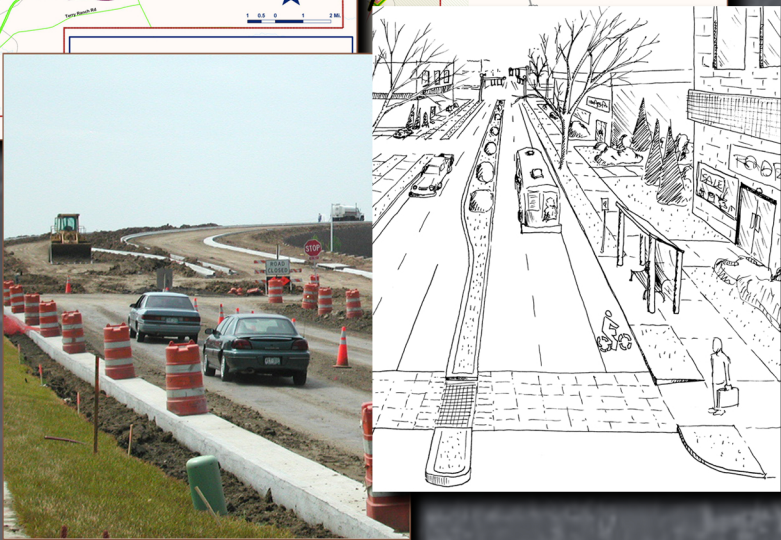
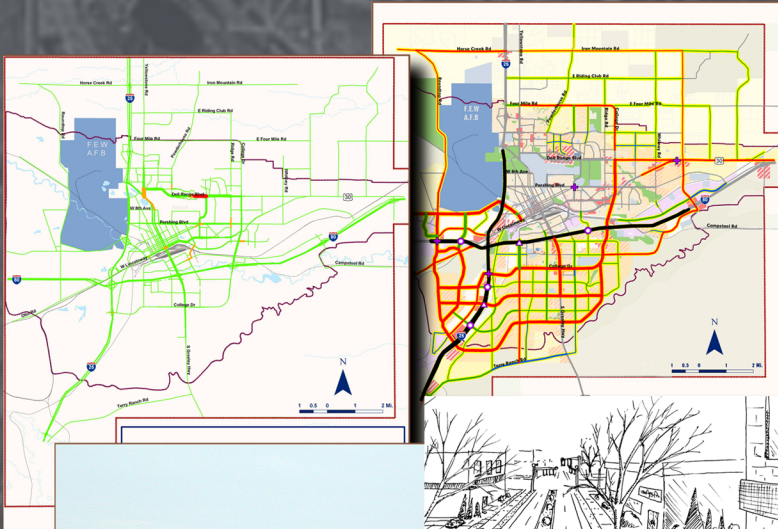




Cheyenne Area

# Transportation Master Plan



November 2006

CHEYENNE METROPOLITAN PLANNING ORGANIZATION

CLARION - LSA - EDAW - AVI





# PLAN CHEYENNE



## WATER FACILITIES:

Municipal ownership - Gravity system installed.  
Source of Supply, Crow Creek & Troutfork Reservoirs,  
located about 25 miles west of town in G.  
Capacity of Storage Reservoirs as follows:

North Crow Reservoir

Granite

Crystal Lake

35 miles of cast iron supply line capacity 30 to 4 million gallon distributing reinforced 42 miles west of & elevated 301 above Town Reservoir. Supplies the 42", 36", 30", 24", 18", 12", 8", 6" & 4" the mains laid 808 to 811 incl. - Average daily Gravity pressure 100 lbs. per sq. inch. 1932 Pumping Plant Situated at west 15th & Ohio Auxiliary -

## FIRE DEPARTMENT:

Paid - 2 Companies, Chief & 16 Men. Co. A 1917 wagon, 2000 lb. cotton hose - Co. A 1912, Co. B 1911, 1910, 1909, 1908, 1907, 1906, 1905, 1904, 1903, 1902, 1901, 1900, 1899, 1898, 1897, 1896, 1895, 1894, 1893, 1892, 1891, 1890, 1889, 1888, 1887, 1886, 1885, 1884, 1883, 1882, 1881, 1880, 1879, 1878, 1877, 1876, 1875, 1874, 1873, 1872, 1871, 1870, 1869, 1868, 1867, 1866, 1865, 1864, 1863, 1862, 1861, 1860, 1859, 1858, 1857, 1856, 1855, 1854, 1853, 1852, 1851, 1850, 1849, 1848, 1847, 1846, 1845, 1844, 1843, 1842, 1841, 1840, 1839, 1838, 1837, 1836, 1835, 1834, 1833, 1832, 1831, 1830, 1829, 1828, 1827, 1826, 1825, 1824, 1823, 1822, 1821, 1820, 1819, 1818, 1817, 1816, 1815, 1814, 1813, 1812, 1811, 1810, 1809, 1808, 1807, 1806, 1805, 1804, 1803, 1802, 1801, 1800, 1799, 1798, 1797, 1796, 1795, 1794, 1793, 1792, 1791, 1790, 1789, 1788, 1787, 1786, 1785, 1784, 1783, 1782, 1781, 1780, 1779, 1778, 1777, 1776, 1775, 1774, 1773, 1772, 1771, 1770, 1769, 1768, 1767, 1766, 1765, 1764, 1763, 1762, 1761, 1760, 1759, 1758, 1757, 1756, 1755, 1754, 1753, 1752, 1751, 1750, 1749, 1748, 1747, 1746, 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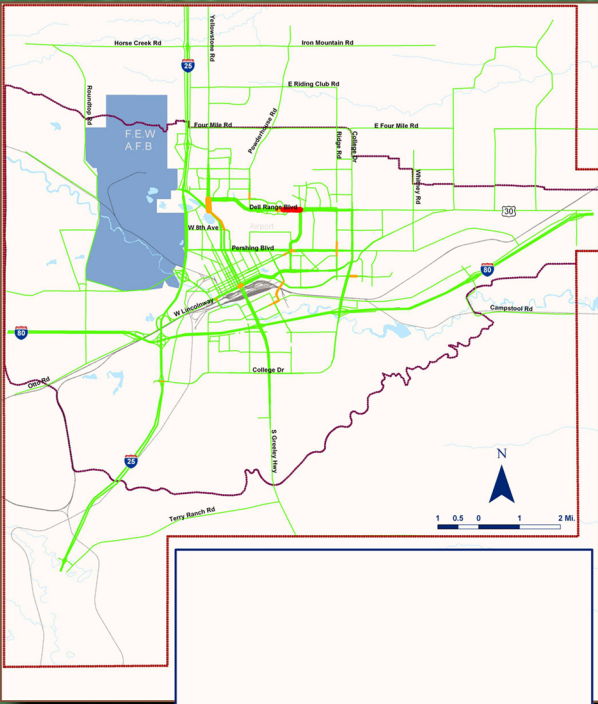






**Cheyenne Area  
Transportation Master Plan**

**Snapshot**



November 2006

CHEYENNE METROPOLITAN PLANNING ORGANIZATION

CLARION - LSA - EDAW - AVI





# PLAN CHEYENNE



## WATER FACILITIES:

Municipal ownership - Gravity system installed.  
Source of Supply, Crow Creek & Troutfork Reservoirs,  
located about 25 miles west of Town in G.  
Capacity of Storage Reservoirs as follows:

North Crow Reservoir

Granite

Crystal Lake

35 miles of cast iron supply line capacity 30 to 4 million gallon distributing reinforced 42 miles west of & elevated 301 above Town Reservoir, supplies the 42", 36", 30", 24", 18" & 12" mains laid 808 to 811 incl. - Average daily Gravity pressure 100 lbs. per sq. inch. 1932 Pumping Plant Situated at west 15th & 9th Avenue.

## FIRE DEPARTMENT:

Paid - 2 Companies, Chief & 14 Men. Co. A 1917 wagon, 2000 lb. cotton hose - Co. B 1917, One Graham Lyster Combination Hose & Ch. Truck fully equipped - One Seelye's Com. Wagon - One Hose Wagon in reserve - 5000 Gallon well fire alarm system of 36 boxes. Grades as shown - Fire Limits indicated by as shown -





# 1. Welcome

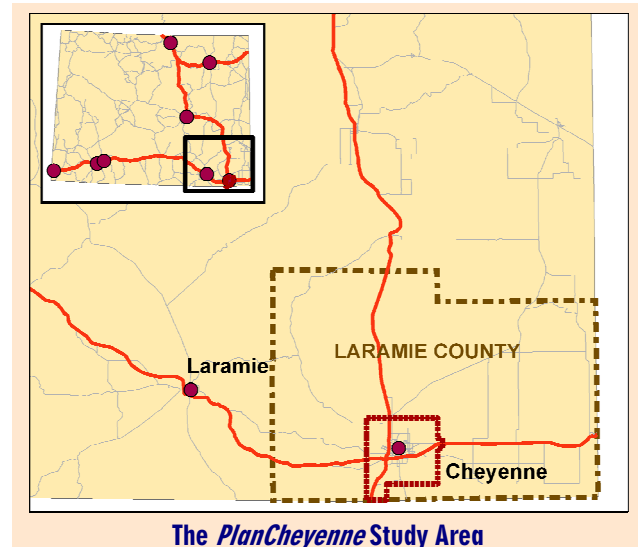
## What is *PlanCheyenne*

Located in southeast Wyoming at the north end of the Front Range, Cheyenne is a city with a rich history, diverse population, and vibrant community. While existing as a self-contained community, Cheyenne also has connections to Colorado cities along the Front Range.

The Cheyenne MPO oversees planning activities for the City of Cheyenne and surrounding portions of Laramie County. As an MPO, the Cheyenne MPO has access to federal planning funds, formal recognition as the coordinating agency for transportation planning in the area, and the responsibility to ensure a “comprehensive, coordinated, and continuing” transportation planning process.

To accommodate the future growth of the region, land use plans, park and recreation plans, and transportation services and infrastructure are developed and implemented through the regional planning process carried out by the Cheyenne Metropolitan Planning Organization. This plan is unique in that land use, transportation, and parks planning are all incorporated into the comprehensive planning process for the Cheyenne Area, dubbed *PlanCheyenne*.

The *Transportation Master Plan* was developed as a part of *PlanCheyenne* – the Cheyenne Area Comprehensive Plan. Work on the three major components of *PlanCheyenne* was done cooperatively, resulting in a plan whose elements are consistent and complimentary.



The *PlanCheyenne* Study Area

## What is the Transportation Master Plan?

The *Transportation Master Plan* is the long-range transportation plan for the urbanized region that includes the City of Cheyenne as well as parts of Laramie County. The Plan identifies future transportation investments for all modes of transportation. Although travel in the region is predominately by automobile, other modes such as public transit, pedestrian, and bicycle transportation are becoming increasingly important.

As such, the *Transportation Master Plan* identifies specific services and projects for each mode of travel that will be necessary to meet the transportation needs of the region through 2030. Like most communities across the nation, anticipated revenues are not sufficient to fund all of the transportation needs. Therefore, this plan prioritizes projects for implementation to respond to financial constraints required by Federal law.

### Four Transportation Chapters

Like the other elements of *PlanCheyenne*, the *Transportation Master Plan* consists of four chapters: Snapshot, Structure, Shape, and Build. Each chapter can be separated as a standalone report or the four chapters can be kept intact as one document.

The **Snapshot** section provides background information on the transportation planning process and federal planning requirements. It then continues to provide a description of the current state of the transportation system in Cheyenne.

The **Structure** section includes general functional and design principles and strategic guidelines related to transportation.

Information is presented in a series of illustrations and lists and is general in nature.

The **Shape** section outlines transportation principles and policies that demonstrate the desires of the community regarding a transportation system. This section also includes a Transportation Vision Plan for 2030 and buildout based on these principles.

The **Build** section suggests strategies to implement elements of the Transportation Vision Plan. Because fiscal limitations are a reality as well as a requirement of federal planning regulations, the 2030 Transportation Vision Plan is reduced to a fiscally constrained transportation plan.

### Snapshot Overview

Provide a look at Cheyenne today and compliment the snapshot portion of the *Community Plan* include the following chapters:

- 1. Welcome:** This section provides an introduction to the *Transportation Master Plan*.
- 2. Planning Process and Context:** This section describes the process used to create the *Transportation Master Plan* as well as the context in which the plan was developed.
- 3. Planning Elements: Required and Desired:** The federal requirements and local desires that shape the plan are described in this section.
- 4. Existing Conditions:** The state of the transportation system in Cheyenne today is presented in this section.

## 2. Planning Process and Context

### Process

The *Transportation Master Plan* was developed through an open and deliberative planning process, complying and exceeding with all applicable government regulations. As with the larger *PlanCheyenne* effort, development of the transportation plan consisted of four primary phases. Snapshot is the first of these phases.

The development of *PlanCheyenne* and the *Transportation Master Plan* were guided by a Technical Advisory Committee (TAC) and a citizen Steering Committee. The TAC includes members from various interested agencies including the City of Cheyenne, Laramie County, the Wyoming Department of Transportation, the Federal Highway Administration (FHWA), Warren Air Force Base, Laramie County School District #1, and others. At each citizen Steering Committee meeting, the general public was invited and encouraged to participate in the discussion.

### Context

The *Transportation Master Plan* is the current transportation plan for the Cheyenne MPO. Like many planning documents, it incorporates and builds upon the concepts and recommendations from previous efforts. Numerous plans and studies are underway or have been completed by the City of Cheyenne, the Cheyenne MPO, as well as the Wyoming Department of Transportation (WYDOT). A summary of these plans is available in the *Community Plan* – Shape section 4. Some of the plans, studies, and projects related to the

development and implementation of the *Transportation Master Plan* include:

***PlanCheyenne:*** *PlanCheyenne* is the new comprehensive plan for the Cheyenne Area. The *Transportation Master Plan* is a part of this larger plan that also has a *Community Plan* and land use plan, and a parks and recreation master plan. Because the elements of *PlanCheyenne* were developed jointly, collaboration between land use planners and transportation planners was possible. This collaboration improves the consistency between the MPO’s transportation and land use plans.

***Vision2020:*** Vision2020 is a “living document” that reflects the community’s input and directions for the future. It provides strategic direction and sets the foundation for *PlanCheyenne*. A detailed summary of Vision2020 is provided in Shape section 1 of the *Community Plan*. Elements of this vision that directly affect the transportation plan include:

- *Growth that is guided to promote efficient use of public and private resources.*
- *A range of different housing and transportation choices.*
- *A vital downtown that includes unique businesses, a range of housing and attractive gathering places.*

***Cheyenne Area Master Transportation Plan:*** This transportation plan, prepared in 1994, has served as a long range transportation plan for the Cheyenne MPO. It is replaced by this plan.



**Innovative Finance Analysis, Transportation Improvement Programming Process, and 1997 Project List Update:** This document served as an update to the 1994 transportation plan.

**Road, Street, and Site Planning Design Standards:** This document provides uniform design standards for the City of Cheyenne and brings the standards up to date.

**Laramie County, Wyoming Road, Street and Site Planning Design Standards:** This document provides design standards to be applied in the unincorporated portions of Laramie County. The county is currently revising these standards.

**19<sup>th</sup>/Pershing/Converse Conceptual Alternatives Plan Analysis:** This document considers existing and forecast congestion at this location and explores potential solutions.

**Conceptual Plans: Dell Range Boulevard – College Drive to U.S. 30 & U.S. 30 – College Drive to the Archer Interchange:** This document looks at potential improvements to the named corridors.

**State Transportation Improvement Program:** The Wyoming Department of Transportation has outlined transportation spending plans for the years 2006 through 2011 in this document.

**Statewide Long-Range Transportation Plan:** The Wyoming Department of Transportation has defined long range goals, objectives, and action items in this policy plan.

**Transportation Programs:** WYDOT has described transportation funding sources in this document.

**Western Cheyenne Transportation Study:** This document explores potential future changes to the railroad in the Cheyenne Area.

**Various Neighborhood Plans:** The City of Cheyenne has adopted a collection of sub-area plans. Transportation aspects of these plans were considered in the development of transportation recommendations in the *Transportation Master Plan*. The plans include:

- West Cheyenne Lane Use and Infrastructure Improvement Plan (2002)
- East Central Cheyenne Infrastructure Improvements Plan (2000)
- Northwest Cheyenne Infrastructure and Development Plan (1999)
- Hebard, Cole, and Goins Neighborhoods Plan (1995)
- South Cheyenne Infrastructure Improvement and Development Action Plan (1994)
- DDA Master Plan for the Downtown Cheyenne Core Area (1991)
- East Cheyenne Infrastructure Improvement Plan (1998)

## 3. Planning Elements: Required and Desired

### Federal Planning Requirements

Several laws, regulations, statutes, codes and other documents at the local, state, and federal levels affect the development of the *Transportation Master Plan* by specifying requirements to be considered in the planning process or to be contained in the plan. These include the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), existing and proposed metropolitan planning regulations, management and monitoring system regulations, Executive Order 12898 on Environmental Justice, the Americans with Disabilities Act, and a variety of others.

Of these, SAFETEA-LU, replaces the Transportation Equity Act for the 21st Century (TEA-21) and provides the primary authoritative direction on the development of the *Transportation Master Plan*. On August 10, 2005, Congress enacted SAFETEA-LU as Public Law 109-59. SAFETEA-LU authorizes the federal surface transportation programs for highway and transit systems for the four-year period from 2005 to 2009. SAFETEA-LU continues and enhances the federal programs and priorities established in the previous Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and TEA-21.

Prior to July 1, 2007, MPO transportation plans may be completed under TEA-21 requirements. However, transportation plans and the TIPs and STIPs drawn from these plans can not be updated or amended subsequent to that date unless the transportation plan meets all

requirements set forth in SAFETEA-LU. To ensure that this plan and related components can be updated or amended as needed, this plan complies with regulations defined in SAFETEA-LU.

Among the many environmental, funding, infrastructure, modal, safety, and other transportation-related provisions of the legislation, SAFETEA-LU specifies that MPO's develop transportation plans in cooperation with the State and public transit operators that "provide for the development and integrated management and operation of transportation systems and facilities...that will function as an intermodal transportation system for the metropolitan area..." With this language, Congress has continued its priorities of intermodalism, intergovernmental and public/private partnerships, and system development and management that originated in ISTEA. Further, the process for developing transportation plans shall provide for consideration of all modes and shall be continuing, cooperative, and comprehensive to the degree appropriate.

The requirements for MPO planning set forth in SAFETEA-LU are largely similar to those defined by TEA-21. However, there are several key additions to the requirements. These additions include:

- A discussion of potential environmental mitigation activities must be included.
- The financial plan section must include transit operators in a cooperative development of estimates.

- Consultation “as appropriate” with agencies responsible for land use planning and management, natural resources, environmental preservation, conservation, and historic preservation is required.
- The list of interested parties that must be given an opportunity to comment is extended to include users of pedestrian walkways and bicycle transportation facilities and representatives of the disabled. All other interested parties must also be given opportunity to participate in the planning process.
- Intermodal connectors are added as a transportation facility.
- The plan is to be made available through electronic means such as the Web.
- It is explicitly stated that: public meetings are to be conducted at convenient and accessible locations at convenient times; employ visualization techniques to describe plans; materials are to be made available through electronic means such as the Web.

## Project Listings

SAFETEA-LU identifies several categories of projects that are to be included for implementation over the life of a transportation plan. They are:

- Roadway, transit, intermodal, bicycle and pedestrian facilities;
- Transportation and transit enhancement activities;
- Strategies for managing the transportation system; and
- Capital investments and other measures to preserve the existing transportation system.

### SAFETEA-LU Planning Factors

The Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) federal legislation recognizes that transportation investments impact a community’s economy, environment, and quality of life. As such, it states that the planning process “shall provide for consideration of projects and strategies that will:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase the accessibility and mobility of people and for freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation; and
- Emphasize the preservation of the existing transportation system.”

A description of all proposed improvements in sufficient detail to develop cost estimates should accompany the project listings.

SAFETEA-LU allows for, but does not require, a financially unconstrained list of all proposed transportation improvements. This unconstrained plan is presented as the “2030 Vision Plan” (See Shape Section 4). It is also desirable to include a conceptual list or map of the ultimate buildout transportation system to facilitate right-of-way preservation.



## Financial Plan

SAFETEA-LU specifies that available revenues for implementation of transportation improvements over the life of the *Transportation Master Plan* must be developed through a cooperative effort between the MPO, State, and transit operators. The cost estimates for the projects, strategies, and other transportation improvements contained in the plan must be constrained to the forecasts of available revenues.

When this requirement was enacted over 10 years ago, many communities around the country readily embraced the financial constraint philosophy. In this manner, transportation plans transformed from a wish list of projects that could not be implemented to meaningful plans with specific, identifiable transportation improvements.

## Forecast Period

At a minimum, a transportation plan must be comprised of a 20-year planning horizon and be updated every five years. After its approval, the MPO is allowed to make substantial changes to the *Transportation Master Plan* during the five-year window, but the 20-year forecast period must be maintained. Therefore, the plan incorporates an approximately 25-year planning horizon in order to retain the ability to modify the plan, similar to other progressive communities.

## Public Involvement Process

Public involvement was a high priority in the *PlanCheyenne* planning process and the *Transportation Master Plan*. This process provided complete information, timely public notice, and full public access.

The public involvement process for *PlanCheyenne* included of a series of citizen Steering Committee meetings to which the general public was invited. These meetings generally consisted of a short presentation followed by an open house session in which attendees were provided with an opportunity to interact with planning team, ask questions, and provide input on what was liked and disliked. New ideas were also provided by the public, some of which were incorporated into the plan. Before and after each meeting, materials were placed on the *PlanCheyenne* website for further public review and comment.

Through the Citizens' Transportation Advisory Committee, Technical Committee, and Policy Committee the policies for the MPO are established. Further, these committees decide how the Federal Planning Funds (PL), Transit Planning Funds, and Federal Surface Transportation Program (STP) Funds for construction will be spent within the urban area. These committees have been closely involved with the development and progress of *PlanCheyenne*.

To ensure that the involvement process for *PlanCheyenne* was broad and inclusive, the plan was also presented to the Mayor's Council on Disabilities, the Greenway Technical Advisory Committee, the Housing and Community Development Advisory Council, the Mayor's Youth Council, and members of the Greenway Technical Review Committee. Each group was asked to provide comments and feedback on the plan

The **Mayor's Council on Disabilities** was created to serve as an advisory council to the Mayor on the problems and concerns of people with disabilities as they relate to activities of daily living, including employment, recreation,

transportation, architectural accessibility, or any other area of concern to people with disabilities in Cheyenne. The MPO presented *PlanCheyenne* to the Council in April of 2006 to gather feedback regarding the plan. Due to the plan's focus on multi-modal corridors and emphasis on pedestrian-friendly environments, the Council was generally supportive of the *PlanCheyenne's* goals.

The **Housing & Community Development Advisory Council** is charged with considering specific activities to be funded with Community Development and other housing funds. The presentation before this Board focused on housing and transportation options advanced by *PlanCheyenne* as they relate to affordability. The multi-modal corridor concept as it is linked to higher density activity centers was applauded for being an innovative approach to linking land use and transportation issues.

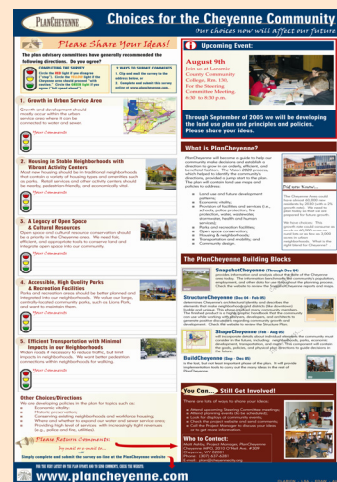
The goal of the **Mayor's Youth Council** is to give youth an opportunity to learn about government at the level closest to the people and to weigh in on policies affecting young people in the community. Youth between the ages of 14 and 19 are selected to serve on the council for one school calendar year. Terms are renewable and members may be re-appointed from year to year. Because transportation options are generally limited for the youth of our community, a special effort was made to involve the Mayor's Youth Council in the development of *PlanCheyenne*. The group was supportive of the concepts, including integration of land uses, an expanded transit system, and extension of the Greater Cheyenne Greenway as a safe route to key destinations in the community.

The **Greenway Technical Review Committee** directs, designs, sets priorities, develops budgets, and makes recommendations for governing body decisions regarding the community's greenway system. In addition to their involvement in *PlanCheyenne* through the Parks & Recreation Master Plan, this Committee also participated in the development of the *Transportation Master Plan*.

### Who has Participated in *PlanCheyenne*?

In keeping with the *Vision2020* grass roots, public effort, the Cheyenne community and plan advisory committees have participated throughout the planning process to create the *Transportation Master Plan*. In addition to two charrettes in December 2004 and January 2005, where over 30 committee members attended and 45 members of the public participated at each event, the planning process has involved on-going Technical and Steering Committee meetings every few months. In total, 11 community meetings were held, drawing both technical experts and citizens to the table.

### And For Those Who Could not Attend... Newspaper Coverage...



In July 2005, the *Wyoming Tribune Eagle* printed information about the process with some policy choices and solicited additional comments. It also advertised upcoming meetings and events.

## 4. Existing Conditions

The first step in developing a transportation plan is to understand the existing economic, land use, social, and transportation conditions of the region. Understanding the trends and changes that made the region what it is today is essential before developing forecasts of future conditions. The overall snapshot section of *PlanCheyenne* provides a comprehensive look at existing conditions in Cheyenne, while this section focuses on the existing conditions most relevant to transportation planning.

### Land Use and Socioeconomic Characteristics

The socioeconomic and land use characteristics that make up the Cheyenne Area provide insight into the region's transportation requirements. Activities that occur in each of the various land uses form the basis of "trip making" or travel demand. Residential and commercial land uses both generate travel.

Accurate estimates of demographic data are imperative to calibrating the base year model and from this model forecasting travel into the future. Therefore, knowledge of existing population and employment is a key element of the transportation planning process.

### Households and Population

Household and population estimates are based on Census 2000 data and were provided by the MPO. The population of the Cheyenne Urban Area in 2000 was 73,306 people in 30,074 households.

### Employment

Base year employment data provided by the MPO indicates approximately 29,540 jobs in 2000.

### Transportation System

Many people envision the transportation system as the network of streets and highways that allows for automobile and truck travel within, to, and through the region. In reality, roads make up only one component of the transportation system, albeit an important one. Transit service, bicycle facilities, and pedestrian infrastructure are essential to a well-balanced multi-modal transportation system. The system even includes railroad corridors, airports, intermodal truck terminals, traffic signals, and stop signs.

### Roadways

Roadways make up the backbone of the transportation system. Cars and trucks use the roadway system. Transit buses also use roads for their routes. Bicyclists often travel directly on roads, especially in corridors with delineated bike lanes or designated bike routes. Even pedestrians walk on sidewalks that are often constructed in roadway rights-of-way. The most effective roads, called *complete streets*, often accommodate all of these travel modes. In addition to the travel lanes that accommodate travel by transit and automobile, complete streets include good sidewalks to facilitate pedestrian travel and bike paths or lanes for bicycle travel.



The roadway network is based on a range of different types of facilities with varying characteristics that, when combined, make up the roadway system. These facilities range from state highways, which serve high speed, longer-distance trips, to local streets that are designed for lower speeds and shorter trip lengths.

Figure 1 shows the facilities that make up the Cheyenne MPO's roadway network.

The existing roadway system in Cheyenne handles current traffic demands quite well which is very noteworthy for a medium size City. Traffic problems are rare and generally occur at intersections during peak commute times. Areas that currently experience some traffic congestion include:

#### **Congested**

- Dell Range from Prairie to Converse
- FE Warren AFB entrance at Randall/Pershing/I-25

#### **Congesting**

- Pershing/Converse/19th Intersection
- I-25 and College Interchange
- Ridge Road at Pershing
- Logan from Lincolnway to Campstool
- US 85 South of I-80
- Yellowstone and Dell Range/Central
- High Schools during the morning, lunch, and evening peaks
- I-25/Vandehei Interchange and Frontage Roads
- I-25/I-80 Interchange

An existing congestion analysis is shown in Figure 2. This congestion analysis is based on daily traffic volumes and roadway capacity (capacity is based on facility type and number of lanes). Actual congestion occurs at intersections based on intersection geometrics (number of through and left and right turn lanes) and traffic control (stop sign or signal control). Not all localized intersection

congestion is represented in this area-wide planning level analysis.

### **Definition of Traffic Congestion**

Planners and engineers use a measurement called level of service (LOS) to gauge the adequacy of transportation facilities. Similar to grades in school, LOS is scored using letters from A to F, where A represents the best conditions and F represents failure. Level of service scores can be grouped into three color-coded categories as defined below:

- **Uncongested (Level of Service A - C):** Corridors that generally operate in free-flow conditions, where the driver tends to be able to travel without undue delay except for typical traffic control operations, such as stop signs or traffic signals. During the peak hour, there might be some delay at a controlled intersection, but generally the driver can get through the intersection within one cycle of the traffic signal.
- **Congesting (Level of Service D):** These corridors are roadways where the driver can generally travel in free-flow conditions during the off-peak hours, but might experience having to wait more than one cycle at a signalized intersection during the peak hours. Because these corridors have existing traffic volumes approaching capacity, there can be significant variations in congestion from day to day, fluctuating between acceptable and congested.
- **Congested (Level of Service E - F):** The congested corridors in the Cheyenne Area are those roadways where traffic volumes have either reached or exceeded the facility's capacity to accommodate these volumes. These facilities experience daily congestion delays where it is not uncommon that a driver might have to wait two or more signal cycles to get through the intersection.

## Computing Level of Service – A Technical Methodology

Level of service is calculated based on two primary inputs. First, traffic counts or travel model volumes are compared to a set of roadway capacities. These capacities, shown below, are used to create an initial level of service analysis. Next, the level of service analysis is reviewed for extenuating circumstances such as portions of Dell Range Boulevard where access control issues cause congestion. The existing conditions level of service analysis has been reviewed by planners and engineers to ensure that it represents a realistic representation of congestion in Cheyenne today. Comments generated from this review were also taken into consideration when preparing forecast level of service analyses.

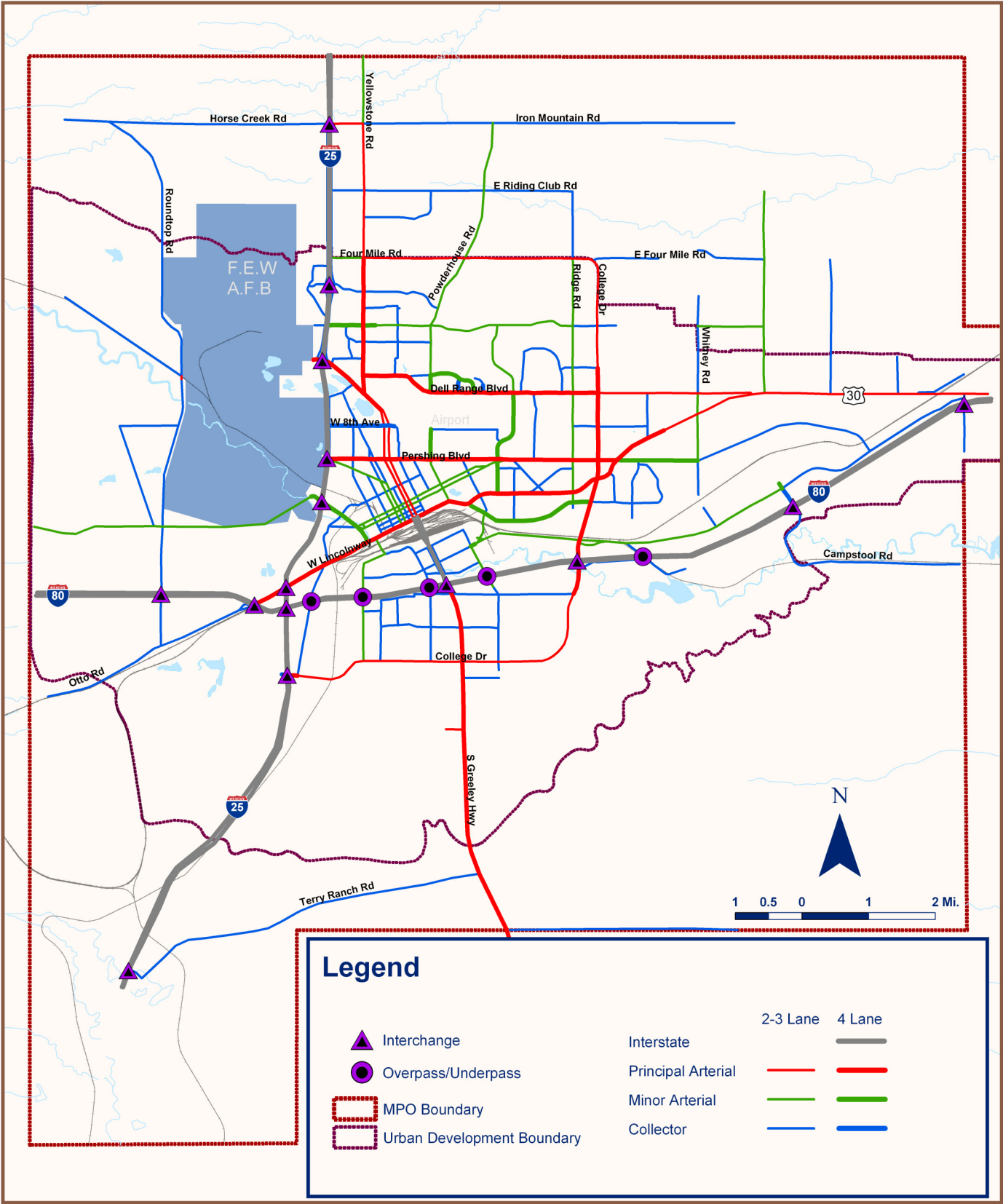
Level of service capacities are based on upper-limit Level of Service E capacity for each facility type – the volume where a roadway transitions from Level of Service E to Level of Service F (failure). Although these capacities are based on daily traffic volumes, they incorporate a peak-hour factor. The resulting level of service calculations are representative of peak-hour conditions. These capacities are further broken down based on volume to capacity ratio (V/C) cutpoints as shown in the table below.

**Upper Limit Level of Service Capacities**

|  | A      | B      | C      | D       | E       | F   |
|--|--------|--------|--------|---------|---------|-----|
| <b>Upper Limit V/C Cutpoints</b>                             |        |        |        |         |         |     |
| Freeways   | 0.31   | 0.50   | 0.71   | 0.87    | 1.00    | n/a |
| Arterials/Collectors   | 0.51   | 0.67   | 0.79   | 0.90    | 1.00    | n/a |
| <b>Freeway/Interstate (Daily Capacity Per Lane - 20,000)</b> |        |        |        |         |         |     |
| 4 Lane   | 24,800 | 40,000 | 56,800 | 69,600  | 80,000  | n/a |
| 6 Lane   | 37,200 | 60,000 | 85,200 | 104,400 | 120,000 | n/a |
| <b>Principal Arterial (Daily Capacity Per Lane - 9,000)</b>  |        |        |        |         |         |     |
| 2 Lane   | 9,200  | 12,100 | 14,200 | 16,200  | 18,000  | n/a |
| 4 Lane   | 18,400 | 24,100 | 28,400 | 32,400  | 36,000  | n/a |
| 6 Lane   | 27,500 | 36,200 | 42,700 | 48,600  | 54,000  | n/a |
| <b>Minor Arterial (Daily Capacity Per Lane - 7,000)</b>      |        |        |        |         |         |     |
| 2 Lane   | 7,100  | 9,400  | 11,100 | 12,600  | 14,000  | n/a |
| 4 Lane   | 14,300 | 18,800 | 22,100 | 25,200  | 28,000  | n/a |
| <b>Collector (Daily Capacity Per Lane - 6,000)</b>           |        |        |        |         |         |     |
| 2 Lane   | 6,100  | 8,000  | 9,500  | 10,800  | 12,000  | n/a |
| 4 Lane   | 12,200 | 16,100 | 19,000 | 21,600  | 24,000  | n/a |

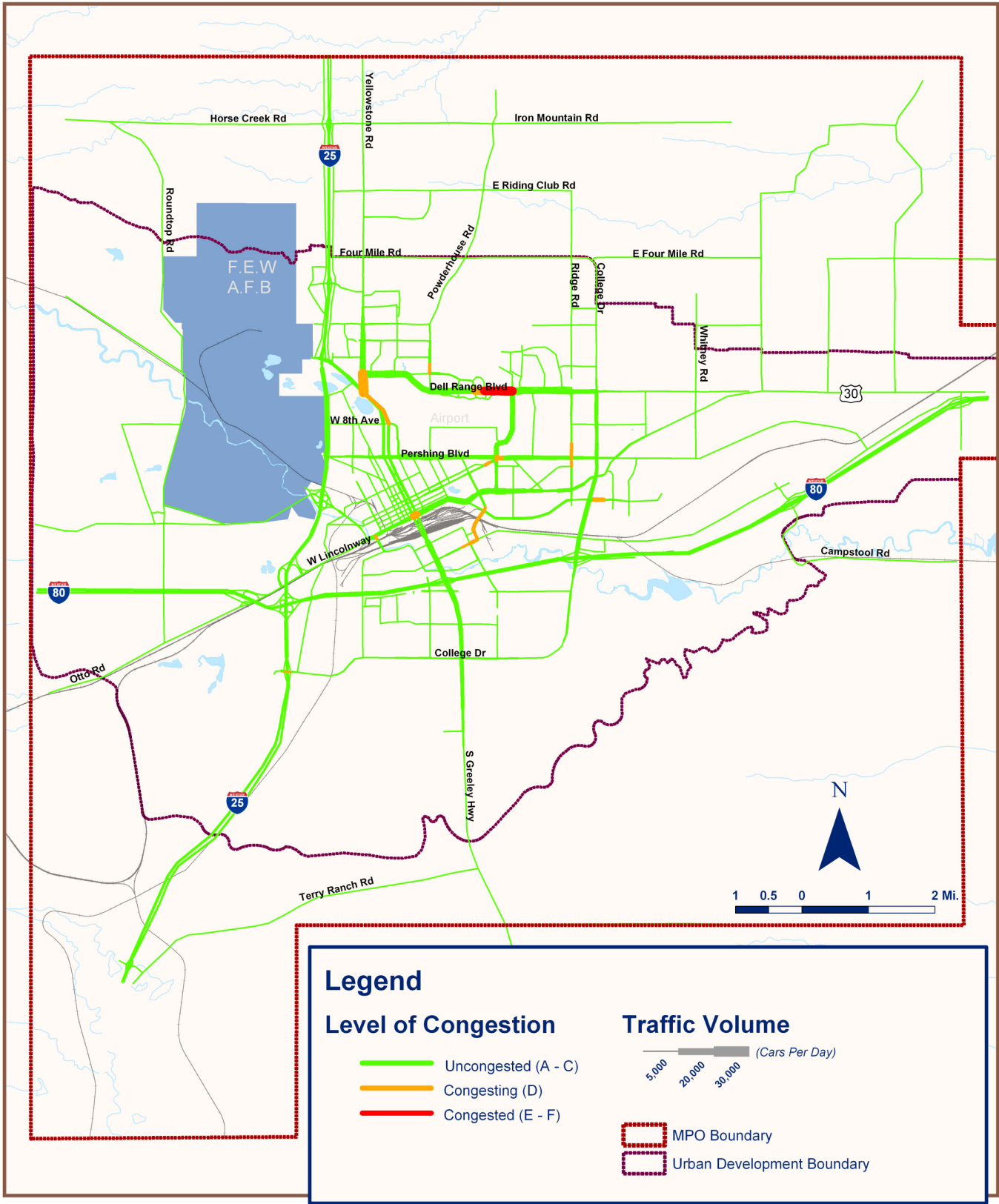
**Example:** A 4 lane principal arterial is considered congested (LOS E) when the traffic volume exceeds 32,400 vehicles per day.

Figure 1: Existing Roadway Network



*This map presents the major streets as they exist today*

**Figure 2: Existing (2000) Traffic Volumes and Level of Service**



**Areas in Cheyenne that currently experience some traffic congestion are shown in red or orange on this map. Thicker lines indicate higher traffic flows.**



The City of Cheyenne maintains a comprehensive daily traffic count program which is used for evaluating traffic congestion and for assessing trends in traffic growth. Daily traffic volumes for the year 2000 are presented graphically in Figure 2. The relative traffic volumes are presented by different line widths, where a wider line indicates a higher number of vehicles counted. As would be expected, Lincolnway, Dell Range Boulevard, Pershing, Yellowstone, Central Avenue, and Warren experience the higher daily traffic flows within the City.

### **Transit**

Cheyenne's current transit service, provided by the Cheyenne Transit Program, offers good coverage throughout the City. Approximately 70% of Cheyenne Area households are within a quarter mile of a transit line. Similarly, over 85% of jobs in the region are within a quarter mile of a transit line. With the current system, transit is an available mode for a large majority of Cheyenne residents.

The overall system utilizes 24 buses and 3 trolleys and is run by 19 full-time employees and 20 part-time drivers. The system is growing rapidly – experiencing growth in ridership of about 14% for the last two years. Recent growth has prompted the construction of a new bus facility that should be completed by January of 2007.

Buses run hourly on the six routes shown in Figure 3 from 6:00 am to 6:00 pm Monday through Friday. All routes consist of one-way loops that all stop at a downtown transfer center where schedules are coordinated to accommodate quick transfers. One way fares are one dollar and allow for free transfers. The Cheyenne transit program's fixed route system serves about 170,500 passengers per year.

The Cheyenne Transit Program also provides curb-to-curb dial-a-ride service. This service runs on Monday through Saturday by advance reservation. The dial-a-ride service serves over 23,300 riders annually.



