WEST CHEYENNE

Land Use and Infrastructure Improvement Plan

December 2002

LSA

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Community Vision Statement

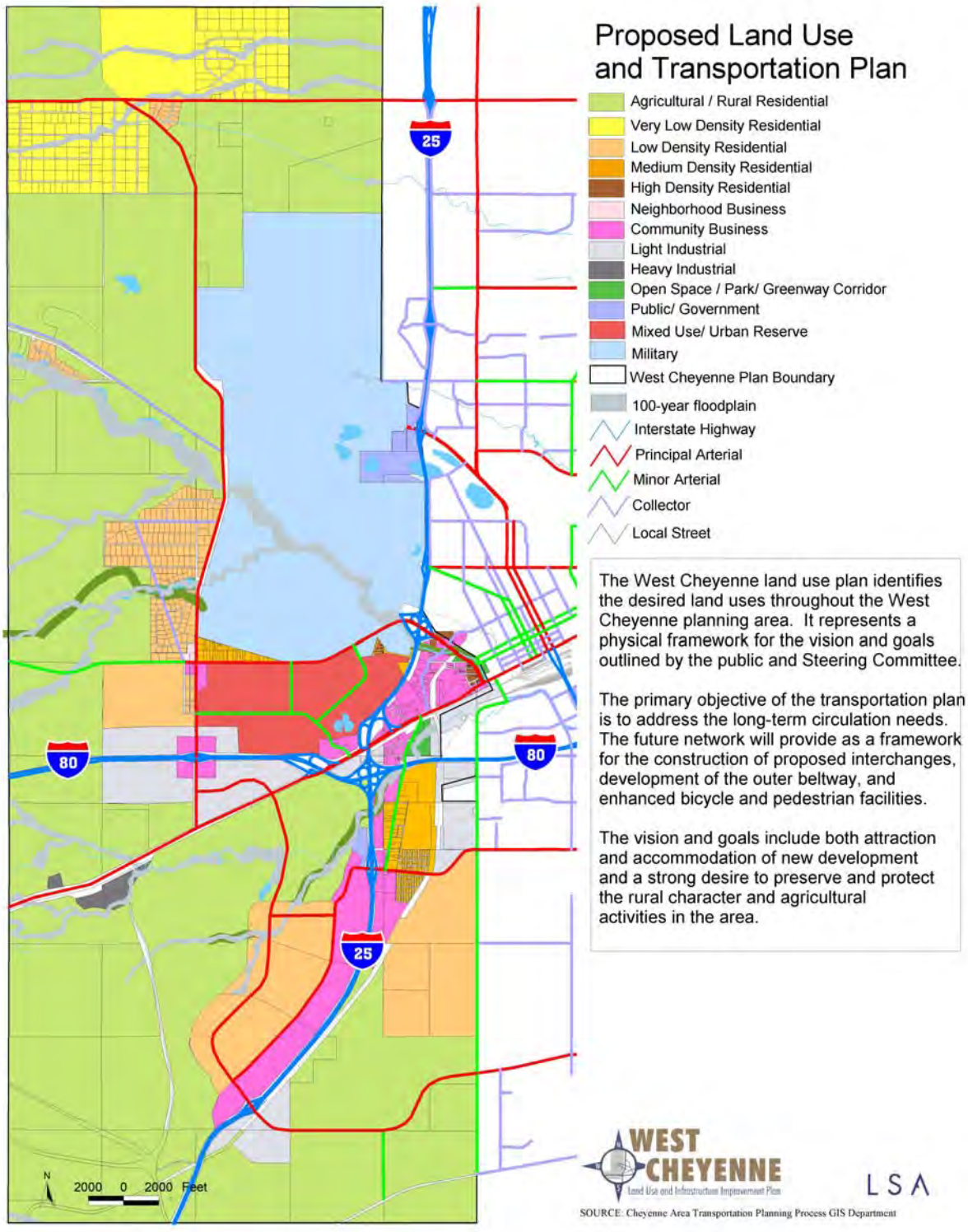
The West Cheyenne planning area will be a regional center of activity, defined by its connections and transitions. Attractive gateways will mark the entrance to the region with both a high quality of life for residents and an attractive climate for commercial and industrial business development. The planning area will also be defined by a coordinated transition from expansive ranching and agricultural lands to a vibrant urban center, with attractive neighborhood, commercial, and employment centers. A continuous greenway system and the preservation of scenic views to the west will connect and unite residents of West Cheyenne throughout the planning area.

Community Goals

Goals were developed with consideration of existing plan goals, objectives and considerable input from the Steering Committee.

- Encourage an efficient and coordinated pattern of development.
- Coordinate the plan with other planning efforts in the region.
- Encourage new employers to locate in planned business park, office, and industrial areas.
- Support the development and redevelopment of high quality commercial and retail areas.
- Develop a transportation system plan for the West Cheyenne planning area.
- Provide and maintain a safe and efficient transportation network for all users.
- Enhance connections between railroad and roadway transportation uses.
- Provide cost-effective water, sewer, and drainage infrastructure to the area concurrent with new development.
- Provide cost-effective and adequate emergency services protection and educational services concurrent with new development.
- Develop an accessible system of parks and greenways for the community.
- Preserve significant views to the west.
- Protect important natural lands for education and habitat preservation.
- Provide attractive gateways.
- Enhance the appearance of roadways in the area.
- Preserve the rural character of lands that help define the transition from rural to urban activities.

Executive Summary: Proposed Land Use and Transportation Plan



The West Cheyenne land use plan identifies the desired land uses throughout the West Cheyenne planning area. It represents a physical framework for the vision and goals outlined by the public and Steering Committee.

The primary objective of the transportation plan is to address the long-term circulation needs. The future network will provide as a framework for the construction of proposed interchanges, development of the outer beltway, and enhanced bicycle and pedestrian facilities.

The vision and goals include both attraction and accommodation of new development and a strong desire to preserve and protect the rural character and agricultural activities in the area.

Action Plan

The Action Plan identifies improvements projects that are required in order to implement the Land Use Plan and provide adequate infrastructure to serve the proposed land uses. Below are highlights of the action plan:

- Develop implementation strategy to promote business parks, offices and industrial land uses.
- Develop of an infrastructure and transportation fee study and traffic impact analysis.
- Ensure any future development along Happy Jack Road is compatible with the base mission and also coordinated with the base.
- Coordinate with landowners as to a precise location for a trail extension south of Happy Jack Road from Missile Drive to west of North Fort Access.
- Develop minimum facility standards for new developments.
- Modify the Urban Development Boundary to extend west of Roundtop/North Fort Access Road.
- Encourage and help landowners to create and/or revise Master Plans for Overland Trails and the property west of Little America and east of Fort Access Road.
- To reduce confusion re-name South Fort Access Road and North Fort Access Road to Roundtop Road.
- Create guidelines for access control for streets within the West Cheyenne Study Area.
- Modify Transportation Plan to reflect recommend plan. Coordinate future roadway modifications and right-of-way preservation as part of future development plans.
- Determine the route for Southerly/Westerly beltway to connect with the I-25/South Interchange.
- Identify intermodal facility size, type of service and right-of-way requirements.
- Locate a future fire station to serve the West Cheyenne Study Area that will increase response time for the residential areas along Southwest Drive.
- Study connectivity options between Southwest Drive and Parsley Blvd.

1 Introduction

This West Cheyenne Land Use and Infrastructure Improvement Plan has been prepared to establish both a vision for the future of the West Cheyenne region and a strategy to achieve that vision. This document contains a summary of existing conditions, needs, influences, goals, proposed alternatives, and proposed land use and transportation plans for West Cheyenne.

The West Cheyenne Plan was initiated by the Cheyenne Area Transportation Planning Process (**ChATPP**) as part of a larger effort to update the 1992 Cheyenne Area Development Plan (see Figure 1-1) with a series of sub area plans. Five of the sub area plans have been completed and adopted to date. A consultant team made up of LSA Associates, Inc. and Clarion Associates, Inc. was retained to prepare the West Cheyenne Plan. The process involved an examination of existing conditions, the preparation of a vision for land use and transportation in the region, a determination of the infrastructure needs in the area, and, finally, the development of a specific action plan to address the needs and achieve the vision.

Citizen involvement was an integral part of the plan's preparation. A 20-member Steering Committee with citizen representatives from the area, F.E. Warren Air Force Base staff, and City and County staff met throughout the process to provide input and feedback on the plan (members are listed in Table 1-1). In addition to the Steering Committee involvement, two public meetings were held during the preparation of the plan. A public hearing was held before the Cheyenne–Laramie County Regional Planning Commission on September 16, 2002. The plan was presented to and adopted as an amendment to the Cheyenne Area Development Plan, 1992, by the Cheyenne City Council on XXXXXXXXXX and the Laramie County Commission on XXXXXXXXXX.

Figure 1-1. Cheyenne Area Development Plan (1992)

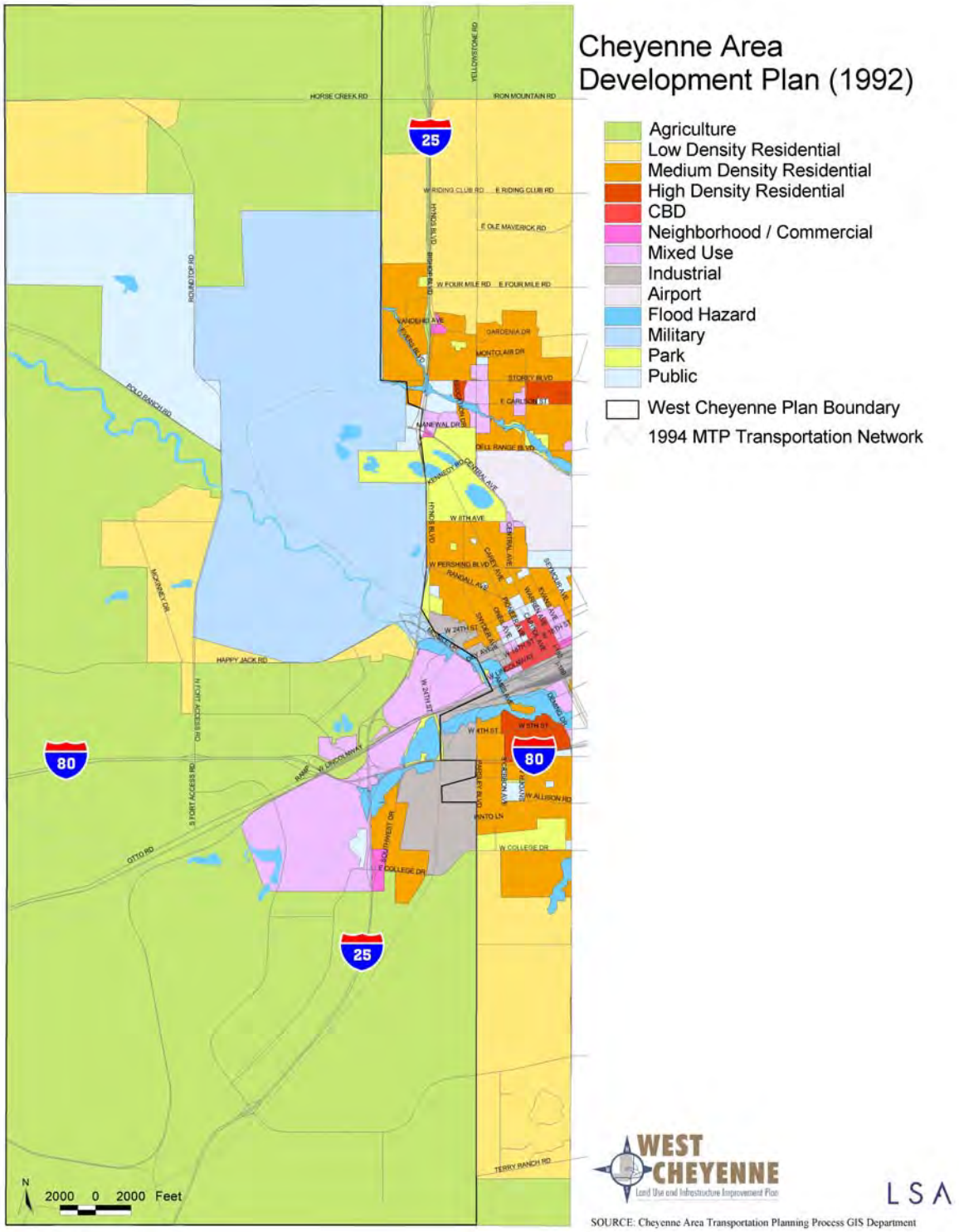


Table 1-1. Steering Committee Members and Affiliations

Member	Affiliation
Mr. Don Beard	Director Laramie County Public Works
Ms. Lola Brown	Citizen
Mr. Randy Bruns	LEADS
Mrs. Ann Burns	Citizen
Mr. Glen Connor	Citizen
Mr. Michael Dowling	Planning Commission
Mr. John Francis	Citizen
Mr. Leo Garcia	Citizen
Ms. Vickie Heidbreder-Grubbs	City-County Development Office
Mr. Darren Horstmeier	F.E. Warren AFB Community Planner
Ms. Ann King	Citizen
Mr. Jay Meyer	WYDOT Planning
Mr. John Morris	Citizen
Mr. Dennis Auker	Laramie County School District #1
Mrs. Paula Qualls	Planning Commission
Mr. Mark Reid	Laramie County Planner
Mrs. Susan Samuelson	Citizen
Mr. Doug Van Pelt	Citizen
Mr. Shawn Reese	ChATPP Transportation Planner
Mr. Jim Woods	Heartland Homebuilders
Mr. Scott Roybal	Citizen
Mr. Tom Mason	ChATPP Director
Ms. Elizabeth Cox	Citizen

This report is divided into eight sections as follows:

1. Introduction

2. Existing Conditions: This provides background information pertaining to the West Cheyenne study area. Existing plans describing land use, economic and demographic conditions, zoning, infrastructure, and transportation are described and illustrated.

3. Visions and Goals: Insight into community and Steering Committee's ideas and objectives to create and guide a successful future for West Cheyenne.

4. Land Use Plan: Overview of the alternatives presented for the proposed land use plan and characteristics.

5. Transportation Plan: Identifies the current regional facilities, needs, and describes a future transportation network.

6. Appendix A: Brief listing of the plans and studies that were influential to this document.

7. Appendix B: Missile Drive Corridor Plan: This study illustrates the current needs and transportation issues along Missile Drive. The intersection of Missile Drive/Old Happy Jack Road and 19th Street is included in the proposed plan for reconstruction and is illustrated in this document.

8. Appendix C: Interchange Feasibility Study: This study describes three (3) interchange site analyses with site layouts. The analysis that lead to the final design is outlined and described in a summary matrix, along with the final design plan

2 Existing Conditions

The following section describes the current conditions in the West Cheyenne planning area and summarizes the factors affecting development in the area. Existing studies, plans, regulations, utility infrastructure, land use patterns, transportation networks, economic and demographic conditions were examined and analyzed to provide a basis of understanding of the planning areas characteristics.

Planning Area and Context

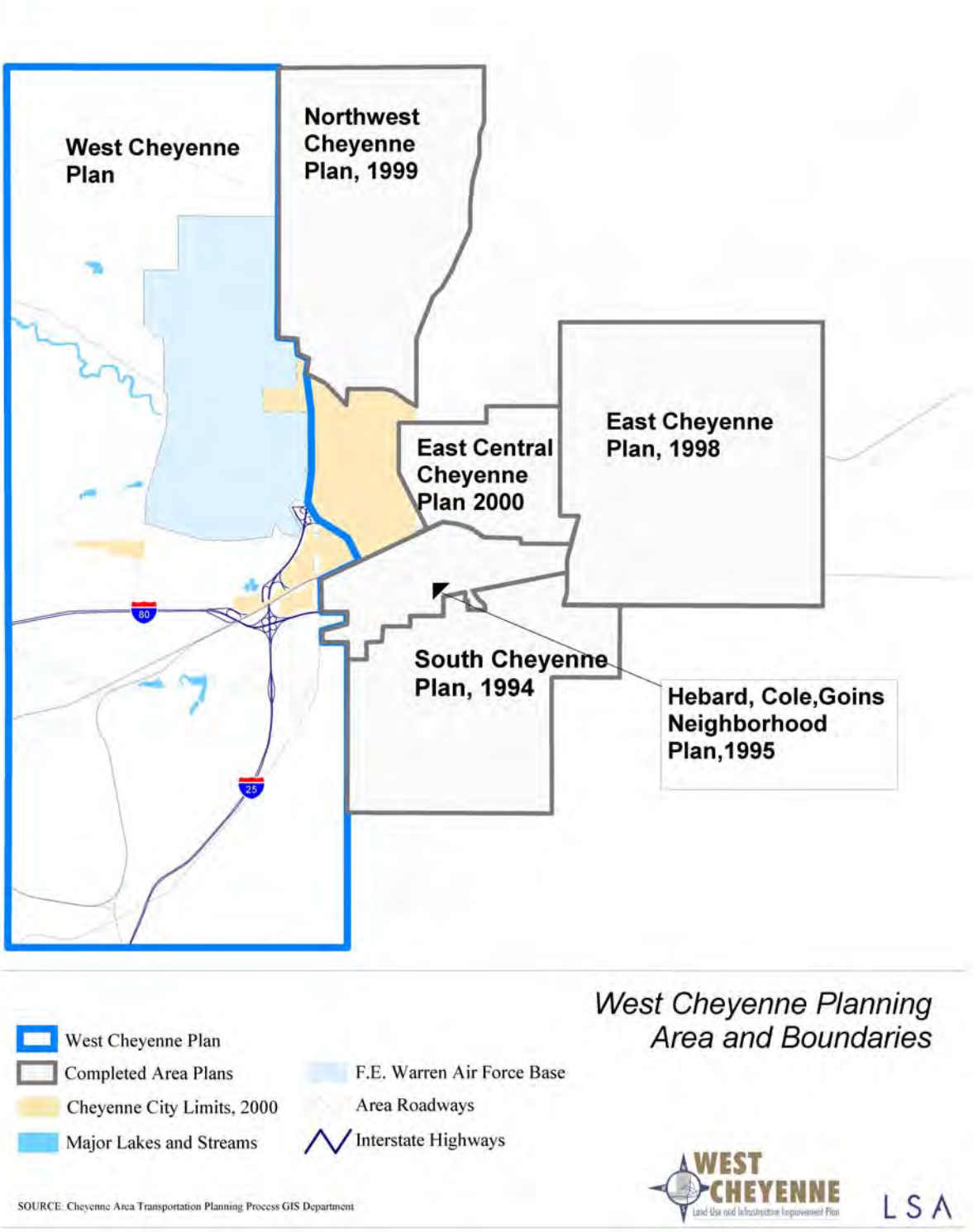
The West Cheyenne planning area is located within Laramie County, Wyoming, and covers approximately 37,700 acres (58.9 square miles). The majority of the planning area is in the unincorporated area immediately west of the City of Cheyenne. F.E. Warren Air Force Base is completely contained within the planning area, and covers approximately 5,866 acres. The planning area and relevant jurisdictional boundaries are illustrated on Figure 2-1.

Despite the fact that most of the planning area lies outside the Cheyenne City limits, all of the planning area is part of a shared Laramie County/City of Cheyenne planning area. All of the land in the planning area has previously been assigned a future land use by the 1992 Cheyenne Area Development Plan (as shown on Figure 1-1). The Cheyenne and Laramie County Zoning Ordinance also defines the study areas future land uses. In addition the General Plan, 2000, F.E. Warren Air Force Base guides long-range framework for the future base development.

Plans, Studies, and Policies

As part of the existing conditions analysis, a review of existing plans, studies, and policies relevant to the region was conducted. Each document was examined with special attention to the West Cheyenne sub-area. Factors affecting development in this area are discussed in further detail later in the plan.

Figure 2-1. West Cheyenne Planning Area and Boundaries



The following documents were reviewed:

- Laramie County Comprehensive Plan, 2001
- Cheyenne Area Development Plan, 1992
- Northwest Cheyenne Infrastructure and Development Plan, 1999
- South Cheyenne Infrastructure and Development Plan, 1994
- Cheyenne–Laramie County Subdivision/Development Regulations, 2000
- Cheyenne and Laramie County Zoning Ordinance, 1988, as amended
- General Plan, 2000, F.E. Warren Air Force Base
- Greenway Development Plan, 1992
- Innovative Finance Analysis, Transportation Improvement Programming Process, and 1997 Project List Update, 1997, ChATPP
- Cheyenne Area Master Transportation Plan, 1994
- Overland Trails Master Plan, 1979, Wycoa, Inc.
- Cheyenne and Laramie County Road, Street and Site Planning Design Standards
- Report of Findings for Southwest Drive Data Collection, 1989, ChATPP
- Transportation Improvement Program 1999–2002, ChATPP
- Transportation Improvement Program, 2001–2004, ChATPP
- 20-year Assigned Traffic Volume Maps (October 2000)
- 2000 Existing Land Use and Employment Information, ChATPP
- 19th & 20th Street Couplet, Missile Drive and Happy Jack Road Intersection Concept Planning, 1986, ChATPP
- Cheyenne Board of Public Utilities 1994 Cheyenne Water Supply Master Plan
- Facilities Excellence Plan, 1999, F.E. Warren Air Force Base
- Hebard, Cole, and Goins Neighborhood Plans, 1995, ChATPP, Jack Noblitt, EDAW

Economic and Demographic Conditions

The West Cheyenne planning area and the urbanized area of Cheyenne have experienced steady growth since the 1990 census. In 1990, the population of the City of Cheyenne was approximately 50,000. The most recent estimate of the City's population was conducted in 2000 and the estimated population was 53,000—an increase of 3,000 persons since 1990. The estimated population of the West Cheyenne area in 1990 was 5,000. The population of West Cheyenne was estimated to be 6,000 in 2000—an increase of 1,000 persons since 1990.

The F.E. Warren Air Force Base has a large presence in the West Cheyenne area. Nearly 77% of those who lived in the West Cheyenne area lived on F.E. Warren AFB in 1990, representing 3,850 residents. In 2000, 74% of the residents in the West Cheyenne area lived on the F.E. Warren AFB, representing 4,440 residents.

Employment has increased steadily within the planning area. In 1997, approximately 7,100 jobs were located in the planning area. The estimated number of jobs in the planning area for 2000 was 7,800. Large employers in the area are F.E. Warren Air Force Base, Wyoming Highway Department, Wyoming Air National Guard, Wyoming Army National Guard, Coastal Chemical Company, Little

America, Hitching Post, Wyoming Guard Adjutant General, Wyoming Game and Fish, McDonalds, and United Parcel Service.

Recent economic development has occurred along West Lincolnway with the development of the IKON Center and Home Depot. A major residential development has also been proposed and approved by the City for the southwest corner of Happy Jack Road and North Fort Access Road. Residential development has also been proposed east of Southwest Drive, south of I-80.

With the Cheyenne Business Parkway, located east of town, nearing capacity, there has also been recent interest in industrial and distribution center locations within the West Cheyenne planning area. The proximity of the I-25 and I-80 interchanges and potential rail access to the planning area makes the area particularly attractive for these uses.

Land Use, 2000

Year 2000 land uses for the planning area are illustrated on Figure 2-2 and summarized in Table 2-1. Land uses reflect Cheyenne and Laramie County land use GIS data provided by ChATPP, which is updated based upon subdivision data, address data, and examination of field surveys.

Since over 98% of the land area in the West Cheyenne planning area is unincorporated, it is not surprising that agricultural and low-density residential uses are among the most common land uses. The Agricultural/Rural category, which includes agricultural uses as well as very low-density residential uses, covers 27,572 acres (75.9% of the planning area) and is spread throughout the planning area. Remaining low-density residential uses stretch over 829 acres in the planning area (2.3%). The majority of the residential uses in the planning area are concentrated along Roundtop Road, immediately north of Happy Jack Road and west of the F.E. Warren Air Force Base, on Southwest Drive and the West College area, and along Horse Creek Road in the northern portion of the planning area. The residential development between Happy Jack Road and F.E. Warren Air Force Base is coded as medium-density residential, and a small amount of high-density and manufactured residential uses are present within the City limits near Missile Drive.

Military uses associated with F.E. Warren Air Force Base comprise over 16% of the planning area and cover 5,866 acres. The F.E. Warren Air Force Base is located in the center of the planning area and serves as the eastern boundary of the planning area along I-25. Land uses within the base consist of general military operations along the northern and western edges, residential along the southeastern edge of the base, mixed-use/urban reserve with residential both accompanied and unaccompanied and office uses along Randall Avenue in the center of the base, and recreational uses along the eastern edge north of Randall Avenue.

Figure 2-2. Land Use, 2000

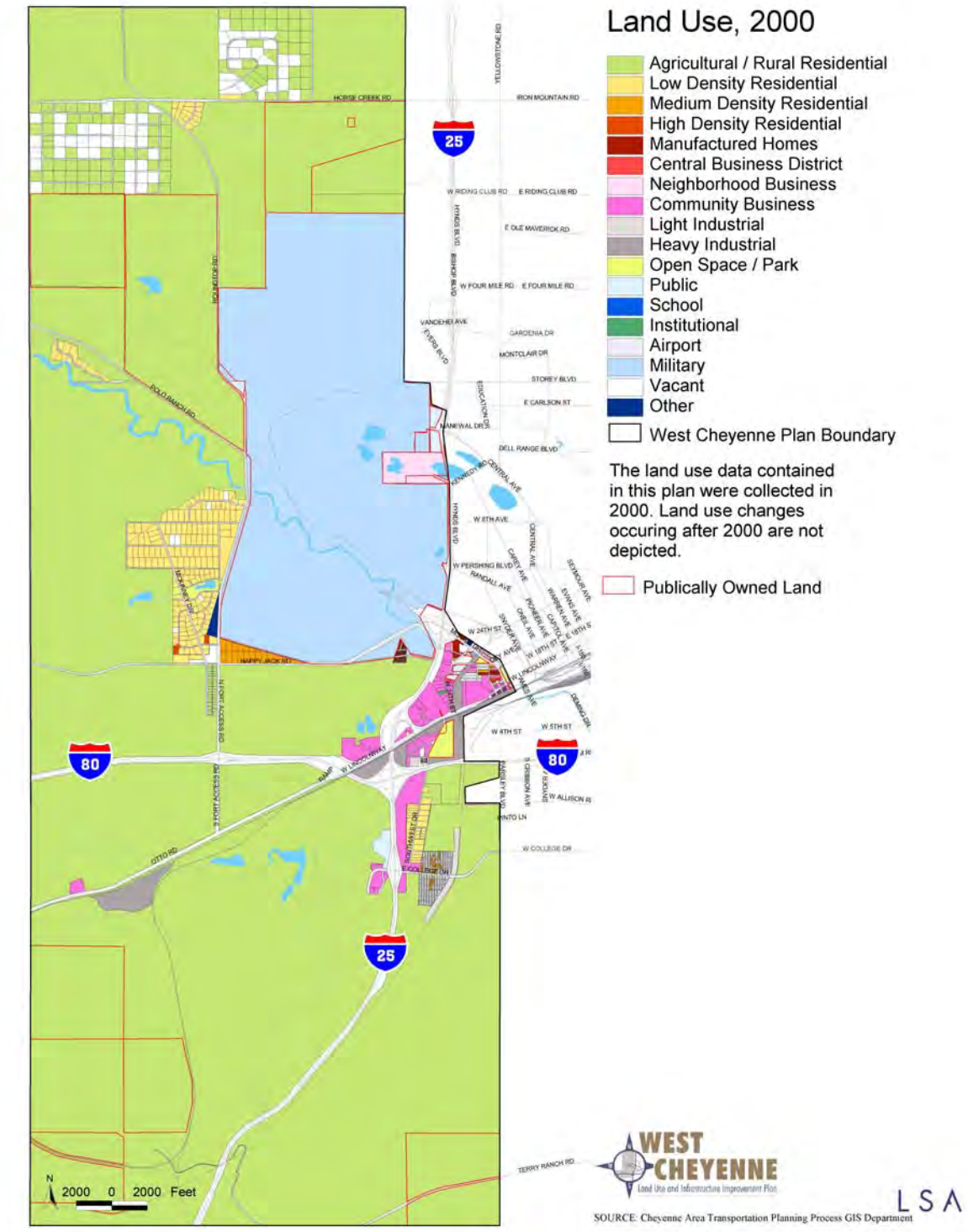


Table 2-1. Land Use, 2000

Land Use	Area (acres)	% of Total Planning Area
Agriculture/Rural	27,572	75.93%
Low-density Residential	829	2.28%
Medium-density Residential	93	0.26%
High-density Residential	21	0.06%
Manufactured Home Residential	17	0.05%
Neighborhood Business	147	0.40%
Community Business	419	1.15%
Light Industrial	51	0.14%
Heavy Industrial	277	0.76%
Open Space/Park	91	0.25%
Public/Government	221	0.61%
Military	5,866	16.15%
Vacant	691	1.90%
Other	20	0.05%
Institutional	2	0.01%
Total	36,315	100.00%

The Public/Government category accounts for 221 acres in the planning area and makes up 0.6% of the total land area. The High Plains Grassland Research Station, located west of Roundtop Road and north of Experimental Farm Road, accounts for the majority of the land use in this category. The grounds house a research station, which is supported by the U.S. Department of Agriculture and the Agricultural Research Service, as well as Roundtop Reservoir. The Wyoming Information Center, at the northwest corner of the College Drive interchange on I-25, is also included in the Public/Government land use category.

While existing commercial uses (Neighborhood Business and Community Business uses) do not make up a large percentage of the land use in the planning area, they do account for 566 acres of the planning area (1.6%). Commercial uses are primarily located along the northern edge of West Lincolnway between Little America and Cheyenne's downtown. A significant commercial center is also present around the College Drive interchange on I-25, and additional commercial uses exist along Southwest Drive south of West Lincolnway. The Cheyenne Country Club and Golf Course also falls into this category.

Industrial uses in the area include Coastal Chemical, near the western edge of the planning area, a regional fuel distribution tank farm on Parsley, and much of the land associated with the Burlington Northern and Union Pacific railroad operations.

