I-25/I-80
Interchange Project

# I-25/I-80 INTERCHANGE
## Environmental Assessment


U.S. Department of Transportation
Federal Highway Administration

WYOMING DEPARTMENT OF TRANSPORTATION

# Environmental Assessment

For the

I-25/I-80 Interchange
Laramie County

WYDOT Project Number I806212
FHWA—WYDOT—EA-20-01

Prepared for:

**Wyoming Department of Transportation**
and
**U.S. Department of Transportation**
**Federal Highway Administration**

Prepared by:
**Jacobs Engineering Group Inc.**

Submitted Pursuant to:
**42 USC 4332(2)(c)**

May 2020

Approved:

Scott Gamo, PhD
Environmental Services Manager
Wyoming Department of Transportation

5/18/20
Date of Approval

Digitally signed by BRYAN R CAWLEY
Date: 2020.05.18 11:10:22 -06'00'

Bryan Cawley, P.E.
Division Administrator
Wyoming Division
Federal Highway Administration

Date of Approval

The Federal agency may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that one or more federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those Federal agency actions will be barred unless such claims are filed within 150 days after the date of publication of the notice, or within such shorter time period as specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.

## Information Availability

The following individuals may be contacted for further information regarding the proposed project and the Environmental Assessment.

Scott Gamo, PhD
Wyoming Department of Transportation
Environmental Services
P.O. Box 1708
Cheyenne, Wyoming 82003-1708
Fax: 307-777-4378

Bob Bonds
Bob.bonds@dot.gov
Federal Highway Administration
2617 E. Lincoln Way, Suite D
Cheyenne, Wyoming 82001-5671

# Contents

## Appendices*

Appendix A: Technical and Supporting Documentation
- Traffic Report
- WYDOT Highway Safety Segment Reports
- Traffic Noise Analysis Report
- Phase I and Limited Phase II Environmental Site Assessment
- Aquatic Resources Inventory Report
- Class III Cultural Resources Inventory
- WYDOT Categorical Exclusion 20-1 (PN I806213)

Appendix B: Public and Agency Coordination
- Wyoming State Historic Preservation Office Concurrence
- Public Scoping Meeting Materials
- Stakeholder Meeting Materials
- Design Refinement Workshop Summary
- Laramie County Fair Materials
- Archer Craft Fair Materials
- Newspaper Notices and Newsletters
- Agency Scoping Letters

*All appendices are included on the CD attached to the back cover of hard copies of this document because of their large file size.

## Figures

## Tables

# Acronyms and Abbreviations

| Acronym/Abbreviation | Definition |
|---|---|
| a.m. | morning |
| AADT | average annual daily traffic |
| AFB | air force base |
| APE | area of potential effect |
| BMP | best management practice |
| CFR | Code of Federal Regulations |
| Cheyenne LEADS | The Cheyenne-Laramie County Corporation for Economic Development |
| City | City of Cheyenne |
| CWA | Clean Water Act |
| dBA | A-weighted decibel |
| EA | Environmental Assessment |
| EDR | Environmental Data Resources, Inc. |
| EO | Executive Order |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESA (Phase I and/or II) | Phase I and Limited Phase II Environmental Site Assessments |
| F.E. Warren AFB | Francis E. Warren Air Force Base |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| GHG | greenhouse gas |
| GIS | geographic information system |
| I-# | Interstate-# |
| ICBM | U.S. Intercontinental Ballistic Missiles |
| iPAC | Information for Planning and Consultation |
| HCS™ | Highway Capacity Software |
| HUC | hydrologic unit code |
| Jacobs | Jacobs Engineering Group Inc. |
| Leq[h] | hourly equivalent sound level |
| Lincolnway | U.S. Highway 30 |

| Acronym/Abbreviation | Definition |
|---|---|
| LOS | level of service |
| MP | milepost |
| MPO | Metropolitan Planning Organization |
| MS4 | Municipal Separate Storm Sewer Systems |
| MSAT | Mobile Source Air Toxic |
| N/A | Not applicable |
| NAAQS | national ambient air quality standards |
| NAC | noise abatement criteria |
| NEPA | National Environmental Policy Act of 1969 |
| NFA | no further action |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| p.m. | evening |
| PBA | programmatic biological assessment |
| PEM | palustrine emergent |
| Project | Proposed I-25/I-80 and I-25/Lincolnway Interchange Improvement Project |
| PSS | palustrine scrub-shrub |
| REC | *recognized environmental condition* |
| RSL | regional screening level |
| SGCN | species of greatest conservation need |
| SHPO | Wyoming State Historic Preservation Officer |
| TNM | Traffic Noise Model |
| UPRR | Union Pacific Railroad |
| USACE | U.S. Army Corps of Engineers |
| USC | *United States Code* |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| VCP | Voluntary Cleanup Program |
| VMT | vehicle miles traveled |
| WDEQ | Wyoming Department of Environmental Quality |

| Acronym/Abbreviation | Definition |
|---|---|
| WGFD | Wyoming Game and Fish Department |
| WYDOT | Wyoming Department of Transportation |

# Chapter 1 Purpose of and Need for Action

## 1.1: Introduction

The Wyoming Department of Transportation (WYDOT) and the Federal Highway Administration (FHWA) are proposing to improve the existing Interstate (I)-25/I-80 and I-25/US 30 (Lincolnway) interchanges at the southwestern limits of the City of Cheyenne (City) in Laramie County, Wyoming (known as the I-25/I-80 and I-25/US 30 Interchange Improvement Project [Project]). The I-25/I-80 interchange is one of two system-level interchanges in Wyoming and is the most heavily trafficked interchange in the state, serving as a critical transportation hub facilitating the local, regional, and national movement of people and goods. Improvements are also being proposed for the I-25/Lincolnway interchange. Lincolnway is one of the main arterial roadways directly connecting Cheyenne to the interstate system. The goal for the Project is to improve safety.