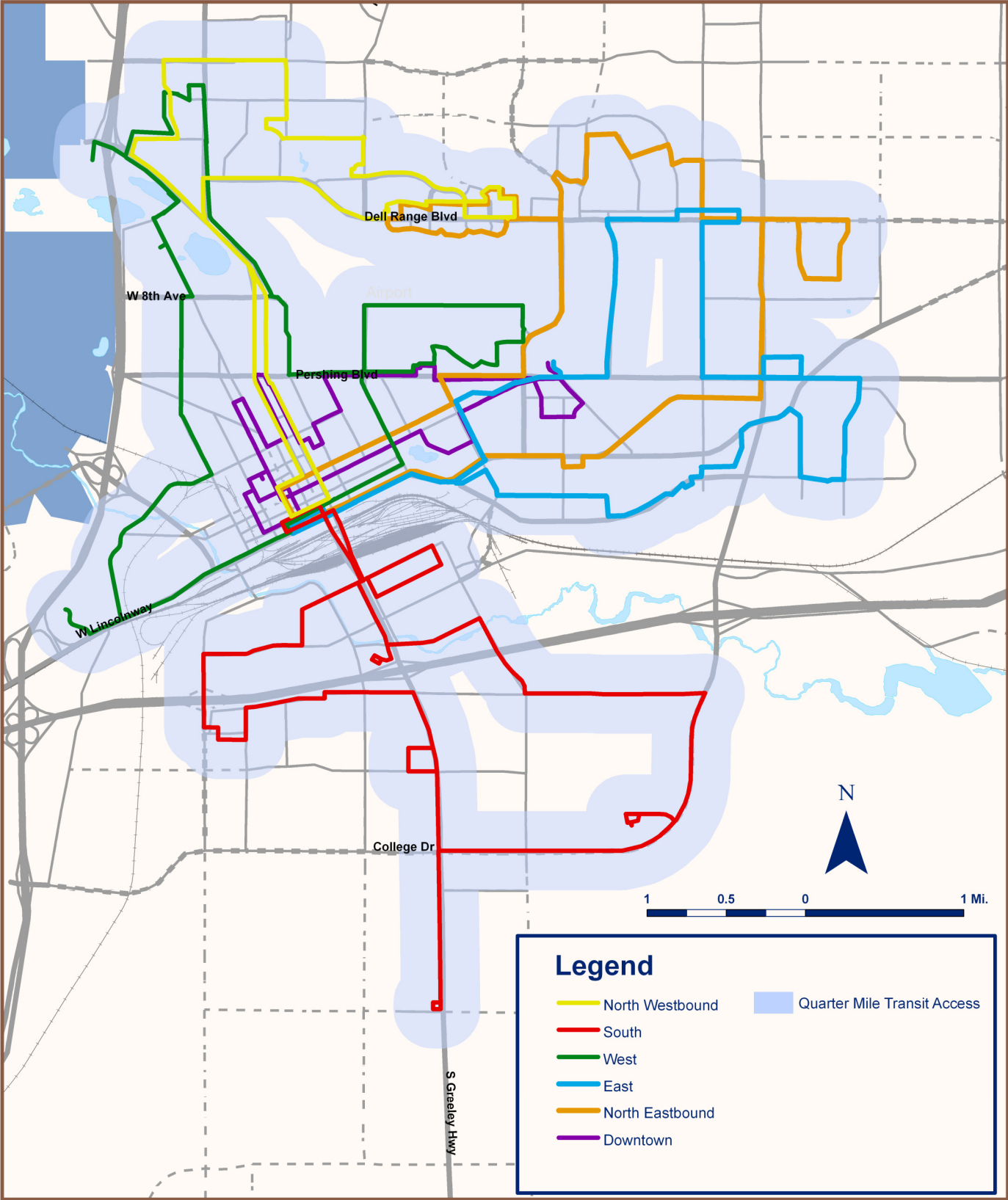
**A Cheyenne Transit Program Bus**

### **Bicycle and Pedestrian**

Increased walking and bicycling in a community has positive effects on air quality, physical health, and when used extensively, traffic congestion. While pedestrian facilities vary throughout the city, Cheyenne's official bicycle system is limited and consists of mostly on-street bike routes with no separate lanes for bicycles. The City also has several greenway corridors that include paths such as Dry Creek Greenway, Crow Creek Greenway, and the Allison Draw Greenway. In addition, Cheyenne's bicycle network includes a few shared-use facilities and some on-street bike lanes.

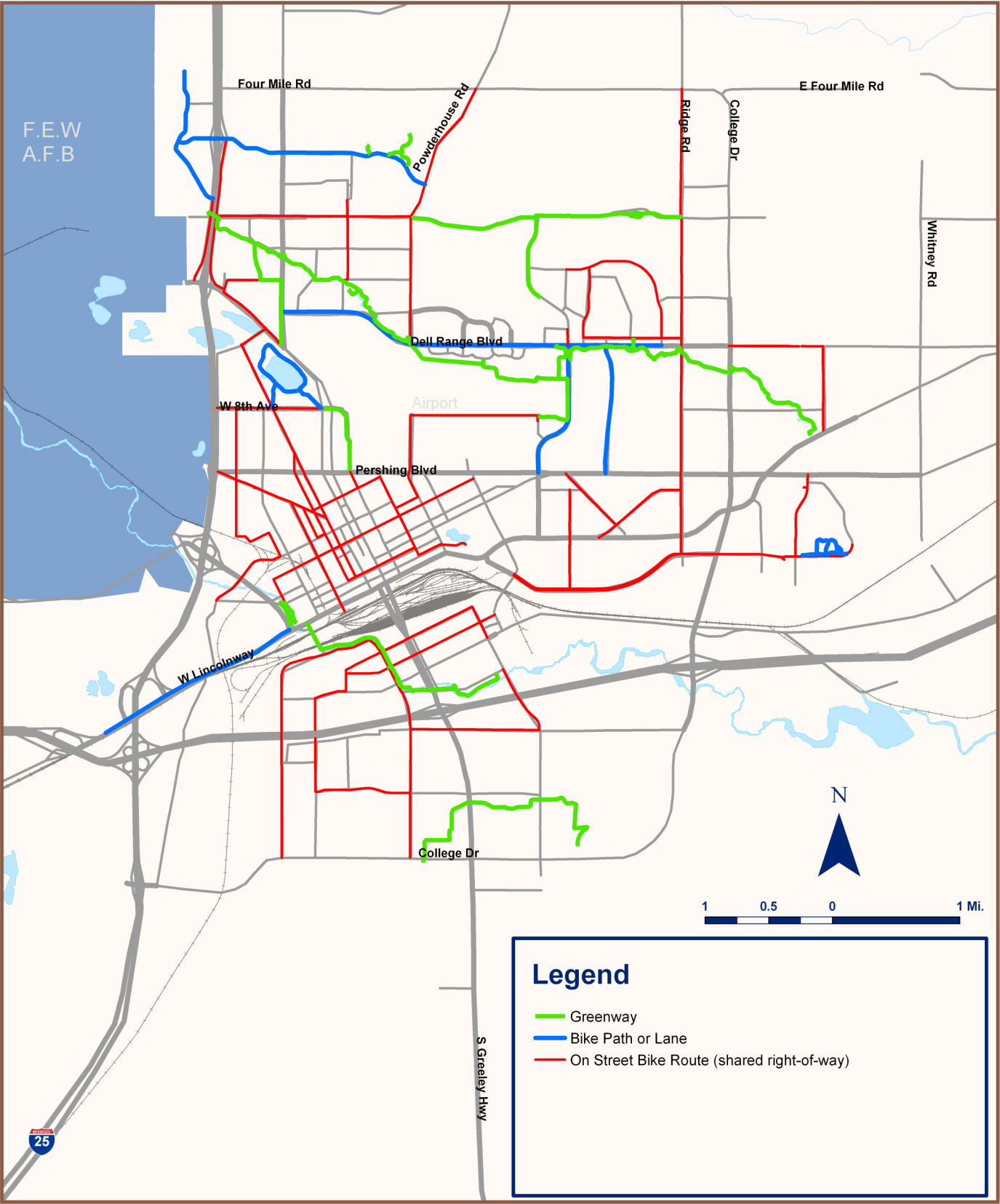
The City has several key transportation corridors that do not adequately provide for bicycle travel. Examples include Pershing Blvd., the South Greeley Highway/ Central Ave. corridor, and College Dr. Also many intersections in Cheyenne are not conducive to bicycle travel. The existing bicycle network in Cheyenne is shown in Figure 4.

Figure 3: Existing (2006) Transit System



*This map presents the current transit service in Cheyenne. Buses depart from the downtown transfer station every 60 minutes. Areas withing 1/4 mile of transit are shaded.*

Figure 4: Existing Bicycle Network



*This map presents the bicycle facilities in Cheyenne as they exist today.*



# PLAN CHEYENNE



## WATER FACILITIES:

Municipal ownership - Gravity system installed.  
Source of Supply, Crow Creek & Troutfork Reservoirs,  
located about 25 miles west of Town in G.  
Capacity of Storage Reservoirs as follows:

North Crow Reservoir

Granite

Crystal Lake

35 miles of cast iron supply line capacity 30 to 4 million gallon distributing reinforced 44 miles west of & elevated 301 above Town Reservoir, supplies the 4' 6", 6", 8", 9", 6" & 4" the mains laid 808 to 811 incl. - Average daily Gravity pressure 100 Lbs. per Sq. inch. 1932 Pumping Plant Situated at west 15th & Dill Auxiliary -

## FIRE DEPARTMENT:

Paid - 2 Companies, Chief & 16 Men. Co. A 1917 wagon, 2000 25' Cotton Horse - Co. A 1912, One Graham Lyster Combination Horse & Calf Truck fully equipped - One Seelye's Comb. Wagon - One Hose Wagon in reserve - 5000 Gallon well fire alarm system of 36 Boxes. Grades as shown - Fire Limits indicated by as shown -





# PLANCHEYENNE

## Developing a Connected & Diverse Transportation System



# PLAN CHEYENNE

## Cheyenne Area Transportation Master Plan

# Structure



November 2006

CHEYENNE METROPOLITAN PLANNING ORGANIZATION

CLARION - LSA - EDAAW - AVI





# PLAN CHEYENNE



## WATER FACILITIES:

Municipal ownership - Gravity system installed.  
Source of Supply, Crow Creek & Troutfork Reservoirs,  
located about 25 miles west of town in G  
Capacity of Storage Reservoirs as follows:

North Crow Reservoir

Granite

Crystal Lake

35 miles of cast iron supply line capacity 30  
to 4 million gallon distributing reinforced  
45 miles west of & elevated 301 above Town  
Reservoir, supplies the 40", 30", 24", 20", 18" & 16"  
the mains laid 808 to 811 incl. - Average daily  
Gravity pressure 100 lbs. per sq. inch. 1932  
Pumping Plant Situated at west 15th & 8th  
Avenue.

## FIRE DEPARTMENT:

Staff - 2 Companies, Chief & 14 Men. Co. A & B  
wagons, 2000 25' Cotton Horse - Co. A & B, City  
One Graham Lifter Combination Horse & C  
Truck fully equipped - One Seelye's Com  
Wagon - One Hose Wagon in reserve - 5000  
Gallons fire alarm system of 36 boxes  
Grades as shown - Fire Limits indicated by  
as shown -



# Welcome

The structure section of the Transportation Master Plan presents a series of design principles and strategies. These transportation-specific guidelines compliment design principles presented in the *Community Design Handbook*. Many of the design principles presented here are based on more detailed information provided in the Cheyenne Road, Street, and Site Planning Design Standards.

The following pages illustrate principles and strategies that contribute to the functionality and aesthetics of the multi-modal transportation system. In general, these principles apply to areas that are “public,” such as streets, sidewalks, and intersections. In many cases, these public places are designed and constructed by developers, so implementation of design principles will require cooperation with private developers. Because elements in the public realm are typically adjacent to privately owned properties, it is important that both the private and public sector collaborate in creating an efficient multimodal transportation system in Cheyenne.

Information is provided in the following sections:

1. **Design Principles for a Multimodal Transportation System** provide guidelines in building a transportation system for all modes.
2. **Multimodal Design Guidelines for New Development** illustrate steps that can be taken to create developments that are compatible with all modes of transportation and interconnect with the multi-modal street system.
3. **Structure Elements** repeat information from the Land Use plan that are relevant to transportation.
4. **Congestion Management Strategies** present methods that can be used to make efficient use of the roadway system.





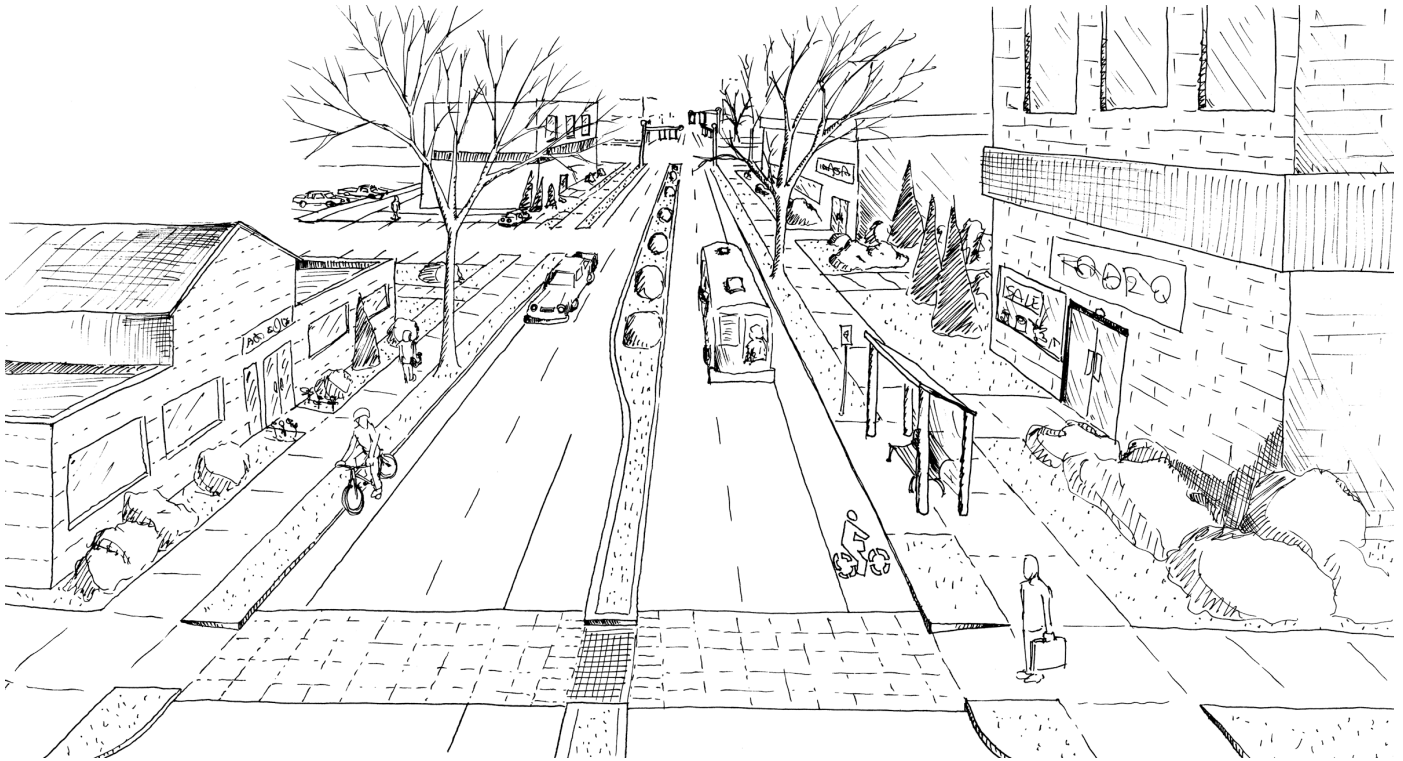
# DESIGN PRINCIPLES FOR A MULTIMODAL TRANSPORTATION SYSTEM **1**

**To the maximum extent feasible, pedestrian design features should be incorporated in the design of all new developments to ensure safe and convenient pedestrian access into and within the site, with minimum potential for conflict with motor vehicles. These design elements complement the five measures of pedestrian level of service: directness, continuity, street crossings, visual interest and amenity, and security.**



## Complete Streets

*Provide facilities for all modes of transportation on or adjacent to streets.*



### Principles

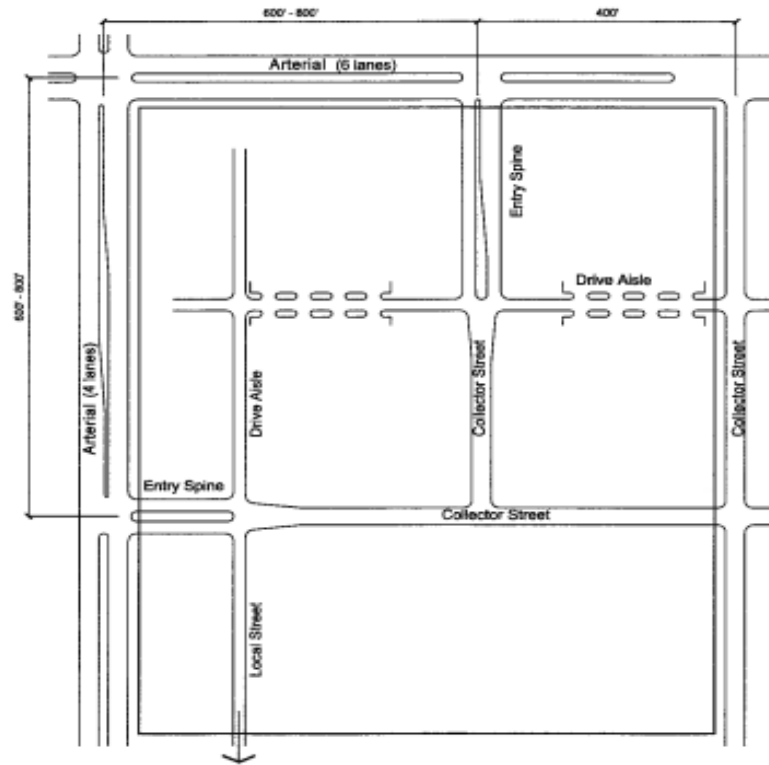
- Provide sidewalks either separated by a park strip or sufficiently wide to provide for pedestrian safety on all new roadways.
- Build bicycle facilities on all new roadways and retrofit existing roadways with major reconstruction projects.
- Provide safe pedestrian crossings at intersections.
- Build corridors that will be conducive to transit, even if transit is not currently available.
- Integrate Complete Streets with high density or mixed-use activity centers to create multimodal corridors.

### WHY ARE THESE PRINCIPLES IMPORTANT?

- Construction of sidewalks and bike facilities on all new streets makes them available to travelers using all modes.
- Inclusion of safety features for pedestrians can encourage more trips to be made on foot or transit.
- Roadways and adjacent developments that are designed to accommodate transit can host more successful transit routes in the future.
- When paired with higher-density or mixed-use development, complete streets can serve even more walk, bike, and transit trips.

## Mixed-Use Activity Centers

*The land use portion of PlanCheyenne identifies a number of mixed-use activity centers. The transportation impacts of these centers must be considered.*



### Design Principles

- Designed activity centers in a manner that is compatible with the surrounding arterial roadway system.
- Build activity centers on only one corner of a major intersection and limit impacts to arterial traffic operations.
- Space signalized major access points at least 600 feet from major arterial intersections. Space signals in a manner that enables optimal signal progression.
- Confine minor access points, if permitted at all, to a right-in/right-out or 3/4 configuration (i.e. prohibit left turns).

### WHY ARE THESE PRINCIPLES IMPORTANT?

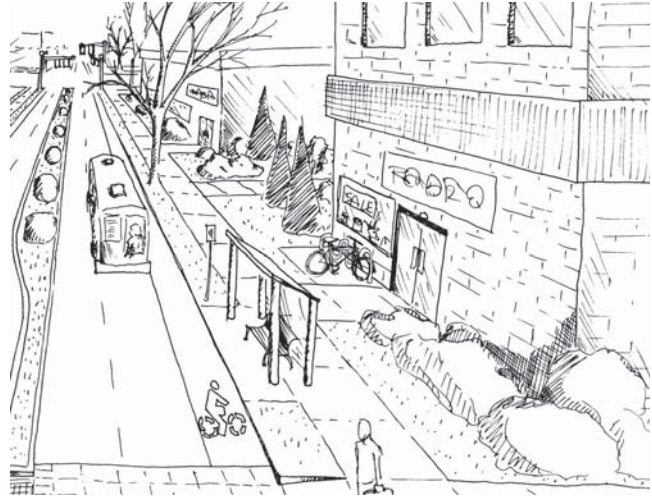
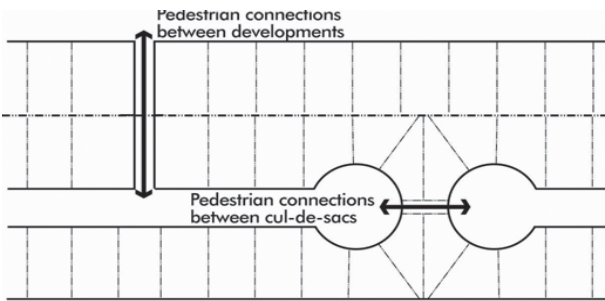
- Activity centers placed on more than one corner of an intersection may require pedestrians to cross major arterial streets to travel between different parts of the activity center.
- High density development on more than one corner of an intersection may overload the intersection with traffic and cause congestion.
- Enough space must be left between access points and intersections to facilitate adequate turn lanes and provide room for traffic queuing.
- Signalized access points should compliment, not interfere with, signal timing plans.
- Unsignalized access points can pose a safety risk.

# Design Principles for a Multimodal Transportation System

1

## Directness

*Provide and encourage direct pedestrian connections.*



### Design Principles

- Provide direct and visible pedestrian connections to transit, schools, activity areas, public facilities, and within neighborhoods.
- Ensure that sidewalk uses, such as sidewalk cafes, are compatible with direct pedestrian access to buildings and other destinations.
- Avoid barriers such as fences, walls, and cul-de-sacs that separate commercial developments, residential developments, and transit.
- Where barriers exist, provide pedestrian access through these barriers.
- Provide clearly visible building entrances from the street instead of or in addition to parking lot entrances to facilitate direct pedestrian access to buildings.

### WHY ARE THESE PRINCIPLES IMPORTANT?

- Distance is one of the critical determining factors for pedestrian trips. Direct pedestrian connections reduce walking distance and increase the opportunity for a pedestrian trips.
- Direct connections to transit stops promote increased transit use.
- Direct access to businesses and neighborhoods makes pedestrian travel more attractive.

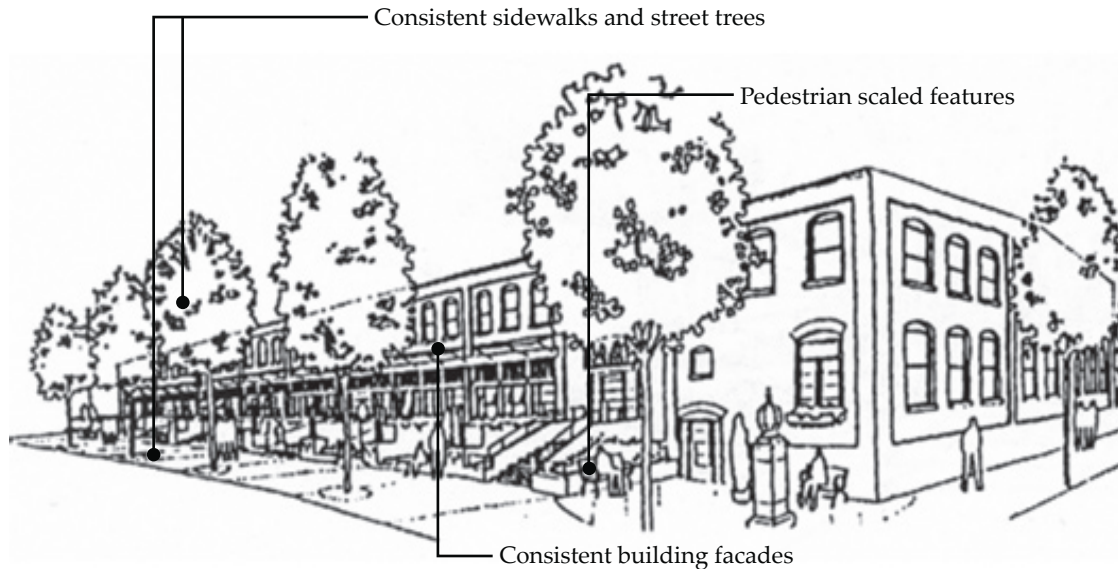


# Design Principles for a Multimodal Transportation System

1

## Continuity

*Link schools, neighborhoods, parks, activity centers, and other destinations with a continuous pedestrian network.*



### Design Principles

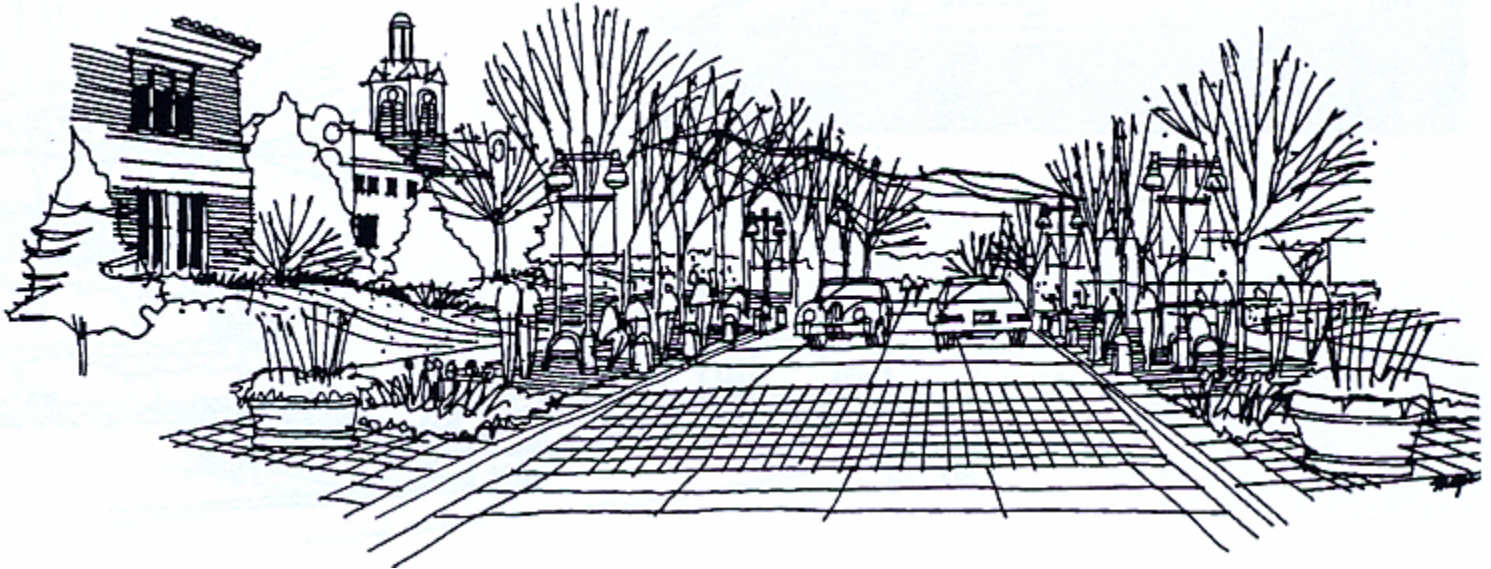
- Provide a continuous and understandable pedestrian network by ensuring consistency in sidewalks, building facades, park strips, and street trees.
- Use pedestrian scaled furnishings, signs, landscaping, and facilities that appear as unified and themed entities in pedestrian areas.
- Ensure that sidewalk cafes and other uses/features of the sidewalk area support rather than obstruct a continuous pedestrian network.
- Provide bridges and crossings over railroads, rivers, drainages, and other features that are major barriers to a continuous pedestrian network. Design these crossings to minimize out of direction travel.

### WHY ARE THESE PRINCIPLES IMPORTANT?

- Continuous pedestrian facilities reduce conflicts between automobiles and pedestrians.
- If there is a system of sidewalks where there might exist just one breach in the sidewalk continuity where a pedestrian might have to walk in the street, the pedestrian continuity is lost and the pedestrian trip might not be made.
- Consistency within a pedestrian area increases pedestrian comfort levels.

## Street Crossings

*Provide safe, visible, and easy to use street crossings that will accommodate all potential users.*



### Design Principles

- Standardize street crossing improvements to include crosswalks, lighting, median refuges, corner sidewalk widenings, sign, signals, and landscaping.
- Improve the visibility of pedestrian crossings with signage, lighting, and pavement markings.
- Install stop bars on all vehicle approaches to signalized intersections where appropriate.
- Design pedestrian crossings to safely accommodate people of all ages and abilities.
- Provide pedestrian crossing signals appropriate to the surrounding area.
- Locate lighting, signal and signage poles so that they not conflict with safe pedestrian circulation and allow access for people of different abilities.

### WHY ARE THESE PRINCIPLES IMPORTANT?

- Standardized street crossing guidelines add to a familiar and consistent pedestrian network which alerts drivers to pedestrians.
- Standardized improvements can help improve pedestrian safety.
- Vehicle/pedestrian conflicts and collisions are less likely to occur if drivers are aware of pedestrian crossings.

# Design Principles for a Multimodal Transportation System

1

## Visual Interest and Amenity

*Develop comfortable and attractive pedestrian facilities and settings to make an interesting pedestrian network (follow ADA Guidelines).*



### Design Principles

- Provide attractive pedestrian-scale facilities and features that fit the context of the area and provide an organized and unified feel.
- Provide attractive lighting fixtures that enhance the character of the pedestrian environment.
- Use quality materials and design, which will minimize maintenance needs. Adequate maintenance must be provided.
- Incorporate landscaping into the design of pedestrian districts. Include street trees which provide for a shade canopy during sunny summer conditions.
- Provide human scale and character to the street with appropriate building design and details such as windows, sidewalk cafes, porches, and balconies.

### WHY ARE THESE PRINCIPLES IMPORTANT?

- People are more likely to walk if the experience is pleasant and the surroundings are attractive.
- Attractive, pedestrian scale features help make a pedestrian district a destination.
- Adequate maintenance is vital to preserving the character of a pedestrian district.
- Landscaping can help provide shade, shelter, and scale in the pedestrian environment.
- Appropriate building design helps connect the outdoor pedestrian network with homes and businesses.



# Design Principles for a Multimodal Transportation System

1

## Security

*Develop secure pedestrian settings by developing a well-lit inhabited pedestrian network and by mitigating the impacts of vehicles (follow ADA Guidelines).*



### Design Principles

- Accommodate human activity by providing elements such as balconies, terraces, and windows.
- Provide clear and direct lines of sight in pedestrian settings by minimizing the use of vertical features.
- Use lighting fixtures to identify and highlight key pedestrian facilities and elements. Provide physical buffers/edges between sidewalks and streets/parking lots.
- Avoid high-intensity direct lighting in pedestrian areas.

### WHY ARE THESE PRINCIPLES IMPORTANT?

- The appearance of human activity increases the safety of a pedestrian area.
- Clear and direct lines of sight to other pedestrians or vehicles traveling along a roadway minimize fears of hidden dangers.
- Lighting enhances security and safety in pedestrian areas.
- High-intensity or direct lighting can cause glare or create shadowy areas which may be threatening to pedestrians.



# MULTIMODAL DESIGN GUIDELINES

## FOR NEW DEVELOPMENT 2

The Cheyenne Road, Street, and Site Planning Design Standards provide guidelines to promoting a pedestrian and bicycle friendly environment. The following section summarizes key elements of these guidelines and includes illustrations that compare typical developments to bicycle and pedestrian friendly developments.

### **Some important characteristics of pedestrian friendly development include:**

- Sidewalks separated from the street with a park strip and bicycle facilities on all collector and arterial streets.
- Safe and convenient pedestrian and bicycle access from the development site to existing, planned, and proposed trails or greenways located on or adjacent to the development site.
- Connections providing direct pedestrian and bicycle access from the development to adjacent neighborhoods, including but not limited to parks, schools, commercial districts, and transit stops. These connections are not necessarily associated with a street.
- On-site or off-site pedestrian overpasses, underpasses, or pedestrian-oriented traffic signalization if appropriate.
- On-site amenities in pedestrian districts such as landscape/hardscape, benches, pedestrian lighting. Street trees to provide a canopy from summer sun and heat.
- In commercial developments, canopies in front of stores to offer weather protection.
- In commercial developments, major entry driveways separated from areas where pedestrians must cross.

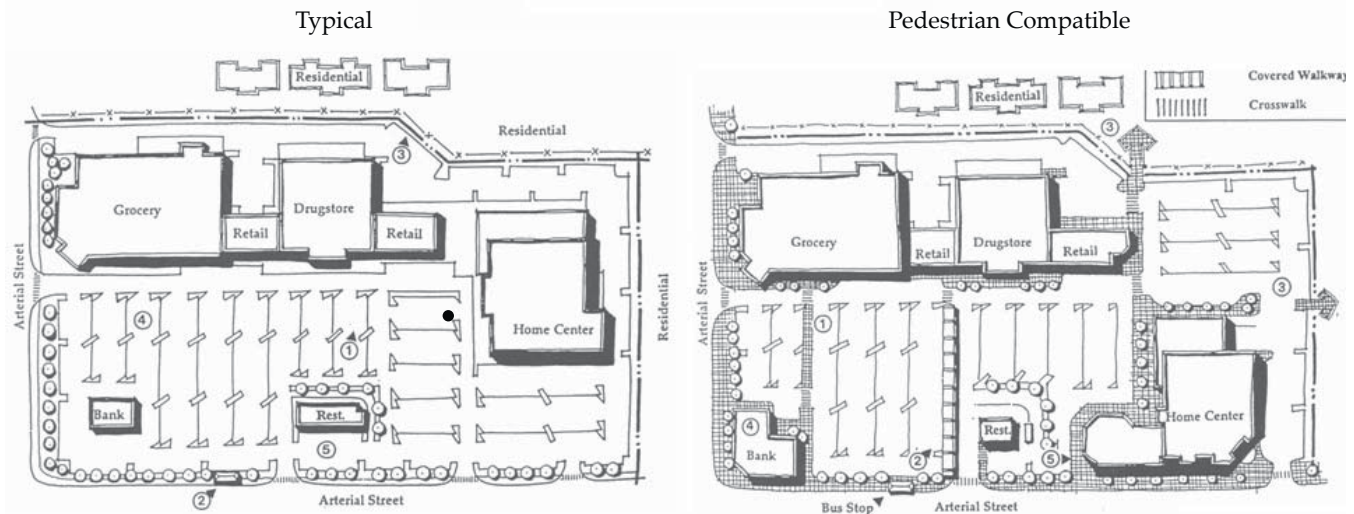
### **Characteristics unfriendly to pedestrians and bicyclists include:**

- Large setbacks with parking in the front that create separation and distance from the building activity to the street;
- Lack of sidewalks;
- Unsafe or indirect pedestrian access to transit stops; and
- Barriers separating adjacent neighborhoods.

### **Illustrative Comparison**

The exhibits on the following pages provide examples of typical developments as compared to developments with pedestrian compatible improvements. These examples illustrate the same development yield for the site, illustrating that good pedestrian connections and development opportunities are compatible and efficient.

## Commercial Retail Shopping Center



### Design Guidelines

- Provide dedicated sidewalks connecting businesses within the development, surrounding the development, and connecting the development to nearby neighborhoods.
- Provide access through barriers separating the development from adjacent neighborhoods.
- Eliminate or minimize large setbacks.

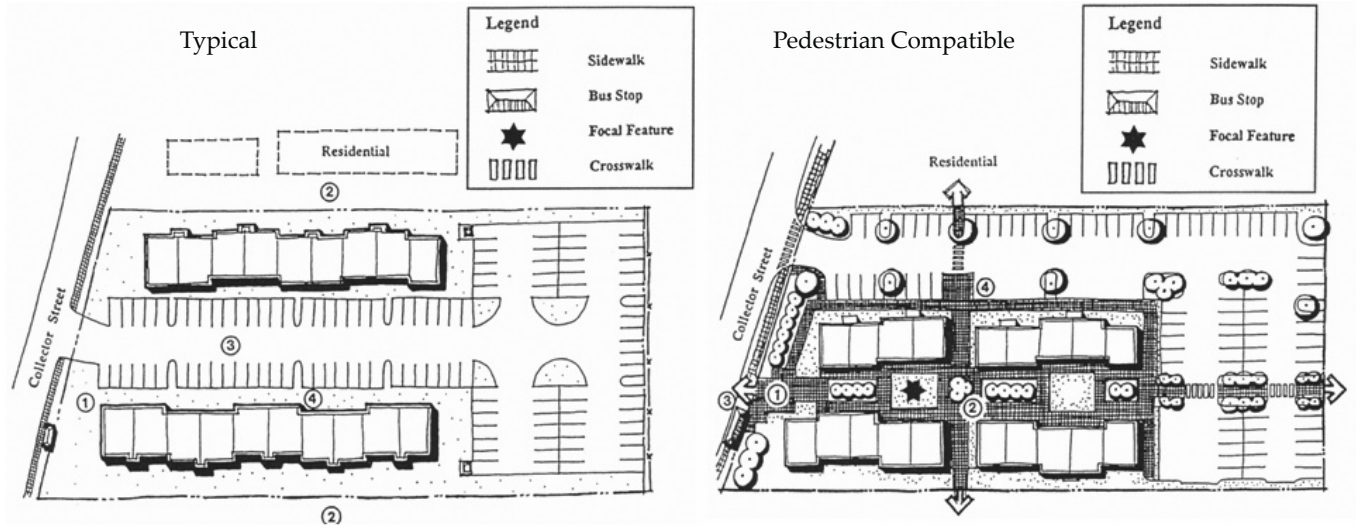
### WHY ARE THESE GUIDELINES IMPORTANT?

- Dedicated sidewalks improve safety by eliminating vehicular and pedestrian conflicts and create pedestrian comfort. They also make a statement that a pedestrian is welcome.
- Access through barriers, such as fences, reduces the distance required to walk from nearby neighborhoods.
- Large setbacks occupied by vast parking lots separate businesses from the street and are less inviting to pedestrians.

# Multimodal Design Guidelines for New Development

2

## Multifamily



### Design Guidelines

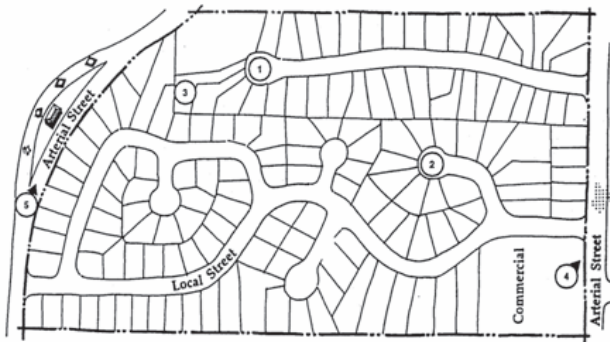
- Provide dedicated sidewalks connecting units within the complex.
- Provide dedicated sidewalks connecting the complex to nearby transit stops, neighborhoods and businesses.
- Provide access through barriers separating the complex from adjacent neighborhoods.
- Include visually appealing landscaping and architecture.

### WHY ARE THESE GUIDELINES IMPORTANT?

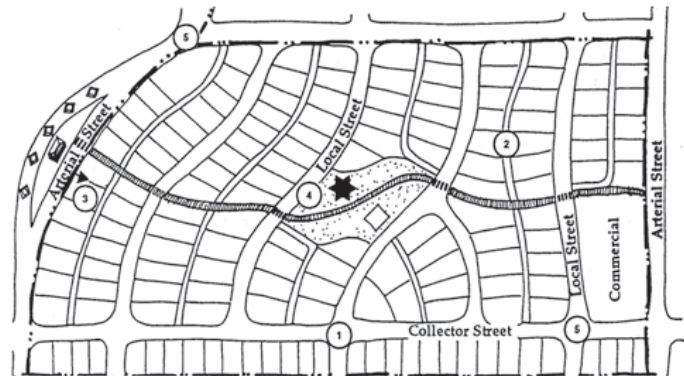
- Dedicated sidewalks improve pedestrian comfort and create a cohesive connection between buildings.
- Access through barriers, such as walls, reduces the distance required to walk between the apartment complex and nearby neighborhoods and businesses.
- Visually appealing features encourages increased pedestrian activity and sense of community.

## Residential Single Family

Typical



Pedestrian Compatible



### Design Guidelines

- Avoid heavy use of circular or winding road configurations.
- Eliminate or minimize the use of cul-de-sacs. If cul-de-sacs are used, provide additional pedestrian connections.
- Provide direct connections between homes, parks, businesses, transit stops, and schools within the neighborhood. Some of these connections may be pedestrian paths that are not associated with a roadway.
- Provide access through barriers separating the neighborhood from adjacent neighborhoods and businesses.

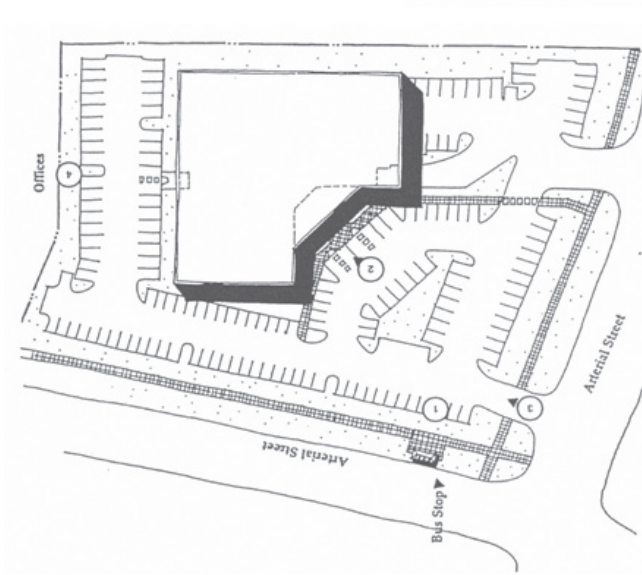
### WHY ARE THESE GUIDELINES IMPORTANT?

- Circular or winding roadway configurations can vastly increase the walking distance between homes in a neighborhood.
- Cul-de-sacs tend to increase the walking distance between homes in a neighborhood and to nearby businesses.
- Pedestrian paths can be used to reduce the distance between homes and neighborhood destinations such as parks, schools, businesses, and other homes.
- Access through barriers reduces the distance required to walk between the neighborhood and nearby neighborhoods and businesses.

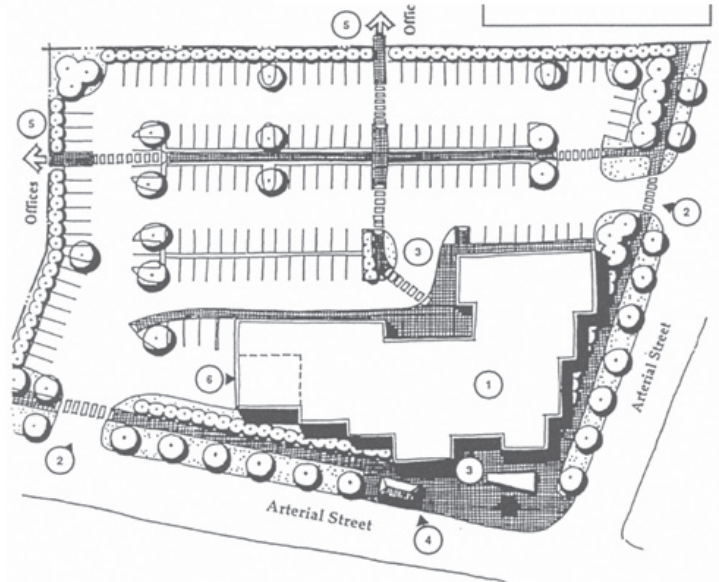


## Office Development

Typical



Pedestrian Compatible



### Design Guidelines

- Locate the main entrances to buildings adjacent to sidewalks.
- Place bus stops near the main entrance in a location that is quickly and directly accessible from the building.
- Provide dedicated sidewalks connecting buildings to nearby neighborhoods, commercial centers, and other office complexes.
- Include visually appealing landscaping and architecture.