Existing parks in the planning area include Martin Luther King Park, along Missile Drive, and Clear Creek, along the east side of Southwest Drive, just north of I-80.

Zoning, 2000

Zoning, 2000 in the planning area is defined by the Cheyenne and Laramie County Zoning Ordinance (1988, as amended), which assigns zoning designations for all development within the planning area. The zoned area boundary is also the West Cheyenne boundary on three sides. Zoning, 2000 is illustrated on Figure 2-3. Total land area and percentages in each category are listed in Table 2-2.

Consistent with the land use, 2000, nearly 60% of the planning area is zoned for agricultural uses. The Agricultural District (A-2) occupies the western, northern, and southern edges of the planning area, with 18,721 acres zoned for agricultural or very large lot (20 acres or greater) residential use. Agricultural and Rural Residential Districts (A-1) are located in sections along Horse Creek Road, Roundtop Road, immediately south of the base along Happy Jack Road, and south of College Drive along the eastern edge of the planning area. This district is intended for agricultural uses and single-family residential lots of 5 acres or greater, though the majority of the 3,680 acres in the A-1 District are currently used for large lot residential developments rather than agriculture.

Business and employment related zones in the planning area are concentrated along West Lincolnway and the Southwest Drive area, with a small Neighborhood Business District (NB) on the northwest corner of Roundtop Road and Happy Jack Road. The Community Business District (CB) accounts for approximately 473 acres in the planning area, split between the area on the north side of West Lincolnway between I-80 and Missile Drive, and an area south of College Drive near I-25. Industrial Districts are located between West Lincolnway and I-80 and between Parsley Boulevard and the Burlington Northern Santa Fe railroad tracks, as well as in the area along Missile Drive. The Light Industrial District (LI) covers 729 acres in the planning area and accounts for the majority of the land zoned for employment uses in the planning area.

By far the largest planned land use in the planning area is the Overland Trail Master Plan. The Overland Trail planning area occupies 4,764 acres in the southwest portion of the planning area. This zoning district was established with the approval of the Overland Trails Master Plan in 1979. The Overland Trails Master Plan created a multiple use-planned environment offering a wide variety of living and working environments. The plan includes business (830 acres), commercial (180 acres), industrial (580 acres), low-density residential (890 acres), middle-density residential (150 acres), high-density residential (50 acres), and open space (650 acres). The open space element provides preservation, recreation, and separation of uses. The regional shopping center commercial site, located near the existing interchange at College Drive, creates a major attraction for the City of Cheyenne. Location of residential uses on the interior of the site, laced with fingers of open space, was planned to be separate from non-residential uses.

Figure 2-3. Zoning, 2000

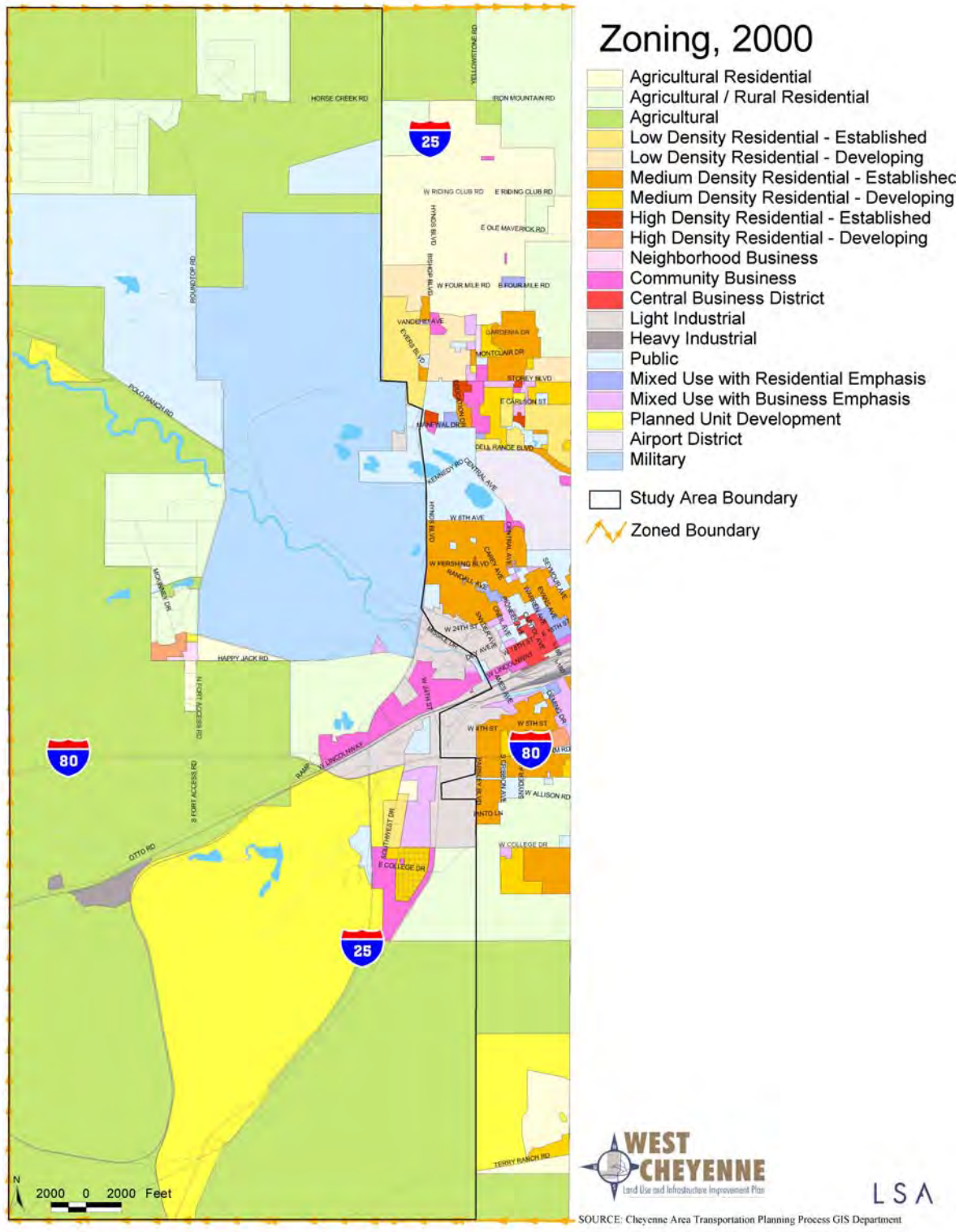


Table 2-2. Zoning, 2000

Zoning	Area (acres)	% of Total Planning Area
A-1 Agricultural and Rural Residential	3,680	9.76%
A-2 Agricultural	18,721	49.66%
AR Agricultural Residential	156	0.41%
CB Community Business	473	1.25%
HI Heavy Industrial	122	0.32%
HR-2 High-density Residential – Developing	46	0.12%
LI Light Industrial	729	1.93%
LR-2 Low-density Residential – Established	80	0.21%
M Military (F.E. Warren Air Force Base)	5,866	15.56%
MR-2 Medium-density Residential – Developing	114	0.30%
MUB Mixed-Use/Urban Reserve with Business Emphasis	165	0.44%
NB Neighborhood Business	23	0.06%
P Public	2,761	7.32%
PUD Planned Unit Development (Overland Trails)	4,764	12.64%
Total	37,700	100.00%

The Overland Trails Master Plan includes an extensive assessment of transportation needs within the area and resulted in major changes to the future transportation plan for Cheyenne. The transportation plan adopted with the Overland Trails Master Plan in 1979 included a system of arterial, collector, and local streets and two new interchanges to serve the West Cheyenne study area. These two interchanges include a new interchange along I-80 and Fort Access Road and a new interchange along I- 25 about three miles south of the existing I-25/College Drive interchange. Connecting the arterial and collector street systems with the I-80 interchange is a grade-separated arterial that goes over Otto Road and the Union Pacific Railroad.

Although approved in 1979, the Overland Trails Master Plan has not been built and property ownership has subsequently changed.

Military (M) and Public (P) Districts account for the remainder of the larger zoning districts in the planning area with locations representing 15.56% and 7.32% of the total area respectively. The area zoned military, F.E. Warren Air Force Base, is a significant employer that serves as a major work-center within the study area.

Previous Land Use Plans

Previously planned land uses for the West Cheyenne planning area are described by the Cheyenne Area Development Plan (1992) and are illustrated on Figure 1-1. These areas reflect the previous planning process that established a 10-year vision for the development of the West Cheyenne Area, accounting for community values, infrastructure considerations, economic, and demographic conditions. The Cheyenne Area Development Plan included agricultural, low-density residential, medium-density residential, high-density residential, mixed-use/urban reserve, neighborhood/community business, central business district, industrial, public, military, park, flood hazard area, and airport land uses. A key element of the plan was to link the development of future land use with improvements to the transportation system.

Previously planned land uses are generally consistent with both the land use, 2000 and the zoning, 2000, with a few notable exceptions. Low-density residential activity north of Horse Creek Road is inconsistent with the original Agricultural designation, as is the proposed residential development on the southwest corner of Happy Jack Road and South Fort Access Road. In addition, the Southwest Drive area was planned for higher intensity residential and industrial uses that have not been realized. The plan also called for mixed-use/urban reserve activity along West Lincolnway and Missile Drive and in a substantial portion of the area immediately southwest of the I-25/I-80 interchange.

Recognizing the need for reserving adequate areas for urban growth, the Laramie County Comprehensive Plan, 2001 stresses the importance of encouraging "urban density" within the city's Urban Development Area. The Urban Density areas identified on the Comprehensive Plan land Use Plan are intended to accommodate a mix of more intensive land uses than more outlying areas of Laramie County. These urban areas have public water and sewer services available, a higher level of vehicular access and a greater overall level of community services. Higher density resident and industrial uses are preferred, while land uses such as large lot, low density residential or intensive agricultural activities are discouraged.

The 1992 Cheyenne Area Development Plan became the basis for the 1994 Cheyenne Area Master Transportation Plan. This 1994 Master Transportation Plan includes three new interchanges to accommodate future growth in the West Cheyenne Study area. These three new interchanges are at I-80/North Fort Access Road, I-80/Parsley, and I-25/South. The 1994 Cheyenne Area Master Transportation Plan also includes the Overland Trails Master Plan transportation network.

A lot has changed in Cheyenne since the development of the 1992 Cheyenne Area Development Plan and the 1994 Cheyenne Area Master Plan. Developments have occurred in the study area, land ownerships have changed, the Cheyenne Business Parkway is almost built out, and opportunities for residential land in the City are limited. It is due to these changes that the vision for the West Cheyenne study area has to be re-examined for the current needs of the community.

Water and Sewer Service

Water Supply

The Cheyenne Board of Public Utilities (**BOPU**) manages and operates the water supply system that serves the City, F.E. Warren Air Force Base, and South Cheyenne Water and Sanitation District. The current system has a maximum daily capacity of 43 mgd (million gallons/day) with a residual pressure of 30–130 psi. Tap fees are based upon tap size and industrial rates are approximately $1.85 per gallon. Average monthly residential cost for water service is $23.60, assuming a 10,000-gallon usage. The 1994 Cheyenne Water Supply Master Plan sets the policies and direction for future expansion and operation.

The Roundtop Water Treatment Plant in the western portion of the planning area off Polo Ranch Road has been recently retired. Most of the West Cheyenne planning area is outside the Cheyenne City limits and F.E. Warren Air Force Base. Consequently, both are served primarily by local water wells for both potable and irrigation water supply. The existing water supply infrastructure is illustrated on Figure 2-4.

Sanitary Sewer

Sanitary sewer services, operated by Cheyenne BOPU, are available in the City limits and extend to the commercial uses on College Drive east of I-25, as well as the Southwest Drive area. The infrastructure is illustrated on Figure 2-5. The Crow Creek and Dry Creek wastewater treatment plants are activated sludge processes with a present load of 8.5 mgd and a capacity of 12 mgd. Industrial rates are approximately $1.45 per 1,000 gallons and average monthly residential cost for sewer service is $12.10, assuming a 6,000-gallon flow.

The Urban Development Boundary illustrated on Figure 2-5 encompasses the area that could be provided with sewage treatment service. The area is defined by being located adjacent to or previously adjacent to the City of Cheyenne and/or South Cheyenne Water and Sewer District. The Urban Development Boundary is limited by the topography on three sides and artificially constrained on the west by Roundtop Road (north of Happy Jack Road) and the Union Pacific Railroad line (south of Happy Jack Road).

The BOPU does not typically extend sewer service beyond this Urban Development Boundary. Extensions within the Urban Development Area are the full responsibility of the developer, though BOPU will help with over sizing for extensions over 12 inches. Small-scale private wastewater treatment plants, sometimes referred to as package plants, are not present in the rural residential development in the planning area. Septic systems are the primary means of treatment for residential use outside of the City limits in the West Cheyenne planning area.

Figure 2-4. Water Supply System

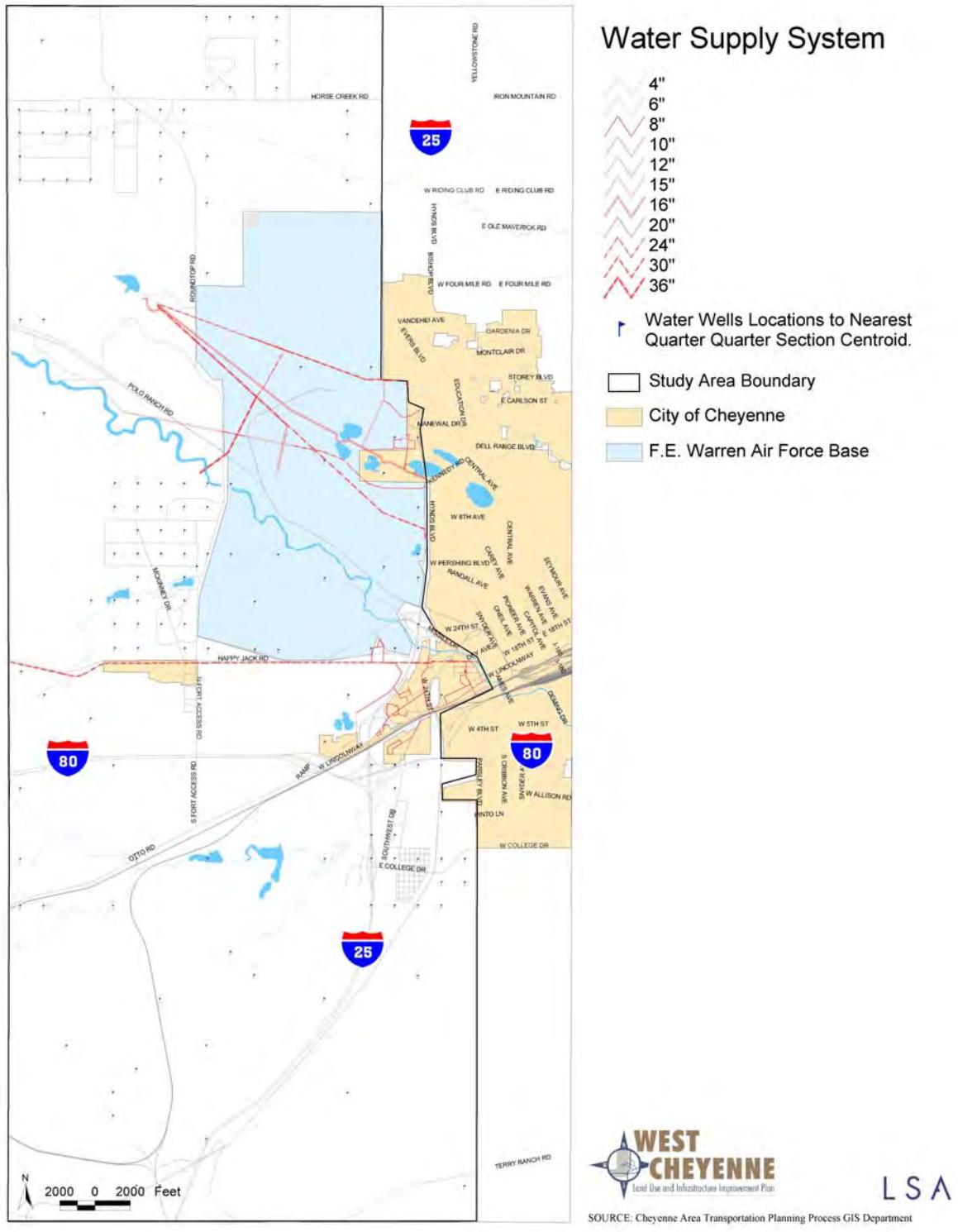
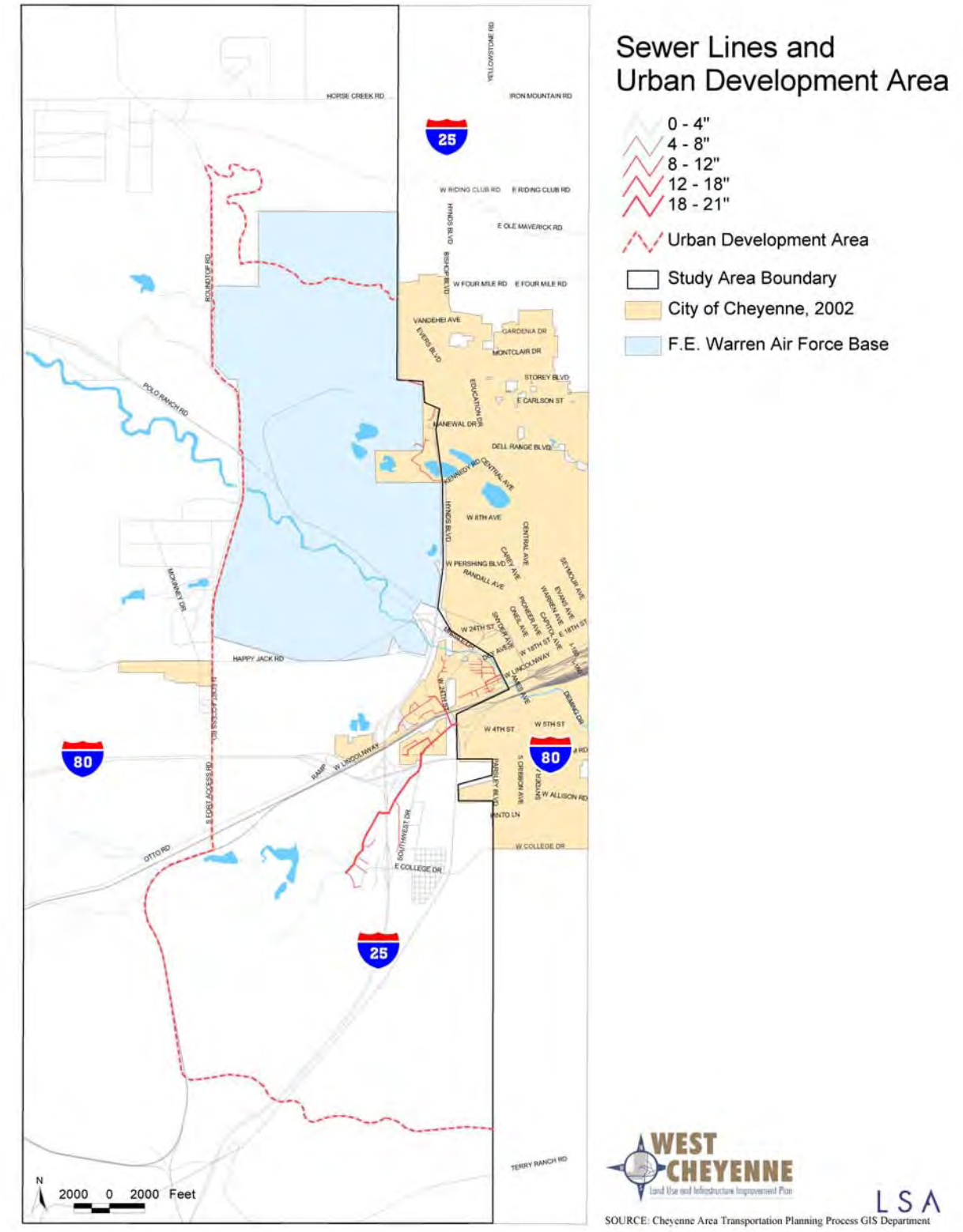


Figure 2-5. Sewer Lines and Urban Development Area



Within the study area high nitrate levels in groundwater are of concern. The Cheyenne/Laramie County Division of Environmental Health has provided data identifying areas that have water quality problems. Two main areas within the study area have been identified as problem areas. One area includes six subdivisions that lie south of Crow Creek and north of Interstate 80 (I-80). These subdivisions have an increasing amount of water problems generally due to smaller lot sizes, higher densities of homes on septic systems and shallower wells. The other area includes four subdivisions and is located south of I-80 and east of Interstate 25 (I-25). These subdivisions have several contaminated wells due to very small lot sizes, higher densities of homes on septic systems and some very shallow wells.

Outside the City limits, water and sewer systems in subdivisions are regulated by State Statute W.S. 19-5-306, which requires an evaluation by the Wyoming Department of Environmental Quality. The evaluation determines the adequacy of any proposed wastewater system and the dependability and capacity of any proposed drinking water system. The statute also requires confirmation that the system will not adversely impact the use of the aquifer for disposal downgrading or the use of the aquifer within the subdivision.

Transportation

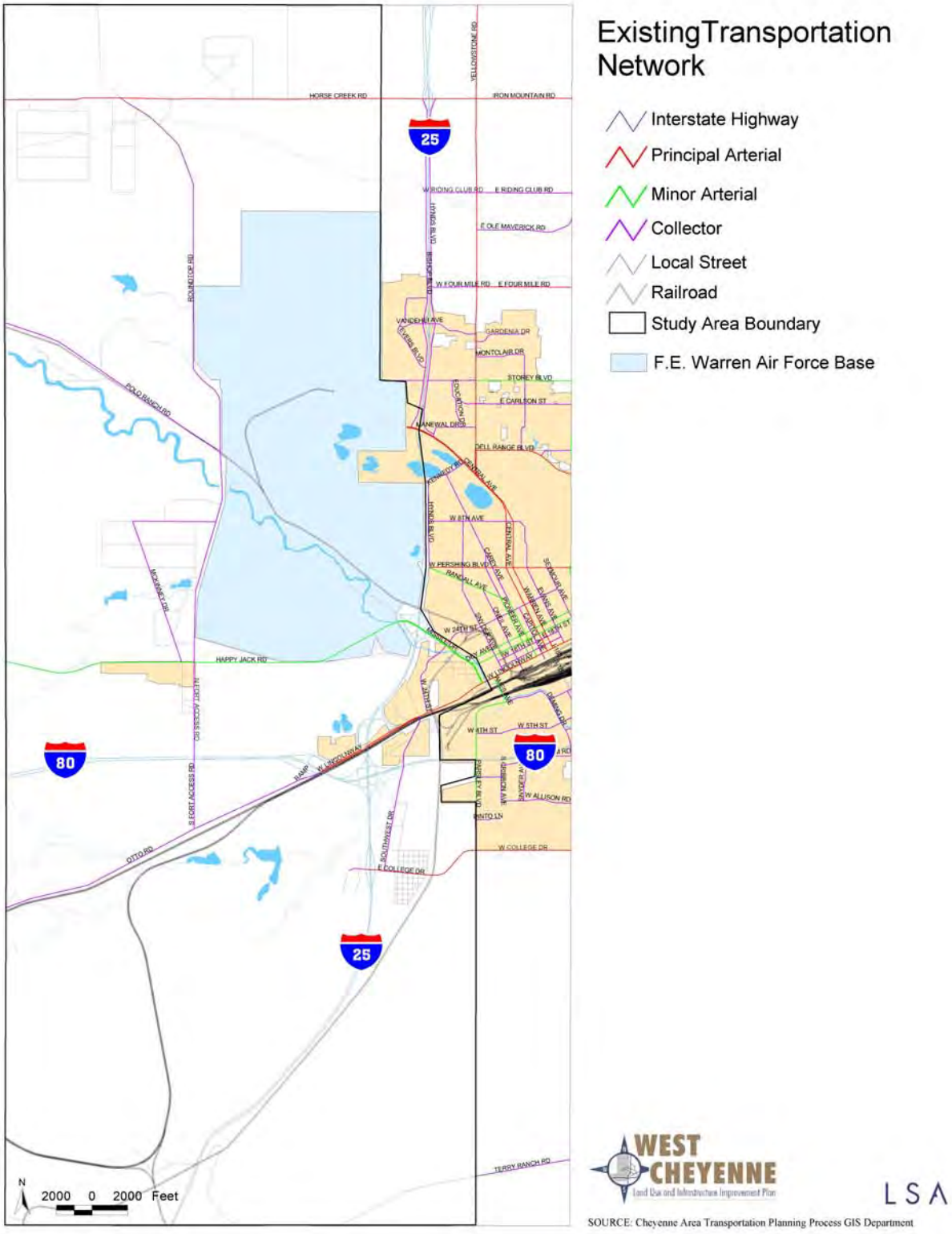
Facilities

The West Cheyenne transportation network is depicted on Figure 2-6. From a national transportation perspective, the West Cheyenne planning area is uniquely located at the intersection of I-25, a north-south interstate that connects Canada and Mexico, and I-80, a east-west interstate that connects the east and west coasts of the United States. Interstate trucking and distribution, as well as general personal travel, use these two interstates heavily.

Access from the interstates to the West Cheyenne planning area is via four interchanges, three along I-25 and one on I-80. The three along I-25 include a northern interchange at Happy Jack Road and Missile Drive, West Lincolnway, and College Drive. The single I-80 interchange is located immediately west of I-25 providing access to West Lincolnway and Otto Road.

Local circulation to the planning area is provided via Missile Drive, Southwest Drive, West Lincolnway, Happy Jack Road, Roundtop Road, and Horse Creek Road. All roadways are two-lane facilities except for West Lincolnway and Missile Drive, which are four-lane facilities. In general, the existing roadways adequately serve the lower density uses that exist in the West Cheyenne planning area. There are, however, disconnections between various quadrants of the planning area, which are separated by the I-25 and I-80 freeways. As an example, there are no connections between the area to the northwest of I-25 and I-80 with the area to the southwest of I-25 and I-80 without extensive internal travel. This adds vehicle miles of travel within the planning area. As the planning area intensifies, this impact will become even more pronounced.

Figure 2-6. Existing Transportation Network



SOURCE: Cheyenne Area Transportation Planning Process GIS Department

Interstate access is also limited and problematic for portions of the planning area. As an example, residential development traffic that might want to travel west on I-80 must first travel east along Happy Jack Road to gain access to I-25, then travel south along I-25 to I-80 before doubling back and heading west on I-80. The size and extent of F.E. Warren Air Force Base, which does not permit through traffic because of security reasons, also creates a barrier, requiring travel around the base.

Existing Daily Traffic Volumes

Figure 2-7 depicts average daily traffic volumes experienced on West Cheyenne planning area roadways. Most roads in the western portion of the planning area carry fewer than 5,000 vehicles per day, which is well below the typical 10,000 vehicles per day design capacity for a two-lane roadway. College Drive (11,000) is a two-way roadway with a high volume. Volumes along Missile Drive (7,000)and West Lincolnway (14,800) are higher, but are accommodated within their four-lane roadway cross sections. In conclusion, the existing roadways within the planning area do not experience any capacity problems, given current development.

Planned Transportation Improvements

Transportation improvements for Western Cheyenne are documented in the Transportation Improvement Program (2003–2005) and the Cheyenne Area Transportation Projects under construction during calendar year 2002. These documents provide recently updated lists of transportation projects, summarized as follows:

- Horse Creek Road will be reconstructed from I-25 west. (2002)
- Cheyenne Information Center Water and Waste is scheduled to upgrade to ADA standards. This will affect the trailer dump station, water system, well, and motor home parking area. (Scheduled for FY 2003)
- Happy Jack Road is scheduled to be widened and overlaid from Roundtop Road west from milepost 2.9 to 10.5. (Scheduled for FY 2003)
- I-25 reconstruction is scheduled between mileposts 0 and 7.36; the reconstruction of roadway concrete is scheduled. (Scheduled for FY 2005)
- I-25 bridge deck repair is scheduled at College Drive, Lake Absarraca, and Dry Creek. (Scheduled for FY 2004)
- West Lincolnway reconstruction is scheduled from I-80 east to Westland Road. (Scheduled for FY 2004)
- I-80 micro surfacing is scheduled from milepost 348.36 to 357.25; the micro surfacing will extend from Otto Road east to Urban Limits. (Scheduled for FY2003)

Figure 2-7. Existing Traffic Volumes

Composite Planning Influences Analysis

This section provides a brief summary of the planning issues and opportunities that will influence the development of the Infrastructure Improvement Plan.

There are a number of influences that will affect development within the West Cheyenne planning area. The planning area is located adjacent to the center of Cheyenne and is a logical and attractive area for future development. As presented previously, the intersection of two nationally prominent interstates, I-25 and I-80, provide a unique opportunity for industrial and warehouse distribution uses. The railroad also provides opportunities for industrial and distribution uses, but can create barriers for the driving public.

One of the primary purposes of the Steering Committee and of the initial Public Open House was to solicit input on the issues of the study area, identify problems, and suggest opportunities for plan elements. Some of the key comments received that led to the development of the plan are as follows:

- With near completion of the Cheyenne Business Parkway, there is a growing need to find opportunities within the City to add new industrial sites. The West Cheyenne Study area is ideal, in that it is located at the cross roads of two major Interstates, I-25 and I-80. This location is particularly attractive for industrial and warehouse distributions centers. The potential connection to existing rail also increases the attractiveness of the West Cheyenne Study Area for industrial and distribution uses.

- Access and traffic poses a major obstacle for development within the West Cheyenne Area. Without direct access to I-80, traffic must circulate throughout the study area to get to limited freeway access locations at I-25/Happy Jack Road and I-25/College Drive. This traffic pattern is impacting capacities along routes such as Happy Jack Road that could be relieved with adequate freeway connections.

