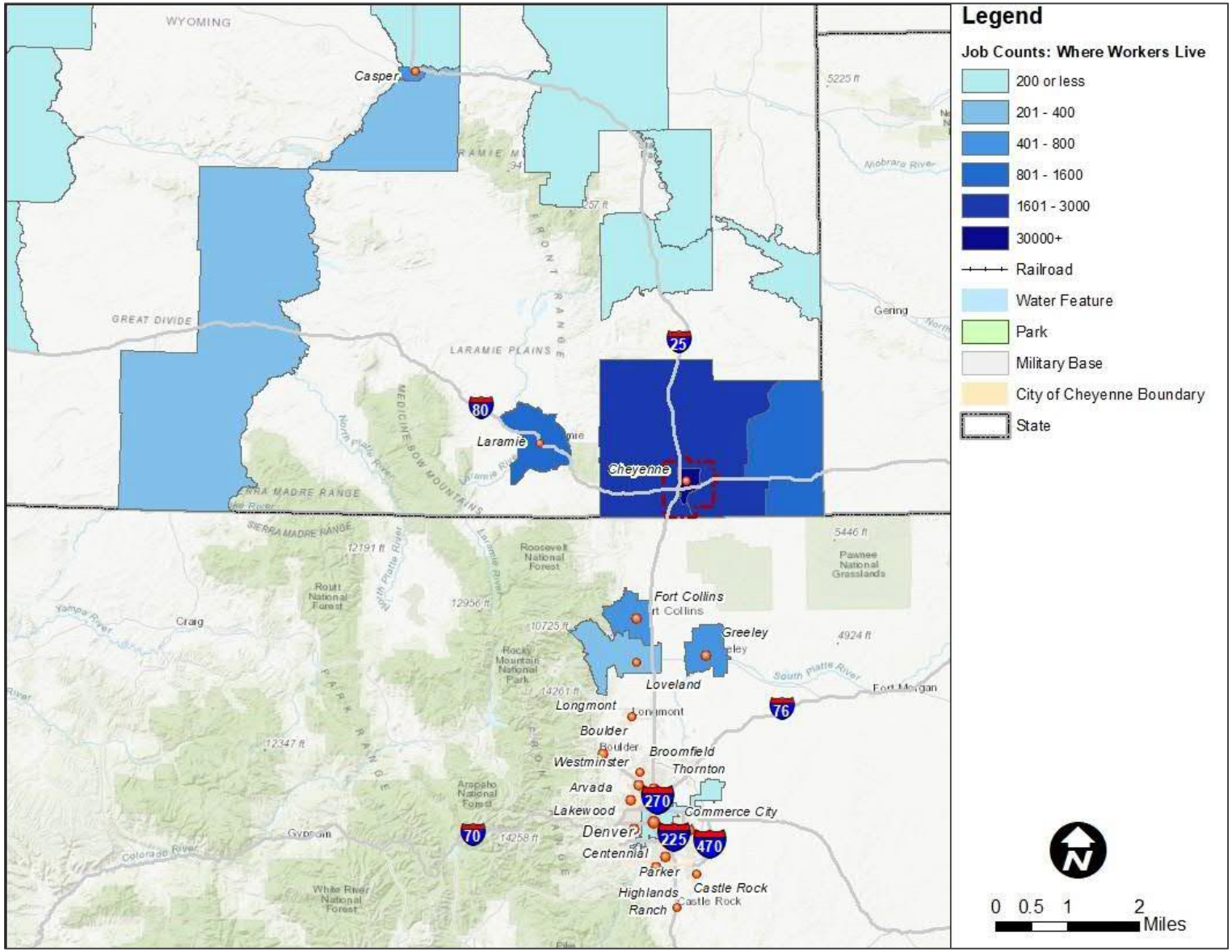
One of the primary functions of the transportation system is to support commute trips to and from work. The morning and afternoon peak travel periods generally represent the highest periods of travel demand and congestion. Based on U.S. Census Bureau Longitudinal Employment-Household Dynamics (LEHD) Origin-Destination Employment Statistics (2017), **Map 10** shows the inflow commute patterns of workers into Laramie County from surrounding areas in Wyoming and Colorado. The majority of Laramie County workers are employed and live within the area. A growing number of people work in Cheyenne, but commute from surrounding areas. The top commuting flows originating from Albany County, WY; Larimer County, CO; and Weld County, CO.

In 2017, roughly 21 percent of jobs were occupied by in-commuters, as shown in **Table 19**; additional details on commuter patterns are provided in **Appendix A: Demographic Characteristics**. Since 2000, the in-commuting population has grown by 6,400 workers, however, the majority of growth occurred between 2000 and 2010. Since 2010, the in-commuting population has grown by just 135 workers. The out-commuting population has grown more gradually adding around 3,100 workers between 2000 and 2017.

Figure 7: Laramie County Commute Patterns (2000-2017)



Map 10: Cheyenne Area Commuting Trends



ROADWAY ASSESSMENT

FUNCTIONAL CLASSIFICATION

The Federal Highway Administration (FHWA) recommends grouping the roadway network into a hierarchical functional classification system based on the characteristics of the roadway, as well as the service the roadway is intended to provide. The transportation system in the Cheyenne area is classified into the following classifications:

- Interstates
- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roadways

Figure 8 shows the relationship between land access and mobility for the different classifications. Highly classified roads, such as interstates and principal arterials, provide a high degree of mobility and limited access, promoting long-distance travel with minimal disruption to traffic. Conversely, local streets support short-distance, low-speed traffic representing the lowest degree of mobility, but the highest degree of access to adjacent land uses.

Figure 8: Functional Classification - Mobility vs. Access

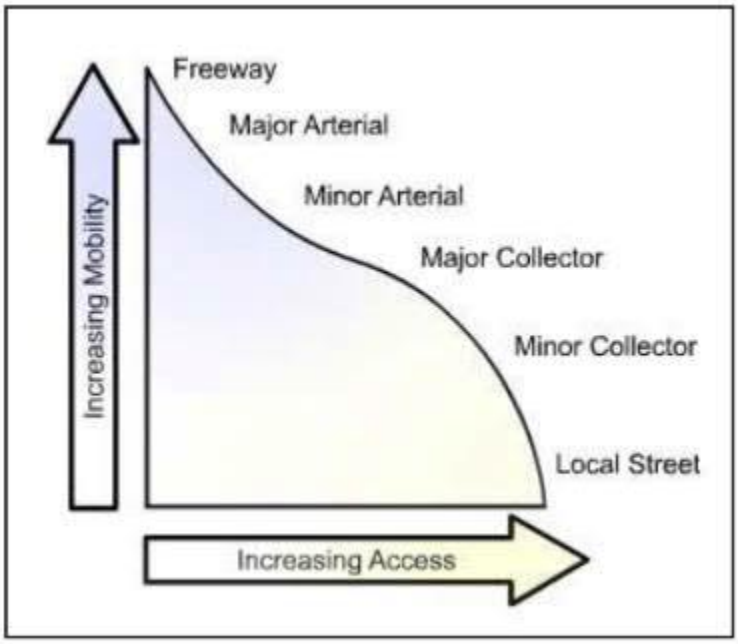


Table 3 gives a brief description of the functional classifications and how many miles of each classification is present within the Cheyenne MPO boundary.

Table 3: Functional Classification Statistics

Functional Classification	Miles	% of Total	Services Provided
Interstate	95	11.4%	Full access control, high speed travel
Principal Arterial	60	7.2%	High speeds and long, uninterrupted travel
Minor Arterial	59	7.1%	Slower speeds than a principal arterial, often provide connections between principal arterials
Major Collector	125	15.1%	Collects traffic from local roads, distributes to arterials
Minor Collector	40	4.8%	Collects traffic from local roads, distributes to arterials
Local Street	451	54.4%	Provides access to land, little or no through traffic
Total	830		

Map 11 shows the geographic location of each functional classification throughout the Cheyenne MPO region.

TRAFFIC VOLUMES

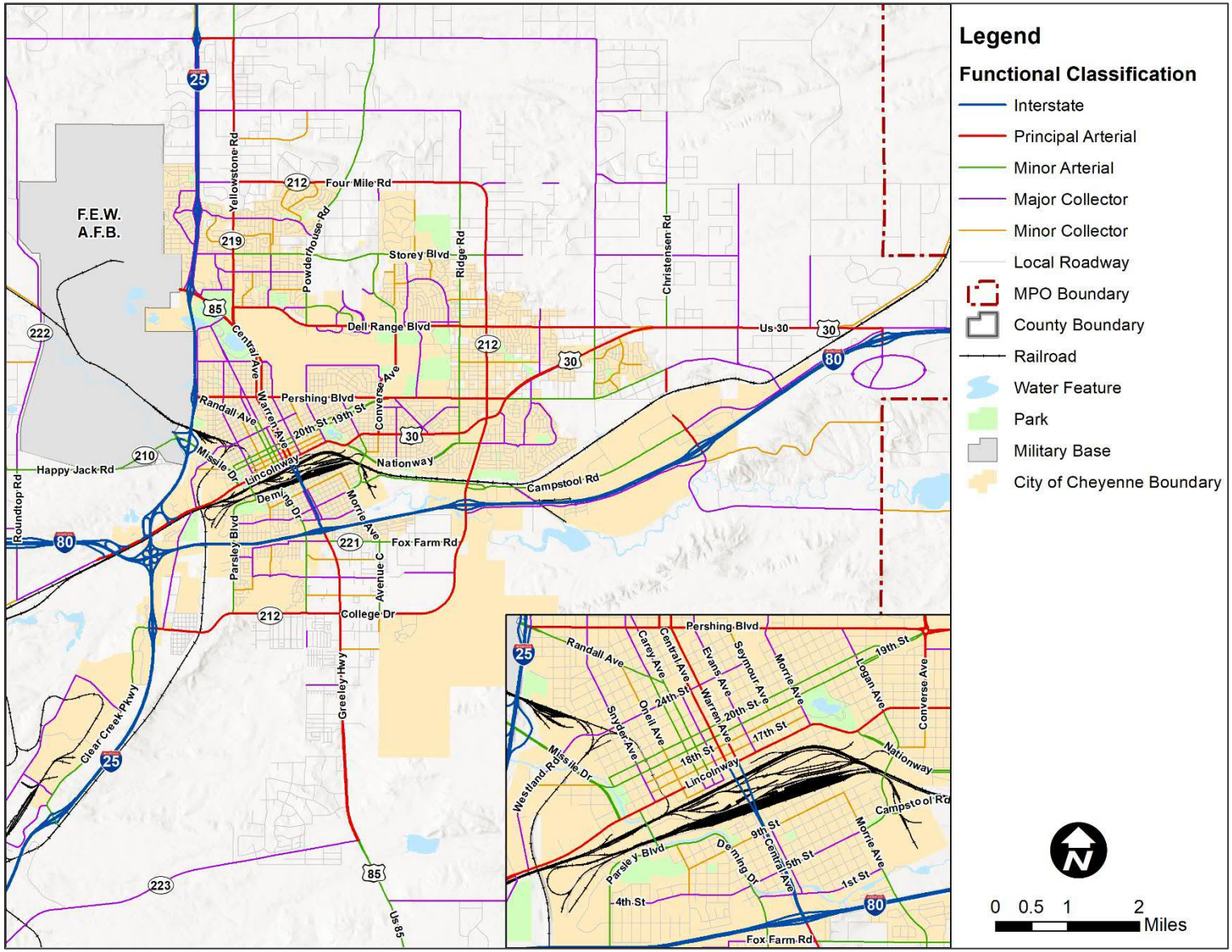
Traffic count volumes were collected by the Cheyenne MPO and WYDOT and compiled for 2015 through 2019. Average annual daily traffic (AADT) volumes are shown in **Map 12**; purple and blue colors correspond to higher traffic volumes. Recent traffic volumes are not available for every functionally classified roadway within the Cheyenne MPO region.

AADT generally corresponds to the functional classification of the associated roadway. The highest traffic volumes within the Cheyenne MPO area are shown in **Table 4**.

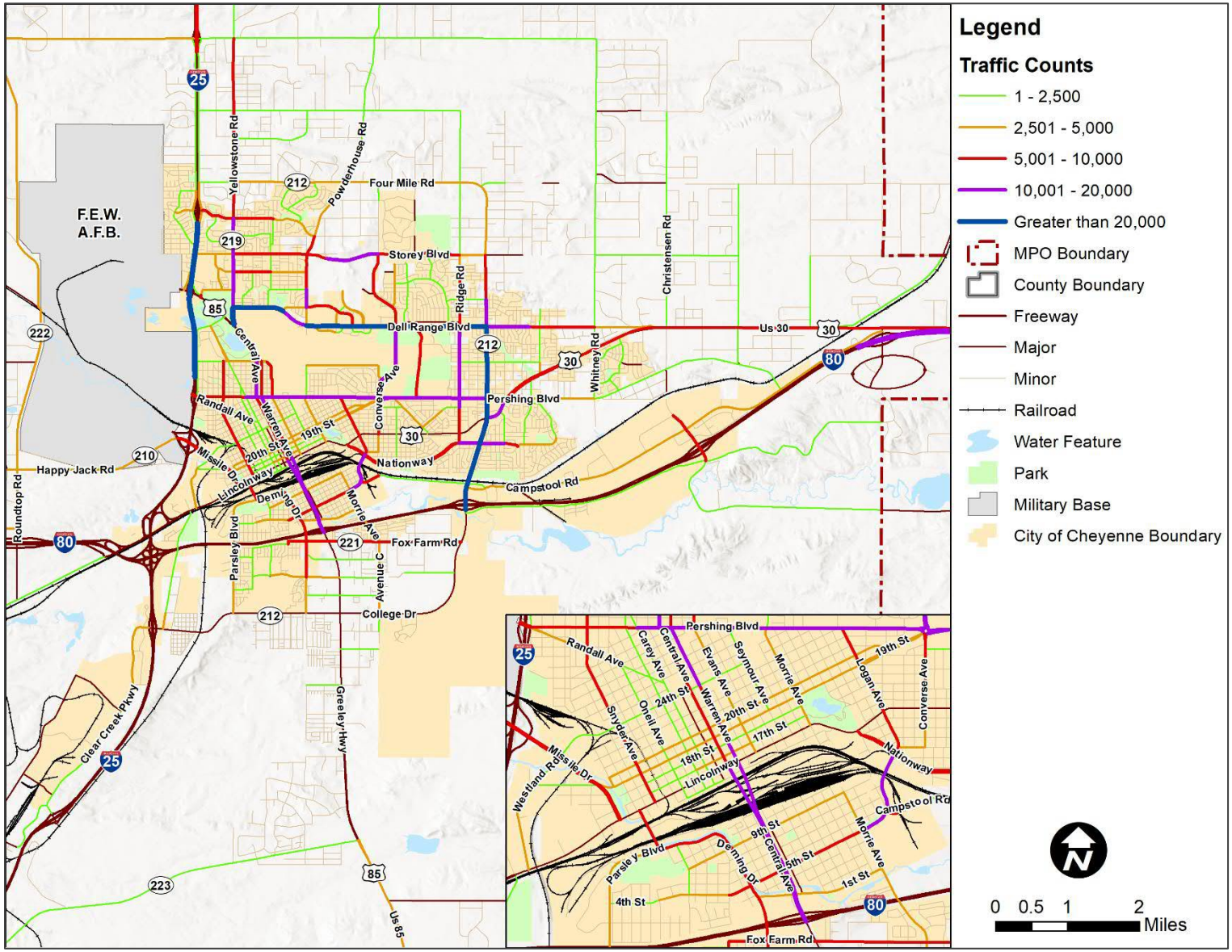
Table 4: Highest Traffic Volumes

Roadway	From	To	Daily Traffic (vpd)
Dell Range Boulevard	Powderhouse Road	Converse Avenue	37,666
Yellowstone Road	Central Avenue	Dell Range Boulevard	31,754
College Drive	I-80	US 30	26,470
Dell Range Boulevard	Converse Avenue	Mountain Road	26,092
Dell Range Boulevard	Mountain Road	Windmill Road	23,993

Map 11: Functional Classification



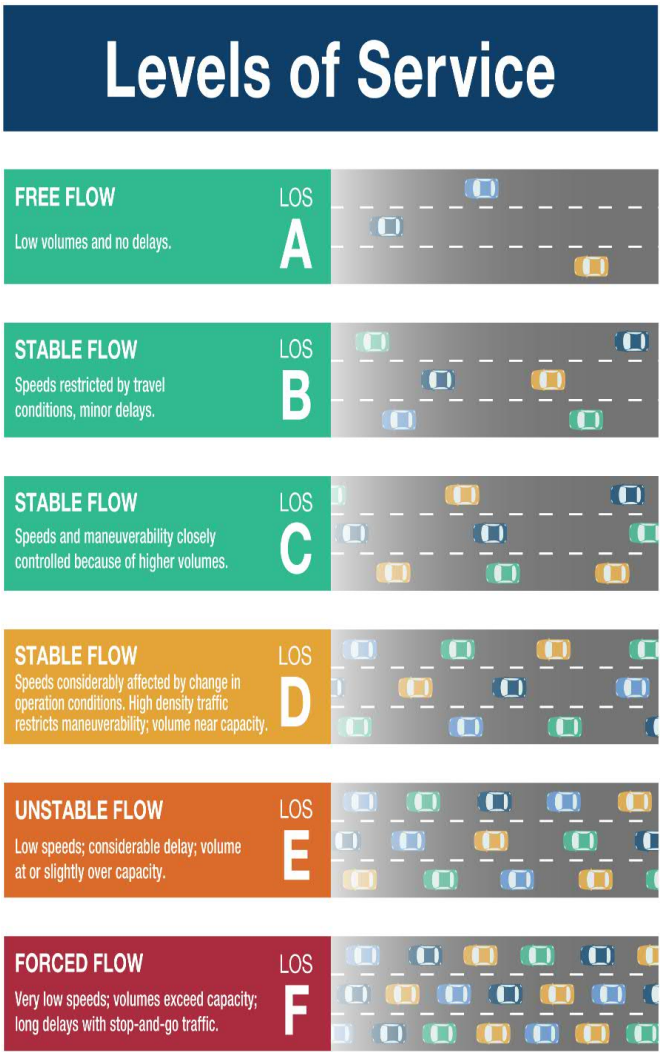
Map 12: Existing Traffic Volumes



TRAFFIC CONGESTION

Current traffic congestion levels in the Cheyenne MPO region were analyzed using level of service (LOS), a measure that rates the performance of the roadway network in terms of the degree of traffic congestion. This measure uses the letters 'A' through 'F', with an A being the best and F being the worst, depicted in **Figure 9**. LOS grades are defined by the Highway Capacity Manual (HCM) and described below:

Figure 9: Traffic Levels of Service



Source: Utah Department of Transportation, https://www.parleyseis.com/

LOS A: Free Flow. Traffic flows freely at the posted speed limit. Incidents or vehicle breakdowns have minimal impact on others. LOS A generally occurs late at night in urban areas and frequently in rural areas.

LOS B: Reasonably Free Flow. LOS A speeds are maintained, and maneuverability within the traffic stream is slightly restricted. Motorists have a high level of physical and psychological comfort.

LOS C: Stable Flow, at or Near Free Flow. Motorists' ability to maneuver between lanes is noticeably restricted and requires more driver awareness. Roads remain uncongested but are approaching capacity. Minor incidents begin to lead to traffic delays behind the incident. This is the target LOS for most rural highways.

LOS D: Approaching Unstable Flow. Speeds are decreased and motorist freedom to maneuver is more limited. Examples are a busy shopping corridor in the middle of a workday, or a major arterial during commuting hours. This is the target LOS for most urban streets, as attaining a LOS C would be cost-prohibitive.

LOS E: Unstable Flow, Operating at Capacity. Flow becomes irregular and speed varies rapidly as traffics' ability to maneuver diminishes. Vehicles rarely reach the speed limit. Any incident or disruption to traffic flow, such as crashes or merging ramp traffic or lane changes, leads to congestion.

LOS F: Over Capacity. Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required. Travel time cannot be predicted, with generally more demand than capacity. This represents a traffic jam.

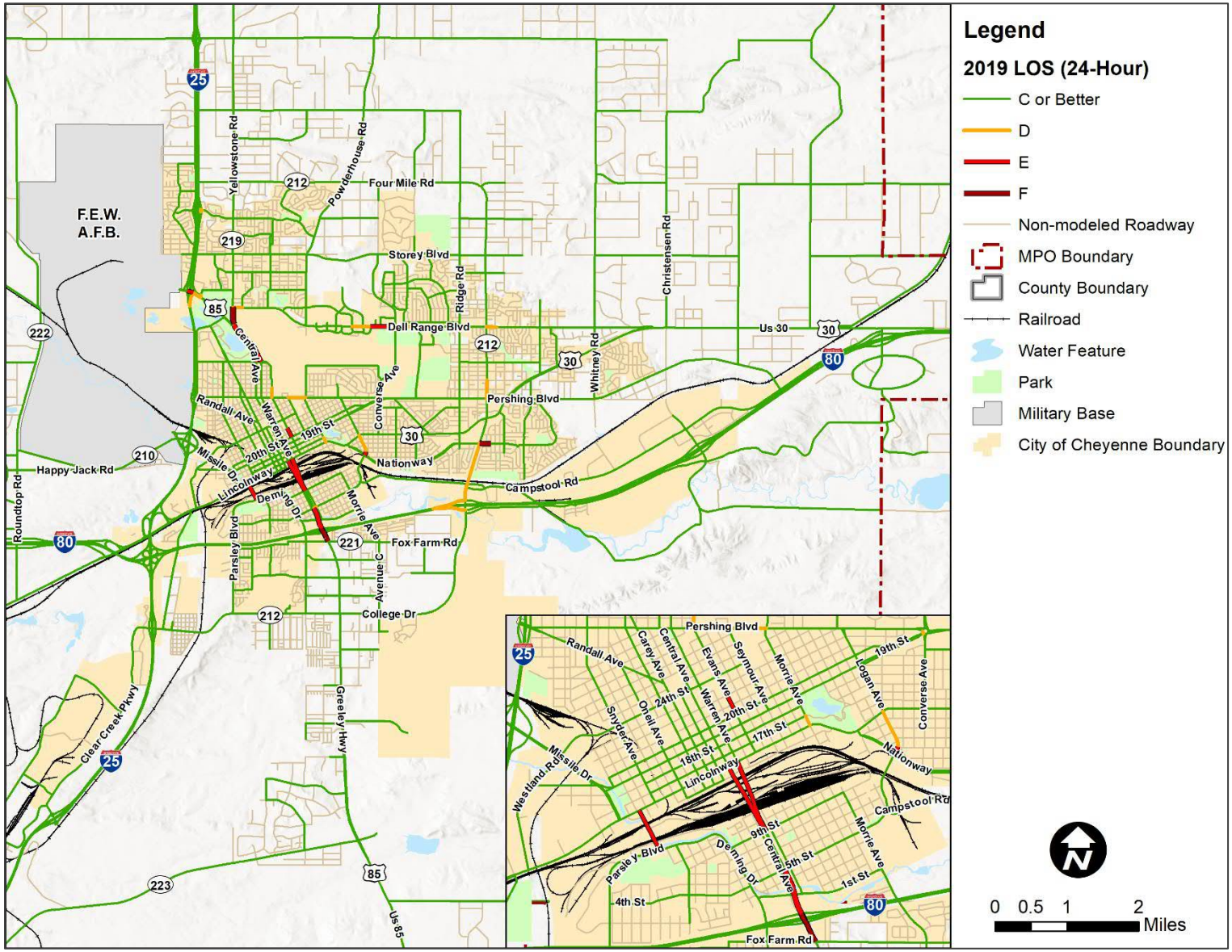
Map 13 shows the current LOS on major roads in the Cheyenne MPO region, based on the volume to capacity (V/C) ratio of daily modeled volumes in the regional travel demand model compared to the roadway capacity as determined by the regional travel demand model. Most roadways within the Cheyenne area are currently operating at an acceptable LOS (C or better). However, there are portions of the roadway network that are either approaching an unacceptable LOS (D) or are already experiencing an unacceptable LOS (E or F).

Roadway segments that currently have a LOS E or F are provided in **Table 5** below.