### WHY ARE THESE GUIDELINES IMPORTANT?

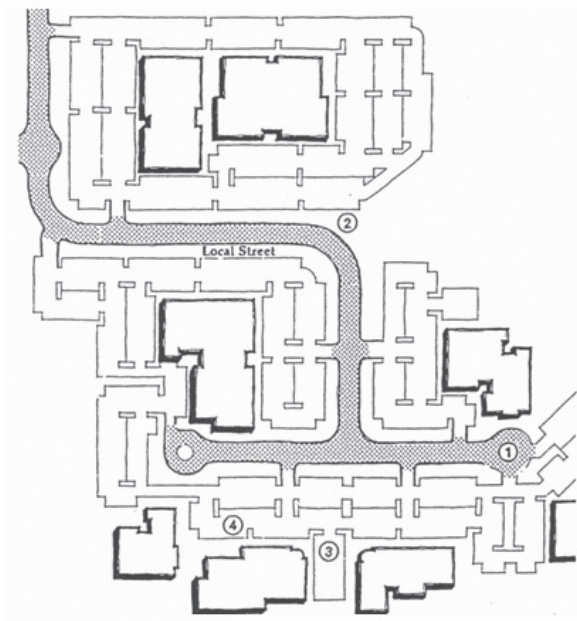
- By placing a main entrance adjacent to a sidewalk, the building is connected to other features adjacent to the sidewalk.
- Sidewalks connecting nearby homes and businesses provide additional opportunity for pedestrian travel.
- Visually appealing features encourage increased pedestrian activity and sense of community within the development.

# Multimodal Design Guidelines for New Development

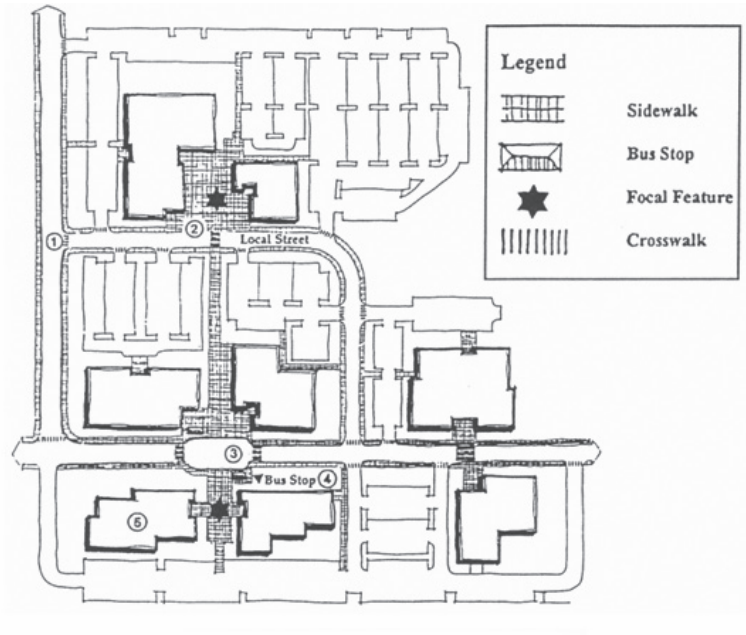
2

## Office/Industrial Park

Typical



Pedestrian Compatible



### Design Guidelines

- Locate the main entrances to buildings adjacent to sidewalks.
- Place bus stops in a central location that is connected to all buildings by a sidewalk system.
- Provide dedicated sidewalks connecting buildings.
- Provide pedestrian connections to nearby public sidewalks and nearby neighborhoods and businesses if appropriate.
- Include visually appealing landscaping and architecture.

### WHY ARE THESE GUIDELINES IMPORTANT?

- By placing building entrances adjacent sidewalks, pedestrian travel is encouraged.
- Sidewalks connecting buildings facilitate better interaction between buildings and help reduce auto trips within the complex.
- A centrally located, accessible bus stop encourages transit use.
- Visually appealing features encourages increased pedestrian activity and sense of community within the park.

# STRUCTURE ELEMENTS 3

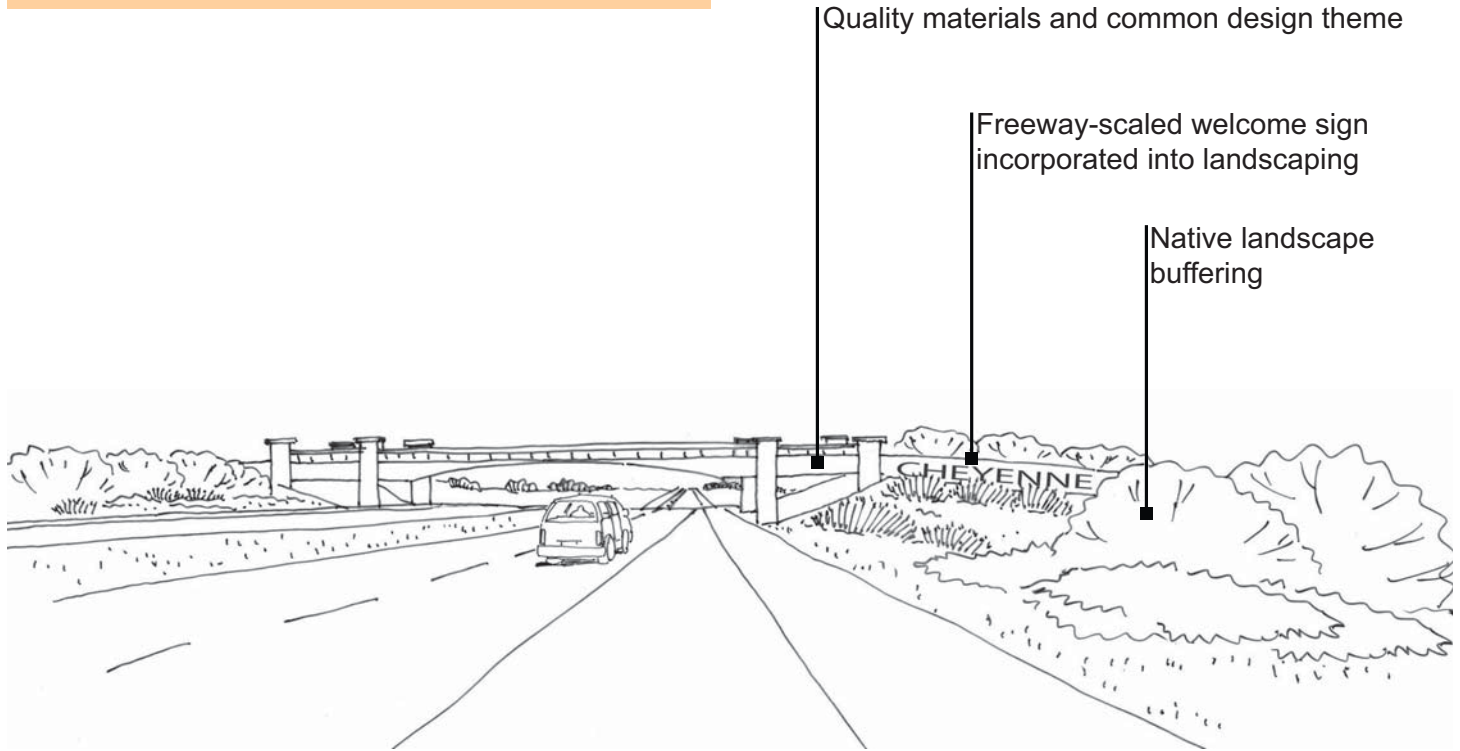
The PlanCheyenne Community Design Handbook in the Structure Phase of the Land Use Plan explored the building blocks that create a community. In developing these building blocks, several transportation elements were identified, including major corridors, gateways to our community as experienced from our interstates, and entrances to special districts in our community. Through an intensive public workshop, key corridors in our community were identified and may serve as a guide in the future when prioritizing streetscape improvements.

The Design Principles illustrate areas of our community where the public and privately owned properties can collaborate to create a positive image for the community. Regional Gateways & Interstate Corridors, Community Gateways, District Gateways, and Major Vehicular Corridors designate the major entrances to our community. As the most traveled places in our community, these gateways and corridors shape the impressions of visitors about our image and identity. Enhanced treatment of these gateways and corridors will help define Cheyenne as a quality place to live and visit, and differentiates Cheyenne from other communities.



### Regional Gateways and Interstate Corridors

*Interstates 25 and 80 as they pass through both developed and undeveloped parts of Cheyenne, including both the interstate highway itself as well as the immediately adjacent landscape.*



#### Design Principles

- Create a consistent, thematic image for regional gateways using landscaping, signage, color, and bridge treatments if appropriate.
- Gateway landscaping should use native or regionally-adapted species that minimize water use.
- Limit or restrict signage along the interstate highways to preserve scenic views.
- Screen residential areas, parking lots, service and storage areas with landscaping, and consider architectural walls to buffer noise.
- Restrict additional billboards along the interstate in the future.

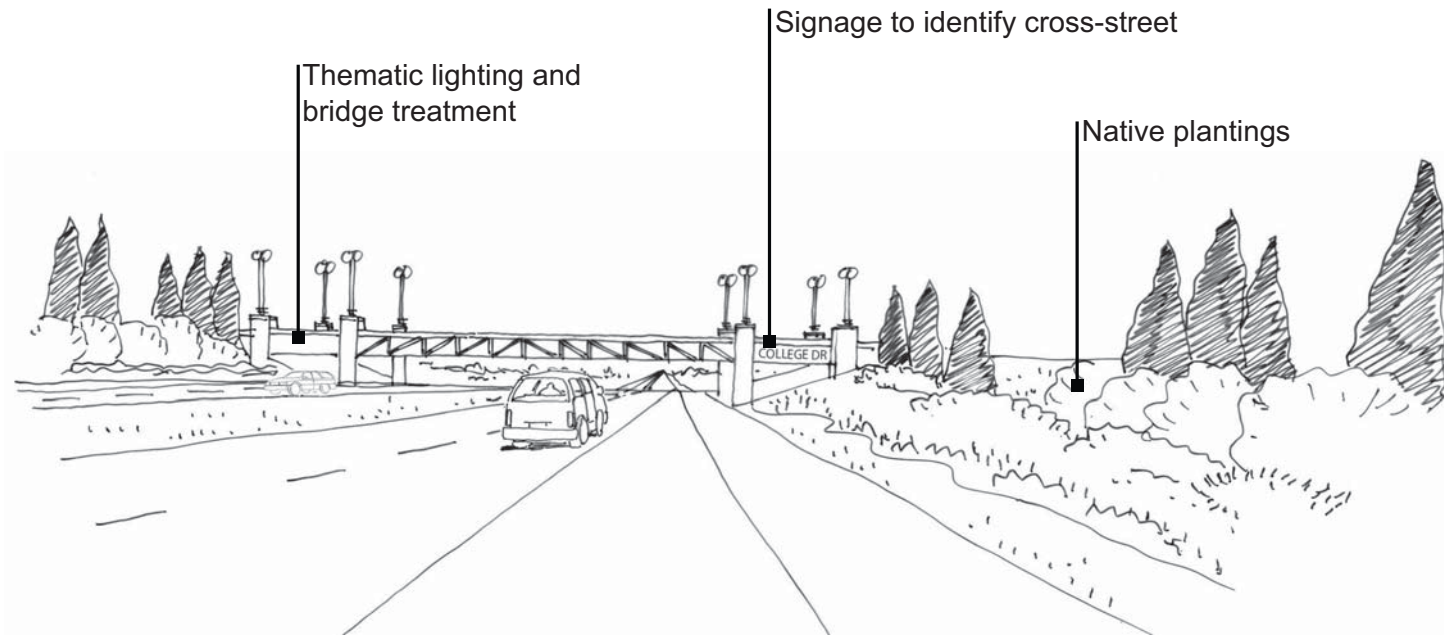
#### WHY ARE THESE PRINCIPLES IMPORTANT?

- As the most traveled places in our community, these gateways and corridors shape the impressions of visitors about our image and identity.
- Due to our dry climate, landscaping is an important feature and helps to create a quality appearance; however, if it is to thrive, it should be carefully selected for our region.
- Long-range views and vistas are part of what makes Cheyenne a unique place.



### Community Gateways

*The entries directly into Cheyenne from either the interstates or major corridors*



#### Design Principles

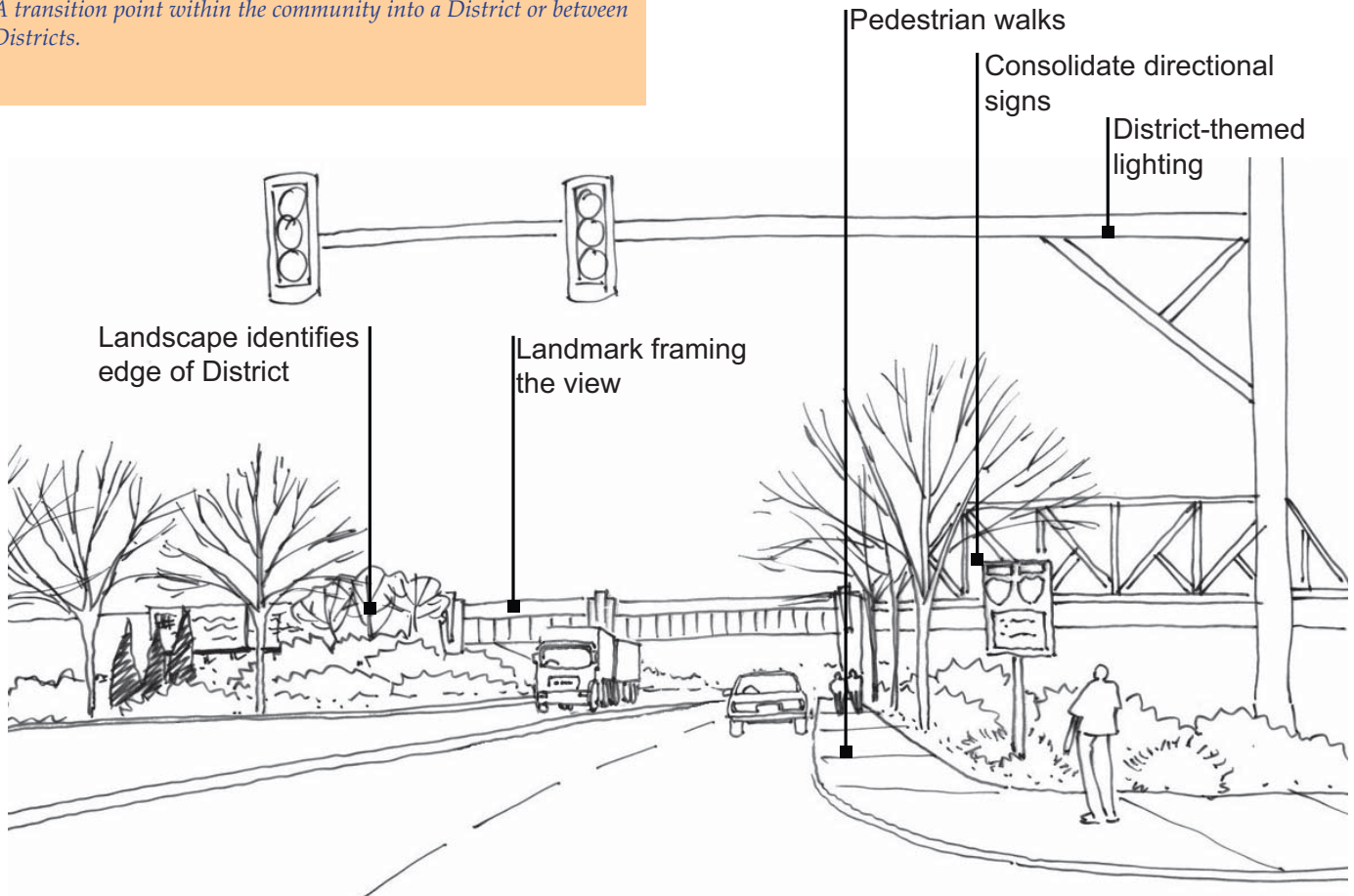
- Enhance overpass bridges with surface treatments (such as stucco, stone or brick), planting, and appropriately-scaled signage.
- Gateway landscaping should use native or regionally-adapted species that minimize water use.
- Create a sense of arrival through the cohesive use of landscape treatments and signage.
- Include “exit” signs that thank visitors for coming to Cheyenne.
- Design signage that identifies businesses without dominating the setting (ground-plane signs rather than tall poles signs).

#### WHY ARE THESE PRINCIPLES IMPORTANT?

- Enhanced treatment of these gateways help define Cheyenne as a quality place to live and visit, and differentiates Cheyenne from other communities.
- Current treatments present a sterile environment that does not present a “proud & positive” image of the City.
- Tall pole-signs stick out in the landscape; low, integrated signs present a positive image for businesses as well as our community.

### District Gateways

*A transition point within the community into a District or between Districts.*



#### Design Principles

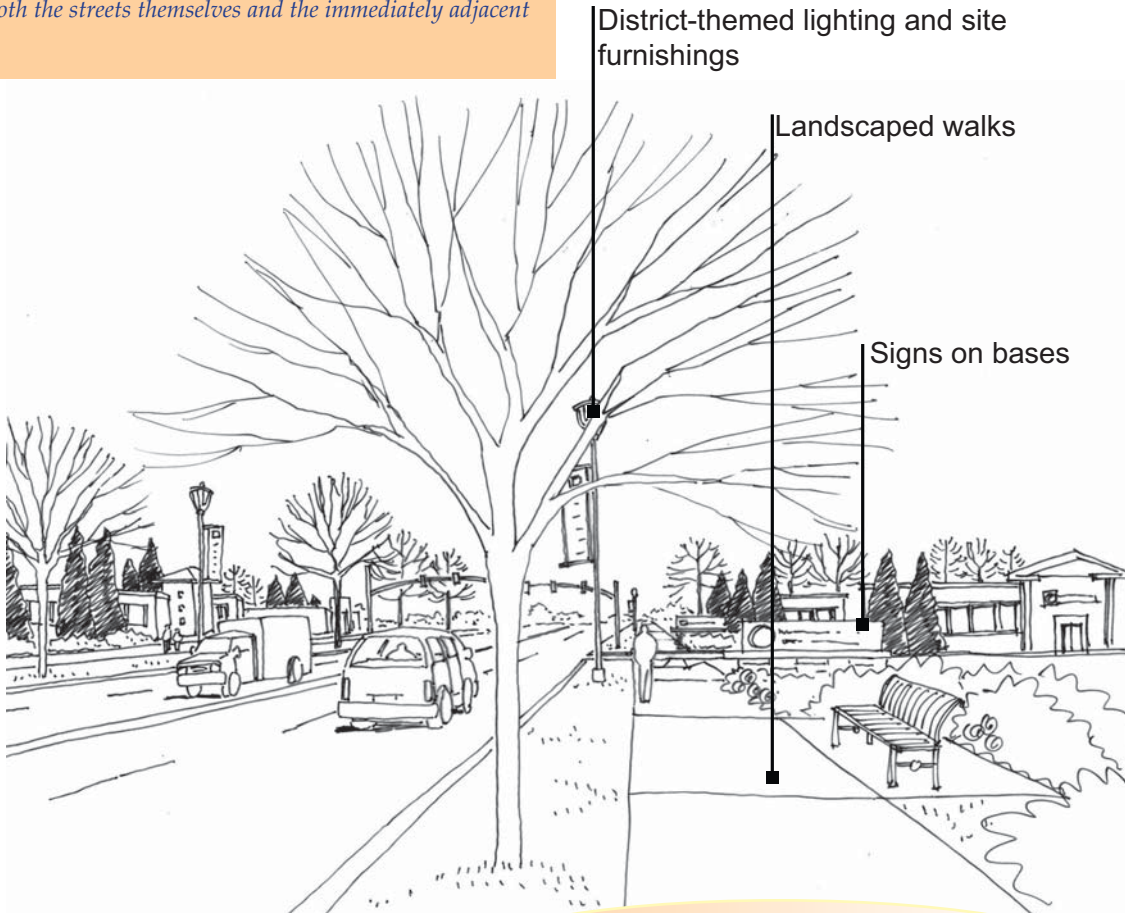
- Announce the entry or passage into a distinct neighborhood or District through the cohesive use of landscape treatments, site furnishings, and signage that reflect the area's design character.
- Use public art or themed elements to help form an identity for the area.
- Coordinate the style and color of light standards, signage, and site furnishings.
- Consolidate directional signs to avoid a cluttered appearance.
- Design at a scale that is appropriate for the setting and the size and role of the District, reflecting existing materials, forms, and massing.

#### WHY ARE THESE PRINCIPLES IMPORTANT?

- Similarly designed & colored benches, trash cans, and other features can help to pull a District Gateway together under a common theme.
- Public art often plays an important role in the unique identity of Districts.
- Consolidated signage is less confusing as well as more visually attractive.
- District Gateways can be defined and/or framed by using a variety of elements, often vertical (such as Lions Park gate).

### Major Vehicular Corridor

Corridors that are significant travel routes for the community, including both the streets themselves and the immediately adjacent landscape



#### Design Principles

- Incorporate landscaped medians to divide travel lanes at intersections in high travel areas.
- Include sidewalks adequate for several people walking, separated from the roadway with landscaping.
- Provide safe and clearly marked pedestrian crossings.
- Design adequate setbacks between the roadway and adjacent uses to buffer the impacts of traffic.
- Design corridors in the character of the Districts through which they pass.
- Include attractive street lighting that is standardized along a corridor, down-directional and dark-sky friendly.
- Enhance the visual quality of roadways by burying overhead utilities.
- Design signage that identifies businesses without dominating the setting or skyline.

#### WHY ARE THESE PRINCIPLES IMPORTANT?

- An oft-mentioned belief during the *PlanCheyenne* process is that the community should be less defined by cars—landscaping can help make our streets more walkable.
- Safety for pedestrians is also an important objective if we are to create a more livable community.
- By standardizing a theme along a corridor, other areas can become distinctive districts, like Downtown Cheyenne has become.
- Many residents appreciate the black light posts in the Downtown area, and would like to see more of them in the community.
- If properly designed, signs can be an attraction, not a distraction, for the motorist.



# CONGESTION MANAGEMENT STRATEGIES 4

**Congestion management strategies help to make the most of the roadway system. Potential strategies include informational campaigns, access management, and intelligent transportation systems. By implementing congestion management strategies, the transportation system can be made more efficient. Elements of different congestion management techniques are listed in the pages that follow.**

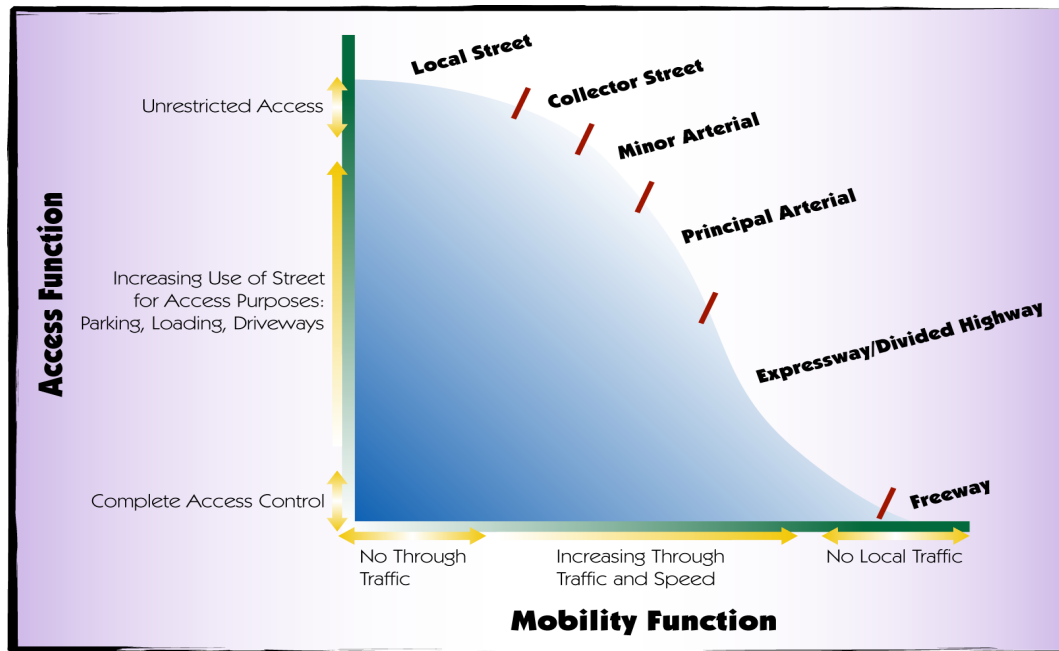


# CONGESTION MANAGEMENT STRATEGIES

## 4

### Access Management

*Access and mobility are two competing functions served by roadways. Mobility and roadway efficiency can be improved by limiting driveway access and reducing intersection frequency.*



#### Elements

- Freeways, arterials, collectors, and local streets are designed to serve two competing functions: mobility and access. Limit access to facilities in accordance with the Cheyenne Road, Street, and Site Planning Design Standards.
- Standards define acceptable spacing between driveways on new principal arterial streets.
- Consolidate driveway access on existing arterial streets to the extent possible. A detailed study will be required for each segment where access is to be consolidated.
- Space signals evenly to help facilitate a properly timed signal system.
- Require business to share access to arterial streets.
- Secure easements to facilitate future sharing of access where shared access is not currently possible.

#### Why Is Access Management Important?

- By limiting access to arterial streets, roadways can be used more efficiently, to minimize costly widening projects.
- Adequate spacing of intersections and driveways decreases the frequency of conflicts and slowing caused by turning vehicles.
- By properly spacing traffic signals, traffic progression can be improved and time spent waiting at red lights can be reduced.

### Information

*Information about road construction, traffic accidents, traffic congestion, and alternate routes helps the traveling public use the roadway system more efficiently.*



#### Elements

- Use variable message signs to alert drivers about dangers and accidents ahead of time.
- Post current information about detours and construction on a website.
- Collaborate with local media to alert drivers about problem areas.
- Coordinate communication efforts with WYDOT and other regional transportation agencies.

#### WHY IS INFORMATION IMPORTANT?

- Variable message signs can be used to alert all drivers approaching a problem area.
- An accurate, frequently updated website can alert drivers about problem areas and areas of construction. Drivers can avoid these areas and help reduce the associated congestion.
- Local media outlets can provide information to drivers before they begin their trip. The radio can even alert drivers as they travel.



## Travel Demand Management (TDM)

*Reduce the number of trips that are made through a system of policies and programs, such as ride arranging, vanpooling, incentives, and costs.*



### Elements

- Provide a Transportation Management Organization (TMO) or service that assists businesses, employees and the public in alternative transportation options such as transit, carpools, vanpools and provides car and vanpool matching. TMO's can be operated by the Cheyenne MPO or a non-profit organization paid for by member organizations at a nominal cost per employee per year.
- Provide a van-pooling service as part of the TMO that sets up groups and provides vehicles for a fee.
- Offer incentives through employers to individuals who reduce their travel such as preferred parking for carpools or discount transit passes.
- Coordinate with employers to help educate them and their employees on the potential options for travel to work and how these options can reduce the amount of travel associated with businesses.
- Use pay parking in heavily congested areas to manage the parking supply in these high demand areas and encourage use of other modes to service the area.

### WHY IS TDM IMPORTANT?

- Van pool and car pool programs reduce the number of single occupancy vehicles on the road and are relatively inexpensive.
- Van pools benefit residents of Cheyenne by reducing commute costs to more distant locations such as Fort Collins. This savings can be particularly beneficial with increasing gasoline costs.
- Incentives can encourage travel by different modes or at different times.
- Employers can encourage use of alternative travel modes.
- High parking costs can encourage use of alternate modes and carpooling.

### Intelligent Transportation Systems

*Utilize technology to better utilize the roadway system.*



#### Elements

- Continue to maintain a coordinated system of traffic signals managed by the City's traffic engineer, in coordination with WYDOT.
- As Cheyenne grows and traffic patterns become more complex and dynamic, investigate available technologies such as adaptive timing systems or a camera-based network that allows real-time adjustments to signal timing plans, either automatically or manually, and can improve the ability of traffic engineers to utilize the roadway system efficiently.
- Expand use of automatic traffic recorders (ATRs) which gather a continuous stream of traffic data. ATRs can also identify congestion as it happens.
- New ATRs should be considered on new roadways and at existing intersections as part of an ongoing signal upgrade program.

#### WHY IS ITS IMPORTANT?

- A coordinated signal system allows freer flow of traffic on arterial streets.
- An adaptive system can adjust signal timing throughout the day as conditions vary.
- A camera based system can improve the security of the roadway system by facilitating quick identification of any incidents.
- ATRs provide real-time information that can be used to warn travelers about potential problems.





# PLAN CHEYENNE



## WATER FACILITIES:

Municipal ownership - Gravity system installed.  
Source of Supply, Crow Creek & Troutfork Reservoirs,  
located about 25 miles west of town in G  
Capacity of Storage Reservoirs as follows:

North Crow Reservoir

Granite

Crystal Lake

35 miles of cast iron supply line capacity 30  
to 4 million gallon distributing reinforced  
41 miles west of & elevated 301 above Town  
Reservoir, supplies the 41", 30", 24", 20", 18" & 16"  
the mains laid 808 to 811 incl. - Average daily  
Gravity pressure 100 lbs. per sq. inch. 1932  
Pumping Plant Situated at west 15th & 10th  
Avenue.

## FIRE DEPARTMENT:

Paid - 2 Companies, Chief & 14 Men. Co. A & B  
wagon, 2000 lb. cotton hose - Co. A & B, City  
One Graham Lifter Combination Hose & Clie  
Truck fully equipped - One Seelye's Com  
Wagon - One Hose Wagon in reserve - 5000  
Gallons fire alarm system of 36 boxes  
Grades as shown - Fire Limits indicated by  
as shown -





## Developing a Connected & Diverse Transportation System

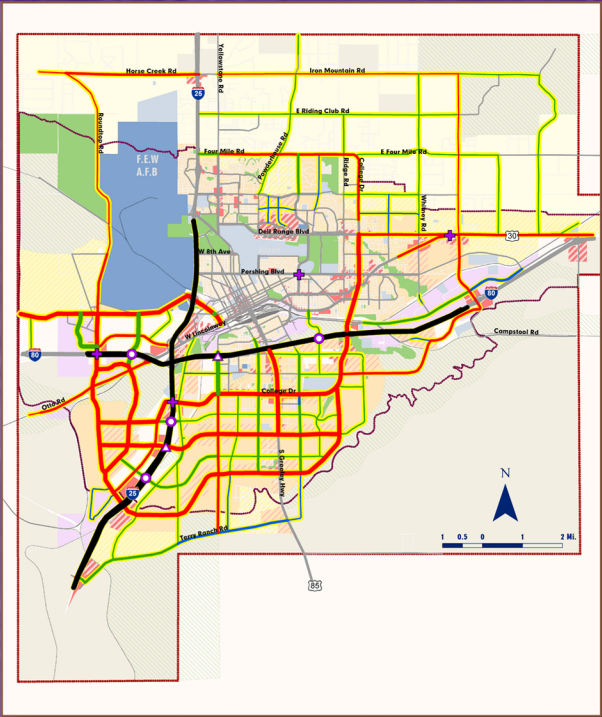






**Cheyenne Area  
Transportation Master Plan**

**Shape**



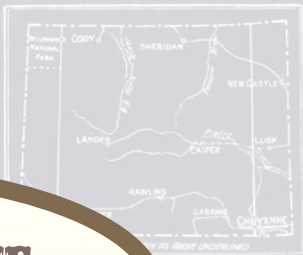
**November 2006**

**CHEYENNE METROPOLITAN PLANNING ORGANIZATION**

**CLARION - LSA - EDAW - AVI**







# 1. Welcome

## Components of Shape

The shape section of the *Transportation Master Plan* defines a transportation vision for the Cheyenne Area. The Transportation Vision Plan defines the roadway, transit, bicycle, and pedestrian facilities that will be needed to provide Cheyenne Area residents with an adequate, connected, multi-modal transportation system.

As described in the Shape chapter, The *Transportation Master Plan* is based on information available at the time it was created, including other sections of *PlanCheyenne*. As future plans, documents, and studies are developed, these studies may amend the *Transportation Master Plan*. It is also anticipated that large tracts of property could develop their own master development plan, (see Chapter 3 of *ShapeCheyenne Land Use*, page 3-2). As part of the master development plan process, transportation elements of *PlanCheyenne* may be considered for amendment, provided that the transportation elements will continue to meet the principles, policies, and process described in *PlanCheyenne*. Furthermore, priorities presented in this plan may change in the future as development occurs.

### 1. Welcome

This section provides an introduction to the Shape chapter of the *Transportation Master Plan*.

### 2. Principles and Policies

Creation of a robust and effective transportation system in Cheyenne requires a vision of the type of transportation system

Cheyenne desires. To guide this vision, a set of principals and policies was developed through discussions with the Technical Advisory Committee and the citizen Steering Committee. These principals reflect a vision of the character of Cheyenne's future transportation system. The associated policies present a way to implement this vision.

### 3. Growth in the Region

The first step in the definition of a Transportation Vision Plan is to identify the growth that is expected to take place in and around Cheyenne. Growth forecasts were generated for 2030 and beyond based on the Future Land Use Plan. Once growth has been quantified, future needs can be assessed.

### 4. Needs Assessment

After growth forecasts have been developed, the next step in developing a Transportation Vision Plan is to identify needs that will arise as the region grows. These needs include roadway needs, transit needs, and needs for non-motorized transportation. Understanding the needs that the community will face allows planners to propose solutions that will fill these needs.

### 5. Vision Plans – 2030 and Beyond

The **2030 Transportation Vision Plan** is a fiscally unconstrained plan for the transportation system in Cheyenne. This plan provides sufficient capacity to accommodate growth on most roadways and includes new roadways, sidewalks, and bike lanes in developing areas. Recommendations for retrofitting existing roads with sidewalks and

bike lanes are also provided. The 2030 Vision Plan is based on a growth assumption of 2% per year.

The **Buildout Transportation Vision Plan** compliments the buildout of the Future Land Use Plan, but is not likely to occur until sometime after 2060. The buildout plan designates roadways and multimodal corridors that should be preserved for future use.

During the development of the Roadway Vision Plan, several Future Land Use Plan scenarios were evaluated. The resulting Future Land Use Plan, on which the transportation vision plans are based, includes elements that will help limit traffic congestion and provide opportunities for multimodal travel.

## Integrating Land Use, Transportation, and Parks and Open Space

From the outset of the planning process, *PlanCheyenne* was intended to be different from most community master plans by placing specific emphasis on integrating three major elements of our community's planning efforts: land use, transportation, and parks and recreation and open space. These three major elements support one another and build on the vision for our community established by *Vision 2020*. In preparing *PlanCheyenne* the community sought to fundamentally change the typical non-integrated planning process so that land use, parks and open space, and transportation are more closely linked, bringing the concepts of mobility and livable communities into a sharp focus.

The benefits of this integrated approach are broad and somewhat intangible. Yet in some instances, this approach has led to some real changes in the future development patterns and policies for the Cheyenne Area which will provide for taxpayer savings and alleviation of potential problems in the long-term.

### Integrated Planning Example: I-25

Early transportation modeling showed that future roads near I-25 south of the city would face severe traffic (with Level of Service "F" indicated by the red lines in the graphic). The planning team adjusted the Future Land Use Plan to include more mixed-uses along the Interstate and to shift some of the non-residential uses to the east side.





## 2. Principles and Policies

**Principle 1: New neighborhoods will be designed to accommodate traffic growth.**



**Cheyenne Neighborhood Street**

### **Policy 1.a Arterial Construction**

Construct arterial facilities in developing areas to accommodate traffic growth for the next 30 years. When development occurs along a proposed arterial the developer must build half of the street. If a development occurs on both sides of an arterial, the developer must construct the entire street. Developers may be required to pay into a developer fee program in addition to or in lieu of the above requirements.

### **Policy 1.b Right-of-Way Preservation**

Preserve right-of-way in developing areas to accommodate expected buildout traffic volumes. When development occurs along a proposed arterial, the developer must dedicate enough right-of-way to accommodate the Buildout Transportation Plan.

### **Policy 1.c Build Neighborhoods with Mixed-uses**

Build new neighborhoods with a mix of compatible uses so that residents have employment and shopping opportunities within walking or bicycling distance of their homes.

### **Policy 1.d Access Control**

Limit access to new arterials through use of consolidated driveways and frontage road systems as defined in *Road, Street, and Site Planning and Design Standards*.

### **Policy 1.e School Location**

New schools should not be constructed adjacent to principal arterials and principal arterials should not be constructed near schools.

### **Policy 1.f Multimodal Traffic Studies**

Traffic studies shall be prepared for all development proposals, which address automobile, transit, bicycle, and pedestrian travel. Development review for all projects should consider all modes and their connection to the transportation system.



**Corridor Preservation along a New Arterial**

## **Principle 2: Impacts to existing neighborhoods will be minimized.**

### **Policy 2.a Limit Roadway Widening in Neighborhoods**

Widening roadways which may impact existing neighborhoods will be avoided to the extent possible and will only be considered on roadway facilities that already serve as major thoroughfares.

### **Policy 2.b Consider Alternative Solutions to Road Widening**

If multiple alternative solutions are available to address a particular concern, options that minimize impacts to existing neighborhoods are to be given priority, even if these options are less effective at reducing traffic problems.

### **Policy 2.c Limit Impacts in Historically Significant Neighborhoods**

Extra care will be taken to preserve the integrity and character of historically significant neighborhoods.

## **Principle 3: The Cheyenne Area will build a multi-modal transportation system that consists of streets, sidewalks, bicycle facilities, and transit.**

### **Policy 3.a Complete Streets**

Build arterial and collector streets as complete streets, providing travel lanes for automobiles, bikes, buses, bike lanes, and sidewalks.

### **Policy 3.b Neighborhood Design to Support Walking and Bicycling**

Neighborhoods should have adequate, well connected sidewalk and trail facilities to improve pedestrian and bicycle opportunities.

### **Policy 3.c Public Transit**

Develop and maintain a public transportation system that enhances mobility choices and increases per capita ridership.

### **Policy 3.d Bicycle Connections**

Develop and maintain a system of safe and efficient bikeways connecting neighborhoods with activity centers, schools, parks, and other neighborhoods.

### **Policy 3.e Pedestrian Connections**

Develop and maintain a pedestrian circulation system that provides direct, continuous, and safe movement within and between neighborhoods and activity areas.



**Multi-Modal Transportation Facilities**

## **Principle 4: The Cheyenne Area will maintain a fiscally responsible transportation plan.**

### **Policy 4.a Pursue Developer Funding**

Cheyenne and Laramie County will pursue development funding for improvements to the transportation system that are development driven.

#### Policy 4.b Prioritize Transportation Improvements

Costs and benefits of potential transportation improvements will be considered when prioritizing transportation improvements to ensure that the most effective transportation improvements are built with limited funds.

### Principle 5: The Cheyenne Area will maximize use of the existing roadway system.

#### Policy 5.a Land Use and Transportation

To minimize the need for new arterial streets, compact development will be promoted as described in the *Community Plan*.

#### Policy 5.b Congestion Management

Cheyenne will use Traffic Congestion Management techniques to use existing roadways.

#### Policy 5.c Access Management

Cheyenne will utilize access management techniques as described in the Structure section of the *Transportation Master Plan*.

### Four Detailed Plans

The *Transportation Master Plan* consists of four detailed roadway plans, each with a different purpose. In this chapter (Shape), two fiscally unconstrained vision plans are presented. Later, in the Build chapter, two more plans are presented. Each is based on different assumptions and constraints and is useful in a different context. The plans are:

#### 1. 2030 Transportation Vision Plans

The 2030 Roadway Vision Plan presents a list of projects that the area will need to build by 2030 in order to minimize congestion and provide access to new development. The 2030 Roadway Vision Plan is fiscally unconstrained and is complimented by unconstrained plans for transit, bicycles, and pedestrians.

#### 2. Buildout Roadway Vision Plan

The Buildout Roadway Vision Plan is a map indicating roadway improvements that will be required to support the development of all land uses identified in the Land Use Plan. This plan is not fiscally constrained and is used to preserve right-of-way for long-term needs.

#### 3. Low Growth Roadway Plan

The low growth plan provides a list of roadway improvements that might be required if Cheyenne grows at a rate of 1.25% per year. This plan minimizes congestion and provides some access to areas that are expected to develop in the short term. The primary use of this plan is as a tool in the development of the 2030 Fiscally Constrained Roadway Plan.

#### 4. 2030 Fiscally Constrained Transportation Plan

The Fiscally Constrained Roadway Plan identifies transportation improvements that can be provided with available funds. Fiscally constrained plans are also provided for the transit, bicycle, and pedestrian modes. Additional funding sources such as fee programs were not assumed to be available when developing fiscally constrained plans.





## 3. Growth in the Region

The Cheyenne Area is expected to grow considerably over the next 25 years. Through coordination with the land use component of *PlanCheyenne*, a buildout socioeconomic forecast was developed. Through additional coordination with the City of Cheyenne, the Cheyenne MPO, and the Wyoming Department of Transportation, two 2030 forecast datasets were created. Existing, 2030, and buildout population estimates are shown below.

### 2030 Growth Forecast

If growth were to occur at two percent per year, buildout of the Future Land Use Plan would not be fully realized until after 2060. To develop a 2030 growth forecast, areas where growth would be expected to occur first were identified and the two percent per year growth rate was applied. This results in a 2030 forecast population for the Cheyenne Area of 132,000 people in 55,000 households. At this growth rate, the Cheyenne Area is forecast to have 60,000 jobs.

To ensure that a range of possibilities are represented, a second 2030 dataset was created. This dataset assumes a growth rate of 1.25 % per year, resulting in a population of 109,000 people in 43,000 households. At this lower growth rate 42,000 jobs are forecast for Cheyenne.

To ensure that roadway needs are not underestimated, the higher growth rate was used in development of the *Transportation Master Plan*. However, the dataset based on the lower growth rate will be used as a tool in identification of higher priority projects. Use of the higher growth rate in planning assumptions allows for a flexible plan that will be adequate

regardless of future growth rates. If Cheyenne grows quickly, the *Transportation Master Plan* will provide the guidance necessary to accommodate growth. If the Cheyenne Area grows more slowly, implementation of improvements identified in the plan can be scheduled accordingly.

### Buildout of the Future Land Use Plan

A dataset that assumes complete buildout of the Future Land Use Plan has been developed to allow a very long-range transportation needs assessment. This buildout dataset estimates a population of 221,000 people in 93,000 households. At buildout, the Cheyenne Area is forecast to host 111,000 jobs.