- Certain areas of land are limited to development options based upon adjacent uses. As an example, the presence of Coastal Chem. located south of I-80 at the western edge of the study area, would suggest that proximate land developments should be industrial in nature and not residential uses as they would be incompatible.

- The West Cheyenne Study Area should respond to both the growing needs for industrial and residential development, but also provide a balance between uses. Specifically, comments suggested the importance of commercial retail services be provided within residential developments. Currently, all residents within the West Cheyenne Study Area must travel into the City to get their basic services and with additional development, significant impacts would occur.

As part of the site analysis and input from the Steering Committee, a composite list of issues and influences that affect the planning for the West Cheyenne Study Area were identified. These planning issues are described as follows and are illustrated graphically on Figure 2-8.

F. E. Warren Air Force Base

The F. E. Warren Air Force Base comprises the largest single-use in the West Cheyenne Study Area. Since 9/11, security at Warren, like all military bases in the United States, has become the utmost priority. Security of gates and perimeters are critical. In addition, the use of the Warren Air Force Base results in activities that must be considered in the land development proposals that would surround it. One major issue is their helicopter operations that occur along the southern edge of the base. Concerns have been raised that whatever land uses are proposed south of the base and Happy Jack Road be sensitive to the noise and over flight impacts of the helicopter operations. Whereas open space buffers, lower density warehouse, distribution and industrial uses would be compatible, residential uses immediately south of Happy Jack Road would be impacted.

I-25 and I-80 Freeway Noise Impacts

Studies have demonstrated that residents adjacent to freeways typically complain about the constant noise from the freeway. Many communities have developed residential location guidelines that preclude residential uses within proximity to freeways. Studies have determined that a ¼ mile distance between freeway noise and residential uses is a desirable distance to reduce noise levels to an acceptable level for residential living. As part of the West Cheyenne Study Area, a buffer that precludes residential development within ¼ mile of I-25 and I-80 should be considered in the development of the plan.

Transportation

The primary transportation issue within the study area is the lack of freeway connections. Without additional West Cheyenne Study Area access to I-25 and I-80, existing and future traffic must travel additional miles to get to their destinations. If the plan is to be viable and support commercial, residential and industrial uses, then additional access is paramount for success.

A main circulation issue in the study area occurs along Happy Jack Road. As development has increased in the West Cheyenne Study Area, coupled with limited alternative connections, Happy Jack Road has experienced increased traffic volumes and traffic congestion. Backup of traffic particularly occurs when vehicles traveling along Happy Jack Road must queue behind vehicles that have stopped to make a left turn, and must wait for a break in opposing traffic.

Railroad and Emergency access is an issue in the study area that has been identified along the Southwest Drive Corridor. The concern is focused on railroad crossing delaying emergency vehicles servicing the residents along the Southwest Drive Corridor. Currently, there are two fire stations within proximity to the Southwest Drive Corridor. The first is located in the westerly portion of the downtown area. Access to the Southwest Drive area requires an at-grade crossing the Union Pacific Railroad. Emergency medical and fire response times can be impacted when train traffic is present. An alternate route would be via the I-25 freeway and College Drive. There is, however, a second fire station located along West Fox Farm Road, south of I-80. This facility provides alternative fire and emergency medial service to the Southwest Drive Corridor Area. As the West Cheyenne Study Area builds out, additional fire stations will likely need to be provided. Alternatives that would include an additional fire station south of I-80 and within the study area would further address emergency access within the study area.

Transportation issues that have been influential in the planning for the West Cheyenne Study Area include safety of the I-25/Missile Drive clover leaf design interchange, Missile Drive and 19th Street intersection geometries and determining a location for a long term southerly east-west beltway.

Infrastructure and Services

Whereas lower density residential development can be accommodated with wells and septic, water and sewers are critical for higher density development. The urban development boundary poses a significant influence on where higher density residential development can occur. The boundary is along North Fort Access/Roundtop Road.

Natural Areas and Recreation

Two natural area and recreational issues influence the planning for the West Cheyenne Study Area, the Greenway Development Plan and wetlands. The original Greenway Development Plan was adopted in 1992. The primary influence for the West Cheyenne area is the development of a greenway corridor along the Crow Creek Riparian corridor, which parallels Missile Drive. This Greenway Plan calls for a pedestrian/bicycle path along Martin Luther King Park and an extension along the northern side of Missile Drive from Martin Luther King Park to the Railroad overpass. The intent of the plan is for the Pedestrian/Bike path to go under Missile Drive and extend westerly, parallel, and south of Happy Jack Road.

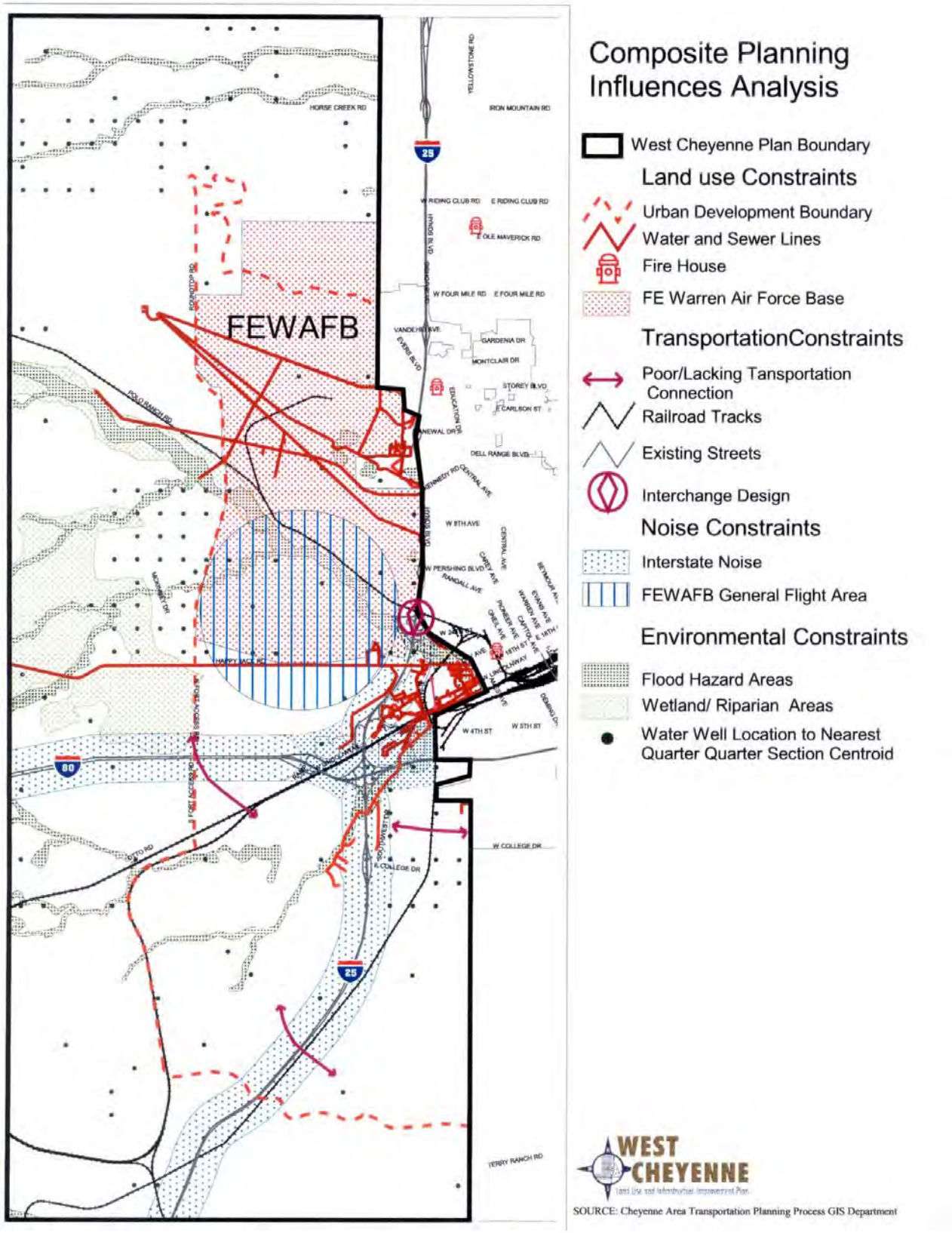
Extensive riparian corridors lay within and west of F.E. Warren Air Force Base. These include extensive portions of Crow, Diamond, and Clear Creek. Acquisitions and preservation efforts are strongly being recommended to set aside these unique open spaces.

The wetland areas are primarily located west of I-25 and south of Otto Road. These wetlands are federally protected and should not be developed.

Community Image and Design

The Steering Committee members as well as public open house attendees raised two key design issues. The first design issue was the request to preserve the magnificent views of the mountains to the west, particularly from along I-25. Currently, the I-25 corridor near the College Drive interchange is higher than the undeveloped land area to the west. This view corridor has been identified as being important to preserve as part of the plan development. The second community design influence was the rural image of the study area. As the West Cheyenne Plan Area is developed, it is important that a transition between the urban center of the City and the rural character to the west be incorporated into the plan.

Figure 2-8. Composite Planning Influences Analysis



3 Vision and Goals

The vision and goals established in the West Cheyenne Land Use and Infrastructure Improvement Plan will serve as a framework to guide decision makers as the area develops over the next 15 to 20 years. A clear vision outlines where citizens would like the community to be in the future, reflecting the hopes, values, and ideals of the citizens. Specific goals define the path toward that vision, with statements that provide direction for detailed objectives, actions, and policies.

Community Vision

The West Cheyenne planning area will be a regional center of activity, defined by its connections and transitions. Serving as a major transportation crossroads in the region, it will bring together people and goods from across the region, state, and country. Attractive gateways and multi-modal transportation connections will mark the entrance to the region with both a high quality of life for residents and an attractive climate for commercial and industrial business development. The West Cheyenne planning area will also be defined by a coordinated transition from expansive ranching and agricultural lands to a vibrant urban center, with attractive neighborhood, commercial, and employment centers. Development along the transition from rural to urban activity will be served with adequate infrastructure and services to support the desired level of intensity and land uses will be compatible with those on the F.E. Warren Air Force Base. A continuous greenway system and the preservation of scenic views to the west will connect and unite residents of West Cheyenne throughout the planning area.

Community Goals

The goals for West Cheyenne have been developed with consideration of existing plan goals and objectives, the Cheyenne Area Transportation Planning Process goals, and considerable input from the Steering Committee. Each goal statement is accompanied by a series of objectives that further describe broad steps that should be taken to achieve the goal and, ultimately, the vision for West Cheyenne.

The community goals for the West Cheyenne Land Use and Infrastructure Improvement Plan have been grouped into five categories:

1. Land Use and Development
2. Transportation
3. Infrastructure and Services
4. Natural Areas and Recreation
5. Community Image and Design

Land Use and Development

Goal L1 Encourage an efficient and coordinated pattern of development to enhance the West Cheyenne Planning Area.

Objective L1.1 Develop and adopt a land use plan which defines where certain types of development should occur and at what level of intensity, based upon community values and available water, sewer, and other critical services and infrastructure.

Objective L1.2 Amend the Zoning Ordinance to reflect the adopted land use plan recommendations.

Objective L1.3 Develop a mix of commercial, industrial and residential uses to serve the needs of the City and the West Cheyenne community.

Objective L1.4 Ensure that future expansion of infrastructure and services reflect the adopted plan.

Objective L1.5 Define locations for land uses and densities that reinforce a transition from rural to urban character.

Goal L2 Coordinate the plan with other planning efforts in the region.

Objective L2.1 Coordinate with F.E. Warren Air Force Base to ensure the compatibility of proposed land uses surrounding the base with base activities.

Objective L2.2 Coordinate land use plan recommendations with Laramie County planning efforts.

Goal L3 Encourage new employers to locate in planned business park, office, and industrial areas.

Objective L3.1 Identify infrastructure needs for new employers and strategically invest in improvements to support development that improves employment options for residents of Cheyenne and the West Cheyenne planning area.

Objective L3.2 Coordinate infrastructure development with the work being done by the Chamber of Commerce and LEADS to advertise the existing transportation benefits associated with a West Cheyenne location.

Goal L4 Support the development and redevelopment of high quality commercial and retail areas.

Objective L4.1 Identify infrastructure needs for commercial and retail uses and strategically invest in improvements to support this type of development.

Objective L4.2 Encourage the redevelopment of commercial parcels that are underutilized or vacant.

Transportation

Goal T1 Develop a transportation system plan for the West Cheyenne planning area.

Objective T1.1 Develop a conceptual plan for street, bicycle, and pedestrian improvements to maintain and improve mobility in the West Cheyenne planning area.

Objective T1.2 Develop a conceptual plan for street, bicycle, and pedestrian improvements along the Missile Drive corridor.

Objective T1.3 Preserve the right-of-way to support the transportation system plan.

Objective T1.4 Plan for improved connectivity between Southwest Drive and Parsley Boulevard.

Objective T1.5 Plan for the design of the route location for the western portion of the outer beltway.

Goal T2 Provide and maintain a safe and efficient transportation network for all users.

Objective T2.1 Examine the potential for new interchange access points along I-80 and I-25 that will coordinate with the outer beltway design.

Objective T2.2 Monitor the traffic volumes and other management indicators to assess the need for roadway improvements and intersection improvements.

Objective T2.3 Ensure that adequate roadway and intersection capacity is available or constructed as new development occurs.

Objective T2.4 Develop the guidelines for access control along arterial and collector roadways and work to remove non-conforming access points as redevelopment occurs.

Goal T3 Enhance connections between railroad and roadway transportation uses.

Objective T3.1 Encourage the coordination of railroad and roadway infrastructure improvements and considerations or an intermodal facility between Union Pacific, Burlington Northern, the City of Cheyenne, and WYDOT.

Objective T3.2 Work to minimize conflicts between auto and railroad users at crossings.

Infrastructure and Services

Goal I1 Provide cost-effective water, sewer, and drainage infrastructure to the area concurrent with new development.

Objective I1.1 Define areas where provision of City water and sewer services is appropriate, economically feasible, and physically possible.

Objective I1.2 Extend water and sewer services strategically to support the land use plan and to alleviate problems associated with elevated nitrates in the groundwater.

Objective I1.3 Define the funding mechanisms for improvements to existing infrastructure and the provision of new infrastructure.

Objective I1.4 Ensure that septic systems in areas not served by City sewer are properly maintained and monitored for impacts to groundwater.

Objective I1.5 Ensure that water well supply systems in areas not served by City water are properly maintained and monitored for impacts to groundwater.

Objective I1.6 Develop land use recommendations based upon drainage and flood control plans in the area.

Goal I2 Provide cost-effective and adequate emergency services protection and educational services concurrent with new development.

Objective I2.1 Identify the current service needs in terms of level of staffing, response times, population served, and the ability to accommodate new residential, commercial, and industrial development.

Objective I2.2 Define the funding mechanisms for improvements to existing services and the provision of additional services.

Objective I2.3 Ensure that additional school and emergency services resources are provided where and when they are appropriate for new development.

Objective I2.4 Designate sites for future community facilities in the land use plan.

Natural Areas and Recreation

Goal N1 Develop an accessible system of parks and greenways for the community.

Objective N1.1 Prepare a greenway concept plan for the area that outlines an interconnected system of trails, regional and neighborhood parks, views, and open space.

Objective N1.2 Connect the gaps between existing greenway sections, and extend the system west along Crow Creek.

Objective N1.3 Include neighborhood parks, open space and smaller pocket parks in new residential developments.

Objective N1.4 Ensure the sustainable maintenance of the parks and greenway facilities.

Goal N2 Preserve significant views to the west.

Objective N2.1 Identify the critical view corridors and locations (e.g., west from the Visitor's Center).

Objective N2.2 Work with landowners to assess potential opportunities and methods for preservation of view corridors.

Goal N3 Protect important natural lands for education and habitat preservation.

Objective N3.1 Ensure the compatibility of development with sensitive natural areas, such as wetlands and riparian areas.

Objective N3.2 Integrate natural lands into the parks and greenway system.

Objective N3.3 Explore opportunities to develop "Teaching Trails" or other educationally oriented destinations.

Objective N3.4 Coordinate with the managing agencies to incorporate the habitat protection requirements of endangered species in the area.

Community Image and Design

Goal D1 Provide a positive entry experience along the major transportation gateways.

Objective D1.1 Define gateway locations and develop a gateway concept that includes the reduction of billboards for I-25, I-80, Happy Jack Road, West Lincolnway, Missile Drive, and Horse Creek Road.

Objective D1.2 Create a gateway concept for Missile Drive and 19th Streets acknowledging and creating an entrance to the Downtown area.

Goal D2 Enhance the appearance of roadways in the area.

Objective D2.1 Explore funding strategies to add trees and landscaping in the public right-of-way along major arterial corridors.

Objective D2.2 Adhere to the Greater Cheyenne Chamber of Commerce Resolution entitled *Enhanced Design of Road and Highway structures and Streets*, which calls for "special emphasis on enhanced architectural design standards for roads, highway structures and streets to display the pride the local citizens have in their community.

Goal D3 Preserve the rural character of lands that help define the transition from rural to urban activities.

Objective D3.1 Identify and designate rural character areas that help define the transition from rural to urban activities along entry corridors.

Objective D3.2 Encourage and work with landowners to maintain the rural character of the designated rural areas.

4 Land Use Plan

The land use plan serves as the physical expression of the goals and ideas for development in the West Cheyenne planning area. It locates and describes the proposed land uses that will support the vision outlined earlier in this plan. Recommendations and locations are based upon analysis of the existing conditions, previous planning efforts, the transportation analysis, and discussions with the Steering Committee and major landowners. The plan is meant to reinforce existing land use and provide direction for new development to achieve the West Cheyenne vision of a coordinated transition from expansive ranching and agricultural lands to a vibrant urban center, with attractive neighborhood, commercial, and employment centers.

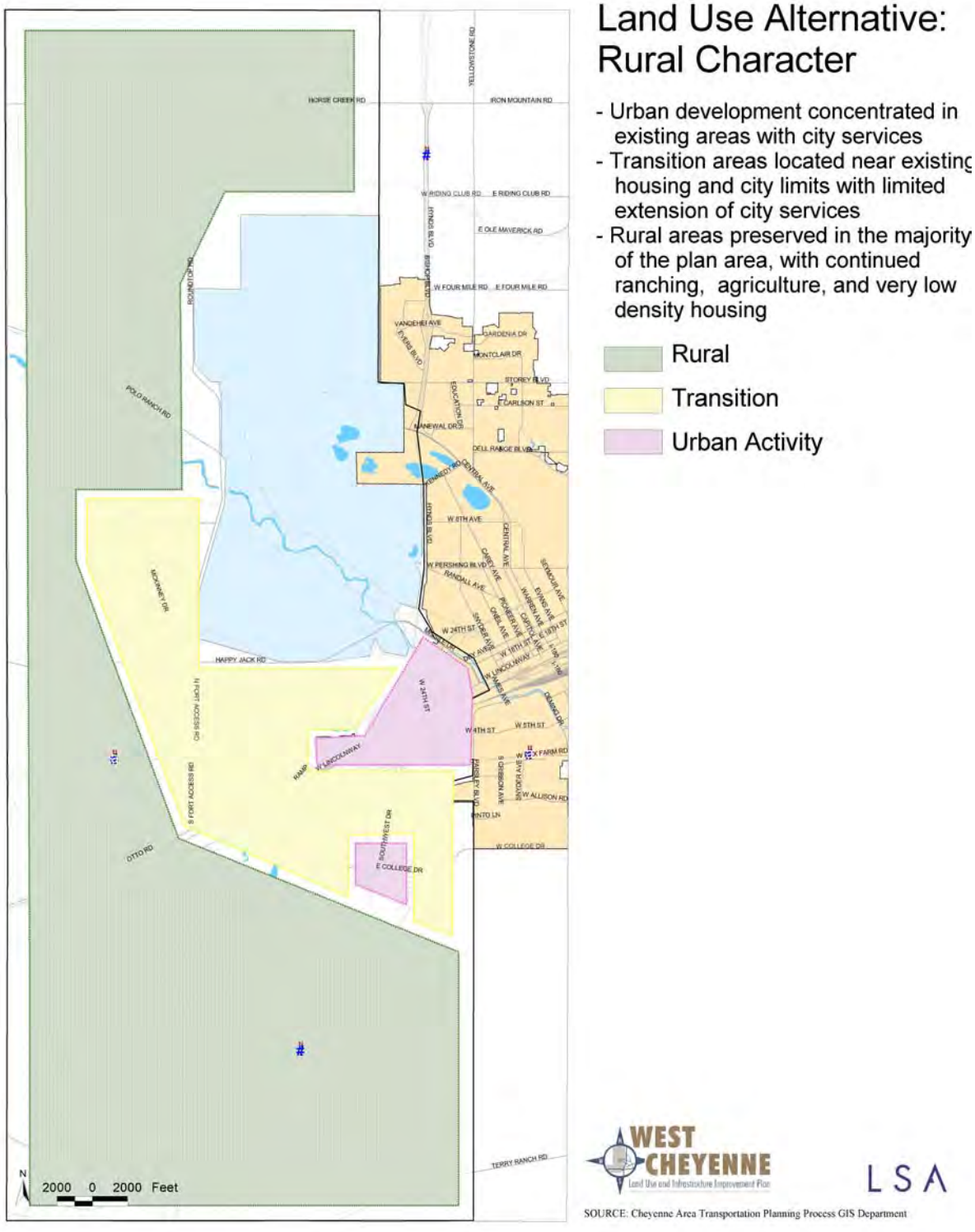
Land Use Alternatives

Once the vision and goals were established, a series of land use alternatives were developed for the residents and Steering Committee members to evaluate. Staff and consultants developed three conceptual alternatives that are described below. The alternatives were not described in fine detail, but rather were presented as a starting point for a discussion of the policy direction that residents would like to pursue. Each alternative represents a distinct philosophy about how West Cheyenne might develop in the future and each contains elements that are consistent with the goal statements. After extensive review and discussion of the three alternatives, a fourth "hybrid" alternative was developed that became the proposed West Cheyenne land use plan.

Rural Land Use

The Rural Character Land Use alternative (see Figure 4-1) concentrates new development within the existing City limits in an effort to preserve as much rural character and agricultural land use as possible in the planning area. With this alternative, agricultural land uses will continue to make up a large percentage of the planning area and new residential and commercial development will only be planned inside the City limits. Since urban services are provided within the City limits, expansion of infrastructure is very limited, and redevelopment of underutilized properties is emphasized. This alternative represents a decrease in land use intensity outside the City limits when compared to the 1992 Cheyenne Area Development Plan.

Figure 4-1. Land Use Alternative: Rural Character



Activity Centers

The Activity Centers alternative (see Figure 4-2) is based upon a concentration of new residential and commercial development in compact centers, often surrounding major transportation facilities. Concentrating the land uses would mean higher levels of intensity and density than currently exists in the planning area. The benefits of this approach include centralized urban service provision, good opportunities for the creation of distinct places with unique or consistent character, and the preservation of agricultural and very low-density residential uses throughout most of the planning area.

Urban Expansion

The Urban Expansion alternative (see Figure 4-3) proposes that new development occur near the existing City limits and along major transportation corridors, with the outlying areas remaining as agricultural and very low-density residential uses. Similar to the Activity Centers alternative, development would be concentrated at higher levels of intensity close to developed areas that are already served with water, sewer, and other City provisions. Benefits of the Urban Expansion alternative include relatively low cost of infrastructure and service extensions, continuity with existing development, and the preservation of agricultural and very low-density residential uses throughout most of the planning area. This alternative is most similar to the previously adopted 1992 Cheyenne Area Development Plan.

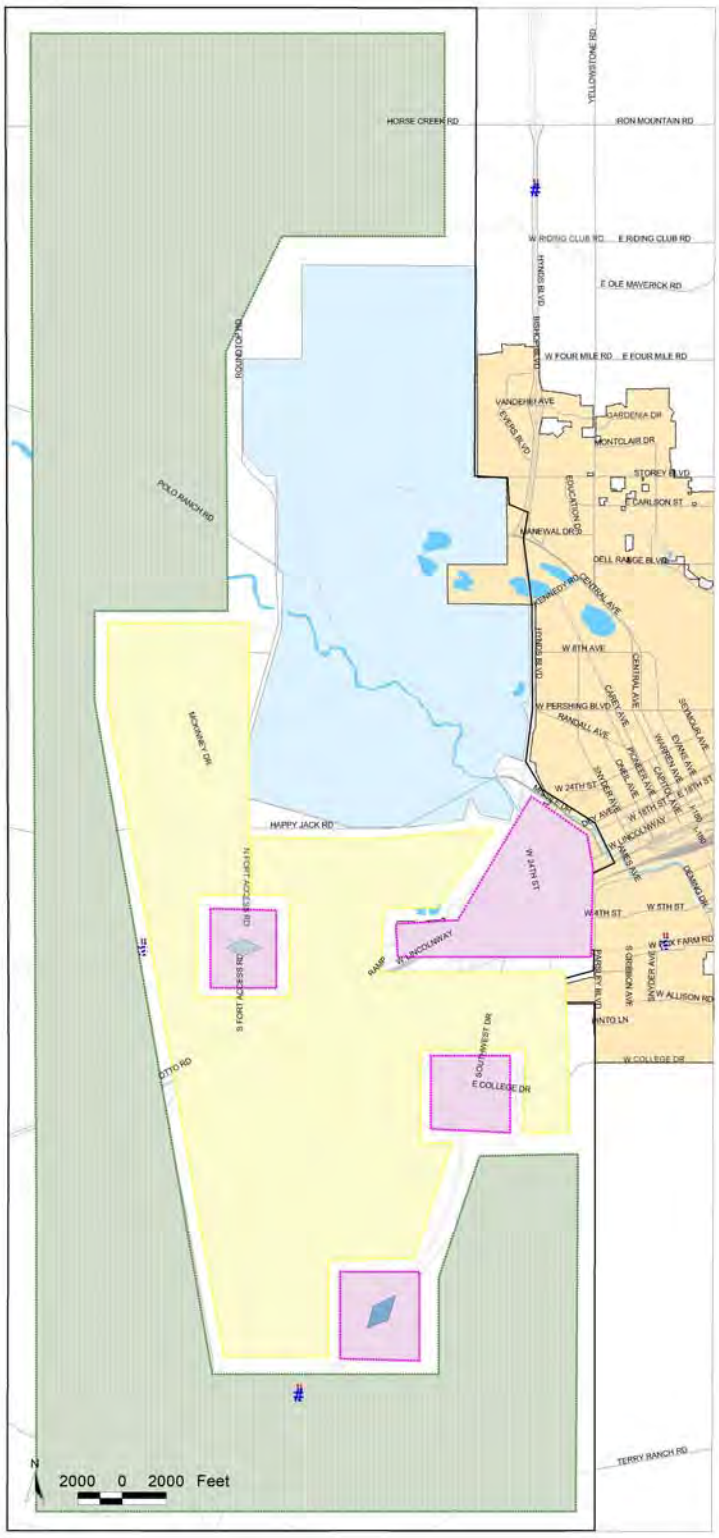
Land Use Character

As referenced in the vision statement, the West Cheyenne planning area has three distinct character areas that are described below. These areas were defined as part of the existing conditions analysis and provide the underlying framework for the land use alternatives and the land use plan.

Rural/Agricultural

The Rural/Agricultural areas are located along either side of I-25 south of College Drive, and generally west and north of the F.E. Warren Air Force Base. Ranching and agricultural uses predominate in these areas, with a few sections of low-density residential uses. City services such as water, sewer, parks, and schools are not present in these areas. These areas contribute strongly to the open feel, mountain views, and pastoral character of the West Cheyenne planning area.