In accordance with the National Environmental Policy Act of 1969 (NEPA), WYDOT has prepared this Environmental Assessment (EA) to disclose and analyze the impacts of the proposed improvements. Consistent with FHWA policy to better link transportation planning and environmental processes, as well as its Every Day Counts streamlining initiative,[1] WYDOT began this EA by revisiting its *I-80/I-25 Interchange Study* (WYDOT 2008), hereafter referred to as the *Interchange Study*.[2] This review involved determining which decisions and data could be updated and used in support of this EA. Chapter 2 describes how the 2008 *Interchange Study* was validated with stakeholder participation and used to streamline the NEPA process.

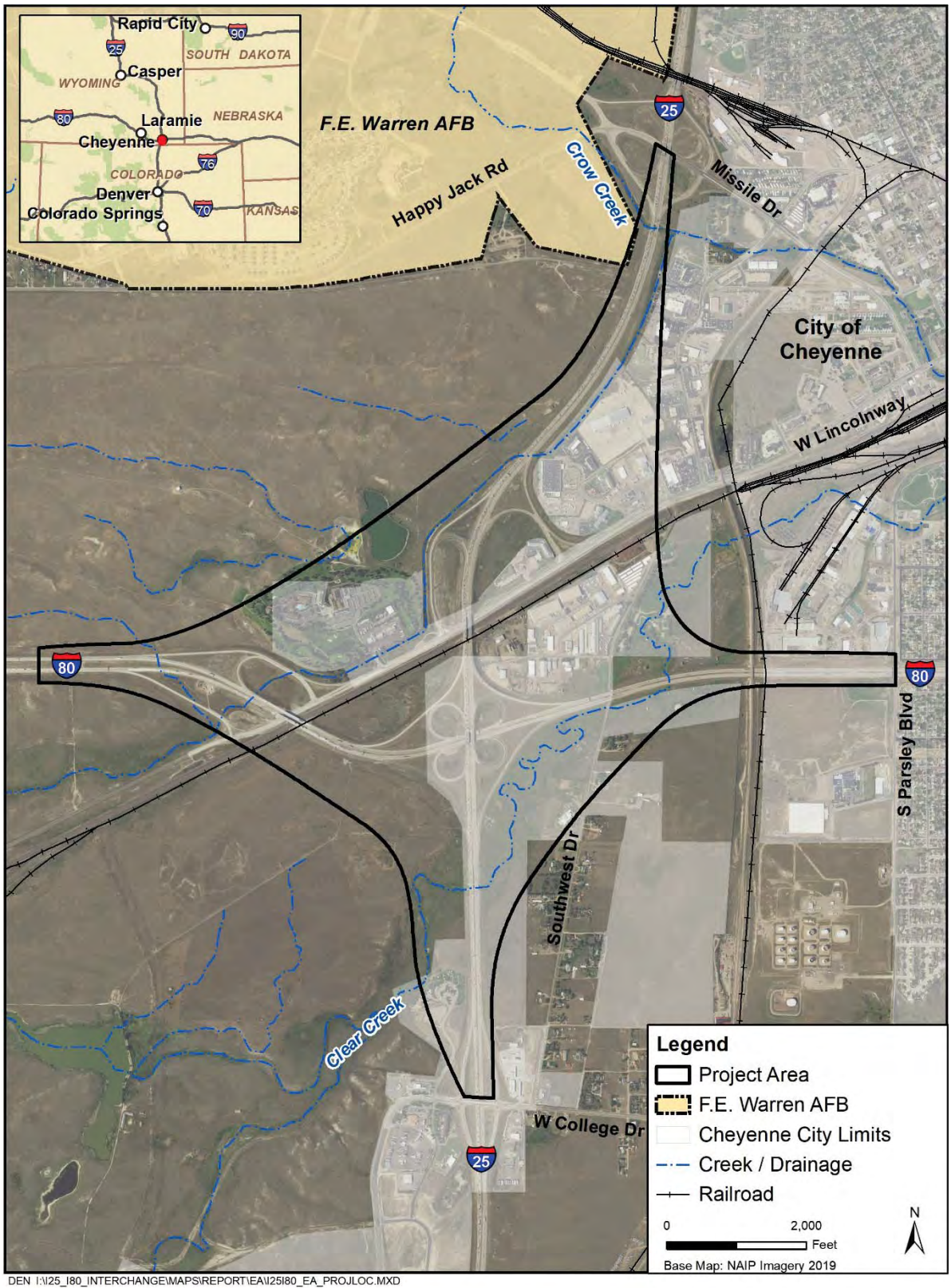
## 1.2: Project Setting

Originally constructed in the 1950s and 1960s, the I-25/I-80 and I-25/Lincolnway interchanges are located in the southwestern part of Cheyenne, Wyoming, approximately 9 miles north of the Wyoming-Colorado state line (Figure 1-1).