#### What Is Buildout?

The term buildout is used when referring to Cheyenne in the long-term future. In reality, buildout will never occur as long as Cheyenne keeps growing. However, for the purposes of this *Transportation Master Plan*, buildout is considered to occur when all of the land uses identified in the Future Land Use Plan have been achieved. [A map of the Future Land Use Plan is included as Figure 5.](#)

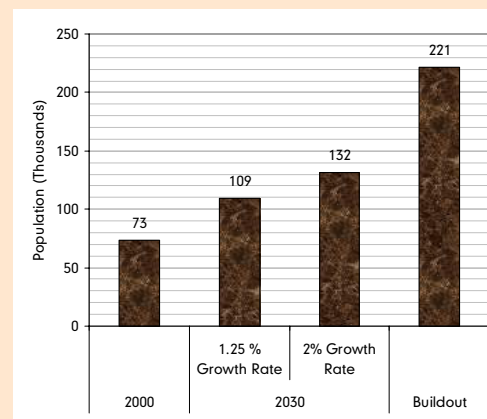
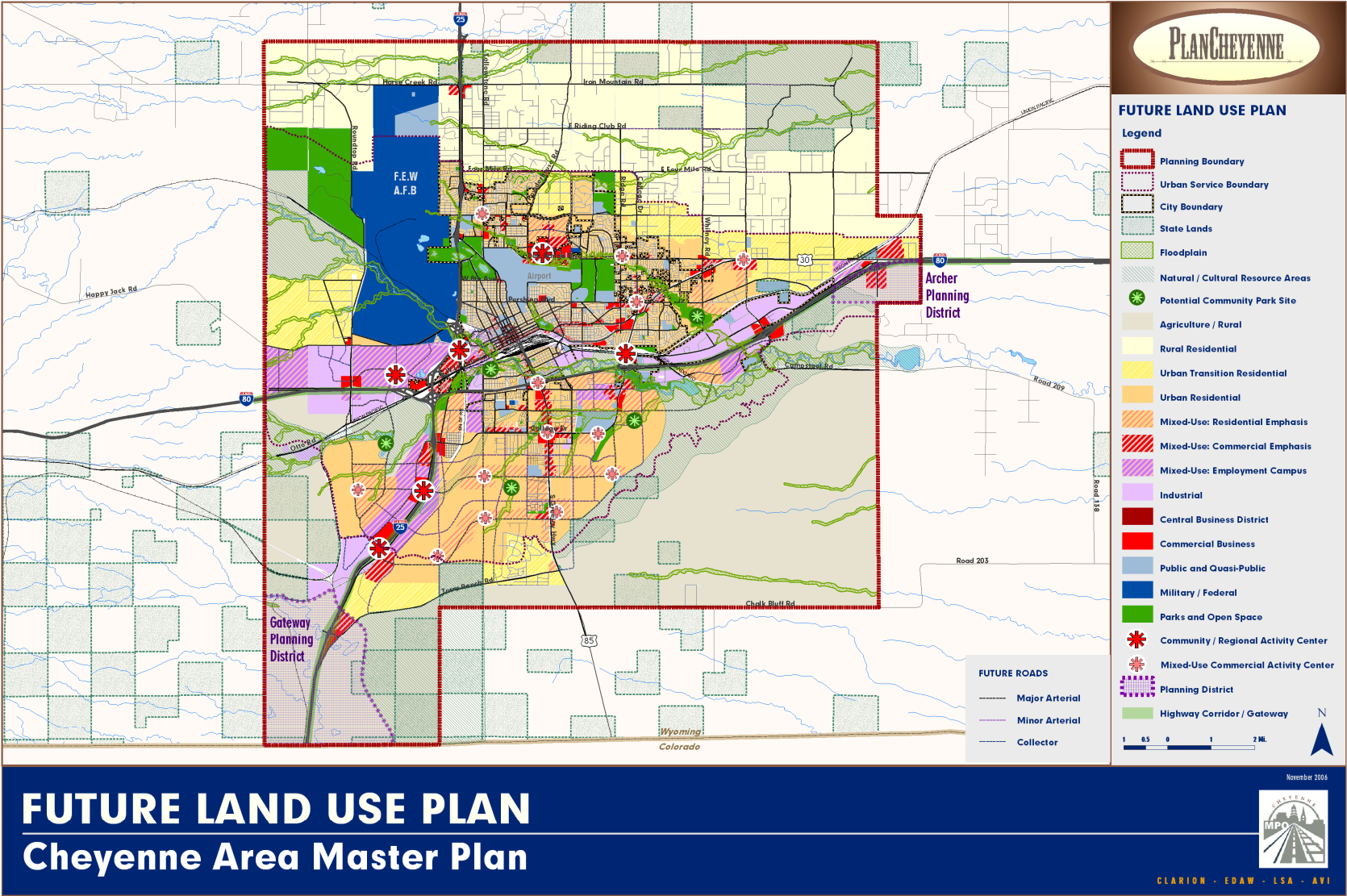


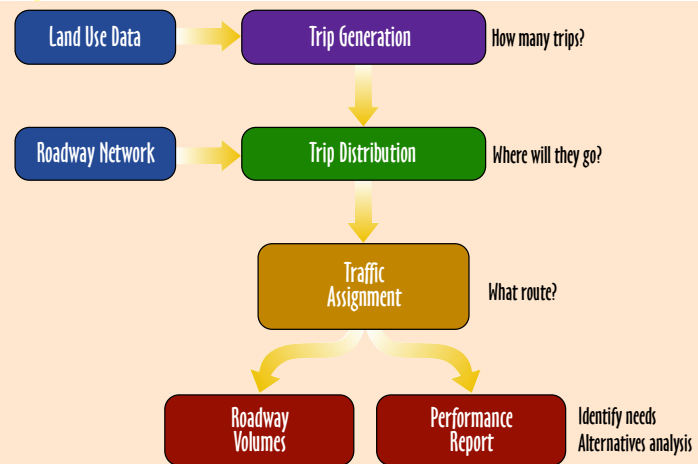
Figure 5: Future Land Use Plan





## Forecasting Traffic

The *Transportation Master Plan* was developed through an analysis of system deficiencies and potential alternative solutions using estimates of future travel demand. Travel demand, including roadway traffic volumes, is forecasted using the Cheyenne traffic model. This model has been developed and maintained by the Wyoming Department of Transportation and has been enhanced as a part of the creation of *PlanCheyenne*.



The model process, shown graphically above, uses estimates of household and employment data and the existing roadway network as input assumptions. Household and employment data is estimated and forecasted areas, called Traffic Analysis Zones (TAZ). The model utilizes three basic steps:

1. **Trip Generation:** Based on existing and forecast socioeconomic data including the number of dwelling units and employment, the model estimates trips by trip type, such as work trips, shopping trips or service trips. By comparing base year trip generation to forecast 2030 trip generation, one can see the estimated growth in trip activity within the area.
2. **Trip Distribution:** The trip distribution process examines the relationship between where trips are produced or generated in relationship to where they are attracted or the destination end of the trip. As an example, a Home Based Work Trip begins at the residence and travels to the place of work. This process of distributing trips is conducted for each trip type and for each trip generated throughout the modeling area.
3. **Trip Assignment:** This is the process where the trip distribution patterns are assigned to various routes between where the trip originates and its destination. The modeling software recognizes the travel speeds of the roadway network to identify the shortest distance and time paths. The model also recognizes that as the roadways fill up, congestion might occur making alternate routes be more attractive.

The Cheyenne traffic model forecasts daily traffic. The model's accuracy is developed through a sophisticated model calibration process where estimated existing trips based on the area's current population and employment characteristics and the area's roadway network are compared to actual traffic counts. WYDOT and the MPO maintain a very extensive set of these ground counts which allowed a high-degree of calibration.

The travel model is useful as a tool throughout the transportation planning process. It is used as a tool in needs assessment to identify future deficiencies. Various alternatives are tested using the model to guide the development of a 2030 Roadway Vision Plan and Buildout Roadway Vision Plan. Relative benefits of different alternatives can be compared to help in the creation of a Fiscally Constrained Roadway Plan.



## 4. Needs Assessment

The transportation system that currently serves the Cheyenne Area will not be sufficient to accommodate future growth. A needs assessment was performed for each of the four main components of the transportation system: roadway, transit, bicycle, and pedestrian.

### Roadway Needs

Using the travel demand model, 2030 (2% growth rate) conditions on the existing and committed roadways were projected. With significant growth in population and employment, significant traffic congestion will occur if no additional improvements to the transportation system are made. [Figure 6](#) depicts both forecasted daily traffic volumes represented by the width of the line, as well as whether the road will be congested (red), congesting (orange), or uncongested (green). With the current network plus committed roadway improvements, an increase in traffic congestion can be expected in the Cheyenne Area.

**Table 1: Committed Roadway Improvements**

| Facility Description                                | Improvements                        | Forecast Year |
|---|-------------------------------------|---------------|
| Industrial Park northwest of I-80 and Roundtop Road | New Internal Collector System       | 2006          |
| Whitney Road extension to Iron Mountain Road        | Extend as Paved Rural Collector     | 2006          |
| Norris Viaduct                                      | Viaduct Replacement and Realignment | 2008          |
| I-25 and Vandehei Interchange                       | Interchange Improvements            | 2011          |

| Facility Description   | Improvements                    | Forecast Year |
|--|---------------------------------|---------------|
| Connection from the Speer Interchange to the College Ave. Interchange. | New Arterial                    | 2012          |
| I-25 and Speer Interchange   | New Interchange                 | 2012          |
| I-25 and I-80 Interchange  | Minor Interchange Improvements* | 2013          |
| Campstool and I-80   | Interchange Improvements        | 2015          |

\* A more detailed study of the I-25 and I-80 interchange is planned.

The analysis presented in [Figure 6](#) assumes that only committed roadway improvements are built over the next 25 years. Committed improvements, listed in Table 1, include construction projects that increase roadway capacity and have committed funding sources today. It does not include committed maintenance projects. While this scenario is not realistic for the 2030 timeframe, it provides a valuable tool for identifying locations where additional improvements would best serve the community. Areas of particular concern include:

- Otto Road south of I-80
- Roundtop Road between Happy Jack Road and Otto Road
- Happy Jack Road west of I-25
- The I-25 and College Interchange
- Vandehei approaching I-25
- Portions of College Drive
- Ridge Road between Dell Range Blvd. and Pershing
- Yellowstone Road and Central near Dell Range Blvd.



- Storey Blvd. between Yellowstone Road and Powderhouse Road
- Portions of Dell Range Blvd.
- Portions of US 30 (East and West Lincolnway)
- Campstool Road south of I-80
- South Greeley Highway

Areas shown as congested or congesting and listed above are expected to become problematic if additional roadway improvements are not built. Approaches to reducing congestion in these areas include improving or widening the congested facilities, improving alternate routes, and constructing new parallel roadways. In some cases, realistic improvements are not available and congestion will occur even with improvements to the transportation system.

Unlike many growing communities across the nation, the Cheyenne Area has succeeded in improving the roadway network quickly enough to accommodate growth. However, as growth continues over the next 25 years, the demands on Cheyenne's roadway system will continue to increase. In many communities, increased population, increased trip-making, and longer trip lengths are causing growth in vehicular traffic to outpace roadway improvements. As a result, congestion has been growing on many communities' roadway networks.

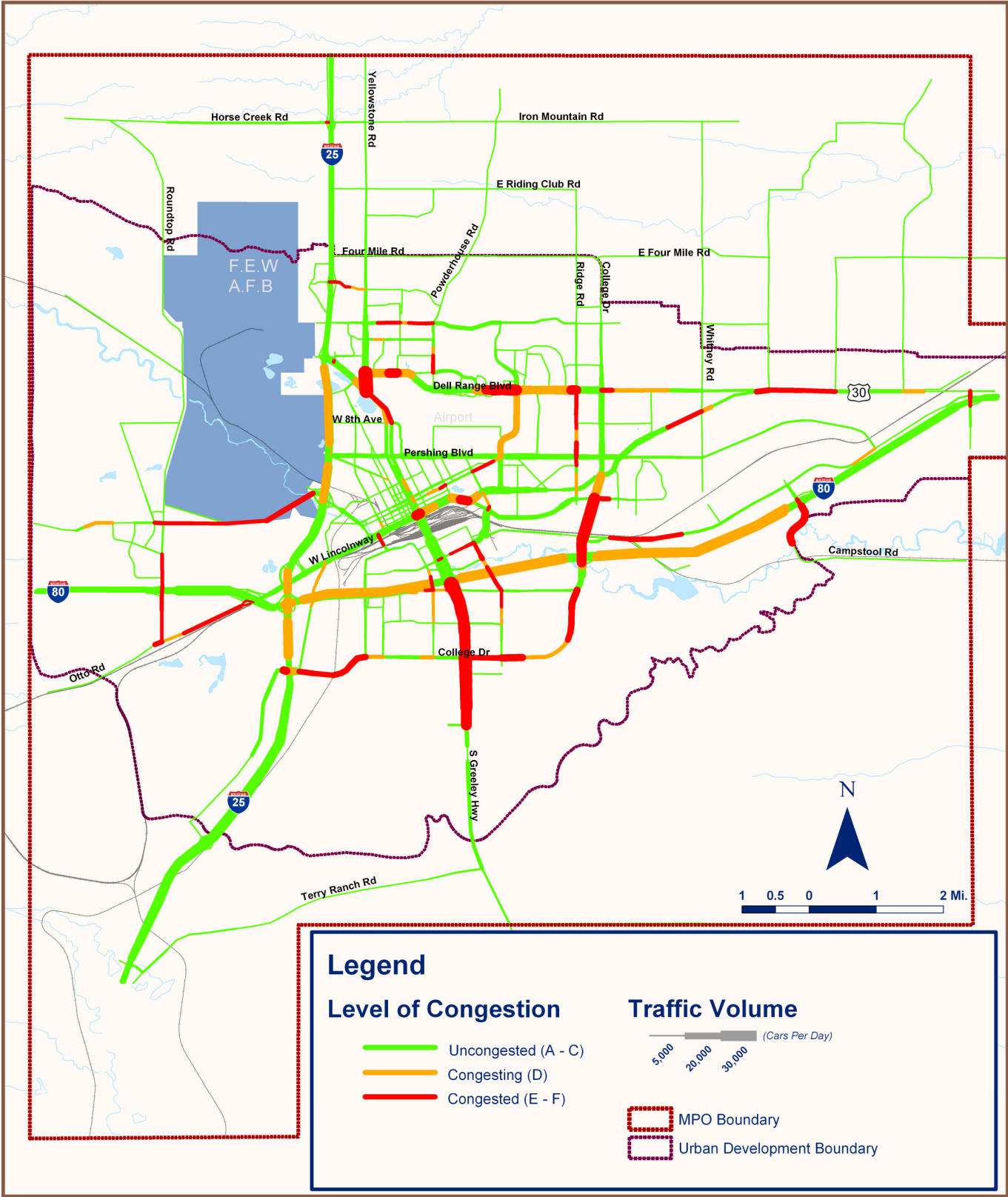
New roadways and roadway improvements will be required to prevent traffic congestion and to provide access to future development. Some areas designated for residential or commercial growth in the Future Land Use Plan are not currently accessible by public roads. In many areas, subarea plans identify potential alignments for new roadway facilities. Where appropriate, alignments specified in these subarea plans are included in the *Transportation Master Plan*.

### Increasing Growth Rate

Cheyenne is transitioning from a period of slower growth to a time of faster population and employment growth. In the last few years, the population of Cheyenne has grown at about 2% each year – twice the historical average of 1%. As Cheyenne continues to grow at a faster rate, the need for improvements to the transportation infrastructure will accelerate.

Many older neighborhoods in Cheyenne still have uncontrolled intersections on local streets. As Cheyenne grows and new residents move to these areas, it may become necessary to convert some of these locations to stop controlled or signalized intersections. Guidelines for installation of intersection control devices are presented in the Manual of Uniform Traffic Control Devices (MUTCD). Stop signs and signals should only be installed where warrants defined in the current version of the MUTCD are met. Installing unwarranted stop signs and signals could potentially create a liability for the City. It should also be noted that meeting warrants does not necessarily justify installation. Other engineering factors should be considered. Installation of devices without meeting warrants should be avoided.

**Figure 6: Traffic Congestion in 2030 with Existing and Committed Roadways**



*This map shows traffic congestion that will occur if only roadway improvements that currently have committed funding are built. Thicker lines indicate higher forecast traffic flows.*

## Transit Needs

Transit service, whether fixed-route (i.e., bus service) or demand-responsive (i.e., Dial-a-Ride), is intricately linked to many other governmental and planning actions. Transit service reacts to the density of development within the city, locations of transportation corridors and activity centers, and the design of developments along the corridors and centers it serves. Travel corridors and activity centers with a mix of uses and a large number of travelers provide the demand that can effectively support higher levels of transit service.

Achieving a balanced, multi-modal transportation system requires shifts in public investment given the historical emphasis on roadways and automobiles. To facilitate a higher level of transit service in the Cheyenne Area, the Future Land Use Plan is designed in to support non-automobile travel. In turn, the design of the City's infrastructure and roadway system must consider all transportation modes, including transit.

## Transit System Reconfiguration

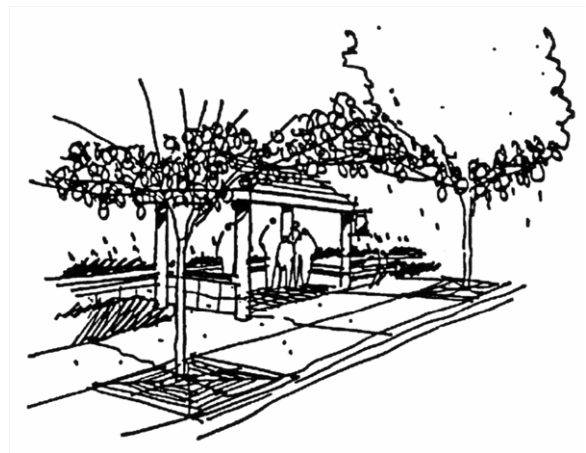
The current Cheyenne transit system of one-way loops works well when one wishes to travel in the same direction as the transit route, but can result in unnecessarily long travel times for those traveling in the reverse direction. These one-way loops can require a passenger to make a complete loop to reach a destination. Conversion to a conventional two-direction transit system will result in reduced travel times. Migration to a system of two-way transit routes could result in operational costs as high as double current costs.

## Additional Transit Coverage

As Cheyenne Area grows to the south and west, many new jobs and neighborhoods will be constructed along mixed-use corridors with activity centers. As these areas are developed, transit service will need to be extended to reach new homes and jobs. Additional transit service should be focused on lower income areas (see Figure 26 in the Build chapter of this plan).

## Intermodal Connections

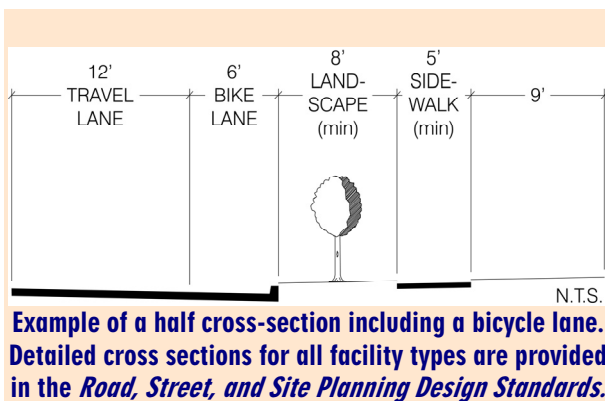
All transit trips start and end with a different mode. Passengers may drive to a Park-and-Ride facility before boarding a bus. At activity centers, defined in the Future Land Use Plan, and in high density areas such as downtown, destinations are often within a short walk of transit stops. With the proper connections and facilities, cyclists can park and ride transit or even utilize a bus-front bike rack. It is vital that adequate bicycle and pedestrian connections be provided between transit stops and activity areas. Park-and-Rides can further enhance the transit system by providing options to those who live further from a transit stop.



## Bicycle Needs

The bicycle is a healthy and viable alternative to the automobile for many trips. It can also play an important role in helping the city to reduce congestion, improve air quality, improve the overall health of Cheyenne Area citizens, and develop a more balanced transportation system. Cheyenne has recently indicated the importance of bicycle travel with the adoption of new bicycle-friendly street standards. These standards designate bicycle lanes on all roadways as they are built or re-built, where appropriate.

Bicycle facility needs are based on general principles of safe and convenient bicycling, as well as specific location needs for various situations in the Cheyenne Area. These can be summarized as follows:



## Safety and Convenience

Whichever route a cyclist may choose or need to use, that route should be as safe as possible. Issues may include hazards (i.e., drainage grates, overhead obstructions, etc.), lighting, vehicular conflicts, or conflicts with other users. Routes should also provide access to various destinations by a reasonably direct means.

## Connections to Recreational Paths and Trails

The primary function of Cheyenne's Greenway corridors and other bicycle paths is recreational. Bicycle routes and lanes can be coordinated and connected with these recreational trails to provide an expanded network.

## Connections between Destinations

The typical cyclist requires safe and convenient connections between their residence and with school, employment, or entertainment and shopping destinations. In particular, these linkages must provide safe access across high volume arterial streets. Many of these elements are described in the Structure chapter of this plan.

## Options

Different levels of cyclists feel comfortable on different types of facilities (i.e. paths separated from traffic, designated bicycle lanes, or bike routes that share vehicle lanes). Some cyclists have different access requirements to various locations at varying times of day. Maximum flexibility is important in accessing all parts of the community.

## Signage

The bicyclist requires clear and consistent signs to mark bicycle facilities. These signs not only assist the cyclist in choosing the most appropriate route, but also alert the motorist to the presence of cyclists, thereby increasing safety.





Example of Bicycle Route Signage

## Bicycle Parking

Bicycle parking needs include the following:

- The downtown area should have an adequate amount of dedicated, secure bicycle parking.
- Safe and secure bicycle parking should be provided as necessary in City parks (especially where high use is anticipated), at schools, libraries, recreational centers, other public buildings, in activity centers, and along activity corridors.
- Bike racks should be provided in all new developments, including commercial developments.

## Intermodal Connections

While bicycle trips tend to be short, cyclists can make longer trips using a combination of bicycle and transit. Intermodal trips can be made more convenient by providing adequate connections between bicycle facilities and transit stops. At transit stops, bicycle parking or even bicycle lockers provide a safe place for bicycle storage. Bus-front bike racks can provide additional options to cyclists.

## Ancillary Facilities

To effectively use the bicycle as a transportation mode, the cyclist requires facilities in addition to routes and parking. Commuter cyclists may require showers and lockers at their place of employment. Other ancillary facilities that are needed include access to other public transit modes (buses, carpools, etc.) and rest areas with water at suitable intervals or locations.

## Demand

The most high-level bicycle facilities should be placed along corridors with the greatest potential for use. Potential future demand for bicycle transportation can be gauged by identifying areas where relatively short trips occur. **Using the travel model, trips shorter than 3 and 6 miles have been identified in Figure 7.** Corridors with high volumes of short trips are primary candidates for bicycle facility improvements.

Figure 7: Bicycle Needs Analysis



*This map shows potential bicycle demand in the form of all short trips presented in three mile increments. Thicker lines indicate a higher potential for travel by bicycle. Existing bicycle facilities are shown for reference.*

## Pedestrian Needs

Walking is an essential part of daily activities, whether it is trips to work, shop, school, or play. Often pedestrian facilities are overlooked or merely added onto street improvement projects. To preserve and enhance the quality of life in the urbanized areas of Cheyenne, consistent maintenance of the existing pedestrian system and additional facilities are needed.

Cheyenne's new street standards require detached sidewalks on all new roadways. However, development of a continuous, efficient pedestrian system in Cheyenne is dependent on many factors, most notably:

- the location of existing and planned activity areas,
- programs to retrofit established areas with pedestrian-oriented activities,
- design standards and requirements for new development,
- desired pedestrian levels of service,
- funding for pedestrian improvements, and
- Americans with Disabilities Act (ADA) requirements.

## Pedestrian Districts and Areas

Although these pedestrian design considerations can be applied throughout the Cheyenne Area, the need will vary by the type of activity area. As an example, a high pedestrian performance level will be of greater importance in the downtown than in outlying, lower density subdivisions with light vehicular and pedestrian traffic. Different types of development and the associated pedestrian needs are described below.

Existing and future activity centers and mixed-use developments as defined in the Future Land Use Plan are shown in [Figure 8](#).

## Activity Centers

Activity Centers are one of the concepts for future development in the Cheyenne Area. By identifying locations for a greater mix and intensity of uses, walking can become a predominant mode of transportation in these areas. By integrating many different land uses within close proximity, Cheyenne residents will have more options to live, shop, or work in one neighborhood while reducing their reliance on automobiles.

While pedestrians have not received a major focus in past decades, pedestrian-friendly developments will likely regain their importance due to their relationship to affordable housing and efficient travel. Housing and transportation are two major elements of any family's budget. If a family can reduce their transportation costs by living near their place of employment, additional options for 'affordable' housing become available. For more information on mixed-use development and Activity Centers, please reference the Shape section of the *Community Plan*.



**Example of a New Suburban Pedestrian Area**

### **Pedestrian Districts**

The primary area within Cheyenne that qualifies as a pedestrian district is downtown. Residents consider downtown as a place to go, walk around, shop, eat, study, or conduct business. Pedestrian standards should be high in downtown. In addition to the need for direct, continuous sidewalks where it is safe to cross the street, this area requires higher levels of visual interest and amenities to attract residents and visitors. Future pedestrian districts will include the regional activity centers and mixed-use developments specified in the *Community Plan*.

### **Mixed-Use Commercial Activity Centers**

These areas tend to be located along arterials and aggregated at various locations along the corridor, particularly where principal arterials intersect. The Future Land Use Plan identifies locations for mixed-use development which can combine commercial businesses with residential uses. In the past, commercial centers have been more of the strip commercial and “L” shaped neighborhood shopping center style developments, which provide relatively poor pedestrian environments. Future goals include improving the directness and safety of the pedestrian network to, from, and within these locations. As these areas are often located in lower density areas, strong pedestrian connections to transit stops are also important.

### **Schools – Safe Routes**

Whereas it is not critical for routes to schools to be picturesque and visually captivating, students have basic pedestrian needs, including a safe and secure continuous sidewalk with safe street crossings and direct connections to neighborhoods. Many cities, including Cheyenne, have adopted Safe Routes to School programs that directly address this need. The “Traffic Safety Suggestions for Elementary Schools” handbook should be updated to reflect new development. Additionally, as new schools are built, walking routes should be established.

### **Transit Corridors**

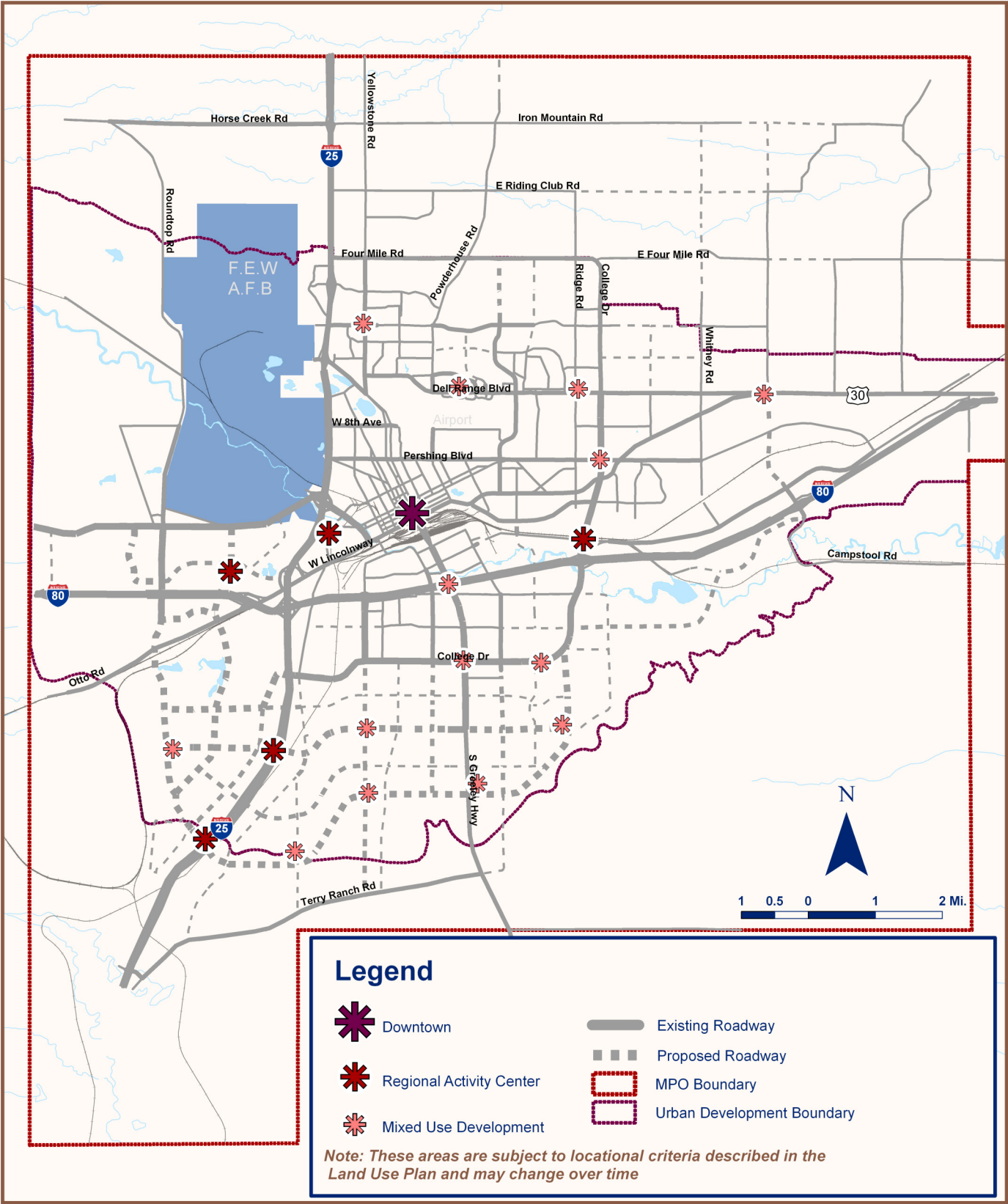
Both ends of all transit trips are typically pedestrian trips. The most critical elements for pedestrians in transit corridors are direct and safe connections and safe, paved, lighted, and possibly sheltered bus stops.

### **Other Areas**

Although all other areas within the city should have safe, secure, and reasonably direct pedestrian connections, the critical pedestrian trip-making characteristics of these areas are not as critical as the four areas mentioned above.



Figure 8: Pedestrian Activity Areas



***This map identifies activity areas where pedestrian improvements will be key to implementing a multimodal transportation system.***

## 5. Transportation Vision Plan (2030 and Beyond)

The Transportation Vision Plan is an unconstrained plan addressing roadway, bicycle, transit, and pedestrian needs identified in the previous section. It is a fiscally unconstrained plan, meaning that the Cheyenne Area does not currently have the resources to build improvements outlined in the Transportation Vision Plan. However, strategies to fund and build these improvements are provided in the Build section of the *Transportation Master Plan*.

### Roadway Vision Plans

#### 2030 Roadway Vision Plan

The 2030 Roadway Vision Plan is based on technical 2030 travel forecasts using a population growth rate of 2.0 percent per year.

#### Development of the 2030 Roadway Vision Plan

This process began by conducting a 2030 travel forecast assuming the existing roadway network plus committed roadway improvements as described in the Needs Assessment section. Next, proposed roadways from existing subarea plans were added to the analysis. Various additional improvements were considered, resulting in a 2030 Roadway Vision Plan that builds on the already established subarea plans.

The resulting 2030 Roadway Vision Plan includes 44 roadway projects identified to either accommodate increased traffic or provide access to future development. As shown in Table 2, roadway lane miles do not grow as fast as the population in the 2030 Roadway Vision Plan or Buildout Roadway Vision Plan. This emphasizes the need to make the most efficient use of the roadway system as the Cheyenne Area continues to grow.

Proposed roadway improvements in the 2030 Roadway Vision Plan are listed in Table 3 and are shown graphically in [Figure 9](#). Based on a 2030 model run that represents completion of the roadway projects selected for the 2030 Roadway Vision Plan, traffic congestion was estimated and is presented in [Figure 10](#). By comparing Figure 10 with Figure 5, Congestion in 2030 with Existing and Committed Roadways, one can see that the included improvements provide relief on the most congested corridors. However, some corridors will continue to be congested even if the 2030 Roadway Vision Plan is implemented. Improvements to these corridors are not recommended due to right-of-way limitations and to minimize impacts to existing neighborhoods.

**Table 2: Growth in Population and Roadway Lane Miles**

| Timeframe                    | Population | Arterial Lane Miles | Population per Arterial Lane Mile |
|------------------------------|------------|---------------------|-----------------------------------|
| 2000                         | 73,306     | 865                 | 85                                |
| 2030 Roadway Vision Plan     | 131,595    | 925                 | 142                               |
| Buildout Roadway Vision Plan | 221,075    | 1017                | 217                               |

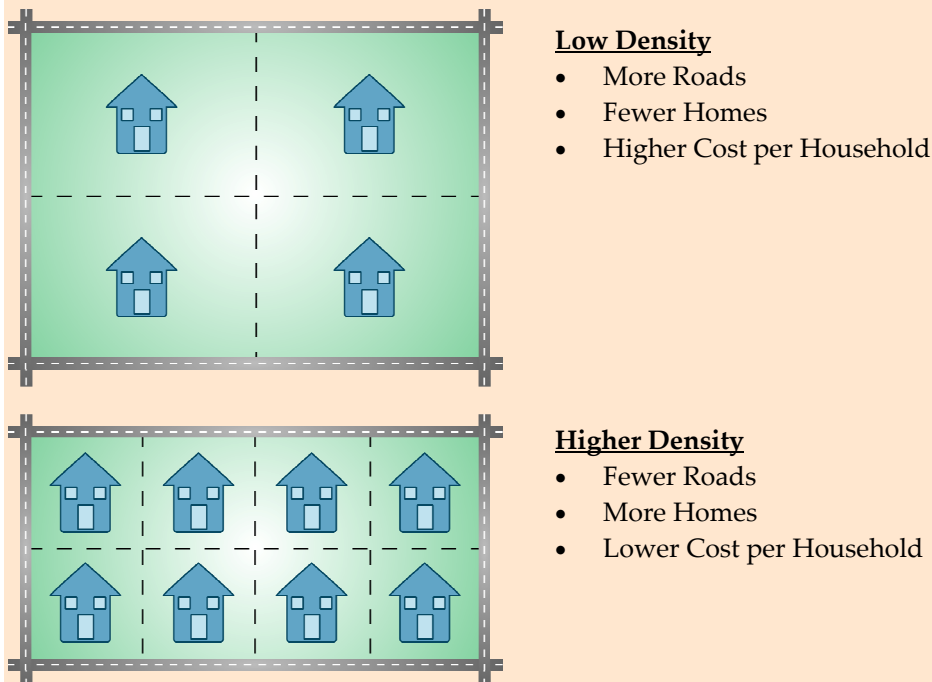
### Fewer Roads per Resident

As the population of the Cheyenne Area grows, the roadway system will grow at a slower pace. This trend is partially due to constraints in existing neighborhoods and the community's desire to preserve these neighborhoods. Promotion of denser land use and mixed-use activity centers also contributes to this trend. Conversely, low density large lot development can have the opposite effect, contributing to higher per-capita roadway maintenance costs. Low density growth is difficult financially for communities to keep up with and increases the cost of community services to local governments.

There are several implications of a trend towards a more compact community, including:

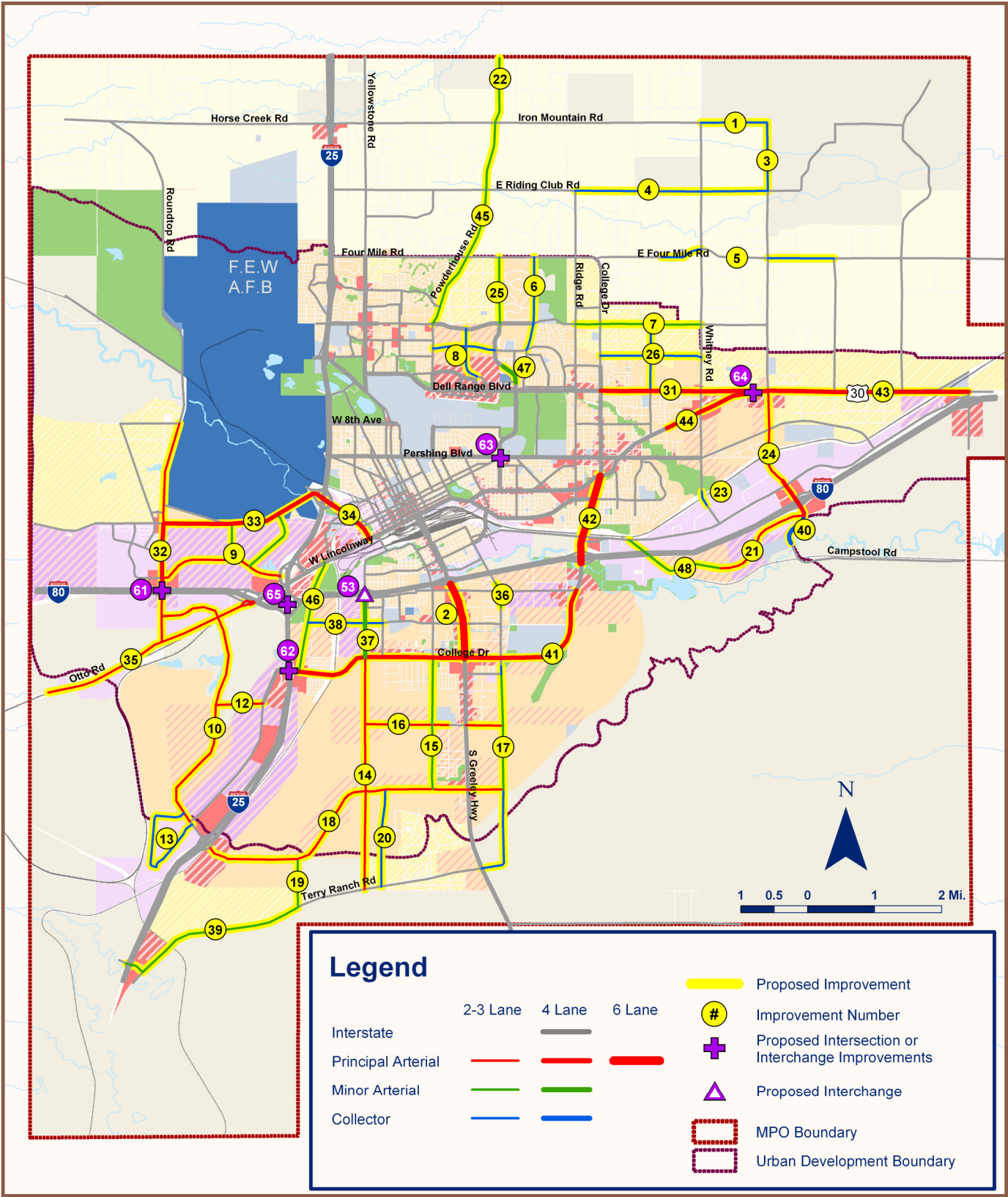
- The amount of traffic congestion in Cheyenne will increase in some parts of the Cheyenne Area.
- Efficiency of the transportation system will become increasingly important.
- Roadway maintenance costs per resident will decrease.