Table 5: Congested Roadways

Roadway	From	To	Current LOS
Yellowstone Road	Central Avenue	Dell Range Boulevard	F
12th Street	College Drive	Adams Avenue	F
US 85	I-80	Fox Farm Road	F
Dell Range Boulevard	Blue Grass Circle	Mountain Road	E
Central Avenue	8th Avenue	Yellowstone Road	E
US 85	I-80	5th Street	E
US 85	9th Street	Lincolnway	E
Ames Avenue	Deming Drive	Lincolnway	E
Logan Avenue	Nationway	10th Street	E
Evans Avenue	20th Street	22nd Street	E

Map 13: Existing Modeled LOS



DOWNTOWN ONE-WAY STREET ASSESSMENT

Within downtown Cheyenne, are three one-way couplets - two parallel corridors with opposite one-way traffic. Two of the couplets, Central Avenue/Warren Avenue and Pioneer Avenue/Carey Avenue are north-south corridors and the third, 19th Street/20th Street, travels east-west.

The three one-way couplets were individually analyzed for feasibility of conversion to parallel two-way corridors. Two-way corridors provide better drivability and an easier to navigate downtown area. One-way couplets increase confusion for drivers, especially for visitors unfamiliar with the area. Two-way streets also provide higher exposure to downtown businesses with bidirectional traffic traveling along business frontages.

The following analyses assess the LOS comparison between the existing one-way couplets and the proposed two-way corridors in the 2020 base year and 2045 horizon year. 2020 and 2045 traffic volumes were obtained by applying a 1.25% annual growth rate to existing PM peak traffic count volumes. The 1.25% rate was identified as the assumed growth for the 2040 Vision Plan in the Cheyenne Area Master Plan: Transportation Plan. A 90 second cycle length was assumed for each intersection and the splits were optimized for each scenario.

LOS analysis was completed using Synchro 10 software and methodology. LOS is reported for the intersection as a whole. Like the LOS for roadways, each LOS corresponds with a total delay in seconds for the intersection. **Table 6** summarizes the range of average delay in seconds per vehicle for each LOS as stated in the HCM (Special Report 209). Similar to roadway LOS, LOS D and above is considered an acceptable intersection LOS, while LOS E and F are considered unacceptable.

Table 6: Intersection Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Definitions provided from the Highway Capacity Manual, Special Report 209, Transportation Research Board, 2010.

Warren Avenue and Central Avenue

The LOS is acceptable at all study area intersections in the existing 2020 one-way scenario. An immediate conversion to two-way corridors would cause LOS E at Warren Avenue and 16th Street. **Map 14** and **Map 15** summarize the 2020 LOS for Central Avenue and Warren Avenue as one-way couplets and separate two-way corridors, respectively.

Map 14: Warren Avenue and Central Avenue 2020 One-Way Couplet

Map 15: Warren Avenue and Central Avenue 2020 Two-Way Concept

Intersections are anticipated to operate at acceptable LOS in the 2045 horizon year, with the exception of Warren Avenue/Pershing Boulevard and Central Avenue/16th Street both at LOS E. Converting Central Avenue and Warren Avenue to two-way streets is anticipated to create LOS F at four study area intersections: the two previously LOS E intersections, Warren Avenue / Pershing Boulevard and Central Avenue/16th Street, and two intersections that operate at LOS D as one-way streets, Central Avenue/ Pershing Boulevard and Warren Avenue/16th Street. **Map 16** and **Map 17** summarize the 2045 LOS for Central Avenue and Warren Avenue as one-way couplets and separate two-way corridors, respectively.

Map 16: Warren Avenue and Central Avenue 2045 One-Way Couplet

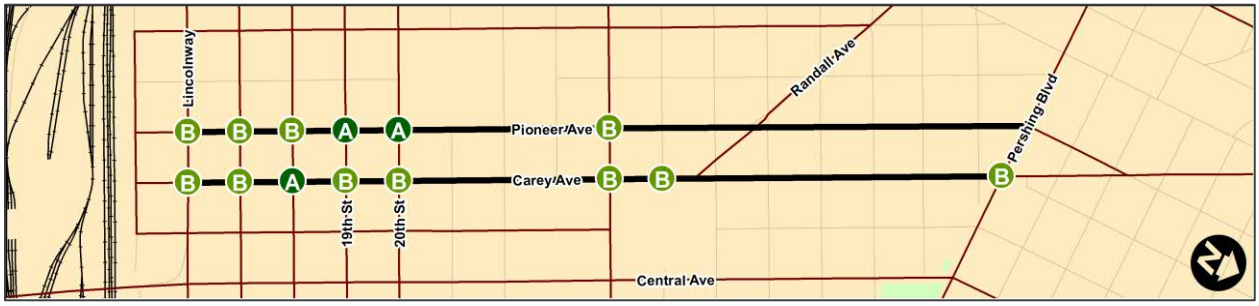
Map 17: Warren Avenue and Central Avenue 2045 Two-Way Concept

Pioneer Avenue and Carey Avenue

The LOS is anticipated to be acceptable at all study area intersections along Pioneer Avenue and Carey Avenue when configured as a one-way couplet or two-way corridor with 2020 volumes. **Map 18** and **Map 19** summarize the 2020 LOS for Pioneer Avenue and Carey Avenue as one-way couplets and separate two-way corridors, respectively.

Map 18: Pioneer Avenue and Carey Avenue 2020 One-Way Couplet

Map 19: Pioneer Avenue and Carey Avenue 2020 Two-Way Concept



The LOS is anticipated to be acceptable at all study area intersections along Pioneer Avenue and Carey Avenue when configured as a one-way couplet or two-way corridor with 2045 volumes. **Map 20** and **Map 21** summarize the 2045 LOS for Pioneer Avenue and Carey Avenue as one-way couplets and separate two-way corridors, respectively.

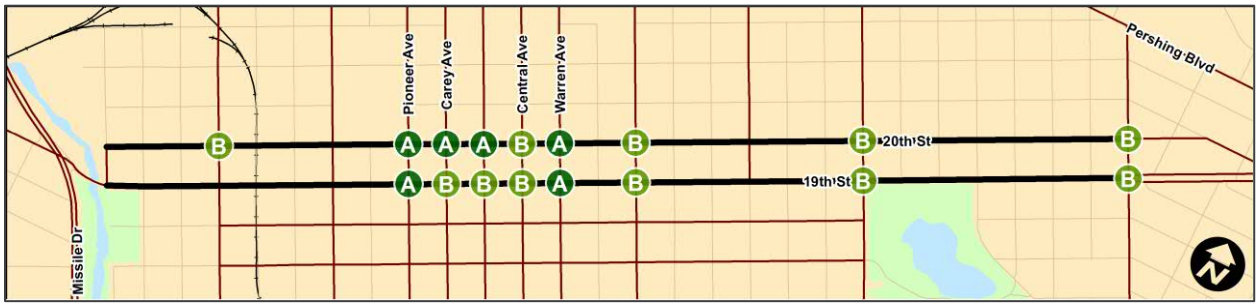
Map 20: Pioneer Avenue and Carey Avenue 2045 One-Way Couplet

Map 21: Pioneer Avenue and Carey Avenue 2045 Two-Way Concept

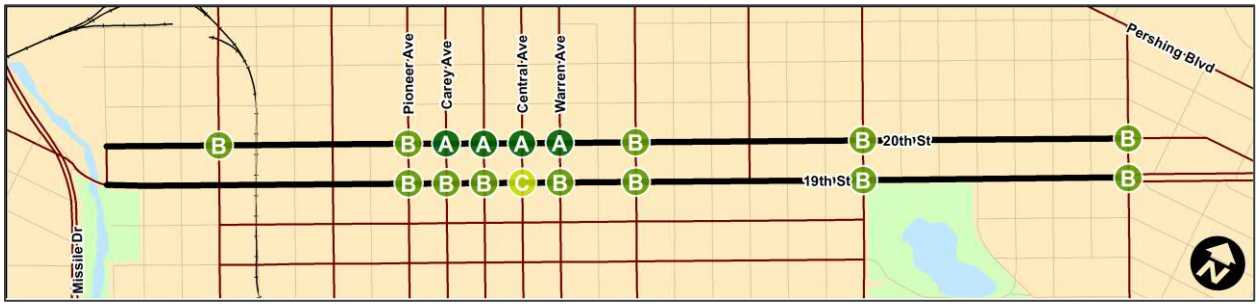
19th Street and 20th Street

The LOS is anticipated to be acceptable at all study area intersections along 19th Street and 20th Street when configured as a one-way couplet or two-way corridor with 2020 volumes. **Map 22** and **Map 23** summarize the 2020 LOS for 19th Street and 20th Street as one-way couplets and separate two-way corridors, respectively.

Map 22: 19th Street and 20th Street 2020 One-Way Couplet

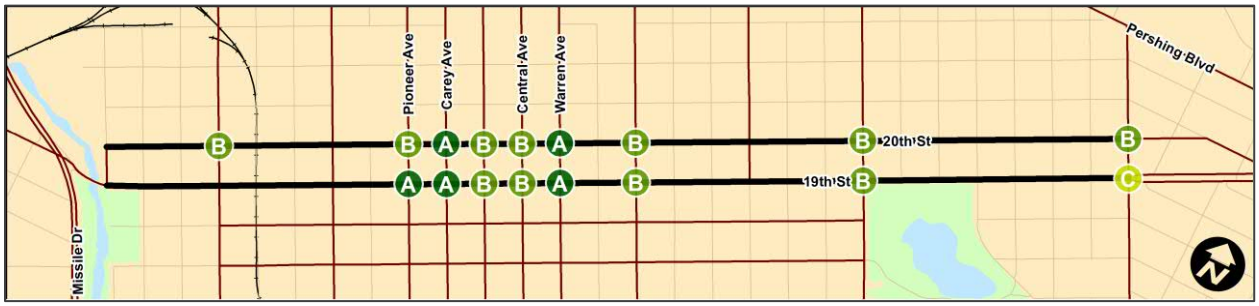


Map 23: 19th Street and 20th Street 2020 Two-Way Concept

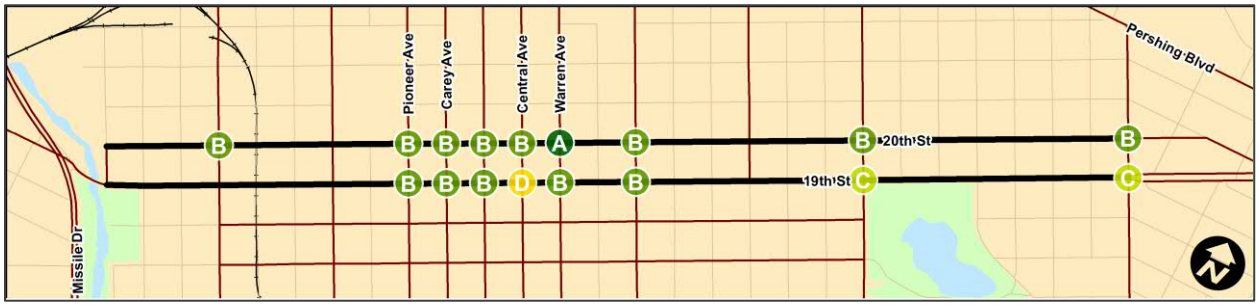


The LOS is anticipated to be acceptable at all study area intersections along 19th Street and 20th Street when configured as a one-way couplet or two-way corridor with 2045 volumes, though 19th Street and Central Avenue is anticipated to operate at LOS D. **Map 24** and **Map 25** summarize the 2045 LOS for 19th Street and 20th Street as one-way couplets and separate two-way corridors, respectively.

Map 24: 19th Street and 20th Street 2045 One-Way Couplet



Map 25: 19th Street and 20th Street 2045 Two-Way Concept



Based on the preceding analysis, it would be feasible to convert the Pioneer Avenue/Carey Avenue and 19th Street/20th Street corridors to two-way roadways, while maintaining acceptable levels of service through the 2045 planning horizon year.

Conversely, converting the Central Avenue/Warren Avenue corridors to two-way roadways would lead to unacceptable levels of service, particularly by the 2045 planning horizon year where several intersections are anticipated to operate at LOS F. An additional complication of converting Central and Warren Avenues is the twin viaducts crossing the railroad yard south of Downtown Cheyenne. If these corridors were to be converted to two-way roadways, reconfiguration of the viaducts or adjacent intersections would be required.

INTERSTATE INTERCHANGE ASSESSMENT

A planning-level analysis of 14 interstate interchanges within the Cheyenne area has been performed to evaluate the adequacy of the current interchange configurations. Similar assumptions were used as the one-way street analysis described in the previous section, including analyzing the PM peak hour from recent counts and applying a 1.25% annual growth rate to forecast 2045 turning movements.

The results of this analysis are presented in **Table 7** below. If an unacceptable LOS (E or F) was observed for an intersection or approach to an intersection, recommended modifications were developed to improve interchange capacity and maintain levels of service.

Table 7: Interstate Interchange Assessment Results

Interstate	Interchange	Ramp Dir.	2020 LOS	2045 LOS	Modified 2045 LOS*
I-25	High Plains Rd	NB	A	A	-
		SB	A	A	-
	College Dr	NB	A	A	-
		SB	A	A	-
	Lincolnway	NB	A	A	-
		SB	A	A	-
	Missile Dr	NB	B	F	B
		SB	A	A (F for NB & SB lefts)	C
	Randall Ave	NB	C	E	D
		SB	A	B	B
	Central Ave	NB	C	C	C
		SB	A (F for SB approach)	F	C
	Vendehei St	NB	A	B	-
		SB	A	B	-
	Horse Creek Rd	NB	A	A	-
		SB	A	A	-
I-80	Round Top Rd	EB	A	A	-
		WB	A	A	-
	Lincolnway	EB	A	A	-
		WB	A	A	-
	US 85	EB	B	C (F for EB approach)	B (D for EB approach)
		WB	B	C	C
	College Dr	EB	B	C	D
		WB	A (F for WB Thru/Left)	B (F for WB Thru/Left)	D
	Campstool Rd	EB	A	A	-
		WB	A	A	-
	Archer Pkwy	EB	A	A	-
		WB	A	A	-

***Modified LOS indicated only for interchanges with anticipated capacity issues where improvements to the interchange have been assumed. Assumed improvements are noted below.**

Recommended interchange modifications to maintain acceptable levels of service through the 2045 horizon year are:

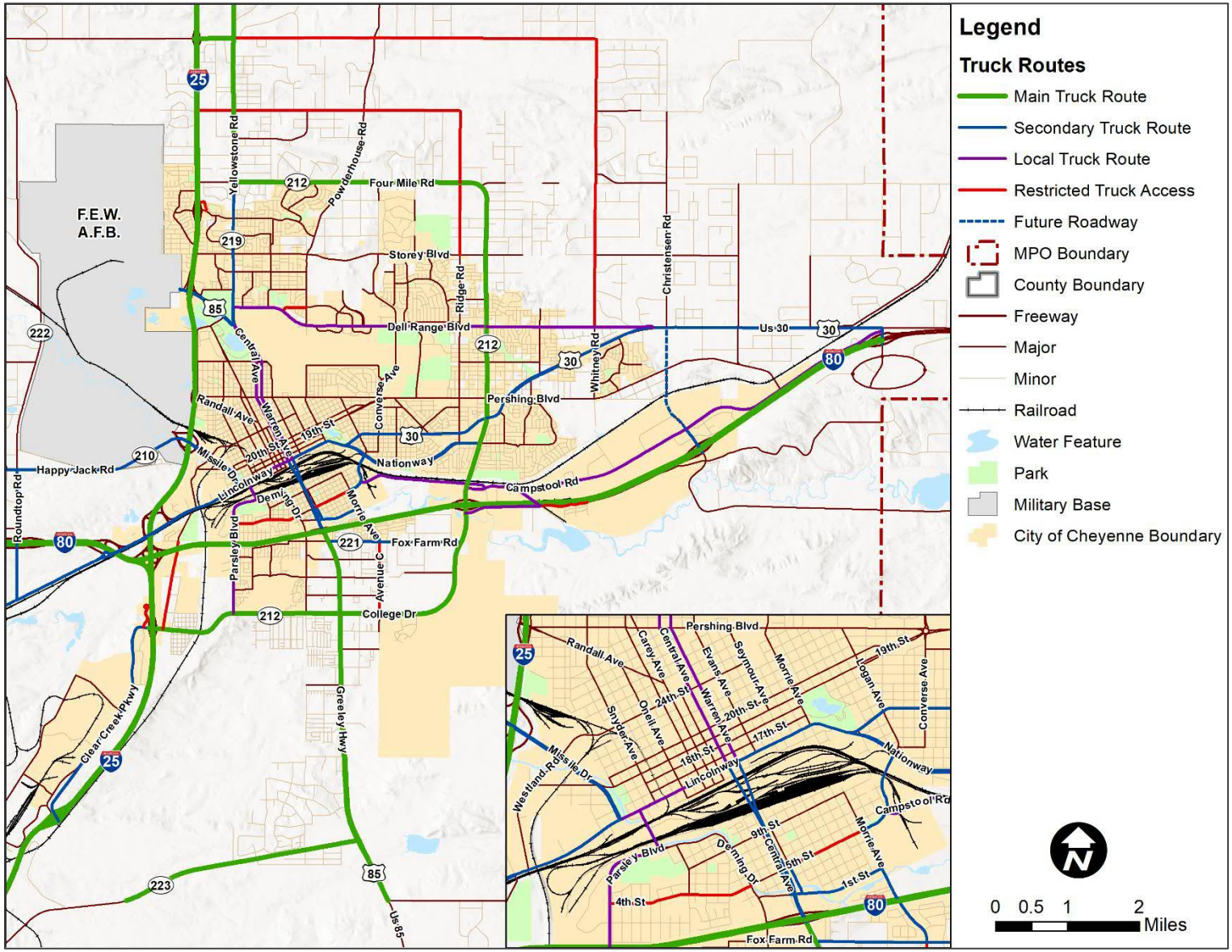
- **I-25 and Missile Dr:** signalize both on-ramp/off-ramp intersections. The I-25 southbound off-ramp and Missile Drive intersection was assumed operate as a 90-second actuated coordinated intersection with permitted left-turn phasing on all approaches. The I-25 northbound off-ramp and Missile Drive intersection was assumed to operate as a 90-second actuated coordinated intersection with permitted-protected left-turn phasing in the eastbound approach.
    - The northbound and southbound left-turn lane at the I-25 southbound off-ramp and Missile Drive intersection LOS is anticipated to deteriorate from a LOS D to a LOS F without signalization. The signalization of the intersection improves the LOS to a C.
    - The northbound left-turn lane at the I-25 northbound off-ramp and Missile Drive intersection LOS is anticipated to deteriorate from a LOS D to a LOS F without signalization. The signalization of the intersection improves the LOS to a C.
- **I-25 and Randall Avenue:** re-stripe the three lanes on northbound ramp approaching the traffic signal from left/left-through/right to left-through/right (to Pershing)/right (to Randall).
    - The forecasted right turning volumes (to both Pershing Boulevard and Randall Avenue) are anticipated to be 50% higher than the volume of combined left turns and throughs at the signal. Therefore, it is recommended that the existing lanes get reallocated to better serve the right turns, which improves the anticipated LOS from E to D and reduces the average delay on the ramp by over 10 seconds.
- **I-25 and Central Avenue:** signalize the I-25 southbound ramp and Central Avenue intersection. The intersection should operate under the same controller as the existing signalized I-25 northbound ramp and Central Avenue intersection. The signalized intersection was assumed to operate under a 90-second cycle with permitted-protected westbound left turns.
    - The southbound approach at the I-25 southbound ramp and Central Avenue intersection operates at a LOS F with a 94-second average delay per vehicle. By 2045, the delay increases to a 2,906-second delay per vehicle in the southbound approach without signalization. The signalization of the intersection improves the overall LOS to a C.
- **I-80 and US 85:** add an eastbound right-turn lane on the eastbound off-ramp at least 250’ in length.
    - The LOS for the ramp is anticipated to deteriorate from a C to an F by 2045 without improvements. The addition of a right-turn lane to the eastbound off-ramp would improve the eastbound LOS from an F to a D and reduces the average delay for the ramp by approximately 50 seconds.
- **I-80 and College Drive:** signalize the I-80 westbound ramp and College Drive intersection. The intersection should operate under the same controller as the existing signalized I-80 eastbound ramp and College Drive intersection. The signalized intersection was assumed operate under a 90-second cycle with permitted-protected left-turn phasing in the northbound approach.
    - The westbound through/left-turn movement at the I-80 westbound ramp and College Drive intersection operates at a LOS F with a 125-second delay per vehicle. By 2045, the delay increases to a 1,117-second delay per vehicle for the westbound through/left-turn movement without signalization. The signalization of the intersection improves the overall LOS to a D.

FREIGHT

The freight network serving the Cheyenne area is comprised of highway, railway, aviation, and pipeline systems. In particular, I-80 is one of the nation's busiest routes for moving freight coast to coast. As documented in the 2016 Cheyenne Regional Freight Mobility Plan, the region has a growing manufacturing and distribution industry base which includes several major companies such as Lowe's, Walmart, Sierra Trading Post and Holly Frontier Refinery.

Major planned industrial growth areas include the Swan Ranch Industrial Park south of the City along I-25 and the North Range Business Park to the west along I-80. Cheyenne's access to high-level transcontinental transportation corridors is a major strength for its economy. In order to better accommodate truck and freight goods movement, the Regional Freight Mobility Plan included a comprehensive review of existing truck routes with recommended changes. **Map 26** illustrates the updated truck route map.

Map 26: Freight Network



TRANSIT ASSESSMENT

OVERVIEW

The Cheyenne Transit Program offers six fixed routes and paratransit service. Of the fixed routes, five are loops oriented through downtown, and the sixth route is a loop that circles within downtown. 8.7 percent of the Cheyenne MPO area is within a quarter of a mile of at least one fixed bus route, while over half (51.8 percent) of the City of Cheyenne is within one quarter mile of at least one fixed bus route. The fixed routes and a quarter mile buffer are shown in **Map 27**.

The routes are named for the directions they travel from downtown: East, Northeast, Northwest, South, West, and Downtown (the downtown loop). These fixed routes operate Monday through Friday from 6:00 a.m. to 7:00 p.m. and Saturday from 10:00 a.m. to 5:00 p.m. Cheyenne Transit Program does not currently offer Sunday service or service on holidays. Each route contains approximately 25 stops and operates at a 60-minute frequency.

All of the Cheyenne Transit Program fixed route buses are lift-equipped to support users who cannot use stairs or depend on mobility devices. In addition to fixed route service, the Cheyenne Transit Program operates complementary ADA paratransit service by reservation for area residents who qualify. This service offers curb-to-curb transportation for residents whose conditions prevent them from using fixed route service.

SYSTEM PERFORMANCE OVERVIEW

System data for the Cheyenne Transit Program provides insight on the current performance of the transit system in Cheyenne. This information provides a foundation upon which to set goals, objectives, and performance measures for transit in Cheyenne. Performance was grouped into three categories (service, ridership, and cost-effectiveness) to provide insight on how much service is being provided, how that service is being utilized, and the cost-effectiveness of this service. The findings in this section are based on data from fiscal year 2019.