The interchanges serve as the southern gateway to Cheyenne, Wyoming's capital and most populous city, which is located immediately to the east. The area immediately west and south of the interchange is predominantly vacant land with the notable exception of Little America, situated in the northwestern project quadrant. Little America is a multi-use development established in 1952 consisting of a large resort hotel, nine-hole golf course, restaurant, travel center, and other amenities.

[1] https://www.fhwa.dot.gov/innovation/everydaycounts/
[2] www.i25i80.com

**Figure 1-1: Project Location**



The eastern half of the immediate study area has undergone greater development. A small area of low-density residential development is located along I-25 southeast of the I-25/I-80 interchange. In the northeastern quadrant, mixed-use commercial and industrial areas are the predominant land use. These areas are directly accessible from Lincolnway.

Direct access into the City's commercial and residential areas is provided by Lincolnway, which can be accessed from either I-25 or I-80. Along Lincolnway between the I-25/I-80 and I-25/Lincolnway interchanges, the Project is crossed by a Union Pacific Railroad (UPRR) corridor, spanning four parallel sets of tracks where I-25 crosses over the railroad.

West of the Project, the setting consists mostly of undeveloped land until the I-80/Round Top Road interchange, where industrial uses have developed north and west of the interchange. Covering a large area to the northwest of the interchange project, the Francis E. Warren Air Force Base (F.E. Warren AFB) is home to more than 3,000 residents (Census 2010b). Missile Drive serves as a primary access point to F.E. Warren AFB. South of the Project, the I-25/College Drive interchange provides access to existing and proposed residential areas in southern Cheyenne and to low-density, mixed-use commercial areas.

Coordination with the City and Laramie County began early in the development of this EA

In 2006, the Cheyenne Metropolitan Planning Organization (MPO), the City, and Laramie County, based on extensive input from citizens and community leaders, developed *PlanCheyenne--Cheyenne Area Master Plan* (PlanCheyenne) (Cheyenne MPO et al. 2014a). PlanCheyenne is the City's master plan, which built on the community-defined *Vision 2020* (State of Wyoming 2003). The MPO is updating PlanyCheyenne's transportation element, entitled, *Connect 2045*. Coordination with the Cheyenne MPO occurred early in the development of this EA and will remain ongoing throughout the complete Project lifecycle. In 2018, WYDOT completed the *I-80 Corridor Study: Master Plan Implementation Report* (2018b). These supporting studies and others were used to prepare this EA.

## Interchange Usage

The I-25/I-80 interchange is the largest and most heavily used interchange in Wyoming. It serves local, regional, state, and national travel needs and is the primary interchange in Wyoming for interstate commerce from border to border and coast to coast. As a junction of two interstate highways, the I-25/I-80 interchange serves important national mobility needs, particularly in the cross-country movement of freight. Furthermore, the interchange is a critical link in the movement of military personnel and equipment to and from the adjacent F.E. Warren AFB.

*PlanCheyenne* and the *I-80 Master Plan* identify I-25/I-80 interchange improvements as high priority

WYDOT has identified safety concerns with the I-25/I-80 interchange and has made minor safety improvements, such as restriping and lighting improvements, but longer-term improvements are needed to effectively reduce crashes and improve interchange operations. PlanCheyenne (Cheyenne MPO et al. 2014a) identifies I-25/I-80 as a critical junction for development of the Cheyenne area. The I-80 Master Plan (WYDOT 2018) identifies this interchange as the highest

priority I-80 improvement in the state, citing safety concerns and improving mobility as the primary needs for improvements.

The I-25/Lincolnway interchange, also included in this EA, does not serve the same function as the I-25/I-80 interchange. Located 0.5 mile north of the I-25/I-80 interchange, the Lincolnway interchange's primary purpose is to local access to and from Cheyenne. Lincolnway is the main arterial connecting the city's central business district to the interstate system.

## Economic Opportunity and Demographics

Over the next 30 years, the U.S. Department of Transportation anticipates a 40 percent growth in freight tons moved via the nation's transportation network (USDOT 2016). The *Wyoming Statewide Freight Plan* (WYDOT 2017) projects a 30 percent increase (over 2011 levels) in freight tons moved within Wyoming via heavy trucks by 2035. The I-25/I-80 interchange is critical to Wyoming's economy with over half the state's domestic imports and exports moving through the interchange (Cheyenne MPO 2016). Heavy trucks play an important role to Wyoming's economy, moving 37 percent of freight by dollar value throughout the state. Lowes, Walmart, and Holly Frontier Refinery have built distribution centers in Cheyenne over the past decade. At the meeting of these two freight corridors, Cheyenne is well positioned geographically to capitalize on anticipated freight growth.

Heavy trucks make up 43% of all vehicles using the I-25/I-80 interchange, ten times higher than the national average

**Figure 1-2: Project Vicinity**


The interchange area is projected to be the core of future residential and commercial development in the Cheyenne region. The Cheyenne Area Convention and Visitors Bureau and Cheyenne-Laramie County Corporation for Economic Development (Cheyenne LEADS) have identified opportunities for economic development north and south of the immediate study area that can support planned growth in Cheyenne. These development opportunities, along with other relevant land use changes, are discussed in detail in Section 3.3: Economic Resources.

The I-25/I-80 interchange directly serves the movement of personnel and equipment to and from F.E. Warren AFB


*F.E. Warren Air Force Base*

Cheyenne's largest employer and the nation's oldest continuously active military installation, F.E. Warren AFB, is situated in the northwestern quadrant of the study area. As one of three military bases in the country to house the Intercontinental Ballistic Missile (ICBM) system, the base will be a key part of Congress's $90 billion overhaul of the nation's ICBM system. The direct and indirect economic impacts of the ICBM system overhaul at F.E. Warren AFB are discussed in detail in Section 3.3: of this EA.