Figure 4-2. Land Use Alternative: Activity Centers



Land Use Alternative: Activity Centers

- Urban development encouraged around major transportation hubs
- Transition areas consist of medium density housing and neighborhood commercial uses with city services extended to support development
- Rural areas continue to be used for ranching, agriculture, and very low density housing

Rural

Transition

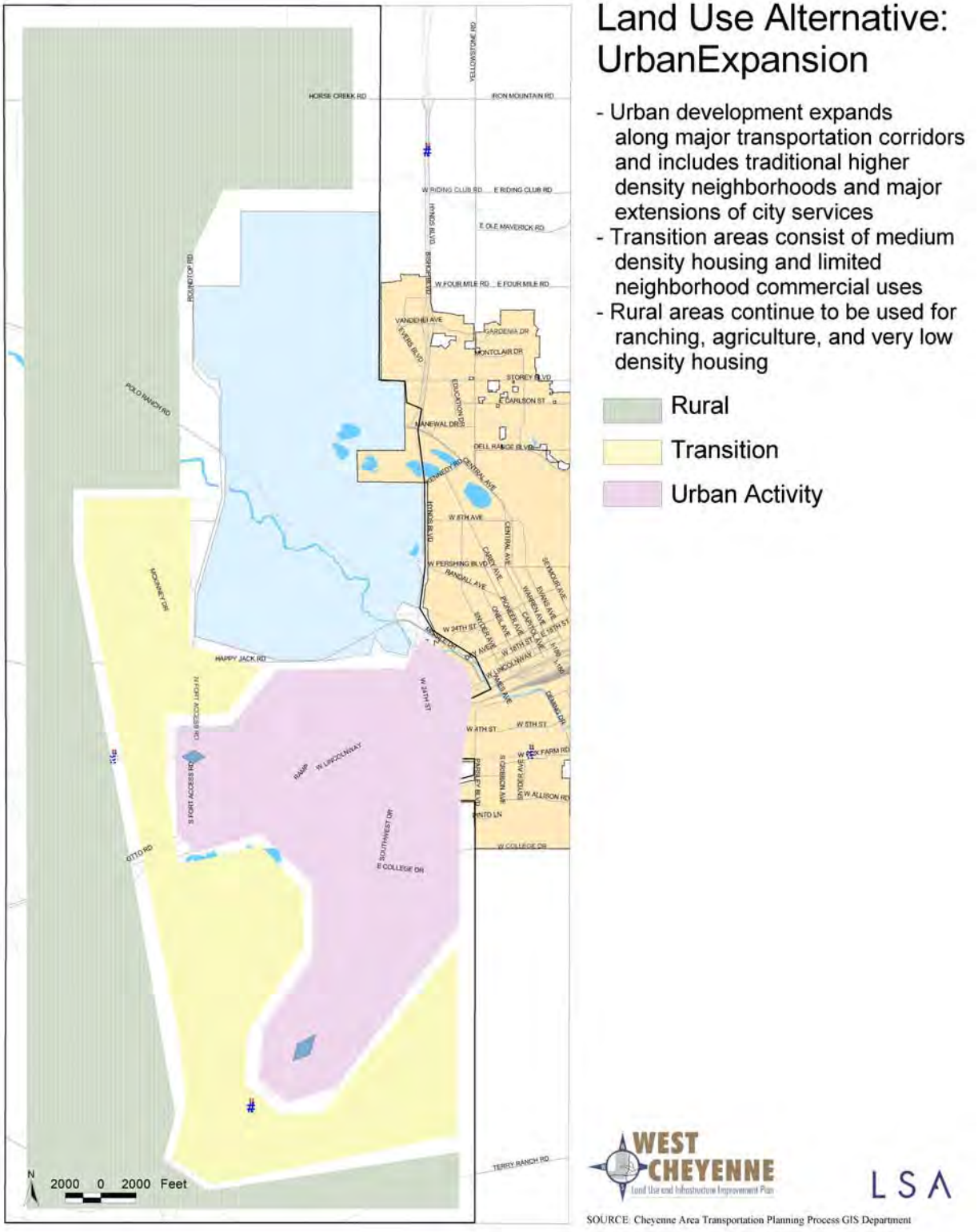
Urban Activity

WEST CHEYENNE
Land Use and Infrastructure Improvement Plan

LSA

SOURCE: Cheyenne Area Transportation Planning Process GIS Department

Figure 4-3. Land Use Alternative: Urban Expansion



Transition

The Transition areas include the College Drive corridor and the I-25 interchange, the Southwest Drive region between I-80 and College Drive, and the area between Happy Jack Road and I-80 out to and around the Roundtop Road intersection. These areas signal the entry into Cheyenne with an increase in residential uses, commercial uses, and overall development intensity. The potential for land use change in the Transition area is high. City services are available or under consideration for extension. Transition areas are developing locations that visitors and residents first encounter as they approach Cheyenne and therefore define the first impression and feel of the area. They are the primary location for gateway treatments.

Urban Activity

The Urban Activity areas include the land uses along West Lincolnway and Missile Drive east of I-25 and north of I-80. This area is home to establishments with commercial and industrial uses as well as higher density residential uses. Services such as parks and schools are present or in close proximity. Urban Activity areas in the West Cheyenne planning area are undergoing a resurgence of development activity, with the recent IKON Center development, Home Depot, and Outback construction.

Alternatives Assessment

The comments received from the public and the Steering Committee was quite unexpected. Whereas the alternatives were intended to present a low, medium and high-density range from which the community could react to. When presented the public and Steering Committee were all supportive of pursuing higher density uses beyond any of the three alternatives presented. Specific comments and directions included:

- The West Cheyenne Study Area provides long-term opportunity for the future growth of the City of Cheyenne. To accommodate this long term growth, there needs to be significant opportunities for a wide range of housing opportunities from mid density to estate lots, commercial intensification for both local serving and freeway oriented needs, and long term additional industrial use areas.
- Constructing interchanges at I-80/North Fort Access Road and the I-25/South Interchange is critical to serving the needs of the West Cheyenne Area. Commercial land uses should be targeted around the I-80/North Fort Access Road interchange to serve regional traffic and provide commercial opportunities for the greater Cheyenne area. Commercial and industrial uses should be targeted for the I-25/South Interchange and take advantage of the opportunity to provide industrial access to the railroad east of I-25.
- Local commercial use to serve future development should be targeted for near the intersection of North Fort Access Road and Happy Jack Road.

- Medium-density residential should be considered along the Southwest Drive Corridor to provide opportunities in the City for this level density of residential.
- Commercial and mixed-use development should be expanded along the east side of I-25 at College Drive.
- Intensification of the areas south of Happy Jack Road, north of I-80, east of North Fort Access Road and west of I-25 should be provided as part of the plan. This intensification should be responsive to the F. E. Warren Helicopter over flight patterns and provide a buffer between the base and any residential development.
- The greenway plan should be extended west of I-25 within the study area.
- The plan should preserve the rural character of the area west of F. E. Warren Air Force Base and to the north.

Proposed Land Use Plan

The West Cheyenne land use plan illustrated on Figure 4-4 identifies and locates the desired land uses throughout the West Cheyenne planning area. It represents a physical framework for the vision and goals outlined earlier in the plan and responds to directions provided by the public and Steering Committee. The vision and goals include both attraction and accommodation of new development and a strong desire to preserve and protect the rural character and agricultural activities in the area. The proposed land uses are outlined below, and listed in Table 4-1. Acreage comparisons are presented in Table 4-2.

Proposed Land Uses

Agriculture/Rural

The Agriculture/Rural land use classification is intended for areas that are to remain in agricultural production, ranching use, or their existing natural state. Limited residential development is allowable in these areas, though at an average minimum density 1 dwelling unit per 10 acres. Agricultural uses are identified primarily in the Rural/Agricultural character area.

Figure 4-4. Proposed Land Use Plan

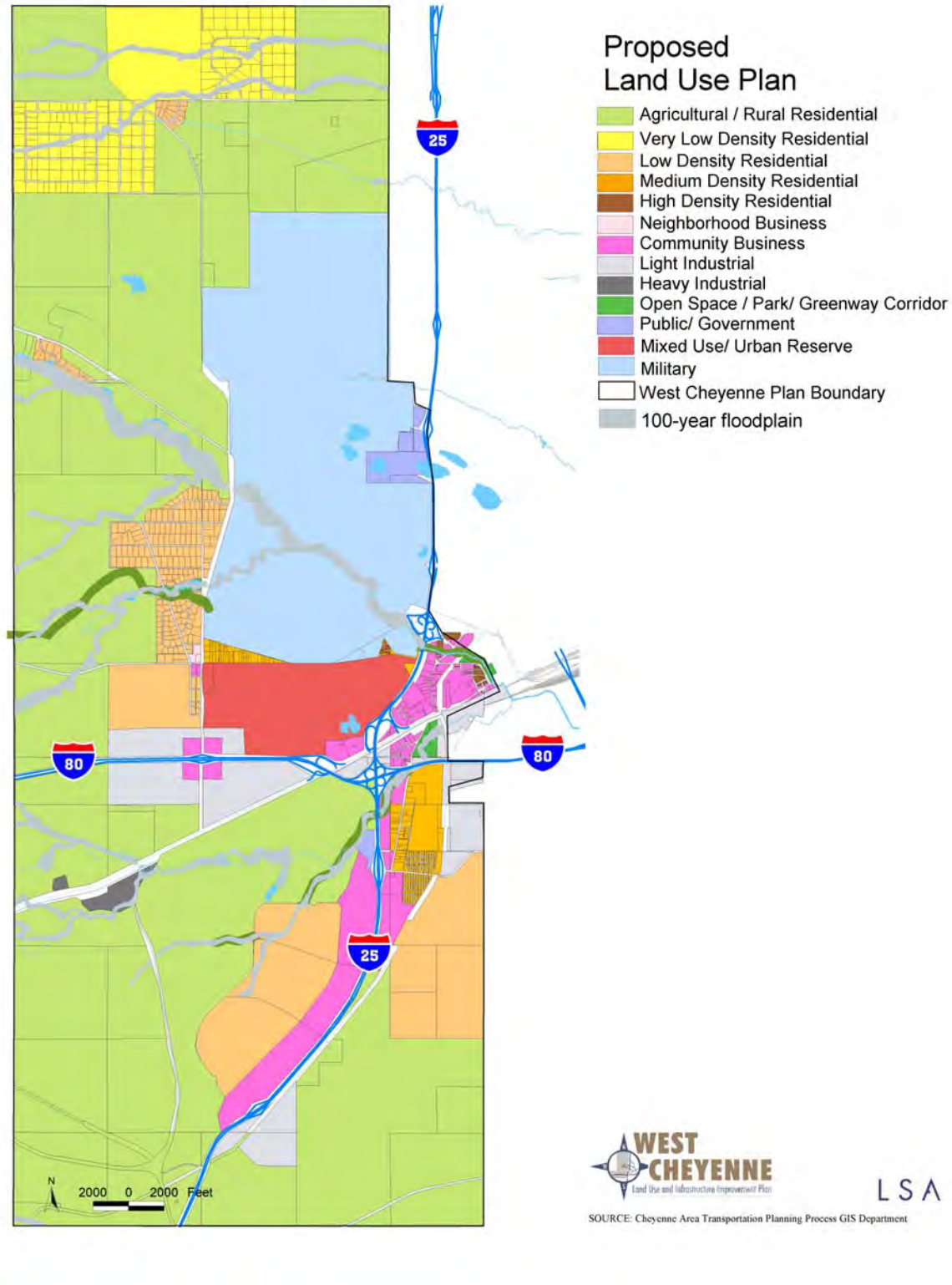


Table 4-1. Proposed Land Use

Land Use	Area (acres)	% of Total Planning Area
Agriculture/Rural	20,255	55.78%
Very Low-density Residential	2,090	5.76%
Low-density Residential	3,455	9.51%
Medium-density Residential	446	1.23%
High-density Residential	24	0.07%
Mixed-use/urban reserve	1,118	3.08%
Neighborhood Business	28	0.08%
Community Business	1,184	3.26%
Light Industrial	1,399	3.85%
Heavy Industrial	110	0.30%
Open Space/Park	118	0.32%
Public/Government	221	0.61%
Military	5,866	16.15%
Total	36,315	100.00%

Table 4-2. Land Use Comparison

Land Use	% of Total Planning Area		Proposed Change
	Existing Use, 2000	Proposed Use	
Agriculture/Rural	75.93%	55.78%	-20.15%
Very Low-Density Residential		5.76%	5.76%
Low-Density Residential	2.28%	9.51%	7.23%
Medium-Density Residential	0.26%	1.23%	0.97%
High-Density Residential	0.06%	0.07%	0.01%
Manufactured Home Residential	0.05%		-0.05%
Neighborhood Business	0.40%	0.08%	-0.32%
Community Business	1.15%	3.26%	2.11%
Light Industrial	0.14%	3.85%	3.71%
Heavy Industrial	0.76%	0.30%	-0.46%
Open Space/Park	0.25%	0.32%	0.07%
Public/Government	0.61%	0.61%	0.00%
Military	16.15%	16.15%	0.00%
Vacant	1.90%		-1.90%
Other	0.05%		-0.05%
Institutional	0.01%		-0.01%
Mixed-Use/Urban Reserve		3.08%	3.08%

Residential

Four levels of residential intensity were developed for the West Cheyenne planning area: Very Low-density Residential, Low-density Residential, Medium-density Residential, and High-density Residential. They reflect analysis of existing residential patterns in the area, site constraints, compatibility with adjacent land uses, and the availability of infrastructure, especially water, sewer, and roadway capacity. Residential uses are identified throughout the West Cheyenne Planning area, with higher densities in Urban Activity character areas and lower densities in Rural/Agricultural character areas.

Very Low-Density Residential

Very Low-Density Residential areas are intended for large lot single-family dwelling units with a minimum lot size of 5 acres. Private water wells and septic sewer treatment will typically serve these areas.

Low-Density Residential

Low-Density Residential areas are designated for a maximum of 4 single family detached dwelling units per acre, provided that City water and sewer services are or will be extended to serve these areas. If City water and sewer are not provided, maximum density will be 1 dwelling unit to 5 acres.

Medium-Density Residential

Small lot size single-family detached units, duplexes, townhouses, condominiums, and other similar types of dwelling units are intended for the Medium-Density Residential designation. Densities will range from 4 units per acre (10,890 square feet lots) to 8 units per acre (5,445 square foot lots).

High-Density Residential

High-Density Residential areas will consist of apartments, condominiums, townhouses, and other similar types of higher density dwelling units. Residential uses in these areas will occur at densities of more than 8 units per acre (5,445 square foot lots or smaller).

Open Space/Parks

Parks areas will consist of recreational amenities to serve the interests of the community. Both active and passive recreational facilities are found in the planning area currently, and Parks should be included with new residential development areas at a ratio of 10 acres per 1,000 residents. Parks should be designed to highlight natural features or views and contribute to an interconnected system of trails as outlined in the land use plan.

Open Space areas should remain in an undeveloped natural state and only be used for limited recreational uses such as trails and small parking areas. These areas are often used to protect or preserve areas within the 100-year floodplain, sensitive habitat areas, or prominent view corridors. Open Space can be publicly or privately owned and can be used as a buffer between conflicting adjacent land-uses.

Business Commercial

Business Commercial areas are planned to serve the retail needs of the community and neighborhood residents and should contribute to the character and feel of the surrounding area. These areas are primarily located in the Transition and Urban Activity character areas.

Neighborhood Business

Neighborhood Business areas will consist of convenience commercial uses that support neighborhoods in the immediately surrounding area. Design of these uses should emphasize accessibility, with convenient pedestrian, bicycle, and roadway connections for neighborhood residents.

Community Business

The Community Business designation is intended for community or regional retail centers and businesses that serve a larger market area than Neighborhood Business areas. Anticipated uses include restaurants, banks, supermarkets, retail shops, and professional offices.

Light and Heavy Industrial

Light Industrial and Heavy Industrial uses are intended for manufacturing, distribution, and other industrial production activities in the planning area. Industrial areas are designated near major railroad and roadway transportation facilities, generally near existing industrial uses or key railroad locations in the Transition and Urban Activity character areas.

Public/Government

Public/Government use areas include publicly funded community service uses such as police and fire stations, schools, government offices, water and sewer service facilities, hospitals, and other non-commercial uses. These uses are typically located in Urban Activity character areas. Specific locations for where future fire stations or police stations have not been identified and should be defined as development plans are proposed and when resolution of new interchanges are determined. In general, fire response times should be 8 minutes or less for 80% of the population. This response time standard would suggest at least one new fire station should be provided for the West Cheyenne Study area. Possible locations would be near the intersection of Happy Jack Road and Fort Access Road or west of I-25 near College Drive. In addition, an elementary school site should be accommodated in the West

Cheyenne Study Area at a similar location as suggested for the Fire Station. Ideally this school site should be located as part of a park or open space area for sharing facilities.

Military

The Military designation includes all of F.E. Warren Air Force Base and its facilities. Uses in this area are limited to those associated with the base and its operational activities. The base consists of major housing, industrial, mission, administrative, commercial, and outdoor recreation areas.

Mixed-Use/Urban Reserve

The mixed-use/urban reserve is envisioned to include different urban uses such as, but not limited to, residential, office, business park, commercial, light industrial, open space, recreational, and public. At this time, the precise use of these areas is not defined. Rather, these areas provide locations for future urban developments that are compatible with FE Warren AFB operations and close proximity to interstates.

5 Transportation Plan

The primary objective of this transportation plan is to address the circulation needs for the West Cheyenne planning area. This analysis includes the freeway interchange system and the future circulation needs for West Cheyenne.

The transportation plan has been developed to address the long-term needs for the planning area. In part, this plan has been based upon long-range traffic forecasts that would likely occur with the development of the West Cheyenne land use plan. This long-range traffic forecast was based upon a traffic model prepared for the ChATPP by the Wyoming Department of Transportation. This model converts land use to socioeconomic data and estimates daily traffic flow, from which roadways can be tested and sized.

Regional Facilities

As presented previously, the I-25 and I-80 interstates have and will continue to have a major influence on how transportation needs of West Cheyenne are served. Currently, freeway access is limited to these facilities. As part of the alternatives development and public input process, three interchange locations were proposed for analysis. Two of these interchanges were suggested along I-80, one at Fort Access Road west of I-25 and the other at Parsley Boulevard east of I-25. One additional interchange was recommended for consideration along I-25 south of the College Drive interchange.

In order to evaluate the benefits or impacts of any of the freeway interchange alternatives, an Interchange Access Analysis and Conceptual Design Plan was prepared for each location and is included in Appendix C of this report. The Interchange Feasibility Study addresses the following issues:

- Project purpose;
- Relationship to other highway improvement plans and programs;
- Description of proposed interchanges;
- Level of need of each interchange;
- Feasibility of construction;
- Impacts of interchange on circulation system; and
- Potential environmental, social, and economic impacts.

The alternatives analysis was based upon eight alternatives as follows:

1. Do nothing: no new interchanges
2. I-80 and Fort Access Road
3. I-80 and Parsley Boulevard
4. I-25 south of College Drive

5. I-80/Fort Access Road plus I-80/Parsley Boulevard
6. I-80/Fort Access Road plus I-25 south of College Drive
7. I-80/Parsley Boulevard plus I-25 south of College Drive
8. I-80/Fort Access Road plus I-80/Parsley Boulevard plus I-25 south of College Drive

In order to address the potential benefit of each alternative, separate transportation model runs were conducted for each of the eight alternatives. These model runs were based upon the proposed West Cheyenne planning area land-use plan and the proposed circulation system. Based upon this analysis (located in Appendix C), two of the three interchanges were proposed as part of the plan, the I-80/Fort Access Road interchange and the I-25 south of College Drive interchange.

Proposed Transportation Plan

The resulting proposed future transportation network is presented on Figure 5-1. As can be seen, this plan includes the proposed two interchanges on I-80 at Fort Access Road and on I-25 south of College Drive. The majority of the roads within the plan have been proposed for increase to "principal arterial." A principal arterial is a four-lane roadway with a raised median that can be used to provide left turn lanes at the intersections. A principal arterial also includes on-street bike lanes and detached sidewalks with a landscaped parkway, separating the roadway from the sidewalk.

The resulting daily traffic volumes with the two proposed interchange alternatives are presented on Figure 5-2. As can be seen through comparison between the existing traffic volumes map and the proposed future volume map, significant traffic growth is projected for the West Cheyenne planning area.

The recommendation for principal arterial is based in part on forecast traffic volumes and for long-term protection of the transportation corridors. As an example, Happy Jack Road between Fort Access Road and I-25 is projected to have daily volumes exceeding 22,000 vehicles per day as compared to 3,900 vehicles per day as presently experienced.

With this growth in traffic, Happy Jack Road will need to be improved to a four-lane principal arterial. Whereas other roads within the West Cheyenne planning area, such as Roundtop Road north of Happy Jack Road and a proposed easterly connector east of the I-25 interchange south of College Drive will likely not have volumes in the foreseeable future that warrant four lanes. However, it is recognized that as Cheyenne continues to grow throughout the next few decades, additional development will cause further growth in traffic. Therefore, it is prudent planning to preserve the corridor and right-of-way to accommodate additional traffic. As part of the development of the long-range transportation plan, a number of issues were raised from which the following plan elements were identified to respond to these issues.

Figure 5-1. Future Transportation Network

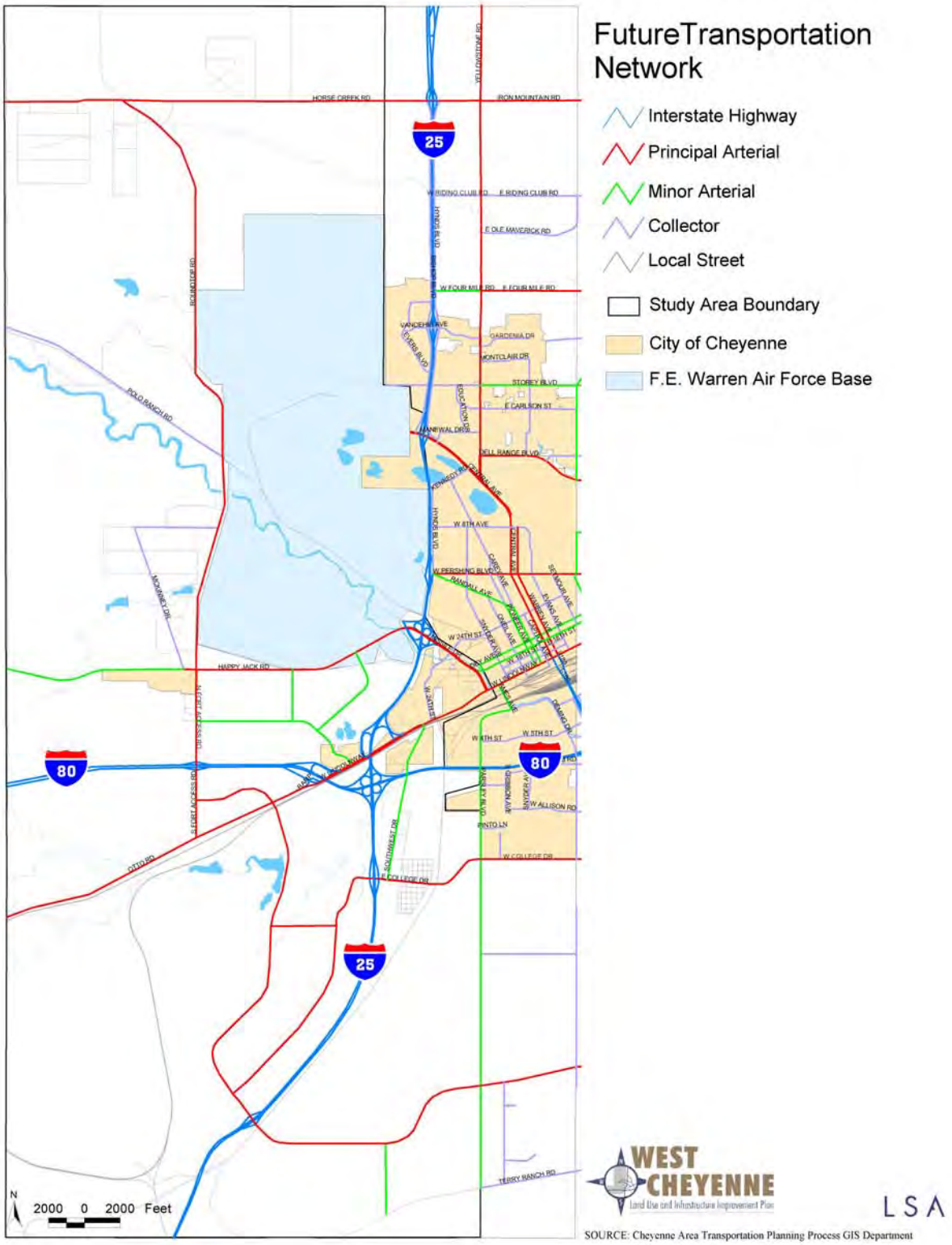
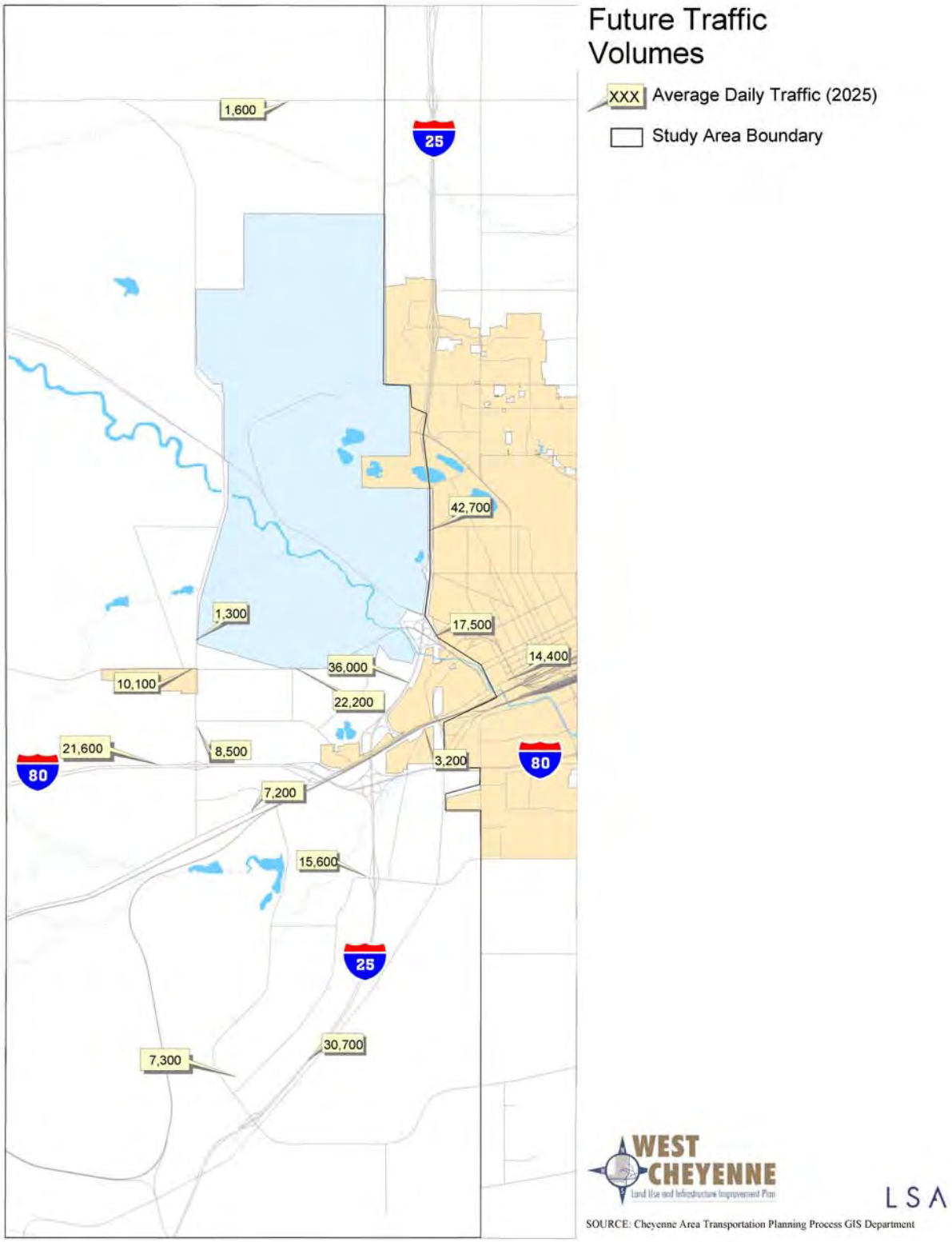


Figure 5-2. Future Traffic Volumes



Missile Drive Improvements: A major effort of this study was the development of recommended improvements for Missile Drive between the I-25/Missile Drive Interchange and Lincolnway. This facility is currently in need of reconstruction and the issue was whether to reconstruct in its current configuration or modify the design to reflect current City of Cheyenne Primary Arterial Street Standards with sidewalks and bike lanes. This analysis is presented in more detail within the appendix of this study, but the general conclusion was to modify the design to reflect the current standards with conventional intersection improvements where 19th and Missile Drive intersected. The plan also identified opportunities to consolidate access points to minimize conflicts at intersections. This plan also accommodates various design options for the I-25/Missle Drive Interchange.

I-25/Missile Drive Interchange: Currently, the I-25/Missled Drive Interchange is of the full cloverleaf type design. Whereas this was a popular design during the era of interchange construction when the I-25 was constructed, current trends have moved away from this design. The primary issue in the cloverleaf design is the short weave for decelerating vehicles trying to get off the freeway being impacted by accelerating vehicles trying to get on the freeway. As traffic volumes build, the interchange problem becomes more acute. Whereas the ultimate design and reconstruction of this interchange is the responsibility of the Wyoming Department of Transportation, it was important for this study to examine the various interchange design options to assure that what ever improvements were being proposed for Missile Drive would complement the interchange design. This study examined a wide range of options from do nothing, partial clover leaf on priority or off priority, diamond interchange, and single point urban interchange (**SPUI**). In addition, diamond interchanges with roundabout intersection control were examined. Based upon this analysis, it was determined that all options could be accommodated with the proposed Missile Drive improvements. Prior to selecting and constructing a replacement interchange, WYDOT will be responsible for conducting Preliminary Engineering (**PE**) and an Environmental Assessment (**EA**).

Overland Trails Roadway Modifications: As presented previously, the 1979 Overland Trails Master Plan included a loop system of roadways that provided freeway connections to the north at I-80/North Fort Access, the I-25/College Drive Interchange and the I-25/South Interchange. Whereas the proposed internal roadway system maintains the integrity of the interchange connections, the internal street systems were modified to reflect changes in the proposed land use plan for the area and the limitation of development and traffic at the I-25/College Drive interchange. The land use objective was to cluster development east of I-25 around both interchanges. This option allowed a view and open space corridor that was one of the plan objectives raised by the Steering Committee and public.

Southwest Drive: Residents along Southwest Drive have identified emergency access to existing and future residential developments along Southwest Drive as a concern. The issue is delay in emergency service that can result with train activity along the Union Pacific Railroad tracks that cross Southwest Drive immediately south of Lincolnway. Currently there are two fire stations within proximity to the Southwest Drive Corridor. The first is located in the westerly portion of the downtown area. Access to the Southwest Drive area requires crossing the Union Pacific Railroad. Emergency medical and fire response times can be impacted when train traffic is present. An alternate route would be via the I-25 freeway and College Drive, but this route can add time to reaching destinations along Southwest Drive. There is, however, a second fire station located along West Fox Farm Road, south of I-80. This facility provides alternative fire and emergency medial service to the Southwest Drive Corridor Area. Fire and emergency medical service minimum national standards are to serve 80% of the City's population

within 8 to 10 minutes. Reviewing locations of the fire stations and networks, this minimum could be accommodated between one of the stations identified above. As the West Cheyenne Study Area builds out, however, additional fire stations will likely need to be provided. A logical future location for an additional station would be in the Overland Trails Area, located west of the I-25/College Drive interchange. This location would further improve emergency access within the study area and residences along Southwest Drive. In addition, more connectivity between Southwest Drive and Parsley Blvd. would improve mobility options for residents and businesses in the area.