An example of cost per capita associated with low and high density development is as follows:





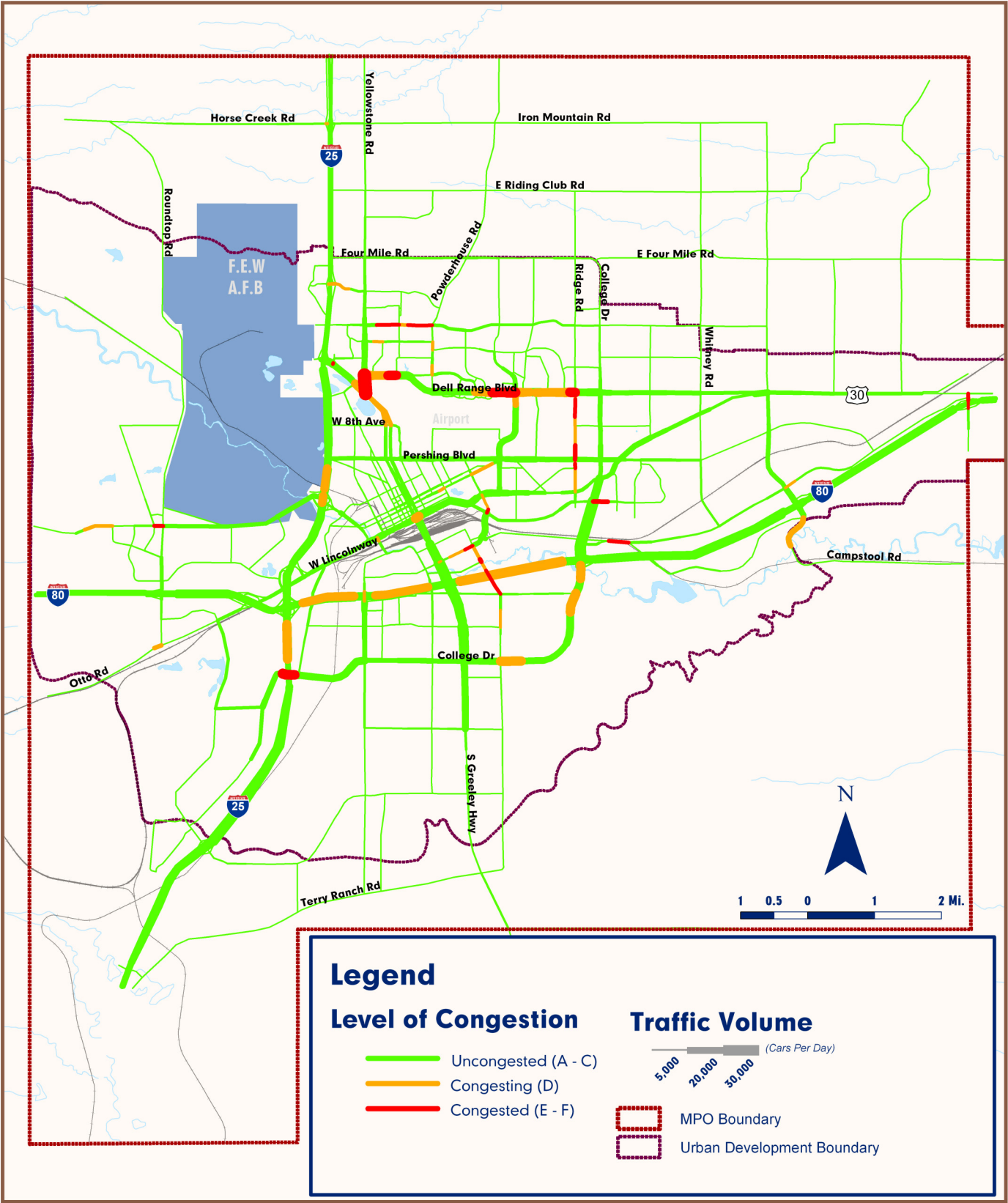
**Figure 9: Improvements in the 2030 Roadway Vision Plan**



*This map shows improvements included in the 2030 Roadway Vision Plan. The Future Land Use Plan is shown for reference. See the Future Land Use Plan Legend (Figure 5) for a description of the land use types.*



Figure 10: 2030 Congestion with the 2030 Roadway Vision Plan



*This map shows areas that will have traffic congestion in 2030 if Cheyenne grows at 2% per year and the 2030 Roadway Vision Plan is built.*

**Table 3: 2030 Roadway Vision Plan (Uncongested)**
**State / US Highways**

| Map No. | Facility                     | Limits                               | Improvements                               |
|---------|------------------------------|--------------------------------------|--|
| 2       | S. Greeley Highway (US 85)   | I-180 to College Dr.                 | Widen to 6 lanes                           |
| 22      | Powderhouse Rd.              | Iron Mountain Rd. to Torrington Hwy. | New 2 lane major arterial/collector        |
| 33      | Happy Jack Rd. (SH 210)      | Roundtop Rd. to I-25                 | Improve and widen to 4 lane major arterial |
| 35      | Otto Rd. (SH 225)            | I-80 to western MPO boundary         | Improve to 2 lane major arterial           |
| 39      | Terry Ranch Rd. (SH 223)     | I-25 to New Arterial                 | Improve to 2 lane minor arterial           |
| 41      | College Dr. (US 87 / SH 212) | I-25 to Fox Farm Rd.                 | Widen to 4 lanes                           |
| 42      | College Dr. (SH 212)         | I-80 to Lincolnway                   | Widen to 6 lanes                           |
| 43      | US 30                        | Christensen Rd. to Archer Rd.        | Widen to 4 lanes                           |
| 44      | US 30 / Lincolnway           | Hayes Ave. to Christensen Rd.        | Widen to 4 lanes                           |
| 53      | Interchange                  | Parsley Blvd. Interchange            | Build Interchange                          |
| 61      | Interchange                  | Roundtop and I-80                    | Widen underpass                            |
| 62      | Interchange                  | College and I-25                     | Widen overpass                             |
| 64      | Intersection                 | Dell Range and US 30                 | Operational Improvements                   |
| 65      | Interchange                  | I-80 and I-25                        | Improve/Rebuild Interchange                |

**Arterial Roadway Improvements**

| Map No. | Facility                   | Limits   | Improvements   |
|---------|----------------------------|--|--|
| 7       | Summit Dr.                 | Ridge Road to Whitney Rd.                      | Extend as/improve to 2 lane minor arterial           |
| 9       | New Minor Arterials        | Roundtop Rd. to I-25 / Happy Jack Rd. to I-80  | New 2 lane arterials                                 |
| 10      | New Arterial               | Roundtop Rd. to Overland Trails Dr.            | New 2 lane major arterial                            |
| 11      | Overland Trails Dr.        | College Dr. to I-25 (Speer Interchange)        | New 2/4 lane major arterial                          |
| 12      | New Arterial               | New Arterial to Overland Trails Dr.            | New 2 lane major arterial                            |
| 14      | Parsley Blvd.              | College Dr. to Terry Ranch Rd.                 | Extend as 2 lane minor arterial                      |
| 15      | Division Ave.              | College Dr. to Speedway Dr.                    | Extend/improve to 2 lane minor arterial              |
| 16      | Wallick Rd.                | Parsley Blvd. to Avenue C                      | New 2 lane major arterial                            |
| 17      | Avenue C / Terry Ranch Rd. | College Dr. to US 85                           | New 2 lane minor arterial/collector                  |
| 18      | Speedway Dr.               | I-25 to Avenue C                               | New 2 lane major arterial                            |
| 19      | New Arterial               | Speedway Dr. to Terry Ranch Rd.                | New 2 lane minor arterial                            |
| 21      | New Frontage Rd.           | South Industrial Rd. to Campstool Rd.          | New 2 lane minor arterial                            |
| 23      | Whitney Rd.                | Under Railroad Tracks                          | New 2 lane grade separated connection                |
| 24      | Christensen Rd.            | Commerce Circle to US 30                       | New 2/4 lane arterial and RR overpass                |
| 25      | Converse                   | Storey Blvd to Four Mile Road                  | Extend as minor arterial                             |
| 31      | Dell Range                 | College Dr. to US 30                           | Widen to 4 lanes                                     |
| 32      | Roundtop Rd.               | Otto Rd. to Ketcham Rd.                        | Improve to 2/4 lane major arterial                   |
| 34      | Missile Dr.                | I-25 to Lincolnway                             | Improve to major arterial                            |
| 36      | Morrie Ave.                | North of Allison Rd. to North of Fox Farm Rd.  | Improve to minor arterial                            |
| 37      | Parsley Blvd.              | I-80 to College Dr.                            | Widen to 4 lane minor arterial                       |
| 40      | Campstool Rd.              | I-80 Eastbound ramps to S. of New Frontage Rd. | Improve and widen to 4 lane major arterial/collector |
| 45      | Powderhouse Rd.            | Storey Blvd. to Iron Mountain Rd.              | Add center turn lane                                 |
| 46      | Southwest Dr.              | Lincolnway to College                          | Improve to 2 lane minor arterial                     |
| 47      | Converse Ave.              | Dry Creek to Ogden Rd.                         | Widen to 4 lanes                                     |
| 48      | Burlington Trail           | Campstool Rd. to South Industrial Rd.          | Upgrade to minor arterial                            |
| 63      | Intersection               | 19th, Converse, and Pershing                   | Operational Improvements                             |

**Collector Roads**

| Map No. | Facility           | Limits  | Improvements                          |
|---------|--------------------|---|---------------------------------------|
| 1       | Iron Mountain Rd.  | Existing Terminus to E. of Christensen Rd.      | Extend as 2 lane rural collector      |
| 3       | Christensen Rd.    | E. Riding Club Rd. to Iron Mountain Rd.         | Extend as 2 lane rural collector      |
| 4       | E. Riding Club Rd. | Ridge Rd. to Christensen Rd.                    | Extend as 2 lane rural collector      |
| 5       | E. Four Mile Rd.   | Existing Terminus to Whitney; E. of Christensen | Extend as 2 lane rural collector      |
| 6       | Mountain Rd.       | Plain View Rd. to Four Mile Rd.                 | Extend as 2 lane collector            |
| 8       | New Collectors     | Dell Range to Storey / Powderhouse to Converse  | New 2 lane collectors                 |
| 13      | New Collectors     | Southwest of New Arterial                       | New 2 lane collectors                 |
| 20      | New Collector      | Speedway Dr. to Terry Ranch Rd.                 | New 2 lane collector                  |
| 26      | New Collectors     | North of Dell Range between Whitney and College | New 2 lane collectors                 |
| 38      | Allison Rd.        | Southwest Dr. to Cribbon Ave.                   | New 2 lane collector and RR underapss |

### **Buildout Roadway Vision Plan**

In the long term, the roadway sections and alignments identified in the 2030 Roadway Vision Plan will not accommodate growth in Cheyenne. To create a Buildout Roadway Vision Plan, the travel model was run assuming full buildout of the Future Land Use Plan. The roadway network was then updated to provide the capacity and access necessary to accommodate growth. In addition, an outer beltway of arterial streets is specified along Christensen Road and Iron Mountain Road. [The Buildout Roadway Vision Plan is included in Figure 11, and the corresponding traffic congestion analysis is included in Figure 12.](#)

### **Additional Collector and Arterial Streets**

The roadway systems specified in the 2030 and Buildout Roadway Vision Plans include collector and arterial streets internal to developments only where rough plans have already been created. In other areas where new development will occur, internal street alignments must be identified as part of the development review process. At a minimum, internal streets should be spaced as defined in Table 4. Traffic studies performed for each individual development must demonstrate sufficient internal circulation and connectivity to the arterial network defined in the roadway vision plans. These submittals will determine the sizing, alignment, and facility type of collectors and arterials internal to each approved development.

### **Conclusion**

If the 2030 Roadway Vision Plan can be built, congestion in the Cheyenne Area will be kept to a minimum. By preserving right-of-way for additional roadway construction and widening designated in the Buildout Roadway Vision Plan, the Cheyenne Area can assure the transportation system will keep pace with growth in the Cheyenne Area well into the future. Strategies for implementing the roadway vision plans are provided in the Build chapter of this report.

**Table 4: Street Spacing Guidelines**

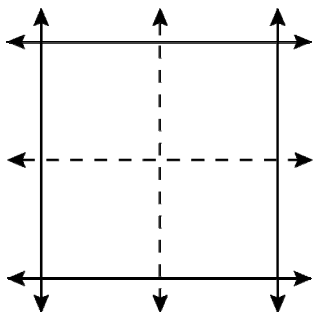
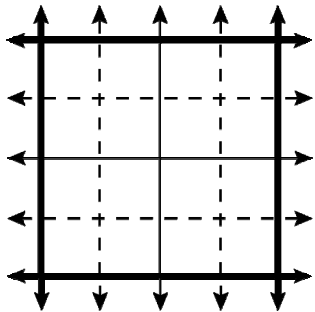
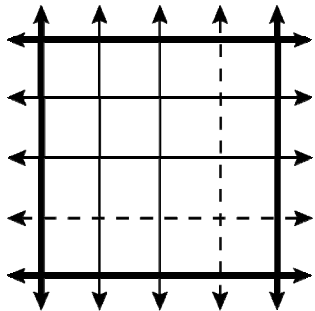
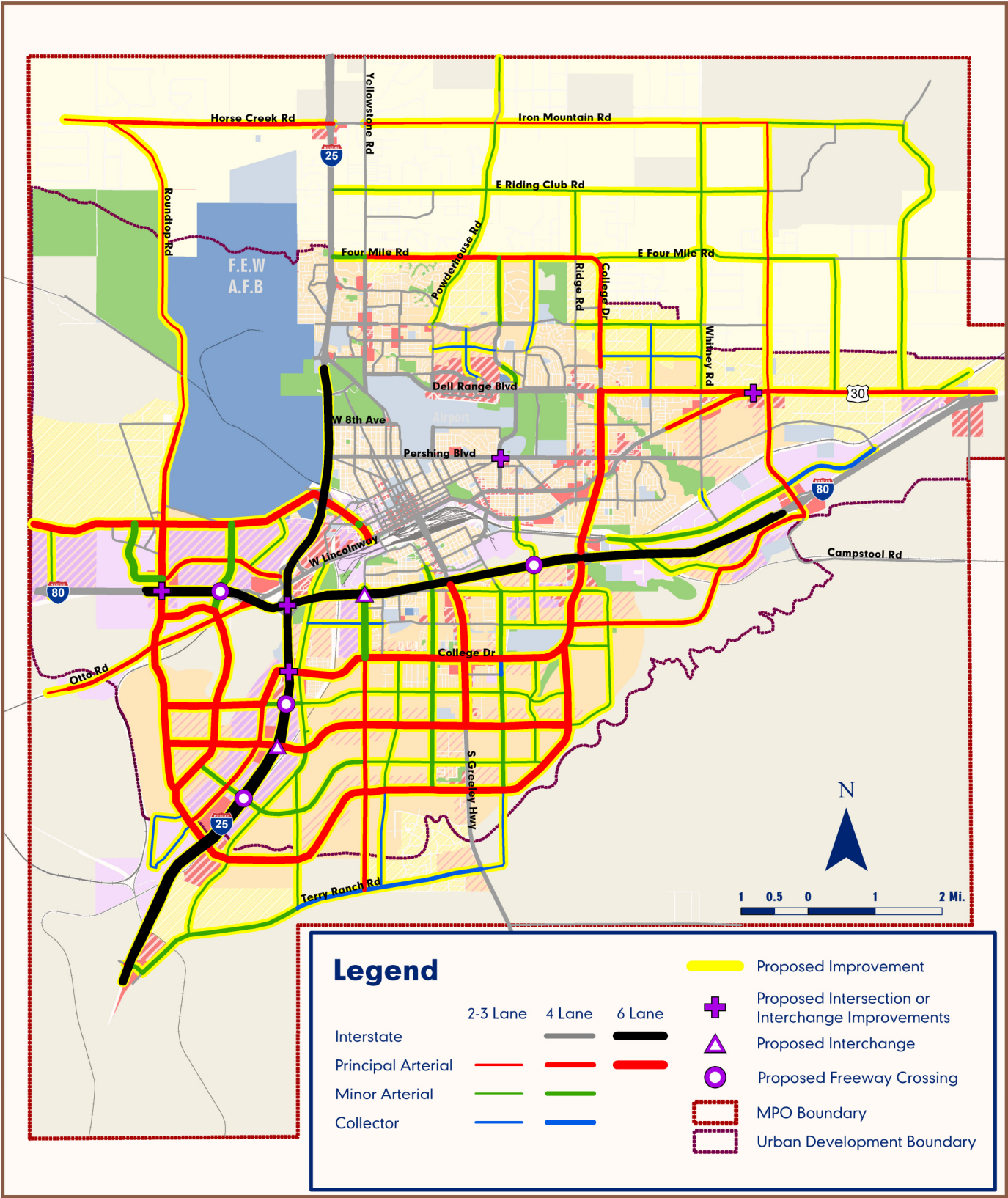
| Development Type  | Street Spacing   |
|---|--|
| <p>Urban Transitional Residential</p>    | <p>Collector streets should be placed no less than every half mile with arterial streets spaced at mile intervals as defined in the roadway vision plans.</p>                                |
| <p>Urban Residential, with some interspersed Mixed-Use and Commercial Land Use</p>  | <p>Collector streets should be placed no less than every quarter mile, with arterial streets spaced at half mile intervals as defined in the roadway vision plans.</p>                       |
| <p>Commercial, Industrial, and Mixed-Use</p>                                       | <p>Collector or arterial streets should be placed no less than every quarter mile, with principal arterial streets spaced at half mile intervals as defined in the roadway vision plans.</p> |

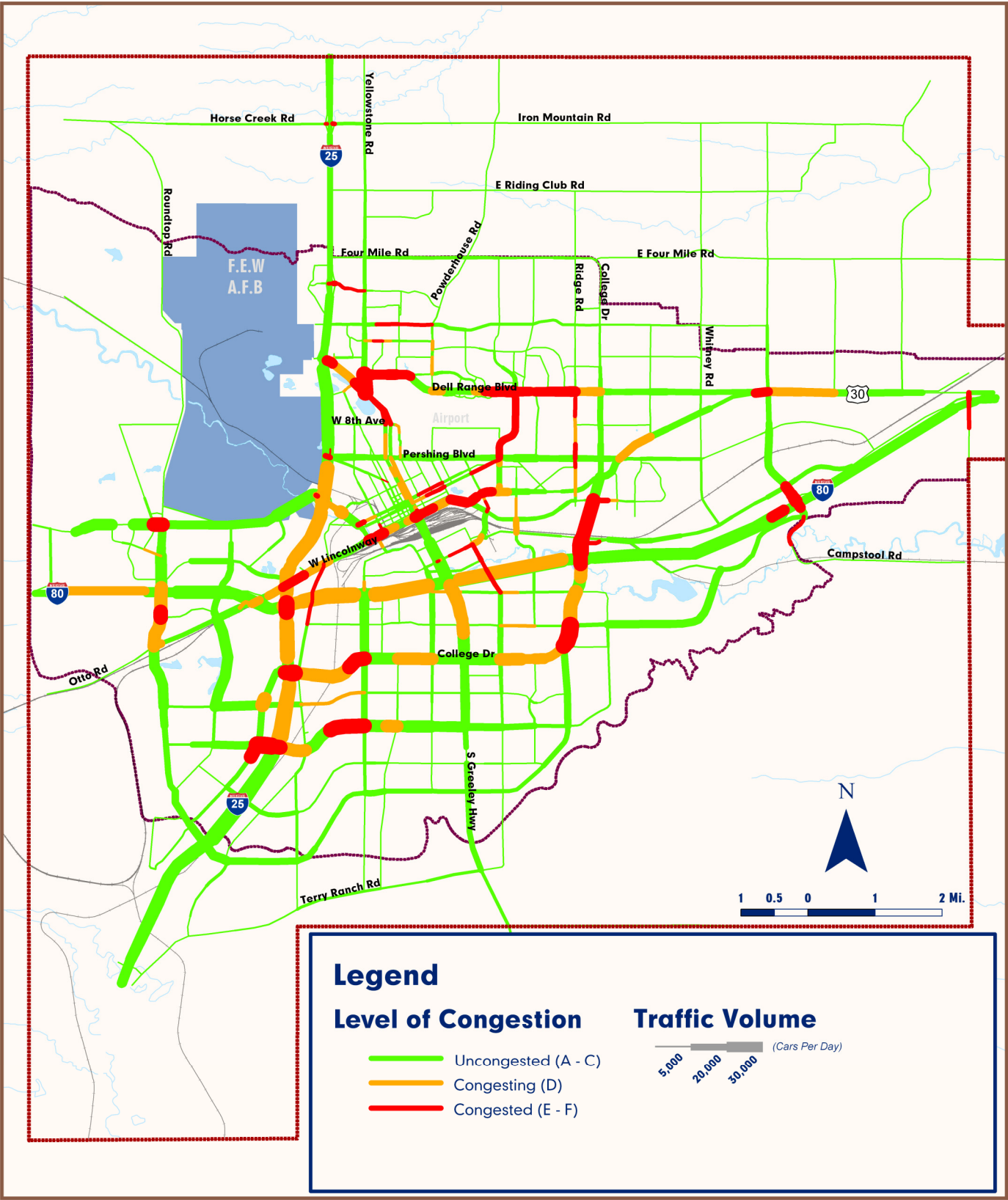


Figure 11: Buildout Roadway Vision Plan



*This map defines Buildout roadway configurations.  
It can be used to preserve right-of-way for future use.  
The Land Use plan is shown for reference.*

**Figure 12: Traffic Congestion with the Buildout Roadway Vision Plan**



*This map shows traffic congestion at the buildout of the Future Land Use plan if all improvements in the Buildout Roadway Vision Plan are built.*

## Transit Vision Plan

The Transit Vision Plan is made up of a set of transit corridors where service would be most effective. These corridors, identified in Figure 13, are separated into categories for service type and timeframe. Corridors were selected to provide a continuous system that provides transportation between all parts of Cheyenne as well as good overall coverage.

### Improvement Timeframe

The corridors in the Transit Vision Plan are separated into shorter-term and longer-term corridors. In general, service should be provided in the shorter-term corridors by 2030 as part of a 2030 Transit Vision Plan. Addition of service on the longer-term corridors will not be necessary until after 2030 as growth continues to the south of Cheyenne.

### Route Frequency

Increased frequency of service along the most heavily used transit corridors can significantly improve ridership. The corridors in the Transit Vision Plan are separated into higher and lower frequencies based on the potential use of transit along each corridor. Headways of 30 minutes on high frequency corridors will provide a significant improvement over current conditions. Higher frequencies in the peak hours should also be considered. A common practice is to provide service twice as often during peak hours as during off-peak hours.

### Service Character

The transit corridors do not necessarily correspond directly to future transit routes. In order to provide transit service to the neighborhoods and businesses that utilize it most, busses will diverge from these corridors onto local or collector streets where necessary

to provide adequate coverage. It is important, however, that trips can be made along corridors in a relatively efficient manner. Excessive route diversions from the primary travel corridors should be minimized. Also, as described in the Transit Needs section, these corridors should be served by traditional two-way routes.

### Bicycle and Pedestrian Connections

Because most transit trips begin and end on foot, it is vital that adequate connections between neighborhoods and businesses are present. Steps outlined in the Pedestrian Vision Plan need to be taken to ensure that adequate pedestrian access to transit stops are provided. Pedestrian connections should follow guidelines provided in the Structure section of this plan.

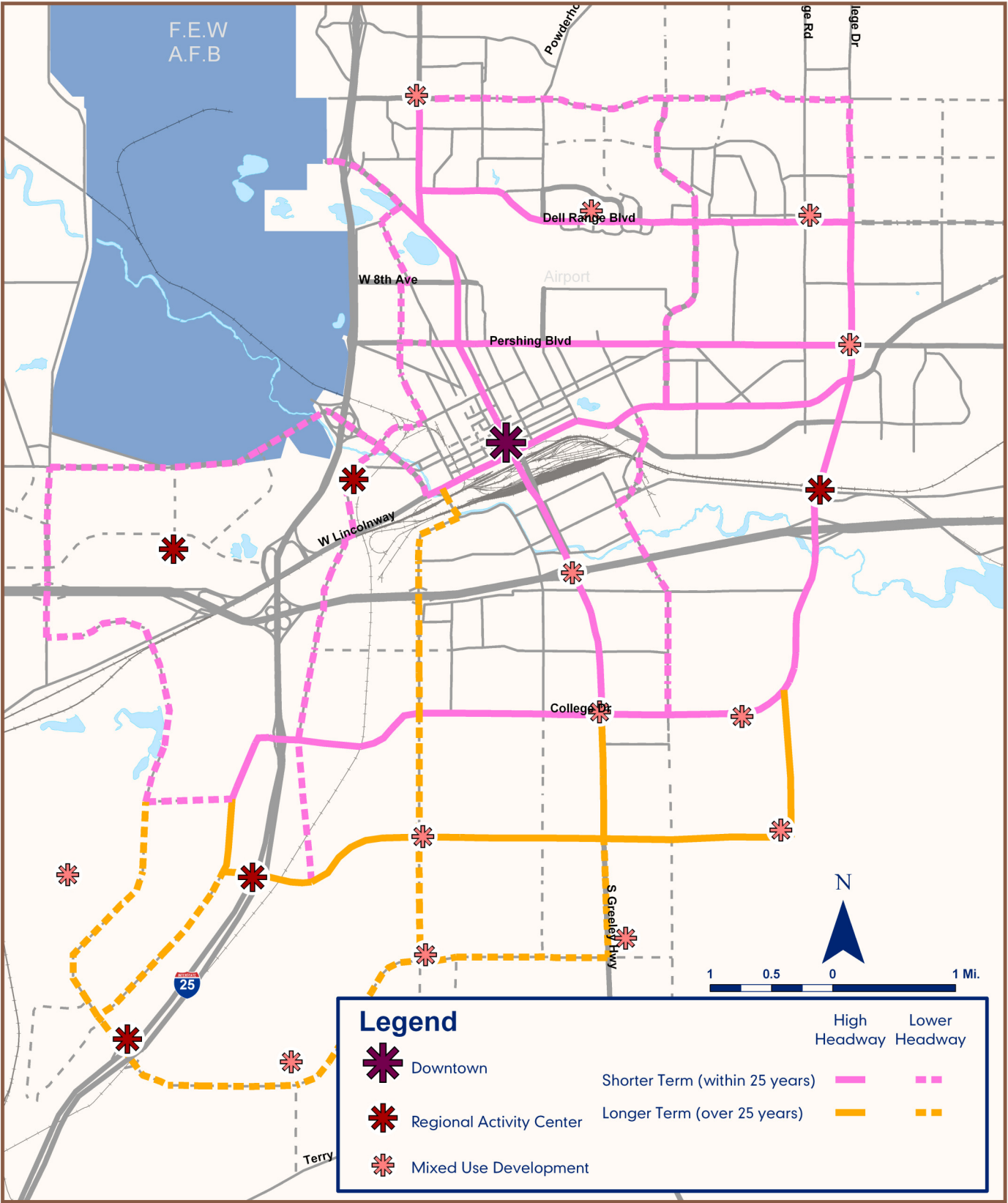
### Transit-Ready Development

As new high density or mixed-use development occurs as outlined in the Future Land Use Plan, transit service may not yet be available. To promote and prepare for improved transit service, new developments can be transit-ready. Steps that should be taken include:

- Provide direct pedestrian connections between homes in neighborhoods and areas where transit stops are likely to be placed.
- Avoid building commercial centers with large parking lots separating the street from entrances to businesses.
- Provide sidewalks or walkways that connect businesses and apartments to major streets where transit is likely to be provided in the future.
- Follow pedestrian guidelines presented in this plan so that transit stops can be easily reached by pedestrians.



Figure 13: Transit Vision Plan



*This map shows transit corridors in the Transit Vision Plan. Actual transit routes might diverge from the corridors shown.*



## Transit Amenities

Transit amenities such as bus stop shelters, adequate lighting at bus stops and comfortable transit vehicles are important to the success of a transit system. Corridors identified for higher frequency service should also have higher level facilities at bus stops, while corridors with lower frequency service may only need benches at busier stops or only signs at less frequently used stops.

## Planning for Premium Transit

In the long term, Cheyenne should pursue premium transit options such as commuter rail or bus rapid transit (BRT). Elements contained in *PlanCheyenne* and the *Transportation Master Plan* are the first steps on a path to this type of transit service. As transit service is expanded, future plans may look more closely at premium transit services. Work is currently underway to evaluate the potential for high speed rail from New Mexico to Wyoming and other groups are considering a rail corridor along the Front Range north of Denver. Both of these projects could potentially bring new transit opportunities to Cheyenne.

In 1991, the U.S. Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA) which calls for the definition of 11 high speed passenger rail corridors in the United States, 10 of which have been named. Efforts are underway to define the 11<sup>th</sup> corridor from Casper, Wyoming to Belen, New Mexico. This corridor, dubbed the “Ranger Express,” would provide service at speeds exceeding 90 mph for at least 75% of the designated route<sup>1</sup>. The proposed rail

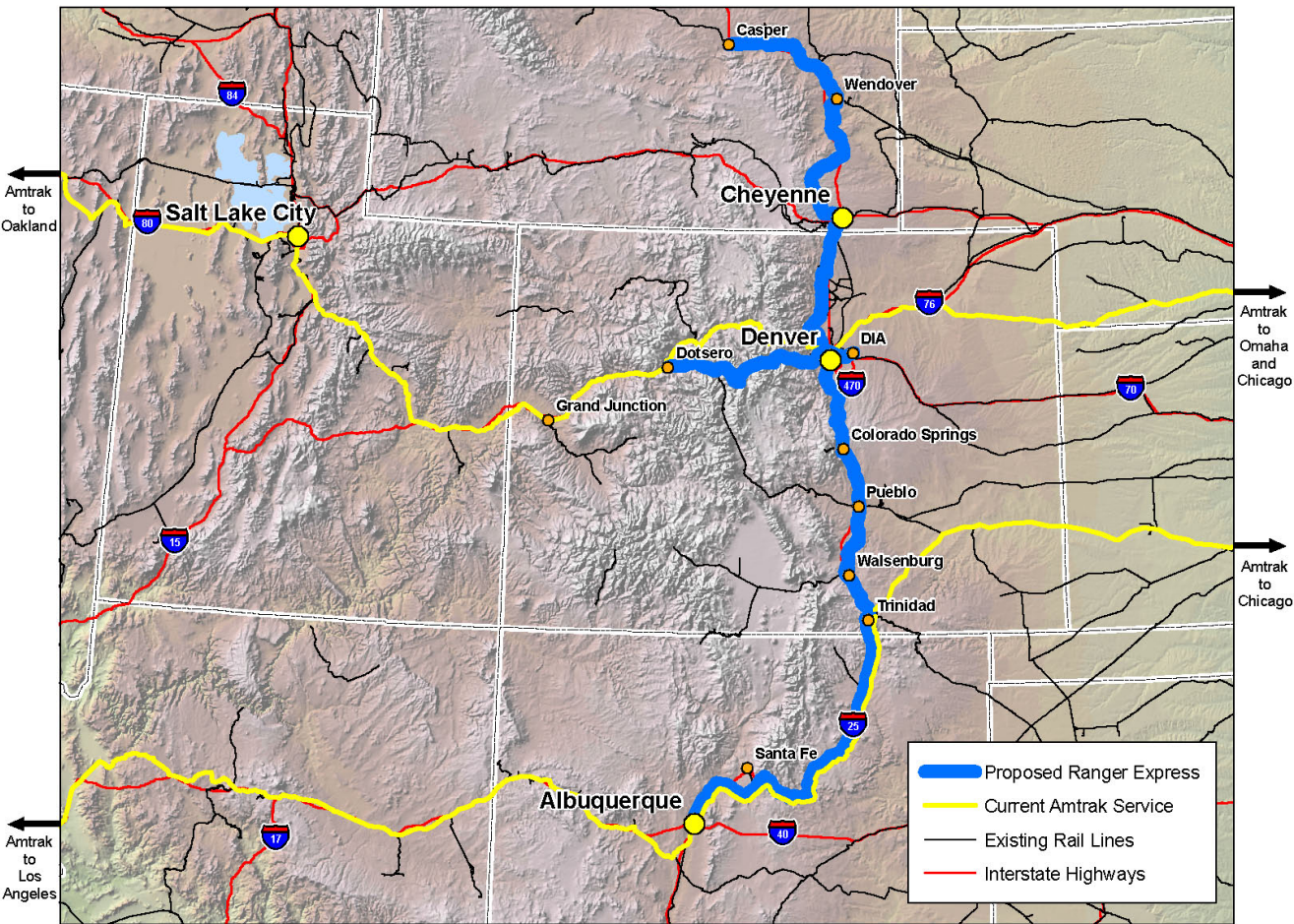
service would be complimented by the revitalization of Union Station and construction of the FasTracks rail system in the Denver area. The proposed definition of this corridor is shown in the graphic below. The Transit Vision Plan promotes a viable transit system that would support a high speed rail service such as the Ranger Express.

The Denver Metropolitan Area, about 100 miles south of Cheyenne, has recently passed the FasTracks initiative to build rapid transit throughout area. This system is expanding to the north and is designed to be compatible with other transit connections. Construction of this system will bring high level transit to the Front Range and can be a building block for mass transit connecting Cheyenne to Fort Collins, Denver, and the rest of the Front Range.

The Colorado Department of Transportation (CDOT) is currently preparing the North I-25 Environmental Impact Study (EIS). This study has evaluated several possible improvements to the I-25 corridor between Denver and Fort Collins, Colorado. Transit options under consideration as of October of 2006 include high speed rail, light rail, commuter rail, and bus rapid transit. A logical extension of the transit options would provide service to the Cheyenne Area.

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<sup>1</sup> Rocky Mountain Rail Authority:  
<http://www.rangerexpres.com>



**Proposed Ranger Express Rail Corridor**  
*Source: Rocky Mountain Rail Authority*

The Front Range Planning Group<sup>2</sup> will soon develop a region-wide transportation vision plan that will address transportation issues facing the area, including transit. The Cheyenne MPO would benefit from coordinating with this group's planning efforts. Such coordination could increase opportunities for transit connections between Cheyenne and the Colorado Front Range as well as improve transportation connections by other modes.

### **Conclusion**

The elements included in the Transit Vision Plan will continue to move the Cheyenne Area towards a more robust and successful transit system. By locating new transit routes in areas designated for higher density or mixed-use development, the transit system can begin to reach more residents and workers as Cheyenne grows. By continuing to adapt the transit system service as the Cheyenne Area grows and changes, the community can prepare for even more sophisticated transit service in the future.

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<sup>2</sup> Consists of the Denver Regional Council of Governments, North Front Range Transportation and Air Quality Planning Council, Pikes Peak Area Council of Governments, Pueblo Area Council of Governments, Upper Front Range Transportation Planning Region, and the Colorado Department of Transportation

## Bicycle Vision Plan

The 2030 Bicycle Vision Plan consists of a map of future bicycle facilities, as well as a plan to fulfill bicycle needs identified in the Bicycle Needs section. The roadway network serves as the backbone of the bicycle transportation system, so the 2030 Bicycle Vision Plan is largely dependent on the 2030 Roadway Vision Plan.

As defined in the City's new street standards, all roadway improvements in the 2030 Roadway Vision Plan will include construction of separate bike facilities. The City of Cheyenne has previously proposed improvements to on-street bicycle facilities. **These proposed improvements are included in the 2030 Bicycle Vision Plan as bike lane retrofits shown in [Figure 14](#).**

Proposed off-street bicycle paths, a trail system, and potential greenway connections are included in the *Parks and Recreation Master Plan* within *PlanCheyenne*. These facilities enhance the bicycle transportation network, but are primarily intended as recreational facilities. To ensure that the parks and recreation trail and greenway system is accessible, connections must be provided between bicycle facilities and routes to the greenway/trails system.

### Missing Links

Bicycle improvements associated with roadway construction go a long way to provide a bicycle network in Cheyenne, but missing links remain. Some additional improvements that are necessary to complete the system will require retrofitting of existing roadways. Some of these improvements, such as Pershing, Converse, and Lincolnway, may be very difficult to implement due to tight right-of-way widths. In these cases bicycle

facilities parallel to these corridors may provide the necessary connections. Suggested retrofit improvements that function to fill missing links between roadway improvements include:

- A facility parallel to US 85 connecting downtown to the south,
- Bicycle facilities on Lincolnway and Nationway connecting downtown to a proposed greenway extension,
- Bicycle facilities on or parallel to Pershing Blvd.,
- Bicycle facilities on Converse connecting Pershing to Lincolnway,
- A north/south connection parallel to I-25, and
- Bicycle facilities on College Dr. where it is not proposed to be otherwise improved.

## System Enhancements

In addition to construction of new bicycle facilities and paths, additional needs must be considered. Signage, bicycle parking, and ancillary facilities should be provided as described in the Bicycle Needs Assessment section. These details are an important part of a complete bicycle system.

### Bicycle Maps

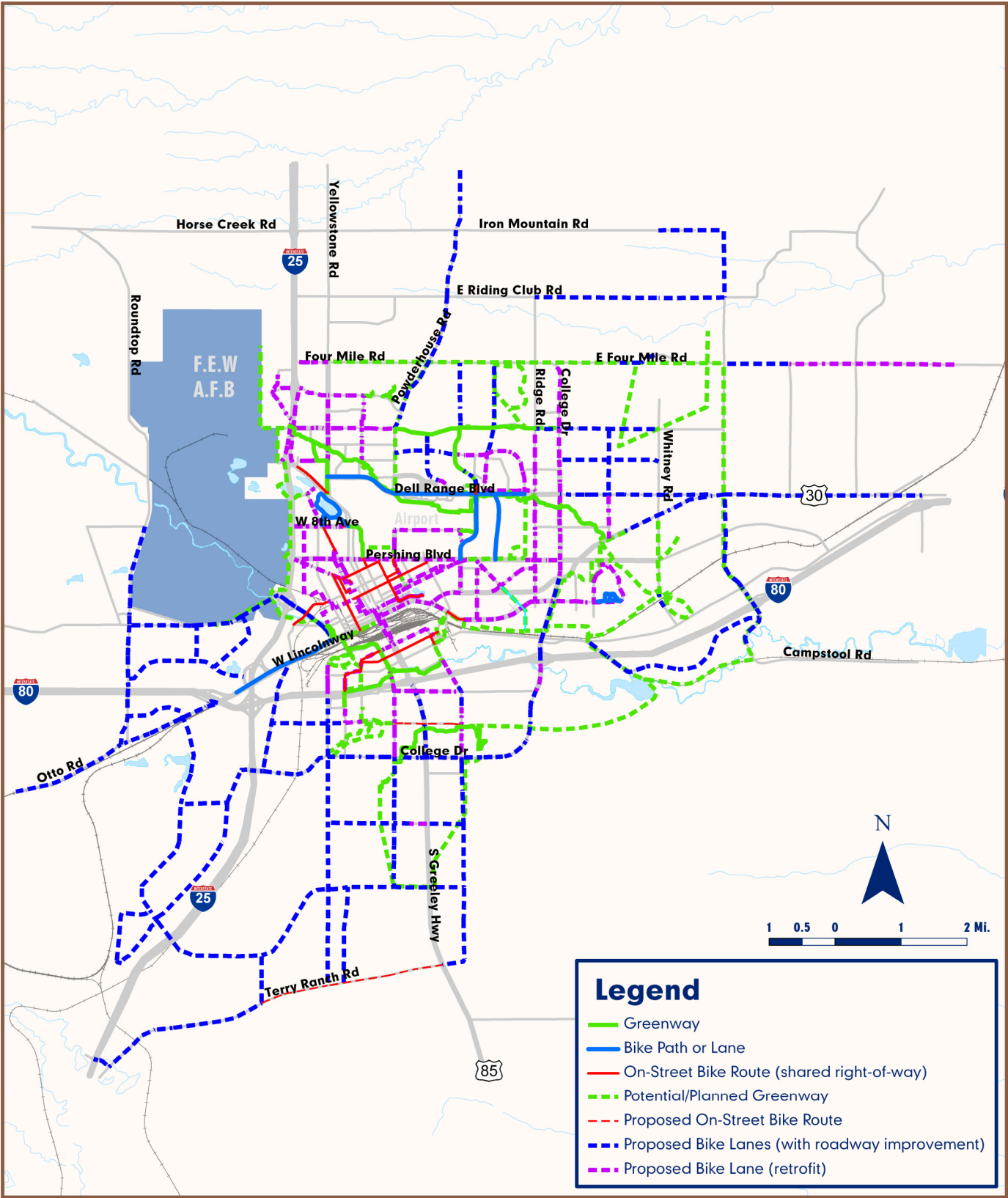
In order to transmit this information to the community, the MPO should develop a map of existing and planned bicycle routes, facilities, and paths. Such maps would also provide safety and related information. The MPO should disseminate these maps to schools, recreation centers, libraries, the internet, and other locations.



## Conclusion

With these elements, the Cheyenne bicycle network shown in [Figure 14](#) can meet the needs of safety, convenience, and connectivity. By upgrading existing bicycle routes to bicycle facilities in key corridors, safety and convenience are improved in the locations with the highest demand. This plan also provides options by adding new bicycle facilities in developing areas, providing system-wide enhancements, and educating the community about available bicycle facilities.

Figure 14: 2030 Bicycle Vision Plan



*This map shows bicycle facilities included in the 2030 Bicycle Vision Plan. Proposed facilities include previous efforts undertaken by the City of Cheyenne and additional facilities identified in the PlanCheyenne effort.*

## **Pedestrian Vision Plan**

The 2030 Pedestrian Vision Plan consists of general guidelines on good pedestrian design. Pedestrian improvements should be made to existing neighborhoods as needed, but are not necessary throughout Cheyenne. As roadway facilities are improved and infill development occurs, improvements to the pedestrian facilities should be included in these efforts. Furthermore, as growth occurs in undeveloped areas, steps should be taken to ensure that development is planned to accommodate pedestrian travel.

### **Pedestrian Improvement Installation in Existing Neighborhoods**

A number of Cheyenne Area residential streets do not have sidewalks. In some cases, these residential neighborhoods were built outside the City limits and later annexed. In other cases, they were built during a time when sidewalks were not required. Often these streets were designed and built without other standards, such as curbs, gutters, and setbacks, and may traverse pockets of undeveloped property.

The ability to retrofit these streets is a function of need and design. This transportation plan does not propose installation of sidewalks throughout the City within all neighborhoods, as the pedestrian demand is not warranted and the cost for such installation would be high. Rather, this plan suggests that neighborhood self-evaluations be proposed where specific connections between residential areas and important destinations, such as schools, parks, and commercial centers might warrant pedestrian improvements. Evaluations may be prompted by representatives of a neighborhood such as a homeowner

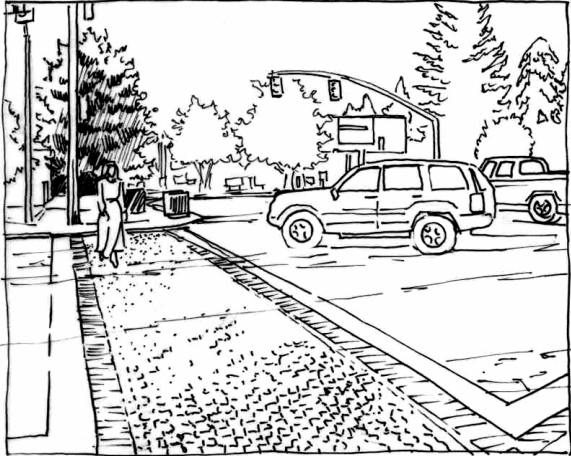
association, or may be conducted along with other infrastructure improvements.

It is further proposed that in such cases, sidewalks might be warranted and that the City should consider variances to their current street standards. This request is due to the fact that many of these streets do not have adequate right-of-ways and setbacks and would result in a negative impact to the community through the loss of landscaping, right-of-way acquisition, and a general change in character for the community. The proposed solution should consider simple mitigation that would provide a specific route and facility to accommodate the pedestrians. This might include an asphalt strip on only one side of the facility, with a reduction of through travel lane widths to accommodate the pedestrian path. A highly visible, tactile pavement with contrasting paving material and color should be considered. A wide shoulder on local roads with lower traffic volumes (less than 400 ADT) and lower speeds (less than 40 mph) may provide sufficient walking space.

### **Require Pedestrian Assessment for New Streets and Proposed Turn Lane and Widening Improvements**

The number of travel lanes to cross is a significant safety factor for a pedestrian crossing the street. When the number of travel lanes increase, it is generally in response to higher traffic volumes. Therefore, the improvement generally results in the pedestrian being exposed for a longer amount of time to cross the wider street and exposing the pedestrian to a higher volume of traffic. In cases where the 2030 or Buildout Roadway Vision Plan calls for 4 and 6 lanes roadways, enhanced pedestrian crossing should be provided to accommodate pedestrian

mobility and safety. These improvements or design considerations should be taken into account:



- Type of Traffic Control
  - Signal with pedestrian signal heads.
  - Automatic walk signal phases (typically within pedestrian districts versus pedestrian activated push buttons).
  - Un-signalized intersection warning signs or pedestrian activated pedestrian warning crossing light.
- Cut through median pedestrian refuge island of six feet.
- Crosswalk treatment.
- Adequacy of street lighting levels.
- Pedestrian and intersection amenities to notify drivers that there is a pedestrian crossing present.
- Line-of-sight design triangles from pedestrian to automobile and automobile to pedestrian.
- Maximum curb radii of 20 feet.
- Bulbouts.
- Stop Bars.

## Features of Pedestrian Activity Areas

Pedestrian areas can be improved or designed to accommodate pedestrian travel through the use of some of the following features.

### Reduced Lane Widths within Pedestrian Activity Areas or Other High Pedestrian Demand Areas

Typically a travel lane is 12 feet wide. If lane widths are reduced, the time it takes a pedestrian to cross the street is also reduced. In areas where there are high pedestrian activities such as in pedestrian districts, reducing through travel lanes to 11 feet to calm or slow traffic should be considered, which is of benefit to the pedestrian. It is further recommended that left turn lanes should be reduced to 10 feet. As an example, a four-lane arterial with a left-turn lane could be reduced a total of six feet in vehicular lane width and could then be dedicated to a six-foot median refuge island.

### Traffic Calming to Reduce Travel Speed

Speed is a significant safety factor for pedestrians trying to cross a street. Factors that might affect travel speed include traffic, number of access points, and geometric design. As mentioned previously, lane widths also contribute to travel speed. Whereas speed limits could be reduced in areas with pedestrian activity, they are seldom observed unless they are accompanied with traffic calming improvements.

Traffic calming measures include narrower travel lanes, on-street parking, bulbouts, and crosswalk treatment. Other traffic calming techniques include signal timing and signal progression. As part of any future street or corridor improvement, particularly if the area is in a residential area or an activity area and already experiences high travel speeds that would potentially impact pedestrian safety,



consideration should be given to incorporating traffic-calming techniques in the improvements design. The City's *Neighborhood Traffic Management Program* offers a process for residents to explore neighborhood supported solutions.

### Crosswalk Treatments

In high use pedestrian areas or areas, the following recommendations are identified for the site layout or design:

- **Crosswalks:** Enhancements to crosswalks, including color, stenciling, and pavement treatment should be considered for all major intersection entryways to mixed-use centers.
- **Signal Indication:** Pedestrian signal heads should be included for all signalized intersections with crosswalks. The heads should be easily visible to the pedestrian and the motorist.
- **Lighting Levels:** The intersection should be well lit so that the pedestrian is visible at night.
- **Pedestrian Signal Indication and Pedestrian Buttons:** It is desirable for all activity areas to have designated pedestrian phases. Pedestrian push buttons should be required for all other intersections. The location of the push button should be easily accessed and not require pedestrians to divert from their travel route. Signals without dedicated walk phases or push buttons are not acceptable since the only way a pedestrian may ever get a green light is when an automobile on the side street activates the cycle.

- **Countdown Signal Heads:** At signal locations that experience a high number of pedestrians such as at transit stops or downtown, have experienced a large number of pedestrian accidents, or any other area where pedestrians often cross during the "Do Not Walk" phase, countdown signal heads should be considered to provide additional information about how much time is remaining for being able to cross the street.



Countdown Signal Head

- **Median Refuge Areas:** Painted medians offer little refuge other than getting out of a lane of traffic. Substantive raised medians of significant width with a cut through provide some increase in security for the crossing pedestrian. For arterials with four or greater lanes, a raised median refuge island should be designed for all intersections and mid-block crossings.
- **Amenity:** In pedestrian districts, amenities should include such elements as signing and design features that strongly suggest the presence of a pedestrian crossing.