Between 2010 and 2018, the City of Cheyenne's and Laramie County's populations each grew by approximately 7.5 percent (Census 2018b). The most recent population forecasts prepared for the 2019-2045 PlanCheyenne update predict Laramie County's total population to add between 10,366 and 13,713 persons between 2017 and 2026, and between 30,148 and 42,510 persons by 2045 (with 2017 the base year). Cheyenne area could grow at a rate of between 0.95 and 1.28 percent to a population of between 111,030 to 121,605 residents in 2045. This anticipated growth underscores the importance of the City and Laramie County to the state's long-term population growth.

## Tourism

Tourism plays an important role in Wyoming's statewide economy, generating nearly $4 billion in spending and $9 million from overnight visitors in 2018. Since 2007, tourism spending has increased at an average annual rate of 3.7 percent (Wyoming Office of Tourism 2018). I-25 and I-80 are the main arteries supporting the flow of tourism dollars in Wyoming.

The statewide importance of tourism is mirrored in the City. Several large festivals are held in Cheyenne annually, the largest being Frontier Days. Frontier Days is a 10-day outdoor rodeo and western celebration that brought more than 540,000 visitors to Cheyenne from across the globe in 2018 (Cheyenne Frontier Days 2019). The direct economic impact of Frontier Days is substantial, and it injected $27 million in consumer spending in Cheyenne in less than 2 weeks in 2018.

I-25 and I-80 are the backbones of Wyoming's growing tourism economy

Superday, the Laramie County Fair, the Hispanic Festival, and the Celtic Festival are some of the other annual Cheyenne events supporting Cheyenne's identity as one of the nation's top festival destinations.

The area's rich western history, including its role in the 19th century railroad expansion, also attracts tourists and is showcased in several museums, historic ranches, and tourist attractions. Curt Gowdy State Park and Vedauwoo Recreation Area are on the eastern border of Laramie County, with I-80 providing access from Cheyenne.

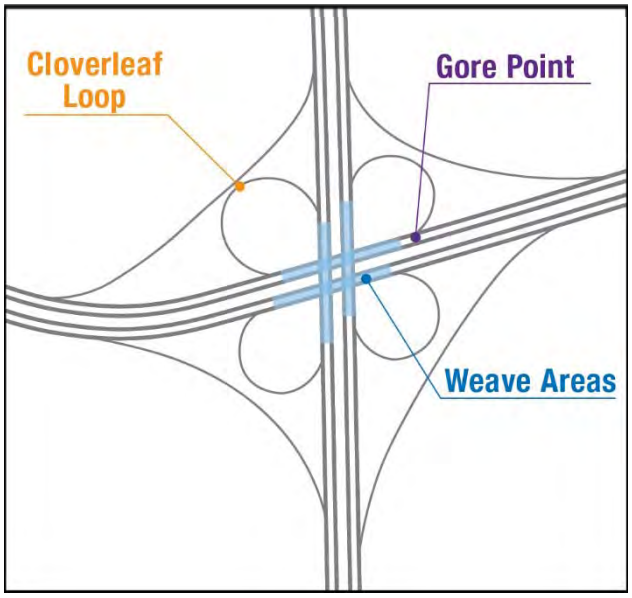
*Frontier Days*

## Current and Future Highway Conditions

Highway interchange types generally are named after the shapes they resemble. The I-25/I-80 interchange is a cloverleaf interchange. Cloverleaf interchanges became prevalent during the rapid expansion of the interstate system in the U.S. following World War II. The major benefit of the cloverleaf design is that it allows vehicles to change directions without stopping. However, this design requires vehicles making a change in certain directions to switch lanes at the center of the interchange. For example, northbound travelers on I-25 who wish to access I-80 westbound must change lanes to access the loop ramp and complete the 270-degree change in travel direction. Before executing the lane change, drivers must anticipate and merge with vehicles merging onto I-25 northbound from I-80 eastbound. The distance between gore points of the on- and off-ramps within which drivers must safely execute the lane change is less than 600 feet. The areas between the on- and off-ramps are referred to as weave points. Figure 1-3 shows examples of a cloverleaf loop, gore point, and weave area.

A traffic analysis was performed to develop 2040 traffic volumes

**Figure 1-3: Cloverleaf Loop, Gore Point, and Weave Areas**




**Cloverleaf Loop:** a 270-degree loopallowing drivers to change travel directions without stopping.

**Gore Point:** where the on- or off-ramp meets the interstate mainline.

**Weave Areas:** where vehicles must change lanes to merge or diverge.

A traffic operations analysis (see Appendix A for complete *Interchange Traffic Report*) was performed with existing and future volumes to assess the operating conditions and level of service (LOS) provided by the current study area roadway configurations. The existing traffic volumes used for the analysis were based on WYDOT traffic data for study area roadway segments and ramps (collected in 2018), and intersections (collected in 2019).