Southerly/Westerly Beltway: The 1994 Transportation Plan identified a long-term beltway that would circle the City of Cheyenne and provide opportunities to travel around the City and not through it. The 1994 Transportation Plan beltway consisted of Roundtop, North Fort Access, the arterial, which traveled through the Overland Trails area and then easterly along Terry Ranch Road. At the Otto Road crossing the design is located to connect the areas north and south of Otto Road, as well as the areas North of I-80 and south of I-80. The roadway connection is a key part of the beltway and provides necessary connectivity. As part of the transportation planning effort for the West Cheyenne Area, it became evident that Terry Ranch Road was located too far south to be an effective southerly beltway. The current proposed plan recommends a southerly beltway that begins with the I-25 South Interchange and connects with South Greeley and the Parsley Extension. This connection would also provide direct access from the east to the proposed industrial area located east of I-25 near the interchange.

Intermodal Facility: The industrial area located east of the I-25/South interchange provides both a unique freeway access and railroad access. This railroad could service the greater industrial area if a multi-modal facility were provided that could interface with the Railroad. As this area develops, this intermodal facility should be pursued.

Bike and Pedestrian Facilities: The ChATPP urban principal arterial, urban minor arterial and the urban collector street without parking all have a designated on-street bike lane as well as a detached sidewalk facility. As roadways within the community are reconstructed and modified they will be built the standards and provide bicycle and pedestrian facilities throughout the community. As these improvements are constructed and implemented connectivity will be provided along roadways, the greenway corridor, and through neighborhood parks. Future land developments should tie into this system to provide additional connectivity to schools, parks, and other attractions.

6 Action Plan

This section describes the components of the Land Use and Transportation "Action Plan for the West Cheyenne Study Area." The objective of this Action Plan is to set forth the specific tasks, responsibilities and costs, where applicable, to successfully implement the plan. These tasks and schedules create the benchmarks from which success will be determined. It should be noted that the Action Plan is a guide. City and County staff, the Wyoming Department of Transportation, and others that will be implementing the plan will need to be responsive to the marketing forces that direct the plan. Therefore, the plan is intended as a guide for implementation that must be flexible to take advantage of future opportunities that present themselves.

Land Use/Infrastructure Action Plan

The Land Use/Infrastructure Action Plan identifies actions by public and private entities as well as capital improvements projects that are required in order to implement the Land Use Plan and provide adequate infrastructure to serve the proposed land uses. When possible the costs of improvements, responsibilities, and potential sources of funding are addressed.

Action LU/I 1: Promote New Planned Business Parks, Offices and Industrial Uses

The proposed Land Use Plan for the West Cheyenne Study Area identifies land use opportunities for new planned business parks, offices, and industrial uses. These land uses are the type of uses that provide opportunities for employment and are critical to the Community's overall growth. Actions for enticing developments of this type include provision of infrastructure, freeway access and development incentives. The infrastructure includes provision of sewer and water, access requires the construction of the I-80/North Fort Access Road and I-25/South interchanges, and incentives include streamlined approval process and might include land and utility discounts on parcel acquisition and construction.

Action: Develop implementation strategy to promote business parks, offices and industrial land uses. (City of Cheyenne, Laramie County, LEADS, 2003 and ongoing)

Action LU/I 2: F.E. Warren Air Force Base Helicopter Operations.

Currently, the F.E. Warren Air Force Base airfield environs are located on the SW side of the base. Flight departures, pattern work, and flight arrivals are conducted, generally, south of Crow Creek and along the southern base boundary. The base has worked with local residents to alter flight patterns and minimize noise nuisances. However, since the flight approaches are predominately from the SE and south, any future development proposals must take these operations into account so as not to significantly impact the base flying mission. Therefore, any dense residential and community development adjacent to the base would be considered incompatible by the base.

Action: Ensure any future development along Happy Jack Road is compatible with the base mission and also coordinated with the base.

Action LU/I 3: Commercial/Industrial Infrastructure and Transportation Needs

The proposed residential and commercial areas will trigger the needs for infrastructure and transportation improvements. There exists a growing sentiment that development must pay its own way. Some communities have elected for developments to pay infrastructure and transportation fees in order for the local jurisdictions to have the funds necessary to implement the necessary improvements to off set the impacts for new development. Whereas the development community in general has accepted these fees given the greater need of infrastructure and circulation improvements, excessive fees can negatively affect growth as these developers try to find area where the fees do not exist are significantly less. The key to this balance is a nexus between demand and supply. Some communities have established fee programs based upon comparable measures, such as trip generation rates, where the higher the number of trips generated, the greater the fee. Comparable communities have also identified Traffic Impact Analysis requirements for determining project impacts and off-site mitigations

Action: Develop of an infrastructure and transportation fee study and traffic impact analysis (Cheyenne Area Transportation Planning Process –2004)

Action LU/I 4: Sidewalk Standards and Regional Trails

Cheyenne, similar to many communities throughout the United States, are seeing the community and transportation advantage of including planning for pedestrians and bicycles with automobiles. This objective is exemplified with inclusion of landscaped parkways, separated sidewalks and on street bike lanes in the City of Cheyenne Street Standards for Urban Principal Arterials, Urban Minor Arterials, and Collector Streets. Sidewalks are also required for local streets. Regional trails are also being developed for the City and have been proposed through Martin Luther King Park and along Crow Creek and Missile Drive. Issues that need to be addressed in the West Cheyenne Study Area include the extension of the trail to the west and do you need sidewalks on all residential streets. The plan recommends the extension of the trail through Martin Luther King Park to extend to the west including an under crossing of Missile Drive near the railroad overpass. This underpass needs to be designed and constructed. A precise location for the trails location needs to be finalized. In regards to sidewalks on both sides of a residential street, some jurisdictions have established a 300 vehicle per day threshold as to when sidewalks are needed. This would equate to approximately 30 homes, with each home generating about 10 daily trips.

Action: Coordinate with landowners as to a precise location for a trail extension south of Happy Jack Road from Missile Drive to west of North Fort Access. (ChATTP, 2003/2004).

Action: Sidewalk Standards – Consider separate standards for not requiring sidewalks for lower density residential developments (City of Cheyenne).

Action LU/I 5: Schools and Parks

The West Cheyenne Study Area Plan does not define specific locations for schools, as this use is generally determined by the school district. Parks are also not defined, as they should be intermixed with residential uses as they are designed. Recent experience has, however, identified the benefit of consolidation of schools and parks in order to minimize redundancies of ball fields and recreation areas.

Action: As residential development occurs in the West Cheyenne Study Area, coordinate land use school and park planning and development. (City of Cheyenne, Laramie County Property Owners and School District, 2003 and ongoing)

Action LU/I 6: Adequate Community Facilities

Many of the more progressive cities around the United States have developed adequate community facilities ordinances that require new developments to provide for services and improvements at a rate equivalent to what is already provided by the City. These contributions typically address parkland and schools, but can also address libraries, fire, police and emergency service. Some of these Adequately Community Facilities Ordinances identify minimum standards required of new development, whereas others reflect maintenance of minimum performance levels. Typical standards for various service needs are as follows:

- Police: 1.3 officers per 1,000 population;
- Parks: 10 acres of park and open space per 1,000 population;
- Community Recreational Centers: within 2 miles of residents;
- Fire response time – within 8 minutes of 80% of population; and
- Emergency Medical Service (EMS) Response Time: within 10 minutes of 80% of population.

Action: Develop minimum facility standards for new development and consider adopting an Adequate Community Facility Ordinance (City of Cheyenne, Laramie County - 2003-2004).

Action LU/I 7: Design and View Corridors

The long term environmental quality of an area is in part dependent on minimum design standards that address issues such as view corridors, signs and billboards, setbacks and urban design. Without these minimum standards, developments can occur that are distractive from the area and forever impact the potential from what the area might have become. These higher-level design qualities were identified by the Steering Committee and from public input.

Action: Establish minimum development standards for new developments that preserve the scenic views of the study area, limit the proliferation of signs and restrict billboards, and identify urban design standards, such as minimum spacing from the freeways. (City of Cheyenne, Laramie County, and WYDOT – 2003/2004)

Action: Place special emphasis on enhanced architectural design standards for road and highway structures and streets that will display the pride the local citizens have in their community. Guidelines

provided by the Resolution of Enhanced Design of Road and Highway Structures and Streets. (Greater Cheyenne Chamber of Commerce 2001 and ongoing)

Action LU/I 8: Water and Sewer Infrastructure Needs

As presented in the land use plan, low-density residential areas are designated for a maximum of 4 single family detached dwelling units per acre, if City water and sewer services are or will be extended to serve these areas. If City water and sewer are not provided, the maximum density is 1 dwelling unit to 5 acres.

Action: Modify the Urban Development Boundary to extend west of Roundtop/North Fort Access Road. (City of Cheyenne and Laramie County, Board of Public Utilities – 2003/2004).

Action LU/I 9: Overland Trails/Little America Master Plans

With land use ownership changes of the Overland Trails property and mixed-use development designations proposed for the property west of Little America and east of Fort Access Road, revised master plan will be for these two areas.

Action: Encourage and help landowners to create and/or revise Master Plans for Overland Trails and property west of Little America and east of Fort Access Road.

Transportation Action Plan and Strategies

The primary objective of the Transportation Action Plan is to provide an implementation checklist for development of a balanced, efficient and safe transportation network that addresses the circulation requirements for the West Cheyenne Study Area. This action plan addresses the freeway and interchange system, arterial roadway circulation, and specific transportation issues and opportunities within the West Cheyenne Study Area. To the extent possible, this Transportation Action Plan includes planning level estimates of costs, where appropriate, and responsibility.

Action T1: Interchanges

As part of this overall work effort, three new interchanges were examined as to their importance and needs to accommodate the West Cheyenne Study Area. This analysis was based upon forecast traffic volumes developed by the Wyoming Department of Transportation, coupled with Federal Highway Administration (FHWA) and WYDOT interchange evaluation criteria. Based upon this analysis, two of the three candidate interchanges were identified as being critical to the overall development of the West Cheyenne Study Area. These included the I-80/North Fort Access Road Interchange and the I-25 South Interchange. Because forecast traffic demand was relatively low, the I-80/Parsley Interchange was not recommended for the study area within the next twenty years. The I-80/Parsley interchange should, however, remain as part of the City's Master Transportation Plan for long-term consideration. By preserving the freeway interchange designation, the City retains flexibility to consider implementation in the event that actual development patterns and densities are different than currently identified on the land use plan.

Action 1A: I-80/North Fort Access Road Interchange This interchange was identified as being the highest priority interchanges for the West Cheyenne Study area as it will provide critical access to the commercial, industrial and residential uses within the study area and minimizing impacts to the existing circulation system, particularly Happy Jack Road. As discussed in detail within the technical appendix, there currently exists a crossing of North Fort Access Road under I-80 that would provide sufficient width to accommodate a freeway connection. The improvement would require the addition of conventional diamond interchange ramps and traffic control where the ramps intersect with North and South Fort Access Road. The ramps should be separated with sufficient distance to allow North Fort Access Road to be flared to accommodate a center left turn lane. Because freeway bridge structure is not required, the cost for this interchange is not deemed expensive, based upon typical interchange standards, and could be accomplished in a range of $2-5 million. The following are specific action items and time frames:

a. *Complete review of the I-80 North Fort Access Road Interchange Feasibility Study. (WYDOT, ChATPP and FHWA, Fall 2002)*

b. *Conduct Environmental Assessment (EA) and Preliminary Engineering for the Interchange (ChATPP, WYDOT Fall 2002 to Spring 2003 - $200,000 to $250,000)*

c. *Prepare Final Engineering Plans (WYDOT, 2003 - $200,00-$250,000)*

d. *Construction of interchange on ramps and North Fort Access Road Improvements. (Wyoming Department of Transportation, 2004 - $2 to $5 million)*

Action: To reduce confusion, rename South Fort Access Road and North Fort Access Road to and Roundtop Road. (ChATPP, 2003)

Action 1B: I-25/South Interchange This interchange was identified as the second highest priority interchange for the West Cheyenne Study area. This interchange was critical for three reasons: 1) the interchange provides relief to the I-25/College Drive Interchange with build out of the West Cheyenne Area, 2) the interchange provides access to the future industrial site located east of I-25 and 3) the interchange provides a easterly connection for a southerly Cheyenne Beltway. Unlike the I-80/North Fort Access Road interchange, the I-25/South Interchange will have a significant cost ($10 to 15 million), as it will need to span I-25 and the Union Pacific Railroad. Because of the topography, there is a natural grade differential to accomplish this improvement, however, it will require close coordination with WYDOT. The following are specific action items and time frames:

a. *Complete review of the I-25/South Interchange Feasibility Study. (WYDOT, ChATPP and FHWA, Fall 2002)*

b. *Conduct Environmental Assessment (EA) and Preliminary Engineering for the Interchange (ChATPP, WYDOT 2003/2004 - $300,000)*

c. *Prepare Final Engineering Plans (WYDOT, 2004/2006 - $300,000)*

d. *Construction of interchange and I-25/Union Pacific over crossing (WYDOT 2006/2010 - $10-15 million)*

Action T2: Corridor Preservation

The Transportation Plan represents the long-term improvement needs for the West Cheyenne Study Area. This Transportation Plan identifies the arterial street hierarchy and should be considered a "Corridor Preservation Map" which identifies the right-of-way requirements for each roadway per the City, County and WYDOT street cross section standards. Additional width at the intersections should be provided to accommodate left and right turn lanes should be included as part of the corridor preservation.

Action: As development proposals are submitted for projects along these corridors, the City , Laramie County and WYDOT shall identify and require for dedication, as a condition of development approval, specific right-of-way requirements to accommodate future roadway needs.

Action T3: Transportation Plan Access Requirements

As the City constructs future arterial streets within the study area, it will be critical that access standards be established in order not to negatively impact the functional objectives and capacity of the City's, Counties and WYDOT's future transportation investments. The recommended access guidelines are presented in the following table. As guidelines, they need to be considered in context with specific development proposals, access needs and traffic flow along the arterial street system. It is further proposed that corridor access control plans be developed prior to corridor development. The ability to plan on where access should ideally be proposed is both more efficient and effective as compared to trying to retrofit a corridor where access problems already exist.

Roadway Designation	Urban Principal Arterial	Urban Minor Arterial	Urban Collector	Urban Local	Commercial /Industrial Local
Number of Travel Lanes	4	2	2	2	2
Median	Yes	No	No	No	No
Left Turn Lanes Required	Yes	Yes	Study	Study	Study
Traffic Volume Capacity 1000 vehicles/day	15–35	5–15	3.5–5	0.5-2.5	1-3.5
Design Speed	45–50	40–50	35–50	30	35-40
Speed Limit, mph	35–45	30–45	30–45	25	30-35
Minimum Sight Distance at Driveways and Intersections	1,030'	1,030'	1030'	660'	660'
Minimum Distance Between Signalized Intersections	2,640'	2,640'	2,640'	NA	NA
Driveway Street Access	Limited	Limited	Limited	1 Access per Lot	Maximum 2 per Street Frontage
Minimum Distance Between High Volume Intersections and Driveways	1,320'	1,320'	1,320'	330'	250'
Minimum Distance Between Driveway Edges	660'	660'	330'	75'	30'
Minimum Corner Clearance Between Driveways and Street Intersection	600'	600'	600'	175'	100'

Action: The City, County and WYDOT should approve or modify the above guidelines (2002/2003) and should develop access control recommendations for all streets within the West Cheyenne Study Area (2003).

Action T4: Missile Drive Improvements

A major effort of this study is to recommend improvements for Missile Drive between the I-25/Missile Drive Interchange and Lincolnway. This facility is currently in need of reconstruction. The issue was whether to reconstruct in its current configuration or modify the design to reflect current City of Cheyenne Primary Arterial Street Standards with sidewalks and bike lanes. This analysis is presented in more detail within the appendix of this study, but the general recommendation is to modify the design of Missile Drive to reflect the current City of Cheyenne Urban Arterial Standards with conventional intersection improvements where 19th and Missile Drive intersected. The plan also identified opportunities to consolidate access points to minimize conflicts at intersections; and improve the downtown gateway appearance at 19th Street and Missile Drive.

Action: Proceed with final engineering and construction. City of Cheyenne (2005-2007)

Action T5: I-25/Missile Drive Interchange

Currently, the I-25/Missled Drive Interchange is of the full cloverleaf type design. Whereas this was a popular design during the era of interchange construction when the I-25 was constructed, current trends have moved away from this design. The primary issue in the cloverleaf design is the short weave for decelerating vehicles trying to get off the freeway being impacted by accelerating vehicles trying to get on the freeway. As the West Cheyenne Study Area develops, traffic volumes will build and the interchange problems will become more acute. Whereas the ultimate design and reconstruction of this interchange is the responsibility of the Wyoming Department of Transportation, it was important for this study to examine the various interchange design options to assure that what ever improvements were being proposed for Missile Drive would complement the interchange design. This study examined a wide range of options from do nothing, partial clover leaf on priority or off priority, diamond interchange, and single point urban interchange (**SPUI**). In addition, diamond interchanges with roundabout intersection control were examined. Based upon this analysis, it was determined that all options could be accommodated with the proposed Missile Drive improvements before selecting and constructing a replacement interchange.

*Action: City of Cheyenne monitors and participates in any future effort by WYDOT in the preparation of Preliminary/Final Engineering (**PE**), Environmental Assessment (**EA**) and construction.*

Action T6: Overland Trails Roadway Modifications

As previously presented, the 1979 Overland Trails Master Plan included a loop system of roadways that provided freeway connections to the north at I-80/North Fort Access, the I-25/College Drive Interchange and the I-25/South Interchange. Whereas the currently recommended internal roadway system maintains the integrity of the interchange connections, the internal street systems has been modified to reflect changes in the proposed land use plan for the area and the limitation of

development and traffic at the I-25/College Drive interchange. The transportation improvement recommendations were in response to changes in the land use objective, which was to cluster development east of I-25 around both interchanges. This option allowed a view and open space corridor that was one of the plan objectives raised by the Steering Committee and public.

Action: Modify Transportation Plan to reflect recommend plan. Coordinate future roadway modifications as part of future development plans.

Action T7: Southerly/Westerly Beltway

The 1994 Transportation Plan identified a long-term beltway that would circle the City of Cheyenne and provide opportunities for regional traffic to travel around the City and not through it. Within the West Cheyenne Study Area, the 1994 Transportation Plan beltway consisted of Roundtop, North Fort Access, the arterial, which traveled through the Overland Trails area and then easterly along Terry Ranch Road. As part of the transportation planning effort for the West Cheyenne Area, it became evident that Terry Ranch Road was located too far south to be an effective southerly beltway. The current proposed plan recommends a southerly beltway that begins with the I-25 South Interchange and connects with South Greeley and the Parsley Extension. This connection would also provide direct access from the east to the proposed industrial area located east of I-25 near the interchange.

Action: ChATPP and WYDOT determine the route for Southerly/Westerly beltway to connect with the I-25/South Interchange (2003-2004)

Action T8: Intermodal Facility

The industrial area located east of the I-25/South interchange provides both a unique freeway access and railroad access for future commercial, warehouse/distribution and industrial land uses. Connections between the railroad, arterials, and interchange will require an intermodal facility and should be pursued.

Action: Identify intermodal facility size, type of service and right-of-way requirements. (City of Cheyenne, Laramie County, LEADS, Union Pacific, Burlington Northern – 2003/2004)

Action T9: Fire and Emergency Access

Emergency access to existing and future residential developments along Southwest Drive has been a concern to some existing residents along Southwest Drive. The issue is the potential delay in emergency service that can result with train activity along the Union Pacific Railroad tracks that cross Southwest Drive immediately south of Lincolnway. Currently there are two fire stations within proximity to the Southwest Drive Corridor. The first is located in the westerly portion of the downtown area. Access to the Southwest Drive area requires crossing the Union Pacific Railroad. Emergency medical and fire response times can be impacted when train traffic is present. An alternate route would be via the I-25 freeway and College Drive, but this route can add time to reaching destinations along Southwest Drive. There is however, a second fire station located along West Fox Farm Road, south of I-80. This facility provides alternative fire and emergency medial service to the Southwest Drive Corridor Area. Typical fire and emergency medical service minimum national standards is to serve 80% of the City's

population within 8 to 10 minutes. Reviewing locations of the fire stations and networks, this minimum could be accommodated between on or another of the stations identified above. As the West Cheyenne Study Area builds out, however, additional fire stations will likely need to be provided. A logical future location for an additional station would be in the Overland Trails Area, located west of the I-25/College Drive interchange. This location would further improve emergency access within the study area and residences along Southwest Drive.

Action: Locate a future fire station to serve the West Cheyenne Study Area that will increase response time for the residential areas along Southwest Drive.

Appendices

Appendix A. Inventory of Plans, Studies, and Data Received from ChATPP

Facilities Excellence Plan (March 1999) and General Plan Update (July 2000)
F.E. Warren AFB
CD Only

IKON Center Brochure
Photocopy

Hebard, Cole, and Goins Neighborhood Plans (August 1995)
ChATPP, Jack Noblitt, EDAW
Bound Color Plan

Northwest Cheyenne Infrastructure and Development Plan (February 1999)
ChATPP, Balloffet and Associates, Inc.
Bound Color Plan

South Cheyenne Infrastructure Improvement and Development Plan (1994)
ChATPP, Jack Noblitt, EDAW
Bound Color Plan

Greenway Development Plan (July 1992)
David OHD, EDAW, AVI

Transportation Improvement Program (June 1999)
Annual and Three-Year Element for FY 1999–2002 and FY 2001-2004
ChATPP

Cheyenne–Laramie County Subdivision/Development Regulations 2000 (August 2000)
Bound Copy

DRAFT Road, Street and Site Planning Design Standards (January 2001)
Laramie County, ChATPP, City of Cheyenne
Bound Copy

The Cheyenne and Laramie County Zoning Ordinance (1988)
Bound Copy

19th Street & 20th Street Couplet
Missile Drive and Happy Jack Road Intersection Concept Planning (November 1986)
Intermountain Engineering

Southwest Drive Data Collection (May 1989)
AVI
Bound Copy

Cheyenne Area Development Land Use and Transportation Plan Map (1983)
Color Map

Missile Drive & 24th Street/Westland Road Intersection Memo (December 2000)
Christopher T. Yaney
Accidents, Traffic Counts, Recommendations

20-year Assigned Traffic Volume Maps (October 2000)

Functional Classification Map for Roadways in the Urban Area (1999)

Population Estimates for County, Urban Area, and City from 1990 to 2008

Traffic Modeling Inputs spreadsheet by TAZ and projected year

Traffic Counts 1998–2000 (January 2001)
Alphabetical by location, with classification, daily volume

Traffic Study for The Village (along Southwest Drive, December 1999)

Traffic Study for Fleishli Business Park (Home Depot, February 2000)

Overland Trails Master Plan (1979)
Wycoa, Inc. and Developers Diversified of Cleveland Ohio
BRW, Noblitt

Appendix B. Missile Drive Corridor Plan

Purpose and Need

Missile Drive is a four-lane minor arterial, which serves as a major transportation connection from downtown Cheyenne and West Lincolnway to I-25, F.E. Warren Air Force Base, and developments west of town along Old Happy Jack Road and Roundtop Road. Currently this roadway and its access points are in poor condition and in need of reconstruction in some areas.

The pavement along Missile Drive is broken and uneven along most of the corridor; many of the curbs along the corridor are damaged or missing and need to be replaced. The median along Missile Drive, which varies from 4 to 17 feet wide, is in very poor condition. The features in need of reconstruction include medians, traffic lanes, shoulders, access points, and intersections along the corridor.

With reconstruction of the corridor, it became appropriate to examine such issues as whether to maintain the current cross section, consolidate access, and modify intersections geometries. The intersection at Old Happy Jack Road and 19th Street is at an obscure angle and does not meet current intersection design standards. Reconstruction of this intersection to current safety and intersection design standards would increase the safety for drivers, pedestrians, and cyclists. Old Happy Jack Road provides access to the backside of IKON and future developments north of the Hitching Post.

Bicycle and pedestrian facilities along Missile Drive is currently only provided along MLK Park. The park has two paved multiuse pathways and a pedestrian bridge across Crow Creek. Missile Drive is lacking pedestrian and bicycle facilities along the rest of the corridor. This corridor is a major transportation connection; the addition of bicycle and pedestrian facilities would provide a key service for multi-modal access and connectivity.

Issues

The Missile Drive roadway is approximately 86 feet wide throughout the entire length of the corridor. The cross section is not uniform for the length of the corridor. The Primary Arterial Urban Street Standard calls for a roadway width of 76 feet with additional landscaped parkway and sidewalk of 14 feet on each side, for a total of 104 feet.

MLK Park multi-use path adjacent to Missile Drive

The Principal Arterial Urban Street Standard design cross section is applicable to the present Missile Drive corridor with the exception of the railroad crossing. At the crossing, a 16-foot median supports a railway bridge with a maximum width of 84 feet between the bridge supports. The cross section was therefore modified at the bridge such that the bicycle lane would be shared for a short distance with the pedestrian walk.

Currently there are an excessive number of access points along Missile Drive at the intersection with 24th Street. Typically, only one access point per parcel is recognized for primary arterials. Parcels on three of the four corners of Missile Drive and 24th Street have two accesses each along Missile Drive. In addition, these parcels have access on 24th Street. Traffic flow and safety increase in performance along primary arterials when the number of access points are limited and marked appropriately. It is therefore proposed that with reconstruction, the number of access points be reduced to improve service along Missile Drive.

Railway crossing over Missile Drive

The intersection at Old Happy Jack Road and 19th Street with Missile Drive is an elongated diagonal connector resulting in a nonconforming right angle intersection. The current geometry can be difficult to understand and prohibits ease of vision for drivers due to the angles of the intersection. Creating conventional right angle intersections at 19th Street and Old Happy Jack Road would improve traffic operations and safety. This solution would require two separate intersections. The difference in access points is substantial enough that two different intersections would be required to increase the safety and functionality of this intersection. The distances between these intersections would permit left turn bays along Missile Drive.

Existing bicycle and pedestrian connections with the facilities at MLK Park are off-street, and the proposed greenway plan would provide another off-street option. The greenway plan could incorporate a pathway from MLK Park to the north. At the railroad, the off-street path is planned to cross underneath the tracks by Crow Creek. As stated previously, on-street pedestrian and bicycle facilities would need to be combined at the railroad crossing.

Planning Process

Numerous alternatives were proposed and analyzed to explore the design options for the intersection of Old Happy Jack Road and 19th Street with Missile Drive. Roundabouts, new bridge structures over Crow Creek, and multiple intersection geometries were considered and are illustrated in Figure B-1.

The roundabout alternative did not solve the issue of separation between Old Happy Jack Road and 19th Street. Constructing a new bridge extending from 20th Street or replacing the 19th Street bridge

would increase the expense of the reconstruction. Various intersection geometries were developed and analyzed in order to create an option that would increase the safety and functionality of the intersection. The final design for the intersection would split the current intersection into two different intersections. This option was selected based upon reviews of safety, efficiency, and cost effectiveness.

Proposed Missile Drive Plan

Missile Drive shall be constructed to the Principal Arterial Urban Street Standard with the exception of the modification at the railroad crossing. Applying the Primary Arterial Urban Street Standard, shown on Figure B-2, will create continuity and an attractive corridor for vehicles, pedestrians, and cyclists. The railroad cross-section, shown on Figure B-3, will taper to provide two travel lanes and a shared pedestrian and bicycle path. The shared path will travel adjacent to the vehicular traffic under the railway section of the corridor.

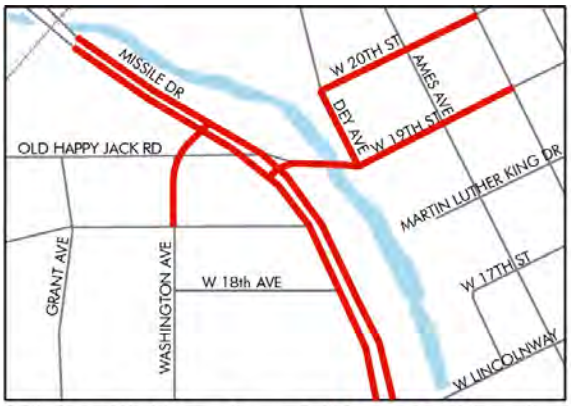
Medians will be built to ensure proper construction for vegetation and safety, as shown on Figure B-4. The reconstruction will permit left turn bays at intersections to enhance the flow of traffic and increase safety. The railway median will remain 16 feet wide and the structure will not be modified.

Two intersections will replace the Old Happy Jack Road and 19th Street intersection with Missile Drive. The access points are planned to be 400 feet apart, yielding sufficient length for left turn bays in both directions along Missile Drive. Old Happy Jack Road will access Missile Drive via the extension of Stinson Avenue. 19th Street will be realigned to the south of the existing intersection to form a conventional right angle intersection (±10 degrees) with Missile Drive, shown on Figure B-5. Special landscaping should be used to mark the intersection of 19th Street and Missile Drive as an important gateway to downtown Cheyenne.

Access has been limited along the corridor to the minimal number of access points to serve all parcels along the corridor. Figure B-5 demonstrates the plan and shows where access will be permitted.

The Principal Arterial Urban Street Standard calls for on-street bicycle and pedestrian facilities. On-street facilities provide uniform flow routes for commuters and other users to travel adjacent to the roadway. All intersections will be marked appropriately with bike lanes and crosswalks. An off-street facility along the greenway corridor would provide another option. Off-street facilities are often used as multi-use paths. These paths incorporate the landscape and contours of the land to provide an enjoyable alternative to on-street facilities. Whether on- or off-street, pedestrian and bicycle facilities will be designed to provide an enjoyable and safe mode of travel.