- **Line-of-Sight Distance:** Sight distance measures the unobstructed view between the motorist and the pedestrian. This can be a problem particularly when a motorist intends to make a left turn under the permissive left turn phase and it is difficult to see pedestrians around the opposing left turn vehicle. Sight distance should be analyzed as a part of all intersection designs.
- **Right Turn on Red (Left Turn on Red on One-Way Streets):** One of the greatest increases in pedestrian accidents has been associated with right turns on red lights. Research has determined that an extremely high number of drivers do not stop at the crosswalk before making their turn and instead continue on while looking to the left for approaching conflicting vehicles, not pedestrians in the crosswalk. Some jurisdictions have installed signs that do not permit right turns on red. As part of the traffic study, locations that would experience high pedestrian volumes should be identified. Restricting right turns on red should be at the discretion of the Department of Public Works.
- **All Walk Phase:** This signal phasing treatment stops all automobile traffic and issues a walk phase for all directions, including diagonal crossing of the intersection.

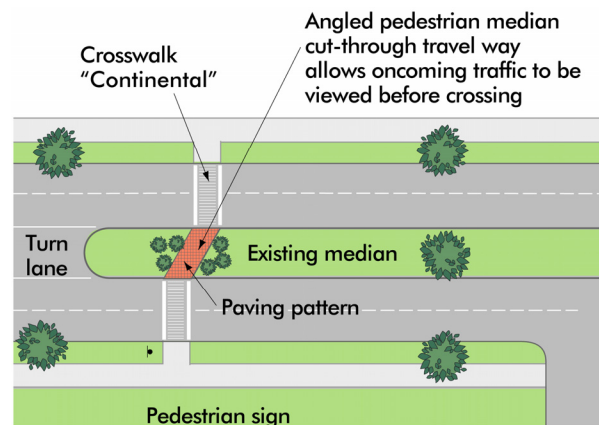
### Pedestrian Ramp Design

All pedestrian ramps located in pedestrian zones, activity areas, and at signalized-intersections should be of the ADA directional design. These directional

pedestrian ramps notify the driver as to which street the pedestrian is crossing. Single directional ramps in these high-use pedestrian areas and along arterials would not be acceptable as they do not let the driver know the intent of the pedestrian as to which street will be crossed.

### Mid-Block Crossing Locations and Design

Mid-block crossings should be considered where there is an existing or potential pedestrian demand to cross at higher volume roadways or streets where crossings are greater than 400 feet. Ideally, these crossings should be accommodated with a refuge island.



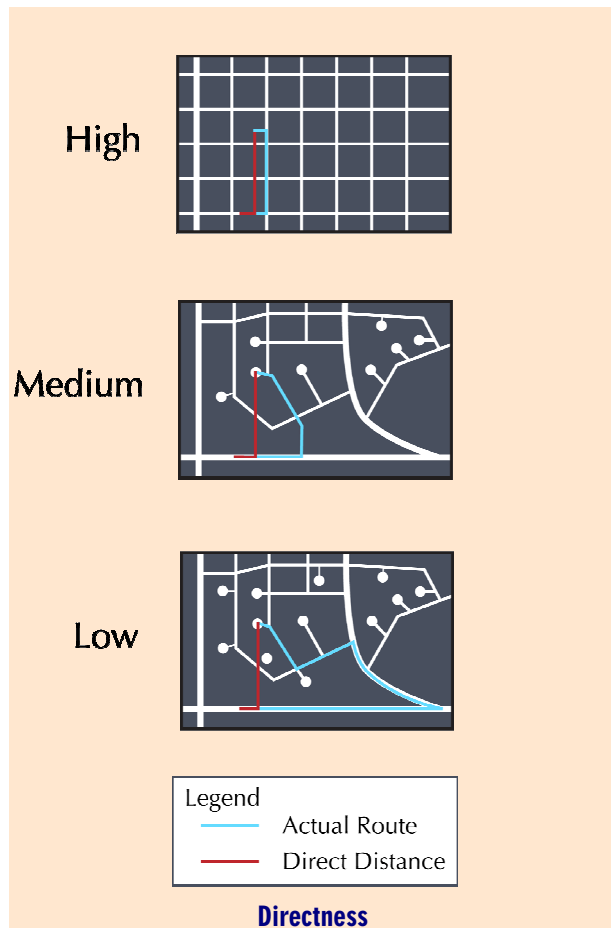
Center crossing islands allow the pedestrian to deal with only one direction of traffic at a time and they enable them to stop partway across the street and wait for an adequate gap in traffic before crossing the second half of the street. Where mid-block crosswalks are installed at uncontrolled locations (i.e., where no traffic signals or stop signs exist), crossing islands should be considered as a supplement to the crosswalk so that the pedestrian will only have to cross one lane at a time. Providing an angled pedestrian travel way across the median allows oncoming traffic to be seen by the pedestrian.

## Pedestrian Level of Service

The Cheyenne Area shall devise a method to assess capital and land development projects to determine whether these improvements enhance the pedestrian experience or impact pedestrian mobility. The Pedestrian Level of Service guidelines provided below address the five key elements of directness, continuity, street crossings, security, and visual interest and amenity. These measures can also be used in the preparation of a Mobility Report Card as described in the Build chapter of the *Transportation Master Plan*.

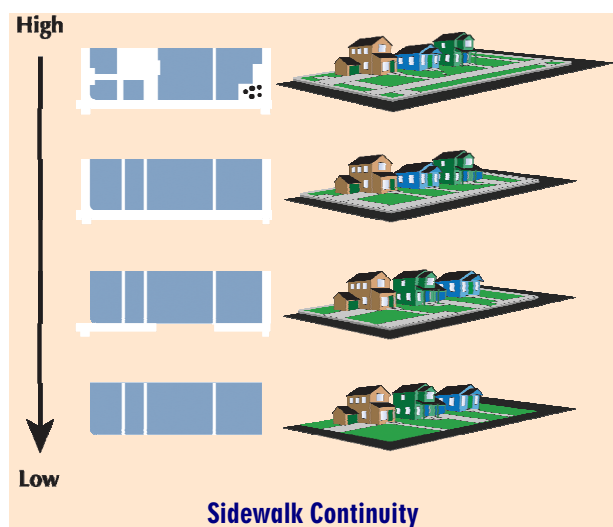
### Directness

Distance is critical to the walking trip. As an example, research has closely correlated transit use to distance. No matter how many buses may run up and down an arterial, ridership will be low unless the pedestrian distance to and from activities and bus stops is minimized. The measure of directness is simply how well a community provides direct pedestrian connections to destinations such as transit stops, schools, parks, libraries, commercial centers, or activity areas. The grid street pattern, in which a pedestrian can go north, south, east, or west to easily get to a destination, typifies the ideal system with a high level of service. The common curvilinear residential subdivision, which may have cul-de-sacs that back up against a commercial center, transit stop, school, or park but do not have direct connections and instead require a circuitous route, will deter potential pedestrians. These areas have lower service levels.



### Continuity

Continuity is a measure of the completeness of the sidewalk system and avoidance of missing segments. In the highest level of service, the pedestrian sidewalk appears as a single entity within a major activity area or public space. High-level pedestrian facilities also provide a quality, continuous stretch of pedestrian network that is physically separated from other modes. Mid-level pedestrian facilities provide a continuous pedestrian network on both sides of each street, but they may vary in character and design. The low-level pedestrian service is when there is a complete breakdown in the pedestrian flow, and each pedestrian selects a different route because no pedestrian network exists.



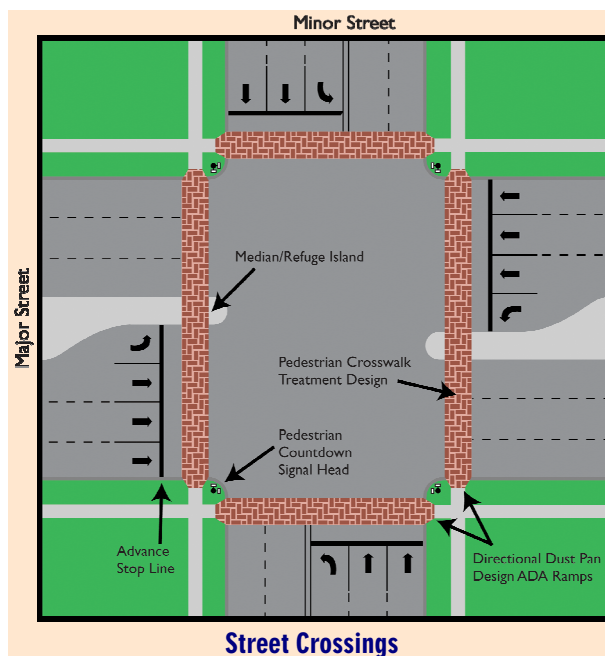
## Street Crossings

Street crossings may be the Achilles Heel of the pedestrian system. Because street crossings place the pedestrian in the middle of the street and exposed to potential conflicts with automobiles, the measurement of a street crossing becomes very complex and the achievement of a high-level of service requires significant investment.

Improvements such as crosswalks, pedestrian count down signal heads, raised median refuge islands and street lighting can improve the pedestrian safety at intersections.

## Visual Interest and Amenity

To promote pedestrian activity in an activity area, the pedestrian system needs to be aesthetically appealing. The attractiveness of the pedestrian network can range from visually attractive, with enhancements like street lighting, fountains, and benches, to an experience of discomfort and intimidation associated with the absence of amenities. Guidelines are presented in the Shape section of the *Transportation Master Plan*.



## Security

Pedestrians require a sense of security, both through visual line of sight with others and separation from vehicles. Street lighting is also important for walking at night.

## Conclusion

By focusing on the elements of a good pedestrian system, especially at activity centers and mixed-use developments, Cheyenne can increase the frequency of walk trips and reduce the strain on the roadway system. Success of the 2030 Pedestrian Vision Plan is highly dependent on elements of the Future Land Use Plan such as higher densities, activity areas, and mixed-use development.



## Other Modes

In addition to the primary modes of automobile, transit, bicycle, and pedestrian, other modes of transportation are also used in the Cheyenne Area. While these modes are not used by most area residents on a regular basis, they are an important part of the transportation system. These modes include:

- **Emergency Vehicles:** Emergency vehicles use the same roadway system as automobiles and busses, but experience special privileges such as signal preemption. Emergency responders have also been given an opportunity to review the *Transportation Master Plan* and participate in its development.
- **Air Travel:** Air travel is not addressed directly by this plan, but impacts of air travel on the ground transportation system are recognized. Representatives of the Cheyenne Regional Airport were participants in the development of the plan.



- **Freight:** Freight movement to, from, and within the Cheyenne Area is vital to the success of commercial and industrial growth. The MPO recognizes the

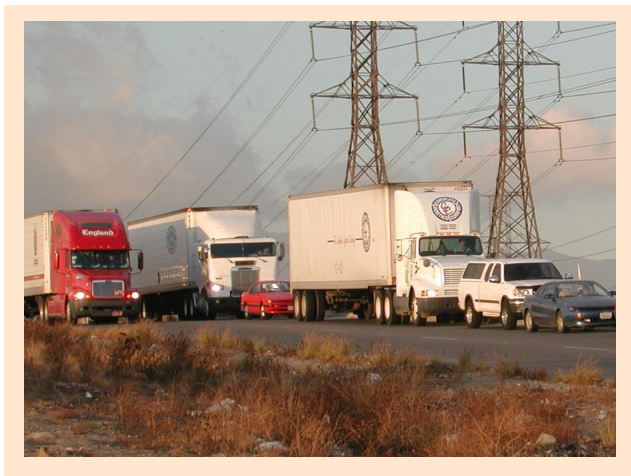
important role freight plays in the area, and includes representatives from trucking and railroad interests on its technical committee.

I-80 through Cheyenne is a major east-west freight corridor and experiences very high volumes of truck traffic. Cheyenne is home to several active railroad lines and rail yards. The rail lines carry large amounts of freight to and through the Cheyenne Area. Over time, movement of freight through Cheyenne is expected to increase.

The Western Cheyenne Transportation Study is an intermodal study that was prepared by the MPO to specifically address freight concerns in the Cheyenne Area. This study investigates potential locations for a transload facility where rail freight could be transferred to trucks, possible relocation of freight facilities, and passenger rail possibilities. This study concluded that while relocation of the BNSF mainline and yard is not currently feasible, construction of a rail served industrial park combined with a transload facility would be appropriate and marketable.

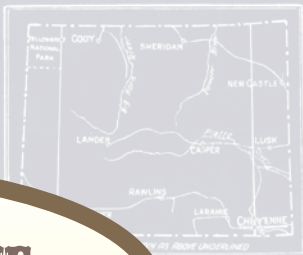
Some cities and MPO's choose to define designated truck routes through their communities, while others utilize general guidelines on truck travel. While truck routes have been defined in the Cheyenne Area, they were developed prior to the construction of I-80. Because these truck routes are out of date, truck traffic passing through Cheyenne should remain on the interstate highway system and US-85. Freight traffic with a destination in the

Cheyenne area should utilize major arterials wherever possible, followed by minor arterials only as needed. Freight traffic should utilize local and collector streets as little as possible and only when required to reach a destination. Transport of hazardous materials through and to the Cheyenne Area must follow all state and federal regulations and should be subject to the same route restrictions as other freight traffic.



Freight movement by truck is included in the traffic volume analysis prepared for this plan. Issues of safety and mobility arise as interstate highways become congested. Improvements such as widening I-80 to six lanes (Buildout Roadway Vision Plan) and enhancements to the I-80/I-25 interchange (2030 Roadway Vision Plan) will directly affect commercial trucks. Additional issues such as hazardous materials, interstate closures, and the interaction between freight and passenger vehicles are recognized by the MPO.







# PLANCHEYENNE

## Developing a Connected & Diverse Transportation System





## Cheyenne Area Transportation Master Plan

# Build



November 2006

CHEYENNE METROPOLITAN PLANNING ORGANIZATION

CLARION - LSA - EDAW - AVI





# PLAN CHEYENNE



## WATER FACILITIES:

Municipal ownership - Gravity system installed.  
Source of Supply, Crow Creek & Troutfork Reservoirs,  
located about 25 miles west of town in G  
Capacity of Storage Reservoirs as follows:

North Crow Reservoir

Granite

Crystal Lake

35 miles of cast iron supply line capacity 30  
to 4 million gallon distributing reinforced  
41 miles west of & elevated 301 above Town  
Reservoir, supplies the 41", 30", 24", 20", 18" & 16"  
the mains laid 808 to 811 incl. - Average daily  
Gravity pressure 100 lbs. per sq. inch. 1932  
Pumping Plant Situated at west 15th & 10th  
Avenue.

## FIRE DEPARTMENT:

Staff - 2 Companies, Chief & 14 Men. Co. A & B  
wagons, 2000 25' Cotton Horse - Co. A & B, City  
One Graham Lifter Combination Horse & C  
Truck fully equipped - One Seelye's Com  
Wagon - One Hose Wagon in reserve - 5000  
Gallons well fire alarm system of 36 boxes  
Grades as shown - Fire Limits indicated by  
as shown -



# 1. Welcome

## Components of Build

The Build section of the *Transportation Master Plan* discusses limitations, strategies, and impacts associated with building the transportation vision plans.

### 1. Welcome

This section provides an introduction to the Build chapter of the *Transportation Master Plan*.

### 2. Financially Constrained Plan

The Financially Constrained Transportation Plan defines the transportation system that can be built with current funding levels. Anticipated costs and revenues are inventoried to determine the amount of funding that will be available. Components of the roadway, transit, pedestrian, and bicycle vision plans are selected for inclusion in the Financially Constrained Plan.

### 3. Implementation Strategies

Strategies and actions that will help in the implementation of the *Transportation Master Plan* are outlined in this section. Some strategies address actions that can be taken to build the fiscally constrained transportation plans, while others focus on actions necessary to increase funding and build portions of the transportation vision plans.

### 4. Impacts of the Plan

While there are many benefits associated with construction of the *Transportation Master Plan*, there are also potential negative impacts. This section explores the possibility of negative impacts and provides strategies to minimize them.





## 2. Financially Constrained Plan

A major component of the *Transportation Master Plan* is the financial element. A key federal planning requirement is the concept of fiscal constraint in transportation planning. A Fiscally Constrained Transportation Plan must first allow for operation and maintenance of existing facilities and then capital improvements. The purpose of the financial element is to balance the transportation projects recommended for implementation with the resources of the community available to build and maintain transportation facilities and services.

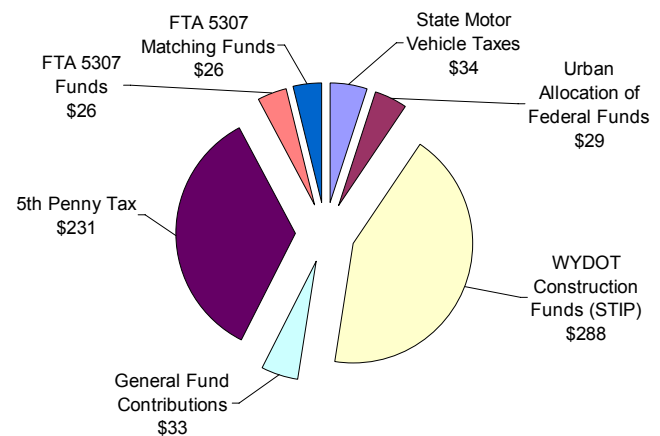
The Fiscally Constrained Transportation Plan is a subset of the 2030 Vision Plan. To develop the Fiscally Constrained Plan, an inventory of revenues and costs was undertaken to identify funds that will likely be available for capital construction. Projects from the 2030 Vision Plan were then selected based on a number of factors. Criteria for selection included short term needs as determined through the creation of a “Low Growth Roadway Plan,” the likelihood of securing developer funding for an improvement, and direction from MPO staff regarding improvement prioritization. Each step in creation of the Fiscally Constrained Transportation Plan is described below.

### Anticipated Revenues

Historically, transportation revenues in the Cheyenne Area come from a variety of sources. These revenues include funds provided by state and federal sources in the form of a State Transportation Improvement Program (STIP), urban fund contributions to the MPO, and state gasoline tax revenues contributed to the City of Cheyenne. The City of Cheyenne also provides revenues from its general fund and from 5<sup>th</sup> penny sales tax measures. The total funds that are expected to be available for transportation

operation, maintenance, rehabilitation, and capital improvement over the next 25 years are \$667 million. A detailed breakdown of these expected funds is provided in Table 4 and shown in Figure 15. It is recognized that both costs and revenues will increase over time due to inflation, so all funding discussions are presented in 2006 dollars.

**Figure 15: Available Funding Sources (Millions)**



### Anticipated Costs

Over the 25-year forecast period, there are various categories that must be considered. Existing transportation facilities must be rehabilitated and resurfaced, general operation and maintenance of the transportation system must be provided, and capital improvements need to be designed and constructed. In addition, operation of the transit system is included as a separate cost category. Each of these needs will vie for limited available funding sources. Furthermore, state funds may only be used for improvements to state and federal highways. The breakdown of anticipated costs is detailed in Table 5 and shown in Figure 16.

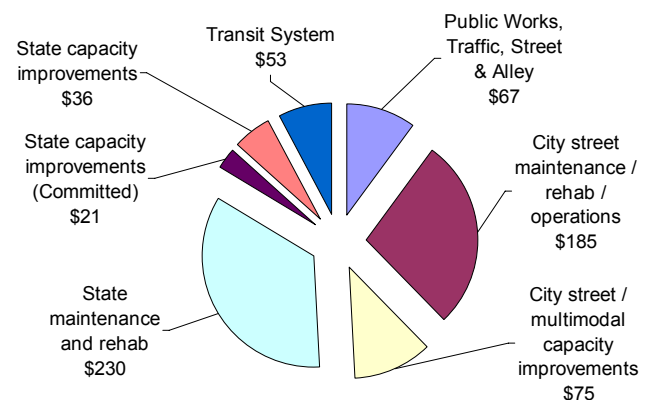
Table 4: Anticipated Funding Sources

| Roadway Funding Sources  | Estimated FY 2006 Funding | Historical Character   | Anticipated Funds through 2030 (millions) |
|--|---------------------------|--|---|
| <b>State Motor Vehicle Taxes:</b> Revenues from vehicle registration fees and taxes. Provided by the state to the City for spending on transportation.   | 1,193,000                 | Increases over time, roughly proportional to population growth after adjustment for inflation. Funds are expected to continue, but are not typically available for capacity improvements.  | \$34                                      |
| <b>Urban Allocation of Federal Funds:</b> Federal funds provided to the MPO by WYDOT. Available for spending on capacity improvements on non-state roads.  | 1,150,794                 | Occasionally increases, but is held constant for this analysis.  | \$29                                      |
| <b>WYDOT Construction Funds (STIP):</b> Funds provided to WYDOT by the State Legislature and from federal sources. Used to maintain and improve state roadways.  | n/a                       | Varies yearly based on statewide needs. Average spending of \$12M per year is forecast by WYDOT for the Cheyenne Area through 2017. Roughly 20% of forecast revenues are expected to be used on capital construction projects resulting in increased capacity.   | \$288                                     |
| <b>General Fund Contributions:</b> Contribution from the City's general fund for spending on transportation. General fund dollars are provided by the State and are generated through a sales tax.                                   | 1,044,922                 | Generally Increases over time (discretionary). Funds are expected to continue but are not typically available for capacity improvements.   | \$33                                      |
| <b>5th Penny Tax:</b> A sales tax enacted specifically for transportation funding. The City and County receive funds based on population and typically spend the money on non-state roads.   | 7,200,000                 | Increases over time, roughly proportional to population growth after adjustment for inflation. At least 80% of generated revenue has been reserved for transportation uses. Of this 80%, the amount available for capital construction increasing capacity has varied, averaging about 20%. This tax has been repeatedly renewed by voters since its creation in 1978 and is expected to continue. | \$231                                     |
| <b>6th Penny Tax:</b> A countywide sales tax that could be potentially used for transportation.  | n/a                       | This tax has only rarely been used for transportation improvements, and has only been used for special projects.   | Unknown                                   |
| <b>Developer Exactions/Fee Programs:</b> Funds paid or expended by developers to build infrastructure that supports new development.   | n/a                       | Cheyenne has recently begun requiring developers to fund transportation improvements through exactions in the entitlement process. Detailed accounts of past funding levels are unavailable. A fee program may be implemented in the future, but fee program revenues are not assumed in the 2030 Fiscally Constrained Roadway Plan.   | Unknown                                   |
| <b>FTA 5307 Funds (Transit):</b> Funds provided by the Federal Transit Administration to smaller urbanized areas. This funding is used by the Cheyenne Transit Program to provide fixed-route and demand responsive transit service. | 763,000                   | Increases over time to adjust for inflation and increases after each census. An option is available to adjust the contribution amount one time between census years.   | \$26                                      |
| <b>Matching/Other Funds (Transit):</b> Local match funds required to receive FTA 5307 dollars, the majority of which are provided to the Cheyenne Transit Program by the City of Cheyenne and Larimer County.                        | 920,049                   | Cheyenne area governments and agencies generally match the full available FTA 5307 amount, but do not provide additional unmatched funding. This funding is expected to continue.  | \$26                                      |

**Table 5: Anticipated Expenses**

| Expense Category                                      | Status   | Anticipated Expense through 2030 |
|---|--|----------------------------------|
| Public Works, Traffic, and Street & Alley             | Gas tax dollars and general fund contributions fund this category                                      | 67,320,372                       |
| City street maintenance / rehabilitation / Operations | 80% of 5th penny tax funds available for transportation spending are consumed by this category         | 184,526,557                      |
| City street capacity and multimodal improvements      | 20% of 5th penny taxes, plus 100% of urban allocation of federal funds, are assumed for this category. | 74,901,489                       |
| State maintenance and rehab                           | 80% of forecast STIP funds are assumed for this category.  | 230,400,000                      |
| State Capacity improvements (Committed)               | Funds committed to capacity improvements in the State Transportation                                   | 20,968,000                       |
| State Capacity improvements                           | 20% of forecast STIP funds, less funding for committed improvements, are assumed for this category.    | 36,632,000                       |
| Transit   | All FTA 5307 and matching funds are assumed for this category.   | 52,694,000                       |

As discussed in the Shape chapter of the *Transportation Master Plan*, lane miles of roadway will grow at a slower rate than population if the 2030 Roadway Vision Plan is built. To ensure that adequate funding is available for the maintenance and operation of the transportation system, non-capacity expenses are forecast to grow at the same rate as population (two percent per year). The remaining roadway funds are allocated to capital improvements that increase the capacity of the roadway system.

**Figure 16: Anticipated Costs (Millions)**


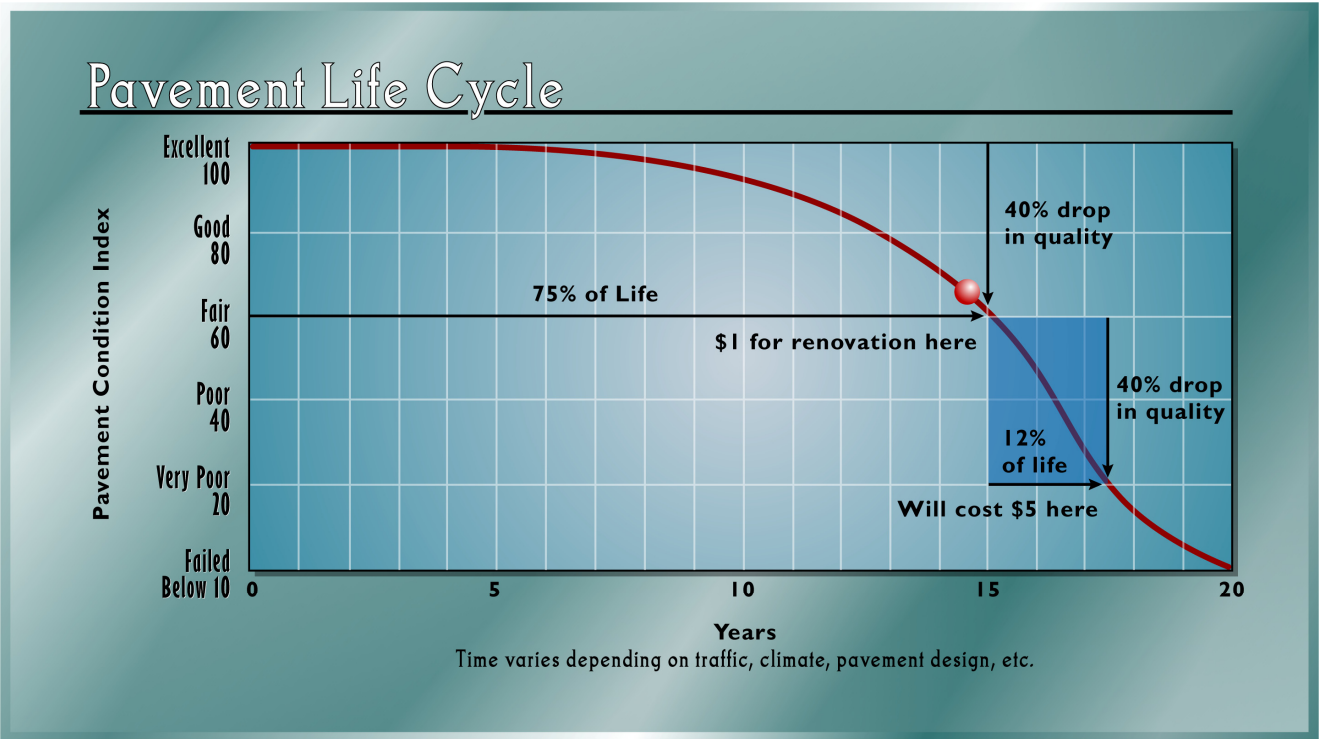


Rehabilitation and Resurfacing

This category is required to keep the existing Cheyenne Area streets, sidewalks, and bike lanes in good condition. As demonstrated in

Figure 17, timely resurfacing, patching, and repairing of streets, curbs, and gutters will prolong the life of a facility and reduce long-term costs.

Figure 17: Pavement Life Cycle



Operation and Maintenance

Operation and Maintenance is the bulk of the daily activities associated with the transportation departments. It includes everything from plowing snow, traffic signals, patching potholes, and answering phone calls.

Capital Construction

Capital Construction is the construction of new facilities and the reconstruction and expansion of existing facilities. The extension of Storey Blvd. is a recent example of this type of activity. Over the next 25-year period, \$133 million is expected to be available for capital roadway improvements, with a small portion

of these funds potentially available to assist in pedestrian and bicycle projects. Of this amount, \$58 million is available for State and Federal facilities, with \$75 million available for other arterial and collector streets in the Cheyenne Area.

Transit System

Like the roadway system, the transit system has operation, maintenance, and capital costs. This category includes running the transit system from day-to-day, the replacement of transit vehicles as they age, procurement of new transit vehicles as service expands, and the installation and maintenance of bus stop facilities.

## Fiscally Constrained Roadway Plan

Without additional funding sources, the 2030 Roadway Vision Plan cannot be built.

Although the Cheyenne Area needs to build the 2030 Roadway Vision Plan, sufficient funds will not be available from current sources. Therefore, a prioritization process must be used to identify portions of that plan that would best serve the community. This will allow the most beneficial improvements to be built if the entire 2030 Roadway Vision Plan is not implemented. Additional funding options are presented later in this chapter.

### Low Growth Analysis

The 2030 Roadway Vision Plan assumes a population growth rate in the Cheyenne Area of two percent per year. However, some engineers expect a growth rate of 1.25 percent per year over the next 25 years. To begin project prioritization, a fiscally unconstrained plan, assuming the lower growth rate was developed (the Low Growth Roadway Plan).

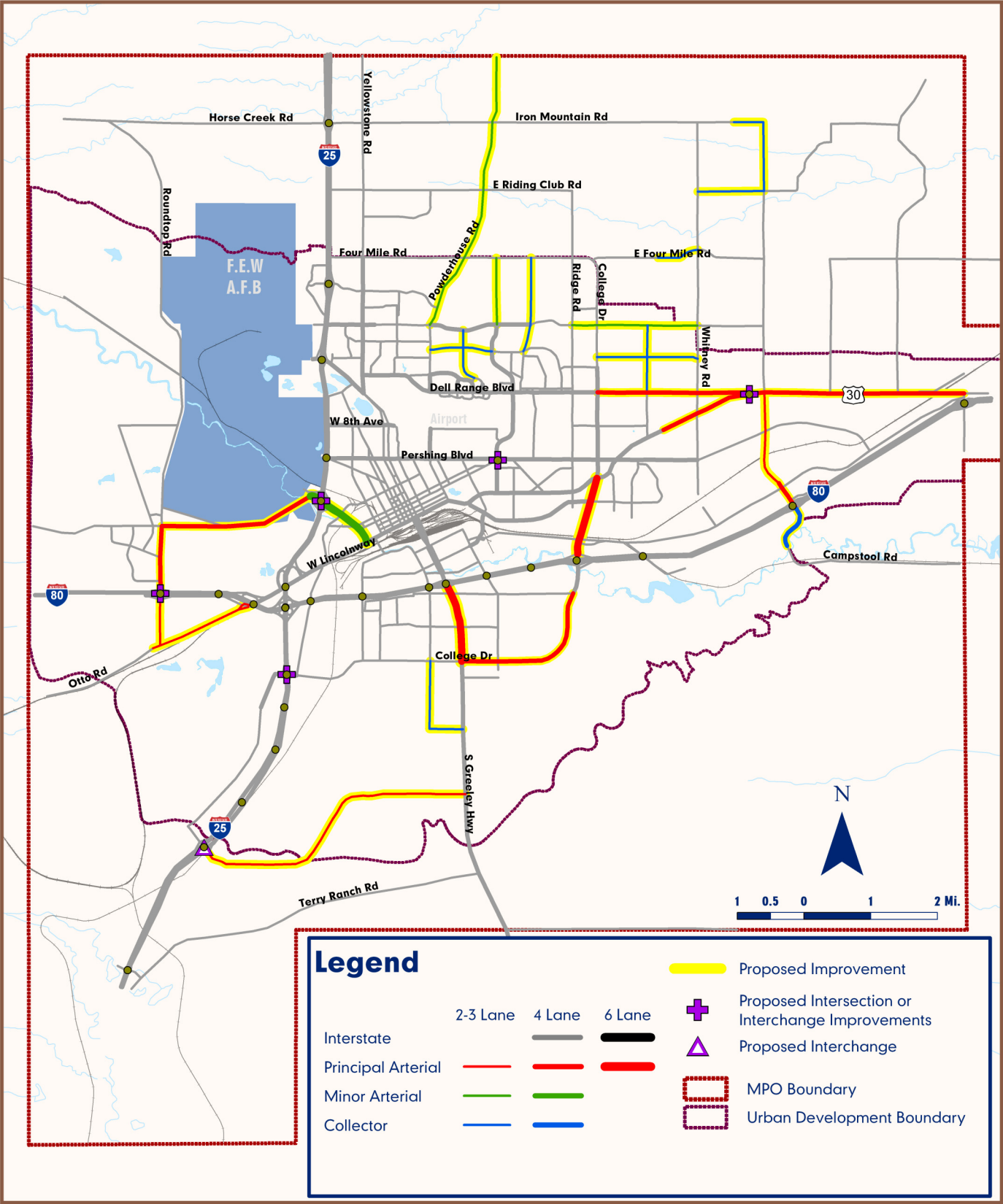
This plan includes all new roadways that are identified as proposed routes on the City of Cheyenne's current (March 2005) Functional Classification Map. In addition, the Low Growth Roadway Plan includes improvements from the 2030 Roadway Vision Plan in areas that would become congested without improvement. The estimated cost to construct the 2030 Roadway Vision Plan is \$319 million, while the estimated cost to complete the Low Growth Roadway Plan shown in Figure 18 is \$215 million. A comparison of estimated funding levels and roadway plan costs is presented in Table 6.

**Table 6: Comparison of Revenues and Costs**

| Funding Source       | Available Capital Funds (two percent growth) | Estimated Roadway Project Costs (1.25 percent growth) | Estimated Roadway Project Costs (two percent growth) |
|----------------------|--|---|--|
| State / Federal      | \$36.6 million                               | \$151.1 million                                       | \$174.9 million                                      |
| Arterial / Collector | \$74.9 million                               | \$63.7 million  | \$144.1 million                                      |

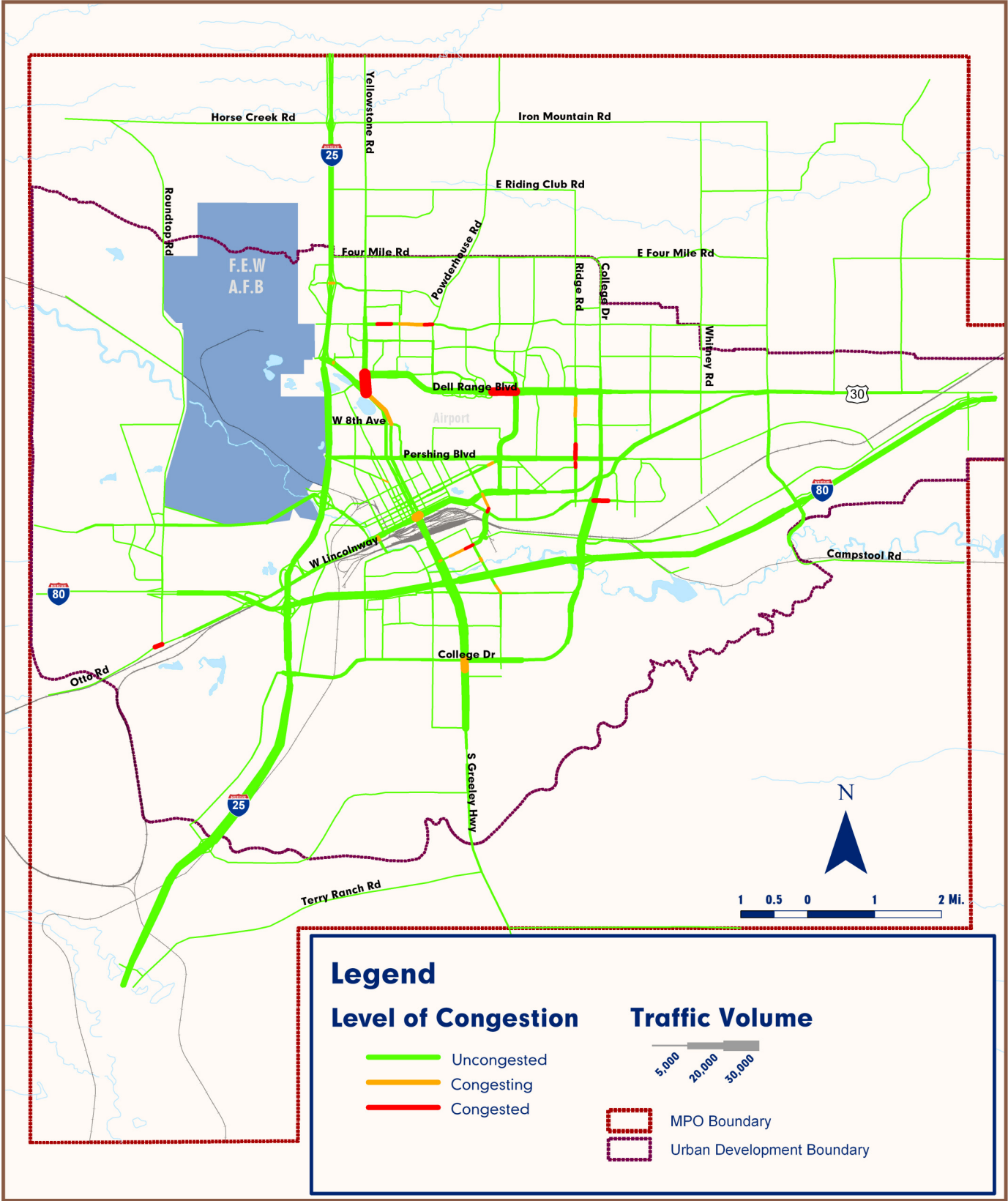
A congestion analysis of the Low Growth Roadway Plan, assuming the lower growth rate and the reduced set of roadway improvements, is included in Figure 19. By constructing the Low Growth Roadway Plan, increased traffic resulting from population growth at 1.25 percent per year can be accommodated. However, this scenario is not entirely realistic, as the analysis assumes a 1.25 percent growth uniformly across the planning region, actual growth will be different and access to developing areas will similarly be different. For development to occur, developers would need to build or fund construction of additional roadways that provide access to new homes and businesses. Additionally, funding levels have been estimated based on a two percent per year population. If growth occurs at a lower rate, funding levels will also be lower.

Figure 18: Low Growth Roadway Improvements



*This map defines roadway improvements under a low-growth scenario.*

**Figure 19: Low Growth Roadway Plan Congestion Analysis**



*This map shows areas that will be congested in 2030 if Cheyenne grows at 2% per year and the Roadway Vision Plan is built.*



### **Fiscally Constrained Improvement List**

As demonstrated below, it is necessary to identify roadway improvements that are most beneficial to preventing congestion in the Cheyenne Area. To identify these projects, the travel model was used along with cost estimates to determine which improvements provided the best use of limited funds.

Qualitative measures such as system continuity and developer responsibility were also considered to identify the projects that were chosen for inclusion in the 2030 Fiscally Constrained Roadway Plan shown in [Figure 20](#). Some improvements defined in the Roadway Vision Plan have been replaced with interim improvements, such as adding a center turn lane, in the 2030 Fiscally Constrained Plan. This phased concept maximizes capacity for the 2030 horizon and builds toward the 2030 Roadway Vision Plan improvements.

The 2030 Roadway Vision Plan includes improvements to state facilities, improvements to local arterial streets, and construction of new collector facilities. Each of these improvement categories could be constructed using different funding sources. Improvements to state and federal highways, including interchange improvements, are funded through WYDOT's STIP program. Improvements to local arterial streets are generally funded through Cheyenne's one percent sales tax and MPO urban funds, but may receive some contributions from developers. New collector streets are typically constructed by or paid for entirely by developers, but some collector street improvements, which serve as connectors between different areas within the City, may be paid for with public funds.

A key consideration for inclusion in the fiscally constrained improvement was whether the improvement primarily served new development or whether it served a larger area. Arterial streets that run through or are adjacent to newly developing areas are given a low priority for inclusion in the 2030 Fiscally Constrained Roadway Plan. These improvements, should they become necessary, may be funded through the use of developer exactions or a developer fee program. A detailed discussion of developer funding mechanisms is provided later in this chapter. It should be noted that inclusion of improvements in the fiscally constrained roadway network does not preclude them from developer funding mechanisms such as a fee program.

A list of 2030 Roadway Vision Plan projects and costs is provided in Table 7, along with information about each project's inclusion and cost in the 2030 Fiscally Constrained Roadway Plan. Because the financial resources assumed to be available for the construction of the 2030 Fiscally Constrained Roadway Plan assume a two percent per year population growth rate, the performance of the 2030 Fiscally Constrained Roadway Plan must be evaluated against this growth rate. Use of the two percent growth rate is also beneficial in ensuring that the plan will be sufficient if this growth rate occurs. If the actual growth rate is less than two percent, then the available funding and need would also be less. [A congestion analysis of the 2030 Fiscally Constrained Roadway Plan is provided in Figure 21.](#)

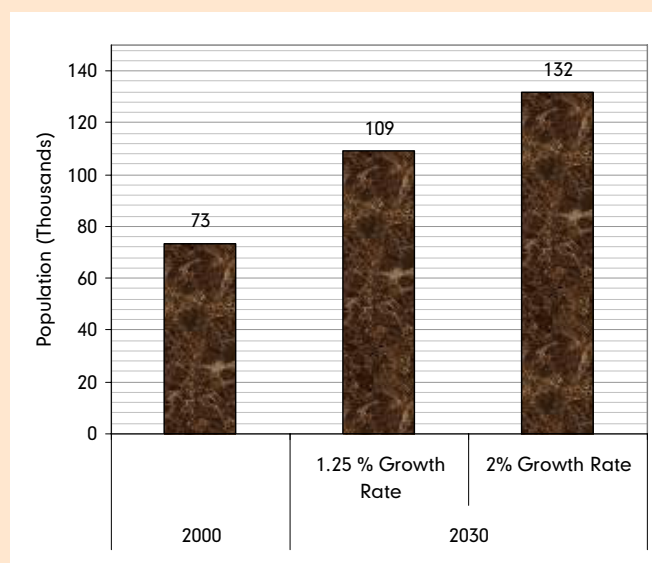
## How are project costs estimated?

As part of the *Transportation Master Plan* development process, it is necessary to estimate costs for each improvement. If detailed engineering cost estimates were available for particular projects, either from localities, WYDOT, or other reliable sources, that data was used. Where accurate and reliable cost data was not readily available, a cost estimation routine was used based on the results of the travel demand model. These roadway costs were developed by analyzing the results of the travel demand model taking into consideration the individual characteristics of the recommended roadway network. These planning level construction costs include estimated local costs of construction based on the projected roadway type as well as the estimated level of effort required for utility relocation, access maintenance, terrain, drainage, right-of-way acquisition, stormwater pollution prevention, project management, and construction contingencies. All cost estimates are based on roadway sections provided in the *Cheyenne Road, Street, and Site Planning Design Standards* and therefore include bike lanes and sidewalks where appropriate.