The future traffic forecasts volumes were developed for year 2040 using the existing traffic data and the Cheyenne MPO's travel demand model results for the 2010 base model year. The Cheyenne MPO model is in the process of being updated for 2045, and forecast volumes for the design year (2045) were not available at the time of this traffic analysis. Therefore, the analysis used the most recent available forecast volumes for 2040. Because the design year established for this study is 2045, following this EA, WYDOT will perform a sensitivity analysis using the latest 2045 traffic to assess traffic growth between 2040 and 2045.[3]

Using the existing and forecast volumes, the traffic operations were analyzed with the Highway Capacity Software (HCS™) and Synchro™ computer programs. HCS™ was used to analyze interstate segments, weaving areas, and merge/diverge areas, while Synchro™ was used to analyze signalized and unsignalized intersections.[4]

[3] This approach is consistent with *Interim Guidance on the Application of Travel and Land Use Forecasting in NEPA* (FHWA 2010).

[4] Signalized intersections are not present in the study area. Therefore, the existing and no-build traffic model scenarios include only unsignalized intersections

Unsignalized intersections do not require stopping at a traffic light. No traffic signals are present in the Study Area

The operations are measured by LOS, which is a quantitative measure based on average vehicle delay or density to describe the operating performance of an intersection or roadway. Both morning (a.m.) and evening (p.m.) weekday peak travel hours were included in the analysis.

LOS is measured from A to F, with A being the best and F the worst. LOS C serves as the threshold of acceptable LOS for both existing and expected future conditions on the interstate mainlines. Figure 1-4 presents the LOS criteria for the freeway and signalized intersection elements of the study area roadway network. The delay thresholds for turning movements at the unsignalized intersections are in average seconds per vehicle as follows:

- LOS A: 0-10
- LOS B: >10-15
- LOS C: >15-25
- LOS D: >25-35
- LOS E: >35-50
- LOS F: >50

In the existing condition, all of the intersections and interstate segments, weaving areas, and merge/diverge areas operate at high LOS in both peak hours (LOS A or B).

The LOS decreases in the future condition that represents the same roadway configurations with the 2040 forecast volumes, providing primarily LOS C and D operating conditions for the interstates. While I-80 is expected to operate at or above the acceptable LOS C threshold in the 2040 peak hours, several segments along I-25 are expected to drop below this threshold and provide LOS D or LOS E operating conditions in the p.m. peak hour. In both the southbound and northbound I-25 segments between the I-80 on- and off-ramps, the LOS is expected to decrease to LOS E in the peak hours. The intersection LOS is

**Figure 1-4: Levels of Service**

| LOS | Mainline Traffic Flow | Intersection Delay (sec/vehicle) |
|---|---|---|
| A | Free Flow  | 0-10 seconds Insignificant delay |
| B | Stable Flow  | >10-20 Minimum Delay |
| C | Stable Flow  | >20-35 Acceptable Delay |
| D | Stable Flow  | >35-55 Tolerable Delay |
| E | Unstable Flow  | >55-80 Significant Delay |
| F | Forced Flow  | >80 Excessive Delay |

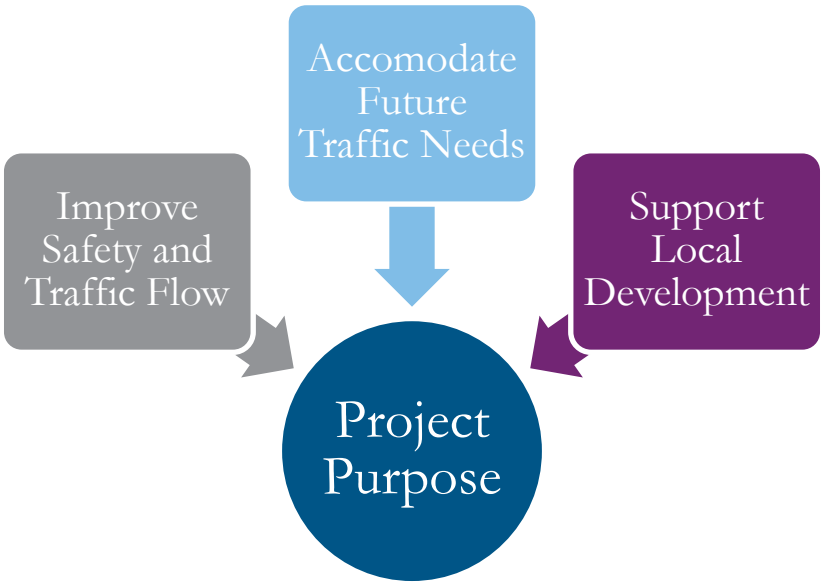
expected to decrease to LOS B or C, with the northbound I-25 off-ramp to eastbound Lincolnway expected to operate at LOS E conditions in the p.m. peak hour.

## 1.3: Project Purpose

A purpose and need statement is established early in a Project's development and is used in NEPA studies to articulate and focus on the specific problems to be addressed. The purpose and need statement is not mode-specific, or partial to a specific solution. It provides the foundation to guide environmental and design decisions throughout the Project lifecycle.

The purpose of the Project is to improve safety and traffic flow; accommodate future traffic needs, particularly heavy truck volumes; and to support local development goals (Figure 1-5).