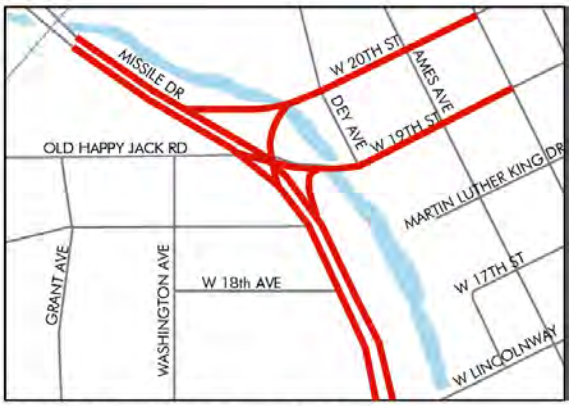
Figure B-1. Missile Drive Intersection Alternatives



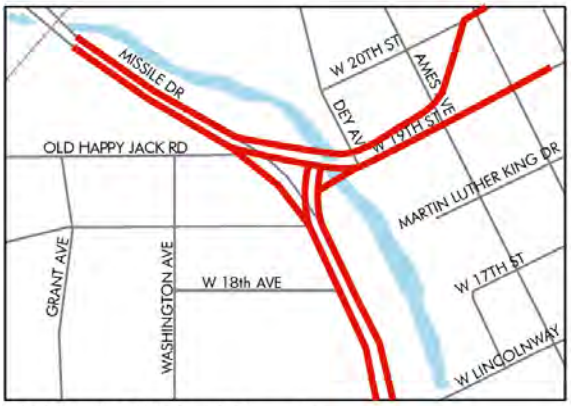
19th Street/Washington Avenue Spilt Intersection Alternative

Roundabout Alternative

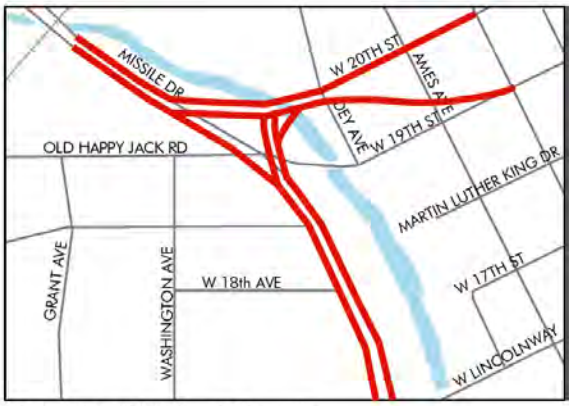
19th/20th Street Bridge Alternative (Option A)



19th/20th Street Bridge Alternative (Option B)



West Missile/19th Street Alternative



West Missile/20th Street Alternative

Figure B-2. Urban Street Standard

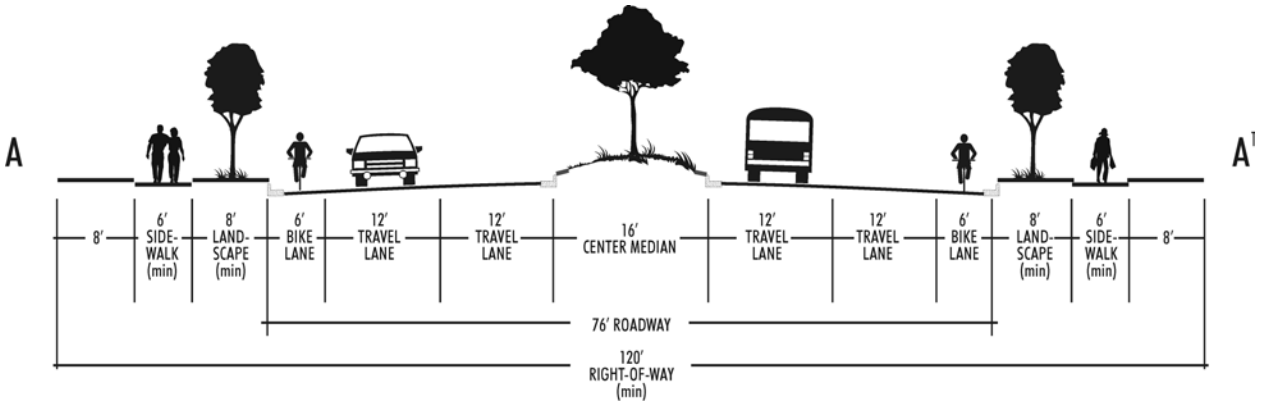


Figure B-3. Modified Design for Railway

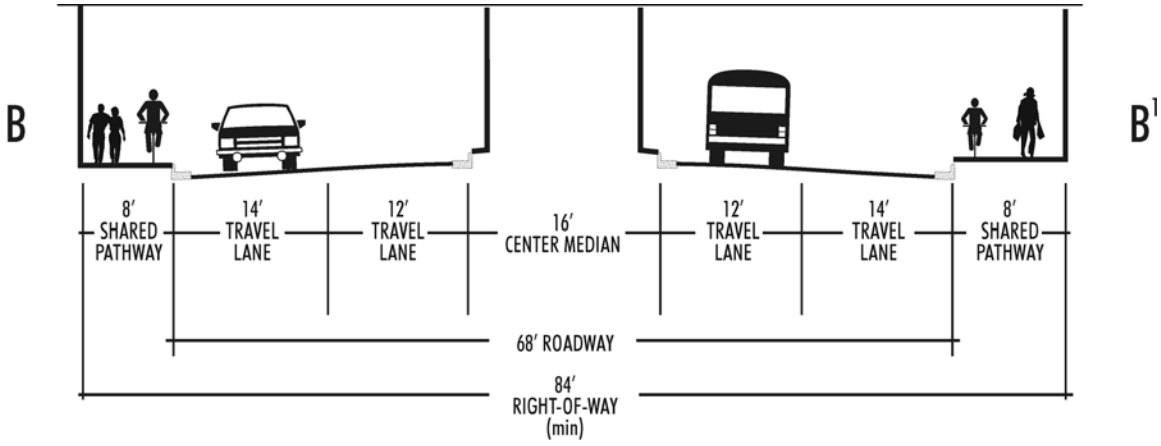
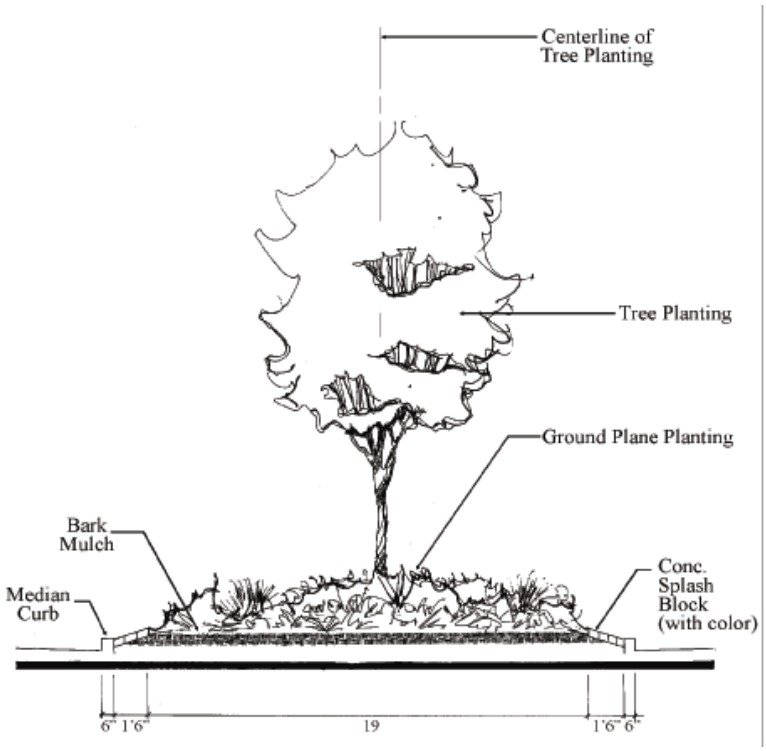
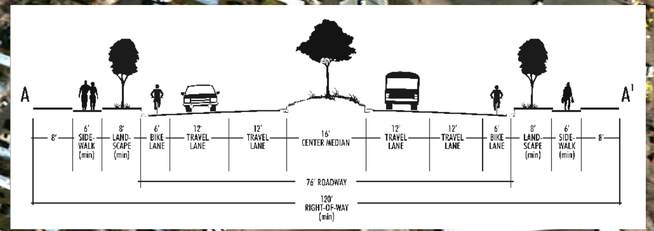
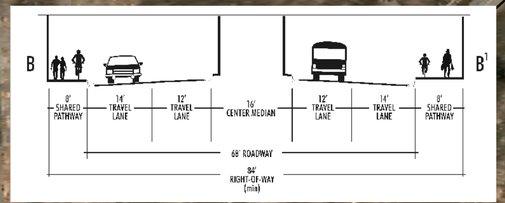


Figure B-4. Median Design Standard







Convert to one-way

Reconstruct and separate intersection

Transition to existing section

Construct according to Principle Arterial Urban Street Standards

Missile Drive Concept Plan

Scale 1 : 100 feet

LSA

Appendix C. Interchange Feasibility Study

Introduction

Based on existing circulation patters and projected growth, the West Cheyenne Land Use and Infrastructure Improvement Plan prepared for the ChATPP, Wyoming has determined the need for additional access along U.S. Interstate 80 (**I-80**) and/or Interstate 25 (**I-25**). Because of this forecasted need, the following interchange alternatives analysis was developed. This analysis also addresses the Federal Highway Administration (**FHWA**) policy on new or revised access points to existing Interstate System (Federal Register, 1998). This policy establishes eight (8) requirements that must be met in order to consider new or to modify existing interstate interchanges, with the highest priorities being safety and mobility.

FHWA Requirements

1. Existing systems can neither provide or be modified to meet design-year traffic demands.
2. All reasonable alternatives for design options, location, and system management type improvements have been assessed and provided for if currently justified.
3. Proposed access point does not have adverse impacts on safety and operations of the interstate facility.
4. Proposed access connects to a public road only and will provide for all traffic movements.
5. Location considers and is consistent with local and regional land use and transportation plans.
6. Should the location be part of a comprehensive system, a network study must be performed.
7. Locations being proposed for new or expanded development must demonstrate coordination between the development and other transportation system improvements.
8. Request must contain information relative to the planning requirements and status of the environmental process.

Three interchange locations were selected for consideration for this study:

- Interstate 80/Parsley Boulevard
- Interstate 80/Fort Access Road
- Interstate 25 south of College Drive (location between College Drive and Terry Ranch Road)

The purpose of this document is to present findings developed during the investigation and evaluation of the feasibility for the construction of each access location. The information presented below will include existing conditions, proposed layout(s) for each location, and an alternatives analysis for determining feasibility of the alternative and prioritizing.

Existing Conditions

The selection of sites for this initial study was based upon urban growth patterns projected from the West Cheyenne Land Use and Infrastructure Improvement Plan prepared for the ChATPP and coordinated with WYDOT. In addition, as shown in the subsequent subsections, each site has many of the characteristics necessary to enhance regional mobility and exceeds the one-mile separation from an existing access point on the same interstate (a primary requirement of FHWA).

The information used in preparation of this study was obtained through either site observations or readily available information from WYDOT and the ChATPP. No detailed site investigations or surveys were completed. These detailed studies would be required, however, as part of an Environmental Assessment (**EA**) if the alternative were to move forward.

Site Observation Criteria

Site Layout
- Features
- Topography
- Adjacent Land Use
- Right-of-Way

Traffic
- Function/Performance
- Linkages
- Makeup of Volumes

Impacts
- Social
- Environmental

Site observations were conducted to assess existing conditions and understand possible impacts that may arise should the access be constructed. Prior to visiting the sites, a set of guideline criteria was developed to focus efforts. The main areas of focus were site layout, traffic, and impacts.

To further support the gathered site conditions information, additional data in the form of readily available WYDOT and ChATPP maps, photos, and bridge reports were obtained and used in preparation of this report.

Location A – Interstate 80/Parsley Boulevard

Site Layout

Parsley Boulevard is currently a minor arterial running north/south and crossing Interstate 80 via a grade-separated overpass approximately one mile directly east of the existing Interstate 25/Interstate 80 interchange. As presented in Exhibits C-1 through C-4, land uses adjacent to Parsley Boulevard/Interstate 80 crossing vary somewhat between the four quadrants. The southwest quadrant is open with little in the way of existing development and/or visual obstructions (manmade or natural). The northwest quadrant contains an existing commercial/manufacturing business(s) with its main access point being directly onto Parsley Boulevard (approximately 750 feet north of the crossing). The northeast and

southeast quadrants contain established residential communities with circulating roadways located directly adjacent to the approach catch lines and their main access points also being directly onto Parsley Boulevard.

Exhibit C-1. Southwest Quadrant

Exhibit C-2. Northwest Quadrant

Exhibit C-3. Northeast Quadrant

Exhibit C-4. Southeast Quadrant

The topography of the surrounding areas is flat with gentle undulations directing localized surface water towards swales paralleling the interstate. The exception to this natural topography is the steep embankments that make up the current Parsley Boulevard bridge approaches.

Utility data from a WYDOT database was provided for the proposed I-80/Parsley interchange. The proposed interchange is located at mile marker 360.78 along I-80. There are above ground power lines and fiber optic cable crossing I-80 and irrigation water running parallel along I-80 at this specific mile marker. Between mile markers 360 and 361 there are a total of twenty utilities that cross I-80 that should be further investigated prior to construction.

Traffic

The current daily traffic volume on Parsley at I-80 is approximately 4,200 vehicles per day. The roadway system generally services local origins to either regional (via Interstates) or other local destinations (downtown). Due to the lack of directness and/or number of destination points, the amount of through traffic makes up a relatively small percentage of the overall system volume. From visual observations, the mix of traffic is more than 90 percent for passenger vehicles, with the remaining amount coming from local delivery vehicles (some large vehicles do come from the business(s) to the north).

Parsley Boulevard consists of two 15-foot lanes and 4-foot paved shoulders on an earthen embankment. With the high point being located at the center of the elevated structure, the approaches slope down in both directions approximately 18 feet over an estimated 800 feet. There are no curbs along the approaches and surface drainage flows down the vegetated embankments and then towards the swales paralleling the interstate. In addition, the existing amount of available right-of-way seems to be restricted to the roadway and the extent necessary for the embankments to catch the surrounding grades (approximately 20 to 35 feet).

Exhibit C-5. Bridge Structure

Based on existing information and a visual inspection (see Exhibit C-5), the existing overpass structure was deemed to be in fair structural condition. In addition, with a Sufficiency Rating of 78 (inspection performed on April 2, 2002), the structure would be acceptable for use in a future interchange. However, one might consider some refurbishing efforts to help raise this rating and extend the service life of the structure. The structure itself consists of a continuous WF girder superstructure with a width of 37 feet - 8 inches and an overall span of 194 feet (back to back of abutments).

Interchange Configuration

As presented on Figure C-1, the conceptual interchange configuration for Parsley Boulevard is a standard diamond interchange with parallel type acceleration/deceleration lanes.

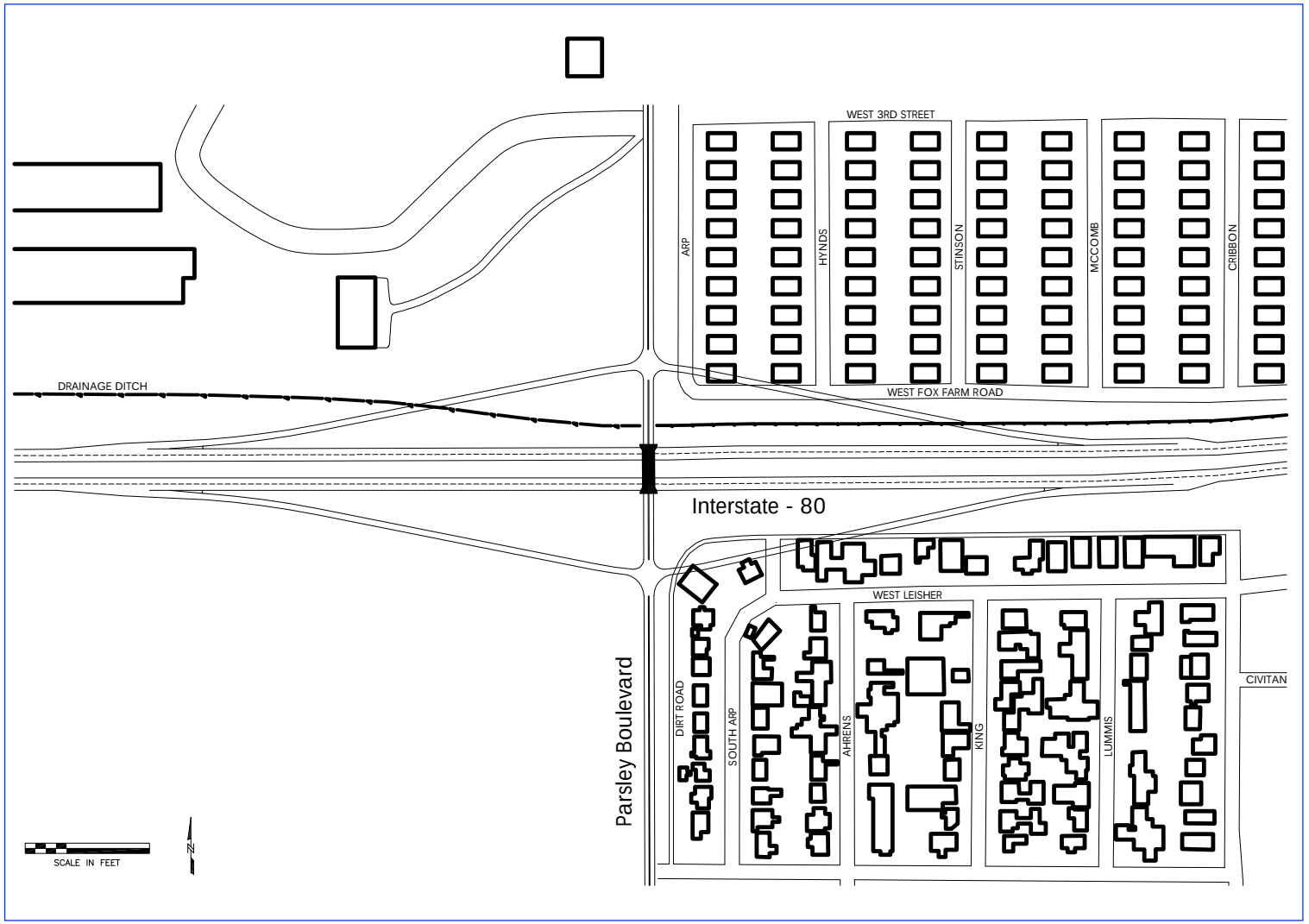


Figure C-1. Parsley Boulevard/Interstate 80 - Interchange Layout

The main components of this design include the following:

- Interstate Design Speed – 70 mph
- Ramp Design Speed – 45 mph
- Typical Ramp Cross–Section – 23-foot paved section
- Average Ramp Slope – ~2%
- Ramp Transition Type – Parallel
- Embankment Slopes – 2:1

Parsley Boulevard would remain as currently configured with enhancements to local access points and new stop controlled intersections at each of the new access ramps. The proposed intersection separation is with standard parameters (approximately 550 feet), however, there would be limited space to enhance these configurations should additional capacity be required.

Impacts

Using the developed configuration and available information, several challenges arose that would require mitigation should the interchange be constructed. The main challenges include:

- Residential impacts surrounding Parsley Boulevard; and
- Directness of connections to other main destinations.

As shown in the analysis below, four of the five criteria (cost, social, planning, and performance/function) were considered to be less than favorable for this alternative. This alternative, however, did not result into system impacts to the freeway system, as Location A is greater than the minimum one-mile urban interchange spacing standards. This location also did not result in negative system impacts to the local street system, as adequate capacity would be remaining with the freeway interchange. The main reasoning behind these ratings was the perceived impacts of the two main challenges presented above.

Location B – Interstate 80/Fort Access Road

Site Layout

Fort Access Road is currently a minor collector running north/south and crossing beneath Interstate 80 approximately two miles directly west of the existing Interstate 25/Interstate 80 interchange and one mile west of the West Lincolnway/Interstate 80 interchange. As

presented in Exhibits C-6 and C-7, land uses adjacent to Fort Access Road/Interstate 80 under crossing, is currently zoned agricultural land with no visual obstructions (manmade or natural).

The topography of the surrounding areas is flat with gentle undulations directing localized surface water towards natural low areas outside the roadway. The exception to this natural topography is the steep embankments that make up the elevated section of Interstate 80.

Exhibit C-6. Southern View

Exhibit C-7. Northern View

Utility data from a WYDOT database was provided for the proposed I-80/Fort Access interchange. The proposed interchange is located at mile marker 357.68 along I-80. At this location there are three fiber optic cable crossings I-80, there is also buried copper telephone lines running parallel to the interstate. Between mile markers 357 and 358 there are a total of five utilities that cross I-80 and four running parallel that could be of conflict due to a new interchange. Possible conflicts will be determined by the design of the future interchange. Prior to construction a detailed utility survey should be done for the final interchange design.

Traffic

The current daily traffic volume along Fort Access Road is approximately 1,300 vehicles per day. Fort Access Road serves as a connector between Otto Road and Happy Jack Road. This movement is primarily caused by the fact that this is the only point, which crosses I-80 in the western portion of the City.

The Fort Access roadway consists of two 15-foot lanes and 4-foot paved shoulders constructed at the natural grade. The roadway travels beneath the divided interstate at a location where the embankment has been cut and replaced with two elevated structures

(one for each direction of travel). There are no curbs along the approaches and surface drainage flows away from the paved surfaces towards naturally vegetated low areas. In addition, the available right-of-way seems to be open with exception to southwest quadrant, which contains some high-tension power lines within 50 feet of the existing interstate embankment.

Exhibit C-8. Bridge Structure

Based on existing information and a preliminary inspection, the existing structures are in good structural condition (see Exhibit C-8) and received a Sufficiency Rating of 96.58 during the last inspection (performed on March 27, 2002). To receive a rating such as this, both the sub and super structures must be in good overall condition and the supporting road systems must meet current roadway requirements (which is the case for these structures and Fort Access Road).

The structures themselves consist of a hollow core superstructure with a width of 38 feet and overall spans of 110 feet (back to back of abutments). Existing vertical and horizontal clearances for Fort Access Road are 15′ – 9″ and approximately 7′ (from the edge of the travel lane).

Interchange Configuration

Presented in Figures C-3 through C-8 are five different interchange configurations developed and analyzed for the Fort Access Road location. The baseline criteria used in the development of these configurations include:

- Interstate Design Speed – 70 mph
- Ramp Design Speed – 45 mph
- Typical Ramp Cross–Section – 23-foot paved section
- Average Ramp Slope – ~2%
- Ramp Transition Type – Parallel
- Embankment Slopes – 2:1

These different configurations were based upon possible growth being proposed within the area. Much of the anticipated growth will be within the area of industrial and commercial development and require an overall increase in capacity for passenger vehicles and a higher percentage of large trucks.

With this change in use, the current configuration of Fort Access Road would be very limited in function due to the existing vertical and horizontal clearances as the roadway travels beneath the Interstate. Therefore, both traditional and non-traditional configurations were developed to investigate opportunities to phase construction (as the area grows), minimize impacts to Interstate 80, and meet projected capacity requirements.

A minimum option is presented in Figure C-2. This alternative simply adds on and off ramps east and west bound traffic utilizing the existing Fort Access Road cross-section and I-80 bridge structure. The ramp spacing is approximately 660 feet, which is typical for a diamond interchange design. The problem with this design is that with the limited width of only two lanes under I-80, left turn lanes at the ramps could not be accommodated.

Based upon traffic forecasts provided by WYDOT, coupled with discussions at LEADS, proposed development would indicate a high percentage truck demand. A southbound left turn pocket of 250 feet and a northbound left turn pocket of 150 feet would be required to accommodate the left turn storage for proposed development. This conventional diamond with the current Fort Access Road would fail to accommodate forecast traffic demand.

To accommodate forecast traffic demand with a traditional diamond interchange design would require either expanding the distances between the structures and the ramp intersections to allow for proper storage and transitions or widening of the roadway (which requires reconstruction of the interstate structures) as shown on Figures C-3 and C-4. Most traditional diamond configurations have a ramp intersection spacing of approximately 600 to 700 feet. To meet the increased demands with the limiting geometry (two lanes and horizontal clearance of 7' which corresponds to a design speed less than 45 mph), this spacing has to increase to approximately 1,300 feet as presented in Figure C-3. An alternative, as presented in Figure C-4, would be to replace the structure to accommodate a five-lane section, which would allow the left turn pockets to extend under I-80. These modified configurations would require increased capital costs, but would result into acceptable performance.

In addition to the diamond configurations, two other layouts were developed for this location using a Single Point Urban Interchange (**SPUI**) and modern roundabout designs (see Figures C-5 and C-6). The key components of the SPUI configurations are the fact that it can handle large volumes of traffic due to its ability to maintain consistent coordination through the use of a single signal. The SPUI interchange would require a significant reconstruction of the overpass and approach lanes and would be very expensive.