Service

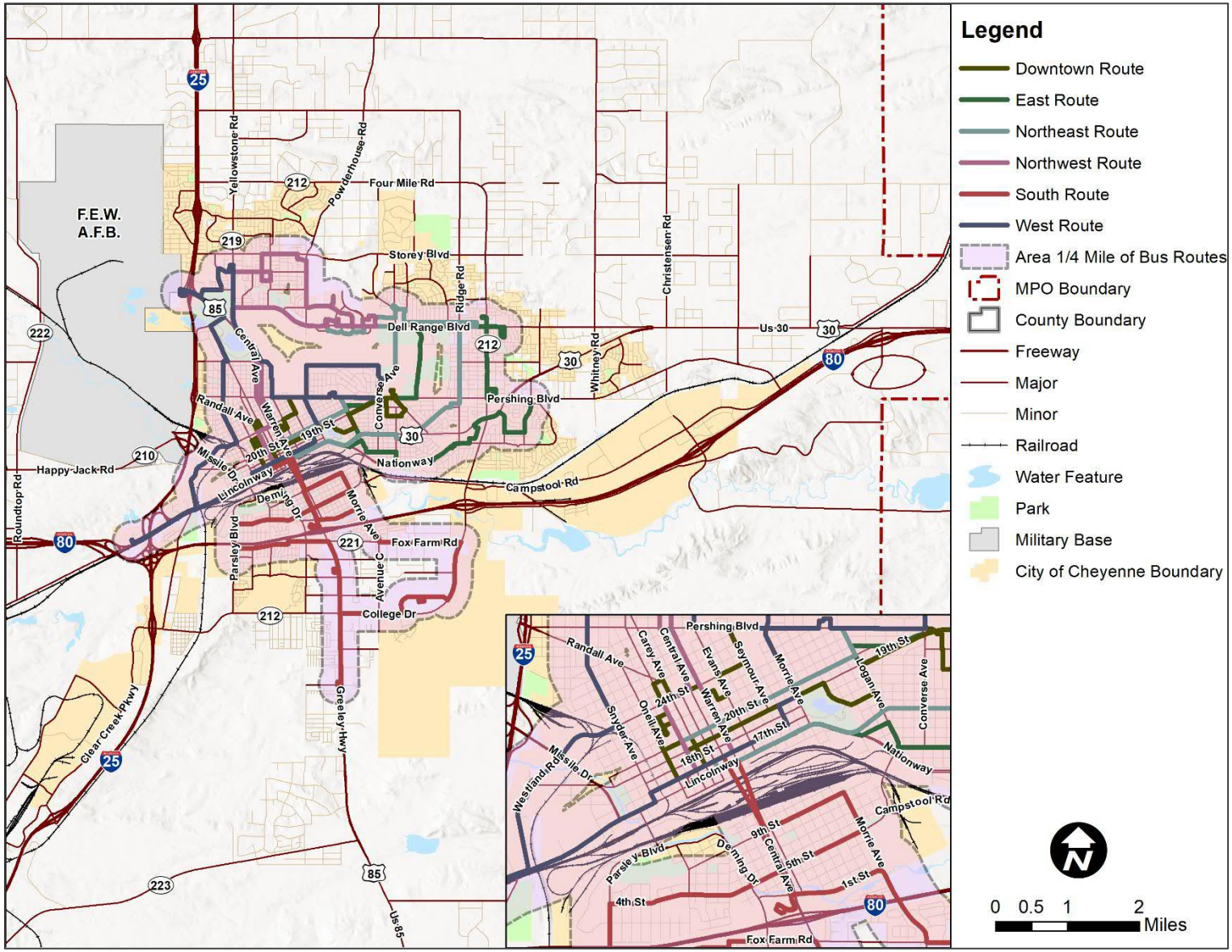
The service performance of the Cheyenne Transit Program was analyzed based on two measures: revenue hours per capita and revenue miles per capita. These measures provide insight on how much service is provided (in time or distance) relative to the amount of people living in the service area.

The Cheyenne Transit Program provided 21,966 revenue hours of fixed route service and 8,445 revenue hours of complementary paratransit service in fiscal year 2019. This equated to 296,541 revenue miles of fixed route service and 103,142 revenue miles of paratransit service

Based on the population of the City of Cheyenne, 0.34 revenue hours per capita of fixed route service are provided, and 0.24 revenue hours per capita of fixed route service are provided based on the population of the Cheyenne MPO.

Based on the population of the City of Cheyenne, 4.64 revenue miles per capita of fixed route service are provided, and 3.32 revenue miles per capita of fixed route service are provided based on the population of the Cheyenne MPO.

Map 27: Transit Access



Ridership

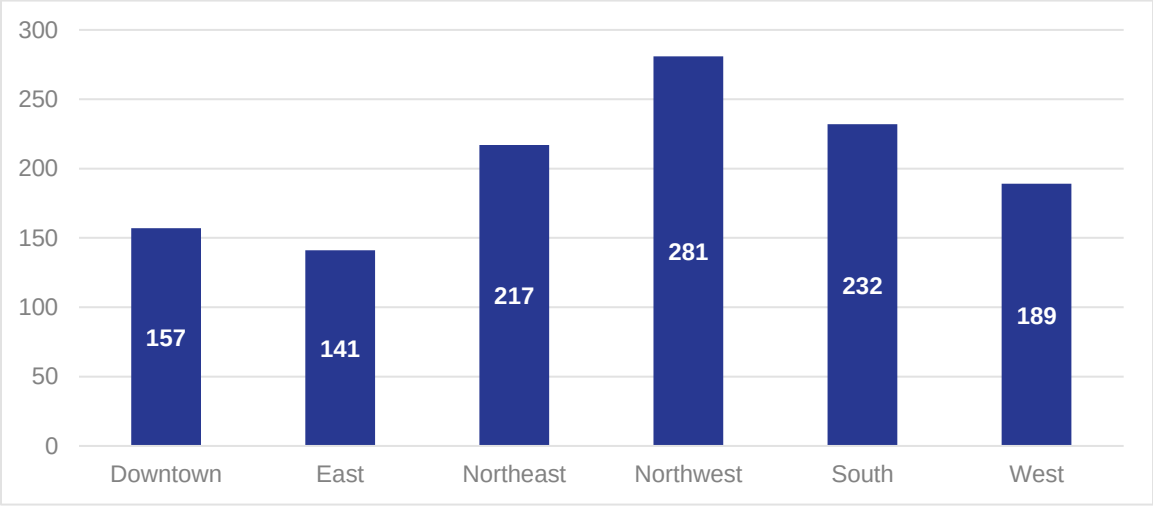
The service performance of the Cheyenne Transit Program was analyzed based on two measures: passengers per revenue hour and passengers per revenue miles. These measures provide insight regarding the effectiveness of the service.

The Cheyenne Transit Program provided a total of 161,521 rides in fiscal year 2019. This included 146,166 rides on fixed route service and 15,355 rides on complementary paratransit service.

Ridership by Route

Figure 10 shows the average daily ridership of the six fixed bus routes for 2019. The Northwest Route has the highest ridership, with an average daily ridership of 281 riders, followed by South and Northeast.

Figure 10: Cheyenne Transit Program Ridership by Route (2019)



Ridership by Stop

Table 8 shows the average daily ridership for the most heavily utilized stops in the system. The Transfer Station has the highest average daily ridership, with an average of 614 riders, followed by Walmart, Comea Shelter, East Albertsons, East Walmart, and Safeway.

Ridership by Revenue Hour

In fiscal year 2019, the Cheyenne Transit Program served 6.65 passengers per revenue hour with fixed route service and 1.82 passengers per revenue hour with paratransit service.

Ridership by Revenue Mile

The Cheyenne Transit Program served 0.49 passengers per revenue mile with fixed route service and 0.15 passengers per revenue mile with paratransit service.

Table 8: Highest Ridership Stops in the Cheyenne Transit Program (2019)

Stop	Average Daily Ridership
Transfer Station	614.3
Walmart	55.7
Comea Shelter	35.1
East Albertsons	21.4
East Walmart	20.5
Safeway	17.8
Burke High Rise	14.1
Department of Family Services	13.7
Allison & Desmet	13.4
411/615 Storey	13.1
Post Office	12.8
Downtown Safety 4	12.0
Cheyenne Housing	11.1
Library - East Side	10.1
Goodwill	10.0
BLM Building	10.0

Cost-Effectiveness

Several measures were utilized to analyze the cost-effectiveness of the Cheyenne Transit Program. These included: cost per revenue hour, cost per ride, farebox recovery ratio, and subsidy per passenger.

Fixed route operations for fiscal year 2019 cost $937,786, while paratransit operations cost $682,159. $93,597 were collected in fares for fixed route service, and $46,065 were collected in fares for paratransit service.

Cost by Revenue Hour

The cost per revenue hour for fixed route service in Cheyenne was $42.69, while the cost per revenue hour for paratransit service was $80.78.

Cost per Ride

The cost per ride for fixed route service in Cheyenne was $6.42, while the cost per ride for paratransit service was $44.43.

Farebox Recovery Ratio

The farebox recovery ratio for fixed route service in Cheyenne was 9.98%, while the farebox recovery ratio for paratransit service was 6.75%.

Subsidy per Passenger

The subsidy per passenger for fixed route service in Cheyenne was $5.78, while the subsidy per passenger for paratransit service was $41.43.

Peer Comparison

To evaluate how the Cheyenne Transit Program is performing, five peer agencies were analyzed. Peers were identified through the integrated National Transit Database system and included Pocatello, ID; Texarkana, TX; Dubuque, IA; Wausau, WI; and Billings, MT.

Service

Table 9 shows the peer analysis conducted for transit service. The Cheyenne Transit Program has slightly less fixed route transit service provided than its peers and slightly more paratransit service provided than its peers. This indicates that it would likely be beneficial for the Cheyenne Transit Program to identify opportunities to shift system ridership and resources from its paratransit service to its fixed route service.

Table 9: Transit Service Peer Analysis

Peer	Fixed Route		Paratransit	
	Revenue Hours per Capita	Revenue Miles per Capita	Revenue Hours per Capita	Revenue Miles per Capita
Pocatello, ID	0.33	4.11	0.44	5.98
Texarkana, TX	0.30	4.67	0.07	0.84
Dubuque, IA	0.62	7.53	0.37	4.08
Wausau, WI	0.36	5.04	0.03	0.23
Billings, MT	0.35	5.17	0.10	1.25
Peer Average	***0.39***	***5.30***	***0.20***	***2.48***
Cheyenne, WY	**0.34**	**4.64**	**0.24**	**3.32**

Ridership

Table 10 shows the peer analysis conducted for transit ridership. The ridership productivity of the Cheyenne Transit Program is lower than its peers for both fixed route and paratransit service. This indicates that improvements and adjustments to the service could be beneficial to increase the ridership and effectiveness of the transit system.

Table 10: Transit Ridership Peer Analysis

Peer	Fixed Route		Paratransit	
	Passengers per Revenue Hour	Passengers per Revenue Mile	Passengers per Revenue Hour	Passengers per Revenue Mile
Pocatello, ID	9.42	0.75	2.51	0.18
Texarkana, TX	12.90	0.84	1.84	0.15
Dubuque, IA	10.66	0.87	2.52	0.23
Wausau, WI	18.99	1.34	2.06	0.23
Billings, MT	11.41	0.77	3.87	0.32
Peer Average	***12.68***	***0.91***	***2.56***	***0.22***
Cheyenne, WY	**6.65**	**0.49**	**1.82**	**0.15**

Cost Effectiveness

Table 11 shows the peer analysis conducted for fixed route cost effectiveness. The cost per revenue hour of fixed route service for the Cheyenne Transit Program is less than most of its peers, but the cost-

effectiveness of the fixed route service is slightly worse. Route adjustments and improvements would be beneficial to increase the cost-effectiveness of the transit system.

Table 11: Fixed Route Transit Cost Effectiveness Peer Analysis

Peer	Cost per Revenue Hour	Cost per Ride	Farebox Recovery Ratio	Subsidy per Passenger
Pocatello, ID	$41.96	$4.45	9.61%	$4.02
Texarkana, TX	$68.96	$5.34	6.52%	$5.00
Dubuque, IA	$61.42	$5.76	11.99%	$5.07
Wausau, WI	$113.48	$5.97	13.03%	$5.20
Billings, MT	$93.91	$8.23	10.10%	$7.40
Peer Average	***$75.94***	***$5.95***	***10.25%***	***$5.34***
Cheyenne, WY	**$42.69**	**$6.42**	**9.98%**	**$5.78**

Table 12 shows the peer analysis conducted for paratransit cost effectiveness. The cost per revenue hour of paratransit service for the Cheyenne Transit Program is more than most of its peers, and the cost-effectiveness of this service is also worse. Encouraging those currently utilizing the paratransit service to shift to the fixed route system would be beneficial for decreasing the amount of this expensive service.

Table 12: Paratransit Cost Effectiveness Peer Analysis

Peer	Cost per Revenue Hour	Cost per Ride	Farebox Recovery Ratio	Subsidy per Passenger
Pocatello, ID	$52.87	$21.07	2.38%	$20.57
Texarkana, TX	$25.18	$13.65	13.86%	$11.76
Dubuque, IA	$54.99	$21.83	14.73%	$18.61
Wausau, WI	$88.94	$43.23	4.65%	$41.22
Billings, MT	$111.32	$28.78	15.46%	$24.33
Peer Average	***$66.66***	***$25.71***	***10.22%***	***$23.30***
Cheyenne, WY	**$80.78**	**$44.43**	**6.75%**	**$41.43**

NON-MOTORIZED ASSESSMENT

This section provides a review of the existing bicycle, greenway, and pedestrian conditions in Cheyenne and identifies recommendations for improvements. GIS map data of non-motorized transportation assets were provided by Cheyenne MPO, City of Cheyenne, and WYDOT. Facilities including on-street bicycle facilities, the Greenway system, and existing pedestrian network. In addition to reviewing these map layers, the project team performed a desktop review, using Google Maps of the on-street bicycle facilities to confirm newly implemented facilities, and this review was confirmed by a field visit. Ultimately, an analysis was performed to rate the Bicycle Level of Traffic Stress (LTS) of existing on-street facilities and greenways/trails and to understand gaps in the existing bike network and Greenway system.

EXISTING BICYCLE AND GREENWAY INFRASTRUCTURE

The on-street bicycle system in the study area is made up of a mixture of Greenway trails and on-street bicycle facilities (See **Figure 11**). Both have been planned for many years, but the implementation of the Greenway system has been prioritized over on-street bicycle facilities. However, in recent years, the public has advocated for the implementation of the on-street system more quickly so that people have the option to travel safely by bicycle to/from the many destinations found throughout the study area.

Figure 11: Existing Bicycle Facility Types

Shared Lane Markings Downtown

On-Street Bike Lane North of Downtown

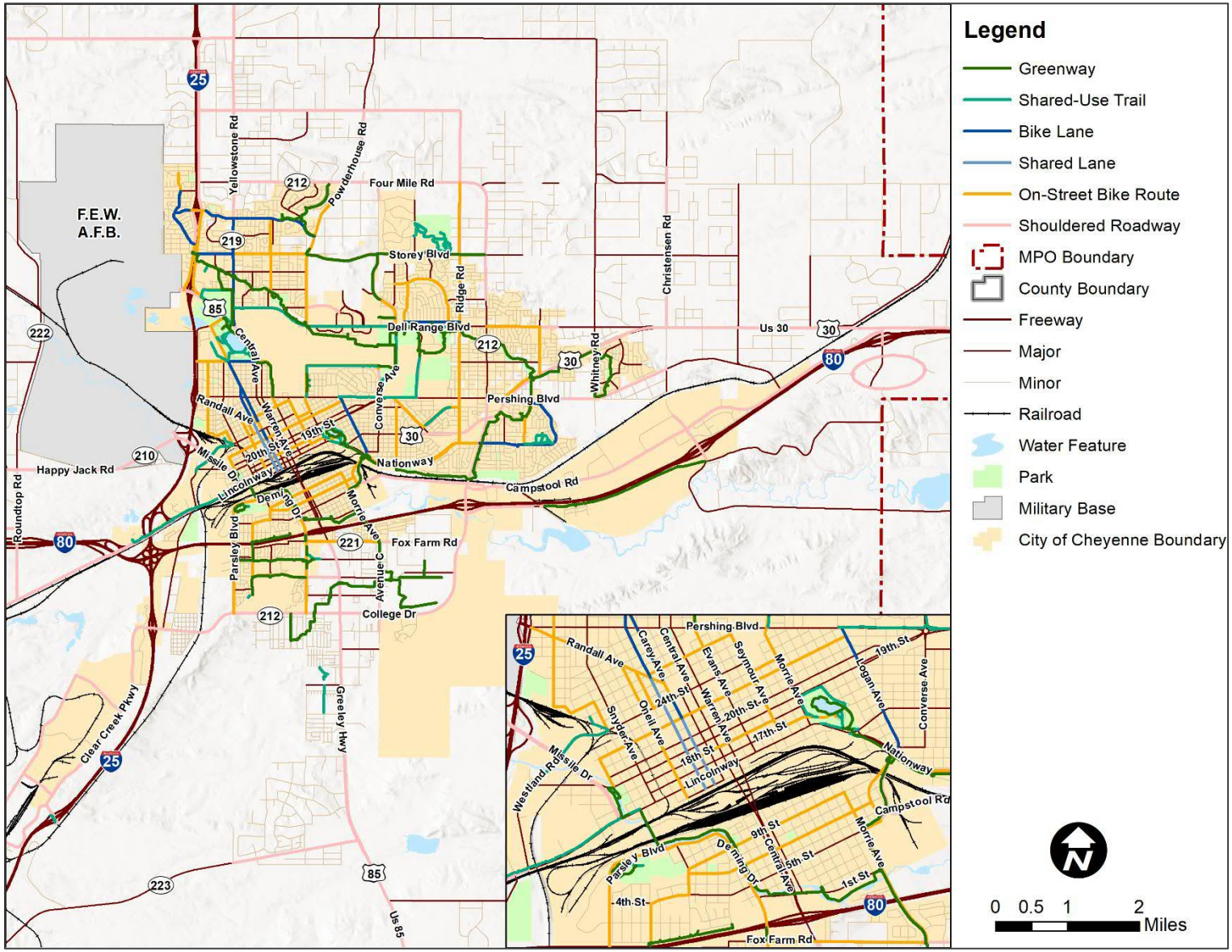
Greenway System Segment Near Kiwanis Community House

A map showing existing bicycle facilities within the Cheyenne region is provided in **Map 28 and Table 13** identifies the current mileage per facility:

Table 13: On-Street Bicycle Facilities in the Cheyenne Area

Bicycle Facility Type	Mileage
On-street bike lanes	7.6 centerline miles
Shared Roadway/Bike route miles	59.3 centerline miles
Greenway	37 miles

Map 28: Existing Bicycle Facilities



Existing On-Street Bicycle Infrastructure

The existing on-street bicycle network in the Cheyenne area is primarily made up of shared lane markings, bike lanes, bike routes/shared roadways, and shouldered roadways. The on-street network is largely disconnected and can feel uncomfortable for much of the areas' population. The Cheyenne Area On-Street Bicycle Plan and Greenway Plan identifies several opportunities to improve the connectivity of this system:

- 19th, 20th, and 15th Streets will provide east/west connections across downtown Cheyenne.
- North of downtown, Hynds Boulevard and Central Avenue have been identified near-term corridors to provide additional connections in the network.
- Bicycle facilities along Story Boulevard and Powderhouse Road are planned in the northeast neighborhoods. Bicycle facilities on Deming Drive and North Greely Highway south of downtown are planned to be implemented in the near-term.

Existing Greenway Infrastructure

The Greenway system in Cheyenne is robust. For years the system has been expanding and today has completed nearly 37 miles of trails. 96% of Cheyenne residents live within one mile of a greenway segment (Cheyenne Area Master Plan: Transportation Plan 2014). Throughout the system there are over and under passes in order to provide a safe, separated facility for people to cross identified barriers for Greenway users.

There are two goals of the Greenway system: to create a hub-and-spoke system that encompasses the city in one continuous loop; and to connect the non-contiguous segments of the bicycle network to serve all neighborhoods while accommodating future growth.

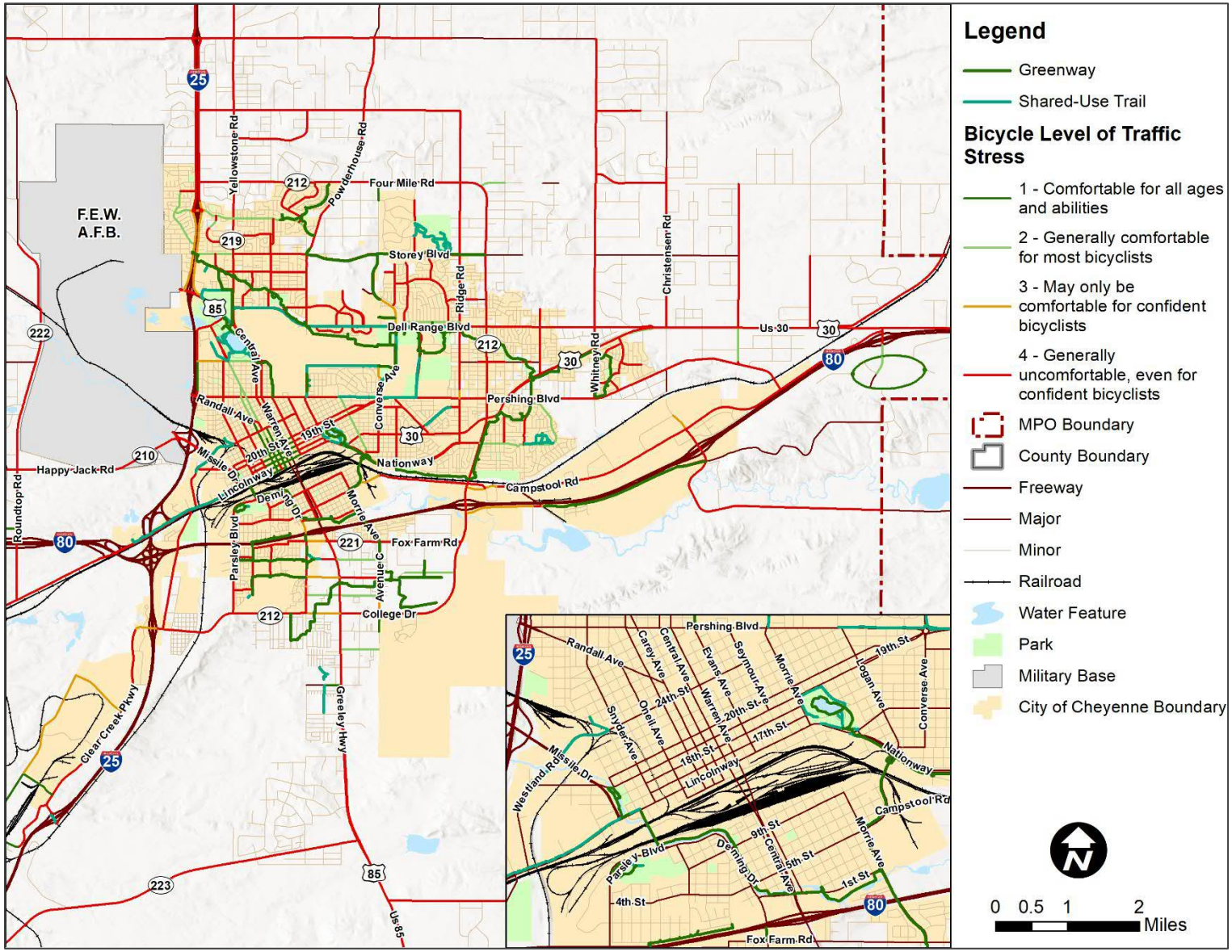
Bicycle Level of Traffic Stress

A Bicycle LTS was performed to generally understand the existing on-street bicycle network in Cheyenne. LTS is a rating given to a roadway segment indicating the traffic stress it causes to a typical adult riding a bicycle; this analysis is not intended to quantify the experience of the type of rider considered to be "strong and fearless", meaning a person who feels comfortable riding their bicycle in nearly any weather, on most roadways, or bicycle facility. Bicycle LTS rates the level of traffic stress on each street based on roadway characteristics, such as the presence and quality of a bicycle facility, speed limit, number of lanes, and presence of parking. In this analysis highways, dirt roads, and local residential roads were not included.

- **Level 1**: Is considered to be a comfortable facility for all ages and abilities. This typically includes streets that have speed limits of 25 MPH or less, one travel lane in each direction, and may include the presence of a bike lane.
- **Level 2**: Is considered generally comfortable for most people riding bikes. This typically includes streets with a speed limits of 30 MPH or less and a bike lane.
- **Level 3**: Is thought to be comfortable for only confident bicyclists. This typically includes streets with a speed limit of 30 MPH or less and a shouldered roadway.
- **Level 4**: Is considered generally uncomfortable, even for confident bicyclists. This typically includes streets that have speed limits of 30 mph or more and lack any type of bicycle facility.

The existing Bicycle LTS within the Cheyenne region is provided in **Map 29**.

Map 29: Existing Bicycle Level of Traffic Stress



Network Gaps

In addition to understanding the general comfort of existing bike facilities, notable gaps in the bike network and Greenway system have been identified. In “Gaps” are defined by corridors and areas that are disconnected from the bike network

- Corridor gaps include segments of roadways longer than 0.5 miles that do not provide adequate facilities for the ‘typical cyclist’.
- Lineal gaps are segments of roadways shorter than 0.5 miles that do not provide adequate facilities for the “typical cyclist”.
- Area gaps include areas that lack “low-stress” (Traffic Stress Level 1, 2, or 3) bicycle facilities.

Map 30 shows the identified gaps in the bicycle network in the Cheyenne area.