**Figure 1-5: The Three Elements of the Project's Purpose**




## 1.4: Project Needs

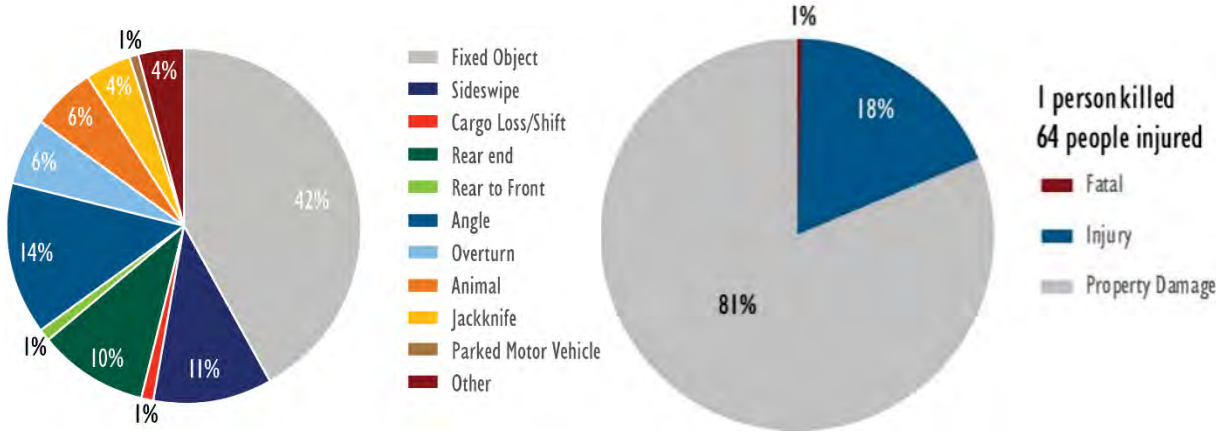
Identifying transportation needs involves gathering and analyzing traffic volume data, crash data, engaging and gathering input from stakeholders, reviewing previous applicable studies, and coordinating with ongoing planning efforts. WYDOT used the most recent available traffic and safety data from 2014 to 2018 to inform decision making and refine project needs.

Heavy trucks were involved in 17% of crashes and 14% of injury crashes, which is a lower percentage than truck volumes

## Improve Safety and Traffic Flow

Between 2014 and 2018, 351 crashes (an average of 70 per year) were reported within the study area. Severe crashes, which consisted of fatal and injury crashes, comprised 18 percent of all crashes and occurred at an average rate of about one per month. One fatality occurred on Lincolnway at its intersection with the westbound I-80 off-ramp (Figure 1-6). The fatal collision involved passenger vehicles and occurred at night (the intersection is lighted) with fair weather and road conditions. Heavy trucks were involved in 17 percent of the total crashes and 14 percent of the injury crashes within the study area, which are much lower percentages than the overall truck volume of 43 percent in the study area.

**Figure 1-6: Crash Type and Severity**



Crash statistics are categorized by crash causes or factors. Primary crash factors were identified for each roadway segment in the study area. The over-represented crash factors of run-off-road, guardrail, and median barrier (i.e., guardrail, cable barrier, concrete barrier) for I-25 and I-80, shown in Table 1-1, are related to single-vehicle crashes. As shown on Figure 1-6, fixed-object crashes make up 42 percent of crashes, by far the most prevalent type of crash in the study area.

**Table 1-1: Over-represented Crash Factors**

| Roadway | Facility Classification | Over-represented Crash Factors |
|---|---|---|
| I-25 Northbound | Urban Interstate | Multiple vehicles<br>Lane departure<br>Run-off-road<br>Guardrail<br>Speed<br>Improper passing<br>Dark-lighted conditions |
| I-25 Southbound | Urban Interstate | Multiple vehicles<br>Run-off-road to left<br>Median barrier<br>Rear-end<br>Improper passing<br>Dark-lighted conditions |
| I-80 Eastbound | Urban Interstate | Multiple vehicles<br>Lane departure<br>Run-off-road<br>Median barrier<br>Weather<br>Improper passing |
| I-80 Westbound | Urban Interstate | Multiple vehicles<br>Lane departure<br>Run-off-road to left<br>Guardrail<br>Weather<br>Dark-lighted conditions |
| Lincolnway | Urban | Multiple vehicles<br>Improper driver action<br>Dusk/dawn lighting conditions |

Guardrail and median barrier were the most common objects struck in these crashes, representing more than 70 percent of the obstacles struck (Table 1-2). As described in detail in the *Interchange Traffic Report* (see Appendix A), the traffic analysis identified prevailing crash patterns. Fixed-object crashes occur most commonly when a driver is traveling too fast for the conditions and is unable to maintain the vehicle path in the travel lane; the conditions refer to roadway surface, roadway curvature, level of congestion, and visibility.

**Table 1-2: Fixed Objects Hit in All Single-Vehicle Crashes**

| Object | I-25 and Ramps | I-80 and Ramps | Lincolnway | Total | Percent |
|---|---|---|---|---|---|
| Bridge structure or rail | 1 | 3 | 0 | **4** | 3 |
| Cable barrier | 27 | 21 | 0 | **48** | 32 |
| Concrete traffic barrier | 1 | 5 | 0 | **6** | 4 |
| Delineator post | 5 | 4 | 0 | **9** | 6 |
| Fence (including posts) | 2 | 3 | 0 | **5** | 3 |
| Fixed object (other) | 2 | 1 | 1 | **4** | 3 |
| Guardrail | 31 | 26 | 0 | **57** | 39 |
| Sign | 9 | 6 | 0 | **15** | 10 |
| **Total** | **101** | **77** | **1** | **148** | **100** |

WYDOT produced Highway Safety Segment Reports for I-25, I-80, and Lincolnway based on the most recent 5 years of recorded crash data. I-25, I-80, and Lincolnway received Safety Index Ratings of 4 for the 5-year study period (Table 1-3). A 4 rating is the worst safety index score, indicating many more crashes and more severe crashes than average, and confirms the need for targeted improvements to address safety issues within the study area. The *Interchange Traffic Report*, included as Appendix A to this EA, provides details.