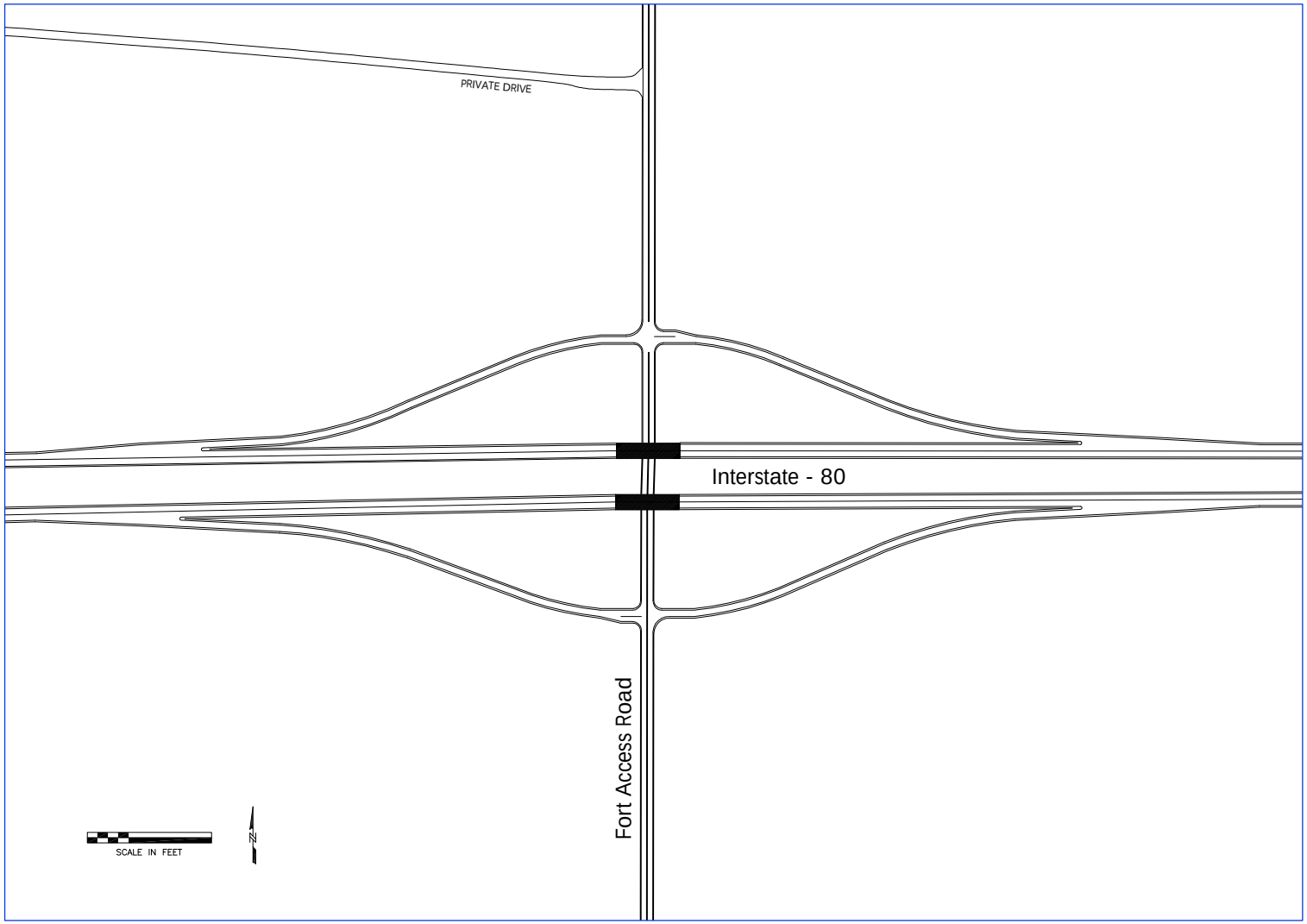


Figure C-2. Fort Access Road/Interstate 80 - Minimum Option

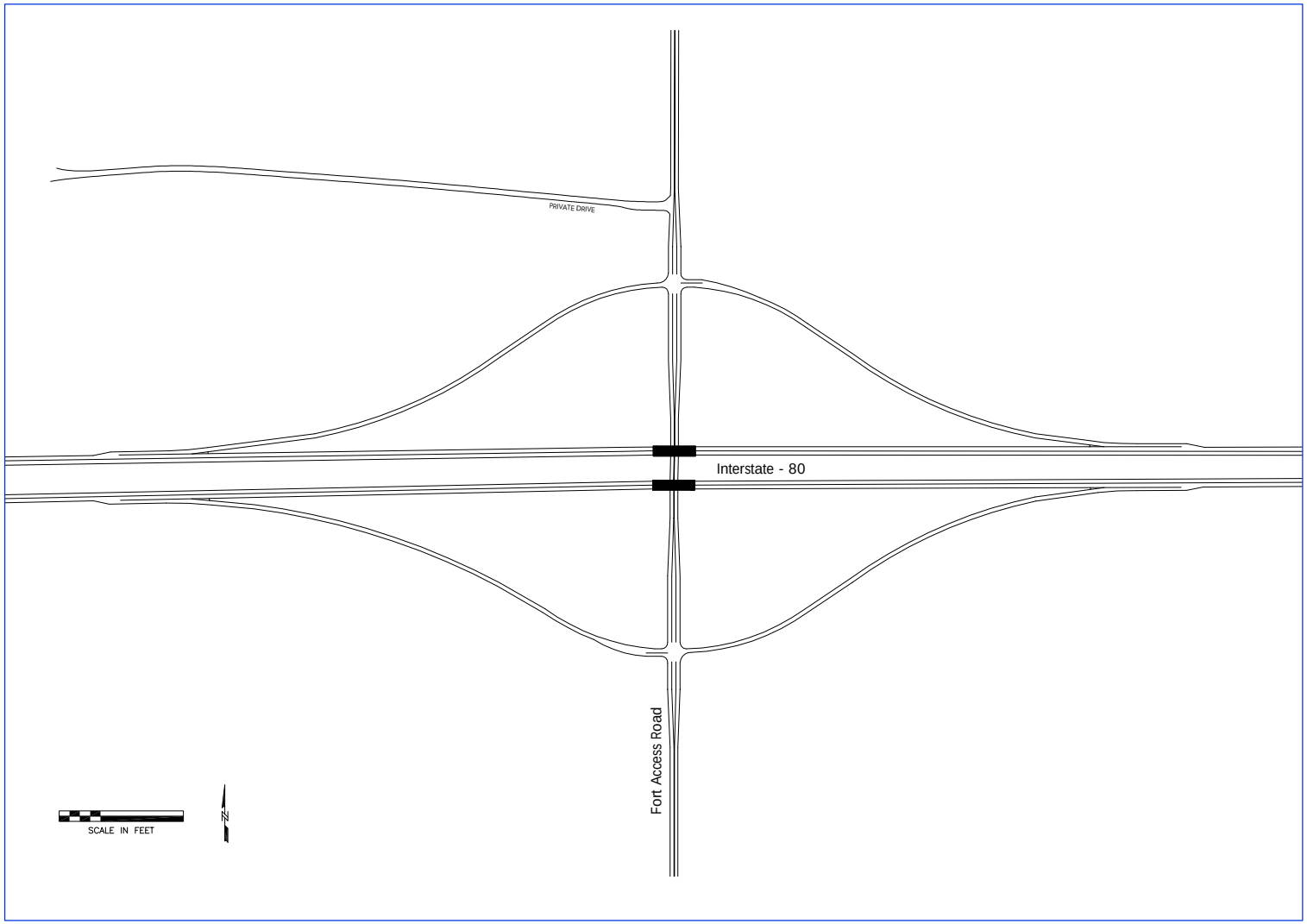


Figure C-3. Fort Access Road/Interstate 80 - Extended Option

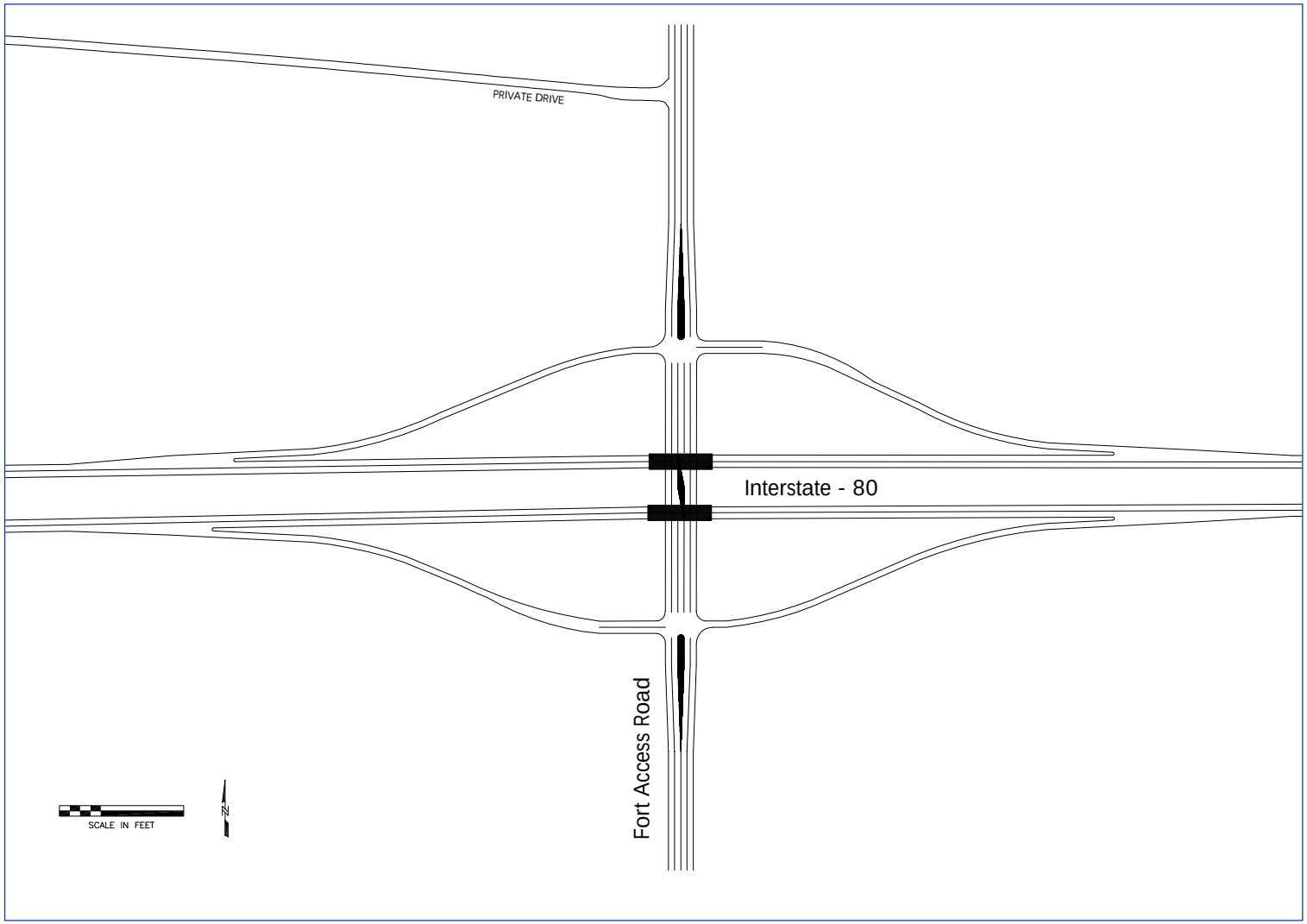


Figure C-4. Fort Access Road/Interstate 80 - Widened Option

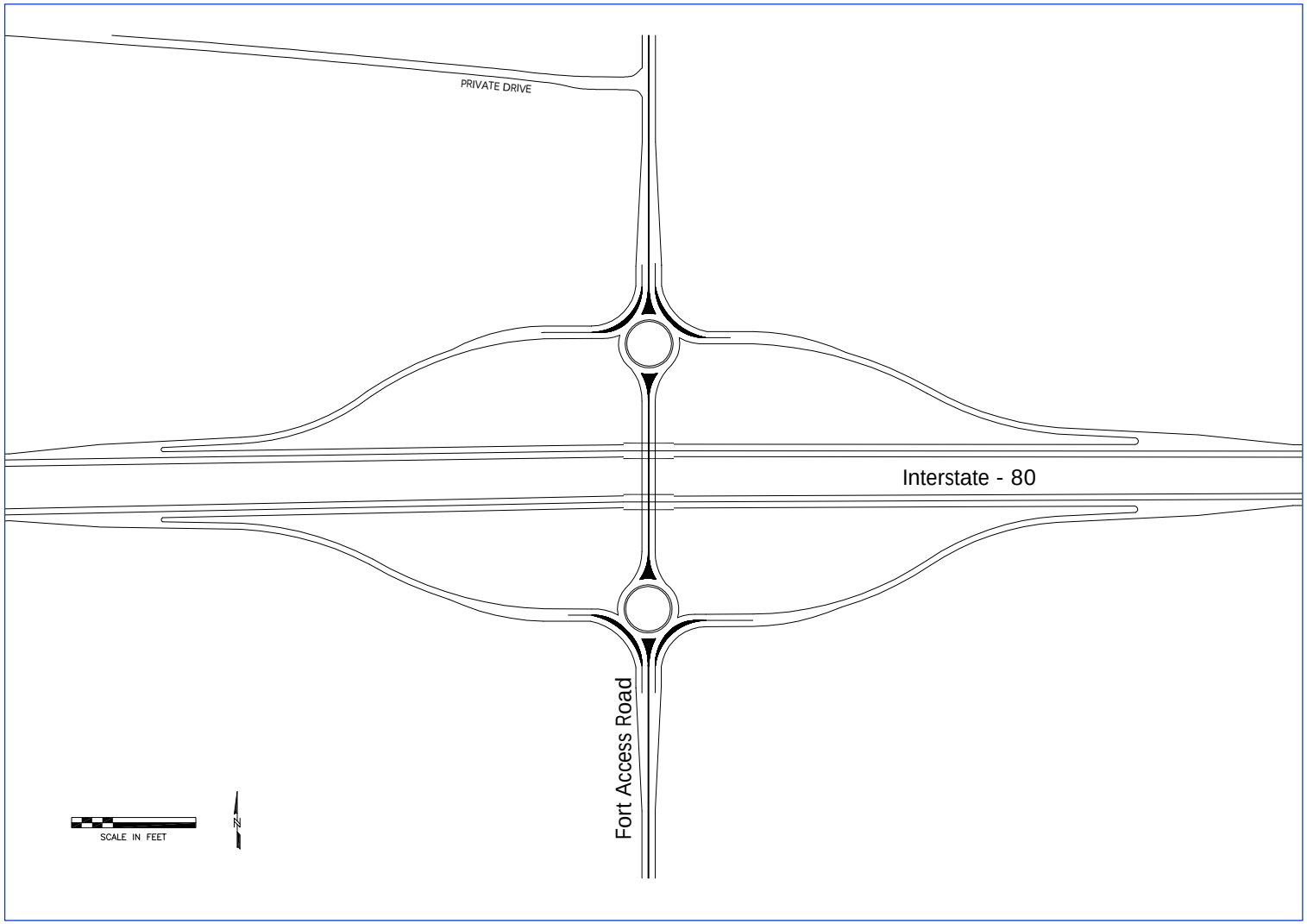


Figure C-5. Fort Access Road/Interstate 80 - Modern Roundabout Option

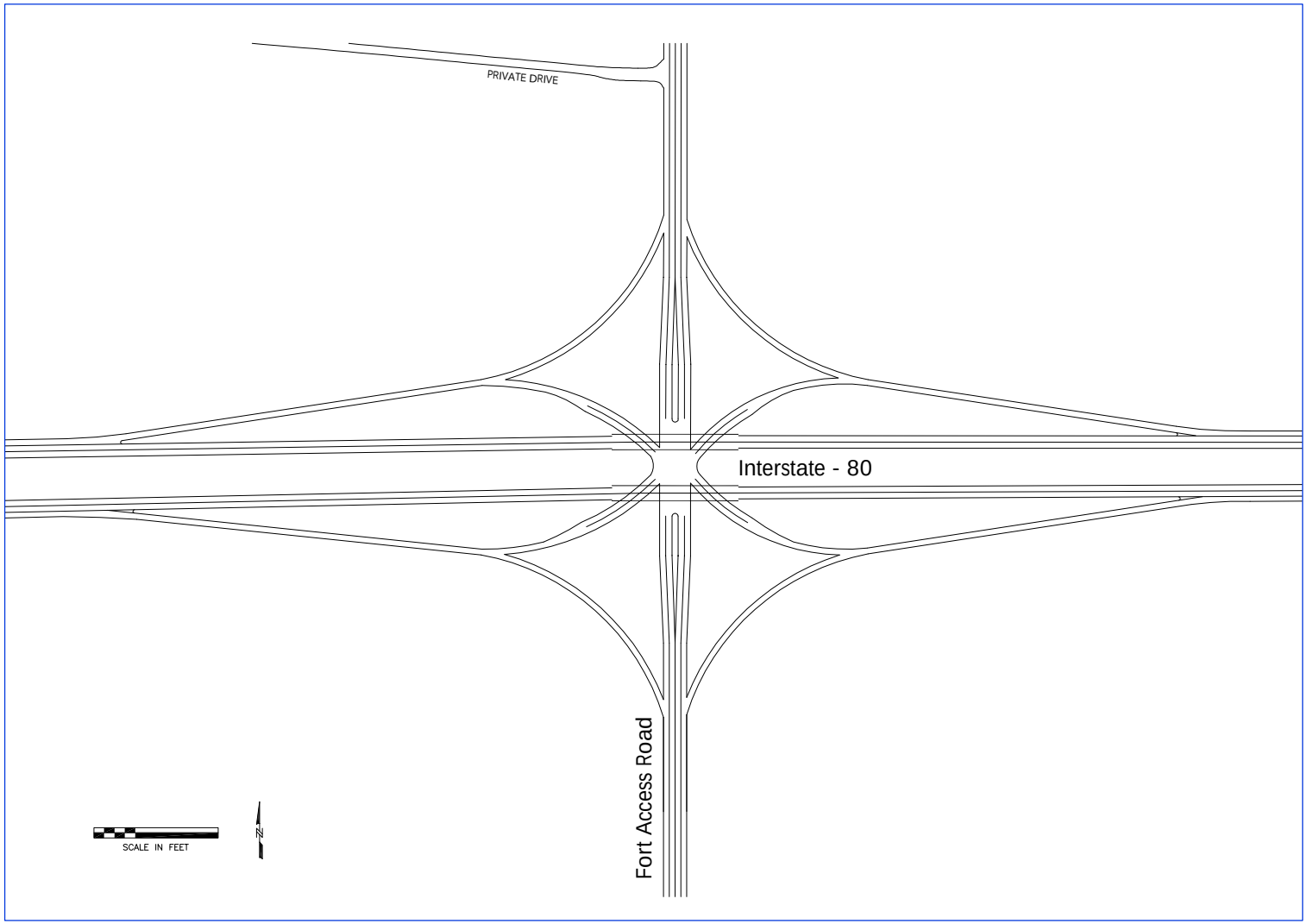


Figure C-6. Fort Access Road/Interstate 80 - SPUI Option

The modern roundabout configuration is a relatively new approach to interchange control in the US and accomplishes what other configurations can do without a tremendous amount of reconstruction. The design incorporates two "high capacity" roundabouts at the terminus of the ramps and allows for continuous movement even during the peak periods. The benefit of this alternative is that this configuration could operate under acceptable traffic levels with service for the foreseeable future.

Impacts

The West Cheyenne Land Use and Infrastructure Improvement Plan proposes significant residential, industrial, and commercial development within the area. Happy Jack Road between Fort Access Road and I-25 is proposed for improvement to a four-lane arterial with a left turn median lane. With proposed development, traffic along Happy Jack Road would increase to a level where the proposed four-lane improvements would not be sufficient to accommodate growth. A system improvement that would allow alternative access to the street area is an interchange at I-80 and Fort Access Road. In addition, this system improvement would reduce extensive circuitry in travel to reach the freeway system and reduce vehicle miles of travel.

Using the developed configuration and available information, several challenges arose that would require mitigation should the interchange be constructed. The main challenges include:

- Costs
- Selection of a preferred configuration, including consideration of phased short and long term improvements; and
- Directness of connections to other main destinations.

As shown in the subsequent analysis, this location has a large number of circulation benefits for the area and only minimal impacts. Accommodating future development traffic and minimizing circuitry were seen as the main points for recommending this location for further consideration.

Location C – Interstate 25/South of College Drive and North of Terry Ranch Road

Site Layout

The third access point is located in an undeveloped area approximately 2.5 miles south of College Drive and approximately one mile north of Terry Ranch Road along Interstate 25.

As presented in Exhibits C-9 through C-12, the area within the proposed limits of the interchange is undeveloped prairie with no visual obstructions (manmade or natural). However, located approximately 300 feet to the east of the existing interstate is a mainline railroad paralleling the roadway.

The topography within the immediate area is primarily rolling hills, with the exception to larger bluffs on either side of Interstate 25. There is shallow surface drainage systems located along the east and west side of Interstate 25 and water would travel overland towards the north and south between the roadway and the existing bluffs. Utility data from a WYDOT database was provided for the proposed I-25/South of College Drive interchange. The proposed interchange is located at mile marker 3.66 along I-25. The utilities that may be affected between mile marker 3.29 and 3.8 include four fiber optic cable crossings. The utilities located in the area should be further researched prior to construction.

Exhibit C-9. East (Looking North)

Exhibit C-10. West (Looking North)

Exhibit C-11. East (Looking South)

Exhibit C-12. West (Looking South)

Interchange Configuration

As presented on Figure C-7, the layout for this interchange is a standard diamond configuration similar to previous conceptual plans prepared by WYDOT. The main components of this design include the following:

- Interstate Design Speed – 70 mph
- Ramp Design Speed – 45 mph
- Typical Ramp Cross–Section – 23-foot paved section
- Ramp Slopes – ~1 to 5%
- Ramp Transition Type – Parallel
- Embankment Slopes – 2:1

As configured, the interchange will require a new structure over both Interstate 25 and the mainline railroad. In addition, to obtain the vertical clearance necessary for the crossings (16'-6" over the interstate and 26'-0"over the railroad), the secondary roadway approaches will have to be lengthy to meet the surrounding topography (flat with bluffs near interstate).

Impacts

The West Cheyenne Land Use and Infrastructure Improvement Plan Land Use Element proposes future residential, industrial, and commercial development within the area. As this development occurs and traffic at the College Drive interchange increases, the future I-25 interchange would prove to be a positive impact to the circulation in the area. Timing of the need for this improvement is a function of how rapid the area builds out. This improvement would enhance access to the area (which is currently served via the Terry Ranch interchange one mile to the south and the College Drive interchange located 2.5 miles to the north) and mitigate prospective impacts to the College Drive interchange.

Using the developed configuration and available information, several challenges arose that would require mitigation should the interchange be constructed. The main challenges include:

- Costs;
- Coordination of interchange with proposed improvements (short and long term); and
- Directness of connections to other main destinations.

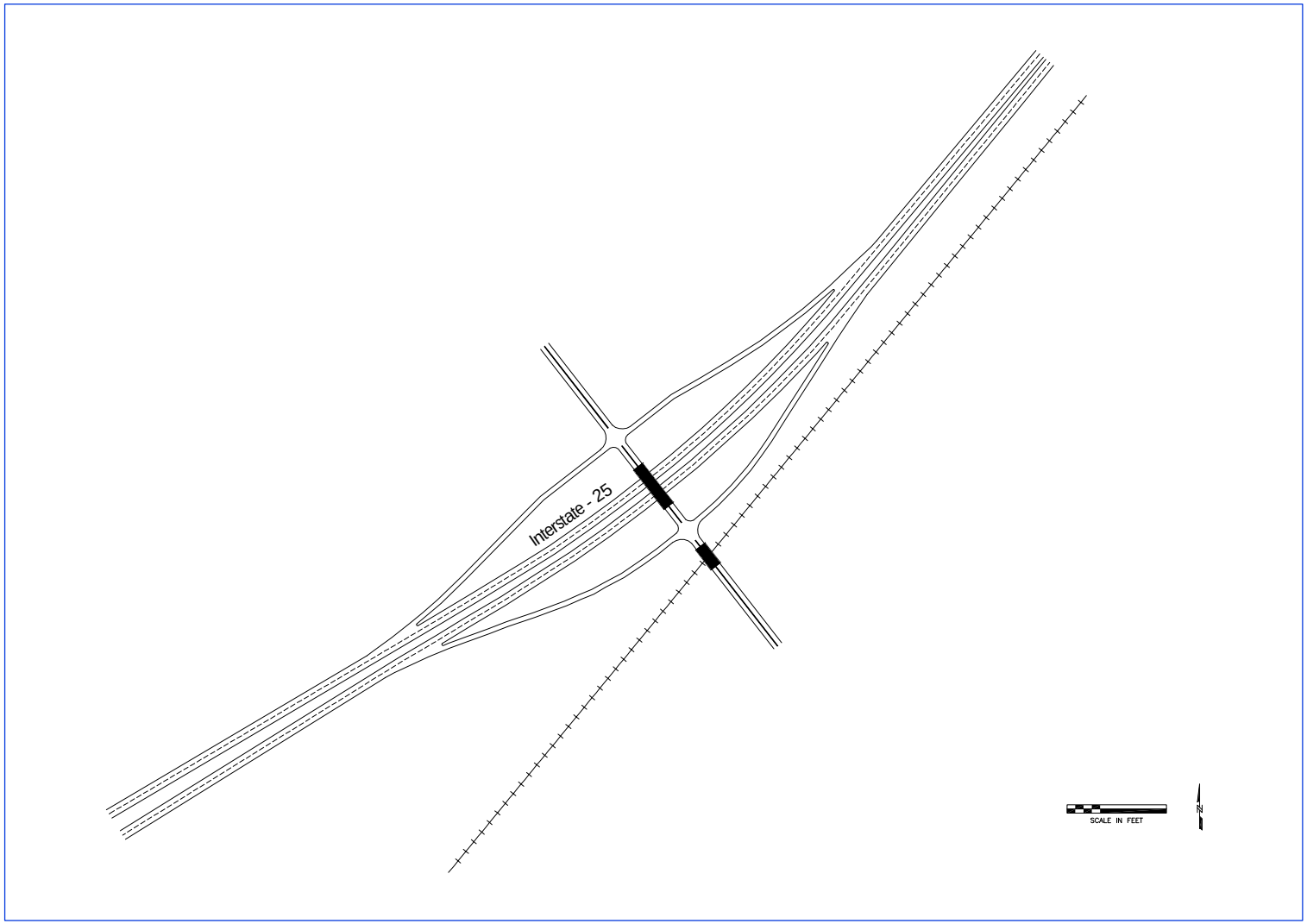


Figure C-7. Location C - Interstate 25 South

As shown in the subsequent analysis, all criteria were fairly neutral (meaning minimal or anticipated level of impacts) for this alternative. The alternative would positively benefit the area, particularly at the College Drive interchange but this would only occur with long-term growth.

Alternatives Analysis

As presented above, a preliminary interchange configuration for each of the proposed locations were developed. The developed alternative(s) for each location was designed to meet traditional design standards and requirements and per FHWA interchange requirements. It should further be noted that there is more than one alternative for Location B: I-80/Fort Access Road. Should one or more of the locations be considered, further environmental investigation, and more detailed engineering survey information should be required.

The three proposed locations all present feasible opportunities to gain access to the major interstate systems located within the Cheyenne area. In order to determine base level benefits and impacts of the three interchanges, five categories of criteria were developed, based on WYDOT goals and objectives and the key FHWA requirements. Within each of the categories, specific criteria were used to analyze each interchange location. A total of 13 criteria were developed.

The key objectives included the following:

- Costs
- Planning/Feasibility
- Impacts (environmental and stakeholder)
- Function/Performance

Each interchange location was analyzed using the 13 criteria using a rating system that score an alternative from 1 to 5, with 5 indicating most favorable or least amount of impact and 1 indicating least favorable or greatest amount of impact. The following summarizes the analysis results and begins to present conceptual information to be used in future planning level discussions. The intent of this base level analysis is to determine what effects the proposed access has on the surrounding areas and conversely what impacts the surrounding areas have on the function of the proposed interchange and adjoining roadway.

Cheyenne Interchange Summary Matrix

Criteria	Locations		
	I-80/ Parsley Boulevard	I-80/ Fort Access Road	I-25 South of College Drive
COSTS			
Right-of-Way	1.0	3.0	4.0
Capital Requirements	3.0	3.0	1.0
Expandability/Phasing	1.0	3.0	N/A
Section Average	**1.7**	**3.0**	**2.5**
PLANNING			
Access Supportive of Transportation Plans	3.0	5.0	3.0
Access Supportive of Land Use	2.0	4.0	3.0
Section Average	**2.5**	**4.5**	**3.0**
ENVIRONMENTAL			
Air/Noise Quality	1.0	5.0	5.0
Natural Resources Impacts	4.0	4.0	4.0
Section Average	**2.5**	**4.5**	**4.5**
SOCIAL			
Stakeholder Acceptance	1.0	4.0	3.0
Displacement of People	1.0	5.0	5.0
Displacement of Businesses	2.0	5.0	5.0
Section Average	**1.3**	**4.7**	**4.3**
PERFORMANCE/FUNCTION			
Safety	2.0	3.0	3.0
Mobility	3.0	5.0	3.0
Sustainability (long-term performance)	2.0	5.0	3.0
Section Average	**2.3**	**4.3**	**3.0**
TOTAL AVERAGES	**2.1**	**4.2**	**3.5**

The following presents a brief discussion on each of the 13 criteria and the reasoning behind the value presented in the table.

Costs

The most critical piece to any improvements is the costs. As part of this overall criterion, right-of-way, capital, and expandability costs were investigated as to the magnitude of the value and its overall impact on the implementation of the proposed alternative. The alternatives that either required costly improvements outside the interchange (i.e. taking a large number of homes and impacting existing infrastructure) or structural improvements were the more expensive alternatives and therefore scored lower in the category.

ROW Costs

Description		Quantitative or Qualitative?	Measurement(s)
The estimated range of cost to acquire ROW for the alternative.		Quantitative	Estimated range of cost to acquire ROW (range based on existing landuse).
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☐3 ☐2 ☑1	Approximately 20 acres of land is necessary to construct alternative. However, much of this land is zoned residential or commercial which will have a high unit cost.	
Location B	☐5 ☐4 ☑3 ☐2 ☐1	An average of approximately 33 acres is necessary to construct alternative. However, much of the land is grassland which should have a low unit cost.	
Location C	☐5 ☑4 ☐3 ☐2 ☐1	Approximately 14 acres of land is necessary to construct alternative. However, much of the land is zoned grassland, except for the area over the existing railroad which will require and easement.	

Data Source - The estimated costs were developed using preliminary information, existing land use and conceptual interchange layouts.

Rating - The ratings were established by breaking the estimated range into five equal parts and comparing them to the average for acquiring the required property.

Basis for Rating - Estimated right-of-way costs range between approximately 200 thousand and 4 million dollars (2002 values). The least expensive alternative was Location C with costs ranging from 200 to 700 thousand dollars. The most expensive alternative was Location A at 2 to 4 million due to the required residential takings and modifications to many existing access points.

Location B had four different alternatives for which the analysis was performed. However, only the average value was used to compare to the other locations. The different configurations required acquiring an average of 33 acres with the extended option requiring the most land at approximately 50 acres.

Capital Costs

Description		Quantitative or Qualitative?	Measurement(s)
The total estimated cost to construct the alternative.		Quantitative	Estimated range of construction cost.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☑3 ☐2 ☐1	Estimated range to construct alternative is between 7 and 10 million dollars. Variation is due to the amount of restoration necessary outside the interchange.	
Location B	☐5 ☐4 ☑3 ☐2 ☐1	Average estimated range to construct alternative range between 2 and 15 million dollars. This is an average of the five different configurations developed. The overall average is between 5 and 7 million dollars and the higher end options all require replacement of the two interstate structures which will have a high unit cost.	
Location C	☐5 ☐4 ☐3 ☐2 ☑1	Estimated range to construct alternative is between 10 and 15 million dollars. Variation would be due to the proposed location requiring two main structures and large approaches due to the surrounding topography and proximity to the rail line.	

Data Source - The estimated costs were developed using available information and conceptual interchange layouts. Only major bid items were considered and a 50% contingency was added for smaller items and unknown issues.

Rating - The ratings were established by breaking the range into five equal parts and comparing them to average interchange cost of 9 million dollars.

Basis for Rating - Estimated construction costs range between approximately 2 and 15 million dollars (2002 values). The lowest cost alternative was Location B with costs ranging from 2 to 14 million dollars (four different configurations were studied for this location). The highest cost alternative was Location C at 10 to 15 million dollars primarily due to it requiring two major structures and lengthy approaches necessary to tie into the existing grades.

Location B costs were broad in range due to the very diverse set of configurations investigated. The lowest cost configurations were the modern roundabout and extended options due to them using the existing interstate structures. The highest cost configurations were the widened and the SPUI options due to them requiring new structures. The SPUI configuration would require the construction of the largest structure(s) to accommodate the intersection configuration necessary to meet the project LOS.

Expansion/Phasing Costs

Description		Quantitative or Qualitative?	Measurement(s)
The estimated range of cost to phase/expand the alternative.		Quantitative	Estimated range of expansion costs.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☐3 ☐2 ☑1	Expansion of the alternative would be at great costs due to the close proximity of existing developments. Expanding this alternative would most likely create a "Fatal Flaw" situation.	
Location B	☐5 ☐4 ☑3 ☐2 ☐1	Expansion of the alternative would depend on the initial configuration selected. Two options would be initially built to meet future demands, two options would end up resembling the widened option once expanded, and the modern roundabout option could expand over time to meet the demands, as necessary.	
Location C	☐5 ☐4 ☐3 ☐2 ☐1	N/A - Would be initially built to meet future demands.	

Data Source - The estimated costs were developed using available information and conceptual phasing options (if necessary).

Rating - The ratings were established by breaking the range into five equal parts and comparing them to average interchange cost for those configurations that could be expanded.

Basis for Rating - This criterion was not applicable to all options. Location C and many of the configurations developed for Location B would require the complete development of an interchange to meet future demands at the point of initial construction. In addition, costs to expand Location A would be seen as a "Fatal Flaw" due to the significant costs associated with residential and business takings. However, for those options that allow real expansion opportunities, the estimated costs range between approximately 2 and 6 million dollars (2002 values). The least expensive and most robust alternative (as it relates expanding the design when necessary to meet transportation and land use objectives) is Location B using the modern roundabout configuration.

This configuration has low initial construction costs. Expanding this interchange to include additional lanes and new structures would range from 3 to 5 million dollars (2002 values). The most expensive configurations at Location B, the SPUI, and is estimated at between 8 to 10 million dollars, as it would require almost a complete reconfiguration to resemble. The conventional diamond interchange with a reconstructed I-80 bridge structure would be slightly less, in a range of 5 to 7 million dollars. The cost for Location C would likely be in the range of 10 to 15 million dollars, as the structure would have to go over both the I-25 and the railroad.