Corridor and Lineal Gaps

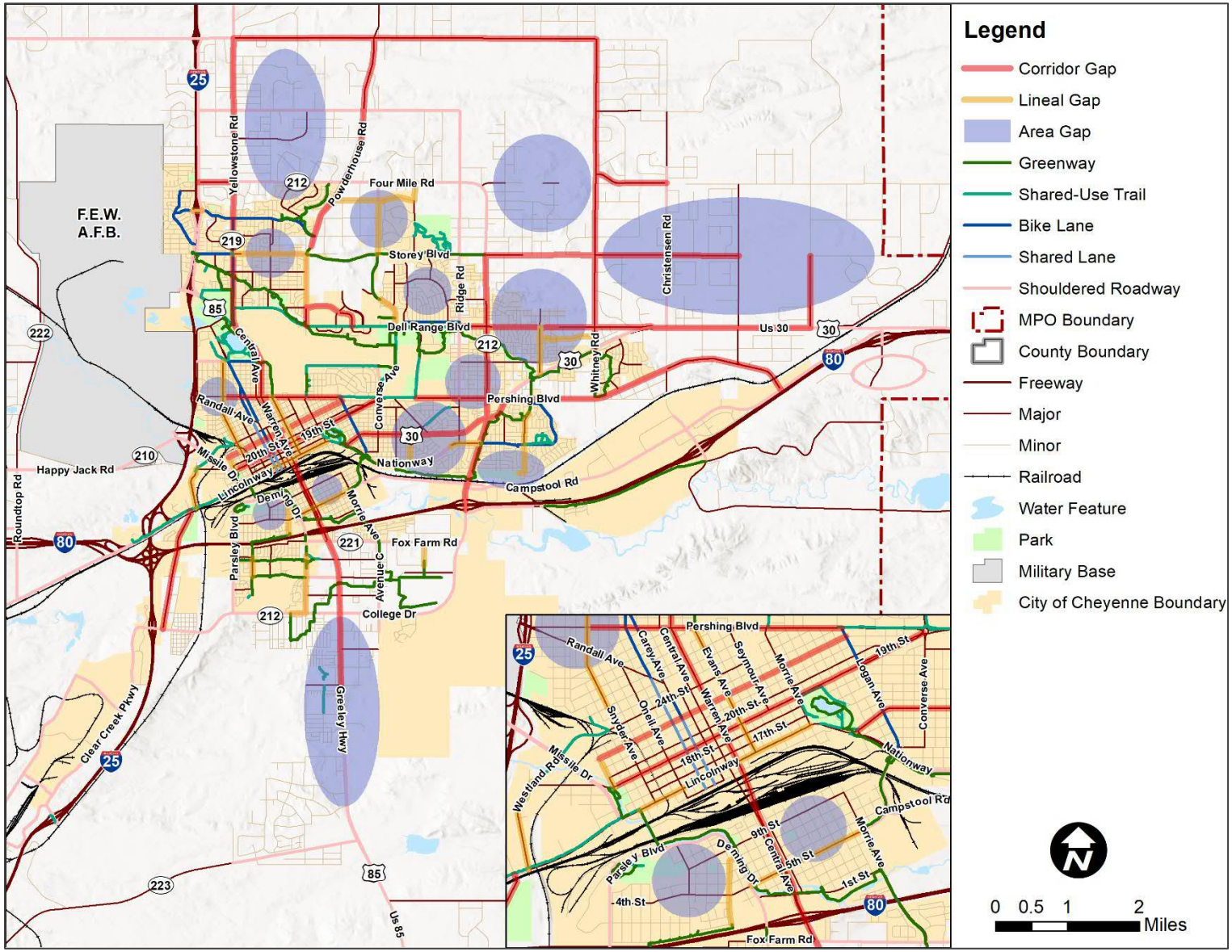
Corridor and lineal gaps include the neighborhoods northeast of downtown, including: Dell Range Boulevard, parts of Pershing Boulevard, and East Lincolnway. Other major corridor gaps in the system include Whitney Road and Reese Road. Both of these corridors provide north/south connection in and out of Cheyenne. Additionally, other corridors in the study area create major barriers to the bike network include:

- Lincolnway between Holliday Park and N College Drive;
- N College Drive between I-80 and Carla Drive;
- Dell Range Boulevard between Moran Avenue and US 30;
- Greeley Highway (US 85) between Terry Ranch Road and 1st Street;
- Pershing Boulevard between Carey Avenue and Logan Avenue; and
- Pershing Boulevard between Windmill Road and Lincolnway.

Area Gaps

The most expansive area gaps in the study area are northeast of downtown Cheyenne. Other major area gaps are present at the northern edge of the study area, in the area east of Yellowstone Road along Four Mile Road, and south of I-80, most notably between West College Drive and Terry Ranch Road along US 85.

Map 30: Bicycle System Gap Analysis



EXISTING PEDESTRIAN INFRASTRUCTURE

Sidewalks

Cheyenne has a fairly complete network of facilities for pedestrians, as shown in **Map 31**. However, while sidewalk facilities may be present, not all facilities are created equal. Land uses have had an impact on the development of the sidewalk network.

The sidewalk network in Downtown Cheyenne is expansive and connects most of the businesses within the district. These sidewalks also have adequate street lighting for night time travel. Several locations downtown and along major roadways provide pedestrian refuge islands as a way to provide people walking with a safe place to stop and wait while crossing roadways.

There are neighborhoods and areas that have detached sidewalks that provide separation from vehicular traffic often by means of a tree lawn However, many neighborhoods in the study area have attached sidewalks where the sidewalk rolls into the curb and down to the street. These facilities are not separated from vehicular traffic except for when a car is parked on the side of the street, temporarily creating a barrier between the sidewalk and the street. These attached facilities can feel uncomfortable to travel on for certain demographics of the population, such as young children, the elderly, and those with mobility impairments.

Intersections

From the perspective of a pedestrian, the quality of the intersections in the Cheyenne area varies greatly by location and type.

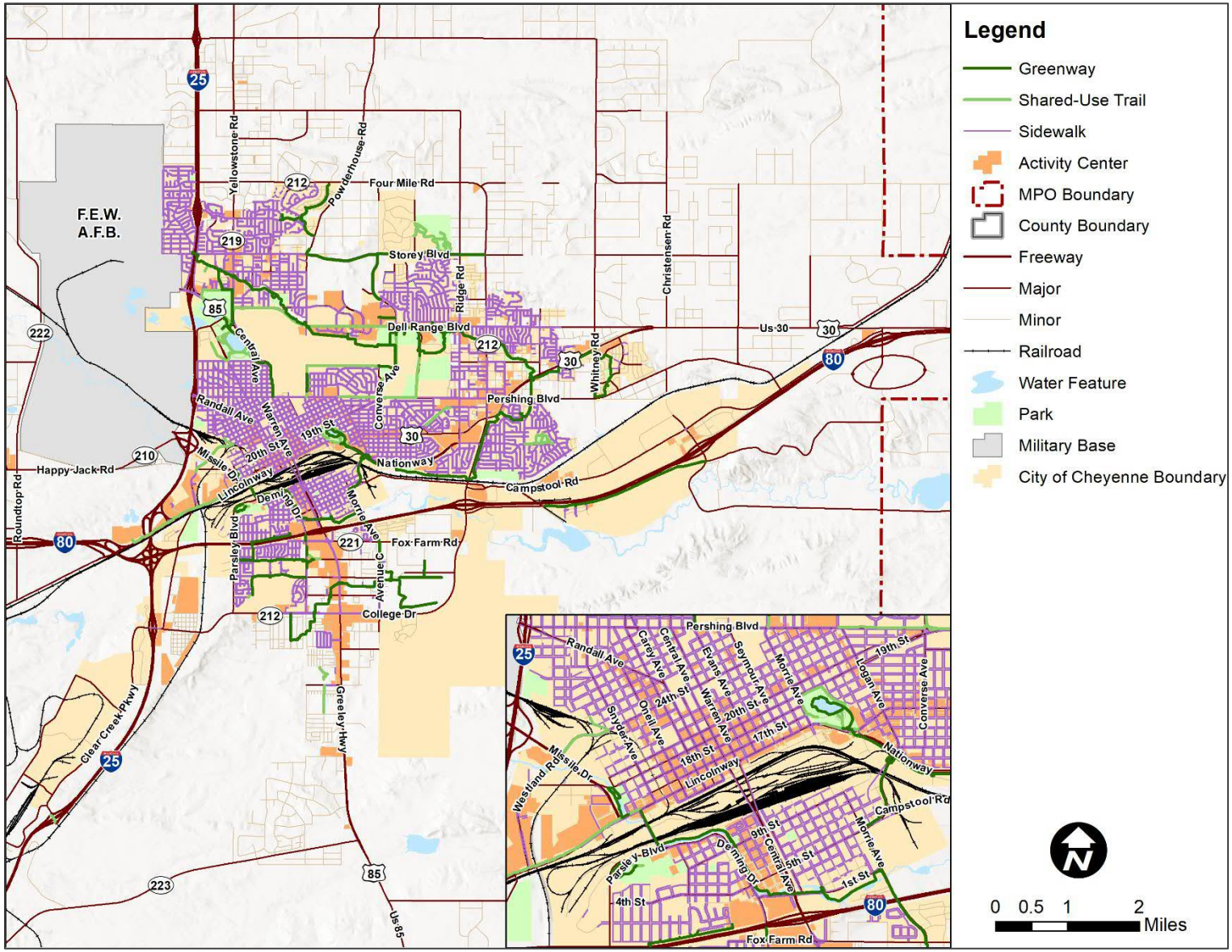
Figure 12 shows a selection of existing pedestrian facilities within the Cheyenne area.

Figure 12: Existing Pedestrian Facility Type

Crosswalks

Many of the major roadway intersections in the Cheyenne area have marked crosswalks to facilitate a safe pedestrian crossing. Continental (zebra-stripe) and standard (two parallel white lines) markings are the two main types of crosswalk markings used throughout the study area. Based on information provided in focus group meetings and from previous plans, a majority of the crosswalks are painted on an annual basis in order to maintain visibility.

Map 31: Existing Pedestrian Infrastructure



Curb Ramps

Curb ramps make sidewalks and streets accessible by ramping down to connect with the crosswalks. In the past, Cheyenne has constructed curb ramps as part of their standard development practices. Newer ramps that have been constructed have detectable warnings, which meet current Americans with Disabilities Act (ADA) standards. However, older ramps are in poor condition and do not meet current ADA standards for longitudinal and cross criteria

Intersection Controls

In most cases, motor vehicle traffic at major roadway intersections in the Cheyenne area is controlled by traffic signals, stop signs, or roundabouts. These traffic control devices on arterial and collector roadways help pedestrians cross these higher speed and higher volume roadways more safely. Additionally, several mid-block crossings have been implemented to bolster the pedestrian system and provide roadway crossings at logical locations in between major intersections. Many of the mid-block crossings are controlled by Rectangular Rapid Flashing Beacons (RRFBs), which are activated by pedestrians and activate flashing lights at a crosswalk. RRFBs increase the visibility of the crosswalk and provide warning to drivers that a pedestrian is present.

TRANSPORTATION SAFETY

Crash history for the Cheyenne area transportation network was analyzed using data from the Cheyenne MPO for years 2008-2017. The areas with the highest rate of crashes include:

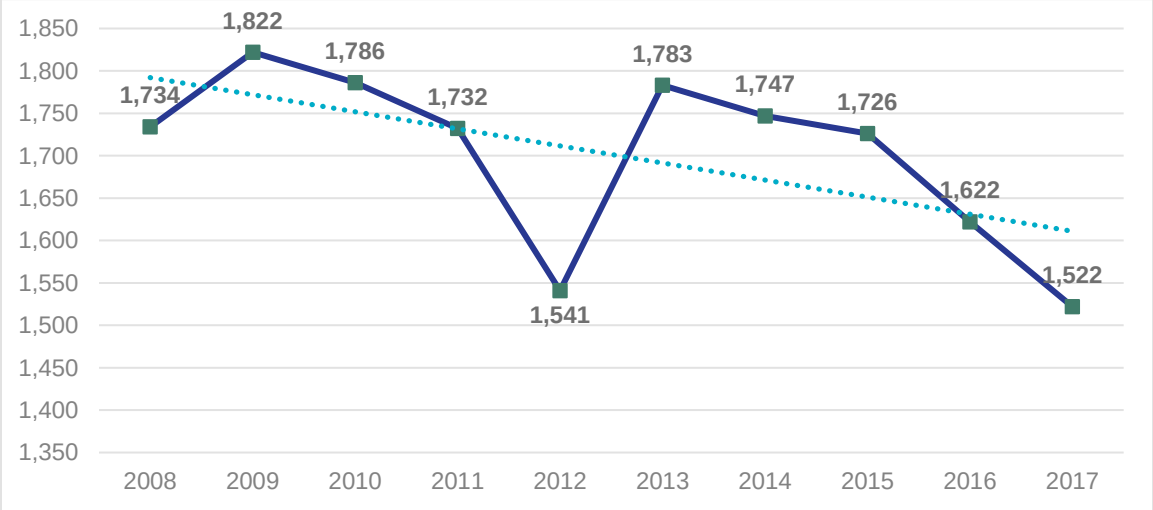
- Pershing Boulevard;
- Converse Avenue;
- 19th Street (a five-way intersection);
- Dell Range Boulevard; and
- Greeley Highway (Highway 85) as it heads into and out of downtown Cheyenne.

Crash density was not an indicator of crash severity, as there were many fatal and serious injury accidents throughout the MPO, outside of the areas where a higher rate of crashes occurred. Roadways with numerous fatal crashes include I-25, I-80, Highway 212, US 30, and Dell Range Boulevard. **Map 32** shows the 10-year crash densities as well as locations of fatal and suspected serious injury crashes.

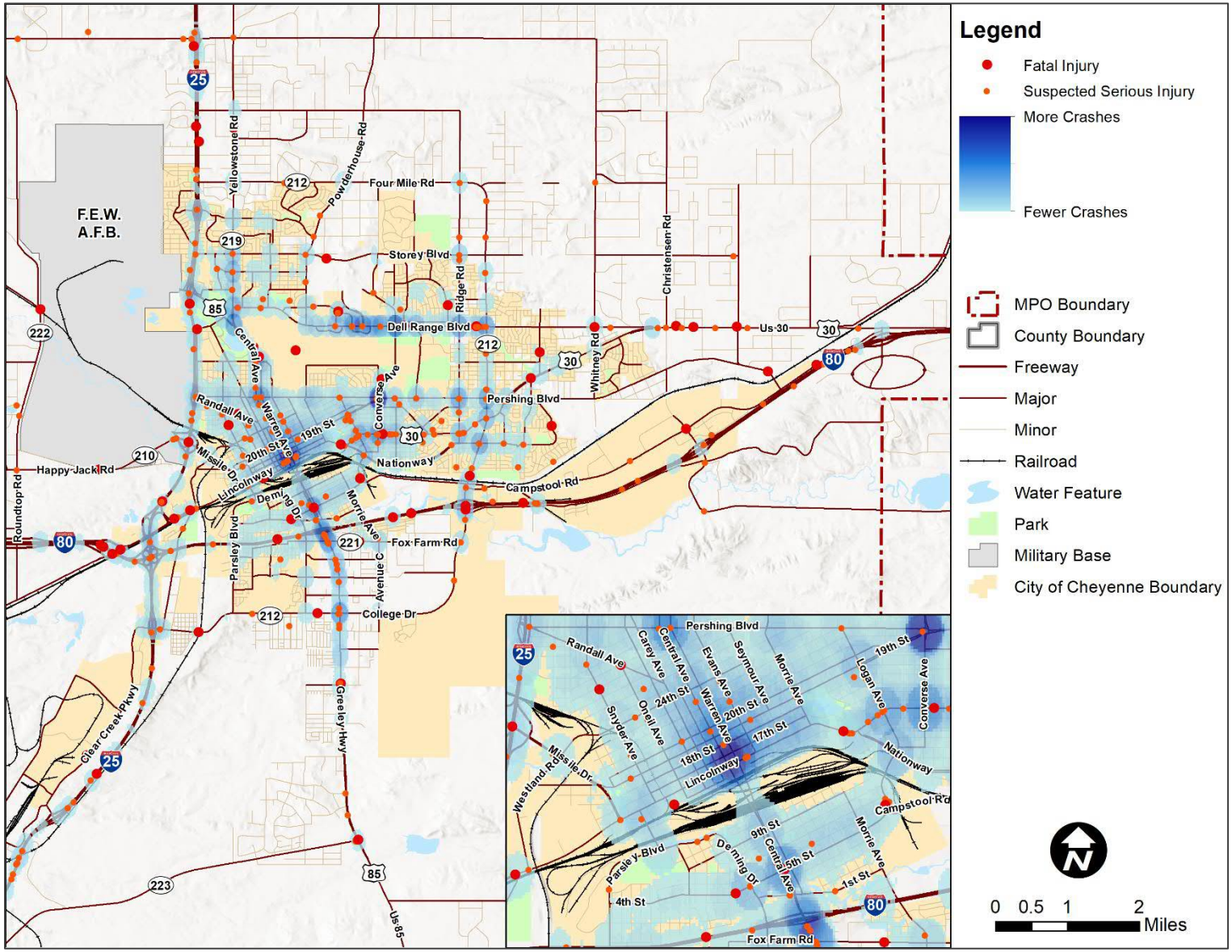
In addition to the crash density analysis, crashes have been stratified in multiple ways to identify high-level trends to inform the future goals of Connect 2045 as well as potential performance measures to evaluate the region's progress toward meeting potential safety goals.

Crashes by year: crashes have generally been decreasing over the decade between 2008 and 2017, as shown in **Figure 13**. Within the most recent five years of data available (2013-2017), total crashes have declined by approximately 15%.

Figure 13: Crashes by Year (2008-2017)

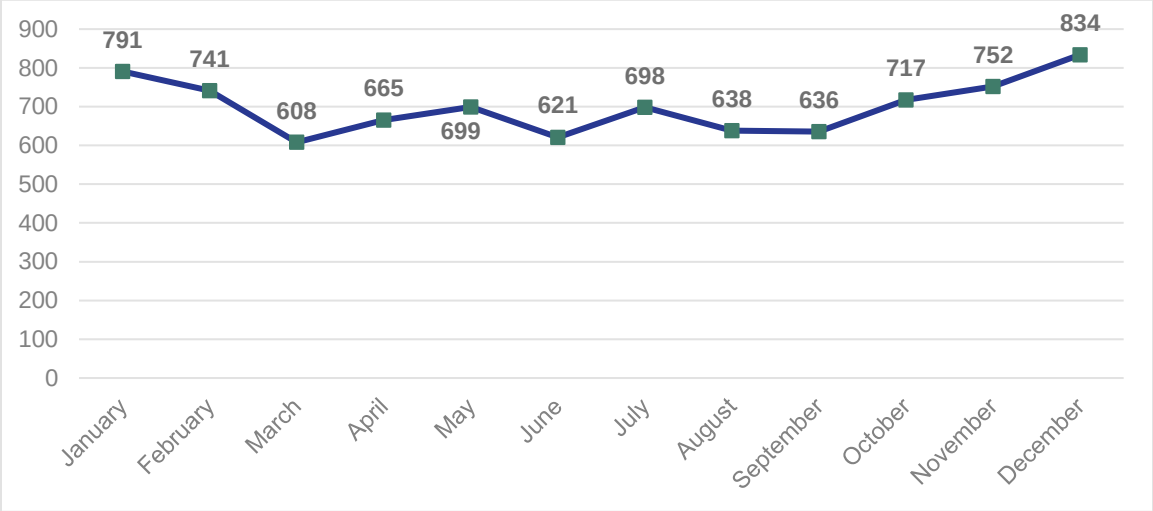


Map 32: Transportation Safety Trends



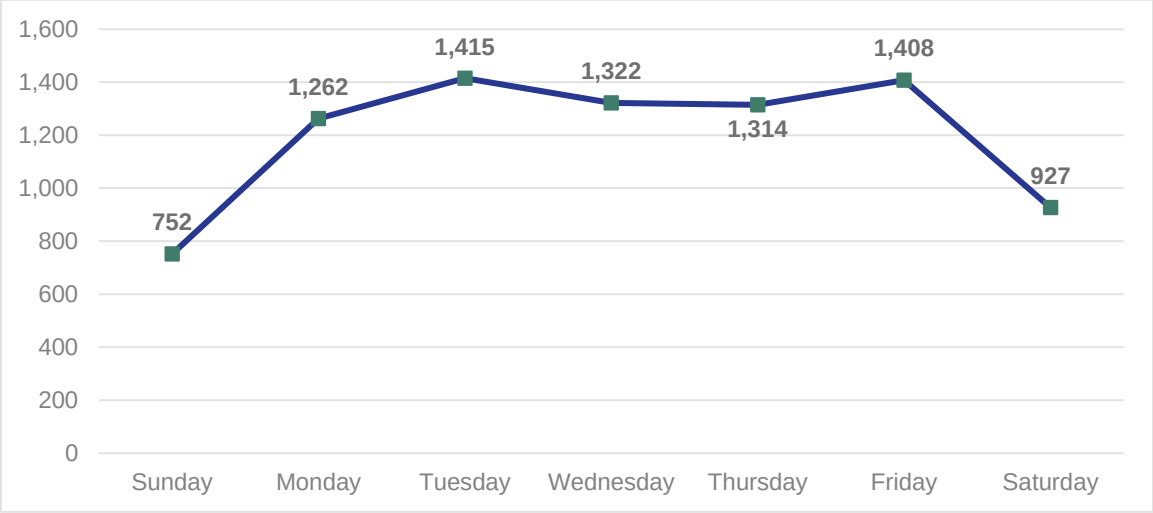
Crashes by month: crashes are generally higher in the winter months (shown in **Figure 14**), with the highest number of crashes occurring in December. Winter weather is likely a contributing factor in the frequency of crashes.

Figure 14: Crashes by Month (2013-2017)



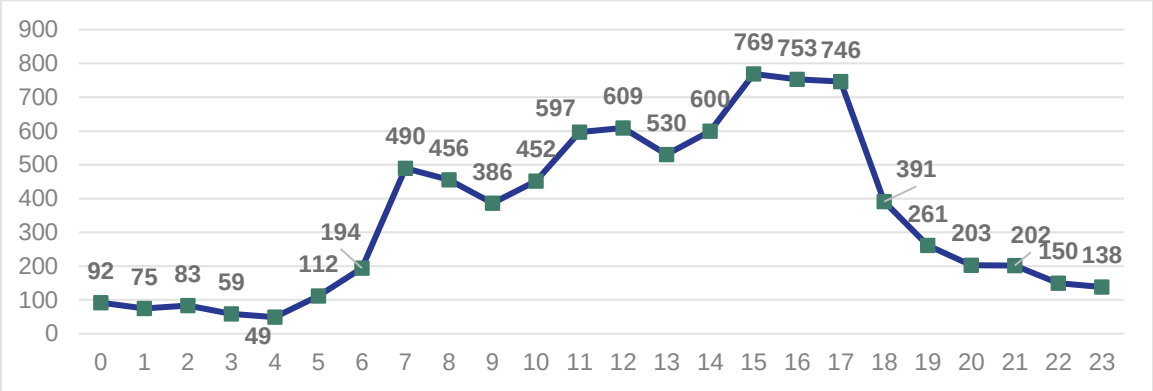
Crashes by day-of-week: crashes are highest in the middle of the week (shown in **Figure 15**), with the highest frequency of crashes on Tuesdays. Crashes on the weekend are substantially less frequent than during the work week.

Figure 15: Crashes by Day-of-Week (2013-2017)



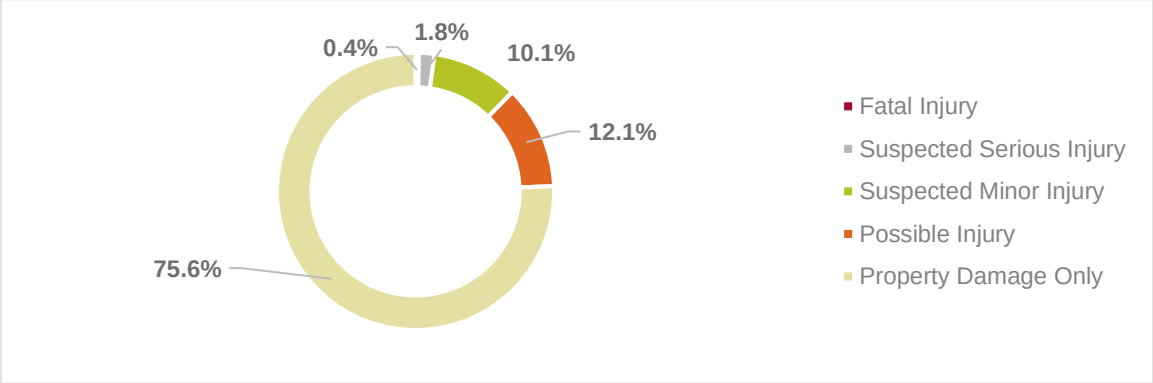
Crashes by time-of-day: crashes are highest in during the afternoon rush hours (3 PM – 5 PM, shown in **Figure 16**), with the highest frequency of crashes at 3 PM.