**Table 1-3: Wyoming Safety Index Ratings**

| Location | Direction | Rating |
|---|---|---|
| I-25 | Northbound | 4[a] |
| | Southbound | 4[b] |
| I-80 | Eastbound | 2[a] |
| | Westbound | 4[a] |
| Lincolnway | Eastbound/Westbound | 4[a] |

[a] Rating based on recorded crashes from 2013 to 2017

[b] Rating based on recorded crashes from 2014 to 2018

Safety Index Rating: Four rating levels indicate how a segment's score compares to the statewide distribution for the same facility type:

1 – No reported crashes

2 – Fewer critical*/total crashes than average

3 – More critical* ***or*** more total crashes than average

4 – More critical* ***and*** more total crashes than average

* A crash is defined as a critical crash if the outcome results in a death or incapacitating injury.

*Source: Interchange Traffic Report (Appendix A)*

On a scale of 1 to 4, I-25, I-80, and Lincolnway each received a safety rating of 4; indicating many more crashes and more severe crashes than average

The crash statistics and safety ratings affirm what has also been identified through public and agency input: the short deceleration lengths and tight loop ramps create conditions unforgiving to drivers, especially for drivers not familiar with the interchange. The prevalence of single-vehicle, fixed-object crashes strongly speaks to the need for improvements to meet modern interstate standards.

Navigating the interchange can be challenging because the short distances between the on- and off-ramps can cause two vehicles to meet at a weave point, and the drivers have little time to establish who is yielding and react accordingly. Safely performing lane changes is especially difficult for drivers when heavy trucks, which make up nearly half of the vehicles traveling through the interchange, are present. The over-representation of multiple -vehicle crash factors shown in Table 1-1 reinforces the need to address these weaving issues. Increasing traffic volumes in the future, discussed in the following sections, likely will worsen these safety issues and impede smooth traffic flow.

## Accommodating Future Traffic Needs

Interchange traffic volume is anticipated to double by 2040

Traffic volumes on a roadway often are presented as annual average daily traffic (AADT). The AADT represents an average daily traffic volume for the entire year, although traffic volumes fluctuate seasonally. Traffic volumes in the study area are typically highest during summer because of tourism.

Current traffic volumes in the study area are the highest in the state, and future daily traffic for both private and commercial vehicles is expected to double by 2040, based on traffic forecasts from the Cheyenne MPO. I-25 volumes south of the interchange with I-80 are expected to increase to 55,400 vehicles daily, a growth of 143 percent over existing volumes. North of the interchange, a 127-percent increase is projected to a volume of 42,850 daily vehicles (Table 1-4). Truck volumes of traffic moving through the I-25/I-80 interchange are anticipated to remain at 43 percent.

**Table 1-4: Existing and 2040 Average Annual Daily Traffic**

| Roadway | Road Segment | Existing (2018) | 2040 |
|---|---|---|---|
| I-80 | Roundtop to Lincolnway | 15,800 | 32,500 |
| | Lincolnway to I-25 | 15,600 | 32,300 |
| | East of I-25 | 21,350 | 40,750 |
| I-25 | South of I-80 | 22,800 | 55,400 |
| | I-80 to Lincolnway | 18,900 | 42,850 |
| | Lincolnway to Missile | 18,800 | 40,700 |
| Lincolnway | Between I-80 and I-25 | 3,200 | 5,900 |
| | I-25 to I-25 northbound ramp | 4,000 | 7,500 |
| | East of I-25 northbound ramp | 6,000 | 10,100 |

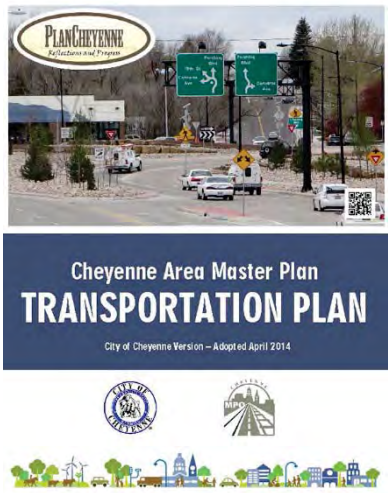
Similar growth levels are expected on I-80 with a 91 percent increase over existing to 40,750 daily vehicles east of the interchange and a 107 percent increase to 32,300 daily vehicles west of the interchange. The proportion of trucks is expected to remain constant at 43 percent, 10 times the national average (BTS 2018).

Without improvements to either interchange, increased traffic volume will exacerbate current operational deficiencies and cause some segments to operate below acceptable LOS in the peak hours, as previously discussed in the Current and Future Highway Conditions section. Without transportation improvements, traffic operations will deteriorate and traffic congestion will worsen, increasing the potential for crash frequency and severity.

## Supporting Local Development Goals

Developing a connected and diverse transportation system is central to Cheyenne's 2045 vision

Cheyenne and Laramie County have experienced steady growth over the past decade. Community development is shaped through the long-range planning process, which is currently being updated for Cheyenne through the MPO to establish the community's development framework and overarching vision through 2045. The 2014 update to PlanCheyenne (Cheyenne MPO et al. 2014a) emphasizes the coordinated planning process and identifies policies for land use; transportation; trails, parks, and open spaces; utilities; schools; emergency services; and growth areas.