Planning

One of the eight FHWA requirements is that the proposed access location is being considered as part of the overall system and the proposed land use and transportation systems enhance the effectiveness of the access point. These planning assumptions include the West Cheyenne Land Use and Infrastructure Improvement Plan and the City of Cheyenne Comprehensive Plan.

Transportation Plan Support

Description		Quantitative or Qualitative?	Measurement(s)
Impacts to the local and regional transportation plan associated with alternative.		Qualitative	The amount of potential transportation opportunities gained or lost in association with each alternative.
Alternative	**Rating**	**Comments/Data**	
Location A	☐ 5 ☐ 4 ☑ 3 ☐ 2 ☐ 1	Included in current Transportation Plan and would have nominal benefits within the 2025 horizon.	
Location B	☑ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	Included in current Transportation Plan and would provide great benefits serving the West Cheyenne Study Area.	
Location C	☐ 5 ☐ 4 ☑ 3 ☐ 2 ☐ 1	Included in current Transportation Plan and would provide only long-term benefits to serve industrial/commercial users along the outer beltway.	

Data Source - Using the West Cheyenne Infrastructure Development Study, site observations, and preliminary interchange layouts, we reviewed the lands that would be impacted by the creation of an interchange to determine if developable lands would be taken, whether or not access would be improved, and whether or not the alternative would impact the development of land for the proposed use.

Rating - The ratings were established by qualitatively assessing each alternative versus the others as to their potential for enhancing or impacting opportunities for development.

Basis for Rating - The best alternative is the one that allows and/or enhances the opportunity for development by improving access to surrounding properties in a manner that is necessary for the intended use(s) (e.g., proposed configuration allows for both truck and car traffic and meets projected growth requirements).

Location A negatively impacts the surrounding developments and would only increase the amount of perceived congestion in the area. Location B is located within an area where only minimal development currently exists. However, this is an area with a high potential for growth in the near future and the access would greatly enhance these opportunities for development without this I*-80/Fort Access Road interchange major traffic impacts and circuitry would occur. Location C is a long distance from the current growth areas and would be more costly to develop. However, this area is designated for potential long-term growth and this interchange could be the catalyst necessary to begin area development.

Land Development Support

Description		Quantitative or Qualitative?	Measurement(s)
Impacts to the development potential of lands associated with alternative.		Qualitative	The amount of development potential gained or lost in association with each alternative.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☐3 ☑2 ☐1	Alternative would allow for growth to the south, however, much of the existing developments would be greatly impacted (displacements, higher volumes, connectivity).	
Location B	☐5 ☑4 ☐3 ☐2 ☐1	Alternative would greatly enhance the potential for development within the area.	
Location C	☐5 ☐4 ☑3 ☐2 ☐1	Alternative could enhance the opportunity for development, however, much of benefits would not be seen in the short-term.	

Data Source - The traffic model developed for the West Cheyenne Infrastructure Development Plan.

Rating - The ratings were established by quantitative assessing each alternative versus the others as to their potential for enhancing or impacting opportunities for development.

Basis for Rating - The best alternative is the one that supports the land development planning specialized in the west Cheyenne Land Use and Infrastructure Plan. Location A has nominal benefit to the local area and would only increase the amount of perceived congestion in the area. Location B is well located to greatly enhance the mobility and connectivity within the West Cheyenne area and targets short-term development potential. Location C also provides opportunity for land use development, as well as provides a connection to the outer beltway. The development this interchange would serve is estimated to occur in the mid to long range (10-20 years) horizon, and was therefore rated lower than the I-80/Fort Access interchange.

Environmental

The data for this criterion were developed from site observations, environmental data from Laramie County Comprehensive Plan, and Wyoming Fish and Wildlife. The two main criteria considered included noise impacts and natural resource impacts. This analysis was limited to the immediate area and based upon existing information. It should be noted that air quality was also considered but it was determined it would not be an impact for any of the alternatives examined. Air quality, affected by vehicle emissions, are directly related to congestion, where the higher the congestion, the higher the emissions. Since all proposed interchange improvements would be designed so as to not result in conjunction, all would be relatively equal with a high rating.

It should be noted that if any alternative should proceed with preliminary engineering, a more rigorous environmental assessment would be required.

Noise Impacts

Description		Quantitative or Qualitative?	Measurement(s)
Impacts of the interchange (noise and carbon monoxide emissions) on neighboring residences/businesses.		Qualitative and Quantitative	Number of homes within 500 feet of the alternative and perceived air quality impacts.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☐3 ☐2 ☑1	Approximately 20 to 30 homes and up to three businesses would be impacted by this alternative.	
Location B	☑5 ☐4 ☐3 ☐2 ☐1	No homes/businesses would be impacted.	
Location C	☑5 ☐4 ☐3 ☐2 ☐1	No homes/businesses would be impacted.	

Data Source - Recent noise modeling efforts have found that high volume facilities (carrying over 25,000 vehicle per day at 45-50 mph) will exceed the Federal Highway Administration noise criteria of 67 decibels within approximately 125 feet, based on a "linear" noise source such as a highway.

Rating - Each area was examined in which the number of homes/businesses within the range of 125 to 500 feet were counted.

Basis for Rating - Only Location A has any impacts on homes/businesses. This location will greatly impact the surrounding areas (approximately 20 to 30 homes and up to 3 businesses) and noise/air quality mitigation would be required should implementation at this location be

considered. The other two locations are within areas where little to no development currently exists.

Data Source - The natural resource impacts have been based upon data from the Laramie County Comprehensive Plan-2001, Wyoming Fish and Wildlife, WYDOT environmental assistance, and onsite observations. To evaluate the impacts to surrounding natural areas the following resources were analyzed: sensitive species, important large mammal habitat, wetland sensitivity, aquifer sensitivity, water quality, historic heritage and archaeological preservation.

Natural Resource Impacts

Description		Quantitative or Qualitative?	Measurement(s)
Impacts to wildlife habitat, wetlands, and water quality associated with each alternative.		Qualitative	Perceived impacts to natural areas, wetlands, and local water quality.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☑4 ☐3 ☐2 ☐1	Alternative would only minimally impact local surface water quality and wildlife (antelope).	
Location B	☐5 ☑4 ☐3 ☐2 ☐1	Alternative would only minimally impact local surface water quality and wildlife (antelope).	
Location C	☐5 ☑4 ☐3 ☐2 ☐1	Alternative would only minimally impact local surface water quality and wildlife (antelope).	

Rating - To estimate impacts we completed onsite observations and estimated any impacts within 500 feet of the proposed interchange locations.

Basis for Rating - From preliminary observations and data collection, none of the proposed interchange locations would directly impact environmentally sensitive areas. The natural resources that were analyzed are further detailed below, however none of the resources were affected according the current data collection. However each location would impact local water quality due to an overall increase in imperviousness.

The sensitive species that have been identified and analyzed include: Preble's meadow jumping mouse, Swift fox, Mountain plover, Black-tailed prairie dog, and the Black-footed ferret.

The typical habitat for the Preble's meadow jumping mouse is comprised of well-developed plains riparian vegetation with adjacent, relatively undisturbed grassland communities and a nearby water source. There riparian areas include a relatively dense combination of grasses, forbs, and shrubs. The mouse is known to regularly range outward into adjacent uplands to feed and hibernate. The critical habitats include the

stream plus approximately 120 meters outward on each side. The three streams that were identified in the Cheyenne area include Crow Creek, Goose Creek, and Lone Tree Creek. Lone Tree Creek and Goose Creek are located 6 miles south of Cheyenne. Whereas the Crow Creek is within the West Cheyenne study area, it is one mile away from the closest interchange. Therefore, more of the interchange locations encroach on the appropriate buffer for the critical habitat for the Preble's meadow jumping mouse.

The Spirantes dilubialis- Sheviak and the Gsuts Neomexicana ssp.coloradensis are perennial herbs that have been located in Wyoming. Typically they are located along moist to very wet meadows along streams or in abandoned stream meanders. The Gsuts Neomexicana has been located on F.E. warren Air Force Base, however neither of these herbs have bee observed at the interchange locations.

Important large mammal habitats in the West Cheyenne area are home to the Pronghorn Antelope, White-tailed Dear, and Elk. Majority of the West Cheyenne Study area is included in the habitat region; it is not point specific to the interchange locations.

The Wyoming Fish and Wildlife provided wetland sensitivity data that illustrated wetland locations in the Cheyenne area. They identified all of the proposed interchange locations to be out of the concerned wetland areas.

Aquifer sensitivity within the West Cheyenne area includes the Happy Jack Wellfield area that has been identified by the Laramie County Wellhead Protection program to protect one of the more important sources of groundwater. This aquifer is not located near any of the proposed interchange locations.

With an increase in imperviousness and development comes an impact to local surface water quality. In addition, the construction of any of these improvements will allow surface to come in contact with possible contaminants that could be transported to natural bodies of water. However, based on observations and available information, only minimal impacts would be observed in each of the three locations and mitigation of these impacts could be handled with simple/cost effective Best Management Practices (**BMPs**).

Historic Heritage and archeological areas identified in the West Cheyenne area include the F.E. Warren Air Force Base as being recognized by the National Register of Historic Places and/or a National Landmark. No known historical structures have been identified for any of the interchange areas. Prior to preliminary engineering for any of the alternative assessments will be required and the State Historic Preservation Office (**SHPO**) would need to survey the two interchange locations along I-25 and re-survey the I-80/Parsley interchange. All proposed locations would need to have a class III survey for archaeological and historical sites. WYDOT had a survey done near Location C, that

identified it being in the proximity of the original Yellowstone Highway. Possible direct effects to the Yellowstone highway would need to be evaluated as part of the EA process.

Social

In addition to environmental impacts, perceived social issues related to affected stakeholders is also a key issue when obtaining clearance approvals. This is both a qualitative and quantitative criterion and includes items such as stakeholder acceptance, displacement of people, and displacement of businesses.

The values were estimated from available information, site observations, and preliminary layouts. The number of homes within 125 to 500 feet of the proposed improvements was counted and input on the West Cheyenne Land Use and Infrastructure Improvement Plan was used to estimate the level of citizen concern or support.

In review of the information, the only alternative that would result in neighborhood impacts was the I-80/Parsely Interchange. In addition, a Public Meeting to review the alternatives was held on April 29, 2002. No negative concerns were received regarding concerns or issues associated with the I-80/North Access Road or the I-25 south of College Drive Interchange. On the contrary, there tended to be support for the alternatives at it would address circuitry issues and address forecast traffic growth. There were however, concerns raised regarding the Parsley interchange on impacts to adjacent residential dwellings.

Stakeholder Acceptance

Description		Quantitative or Qualitative?	Measurement(s)
The level of support the public would have for the alternative.		Qualitative	The degree of resolution of the key transportation issues identified by stakeholders versus the impact to surrounding areas and quality of life the alternative would have if selected.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☐3 ☐2 ☑1	Alternative would be perceived as having the greatest impacts versus the overall benefit.	
Location B	☐5 ☑4 ☐3 ☐2 ☐1	Alternative would have the greatest benefit versus the perceived impacts.	
Location C	☐5 ☐4 ☑3 ☐2 ☐1	Alternative would be perceived as having both minimal impacts and minimal benefit (at least in the short-term).	

Data Source - West Cheyenne Land Use and Infrastructure Improvement Plan and discussed goals and objectives with the City and WYDOT.

Rating – A qualitative assessment was performed based on public and agency input and the alternative with the greatest and least support was determined.

Basis for Rating - The best alternative is the alternative that furthers the greatest number of the plan goals and objectives. Generally, the alternative must focus on enhancing the opportunity for growth while minimizing impacts. In addition, the proposed interchange alternative must enhance the regional transportation system by increasing mobility and meeting future system demands while ensuring the Interstate system is not adversely impacted (as outline in FHWA Requirements). Based on this, each location was analyzed and modeled to determine its effectiveness on meeting these objectives and determining their perceived impacts/benefits to local and regional stakeholders. Location A would be perceived as having the greatest negative impact on the surrounding neighborhoods, with only moderate transportation benefits. While Location B (any of the five configurations), would address both short and long-term transportation needs and have more limited impacts to existing residential neighborhoods. Location C would not be perceived as an impact to the area.

Displacement of People

Description		Quantitative or Qualitative?	Measurement(s)
The number of residences that must be displaced to build the alternative.		Quantitative	Number of homes displaced by the alternative.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☐3 ☐2 ☑1	Alternative would displace approximately 15 to 20 homes.	
Location B	☑5 ☐4 ☐3 ☐2 ☐1	Alternative would not displace any homes.	
Location C	☑5 ☐4 ☐3 ☐2 ☐1	Alternative would not displace any homes.	

Data Source - Using available information, observations made during multiple site visits, and preliminary interchange layouts, homes within 250 to 500 feet of the proposed interchange layout were counted. In addition, where an access to a property was severely impacted, this home(s) was also counted.

Rating - The number of homes were counted within the area of the interchange and ratings developed based on the level of impact.

Basis for Rating - The best alternative is the one that displaces the fewest number of homes. Generally, all configurations could be designed and located to eliminate the displacement of people and homes except Location A, which would likely displace in excess of fifteen homes.

Business Impacts

Description		Quantitative or Qualitative?	Measurement(s)
The number of businesses within close proximity (250 ft) and/or displaced.		Quantitative	Number of homes and businesses within 250 feet of the alternative.
Alternative	**Rating**	**Comments/Data**	
Location A	☐ 5 ☐ 4 ☐ 3 ☑ 2 ☐ 1	Alternative would impact up to three businesses (no displacements).	
Location B	☑ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	Alternative would not impact any businesses.	
Location C	☑ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	Alternative would not impact any businesses.	

Data Source - Using available information, observations made during multiple site visits, and preliminary interchange layouts, we counted the businesses within 250 to 500 feet of the proposed interchange layout. In addition, where an access to a property was severely impacted, this business(s) was determined to be impacted as it relates to their ability to conduct their work as intended.

Rating - The number of businesses were counted within the area of the interchange and ratings developed based on the level of impact.

Basis for Rating - The best alternative is the alternative that directly impacts (displaces) the fewest number of businesses and has limited impact to the potential for them to conduct their business as intended. Generally, only Location A has the potential to impact local businesses and it would due so by changing their property access. No business would be impacted at Location B and C.

Performance/Function

Mobility and safety are two major objectives for the West Cheyenne Study Area, ChATPP, and FHWA (this criterion system, safety, mobility, and sustainability). Safety considered how well the overall transportation system would operate with the alternatives considered in reducing conflicts and improving level of service. Mobility examined options and opportunities for existing and future traffic.

Safety

Description		Quantitative or Qualitative?	Measurement(s)
Estimate of issues as they relate to safety of the alternative.		Qualitative	Overall effectiveness of configuration to meet short and long term safety requirements
Alternative	**Rating**	**Comments/Data**	
Alternative 1	☐5 ☐4 ☐3 ☑2 ☐1	Alternative can be designed to meet existing requirements, but will begin to loose its effectiveness as the volumes grow.	
Alternative 2	☐5 ☐4 ☑3 ☐2 ☐1	Alternative can be designed to meet both existing and future requirements.	
Alternative 5	☐5 ☐4 ☑3 ☐2 ☐1	Alternative can be designed to meet both existing and future requirements.	

Data Source – Safety was considered when developing the proposed preliminary interchange layouts. Specifically, this criterion relates to interchange geometry and potential interactions with existing interchanges and existing development.

Rating – A qualitative assessment was performed on each alternative to determine the level of safety achieved and how it would impact the performance and acceptance of the proposed configuration.

Basis for Rating – All locations were of sufficient distance to the adjacent interchanges to meet FHWA's one-mile urban interchange spacing requirements. This spacing will provide adequate and safe merging of on and off vehicles. Generally, all Locations would be configured and designed to meet all Federal and State requirements, however, Location A was rated somewhat lower due to the limited space for placement and its close proximity to surrounding homes and businesses.

Two of the options developed for Location B (minimal and extended options) would be considered marginal as it relates to the use of the existing structures, travel speeds, and clear zone distances. The current structures have horizontal clearances of 44 feet where Fort Access Road crosses beneath Interstate 80. This geometry allows a clear distance between the travel lane and the closest obstruction (piers for the structures) of approximately 7 feet. Based on AASHTO Design Requirements, this meets requirements for design speeds less than 45 mph. The two options in question could produce higher speeds and therefore would require some mitigation to ensure safe conditions. It should also be mentioned, that only the modern roundabout option creates a safe condition when using the existing structures by reducing the speeds of the motorists to approximately 20 mph prior to entering the under-crossing due to the geometry and close proximity of the two roundabouts.

Mobility

Description		Quantitative or Qualitative?	Measurement(s)
The estimated issues as they relate to mobility of the alternative.		Qualitative	The projected benefits or impacts on area mobility.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☑3 ☐2 ☐1	Alternative will have only nominal benefit on local mobility.	
Location B	☑5 ☐4 ☐3 ☐2 ☐1	Alternative will greatly enhance local and regional mobility.	
Location C	☐5 ☐4 ☑3 ☐2 ☐1	Alternative will benefit only long-term mobility.	

Data Source – Location mobility was evaluated using model results, site observations, and developed layouts. Specifically, this criterion relates to system capacity and interactions (positive and negative) with surrounding transportation systems.

Rating – This analysis was based upon traffic forecasts provided by WYDOT and Levels of Service.

Basis for Rating – Alternatives that provided nominal traffic benefits to the West Cheyenne Study Area, or would require extensive development were rated less than alternatives that provide short-term improvements.

Traffic Analysis

In order to assess the various traffic impacts with the base condition and the various alternatives, WYDOT conducted a series of model runs utilizing the land use assumptions proposed as part of the West Cheyenne Infrastructure Improvement Plan. It should be noted that FHWA does not permit unbalanced interchanges, such as ramps to/from the west and not the east. Therefore, only complete interchanges were examined.

In total eight alternatives were tested as follows:

1. Do nothing: no new interchanges
2. I-80 and Fort Access Road
3. I-80 and Parsley Boulevard
4. I-25 south of College Drive
5. I-80/Fort Access Road plus I-80/Parsley Boulevard

6. I-80/Fort Access Road plus I-25 south of College Drive
7. I-80/Parsley Boulevard plus I-25 south of College Drive
8. I-80/Fort Access Road plus I-80/Parsley Boulevard plus I-25 south of College Drive

Daily traffic volumes were obtained from the Wyoming Department of Transportations Traffic Model for the Cheyenne Area and are presented in Table C-1. Daily capacity volumes and resulting levels of service are also based on the traffic model.

In review of the traffic forecasts, there are significant impacts within the West Cheyenne Planning Area without any additional improvements. This is particularly evident when looking at forecasts along Happy Jack Road west of I-25 (E LOS), College Drive east of I-25 (E LOS), and Otto Road south west of I-80 (F LOS). Because these forecasts are not interchange geometric related, improvements to the exiting interchanges would not improve the West Cheyenne projected congestion.

Table C-1. Interchange Alternative Analysis

Alternatives	Daily Capacity	Alternative Combinations							
		Base 1	2	3	4	5	6	7	8
I-80/Fort Access Road			✓			✓	✓		✓
I-25 south of College Drive				✓		✓		✓	✓
I-80/Parsley Boulevard					✓		✓	✓	✓
Happy Jack Road: West of I-25	30,000								
Daily Traffic Volume		29,400	22,500	26,800	29,200	22,200	22,200	26,900	22,000
Level of Service		E	C	D	E	C	C	D	C
Missile Drive: East of I-25	30,000								
Daily Traffic Volume		21,400	17,600	20,400	20,300	17,500	16,600	19,600	16,600
Level of Service		C	A	B	B	A	A	B	A
Lincolnway: East of I-25	30,000								
Daily Traffic Volume		15,200	14,100	15,300	14,300	14,400	13,100	14,400	13,500
Level of Service		A	A	A	A	A	A	A	A
College Drive: at I-25	24,000								
Daily Traffic Volume		23,000	23,000	18,900	23,000	15,600	23,100	18,200	14,900
Level of Service		E	E	C	E	B	E	C	B
Parsley Blvd: South of I-80	15,000								
Daily Traffic Volume		3,300	3,300	3,300	5,100	3,200	5,300	4,300	4,500
Level of Service		A	A	A	A	A	A	A	A
Otto Road South of I-80	15,000								

Alternatives	Daily Capacity	Alternative Combinations							
		Base 1	2	3	4	5	6	7	8
Daily Traffic Volume		16,900	6,000	14,000	17,200	7,200	5,800	14,200	6,900
Level of Service		F	A	E	F	A	A	E	A
Fort Access Road South of I-80	15,000								
Daily Traffic Volume		8,600	6,100	1,400	8,800	3,100	6,300	1,400	1,300
Level of Service		A	A	A	A	A	A	A	A
Fort Access Road North of I-80	15,000							-	
Daily Traffic Volume		5,200	8,600	11,100	5,200	8,500	8,700	6,300	8,600
Level of Service		A	A	C	A	A	A	A	A
Happy Jack Road West of Fort Access Road	15,000								
Daily Traffic Volume		12,700	10,100	11,900	12,600	10,100	10,100	11,900	10,000
Level of Service		D	B	C	D	B	B	C	B
Summary		–	+	+	O	+ +	+	+	+

It should also be noted that under the base no build alternative without any new additional interchanges, there would also be a significant impact on additional vehicle miles of travel that would be required to gain access to the freeway from the plans commercial, industrial and residential land uses. These additional miles of travel operating under congested roadway conditions would create air emissions and potentially impact air quality.

Under the I-80/Fort Access Road alternative, significant improvements result on Happy Jack Road (C LOS) and Otto Road (A LOS), but would have little impact on College Drive east of I-25.

Under the I-25 south of College Drive Interchange alternative, minor improvements will occur along Happy Jack Road (D LOS) and Otto Road (E LOS), however a significant improvement would occur along College Drive west of I-25 (C LOS).

Under the I-80/Parsley alternative, little change in traffic would result as compared to the base case, and is therefore is not recommended based upon traffic forecasts for the 2025 horizon.

It was also determined that the Parsley Interchange when added to the I-80/Fort Access Road interchange or the I-25 south of College Drive interchange added little benefit to the stand alone alternative of I-80/Fort Access Road interchange or the I-25 south of College Drive interchange. Therefore, all alternatives that include Parsley were dropped from consideration for the short range. However, keeping this alternative as part of the long

range Transportation Plan would provide flexibility in the event additional development were to occur.

From a traffic perspective, it was determined that the combination of both the I-80/Fort Access Road interchange and the I-25 south of College Drive interchange, all roadways would result in acceptable levels of service. Therefore, the combined alternative was recommended.

Sustainability

Description		Quantitative or Qualitative?	Measurement(s)
Ability of alternative to me both short and long-term development and transportation objectives.		Qualitative	Ratio of benefits versus impacts for the proposed alternative.
Alternative	**Rating**	**Comments/Data**	
Location A	☐5 ☐4 ☐3 ☑2 ☐1	Alternative has a much greater impact to the local area, than it does benefits (mainly due to residential impacts, costs of short and long-term implementation, and nominal transportation benefits)	
Location B	☑5 ☐4 ☐3 ☐2 ☐1	Alternative is seen as being a major benefit (land use and transportation) to both local and regional users (mainly due to enhancing growth opportunities, mobility in the West Cheyenne Study Area, and cost effectiveness of proposed configurations)	
Location C	☐5 ☐4 ☑3 ☐2 ☐1	Alternative is fairly neutral when it comes to benefits versus impacts. The location has limited short term effects, but could positively impact the southern portion of the city.	

Data Source – The West Cheyenne Infrastructure Development Plan, site observations, and estimated capital and expansion costs.

Rating – This is both a qualitative and quantitative criterion in the fact that it looks at both benefits and impacts to determine the level of long-term effectiveness.

Basis for Rating – The primary measurement of this criterion is the measurement of the proposed interchange (location and configuration) to meet short and long-term needs of the community. For Location C, this location would only enhance the community in the long-term due to the lack of existing or projected short-term area growth. Location A would increase access to the local area and enhance the potential for future growth to the south. However, expansion of the interchange and adjoining facilities would come at great cost to the community in the form of impacts and capital costs. Location B has the potential for both short and long-term effectiveness and depending on the configuration, it can grow as the area is developed (lessening initial capital expenditures).

Of the configurations developed for Location B, the widened, modern roundabout, and SPUI would have the greatest benefits. They would all meet short and long-term objectives and create little in the way of impacts to the surrounding community (except during

construction). However, only the modern roundabout option presents a high benefit/cost ratio by allowing cost effective phasing to occur as the area develops.

Composite: Recommendation

Based upon the alternatives analysis of each of the three alternative interchange locations under consideration, each location has both benefits and impacts to the City of Cheyenne. Location A has the potential for minor improvements to location circulation, but the impacts to the existing developments would be significant. Location C could become the catalysts necessary to create growth opportunities in the southern portion of the city (which has already been identified as a potential area for growth), yet the benefits will not be seen in the short term. Location B is the leading candidate and recommended alternative for short-term improvements due to its positive impact on the area, proposed growth being in the short term, and costs being within standard parameters for construction.

As shown above, four different options were investigated for Location B, and of these, the modern roundabout configuration meets the most objectives and allows the interchange to grow with the area as the uses are expanded. The configuration can be designed for high capacity and expand to four approach and two circulating lanes when the area begins to grow. In the short term, the existing structures can be left in place (meeting the lateral clearance requirements due to slower speeds) and only modified slightly to gain additional vertical clearance. The use of this configuration will provide enhanced performance/function with minimal impacts (environmental and social) to the surrounding areas. It also presents an opportunity to greatly enhance the visual entry way to the area.

Of the other four remaining Location B configurations, only the SPUI and widened options would see the level of benefits necessary to meet discussed objectives and future capacity needs. Each of these options opens up the area and creates a high capacity system that meets long-term growth projections. However, each of these configurations requires complete reconstruction of the interstate structures and disruption during construction would be extensive to both local and regional users.

FHWA Requirements and Responses

1. The existing interchanges and/or local roads and streets in the corridor can neither provide the necessary access nor be improved to satisfactorily accommodate the design-year traffic demands while at the same time providing the access intended by the proposal.

Response: With build out of the West Cheyenne Area Infrastructure Plan, major roadways will experience congestion due to the lack of interchange connections and circulation. Interchanges were analyzed against the null alternative. The I-25 Fort Access Road interchange provided significant benefit to Happy Jack Road, and Otto Road. South I-25 significantly benefits the I-25 College Drive interchange.

2. All reasonable alternatives for design options, location and transportation system management type improvements have been assessed and provided for if currently justified, or provisions are included for accommodating such facilities if a future need is identified.

   Response: The issue is not the design of the existing interchanges, but rather the lack of interchanges. Even if improvements to the existing interchanges were made, the arterials that lead to these interchanges would be severely congested.

3. The proposed access point does not have a significant adverse impact on the safety and operation of the Interstate facility based upon an analysis of current and future traffic. The operational analysis for existing conditions shall particularly in unbiased areas, include and analysis of sections of interstate to and including at least the first adjacent existing or proposed interchange on either side. Crossroads and other roads and streets shall be included in the analysis to the extent necessary to assure their ability to collect and distribute traffic to and from the interchange with new or revised access points.

   Response: The two proposed interchanges, I-80 at Fort Access and the I-25 south of College Drive, exceed the minimum urban arterial spacing of one mile. WYDOT traffic modeling has demonstrated the benefits of the future transportation network to collect and distribute traffic to and from the proposed interchanges. The on and off volumes along both I-25 and I-80 are low compared to capacity and would not pose any weaving or safety problems.

4. The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" for special purposed access for transit vehicles, for HOVs, or into park and ride lots may be considered on a case-by-case bass. The proposed access will be designed to meet or exceed current standards for Federal-aid-projects on the Interstate System.

   Response: Both the proposed I-80/Fort Access and the I-25 south of College Drive interchanges will include "full interchanges" and meet or exceed current standards for Federal-aid projects on the Interstate System.

5. The proposal considers and is consistent with local and regional land use and transportation plans. Prior to final approval, all requests for new or revised access must be consistent with the metropolitan and/or statewide transportation plan, as appropriate, the applicable provisions of 23CFR part 450 and the transportation conformity requirements of 40 CFR parts 51 and 93.

   Response: The proposed interchanges are consistent with the West Cheyenne Land Use and Infrastructure Improvement Plan and the West Cheyenne Infrastructure Development Plan.

6. In areas where the potential exists for future multiple interchange additions, all requests for new or revised access are supported by a comprehensive interstate network study with recommendations that address all proposed and desired access within the context of a long-term plan.

   Response: The alternatives analysis examined the permutation and combination of three interchange locations with eight alternatives. The analysis was based upon long term traffic modeling prepared by the Wyoming Department of Transportation. This analysis not only looked at the three interchanges under investigation, but all existing interchanges within the western Cheyenne study area.

   The conclusions of this study indicated that improvements to the existing interchanges would not solve the circuity of travel without additional access opportunities. With I-80/Fort Access and to a lesser extent, I-25 south, current interchanges and local streets will operate better without these improvements.

7. The request for a new or revised access generated by new or expanded development demonstrates appropriate coordination between the developments and related or otherwise required transportation system improvements.

   Response: The planning process for the preparation of the West Cheyenne Land Use and Infrastructure Improvement Plan included a study committee; a representative from the Wyoming Department of Transportation was on the committee. In addition, representatives of the Federal Highway Administration have attended public meetings on the proposed Infrastructure Plan and Interchange Alternatives Analysis. It should be noted that this is a first step. The City, County, WYDOT, and FHWA will need to coordinate and refine future plans regarding land development projects in the area. Responsibility includes funding and construction plans for the refinement of the land development plans.

8. The request for a new or revised access contains information relative to the planning requirements and the status of the environmental processing of the proposal.

   Response: Preliminary environmental assessments have been conducted for natural resources, wetlands, air/noise, sensitive species, water quality, social impacts, and historic structure. No formal environmental assessment has been conducted, pending approval of the West Cheyenne Infrastructure Improvement Plan.