Figure 16: Crashes by Time-of-Day (2013-2017)



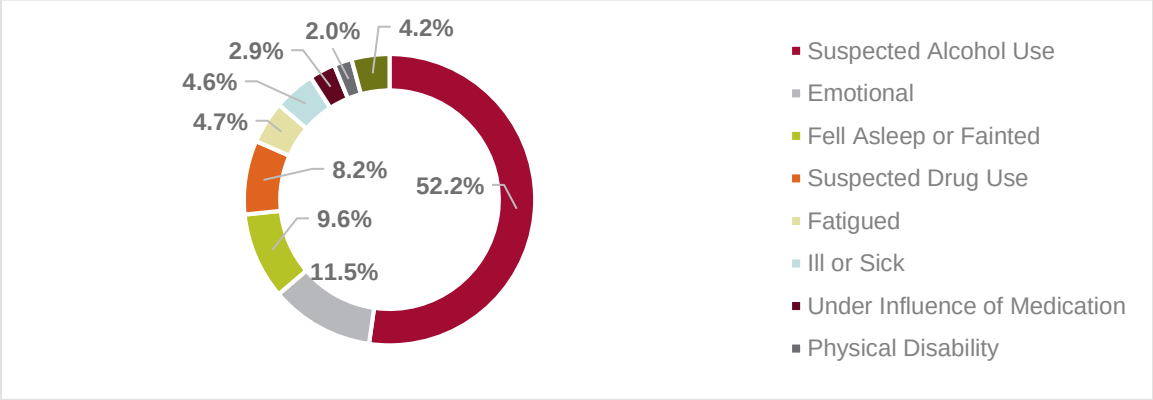
Crashes by severity: within the most recent five years of available data, 34 fatal (0.4%) and 145 suspected serious injury (1.8%) crashes have occurred (as shown in **Figure 17**). Approximately 75% of total crashes were property damage only (no injuries).

Figure 17: Crashes by Severity (2013-2017)



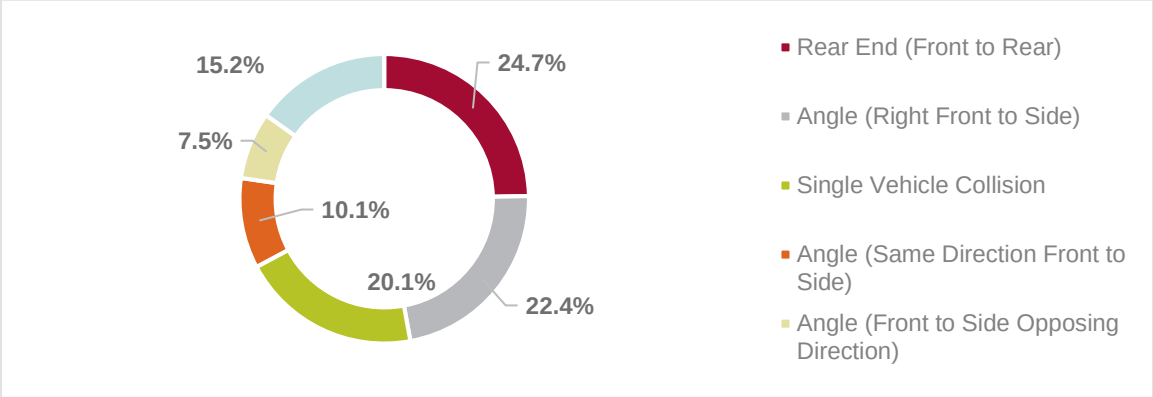
Crashes by driver influence: the most common driver influence in the most recent five years of crash data available, representing over 50% of drivers where an influence is suspected (shown in **Figure 18**). The only other influence representing more than 10% of crashes where a drive is under an influence was 'Emotional', such as depressed or angry at 11.5%.

Figure 18: Crashes by Driver Influence (2013-2017)



Crashes by type: The three most common types of crashes that occurred in the most recent five years of data available are rear end, angle (right front to side), and single vehicle collisions, all of which represent between 20% and 25% of crashes, as shown in **Figure 19**.

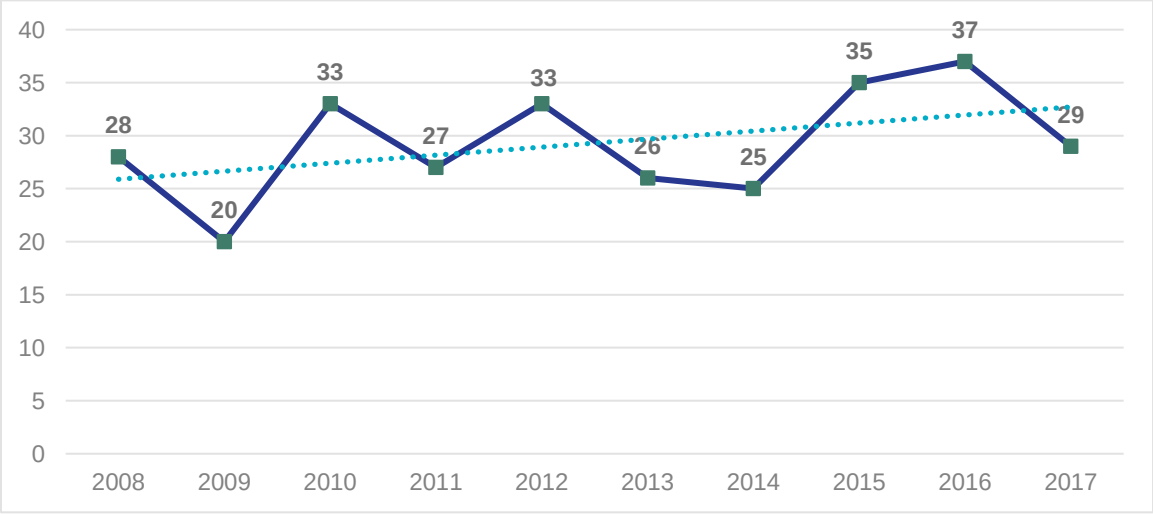
Figure 19: Crashes by Type (2013-2017)



PEDESTRIAN AND BICYCLE CRASHES

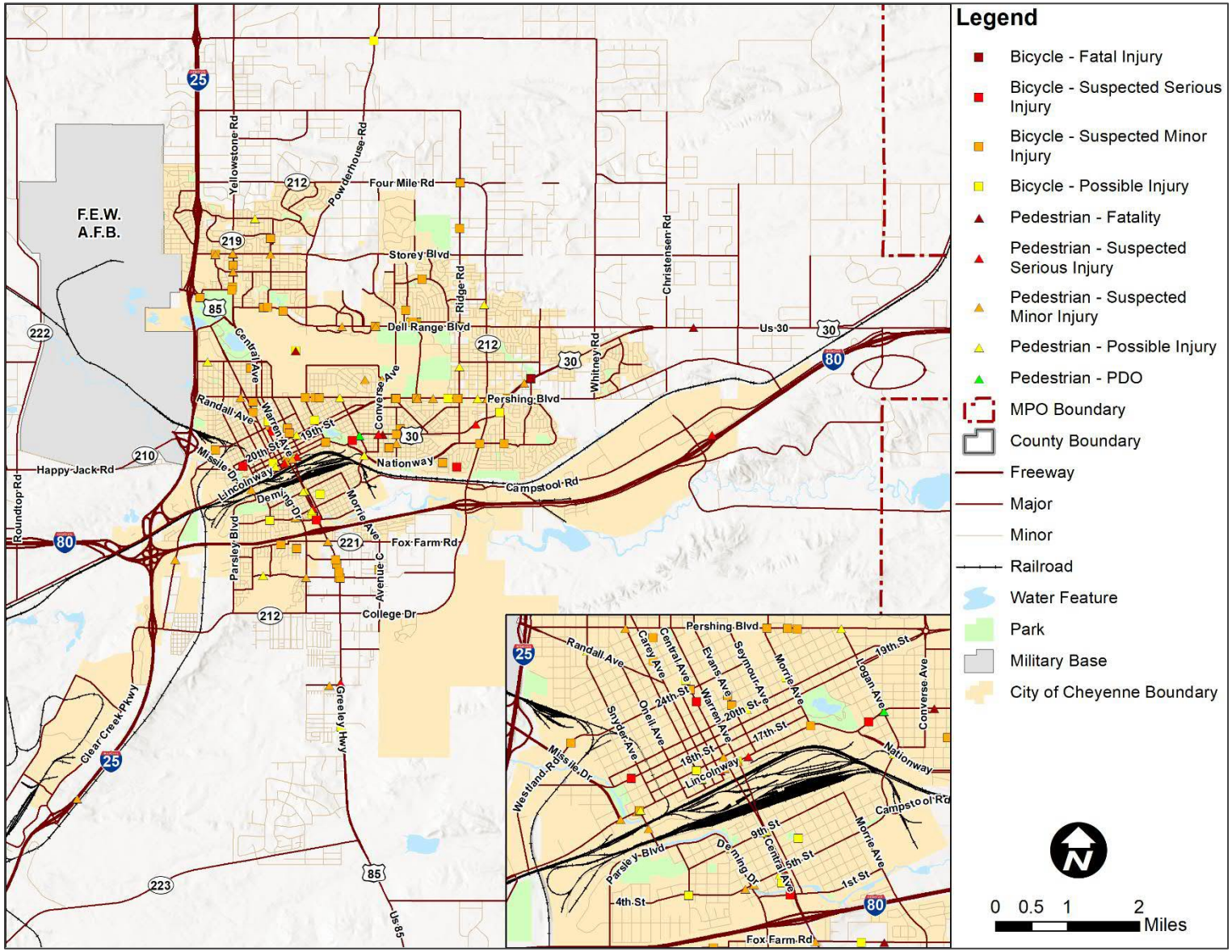
Between 2008 and 2017 there were 293 crashes involving pedestrians or bicyclists, representing 1.7% of total crashes. Within the most recent five years of available data (2013-2017), there were five fatal crashes and 16 suspected serious injury crashes involving pedestrians or bicycles. **Figure 20** shows annual pedestrian and bicycle-involved crashes from 2008-2017. Unlike total crashes, pedestrian and bicycle crashes have generally been increasing over the past decade.

Figure 20: Pedestrian and Bicycle Crashes by Year (2008-2017)



Map 33 shows the locations of pedestrian and bicycle crashes within the Cheyenne area.

Map 33: Pedestrian and Bicycle Crashes by Severity (2013-2017)



PUBLIC OUTREACH – PHASE I

The first phase of outreach included activities through April 13, 2020 and focused on understanding the existing condition of Cheyenne's mobility system. During this phase, several outreach methods were utilized to collect input from people who live, work, and visit Cheyenne.

Outreach methods that were used to collect information and experiences on the existing conditions of the transportation network in the Cheyenne area included:

- Online Community Input Map;
- Online Community Survey;
- Community Open House;
- Focus Group Meetings;
- Pop-Up event at the Annual Holiday Craft Fair; and
- Pop-Up event at the local La Rosa grocery store.

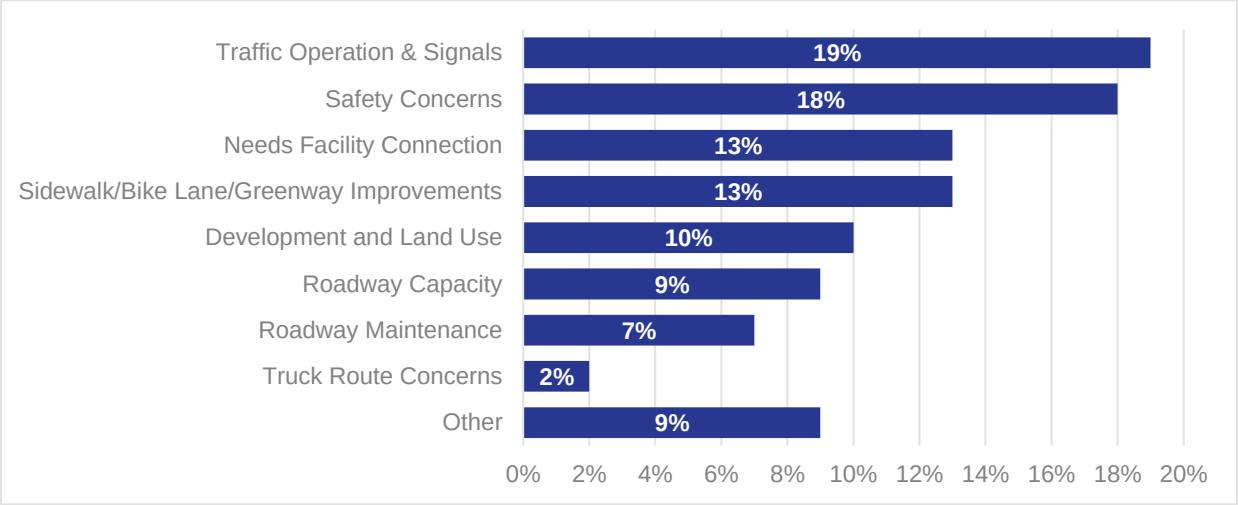
ONLINE COMMUNITY INPUT MAP

Public input on issues and opportunities for the transportation network was collected through the Online Community Input Map. Participants could identify specific locations where they saw issues, opportunities, or comments on an online, GIS-based map that included the existing roadway, Greenway, and on-street bicycle networks in addition to comments, users could share photos related to their annotation. The Online Community Input Map launched on the project website November 6th. As of February 18th, 39 unique comments were posted on the Online Community Input Map. Users were able to add geographically specific observations and label them as a transportation issue, opportunity or general. Thirteen (13) issues, twenty-one (21) opportunities, and five (5) general comments were posted to the Map. Comments were then processed and categorized based on common themes. Themes included:

- Traffic Operation and Signals
- Safety Concerns
- Needs Facility Connection
- Sidewalk/Bike Lane/Greenway Improvements
- Development and Land Use
- Roadway Capacity
- Roadway Maintenance
- Truck Route Concerns
- Other

Figure 21 shows the number of comments that correlated to each theme.

Figure 21: Online Community Map Comments Common Themes



The highest number of comments pertained to traffic operations and signals as well as safety concerns and how they impact the mobility system.

Within the **traffic operations and signals category**, most comments related to:

- A change of signal timings at specific traffic signals;
- Requests for roundabouts and traffic signals at increasingly busy intersections; and
- Requests to add in left turn signals at specific intersections.

The comments regarding **safety** expressed concerns about:

- Speeding issues;
- Vehicles not yielding at crosswalks; and
- An increased need for safe spaces for pedestrians and bicyclists such as sidewalks and bike lanes.

Comments regarding **sidewalk/bike lane/greenway improvements** included:

- A need for greenway signage improvements
- Improved maintenance of sidewalks and crosswalks; and
- A need for bike lanes and sidewalks to receive plowing just like the roadways.

The most common comments related to new **facility connections** mentioned a desire for more connections to the greenway system. Respondents expressed how they enjoy the greenways, but they feel it is not always convenient or accessible, especially to cross certain streets and access parks.

Maintenance of the mobility system was another theme frequently noted on the Online Community Input Map. Lack of snow removal, deteriorating asphalt, and overall wear and tear of pavement markings, were just examples of maintenance issues related to sidewalks, greenways, and the roadway network.

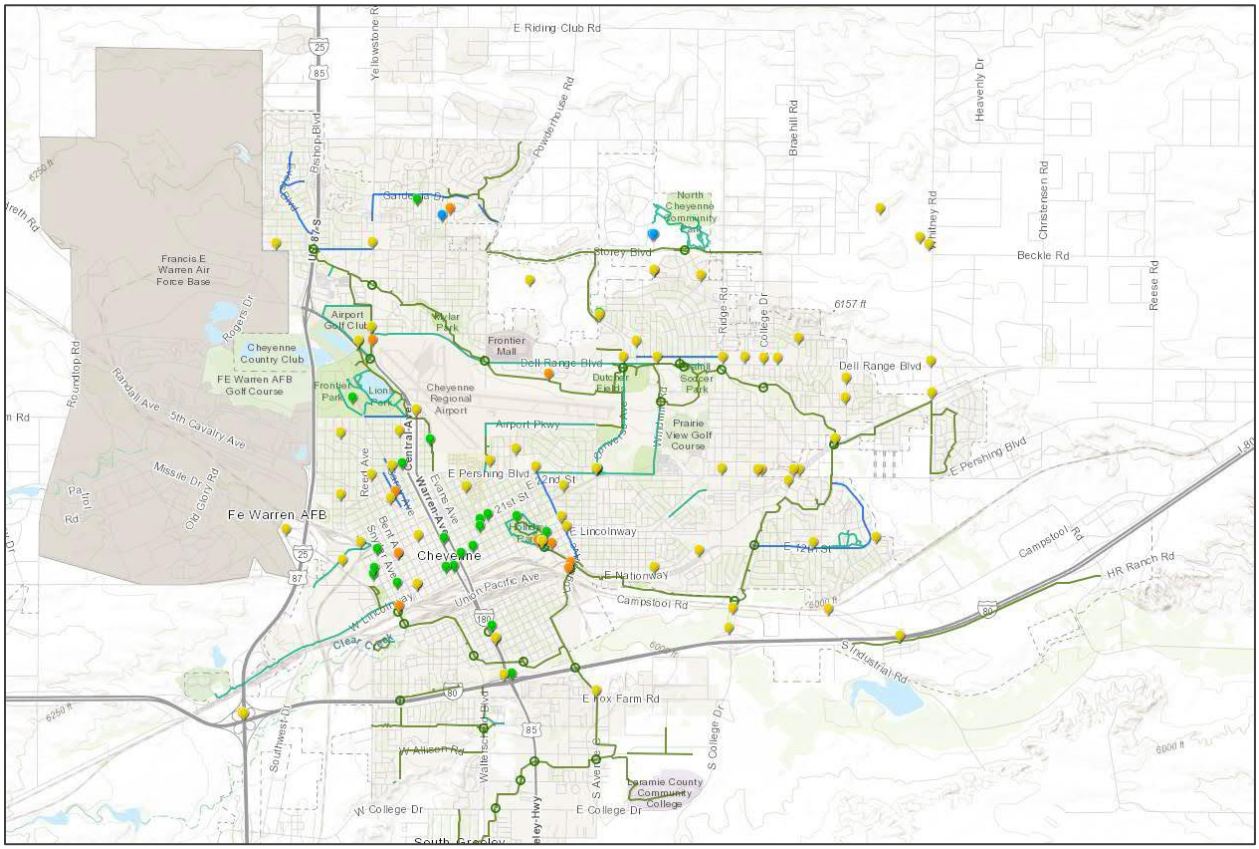
Additionally, benefits of roundabouts, an assessment of multimodal facilities, and leveraging local students to create artwork in intersections were a few opportunities mentioned by Online Community Input Map respondents.

In addition to common themes discussed above, there were also trends identified relating to the study area geography:

- A concentration of opportunities pertaining to **vehicular travel efficiency and roadway capacity** were noted south of Downtown and the railyards.
- Comments posted in Downtown Cheyenne were mostly about the need to **improve the pedestrian experience**; including slowing vehicles and improving sidewalk and crosswalk maintenance.
- In the neighborhoods surrounding downtown, comments articulated a need to **develop a more robust sidewalk network**.
- The comments posted north of Downtown were the most diverse. They articulated issues with greenway and bridge maintenance, requested improved wayfinding along greenway routes, and many would like to see walking and riding bikes as a means of transportation, not only for recreation. Other comments in this area were concerned with the **limited capacity of roadways** specifically during school drop off/pick up times and expressed a desire for **more roundabouts** to more efficiently manage traffic.

Figure 22 below shows the geographic spread of comments across the study area.

Figure 22: Community Input Map Screenshot



The Online Community Input Map has been promoted through the MPO social media channels as well as being announced at the Community Open House. The online platform closed at the end of Phase 1 on April 13, 2020.

ONLINE COMMUNITY SURVEY

Similar to the Online Community Input Map, the Community Survey launched on the project website November 6, 2020 and closed on April 13, 2020. This 30-question online survey asked participants about their experience of the current mobility system in Cheyenne. Questions were specific to certain modes of transportation; walking, biking, transit, and driving. 304 responses have been collected and analyzed.

Note: The percentages reported below are calculated individually based on the number of responses received for each question.

Walking

- 45% of respondents most often walk to trails/greenways; 36% of respondents most often walk to parks/recreation facilities.
- 35% of respondents 'strongly agree' and 34% 'agree' that most of the neighborhood streets have sidewalks.
- 25% of respondents agree that their neighborhood sidewalks are safe and well maintained.
- 40% of respondents 'disagree' and 18% 'strongly disagree' that neighborhood traffic makes it difficult or unpleasant to walk.
- 32% of respondents 'agree' and 41% 'strongly agree' that the distance to their destinations deters walking as a mode of transportation; their destination is typically too far to walk.

Biking

- When asked about their experience biking in Cheyenne, 59% of respondents indicated that they do not ride a bike to any local destinations.
- 33% of respondents indicated that they agree with the statement, "I feel safe and comfortable while biking in their own neighborhood".
- 60% of responses listed weather as the number one reason preventing people from biking or walking more often, followed by destinations being too far (56% of responses).

Transit

- 95% of respondents indicated that they do not take transit/bus (286 responses).
- 43% of respondents indicated that the lack of a direct route to their destination was the largest barrier to taking transit/bus.
- Other barriers include:
    - The length of the ride (29% of responses).
    - Pick up and/or drop off times (26% of responses).
    - Several respondents wrote their own answer for what prevents them from taking transit/bus. Many explained that it is easier or more convenient to drive themselves to their destination as opposed to taking transit.

Driving

- Respondents drive to most destinations in Cheyenne
- 1% of respondents indicated that they do not drive.
- 68% of respondents strongly agree that driving is the fastest way to travel.
- 17% of respondents agree that roads are well-maintained.
    - Conversely, 31% strongly disagree that roads are well maintained.
- 44% respondents indicated that they would feel safer driving if bikes had their own lane or separated pathway.

- 42% of respondents would feel safer driving if speed limits were enforced.
- When asked, “What improvements would make you feel safer when driving or riding in a personal vehicle?” Other answers included fixing the potholes, enforcing of red lights and enforcing of driving hands-free, installing more roundabout and less traffic signals, installing protected left turn at signalized intersections.

Other

- Respondents are most interested in electric cars (33% of responses) and the least interested in autonomous or self-driving buses. (12% of responses)
- 40% of respondents wrote-in their own answer, many of which indicated that they are not interested in any new transportation modes or technologies.
- When asked which factors are most important for the city to consider when prioritizing transportation projects and funding the top three answers were:
    - Providing a balanced network that provides connectivity and comfort for all modes of travel.
    - Increase safety and reduce serious injury crashes for all transportation users.
    - Improve traffic flow and reduce traffic congestion/delay on main roads.

FOUCS GROUPS

Focus group meetings were conducted in November 2019 with several public agencies and advocacy groups. These meetings were to obtain specific feedback from a variety of stakeholders whose goals can be impacted by the Connect2045 Plan. Focus group meeting participants were:

- Federal Highway Administration
- Wyoming Department of Transportation
- Laramie County Engineering
- City of Cheyenne (Planning and Development Services, Engineering, Public Works, Cheyenne Fire Department, Cheyenne Police Department, Community Recreation and Events, Mayor’s Office)
- Laramie County School District 1
- Downtown Cheyenne (Downtown Development Authority)
- Greater Cheyenne Chamber of Commerce
- Visit Cheyenne
- Cheyenne LEADS

Several key issues were identified through these focus group meetings:

- **LRTP delivery.** Ensuring that there are no gaps in the ability to utilize federal funding.
- **Deferred maintenance**. Addressing the backlog of maintenance needs.
- **Maintenance and maintenance funding**. Ensuring that there is a reliable source of funding to maintain the transportation system.
- **Serving future growth and redevelopment**. Ensuring that future development does not negatively impact existing neighborhoods and commercial areas.
- **Greenway and bicycle facility development**. Expanding the popular greenway system to serve more areas of existing development as well as new development areas.
- **Transit configuration and operation**. Creating a more efficient and convenient transit system that serves existing riders as well as attracts new riders.
- **Mobility technologies and licensing**. Developing policies to effectively manage new mobility options such as shared bicycles and scooters, as well as transportation options not yet known.