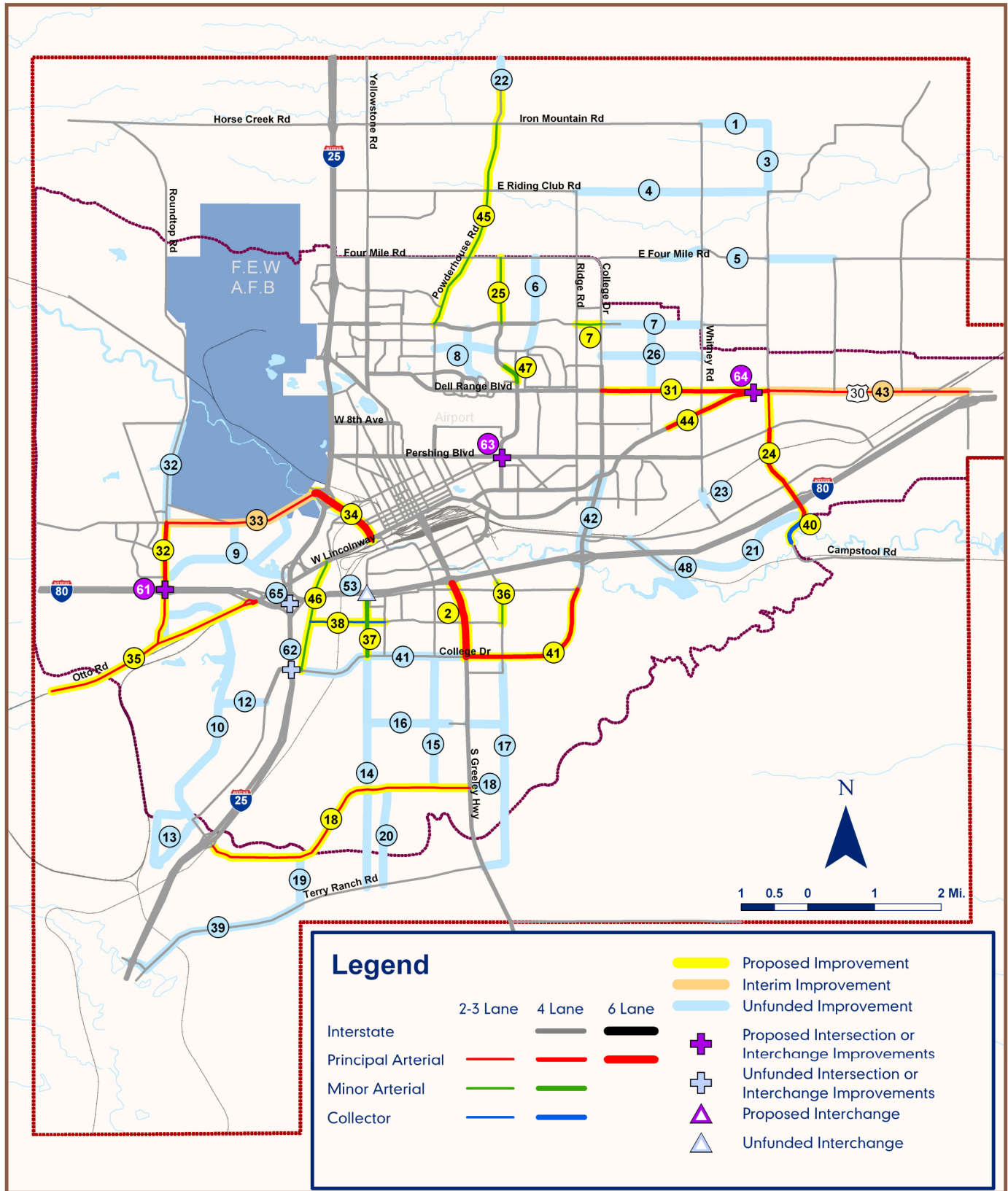
## The Low Growth and Fiscally Constrained Scenarios

In order to prioritize roadway improvements, an analysis was prepared using a lower growth rate assumption. This analysis is not entirely realistic as the lower growth rate was uniformly applied throughout the region, but provides some guidance to the MPO if the Cheyenne Area should grow at a slower rate. This analysis is most useful in identifying high priority improvements that should be included in a 2030 Fiscally Constrained Roadway Plan.

For the 2030 Fiscally Constrained Roadway Plan, the higher growth rate of two percent per year was utilized. Use of this growth rate ensures that the plan will be sufficient if growth occurs quickly. Population forecasts used in the low- and high-growth scenarios are shown below:

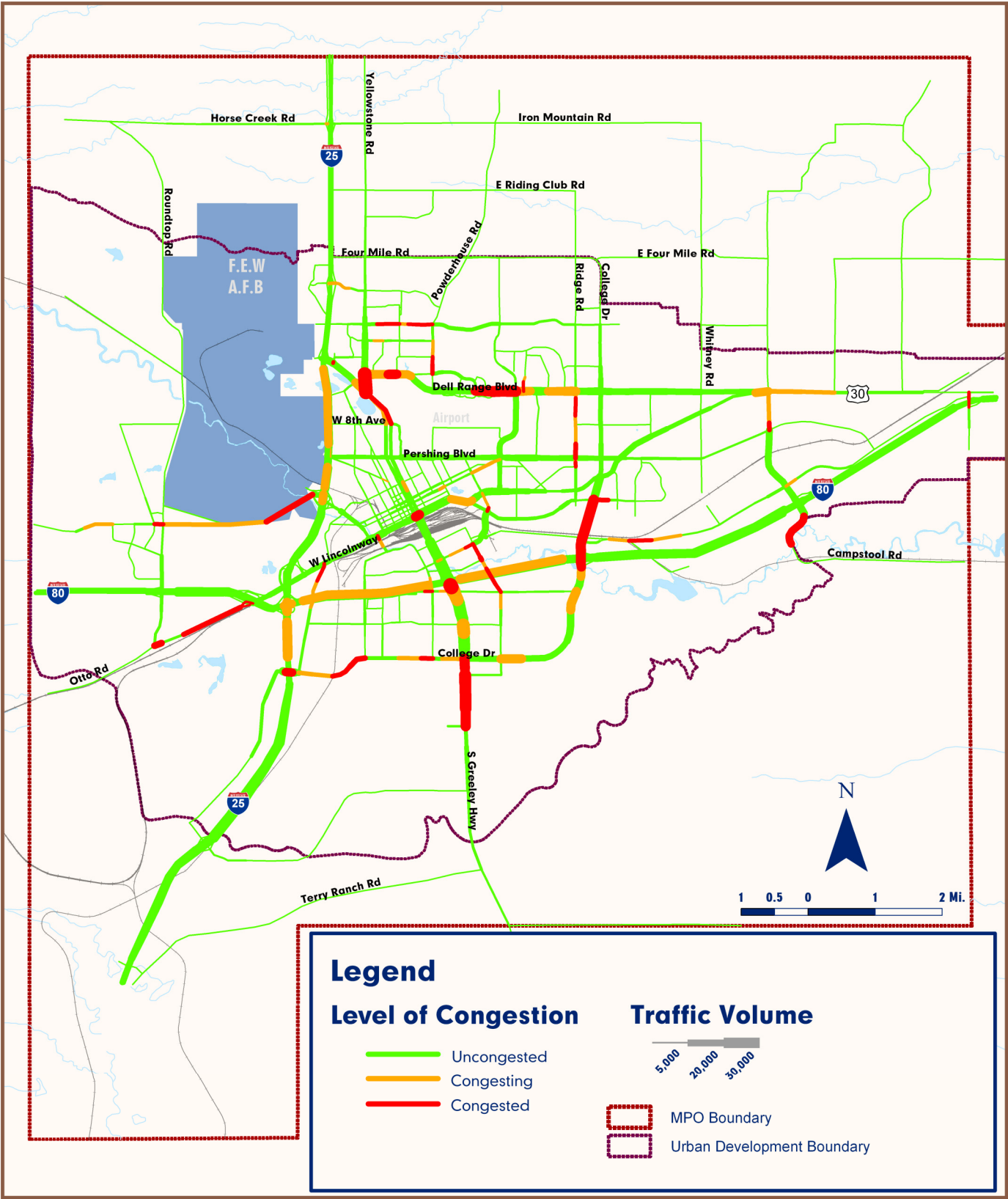


**Figure 20: 2030 Fiscally Constrained Roadway Plan**



***This map shows the 2030 Fiscally Constrained Roadway Plan. Improvements defined in the 2030 Roadway Vision Plan, but not this plan, are shown in light blue.***

Figure 21: 2030 Fiscally Constrained Congestion Analysis



*This map shows areas where traffic congestion will occur in 2030 if Cheyenne grows at 2% per year and the 2030 Fiscally Constrained Roadway Plan is built.*



**Table 7: Costs Estimates and 2030 Fiscally Constrained Roadway Plan Inclusion****State / US Highways**

| No.                                 | Facility                     | Limits                               | Improvements                               | Fiscally<br>Constrained<br>Improvement<br>Status | 2030 Roadway Vision<br>Plan |                      | 20320 Fiscally<br>Constrained Roadway<br>Plan |                     |
|-------------------------------------|------------------------------|--------------------------------------|--|--|-----------------------------|----------------------|---|---------------------|
|                                     |                              |                                      |  |  | Miles                       | Cost                 | Miles   | Cost                |
| 2                                   | S. Greeley Highway (US 85)   | I-180 to College Dr.                 | Widen to 6 lanes                           | ✓  | 1.13                        | \$3,703,772          | 1.13  | \$3,703,772         |
| 22                                  | Powderhouse Rd.              | Iron Mountain Rd. to Torrington Hwy. | New 2 lane major arterial/collector        |  | Outside MPO Boundary        |                      |   |                     |
| 33                                  | Happy Jack Rd. (SH 210)      | Roundtop Rd. to I-25                 | Improve and widen to 4 lane major arterial | Interim  | 2.34                        | \$5,583,506          | 2.34  | \$2,417,445         |
| 35                                  | Otto Rd. (SH 225)            | I-80 to western MPO boundary         | Improve to 2 lane major arterial           | ✓  | 3.60                        | \$3,936,262          | 3.60  | \$3,936,262         |
| 39                                  | Terry Ranch Rd. (SH 223)     | I-25 to New Arterial                 | Improve to 2 lane minor arterial           |  | 2.90                        | \$2,811,013          | 0.00  | \$0                 |
| 41                                  | College Dr. (US 87 / SH 212) | I-25 to Fox Farm Rd.                 | Widen to 4 lanes                           | Partial  | 4.97                        | \$11,906,221         | 2.40  | \$5,749,483         |
| 42                                  | College Dr. (SH 212)         | I-80 to Lincolnway                   | Widen to 6 lanes                           |  | 1.33                        | \$10,412,003         | 0.00  | \$0                 |
| 43                                  | US 30                        | Christensen Rd. to Archer Rd.        | Widen to 4 lanes                           | Interim  | 2.98                        | \$5,654,176          | 2.98  | \$2,612,459         |
| 44                                  | US 30 / Lincolnway           | Hayes Ave. to Christensen Rd.        | Widen to 4 lanes                           | ✓  | 1.63                        | \$3,904,857          | 1.63  | \$3,904,857         |
| 53                                  | Interchange                  | Parsley Blvd. Interchange            | Build Interchange                          |  | 0.00                        | \$4,500,000          | 0.00  | \$0                 |
| 61                                  | Interchange                  | Roundtop and I-80                    | Widen underpass                            | ✓  | 0.00                        | \$12,000,000         | 0.00  | \$12,000,000        |
| 62                                  | Interchange                  | College and I-25                     | Widen overpass                             |  | 0.00                        | \$8,500,000          | 0.00  | \$0                 |
| 64                                  | Intersection                 | Dell Range and US 30                 | Operational Improvements                   | ✓  | 0.00                        | \$2,000,000          | 0.00  | \$2,000,000         |
| 65                                  | Interchange                  | I-80 and I-25                        | Improve/Rebuild Interchange                |  | 0.00                        | \$100,000,000        | 0.00  | \$0                 |
| <b>Subtotal State / US Highways</b> |                              |                                      |  |  |                             | <b>\$174,911,811</b> |   | <b>\$36,324,279</b> |

**Arterial Roadway Improvements**

| No.                               | Facility                   | Limits   | Improvements   | Fiscally<br>Constrained | 2030 Roadway Vision<br>Plan |                      | Fiscally Constrained<br>Plan |                     |
|-----------------------------------|----------------------------|--|--|-------------------------|-----------------------------|----------------------|------------------------------|---------------------|
|                                   |                            |  |  |                         | Miles                       | Cost                 | Miles                        | Cost                |
| 7                                 | Summit Dr.                 | Ridge Road to Whitney Rd.                      | Extend as/improve to 2 lane minor arterial           | Partial                 | 1.88                        | \$2,787,217          | 0.37                         | \$415,187           |
| 9                                 | New Minor Arterials        | Roundtop Rd. to I-25 / Happy Jack Rd. to I-80  | New 2 lane arterials                                 |                         | 3.50                        | \$5,965,507          | 0.00                         | \$0                 |
| 10                                | New Arterial               | Roundtop Rd. to Overland Trails Dr.            | New 2 lane major arterial                            |                         | 4.35                        | \$7,527,961          | 0.00                         | \$0                 |
| 12                                | New Arterial               | New Arterial to Overland Trails Dr.            | New 2 lane major arterial                            |                         | 0.71                        | \$1,228,702          | 0.00                         | \$0                 |
| 14                                | Parsley Blvd.              | College Dr. to Terry Ranch Rd.                 | Extend as 2 lane minor arterial                      |                         | 3.48                        | \$5,648,666          | 0.00                         | \$0                 |
| 15                                | Division Ave.              | College Dr. to Speedway Dr.                    | Extend/improve to 2 lane minor arterial              |                         | 1.98                        | \$5,259,872          | 0.00                         | \$0                 |
| 16                                | Wallick Rd.                | Parsley Blvd. to Avenue C                      | New 2 lane major arterial                            |                         | 1.79                        | \$3,097,713          | 0.00                         | \$0                 |
| 17                                | Avenue C / Terry Ranch Rd. | College Dr. to US 85                           | New 2 lane minor arterial/collector                  |                         | 3.41                        | \$5,088,580          | 0.00                         | \$0                 |
| 18                                | Speedway Dr.               | I-25 to Avenue C                               | New 2 lane major arterial                            | Partial                 | 4.95                        | \$8,431,564          | 4.43                         | \$7,531,670         |
| 19                                | New Arterial               | Speedway Dr. to Terry Ranch Rd.                | New 2 lane minor arterial                            |                         | 0.73                        | \$1,042,736          | 0.00                         | \$0                 |
| 21                                | New Frontage Rd.           | South Industrial Rd. to Campstool Rd.          | New 2 lane minor arterial                            |                         | 2.07                        | \$3,554,081          | 0.00                         | \$0                 |
| 23                                | Whitney Rd.                | Under Railroad Tracks                          | New 2 lane grade separated connection                |                         | 0.22                        | \$10,872,728         | 0.00                         | \$0                 |
| 24                                | Christensen Rd.            | Commerce Circle to US 30                       | New 2/4 lane arterial and RR overpass                | ✓                       | 1.52                        | \$13,621,692         | 1.52                         | \$13,621,692        |
| 25                                | Converse                   | Storey Blvd to Four Mile Road                  | Extend as minor arterial                             | ✓                       | 0.99                        | \$2,711,105          | 0.99                         | \$2,711,105         |
| 31                                | Dell Range                 | College Dr. to US 30                           | Widen to 4 lanes                                     | ✓                       | 2.32                        | \$7,652,390          | 2.32                         | \$7,652,390         |
| 32                                | Roundtop Rd.               | Otto Rd. to Ketcham Rd.                        | Improve to 2/4 lane major arterial                   | Partial                 | 3.37                        | \$6,003,463          | 1.83                         | \$4,186,791         |
| 34                                | Missile Dr.                | I-25 to Lincolnway                             | Improve to major arterial                            | ✓                       | 1.56                        | \$3,599,265          | 1.56                         | \$3,599,265         |
| 36                                | Morrie Ave.                | North of Allison Rd. to North of Fox Farm Rd.  | Improve to minor arterial                            | ✓                       | 0.64                        | \$718,162            | 0.64                         | \$718,162           |
| 37                                | Parsley Blvd.              | I-80 to College Dr.                            | Widen to 4 lane minor arterial                       | ✓                       | 0.88                        | \$1,713,501          | 0.88                         | \$1,713,501         |
| 40                                | Campstool Rd.              | I-80 Eastbound ramps to S. of New Frontage Rd. | Improve and widen to 4 lane major arterial/collector | ✓                       | 1.04                        | \$1,752,469          | 1.04                         | \$1,752,469         |
| 45                                | Powderhouse Rd.            | Storey Blvd. to Iron Mountain Rd.              | Add center turn lane                                 | ✓                       | 3.22                        | \$1,818,894          | 3.22                         | \$1,818,894         |
| 46                                | Southwest Dr.              | Lincolnway to College                          | Improve to 2 lane minor arterial                     | ✓                       | 1.69                        | \$1,896,396          | 1.69                         | \$1,896,396         |
| 47                                | Converse Ave.              | Dry Creek to Ogden Rd.                         | Widen to 4 lanes                                     | ✓                       | 0.32                        | \$623,091            | 0.32                         | \$623,091           |
| 48                                | Burlington Trail           | Campstool Rd. to South Industrial Rd.          | Upgrade to minor arterial                            |                         | 1.07                        | \$1,200,677          | 0.00                         | \$0                 |
| 63                                | Intersection               | 19th, Converse, and Pershing                   | Operational Improvements                             | ✓                       | 0.00                        | \$5,000,000          | 0.00                         | \$5,000,000         |
| <b>Subtotal Arterial Roadways</b> |                            |  |  |                         |                             | <b>\$108,816,433</b> |                              | <b>\$53,240,613</b> |



**Table 7: Costs Estimates and 2030 Fiscally Constrained Roadway Plan Inclusion (continued)**

**Collector Roads**

| No.                             | Facility           | Limits  | Improvements                          | Fiscally<br>Constrained | 2030 Roadway Vision<br>Plan |                     | Fiscally Constrained<br>Plan |                    |
|---------------------------------|--------------------|---|---------------------------------------|-------------------------|-----------------------------|---------------------|------------------------------|--------------------|
|                                 |                    |   |                                       |                         | Miles                       | Cost                | Miles                        | Cost               |
| 1                               | Iron Mountain Rd.  | Existing Terminus to E. of Christensen Rd.      | Extend as 2 lane rural collector      |                         | 0.44                        | \$589,190           | 0.00                         | \$0                |
| 3                               | Christensen Rd.    | E. Riding Club Rd. to Iron Mountain Rd.         | Extend as 2 lane rural collector      |                         | 1.02                        | \$1,365,849         | 0.00                         | \$0                |
| 4                               | E. Riding Club Rd. | Ridge Rd. to Christensen Rd.                    | Extend as 2 lane rural collector      |                         | 2.87                        | \$3,843,123         | 0.00                         | \$0                |
| 5                               | E. Four Mile Rd.   | Existing Terminus to Whitney; E. of Christensen | Extend as 2 lane rural collector      |                         | 1.61                        | \$2,155,898         | 0.00                         | \$0                |
| 6                               | Mountain Rd.       | Plain View Rd. to Four Mile Rd.                 | Extend as 2 lane collector            |                         | 1.40                        | \$3,683,799         | 0.00                         | \$0                |
| 8                               | New Collectors     | Dell Range to Storey / Powderhouse to Converse  | New 2 lane collectors                 |                         | 2.40                        | \$3,757,994         | 0.00                         | \$0                |
| 13                              | New Collectors     | Southwest of New Arterial                       | New 2 lane collectors                 |                         | 2.13                        | \$3,335,219         | 0.00                         | \$0                |
| 20                              | New Collector      | Speedway Dr. to Terry Ranch Rd.                 | New 2 lane collector                  |                         | 1.45                        | \$1,941,647         | 0.00                         | \$0                |
| 26                              | New Collectors     | North of Dell Range between Whitney and College | New 2 lane collectors                 |                         | 2.51                        | \$6,753,712         | 0.00                         | \$0                |
| 38                              | Allison Rd.        | Southwest Dr. to Cribbon Ave.                   | New 2 lane collector and RR underapss | ✓                       | 1.12                        | \$7,947,040         | 1.12                         | \$7,947,040        |
| <b>Subtotal Collector Roads</b> |                    |   |                                       |                         |                             | <b>\$55,373,471</b> |                              | <b>\$7,947,040</b> |

## Other Roadway Improvements

In addition to the roadway improvements identified in the 2030 Roadway Vision Plan, many of Cheyenne's existing roads are in need of reconstruction. While the number of lanes and designated facility types are generally sufficient, these facilities are in disrepair or were not originally built to the standards of the facility type which they have been designated. This list also includes improvements to intersections, bridges, and bicycle/pedestrian facilities associated with existing roadways. Other more general

improvements, such as paving all city roads, adding medians to mitigate access problems, and providing traffic calming facilities are also needed, but are not included in the list below. To implement advanced ITS improvements as discussed in the Structure section of the *Transportation Master Plan*, upgrades to the traffic management communications system will be required, which could cost upwards of \$1 million. Table 8 lists specific needs and identifies those that are funded under the 2030 Fiscally Constrained Roadway Plan.

**Table 8: Other Transportation System Improvements**

| Location  | Improvement  | Estimated Cost | Funded |
|---|--|----------------|--------|
| Snyder from Lincolnway to Pershing  | Rebuild  | \$2,800,000    | ✓      |
| Pioneer from Lincolnway to 19 <sup>th</sup> and Carey from Lincolnway to 24 <sup>th</sup> | Overlay  | \$1,000,000    | ✓      |
| Pershing between I-25 to Pioneer  | Rebuild  | \$4,000,000    | ✓      |
| Pershing between Alexander to Converse  | Rebuild  | \$3,000,000    |        |
| Allison from Cribbon to Avenue C  | Rebuild according to urban standards                               | \$2,300,000    |        |
| 19 <sup>th</sup> and 20 <sup>th</sup> Intersection with Missile Drive                     | Redesign intersection  | \$4,400,000    |        |
| 19 <sup>th</sup> Street Bridge at Crow Creek  | Rebuild  | \$1,800,000    |        |
| Parsley from Pacific to I-80  | Reconstruction from rural to urban section                         | \$1,000,000    |        |
| Westland Road from Lincolnway to Missile Drive  | Rebuild  | \$1,500,000    |        |
| Walterscheid from Fox Farm to College   | Rebuild with three lanes plus sidewalk                             | \$2,200,000    |        |
| Morrie from Crow Creek to Fox Farm  | Rebuild with three lanes plus sidewalk                             | \$750,000      |        |
| Logan from Nationway to Pershing  | Rebuild  | \$2,500,000    |        |
| Carey Avenue from 15 <sup>th</sup> to Lincolnway  | Reconnect 15th and 16th Streets                                    | \$300,000      |        |
| 9 <sup>th</sup> Street Crow Creek Bridge  | Rebuild bridge/greenway underpass                                  | \$1,500,000    |        |
| Converse from Dry Creek to Ogden  | Widen  | \$2,100,000    |        |
| Yellowstone from Dell Range to Four Mile  | Rebuild, reduce width and add non-motorized facilities and medians | \$4,000,000    |        |
| Windmill from Pershing north to new section   | Rebuild with Roundabout  | \$900,000      |        |
| 5 <sup>th</sup> Street: Crow Creek Bridge   | Rebuild bridge   | \$1,000,000    |        |
| College and Four Mile   | Rebuild intersection   | \$500,000      |        |
| Polk between Pershing and US 30   | Reconstruct from rural to urban section                            | \$300,000      |        |

## Fiscally Constrained Transit Plan

There is a trade-off relationship in the transit system between the number of routes, the frequency of service, and the extent of service hours. For example, if the City expends resources on increasing the frequency of service or extending the service hours, less productive service routes might need to be eliminated and those resources reallocated to the higher-frequency and extended service-hour routes. Similarly, if additional routes are added, frequency of service and/or service hours for existing routes might need to be cut.

As development occurs and the transit operator grows service to intensified existing development areas and newly developed areas, the trade-offs between number of routes, frequency of service, and service hours should be examined. To the extent possible, frequency of service should be increased on the higher-density transit route corridors to capture trips that might have traditionally used automobiles. As new development occurs, extended or new services should be considered when densities warrant.

Funds available for operation and expansion of the transit system in the Cheyenne Area are driven by FTA 5307 funds. These funds are provided by the federal government to urban areas under 200,000 in population and must be matched 100 percent with local funds, bringing the transit funding for FY 2006 to \$1.5 million. The amount of funding received for Cheyenne transit is based on population counted in the most recent Census, with adjustment for inflation. The transit operator also has an opportunity to review funding levels one time between census years. Transit

funding estimates are based on a growth rate of two percent per year and assume funding increases commensurate with population growth after census years and in years ending in five (i.e., 2005).

Currently, additional funding beyond FTA 5307 matching funds is not provided. However, additional funding will be required in order to provide the level of service described in the Transit Vision Plan. The 2030 Fiscally Constrained Transit Plan is based on estimated funding in 2030 of \$2.5 million per year. This consists of 50 percent FTA 5307 funds and 50 percent matching funds. When computed over a 25-year timeframe based on the historical characteristics of the Cheyenne Area's transit funding sources, the total available transit funds are \$53 million.

Funds available for operation of the transit system must be split among three primary categories (other activities, such as operation of Cheyenne Frontier Days coaches, are omitted from the analysis). Year 2005 and forecast year 2030 funding for the three categories, administration, fixed route transit service, and demand-responsive service (i.e. Dial-a-Ride), is detailed in Table 9. The demand response and fixed route categories include the replacement of aging busses as well as the purchase of additional busses needed to expand service.

**Table 9: Existing and Forecast 2030 Transit Funding**

| Category        | 2005 Funding | 2030 Funding |
|-----------------|--------------|--------------|
| Administration  | 275,000      | 548,000      |
| Demand Response | 415,000      | 827,000      |
| Fixed Route     | 582,000      | 1,160,000    |



Transit service has expanded significantly since it was first introduced to the Cheyenne Area, indicating that current funding levels will be sufficient to maintain the existing service. Past additions to transit service indicate that new funds will be sufficient to expand fixed route service hours in accordance with population growth.

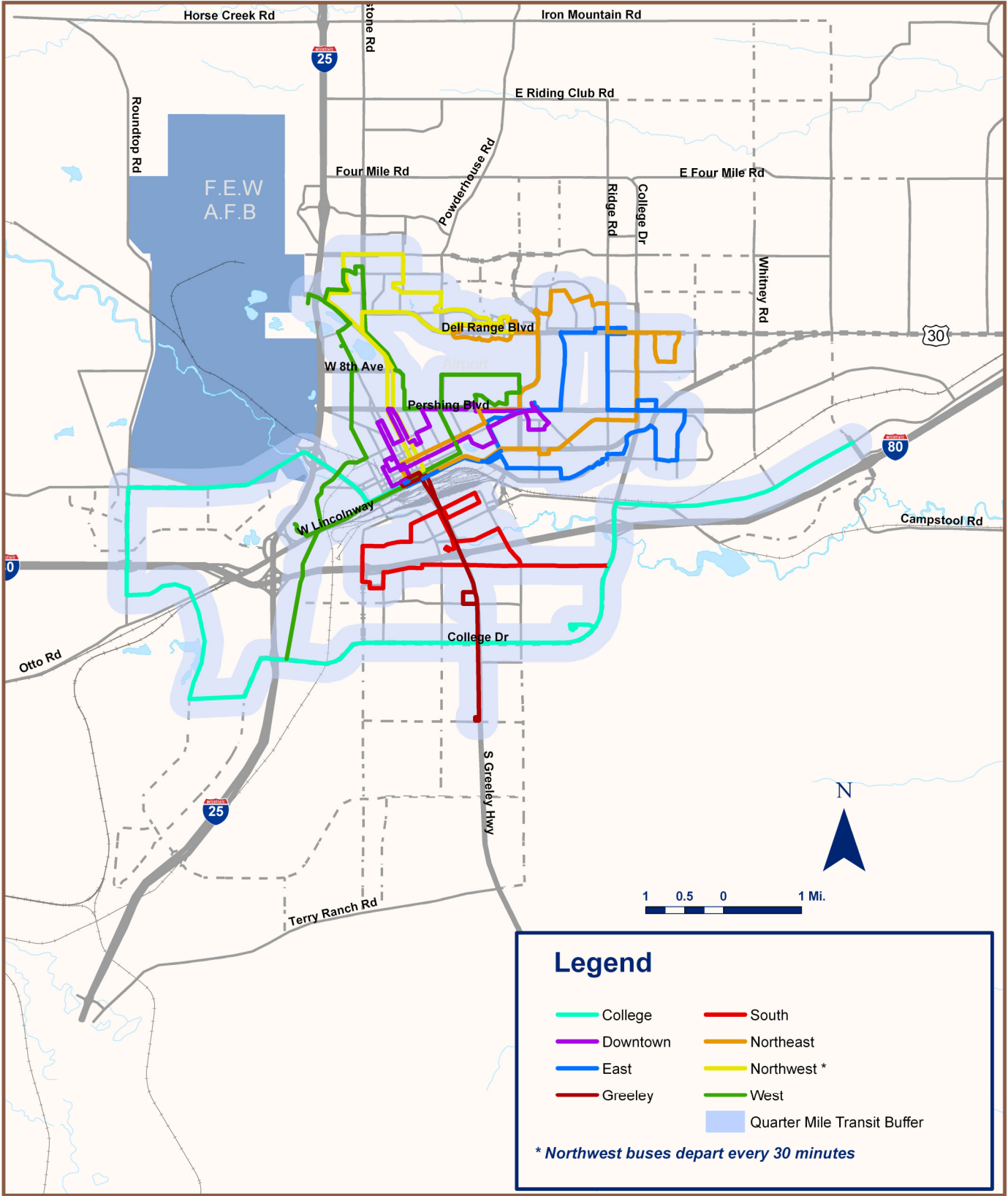
The 2030 Fiscally Constrained Transit Plan shown in [Figure 22](#) provides a definition of fixed route transit service of a similar character to service provided today. Routes have been expanded and service frequency has been increased to service population and employment growth forecast for 2030. The 2030 Fiscally Constrained Transit Plan includes the following route additions and changes:

- The existing “South” route has been broken into three separate two-way routes and expanded to serve areas that are planned for higher density and mixed-use development. The resulting routes serve College Drive, the North Range Business Park southwest of F.E. Warren Air Force base, and the South Greeley highway, while maintaining service where it exists today.

- The existing “West” route has been extended south on the proposed road connecting Roundtop to College Drive.
- The existing “Downtown” route has been adjusted to provide 30 minute headways.
- The downtown Shuttle (not shown on maps) will continue to be operated in a manner similar to today, but will be adjusted when new downtown development occurs.

The nature and configuration of these routes will need to be evaluated and adjusted as growth occurs. Areas to target for improvements include lower income housing and associated employment, areas of increased density, and areas designated as mixed-use activity centers. Transit service should be expanded incrementally as funding permits. Facilities for future transit service should be included in areas where routes are proposed, including pullouts, stop facilities, etc.

Figure 22: 2030 Fiscally Constrained Transit Plan



***This map presents the Fiscally Constrained Transit Plan.  
Busses depart from the downtown transfer station every 60 minutes unless otherwise noted.  
Areas withing 1/4 mile of transit are shaded.***

## **Fiscally Constrained Bicycle Plan**

The majority of bicycle improvements are tied to roadway improvements defined in the 2030 Vision and Fiscally Constrained Roadway Plans. However, some missing links in the bicycle system still need to be filled in. In addition, bicycle education and outreach programs and system-wide improvements such as signage will require additional funding.

Historically, Cheyenne has not provided funding specifically for bicycle transportation. While funding has been provided for paths and greenways, these systems are primarily recreational and compliment rather than define a bicycle transportation system. For this reason, the 2030 Fiscally Constrained Bicycle Plan primarily includes bicycle facilities associated with roadway improvements.

The 2030 Fiscally Constrained Plan also allots \$250,000 yearly to fund additional bicycle and pedestrian improvements. This amount is consistent with the current utilization of non-motorized modes reported in the 2000 US Census Journey to Work data. Bicycle funding should be used to identify and target gaps in the bicycle system that would best improve overall system continuity. The Cheyenne Area should actively pursue additional funding sources to build the Bicycle Vision Plan.

## Fiscally Constrained Pedestrian Plan

Improvements to the pedestrian system are often tied to other improvements. In newly developing areas, new street standards and multi-modal traffic studies will ensure pedestrian friendly design. While the retrofitting of existing facilities with pedestrian improvements can incur direct costs, there is not currently an inventory of facilities where such improvements would be made. Therefore, the 2030 Fiscally Constrained Pedestrian Plan includes pedestrian improvements in three categories: those that are constructed along roadway improvements as required by Cheyenne's street standards, those that are constructed in newly developing areas, and pedestrian improvements in existing neighborhoods.

When pedestrian improvements are associated with roadway improvements, pedestrian costs are included in roadway cost estimates. The 2030 Fiscally Constrained Pedestrian Plan therefore includes sidewalk facilities as defined in the *Cheyenne Road, Street, and Site Planning Design Standards* on all new or reconstructed roadways.

Costs and responsibilities associated with pedestrian transportation often lie on developers in designing and building pedestrian friendly developments as defined in the Structure section of the *Transportation Master Plan*. Such improvements are included in this 2030 Fiscally Constrained Pedestrian Plan, but require action in the development review process to ensure pedestrian compatible development occurs.

Improvements to pedestrian facilities in existing neighborhoods are largely neighborhood driven. As described in the Pedestrian Vision Plan, neighborhood self-evaluations can be proposed where specific connections between residential areas and important destinations such as schools, parks, and commercial centers might warrant pedestrian improvements. The 2030 Fiscally Constrained Pedestrian Plan allots \$250,000 yearly to fund additional pedestrian and bicycle improvements. This amount is consistent with the current utilization of non-motorized modes reported in the 2000 US Census Journey to Work data. The Cheyenne Area should pursue additional funding sources as necessary to improve pedestrian facilities in existing neighborhoods.





## 3. Implementation Strategies

Developing and maintaining a comprehensive transportation system that supports safe automobile, transit, bicycle, and pedestrian travel is critical to improving mobility within the Cheyenne Area. Of particular concern is the development of performance standards for pedestrian and bicycle mobility that can be used in combination with vehicular performance to evaluate and develop the MPO's transportation infrastructure. These standards should be coupled with an ongoing program of constructing new bicycle lanes and sidewalks in order to create a truly multi-modal street and highway system.

In order for the Cheyenne Area street and highway system to support the multi-modal needs of the community and provide acceptable level of service, a number of actions are needed. These actions build on the successes and opportunities of the existing system and can help prevent past mistakes from recurring. They are described below.

# 1. Strategies to Implement the Roadway Vision Plans

Completion of the 2030 Fiscally Constrained Transportation Plan should be a top priority for the City, County, MPO, and WYDOT. Because completion of the 2030 Fiscally Constrained Transportation Plan will not sufficiently meet Cheyenne's needs, implementation of the 2030 Transportation Vision Plan should also be a priority. Travel by automobile, transit, and

bicycle all rely on the roadway system, making roadways a key element of Cheyenne's multi-modal transportation system. Due to the importance of new funding sources and the relevance of funding to all modes, funding strategies affecting the 2030 Transportation Vision Plan are addressed as a separate topic.

| Strategies /Actions                             | "Ease" to Accomplish | Type of Action | Responsible Party/ Parties | Priority |
|---|----------------------|----------------|----------------------------|----------|
| 1.a. Roadway Design Standards*                  | ●                    | Z/R            | City/County                | 1        |
| 1.b. Develop and Fund an Access Management Plan | ○                    | P              | City                       | 3        |
| 1.c. Right-of-Way Preservation                  | ●                    | D              | City/County                | 1        |

## KEY TO SYMBOLS

### "Ease"

● = Relatively fast to accomplish (e.g., less than one year), low cost, minimal challenges.

◐ = Moderate time to accomplish (6 months to 1 year), cost, and moderate challenges to implement.

○ = Takes a long time (e.g., more than one year), higher cost, more challenging.

### "Type"

**D** = Policy Decision

**P** = Program

**Z** = Code and Zoning Revisions

**R** = Regional and Agency Coordination

**F** = Funding Mechanisms

**L** = State Legislation

### "Priority"

1 = **High** - immediately following plan adoption

2 = **Medium** - within a year following plan adoption

3 = **Lower** - within five years

\* Design standards are under consideration at the time of plan adoption.

## Strategies/Actions Description

### 1.a. Roadway Design Standards

The City and County should maintain roadway design standards that serve as uniform requirements for all new and improved roads within the Urban Service Area of Cheyenne. The *Cheyenne Road, Street, and Site Planning Design Standards* include considerations such as block spacing, access control, and traffic control guidelines that facilitate efficient use of the roadway system. As the *Laramie County Road, Street and Site Planning Design Standards* are updated, the City and County should adopt one set of uniform standards applicable to areas within the Urban Service Area, as defined in *PlanCheyenne*. Alternative modes of travel are also addressed in these standards via inclusion of bicycle lanes and pedestrian facilities in roadway cross-sections. As these standards are implemented, updated, and maintained, these important elements should be retained and built upon. Joint City/County coordination will be vital to the creation of uniform standards for the Cheyenne Area.

### 1.b. Develop and Fund an Access Management Phasing Plan

Develop an access management phasing plan to address critical corridors with existing access control problems that are resulting in traffic congestion and safety issues. Implementation of an Access Management Plan typically occurs on a corridor by corridor basis. Corridors that currently experience access management problems include Yellowstone, Dell Range, and Lincolnway.

Since preservation of the existing transportation system is key to providing an efficient transportation system, funding should be made available to implement solutions to existing corridors with access control problems. With good access control, capacity of streets is increased, therefore decreasing the need for expansion. Potential funding sources for an Access Management Plan include contributions from the General Fund or funding through the 5<sup>th</sup> or 6<sup>th</sup> penny sales tax.

### 1.c. Right-of-Way Preservation

The City and County should preserve right-of-way to facilitate construction of the buildout roadway system, as defined in the Buildout Roadway Vision Plan, even though some improvements may not be required within a 25-year timeframe. Preservation must occur during the plat/development review process and relies on subdivision regulations. The City should verify that subdivision regulations facilitate adequate corridor preservation. Right-of-way requirements are specified in the City and County design standards.



## 2. Strategies to Implement the Transit Vision Plan

As a starting point, transit can be expanded to serve Cheyenne's growing population. As funds permit, fixed routes can be converted to a conventional two-way transit system. Over time, as ridership builds and more funding becomes available, headways can be shortened to 45 or 30 minutes for routes with the highest productivity. Once these core fixed route services are established, service along additional corridors should be considered. Short and mid-term transit improvements will

be identified in an upcoming Transit Development Plan (TDP).

To ensure that the transit needs of the community are met, a number of broad policies and actions are needed. These actions and policies build on the successes and opportunities of the existing system and are described below.

| Strategies /Actions  | "Ease" to Accomplish | Type of Action | Responsible Party/ Parties | Priority |
|--|----------------------|----------------|----------------------------|----------|
| 2.A. Ongoing Monitoring of Transit Performance and Service | ●                    | P              | City/Transit Operator      | 1        |
| 2.B. Develop a Long-Term Funding Strategy                  | ○                    | F              | City/Transit Operator      | 3        |

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### Strategies/Actions Description

#### 2.a. Ongoing Monitoring of Transit Performance and Service

Monitor and modify transit service in response to future growth, changes in development patterns, and users' needs. This can be implemented as part of a Transit Development Plan or Mobility Report Card.

#### 2.b. Develop a Long-Term Transit Funding Strategy

Establish a long-term funding commitment for the expansion of transit in Cheyenne and to implement the Transit Vision Plan. Options are limited due to constraints placed on Cheyenne by the State of Wyoming, but examples include creation of a regional transit district with taxing authority or increased contributions from the general fund.

### 3. Strategies to Implement the Bicycle Vision Plan

Adoption of the proposed roadway standards and the parks element of *PlanCheyenne* will go a long way towards improving bicycle travel options in Cheyenne. Additional improvements identified in the Bicycle Vision Plan are the next

step in improving the bicycle system. Actions and policies built on the successes and opportunities of the existing system and are described below.

| Strategies /Actions  | “Ease” to Accomplish | Type of Action | Responsible Party/ Parties | Priority |
|--|----------------------|----------------|----------------------------|----------|
| 3.a. Identify Funding Sources  | ○                    | F              | City/MPO/WYDOT             | 1        |
| 3.b. Complete missing segments identified in the Bicycle Vision Plan | ○                    | P              | City/MPO/WYDOT             | 2        |
| 3.c. Pursue Maintenance Agreements                                   | ◐                    | R              | City/WYDOT                 | 2        |

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#### Strategies/Actions Description

##### 3.a. Identify Funding Sources

Establish a dedicated funding plan to implement the Bicycle Vision Plan and for maintenance of bicycle facilities. Funding would likely need to be provided through the general fund or as part of a 5<sup>th</sup> penny sales tax measure. By transferring development-driven roadway costs from the public to developers through a mechanism such as a fee program can help free funding for bicycle improvements.

##### 3.b. Complete Missing Segments Identified in the Bicycle Vision Plan

Prioritize and implement critical bicycle segments that provide system continuity and connections to activity centers, parks, schools, libraries, hospitals, and the community college, etc.

### **3.c. Pursue Maintenance Agreements**

The Bicycle Vision Plan identifies corridors on City and County roads as well as on state highways. Although the federal government's Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) promotes the encouragement and use of alternative modes and bicycling, it is the current policy of WYDOT that bike lanes or shoulders on state facilities are not maintained by WYDOT. Promote an intergovernmental dialog and intergovernmental agreement that facilitates regular maintenance such as plowing and sweeping bike lanes on state facilities along with vehicular travel lanes.

## 4. Strategies to Implement the Pedestrian Vision Plan

Pedestrian travel makes up the beginning and end of every trip and is particularly important in a multi-modal transportation system. Actions

and strategies for implementing pedestrian system improvements are defined below.

| Strategies /Actions                             | “Ease” to Accomplish | Type of Action | Responsible Party/ Parties | Priority |
|---|----------------------|----------------|----------------------------|----------|
| 4.a. Fund Pedestrian Improvements               | ○                    | F              | City/MPO                   | 1        |
| 4.b. Pedestrian Standards for New Developments* | ●                    | Z              | City/MPO                   | 2        |

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\* included in proposed Design Standards under consideration at time of plan adoption.

### Strategies/Actions Description

#### 4.a. Fund Pedestrian Improvements

Pedestrian facilities should be considered during the allocation of transportation improvement funds. Currently, two percent of all trips are walking trips, but virtually no dedicated funding exists for targeting improvements to fix existing gaps and improve safety.

While the 2030 Fiscally Constrained Pedestrian Plan allots some funds for pedestrian improvements, additional funding may be necessary. Additional funds for such pedestrian improvements could be made available by transferring development-driven roadway costs from the public to developers through a mechanism such as a fee program.



#### **4.b. Pedestrian Standards for New Developments**

Develop public and private development standards for providing pedestrian facilities that connect the development to key destinations, transit stops, and activity centers. These standards should also include sidewalks on both sides of all roadways in urban areas. Detailed standards are discussed in the shape section of *Transportation Master Plan* and in Cheyenne's *Road, Street, and Site Planning and Design Standards*.