COMMUNITY OPEN HOUSE

A Community Open House was held on Wednesday November 6, 2019. The open house was hosted at the Community House from 5:30 PM – 7:00 PM. **Figure 23** shows photos from the Community Open House. The boards presented at the Community Open House are provided in **Appendix B**.

Figure 23: Community Open House Photos

Open House Attendee Comments on Bicycle Infrastructure Map

Open House Attendees Visit Mobility Stations

Open House Attendees Discuss Mobility at Various Stations

Each mode-specific station included an activity to identify Strengths, Weaknesses, Opportunities, and Threats (SWOT). The purpose of the SWOT activity was to gather information specific to each mode of transportation at a network-wide scale. These activities were facilitated by a project team member. Included below are the key takeaways from each mode-specific SWOT activity in **Figure 24** through **Figure 27**.

Figure 24: Walking SWOT Analysis

S Strengths	W Weaknesses	O Opportunities	T Threats
• Good connectivity exists on both the Greenway system and in the downtown area • Adequate funding exists for the continued development of the Greenway System • There has been continued development of Greenway system • The size of the City and downtown development patterns make Cheyenne walkable	• Car-centric community and mindset • Incomplete network of walking facilities • Gaps in sidewalk connections • Decaying sidewalk conditions • Light poles in walking path • Poor facilities for people with mobility challenges • Poor enforcement of people crossing the street against the traffic light	• Enhance crosswalks and improve signage along major street crossings • Encourage foot traffic downtown • Educate residents about safe walking routes • Require quality sidewalks with new development • Consider subsidies to encourage residential maintenance of sidewalks • Encourage walking for transportation, not just recreation or exercise	• Weather • Poor maintenance of walking facilities • Culture; people want to drive rather than walk • City regulations • Residential sidewalk maintenance is the homeowner responsibility. This is a challenge for people who do not have the means to maintain the facility.

Figure 25: Biking SWOT Analysis

S Strengths	W Weaknesses	O Opportunities	T Threats
• Expansive Greenway system • Safety improvements; underpasses and green pavement treatments • Reasonably sized city for biking • There is a quality shoulder facility on Riding Club • Central and Warren are both better roads to ride a bike than Pioneer and Carey	• Crossing at traffic signals is not practical because the signal does not recognize/ detect a waiting bike • Confusing signage • Impractical bike racks • Bike paths that do not connect to other dedicated facilities • Lack of bike lane on Dell Range for school kids • Incomplete network of facilities • Bike lanes are not maintained – lack of street sweeping, lack of snow removal, existing pot holes, pavement markings are not maintained, poor pavement quality • The greenway signage is confusing as to who has the right-of-way	• Educate roadway users how to interact with each other (bikes, cars, pedestrians) • Add more enhanced bikeway treatments (buffered bike lanes) • Deploy a bike safety education campaign • Provide more buffer space between bike lanes and moving traffic • Provide more bike racks especially near businesses • Use Strava data to find where people are already riding	• Driving culture • Lack of awareness of people riding bikes and rules of the road (i.e. 3-foot passing) • Disrespect for bike facilities and bikes on the road • The Pershing/Carey intersection is very dangerous • Whitney Road has many hills and is a posted speed limit of 45 mph

Figure 26: Transit SWOT Analysis

S Strengths	W Weaknesses	O Opportunities	T Threats
• Modern, clean, affordable	• Lack of awareness – people do not know about the transit services, hours of operation, routes, stops, cost, etc. • Limited frequency of service (1-hour headways) • Limited and inefficient routes • Cash only, no mobile app or passes	• Educate people about the transit system as a transportation option • Make people feel safe on public transit • Expand the service area and extend hours of operation • A growing population will support additional transit service • Make transit more accessible for all users	• Poor accessibility for the aging population, mobility impaired users, and those who are visually impaired • Weather as it relates to people waiting at transit stops and walking to/from destinations from transit stops

Figure 27: Driving SWOT Analysis

S Strengths	W Weaknesses	O Opportunities	T Threats
• No "rush hour" • Not many "fru-fru" elements built on the road to slow traffic	• Poor maintenance – lack of snow removal • Poor access to parking downtown • Too many one-way streets downtown • Too much construction/ too many detours • Vehicle traffic discourages foot traffic downtown	• More four way stops in residential areas • More roundabouts • Be better prepared to maintain the roads during inclement weather • Enforce sight distance triangle ordinances – overgrown vegetation • Connecting Beckle Road to Summit Drive would help reduce congestion on Dell Range and Hwy. 30	• Distracted drivers • Lack of courtesy on the road • Congested streets during peak times – poorly timed traffic signals, traffic backs up at roundabouts

POP-UP EVENTS

On Saturday November 16th, the project team conducted two Pop-Up events; the first at the annual Holiday Craft Fair at the Laramie County Fair Grounds and the second at La Rosa grocery store. At these events, the project team presented a condensed version of the Open House materials – instead of a SWOT activity geared toward an individual mode, one SWOT activity was facilitated for all mobility types in Cheyenne. Below is the feedback from the SWOT activities at each of these Pop-Up events. **Figure 28** shows photos taken during the pop-up events.

Figure 28: Pop-Up Event Photos

Project Team Engages with La Rosa Customers

Project Team Engages with the Owner of La Rosa

Project Team Engages with Visitors at the Holiday Craft Show

Feedback from the Holiday Craft Fair Pop-Up Event

- ***Strengths***
  - Plenty of sidewalks
  - Good pedestrian lighting at night

    - Nice Greenway system
- ***Weaknesses***
    - Streets need maintenance; repair potholes
    - There is no weekend transit service
    - Need additional stop light at the new Air Force main gate entrance at Happy Jack
    - Snow removal needs improvements
    - Need more street lighting especially along Storey Blvd.
- ***Opportunities***
    - Educate drivers how to navigate a roundabout
    - Enforce red light violations
    - Reduce School Zone speed limit to 15MPH
    - Increase capacity for cars on Dell Range
    - Encourage driver awareness at intersections
    - Educate on and enforce use of blinkers when driving
    - Improve access to information about transit stops, schedules, and routes
    - Need to install 4-way stops in residential areas
- ***Threats***
    - Increasing population is causing more traffic and increasing travel times
    - Speeding cars on Whitney Road

Feedback from the La Rosa Pop-Up Event

- ***Strengths***
    - Feels safe around La Rosa
    - Destinations are close, drives are short
- ***Weaknesses***
    - Bus stops are not easily found; need additional signing and lighting
    - Headways between buses is too long
    - Information about bus stop locations, routes, and schedules is not easy to find
    - Riding bikes feels dangerous
    - Inefficient timing of the traffic lights on Highway 30
- No Opportunities or Threats were shared.

COMMENT CARDS

Comment cards were distributed at all of the public outreach events and asked people to determine their top three priorities for the transportation plan to focus on. Between the Open House and both Pop-Up events, the top three priorities were:

- Pedestrian and bicycle safety, including Safe Routes to School (18 responses)
- Neighborhood traffic management and safety (11 responses)
- Connectivity within the city (10 responses)

NEXT STEPS

The information collected within this report will be used to inform subsequent steps of the LRTP process. A Vision for the Connect 2045 Plan along with goals and performance measures will be developed based on the technical information and public input gathered thus far. Additionally, the existing conditions information will be used to develop a list of projects that will be evaluated as well as brought to the public and stakeholders for prioritization and refinement.

APPENDICES

APPENDIX A: DEMOGRAPHIC CHARACTERISTICS

Table 14: Laramie County Population by Age (2000-2017)

Description	2000	2010	2017	2010-2017			2000-2017		
				Total	Ann. #	Ann. %	Total	Ann. #	Ann. %
Less than 15	17,367	18,847	19,440	593	85	0.4%	2,073	122	0.7%
15 to 65	54,899	61,386	63,698	2,312	330	0.5%	8,799	518	0.9%
65 and Older	9,351	11,505	15,322	3,817	545	4.2%	5,971	351	2.9%
Total	**81,617**	**91,738**	**98,460**	**6,722**	**960**	**1.0%**	**16,843**	**991**	**1.1%**
Pop. 15 to 64 years	54,899	61,386	63,698	2,312	330	0.5%	8,799	518	0.9%
Pop. <15 and 65+	26,718	30,352	34,762	4,410	630	2.0%	8,044	473	1.6%
% of Pop.									
Pop. 15 to 64 years	67.3%	66.9%	64.7%	-	-	-	-	-	-
Pop. <15 and 65+	32.7%	33.1%	35.3%	-	-	-	-	-	-

Source: U.S. Census; American Community Survey; Economic & Planning Systems

Table 15: Laramie County Households (2000-2017)

Description	2000	2010	2017	2010-2017			2000-2017		
				Total	Ann. #	Ann. %	Total	Ann. #	Ann. %
Households									
Owner-Occupied	22,054	25,533	28,002	2,469	353	1.33%	5,948	350	1.41%
Renter-Occupied	9,873	12,043	11,052	-991	-142	-1.22%	1,179	69	0.67%
Total	**31,927**	**37,576**	**39,054**	**1,478**	**211**	**0.55%**	**7,127**	**419**	**1.19%**
Avg. Household Size									
Owner-Occupied	2.54	2.47	-	-	-	-	-	-	-
Renter-Occupied	2.25	2.24	-	-	-	-	-	-	-
Total	**2.45**	**2.40**	**2.47**	**0.07**	**0.01**	**0.43%**	**0.02**	**0.00**	**0.04%**
Housing Units	34,213	40,462	43,345	2,883	412	0.99%	9,132	537	1.40%
Vacant Units	2,286	2,886	4,291	1,405	201	5.83%	2,005	118	3.77%
Vacancy Rate	6.7%	7.1%	9.9%	-	-	-	-	-	-

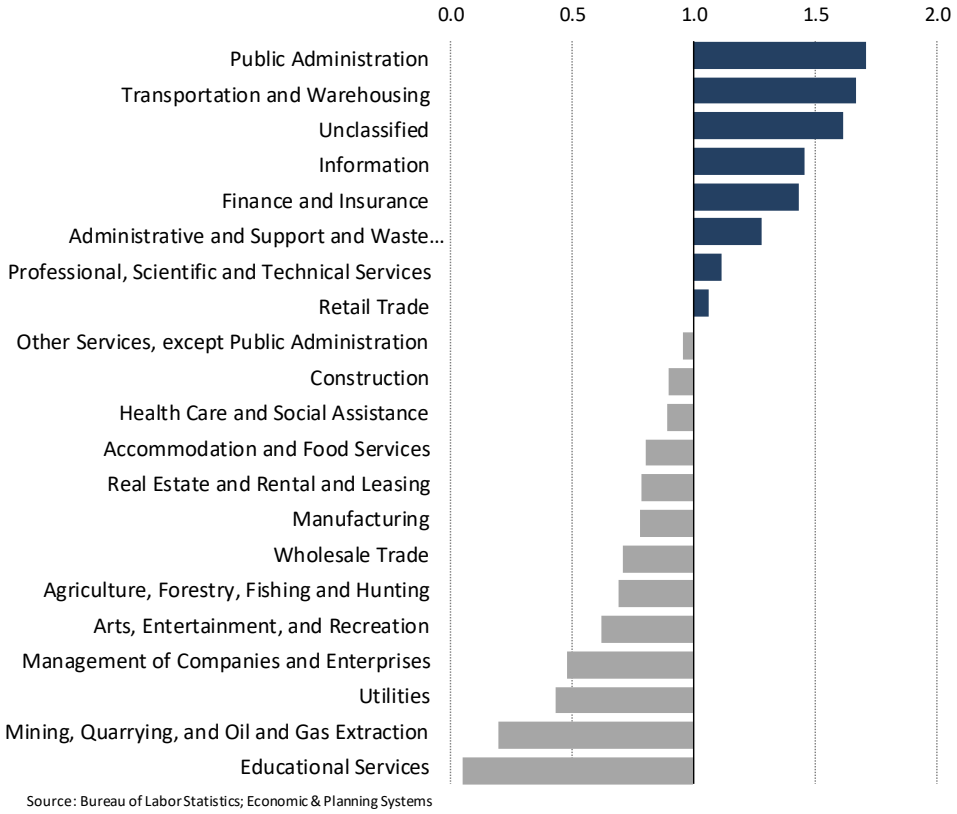
Source: U.S. Census; American Community Survey; Economic & Planning Systems

Table 16: Laramie County Employment by Industry (2000-2018)

Description	2000	2010	2018	2010-2018			2000-2018		
				Total	Ann. #	Ann. %	Total	Ann. #	Ann. %
Wage and Salary Emp.									
Agriculture, Forestry, Fishing, and Hunting	165	279	325	47	6	1.9%	161	9	3.9%
Mining, Quarrying, and Oil and Gas Extraction	79	56	693	638	80	37.0%	614	34	12.8%
Utilities	54	150	194	44	6	3.3%	140	8	7.4%
Construction	2,224	2,621	3,082	461	58	2.0%	858	48	1.8%
Manufacturing	1,652	1,419	1.,281	-138	-17	-1.3%	-371	-21	-1.4%
Wholesale Trade	668	809	989	180	22	2.5%	321	18	2.2%
Retail Trade	5,465	5,259	5,278	18	2	0.0%	-187	-10	-0.2%
Transportation and Warehousing	1,462	2,433	3,134	701	88	3.2%	1,672	93	4.3%
Information	1,038	1,086	1,012	-74	-9	-0.9%	-26	-1	-0.1%
Finance and Insurance	1,347	1,647	1,681	34	4	0.3%	334	19	1.2%
Real Estate and Rental and Leasing	453	502	560	59	7	1.4%	108	6	1.2%
Professional, Scientific and Technical Services	1,149	1,563	1,768	205	26	1.5%	619	34	2.4%
Mgmt. of Companies and Enterprises	268	76	70	-7	-1	-1.1%	-198	-11	-7.2%
Admin., Support, Waste Mgmt., and Rem. Srvcs.	1,361	1,638	1,886	248	31	1.8%	525	29	1.8%
Educational Services	91	226	190	-36	-4	-2.1%	99	5	4.2%
Health Care and Social Assistance	2,557	4,481	5,324	843	105	2.2%	2,767	154	4.2%
Arts, Entertainment, and Recreation	363	317	473	156	20	5.1%	110	6	1.5%
Accommodation and Food Services	3,535	4,004	4,444	439	55	1.3%	909	51	1.3%
Other Services, except Public Administration	1,985	1,227	1,228	1	0	0.0%	-756	-42	-2.6%
Public Administration	6,032	6,975	6,725	-250	-31	-0.5%	693	39	0.6%
Unclassified	0	0	2	2	0	-	2	0	-
Total Employment	**36,512**	**42,432**	**45,996**	**3,564**	**445**	**1.0%**	**9,484**	**527**	**1.3%**
GBSD Industries	*12,094*	*13,665*	*13,868*	*202*	*25*	*0.2%*	*1,773*	*99*	*0.8%*

Source: Bureau of Labor Statistics; Economic & Planning Services

Figure 29: Laramie County and State Location Quotient (2018)



Source: Bureau of Labor Statistics; Economic & Planning Systems

Table 17: Laramie County Employment Growth Forecast by Industry (2020-2045)

Description	2020	2030	2045	2020-2045		
				Total	Ann. #	Ann. %
Low-Growth Forecast						
Agriculture, Forestry, Fishing, and Hunting	432	465	505	73	3	0.63%
Mining	921	992	1,077	156	6	0.63%
Utilities	258	278	302	44	2	0.63%
Construction	4,156	4,639	5,253	1,097	44	0.94%
Manufacturing	1,664	1,694	1,730	65	3	0.15%
Wholesale Trade	1,314	1,410	1,532	218	9	0.62%
Retail Trade	6,908	7,168	7,471	563	23	0.31%
Transportation and Warehousing	4,289	4,935	5,823	1,534	61	1.23%
Information	1,315	1,338	1,366	51	2	0.15%
Finance and Insurance	2,233	2,404	2,611	378	15	0.63%
Real Estate and Rental and Leasing	745	801	871	126	5	0.63%
Professional and Technical Services	2,419	2,784	3,284	865	35	1.23%
Management of Companies and Enterprises	91	92	94	4	0	0.16%
Administrative and Waste Services	2,543	2,839	3,214	671	27	0.94%
Educational Services	253	272	295	43	2	0.63%
Health Care and Social Assistance	7,286	8,384	9,891	2,605	104	1.23%
Arts, Entertainment, and Recreation	619	642	669	50	2	0.31%
Accommodation and Food Services	5,904	6,355	6,904	1,000	40	0.63%
Other Services, except Public Administration	1,596	1,625	1,660	64	3	0.16%
Public Administration	8,737	8,900	9,087	349	14	0.16%
Other	3	3	3	0	0	0.00%
Total Employment	**53,684**	**58,018**	**63,641**	**9,957**	**398**	**0.68%**
High-Growth Forecast						
Agriculture, Forestry, Fishing, and Hunting	432	465	505	73	3	0.63%
Mining	977	1,216	1,558	581	23	1.88%
Utilities	258	278	302	44	2	0.63%
Construction	4,280	5,138	6,316	2,036	81	1.57%
Manufacturing	1,727	1,920	2,173	446	18	0.92%
Wholesale Trade	1,353	1,557	1,837	446	18	0.92%
Retail Trade	6,908	7,168	7,471	563	23	0.31%
Transportation and Warehousing	4,481	5,721	7,632	3,151	126	2.15%
Information	1,344	1,443	1,567	223	9	0.62%
Finance and Insurance	2,233	2,404	2,611	378	15	0.63%
Real Estate and Rental and Leasing	745	801	871	126	5	0.63%
Professional and Technical Services	2,419	2,784	3,284	865	35	1.23%
Management of Companies and Enterprises	91	92	94	4	0	0.16%
Administrative and Waste Services	2,543	2,839	3,214	671	27	0.94%
Educational Services	268	333	427	159	6	1.88%
Health Care and Social Assistance	7,612	9,719	12,965	5,353	214	2.15%
Arts, Entertainment, and Recreation	628	676	734	106	4	0.63%
Accommodation and Food Services	5,992	6,690	7,574	1,582	63	0.94%
Other Services, except Public Administration	1,596	1,625	1,660	64	3	0.16%
Public Administration	8,803	9,133	9,520	717	29	0.31%
Other	3	3	3	0	0	0.00%
Total Employment	**54,765**	**62,293**	**72,970**	**18,206**	**728**	**1.15%**

Source: Economic & Planning Systems

Table 18: Population and Household Growth Forecast (2020-2045)

Description	2020	2030	2045	2020-2045		
				Total	Ann. #	Ann. %
Low-Growth Forecast						
Laramie County						
Total Population	100,736	113,074	126,800	26,064	1,043	0.92%
Total Households	40,148	45,375	51,381	11,233	449	0.99%
Total Housing Units	44,375	49,574	55,308	10,933	437	0.88%
Cheyenne Planning Area						
Total Population	88,734	99,289	111,030	22,295	892	0.90%
Total Households	35,274	39,742	44,876	9,602	384	0.97%
Total Housing Units	38,988	43,419	48,306	9,318	373	0.86%
High-Growth Forecast						
Laramie County						
Total Population	101,981	118,706	139,162	37,182	1,487	1.25%
Total Households	40,653	47,676	56,481	15,827	633	1.32%
Total Housing Units	44,933	52,089	60,797	15,864	635	1.22%
Cheyenne Planning Area						
Total Population	89,799	104,107	121,605	31,806	1,272	1.22%
Total Households	35,706	41,710	49,239	13,532	541	1.29%
Total Housing Units	39,465	45,570	53,002	13,536	541	1.19%

Assumes all group quarter population is inside the Cheyenne Planning Area
Source: Economic & Planning Systems

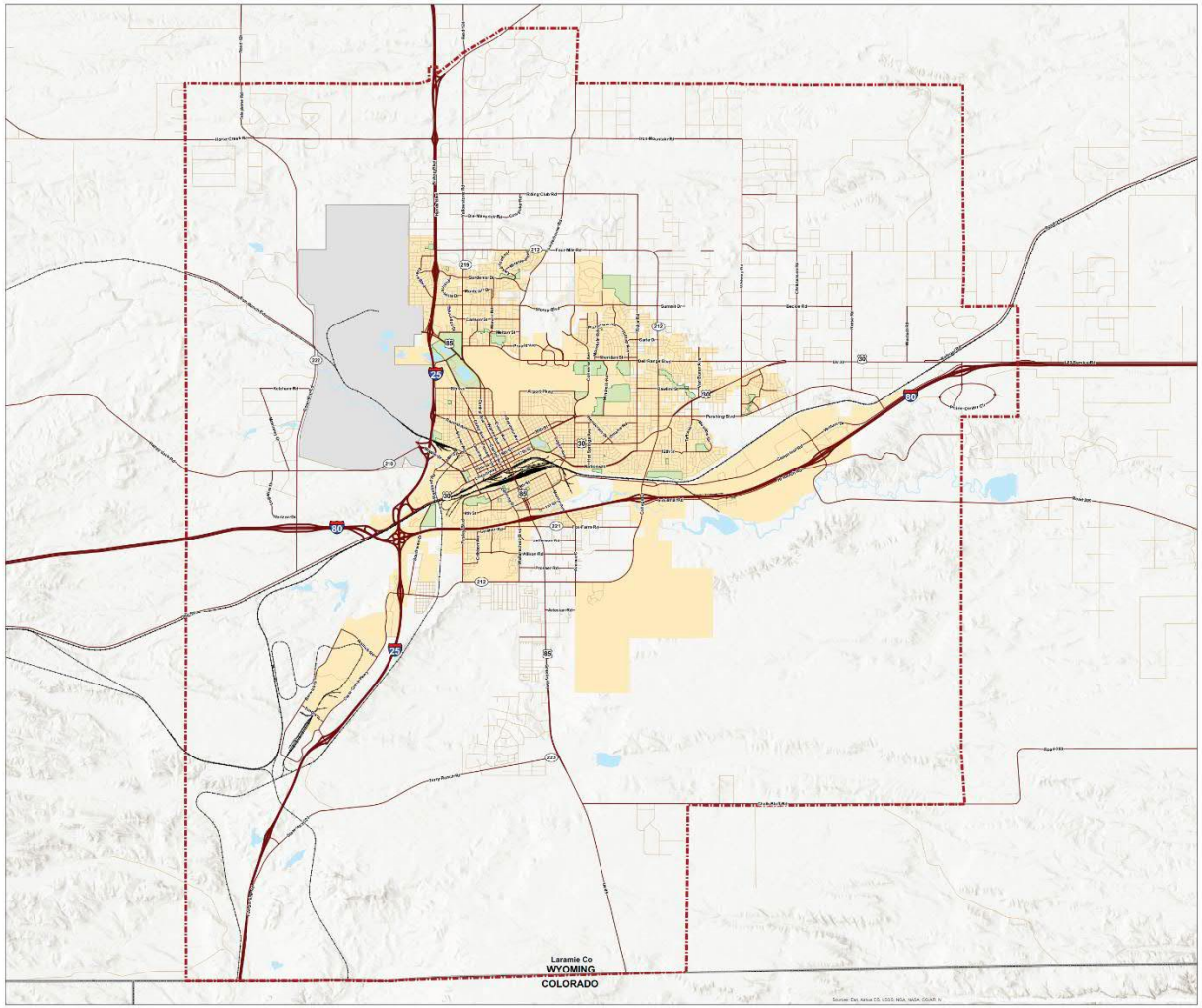
Table 19: Laramie County Commute Patterns (2000-2017)

Description	2000	2010	2017	2010-2017			2000-2017		
				Total	Ann. #	Ann. %	Total	Ann. #	Ann. %
In-Commuters	3,415	9,696	9,831	135	19	0.2%	6,416	377	6.0%
Out-Commuters	4,874	6,471	7,965	1,494	213	3.0%	3,091	182	3.0%
Total Employment	**36,512**	**43,402**	**45,778**	**2,376**	**339**	**0.8%**	**9,266**	**545**	**1.0%**

Source: U.S. Census Longitudinal Employee-Household Dynamics; Economic & Planning Systems

WHERE DO YOU LIVE?

CONNECT 2045 TRANSPORTATION UPDATE PLANCHEYENNE



Legend

- MPO Boundary
- County Boundary
- Freeway
- Major Road
- Minor Street
- Railroad
- Water Feature
- Park
- Military Base
- City of Cheyenne Boundary

WHY WE ARE HERE

What is a long range transportation plan?

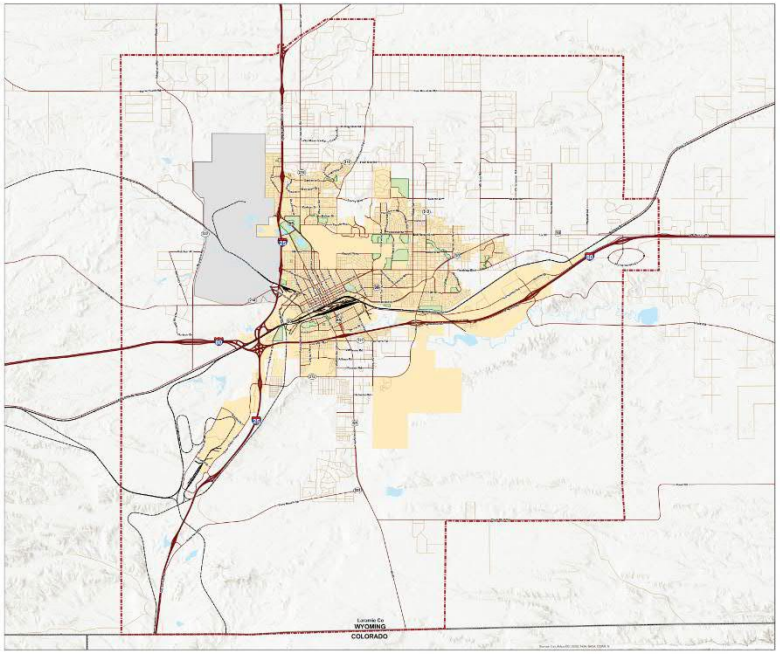
Connect 2045, the Cheyenne area's new Long Range Transportation Plan (LRTP), seeks to understand the region's existing and future transportation needs and identify viable solutions. The plan considers all travel modes, including automobiles, bicycle, pedestrian, transit, and freight. When completed, Connect 2045 will identify transportation improvements that can be funded through the year 2045.

As a federal requirement, all metropolitan regions with a population greater than 50,000 must complete an LRTP to plan for future transportation spending. PlanCheyenne, the master plan for the Cheyenne area, was first adopted in 2006, and was updated in 2014. Connect 2045 will provide a complete update to the transportation plan component of PlanCheyenne, capturing the community's desires for the region's transportation system and prioritizing strategies to meet the anticipated transportation needs.

What is the Cheyenne Metropolitan Planning Organization (MPO)?

The Cheyenne MPO was designated for transportation planning purposes by the governor of Wyoming in 1981. The MPO is responsible for developing transportation policies and coordinating the various federal, state, and local agencies involved in long-range transportation planning and project development.

The Cheyenne MPO is involved with all aspects of growth, development, and quality of life improvements for the Cheyenne Metropolitan Planning Boundary, which includes the City of Cheyenne and portions of Laramie County.



Connect 2045 Schedule

What's Next

Connect 2045 will be adopted in August 2020, and will define the region's transportation strategy for the next five to 10 years. Following its adoption, Cheyenne MPO will begin the process of coordinating with the Wyoming Department of Transportation (WYDOT) to acquire funding and begin improvements on the region's top priority projects. This process of soliciting public feedback, creating transportation recommendations, and prioritizing them for funding is the cyclical process through which improvements are made to the regional transportation system.

PLANCHEYENNE GOALS

CONNECT 2045 TRANSPORTATION UPDATE PLANCHEYENNE

Current PlanCheyenne Transportation Principles

Accommodate Growth
Roadways in and around our new neighborhoods will be designed to **accommodate increased travel demand** while maximizing safety.

Preserve Neighborhoods
Impacts to existing neighborhoods will be minimized when making road improvements.

Multimodal System
The Cheyenne area will build a **safe, multimodal transportation system** that consists of streets, sidewalks, bicycle facilities, and transit.

Fiscally Responsible
The Cheyenne area will maintain a **fiscally responsible** transportation plan.

Maximize Existing Infrastructure
The Cheyenne area will **maximize use of the existing roadway system**.

Promote an Active Lifestyle
Transportation that provides opportunities for residents to lead **healthy and active lifestyles** will be promoted.

Accommodate Freight
The Cheyenne area will accommodate **truck and freight goods movement**.

Why do we need goals?

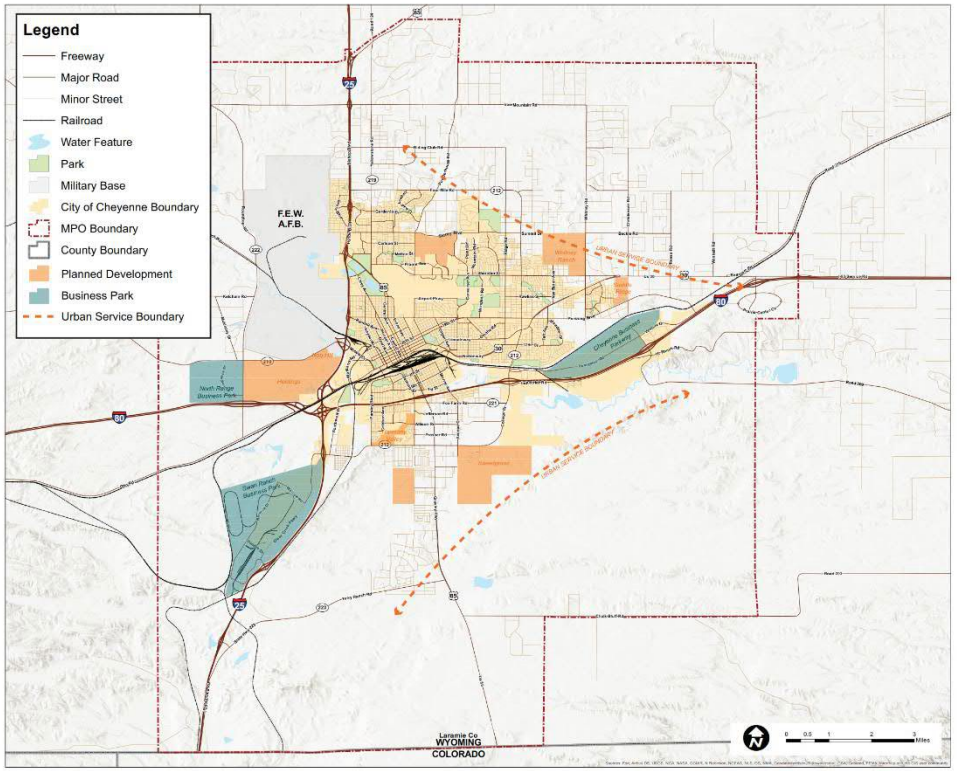
Federal funding (through the Fixing America's Surface Transportation [FAST] Act) is tied to performance-based planning practices.
Goals translate long-range visions for the region into actionable objectives and performance criteria that guide investment decisions.

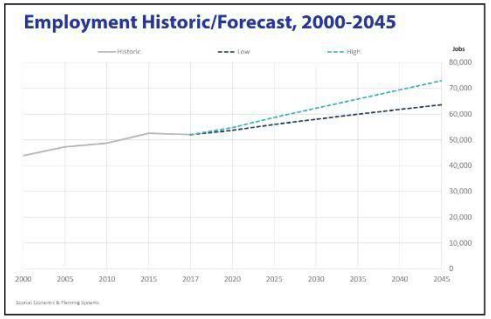
Should the 2014 Transportation Principles be changed or supplemented?

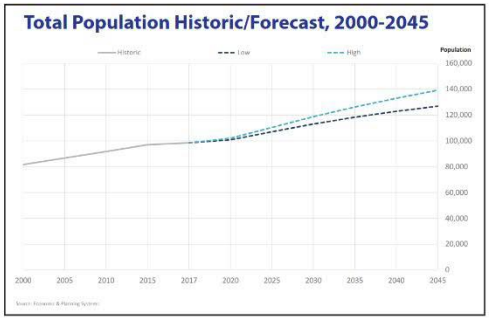
Federal Highway Administration Goals

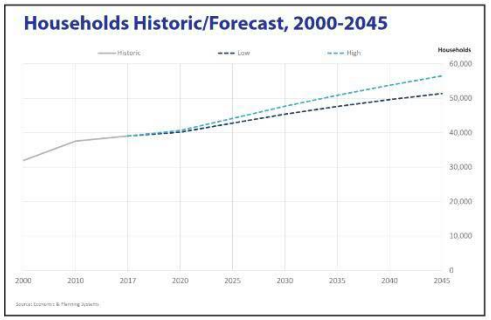
- Traffic Flow/ Congestion Reduction
- Travel Safety
- Economic Vitality
- Environmental Preservation
- Network Connectivity
- Community Vibrancy
- Freight Movement
- Commute Mode Shift
- Social Equity
- Public Support
- Tourism & Recreation
- Resiliency
- Integrated Land Use/ Transportation Planning

DEMOGRAPHICS AND GROWTH TRENDS









Key Takeaways

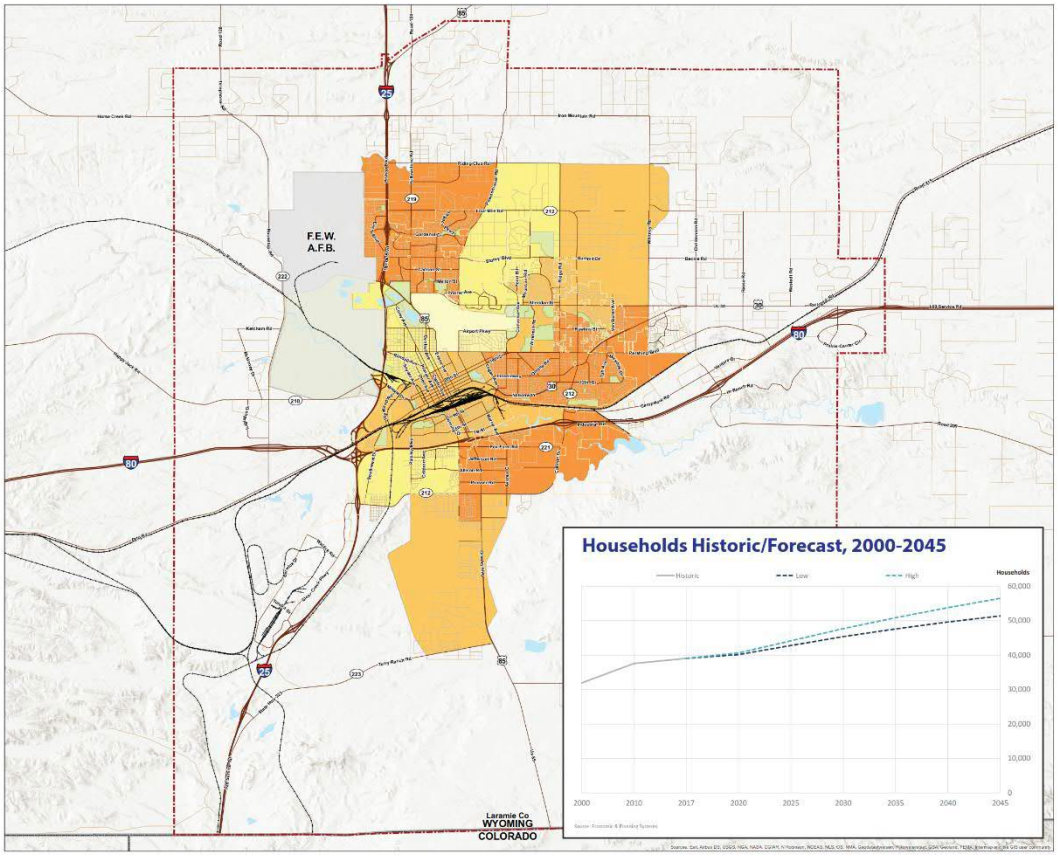
Trends

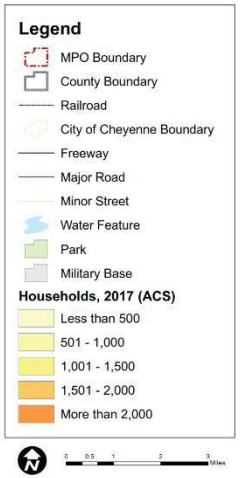
- From 2000 to 2017, Laramie County gained more than 7,000 households for a total of approximately 39,000 households in 2017.
- Growth is equivalent to nearly 540 housing units and 420 households annually.
- 86 percent of Laramie County population growth from 2010 to 2019 occurred within the Cheyenne Planning Area (Cheyenne MPO boundary).
- Employment growth has occurred at a similar rate as population growth since 2000, with nearly 9,500 new jobs from 2000 to 2018 to reach a total of nearly 46,000 jobs in 2018.

Forecasts

- Laramie County is estimated to add between a minimum of 9,960 to a maximum of 18,200 jobs between 2020 and 2045 for a total between 63,640 and 72,970 jobs in 2045.
- Estimated employment growth in Laramie County translates to 11,200 to 15,800 new households for a total of 51,400 to 56,500 households in 2045.
- The Cheyenne Planning Area is estimated to capture 86 percent of household growth for a total of 44,900 to 49,200 households by 2045.
- This is equivalent to approximately 380 to 540 new households annually in the Cheyenne Planning Area.

DEMOGRAPHICS AND GROWTH TRENDS

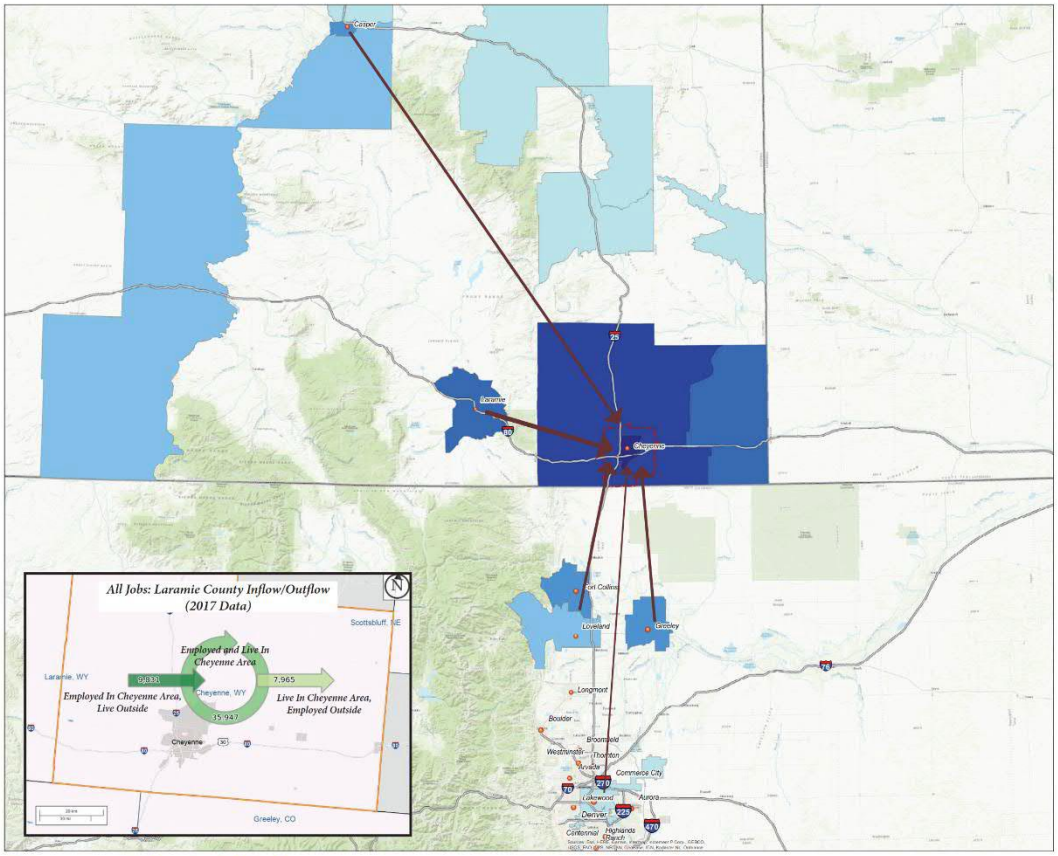




Key Takeaways

- Laramie County's population grew at a rate of 1.0% in 2016 and 0.4% in 2017, while the state of Wyoming decreased in population.
- The population 65 years of age and older has steadily increased in recent years (from 12.1% in 2010 to 14.6% in 2017), indicating the continued aging of Laramie County's population.
- In-migration has exceeded out-migration each year since 2000.

EXISTING COMMUTE TRENDS



Legend

- MPO Boundary

Job Counts: Where Workers Live

- 200 or less
- 201 - 400
- 401 - 800
- 801 - 1600
- 1601 - 3000
- 30000+
- Railroad
- Water Feature
- Park
- Military Base
- City of Cheyenne Boundary

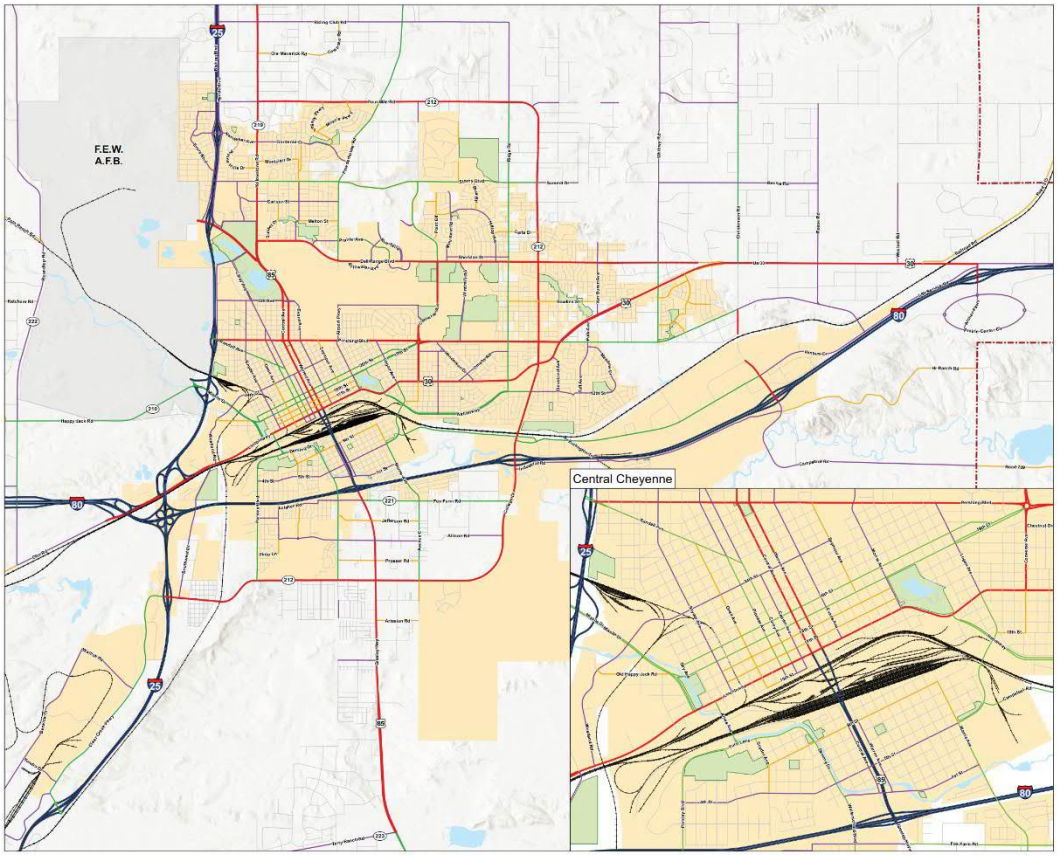
Key Takeaways

- The majority of workers in the Cheyenne area (79%) reside within the City of Cheyenne or surrounding Laramie County
- The number of area residents commuting to surrounding counties and northern Colorado for work has increased 2% since 2010 due to proximity and job availability
- Average travel time to work is 15.8 minutes
- Regional commuting inflow and outflow is expected to increase through 2045
  - *In-commuters (% of jobs): +4%*
  - *Out-commuters (% of employed residents): +1%*

Transportation to Work (ACS 2013-2017)

- **82.1%** Drove Alone to Work
- **9.9%** Carpooled
- **2.7%** Walked to Work
- **0.6%** Took Public Transportation
- **0.3%** Biked to Work

ROADWAY FUNCTIONAL CLASSIFICATION



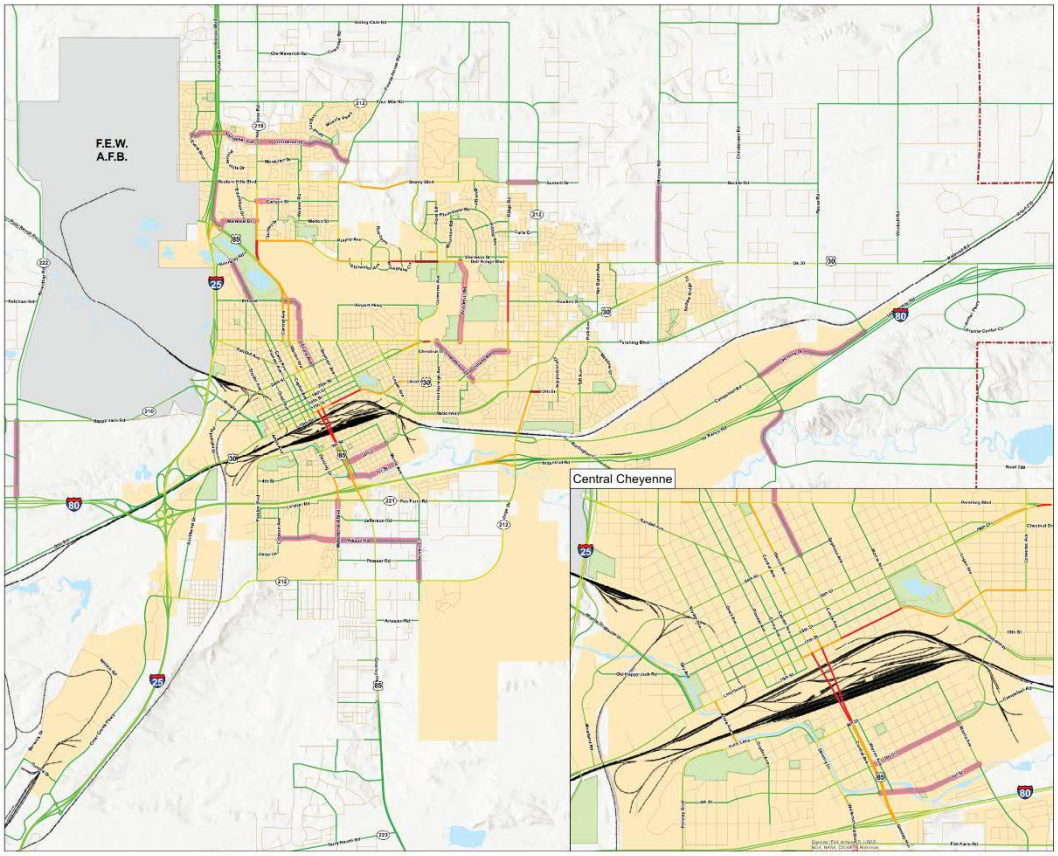
Legend

- MPO Boundary
- County Boundary
- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Roadways
- Railroad
- Water Feature
- Park
- Military Base
- City of Cheyenne Boundary

Key Takeaways

- Interstates and their associated access ramps represent just over 10% of the total roadway length within the Cheyenne MPO.
- Arterial roadways represent 13.3% of the length roadways; principal arterials represent 6.7% and minor arterials represent 6.6%.
- Collector roadways represent 18.4% of the length of roadways; major collectors represent 14% and minor collectors represent 4.4%.