Develop a checklist that can be used in the development review process to ensure that development proposals meet guidelines presented in the *Road, Street, and Site Planning and Design Standards* and this plan.

## 5. Strategies to Fund Transportation Improvements

An attempt should be made to fund the unfunded portions of the 2030 Transportation Vision Plans. Potential funding sources that rely on additional tax funds may require state

legislation to implement. Current state law does not allow for additional taxation by the City of Cheyenne or Laramie County beyond the 5<sup>th</sup> and 6<sup>th</sup> penny sales taxes.

| Strategies /Actions   | “Ease” to Accomplish | Type of Action | Responsible Party/ Parties | Priority |
|---|----------------------|----------------|----------------------------|----------|
| 5.a. Continue Use of the 5 <sup>th</sup> Penny Transportation Sales Tax | ●                    | F              | City                       | 1        |
| 5.b. Use of Other Available Taxing Mechanisms                           | ○                    | F/R            | City/County                | 2        |
| 5.c. Additional State Allocation of Funds to WYDOT                      | ○                    | R              | City/MPO/<br>WYDOT         | 3        |
| 5.d. Facility Exchanges with WYDOT                                      | ◐                    | R              | City/<br>WYDOT             | 4        |
| 5.e. Funding via a Fee System   | ◐                    | F              | City/MPO/<br>County        | 1        |
| 5.f. State Legislation  | ○                    | F/L            | City/MPO/<br>State         | 3        |
| 5.g. Federal Earmarks   | ○                    | F              | City/MPO/<br>Other         | 4        |

### KEY TO SYMBOLS

#### “Ease”

- = Relatively fast to accomplish (e.g., less than one year), low cost, minimal challenges.
- ◐ = Moderate time to accomplish (6 months to 1 year), cost, and moderate challenges to implement.
- = Takes a long time (e.g., more than one year), higher cost, more challenging.

#### “Type”

- D** = Policy Decision
- P** = Program
- Z** = Code and Zoning Revisions
- R** = Regional and Agency Coordination
- F** = Funding Mechanisms
- L** = State Legislation

#### “Priority”

- 1 = **High** - immediately following plan adoption
- 2 = **Medium** - within a year following plan adoption
- 3 = **Lower** - within five years
- 4 = **Long Term** – more than five years after plan adoption

## **Strategies/Actions Description**

### **5.a. Continue Use of the 5<sup>th</sup> Penny Transportation Sales Tax**

The City of Cheyenne has utilized a one cent sales tax to fund improvement, operation, and maintenance of the transportation system since 1978. Continuation of this revenue source is vital to the area's transportation future.

### **5.b. Use of Other Available Taxing Mechanisms**

Laramie County can impose a 6<sup>th</sup> penny sales tax that is used for specific, well defined projects. Although this tax has rarely been used for transportation improvements in the past, it does provide a potential source of funding for unfunded high-priority transportation improvements. To utilize this funding source, county commissioners must include a project on the ballot and the ballot measure must pass with a majority vote.

### **5.c. Additional State Allocation of Funds to WYDOT**

The state of Wyoming allocates funds from the State's 4<sup>th</sup> penny tax to each department of transportation commission district. As the population and traffic counts in the Cheyenne Area grow relative to the state population, additional allocation to District 1 may be warranted.

### **5.d. Facility Exchanges with WYDOT**

In the long term, it will be desirable to maintain an outer beltway of arterial streets surrounding Cheyenne. This beltway is currently served by College Drive and Four Mile Road. As Cheyenne grows, these facilities will no longer serve as regional facilities, but rather as Cheyenne city streets. It is suggested that the Wyoming Department of Transportation eventually remove these facilities from the state

system. In turn WYDOT can improve and maintain Iron Mountain Road and Christensen Road and construct additional links to the south and west.

### **5.e. Funding via a Fee System**

The City and County can require developers to pay their own way by helping to fund improvements to the transportation system. Improvements may be provided through an exaction process in which developers are required to build roadways in and surrounding property as it develops, or through a citywide, MPO-wide, or countywide fee program that collects fees from all developers on a per-trip basis.

The City currently requires developers to construct transportation facilities through developer exactions as part of the entitlement process. This method is intended to require developers bear the full cost of roadway improvements in and around a developing property. However, this method has several drawbacks. Development driven roadway improvements that are not associated directly with one development, such as the widening of existing facilities, are often difficult to fund. Additionally, smaller developers constructing only a few parcels may not be required to contribute to transportation system improvements. Because of varying considerations on a project-by-project basis, the exactions are not predictable from a developer standpoint. These concerns often lead to the implementation of a trip-based fee program.

Trip-based fee programs require all developers to contribute to transportation improvements in direct proportion to a development's impact. In its simplest form, a fee program involves identifying all development driven transportation costs and requiring developers

to pay a portion of these costs based on the number of trips that will be generated by each development. The definition of developer-drive costs can vary depending on the approach chosen by the agency. Two popular approaches are as follows:

- **Inclusion of arterial costs:** Only arterial roadway costs are included in the developer fee program. In addition to paying into the fee program, developers must construct collector streets serving new developments.
- **Inclusion of arterial and collector costs:** Arterial and collector improvements are included in the developer fee program. If developers construct collector streets internal to a development, fee credits may be given to compensate the developer.

Impact fee programs can only be used to alleviate development driven congestion and provide access to developing areas. Existing deficiencies cannot be alleviated through the use of a developer fee program. However, by requiring developers to be responsible for growth-driven improvements, public funds can be freed to mitigate existing congestion and enhance multi-modal elements of the transportation system. A study will need to happen to implement a fee system program and should be incorporated into other City/County impact fees as they are developed.

### 5.f. State Legislation

Additional tax revenue can only be generated through the passage of state legislation. Legislation might include additional funding provided by the state to the City or the authority of the City, County, or a Regional Transportation Authority (RTA) to impose additional taxes.

### 5.g. Federal Earmarks

The I-80/I-25 interchange is becoming problematic and will soon need to be rebuilt. Due to the large scale of the improvement and the interstate nature of much of the freight traffic using the interchange, a federal earmark may be an appropriate source of funding for the necessary improvements. Federal earmarks may also be a potential funding source for other improvements to the interstate or US highway system. Advancement of such a funding mechanism will require close cooperation with Wyoming senators and representatives and may even involve lobbying efforts.



## 6. Strategies to Implement a Multi-Modal Transportation System

To ensure interaction between all transportation modes, a number of broad, multi-modal strategies are needed. These strategies are critical to the successful

development of a multi-modal transportation system.

| Strategies /Actions   | “Ease” to Accomplish | Type of Action | Responsible Party/ Parties | Priority |
|---|----------------------|----------------|----------------------------|----------|
| 6.a. Multi-Modal Component in Traffic Studies*                              | ●                    | Z              | City/County                | 1        |
| 6.b. Multi-Modal Component in State, City, and County Construction Projects | ●                    | Z              | City/County                | 1        |
| 6.c. Evaluation Standards for All Transportation Modes                      | ◐                    | Z              | City                       | 2        |
| 6.d. Mobility Report Card   | ◐                    | P              | City/ County MPO           | 3        |
| 6.e. Parking Standards  | ◐                    | Z              | City                       | 3        |
| 6.f. Multi-Modal Corridors  | ○                    | Z              | City                       | 3        |

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\* Design standards are under consideration at the time of plan adoption and require a multi-modal component in all traffic studies.

## Strategies/Actions Description

### 6.a. Multi-Modal Component in Traffic Impact Studies

The City and County should include a multi-modal component in all traffic impact studies. The multi-modal component addresses impacts to pedestrians, bicycles, transit connections, and automobiles. It also must demonstrate that a new development provides adequate non-automobile links to nearby arterials and off-site destinations such as commercial centers, parks, and schools. Guidelines for elements to be included in multi-modal traffic studies are included in the Shape section of this report.

### 6.b. Multi-Modal Component in State, City, and County Construction Projects

All construction projects, especially roadway improvements, undertaken by state and local governments should adhere to the same multi-modal standards as new private developments.

### 6.c. Evaluation Standards for all Transportation Modes

The City and County should use multi-modal performance standards to ensure that adequate facilities are provided for all modes of travel. For bicycle and pedestrian modes, level of service standards might address directness, continuity, street crossing design, and security. For transit, pedestrian and bicycle accessibility to transit stops is the key component.

### 6.d. Mobility Report Card

The City and County should conduct community-wide transportation mobility surveys on a periodic basis. The survey results will become Cheyenne's "Mobility Report Card," a tool to measure Cheyenne's progress towards meeting goals and objectives outlined in the *Transportation Master Plan*. The report card can also be used to measure the

performance of the transportation system in accommodating the area's growth.

The mobility surveys should be conducted every three years, with the first survey becoming the benchmark for subsequent comparisons. Daily and peak hour traffic counts and transit ridership reports are often conducted annually. Survey elements would include:

- Daily traffic counts along key arterials
- AM and PM peak hour intersection turn movement counts and level of service analysis of key intersections
- AM and PM peak hour travel time and delay runs that determine the average time it takes to travel from one end of Cheyenne to another along various corridors. This analysis should also identify key congestion points for each corridor.
- Inventory miles of sidewalk and bicycle lanes
- Peak hour and/or daily bicycle and pedestrian counts at key locations
- Annual and daily transit passenger summaries by total system and route

### 6.e. Parking Standards

The city has mechanisms in place to regulate parking for new developments. The City and County should implement or update parking standards to include maximum parking per unit and potentially reduce minimum parking requirements to improve the multi-modal nature of the proposed development. In addition, consideration should be given to shared parking credits for mixed-use developments where interaction between uses can reduce parking requirements. Detailed

information on parking standards can be found in *Shared Parking*<sup>1</sup> and *Parking Generation*<sup>2</sup>.

### **6.f. Multi-Modal Corridors**

The City and County should build multi-modal corridors that combine higher density, mixed-use development with complete streets that provide opportunities for travel by all modes. Multi-modal corridors should include adequate facilities for all modes of travel and should incorporate urban design that is conducive to both motorized and non-motorized travel. For a multi-modal corridor to be successful, surrounding land uses must include both residential and non-residential uses and feature an increased level of density. The different parts of *PlanCheyenne* have been coordinated to include compatible land use and transportation plans that reinforce the multi-modal corridor concept.

### **6.g. Development Checklist**

Similar to the other sections of *PlanCheyenne*, a checklist should be developed to address the items not specifically legislated in the *Road, Street, and Site Planning Design Standards*. This checklist component would evaluate the design of proposed developments and their impacts on directness, continuity, street crossings, security, and visual interests and amenities.

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<sup>1</sup> Smith, Mary S. <sup>1</sup> *Shared Parking, Second Edition*, Washington D.C.: ULI-the Urban Land Institute and the International Council of Shopping Centers, 2005

<sup>2</sup> McCourt Ransford S. *Parking Generation, 3<sup>rd</sup> Edition*, Washington D.C.: Institute of Transportation Engineers, 2004

## 4. Impacts of the Plan

The community's investment in transportation infrastructure and services can provide significant benefits in terms of mobility, travel choice, and quality of life for citizens of the Cheyenne Area. In many cases, these investments contribute to better air quality, energy conservation, and reduced traffic congestion. However, negative impacts to the natural and physical environments can result as well. Irreversible damage to environmental features such as floodplains, wetlands, and biological research areas, can be produced by poorly planned transportation improvements. Investments that benefit parts of the community may have a negative effect on minority or low-income citizens. Finally premature infrastructure improvements in undeveloped areas can often led to growth characterized as sprawl, which can have a detrimental effect on many aspects of a community's quality of life. It is important that the alignment, right-of-way needs, and design details of arterial streets and highways be identified well ahead of actual development so that proper planning of residential and commercial areas can occur.

To protect public investments in community facilities and to protect and preserve natural areas sensitive to development, the impacts of traffic and new roadway construction are measured against these community values to the extent practical. Transportation facilities and roadway expansions should be implemented in a manner that promotes the beneficial aspects and minimizes unwanted effects.

### Environmental/Historical Impacts and Mitigation

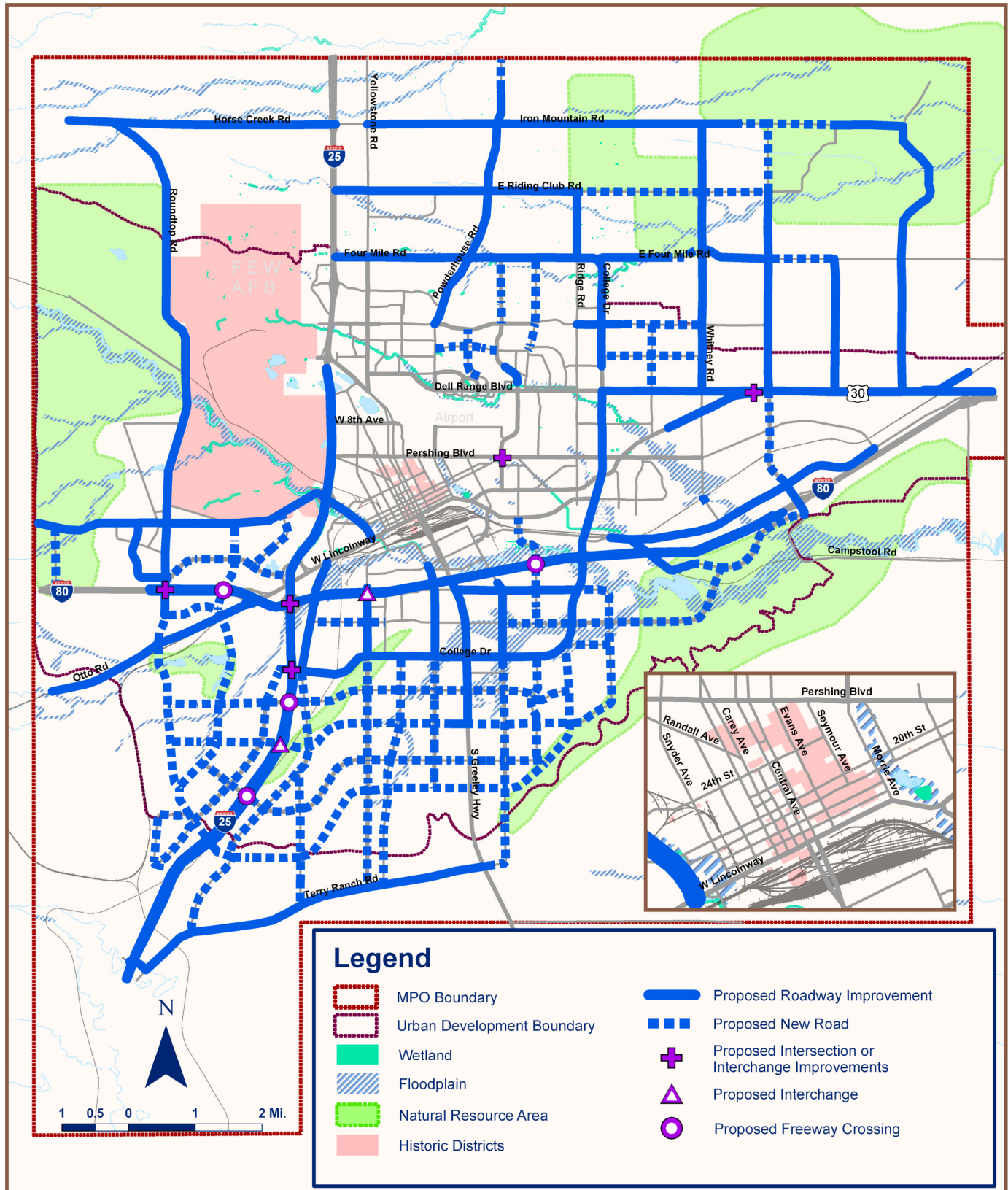
The development of roadways in or through wetlands, floodplains, natural resource areas or other environmentally sensitive areas is discouraged. When it has been determined that no other choice is feasible and a roadway expansion is necessary, expansions through these areas will be undertaken only if it can be demonstrated that the improvements will have minimal negative impacts upon the environment or that negative impacts will be mitigated. Figure 23 shows improved and proposed buildout roadways as well as historic districts, wetlands, floodplains, and natural resource areas. It is important to keep in mind that potential roadway alignments shown in Figure 23 are general in nature and do not represent actual alignments. Exact alignments of these new roadways will be determined through a comprehensive environmental assessment, design, and engineering process when the need for each improvement arises.

In addition to historic districts, floodplains, wetlands, and natural resource areas, other environmental factors might be considered in future efforts in which projects are evaluated, selected, and prioritized. Additional measures might include air quality, noise, and groundwater impacts.

In meeting the requirements of SAFETEA-LU, the Wyoming Game and Fish Department reviewed and commented on *PlanCheyenne*, noting the impacts that the plan could have on wetlands, floodplains, and natural areas.



Figure 23: Environmental and Historical Impacts



*This map shows potential environmental impact areas and roadway improvements identified in the buildout roadway plan.*

As projects from the plan are slated for planning and construction, additional coordination will be necessary to allow collaboration in mitigating the environmental impacts.

Similarly, the State Land Board was provided the opportunity to review and comment on *PlanCheyenne* and is recommended to be included in future planning efforts and projects that impact state lands.

### Historical Districts

Historical districts in the Cheyenne Area are unaffected by recommended improvements in the Buildout Roadway Vision Plan. The historical districts consist of F.E. Warren Air Force Base as well as some properties in the downtown area. While there are some improvements that skirt these areas, none go directly through them. Some roadways do pass through historical preservation districts, so attention will need to be paid if improvements are proposed for these facilities at a later date.

### Floodplains

Impacts to floodplains are also expected to be minimal. The floodplains in and around Cheyenne are along creeks and streams. Except for a limited number of crossings, no new roadway alignments are proposed to be within floodplain areas. Where new roads do cross floodplains, coordination will be required to ensure that impacts to proposed trails are minimized. A comprehensive environmental assessment, design, and engineering process will take place before construction of any recommended project. This process will minimize impacts and additional flooding risks for roadway improvements or new alignments crossing. If impacts will occur in floodplains, either from new alignments or from improvements to existing roadway alignments, the project sponsor must consult as early as

possible with the floodplain administrator or the Federal Emergency Management Agency (FEMA), as appropriate, to evaluate potential impacts and identify avoidance actions or mitigation measures to reduce potential impacts to floodplains.



### Wetlands

Wetlands in and around Cheyenne will also experience minimal impacts from improvements identified in the *Transportation Master Plan*. The wetlands in and around Cheyenne identified by the National Wetlands Inventory (NWI) are largely along creeks and rivers. No new roadway alignments are proposed to cross or otherwise interfere with existing wetland areas. Several existing roads that cross wetland areas are identified for potential improvements. While the roadway alignments already exist, these roads do cross potentially sensitive wetland areas, primarily along creeks and streams. If wetlands will be affected, the project sponsor must consult as early as possible with the U.S. Army Corps of Engineers to evaluate potential impacts, and identify avoidance actions or mitigation measures to reduce potential impacts to these sensitive resources.

### **Natural Resource Areas**

Improvements to the roadway network may potentially have adverse impacts on natural resource areas in and around the Cheyenne Area. Context sensitive design should be used in to help limit impacts to these sensitive areas. The natural resource area boundaries shown in Figure 23 are general in nature, so different areas within those areas may have different levels of environmental sensitivity. In most cases where natural resource areas are affected, the roadway improvements are being made to an existing roadway alignment or the roadways skirt the boundaries of the natural area. In such cases, consideration of the resource areas will be taken during the design, engineering, and construction phases to ensure that the natural resource areas are impacted as little as possible.

Several new roadway alignments are located partially or fully within natural resource areas. It is impossible for these roadways to completely avoid the resource areas. In these cases, detailed assessments of the sensitivity of the natural resource areas will be made during the design and engineering phases while the precise alignment is being determined. At that time, appropriate alignment refinement or mitigation measures will be taken and/or recommended to minimize the impacts to sensitive natural resource areas. These measures will be coordinated with appropriate City, County, or other agencies as necessary.

## Environmental Justice

Title VI of the 1964 Civil Rights Act requires that no person, because of race, color, religion, national origin, sex, age, or handicap, be excluded from participation in, denied benefits of, or be subjected to discrimination by any federal aid activity. Executive Order 12898 Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, issued on February 11, 1994, broadens this requirement to mandate that disproportionately high and adverse health or environmental impacts to minority and low-income populations be avoided or minimized to the extent feasible. Projects that include actions that are proposed, funded, authorized or permitted by federal agencies are subject to this Executive Order. The federal nexus for the proposed action is FHWA and FTA funding for the development and implementation of the improvements identified in the Cheyenne Area *Transportation Master Plan*.

Guidance for evaluating environmental justice in planning and impact assessments is provided in several sources. The most relevant source for the Cheyenne Area *Transportation Master Plan* is the Order 6640.23, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, issued by FHWA on December 2, 1998. The Order explains how FHWA-project proponents should identify relevant populations, integrate environmental justice principles in project planning, avoid disproportionately high and adverse effects, and determine actions that can be taken to address or mitigate potential impacts.

Incorporating environmental justice into the planning process involves three steps: identification of relevant groups, reaching out to relevant groups, and considering effects of the proposed actions on relevant groups. Project proponents can more effectively demonstrate their compliance with the Executive Order when they document their investigations of the presence of minority or low-income neighborhoods and take appropriate actions during project planning to ensure opportunities for participation and to avoid disproportionate and adverse impacts to these groups.

An overview of the ethnic and income characteristics of the City of Cheyenne is presented in Table 10. The table also provides data for the state and nation as a context for comparison to larger geographic areas.

The criteria used for the minority population impact study was based on Census 2000 census block group data with 15 percent or greater minority resident population per block group. **As illustrated in Figure 24, thirteen block groups may be affected.** These are primarily located in the downtown area and to the south to College Drive, as well as the F.E. Warren AFB area. The criteria used for the low-income population impact study was based on census block group data with 15 percent or greater of the tract population living in poverty. The study area has 10 low-income block groups. These are primarily located in the downtown area and south to I-80. Overall, 15 block groups are characterized by either minority or low income populations, or both.



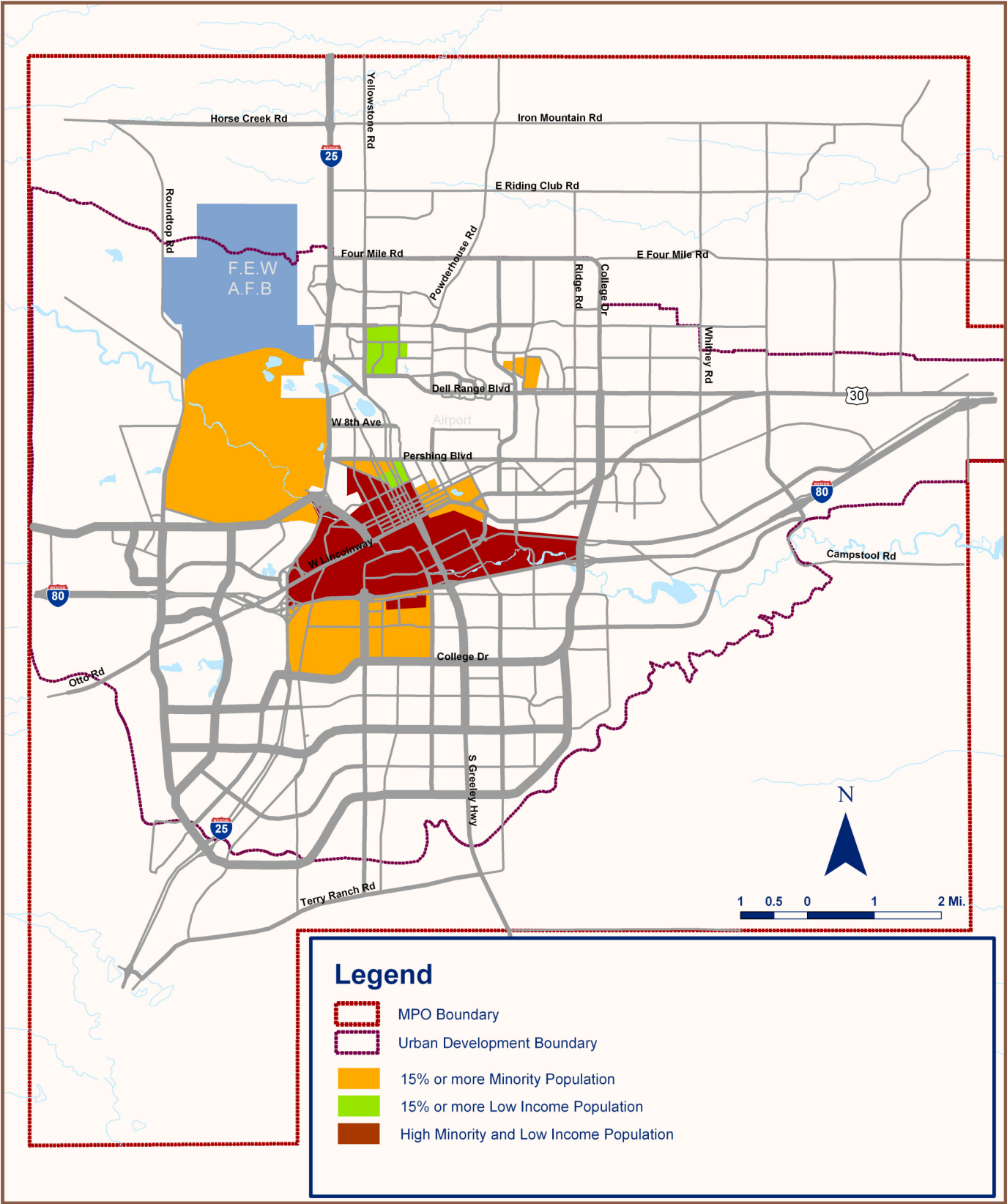
**Table 10: Socioeconomic Characteristics**

| <b>Racial Composition<br/>(Percent of Population)</b> | <b>Cheyenne<br/>(percent)</b> | <b>Wyoming<br/>(percent)</b> | <b>United States<br/>(percent)</b> |
|---|-------------------------------|------------------------------|------------------------------------|
| White   | 88.1                          | 92.0                         | 75.1                               |
| Black or African American                             | 2.4                           | 0.6                          | 12.2                               |
| American Indian and Alaska Native                     | 1.0                           | 2.3                          | 0.9                                |
| Asian   | 1.0                           | 0.6                          | 3.6                                |
| Other   | 7.5                           | 4.5                          | 8.2                                |
| Hispanic or Latino <sup>1</sup>                       | 12.9                          | 6.4                          | 12.5                               |
| <b>Low Income Statistics (2000)</b>                   |                               |                              |                                    |
| Persons in Poverty                                    | 8.8                           | 11.4                         | 12.4                               |
| Median Household Income                               | \$38,856                      | \$37,892                     | \$41,994                           |

<sup>1</sup> Hispanic/Latino ethnicity is not treated as a separate racial group, so the column total exceeds 100 percent.

**Source: U.S. Census (2000)**

Figure 24: Minority and Low Income Concentrations



*This map shows areas with high minority population and/or low income population.*

The potential effects of the proposed projects have been identified and evaluated with respect to the impacts that the minority and low-income populations may experience. Several figures are presented to demonstrate graphically where these changes may occur. The concept of environmental justice is to ensure that adverse effects are not borne unduly by certain groups.

Roadway improvements and possible impacted areas are shown in [Figure 25](#).

New roadway alignments along new rights-of-way received special attention due to their potential to split or isolate parts of the community. Only two new roadway alignments will potentially impact targeted areas. These two alignments are the Allison Rd extension west to Southwest Drive and a new north/south roadway between Morrie Ave. and College Drive from I-80 to Campstool Road. The negative impacts of the Allison Road extension are expected to be minimal. Most of the potential future alignment is along an existing service road or through vacant or unused land. No negative impacts to the target areas are expected from the new north/south roadway alignment from I-80 to Campstool Road. This alignment is through an industrial non-residential area and may be able to be accommodated completely on vacant or unused land. Bicycle and pedestrian facilities should be incorporated into new roadways to increase options for citizens without cars or driver's licenses.

Widening of existing roadways was deemed not as critical, but was still viewed for potential impacts. Many of the new and widened roadways will feature enhanced alternative mode facilities, so their impacts may be positive in terms of new transportation services and access.

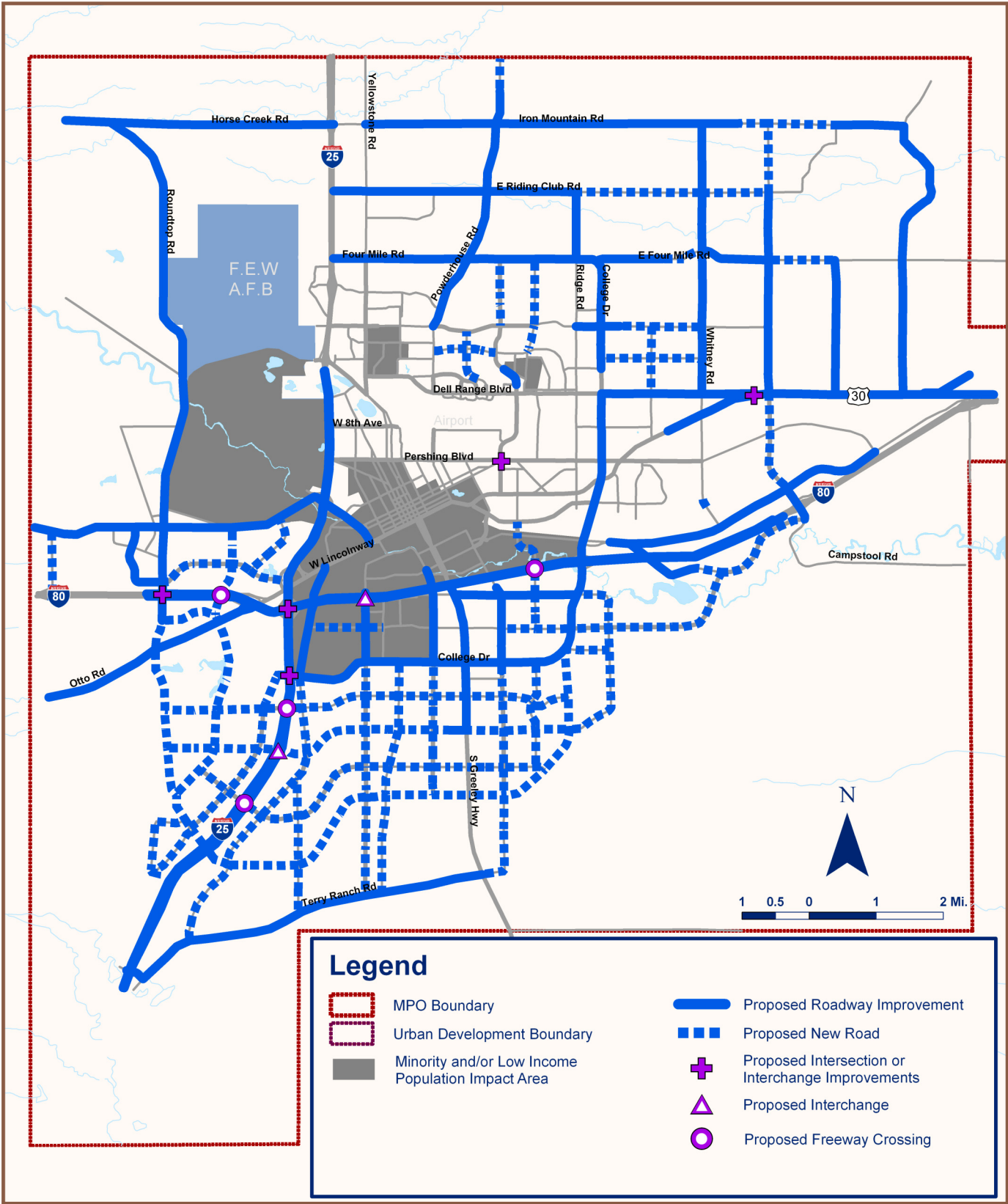
Implementation of new roadways increases the opportunity for new transit service routes. Transit improvements and changes should be analyzed to insure that minority and transit-dependent users are serviced to the extent possible. Increased transit service is considered to have positive benefits in terms of additional transportation options and increased access to the community for target populations.

[Figure 26](#) shows potential future transit corridors as well as minority and low-income population concentrations in Cheyenne.

Potential shorter and longer term transit routes both seek to serve minority and low income areas of the City. These additional potential routes will increase the transit service in target areas of the City, thereby having positive benefits.

In conclusion, the transportation improvements recommended by the Cheyenne Area *Transportation Master Plan* appear to have only minimal, if any, adverse impacts to the identified minority or low-income populations. In fact, many of the improvements will have positive impacts to these populations in terms of increased access to the community and additional transportation options. Proactive efforts should be made to ensure meaningful opportunities for public participation including specific activities to increase outreach for low-income and minority participation during the project development process for each of the potential improvements. This participation will be important to the decision-making process and will help to ensure that transportation needs of the target populations are met to the greatest extent possible.

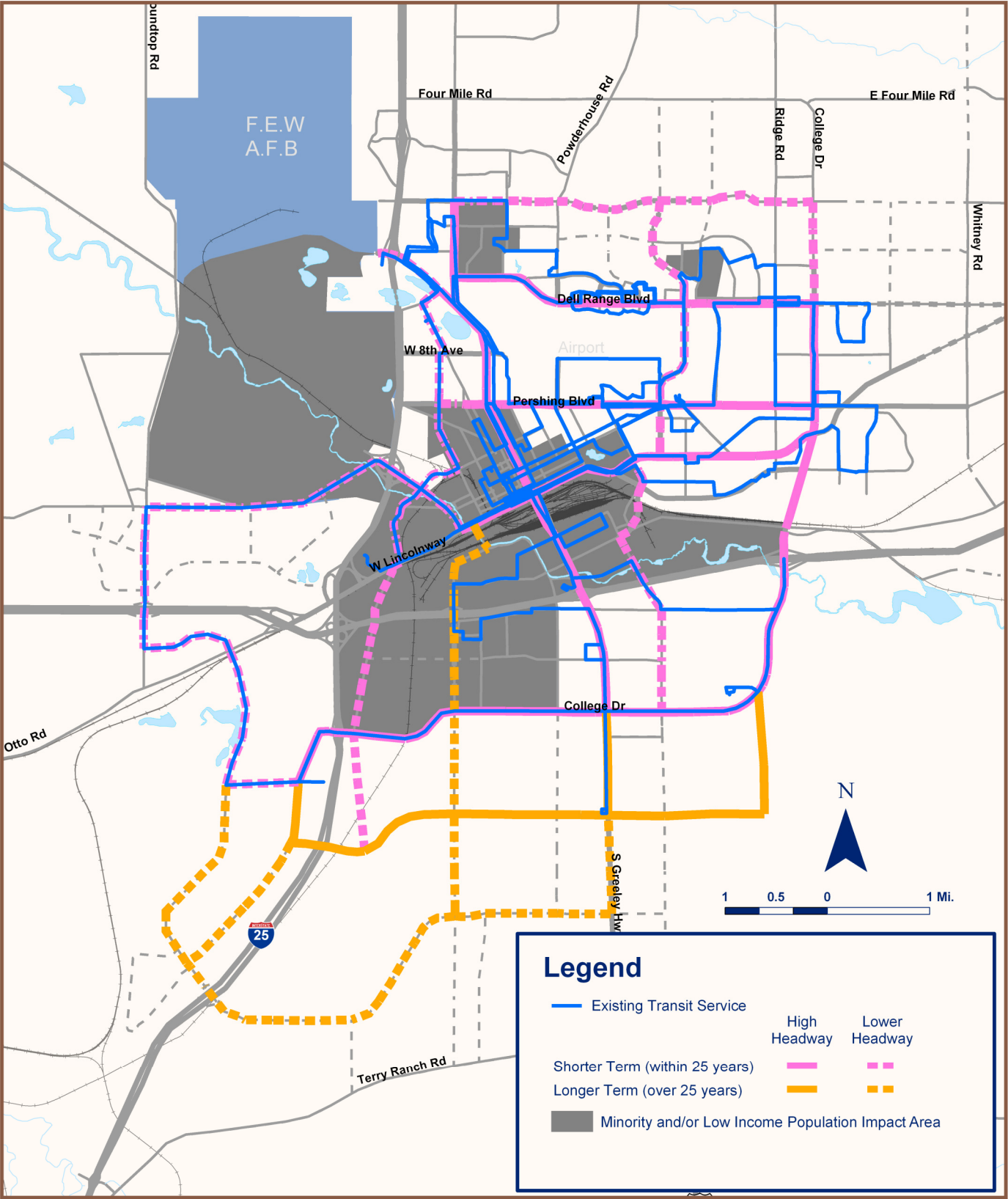
**Figure 25: Minority and Low-Income Concentrations and the Buildout Roadway Vision Plan**



*This map shows areas with high minority population and/or low income populations and roadway improvements identified in the buildout roadway plan.*



Figure 26: Minority and Low-Income Concentrations and Potential Transit



*This map shows areas with high minority population and/or low income populations and potential transit service corridors.*

## Safety and Security

It is vital that the Cheyenne area builds and maintains a transportation system that provides safe, secure means of travel by all modes. One key to safety and security in transportation is a well planned, consistent, integrated, and coordinated transportation system. The MPO can develop safety goals and work program activities to evaluate and improve transportation safety in the Cheyenne Area. In addition, the FHWA and FTA offer training programs that can help MPO and transit agency staff improve safety and security of the transportation system.

Many elements outlined in *PlanCheyenne* and the *Transportation Master Plan* directly or indirectly address transportation safety and security. Recommendations such as signal coordination and access control, as well as providing increased roadway capacity where necessary, help to improve the safety of the roadway system by reducing congestion that often leads to traffic accidents. Access control is particularly beneficial from a safety context as the number of potential traffic conflicts along a corridor can be greatly reduced. For pedestrians, bicyclists, and transit users, safety and security improvements such as hazard reduction, adequate lighting, and separation from traffic are addressed throughout the plan. Cheyenne's Road, Street, and Site Planning Design Standards also provide guidelines that will improve the safety and security of the transportation system. Street cross-sections in this document were designed to maximize the safety of roadways through the use of elements such as raised medians, separated sidewalks, and dedicated bicycle lanes. In locations of high pedestrian activity, installation of pedestrian count-down signal heads should be considered.

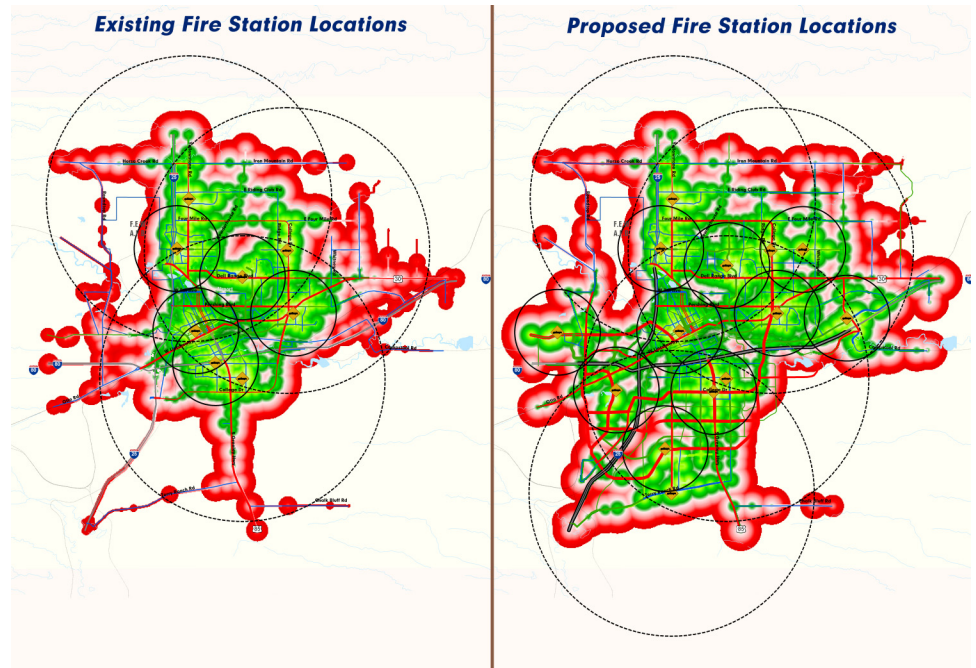
The MPO should develop work program activities that produce safety and security goals, objectives, and performance measures and review these on an annual basis. Activities might include an annual inventory of traffic, transit, pedestrian, and bicycle incidents that can be used to identify and mitigate the Cheyenne Area's worst safety and security problems. The MPO is in a unique position to collect records from State, City, and County sources and compile an area-wide database of incidents. Once problem areas have been identified, the MPO should pursue funds for safety improvements that are made available to states through the recently renewed federal transportation bill, SAFETEA-LU.

The MPO should work with groups responsible for emergency planning and safety and security systems within the MPO area in the development of safety and security goals. For example, the Cheyenne and Laramie County fire departments were included in the *PlanCheyenne* process and utilized forecast land use and travel model data to help the fire departments better plan for future growth. The Cheyenne MPO should continue to coordinate with fire departments and other emergency service providers such as United Medical Center, the Cheyenne Police Department, and the Laramie County Sheriffs department. Through new work program activities and coordination with appropriate agencies, the Cheyenne MPO can ensure that the transportation system in the Cheyenne Area remains safe and secure.

As Cheyenne grows in size and population, travel within the City will take longer. This is of particular concern to the City and County Fire Departments who need to maintain an adequate response time. To help plan for emergency services, an analysis of fire response time in the planning area was prepared. Based on this analysis, proposed locations of future fire stations, as well as plans for relocation of existing fire stations, were identified. A full-size map of this analysis is provided in the Community

Plan and a reduced version is repeated here. Based on travel model speeds, areas shown in green can be reached in four minutes or less, while the areas shown in red may have a response time of up to eight minutes. Response times could be further improved through the use of emergency signal preemption.

Safety and security on the transit system affects not only users of the transit system, but bus drivers, bicyclists, and automobile drivers as well. The Federal Transit Administration (FTA) funds and supports a wide variety of transit safety and security training programs for transit agencies. The Cheyenne Transit System should consider utilizing this resource.





# PLAN CHEYENNE



## WATER FACILITIES:

Municipal ownership - Gravity system installed.  
Source of Supply, Crow Creek & Troutfork Reservoirs,  
located about 25 miles west of town in G  
Capacity of Storage Reservoirs as follows:

North Crow Reservoir

Granite

Crystal Lake

35 miles of cast iron supply line capacity 30  
to 4 million gallon distributing reinforced  
41 miles west of & elevated 301 above Town  
Reservoir, supplies the 41", 30", 24", 20", 18" & 16"  
the mains laid 808 to 811 incl. - Average daily  
Gravity pressure 100 lbs. per sq. inch. 1932  
Pumping Plant Situated at west 15th & 10th  
Avenue.

## FIRE DEPARTMENT:

Paid - 2 Companies, Chief & 14 Men. Co. A & B  
wagons, 2000 21' Cotton Horse - Co. A & B, City  
One Graham Lumber Combination Horse & City  
Truck fully equipped - One Seelye's Comb  
Wagon - One Horse Wagon in reserve - 5000  
Gallons well fire alarm system of 36 boxes  
Grades as shown - Fire Limits indicated by  
as shown -







## Developing a Connected & Diverse Transportation System