ROADWAY LEVEL OF SERVICE



Legend

- MPO Boundary
- County Boundary

2010 Modeled LOS

- LOS A
- LOS B
- LOS C
- LOS D
- LOS E
- LOS F
- High-Growth Roadways*
- Other Streets
- Railroad
- Water Feature
- Park
- Military Base
- City of Cheyenne Boundary

*High-growth roadways defined as roadways with an annual growth of greater than 100 vehicles per day between 2009/2010 counts and recent-year counts.

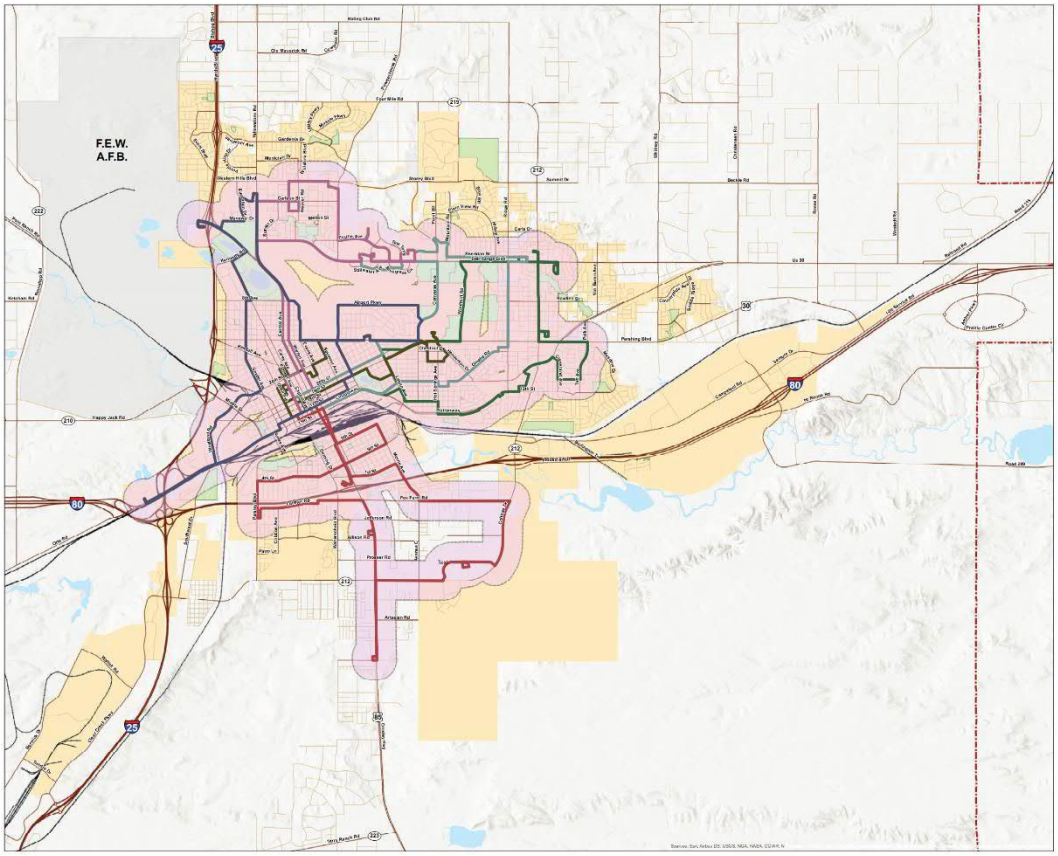
What is Level of Service?

- Modeling traffic demand is a useful tool in determining what roadways may have critical capacity issues currently or in the future.
- Level of service (LOS) assessment quantifies traffic congestion along specific thoroughfares and assigns a score of A through F to reflect how well they operate.
- Based on traffic demand modeling and current traffic counts, most of the thoroughfares throughout the area are operating at acceptable levels. Roadways that have experienced higher than average increases in traffic volumes since 2010 have been identified as *High-Growth Roadways*.

Key Takeaways

- The roadway within the Cheyenne MPO with the highest average daily traffic is Dell Range Boulevard, between Powderhouse Road and Converse Avenue, with 37,666 vehicles per day.
- The roadway with the second highest volume in the MPO is the short stretch of Yellowstone Road, between Warren Avenue and Dell Range Boulevard, with 31,754 vehicles per day.
- Other high-volume roadways with average daily traffic between 20,000 and 30,000 vehicles per day include:
  - *College Drive between I-80 and Dell Range Boulevard*
  - *Dell Range Boulevard between Yellowstone Drive and Prairie Avenue*
  - *Dell Range Boulevard between Converse Avenue and College Drive*
  - *I-25 between Randall Avenue and Vandehei Street*

EXISTING TRANSIT ACCESS



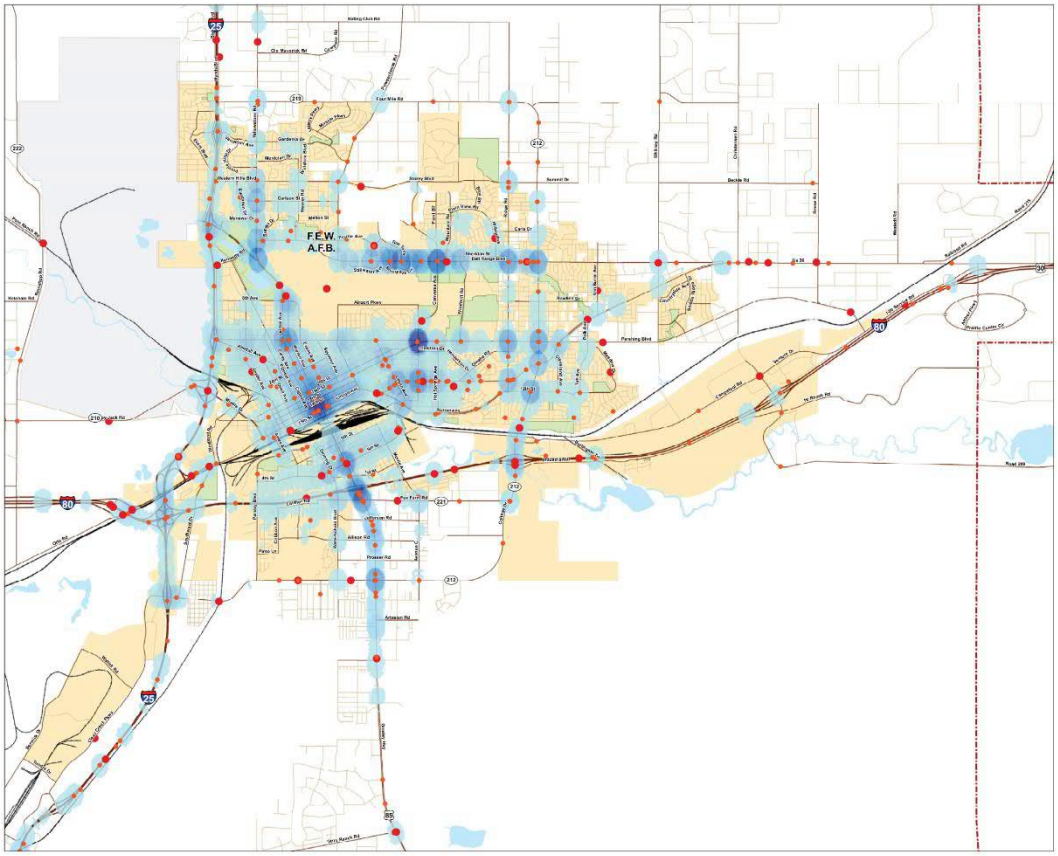
Legend

- Downtown Route
- East Route
- Northeast Route
- Northwest Route
- South Route
- West Route
- Area 1/4 Mile of Bus Routes
- MPO Boundary
- County Boundary
- Railroad
- Freeway
- Major Road
- Minor Street
- Water Feature
- Park
- Military Base
- City of Cheyenne Boundary

Key Takeaways

- Around 8.7% of the Cheyenne MPO area is within a quarter of a mile of at least one fixed bus route. Most of this access exists within the City of Cheyenne, where more than half (51.8%) of the area is within ¼ mile of at least one fixed bus route.
- Bus service is limited to daytime and early evening use, Monday through Saturday. In addition to fixed routes, paratransit is available to those who qualify.

EXISTING ROADWAY SAFETY TRENDS



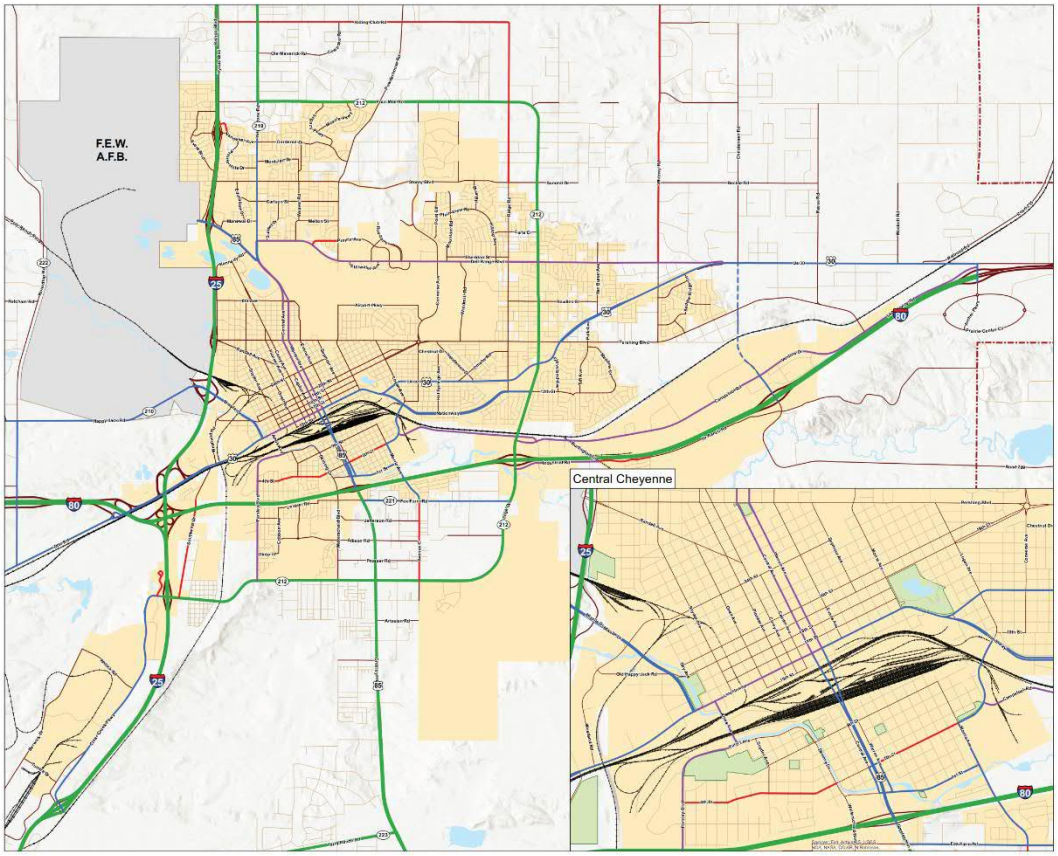
Legend

- Fatal Injury
- Suspected Serious Injury
- More Crashes
- Fewer Crashes
- MPO Boundary
- County Boundary
- Railroad
- Freeway
- Major Road
- Minor Street
- Water Feature
- Park
- Military Base
- City of Cheyenne Boundary

Key Takeaways

- **Crash density is not an indicator of severity. There are many fatal and serious injury accidents throughout the area, outside of areas where there is a higher number of crashes.**
- **Areas with higher crash rates include:**
  - *The intersection of Pershing Boulevard, Converse Avenue, and 19th Street (a five-way intersection).*
  - *Dell Range Boulevard.*
  - *Greeley Highway as it heads into and out of downtown Cheyenne.*

EXISTING FREIGHT NETWORK



Legend

Truck Routes
- Main Truck Route
- Secondary Truck Route
- Local Truck Route
- Restricted Truck Access
- Future Roadway

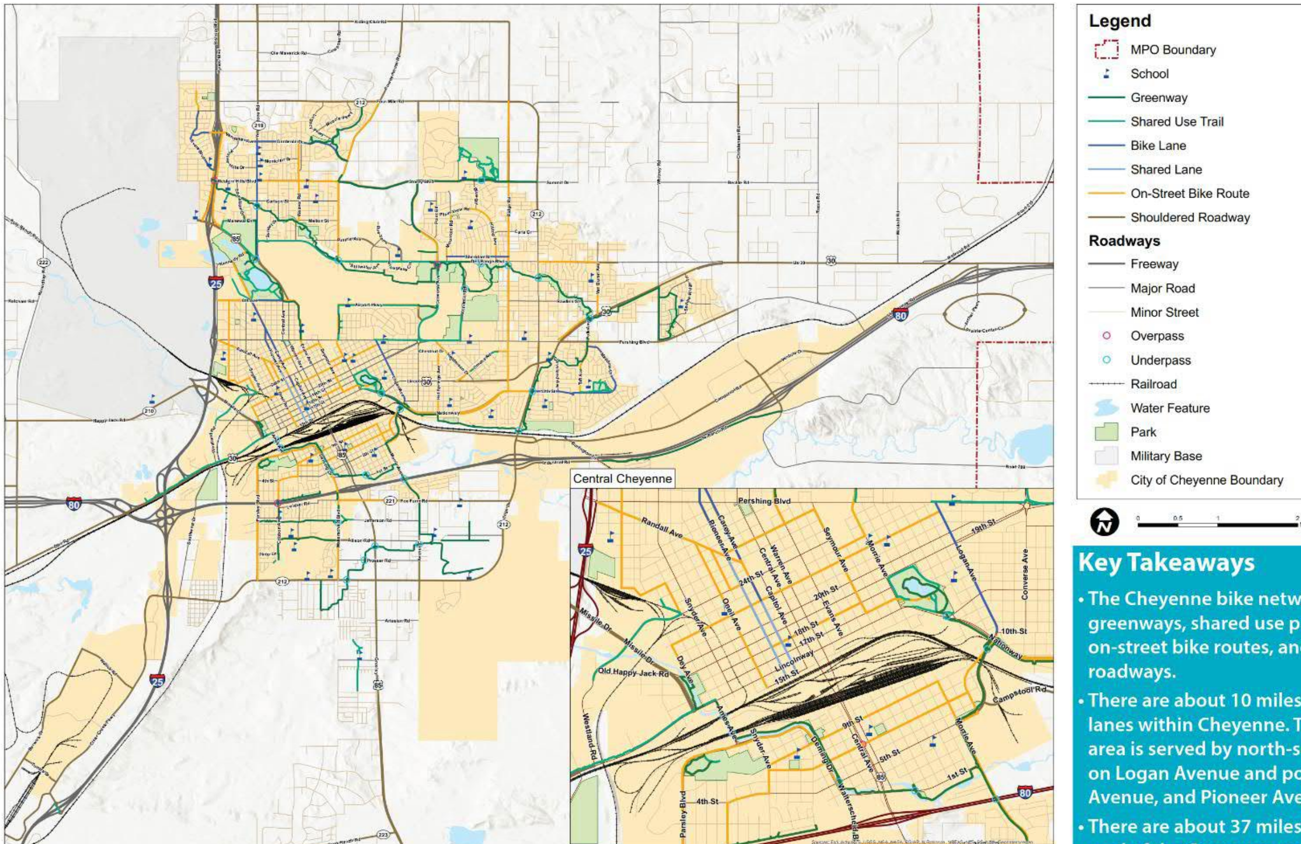
Other Roads
- Freeway
- Major Road
- Minor Street
- Railroad
- Water Feature
- Military Base
- City of Cheyenne Boundary
- MPO Boundary
- County Boundary

Key Takeaways

- Interstate 80 is one of the nation's busiest routes for moving freight coast to coast.
- The region has a growing manufacturing and distribution industry base which includes several major companies such as Lowe's, Walmart, Sierra Trading Post, and Holly Frontier Refinery.
- Major planned industrial growth areas include the Swan Ranch Industrial Park, south of Cheyenne along I-25, and the North Range Business Park, west along I-80.

EXISTING BICYCLE INFRASTRUCTURE

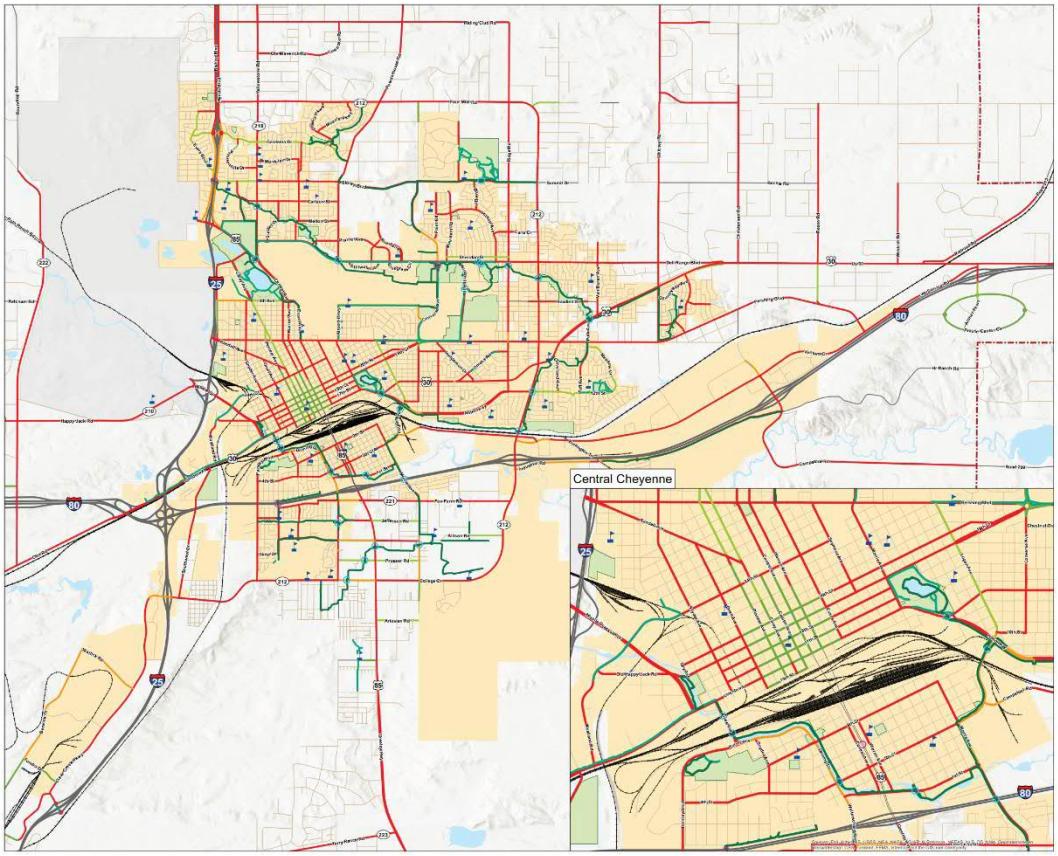
CONNECT 2045 TRANSPORTATION UPDATE PLANCHEYENNE



Key Takeaways

- **The Cheyenne bike network consists of greenways, shared use paths, bike lanes, on-street bike routes, and shouldered roadways.**
- **There are about 10 miles of on-street bike lanes within Cheyenne. The downtown area is served by north-south bike lanes on Logan Avenue and portions of Carey Avenue, and Pioneer Avenue.**
- **There are about 37 miles of greenways. The goal of the Greenway system is two-fold:**
  - *Create a hub-and-spoke system that encircles the city in one continuous loop.*
  - *Connect the non-contiguous segments to serve all neighborhoods while accommodating future growth.*

EXISTING BICYCLE LEVEL OF TRAFFIC STRESS



Legend

- MPO Boundary
- School
- Greenway
- Shared Use Trail
- Freeway
- Major Road
- Minor Street
- Overpass
- Underpass
- Railroad
- Water Feature
- Park
- Military Base
- City of Cheyenne Boundary

Bicycle Level of Traffic Stress

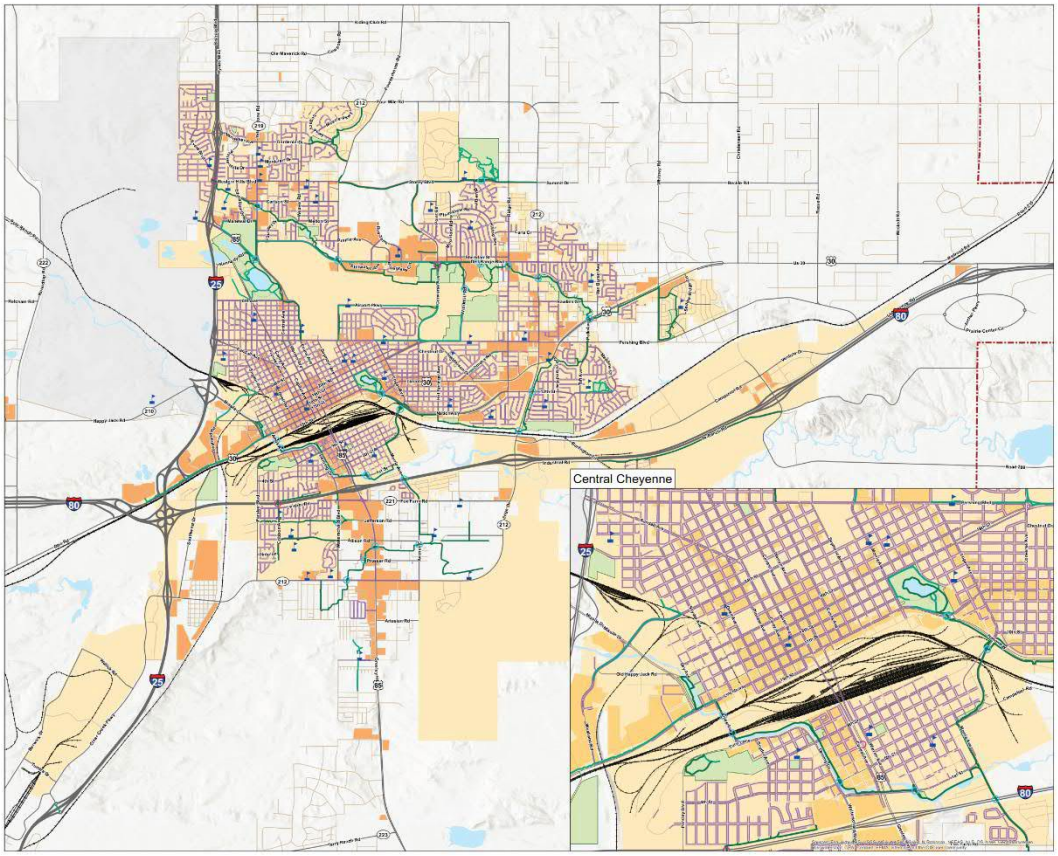
- 1 - Comfortable for all ages and abilities
- 2 - Generally comfortable for most bicyclists
- 3 - May only be comfortable for confident bicyclists
- 4 - Generally uncomfortable, even for confident bicyclists

0 0.5 1 2 Miles

Key Takeaways

- The bicycle level of traffic stress is a measurement that rates on-street bicycling comfort based on the speed limit, number of travel lanes, and presence of a bicycle facility.
- Highways, dirt roads, and local residential roads were not included in this analysis.
- Level 1: Comfortable for all ages and abilities. Typically includes streets that have speed limits of 25 MPH or less, one travel lane in each direction, and may include the presence of a bike lane.
- Level 2: Generally comfortable for most bicyclists. Typically includes streets with bike lanes and speed limits of 30 MPH or less.
- Level 3: May only be comfortable for confident bicyclists. Typically includes shouldered roadways with speed limits of 30 MPH or less.
- Level 4: Generally uncomfortable, even for confident bicyclists. Typically includes streets that have speed limits of 30 mph or more and lack any type of bicycle facility.

EXISTING PEDESTRIAN INFRASTRUCTURE



Legend

- MPO Boundary
- School
- Greenway
- Shared Use Trail
- Sidewalk
- Freeway
- Major Road
- Minor Street
- Overpass
- Underpass
- Railroad
- Water Feature
- Park
- Military Base
- Activity Center
- City of Cheyenne Boundary

Key Takeaways

- 37 miles of the greenway system are year-round trails.
- 96% of Cheyenne residents live within one mile of a greenway.
- Activity centers include existing and future land uses that may have higher pedestrian activity:
  - *Community Business*
  - *Mixed-Use Commercial*
  - *Mixed-Use Residential*
  - *Mixed-Use Employment*
  - *Urban Residential*
  - *Central Business District*