*City of Cheyenne PlanCheyenne Report*

One of the seven foundations of PlanCheyenne is to develop a connected and diverse transportation system that accommodates the movements of goods via trucks and freight, maximizes the use of the existing transportation system, accommodates future travel demands while maximizing safety, and supports mixed-use development (Cheyenne MPO et al. 2006). The three elements of this Project's purpose and need directly align with and support the transportation goals identified in the community planning process.

## 1.5: Logical Termini

The Project limits include the I-25/I-80 and I-25/ Lincolnway interchanges

As required by Code of Federal Regulations (CFR) 23 Section 771.111(f), WYDOT confirmed the Project has *logical termini,* meaning rational endpoints wherein the proposed improvements are usable by themselves without the need for additional transportation improvements (also known as independent utility). As shown on Figure 1-1, the Project limits extend along the I-25 mainline from College Drive (I-25 milepost [MP] 7.9) to just south of Missile Drive (I-25 MP 10.6) and along I-80 from east of Roundtop Road ( I-80 MP 358.3) to west of Parsley Boulevard (I-80 MP 360.7). The Project limits encompass the I-25/I-80 and I-25/Lincolnway interchanges and extend to include the on- and off-ramp transition zones.

Because of the proximity of the two interchanges (approximately 1,300 feet between gore points), minor changes in either the mainline or ramp elevations at the I-25/I-80 interchange would require reconstruction of the I-25/Lincolnway interchange to meet current interchange design standards. The Project limits also encompass the I-80/Lincolnway interchange because a grade raise of I-80 would be necessary at this location to tie into the reconstructed I-25/I-80 interchange.

The Project limits provide the spatial boundary to identify and evaluate purpose and need without restricting consideration of alternatives for other expected transportation improvements in the area. The I-80/Roundtop Road,

I-80/Lincolnway, and I-25/Missile Drive interchanges are located adjacent to the east and north of the Project limits. Interchange design occurred within the context of the *Interchange Study* recommendations for three other nearby interchanges and this Project does not preclude future interchange improvements at those locations.

The proposed project fully addresses the purpose and need. The Project limits and study area have been established to include the area needed for physical construction and traffic operations.

## 1.6: Who was Involved in Development of This Project?

Stakeholder coordination will continue throughout the project

WYDOT prepared this EA in close coordination with FHWA. WYDOT conducted public and agency involvement throughout the NEPA process to help ensure widespread public awareness of the Project and to provide opportunities for timely input to project decision making. Participants included members of the general public, land owners, business operators, Cheyenne LEADS, Laramie County, Cheyenne MPO, F.E. Warren AFB, Cheyenne Chamber of Commerce, U.S. Army Corps of Engineers (USACE), and several other local agencies. Chapter 5 of this EA identifies and describes in detail the stakeholder outreach and involvement activities conducted throughout this NEPA process. Coordination with stakeholders will continue throughout the design and construction of the Project.

# Chapter 2 Alternatives

## 2.1: Introduction

WYDOT streamlined the NEPA process by connecting it with previous planning study

As discussed in Section 1.1: Introduction, Wyoming Department of Transportation (WYDOT) began this Environmental Assessment (EA) process by revisiting its 2008 *Interchange Study* (WYDOT 2008)[5] to assess the suitability of using the findings to inform the National Environmental Policy Act of 1969 (NEPA) process. This approach largely was based on the general understanding that study area conditions had not markedly changed in the past decade, as well as WYDOT's desire to use valuable information and analysis contained in the study. Maximizing the use of planning products in NEPA studies is consistent with Federal Highway Administration (FHWA) policy, helps streamline the NEPA process, and can help avoid duplicating important, but often time-consuming, NEPA processes and decision making.

The *Interchange Study* involved a robust evaluation of numerous, distinct interchange design alternatives at both the Interstate 25 (I-25)/I-80 and I-25/ U.S. Highway 30 (Lincolnway) interchanges and produced a recommended alternative at each interchange. With this analysis as a starting point, WYDOT used a three-step alternatives approach for this EA that involved the following:

1) Validating the *Interchange Study* alternatives process and results
2) Vetting the *Interchange Study* recommendations with stakeholders
3) Refining the *Interchange Study* recommendations

The following sections discuss each of these steps.

## 2.2: Validating the 2008 *Interchange Study*

The validation process began with updating existing conditions and identifying project needs

WYDOT validated the *Interchange Study* through a process that began with creating a new existing conditions profile of the study area and confirming whether the transportation needs identified in 2008 remain.

The study team, lead by WYDOT and FHWA, compared today's land use, traffic, and environmental conditions to those from the *Interchange Study*. No changes to the layout or geometry of the interchanges have occurred since 2008. Also, existing and future land uses in the study area have remained essentially unchanged from 2008. Although planned mixed-use developments were slated for areas adjacent to the I-25/I-80 interchange, development has been slow to materialize. Further, environmental constraints, which helped inform the *Interchange Study*'s alternatives evaluation, have not notably changed.

Traffic conditions are similar to those that existed in 2008, despite some expected increases in traffic. Future traffic volumes are similar to those anticipated during the *Interchange Study*. Safety issues identified as part of the *Interchange Study* persist.

[5] Available at www.i25i80.com

As described in Chapter 1 of this EA, by updating and characterizing the existing conditions in the study area, the Project team was able to affirm the transportation needs identified in the *Interchange Study*: improving safety and traffic flow, accommodating future traffic demands, and supporting local development.

**Figure 2-1: Interchange Study Validation Process**


After aligning the transportation needs of the *Interchange Study* with present conditions, WYDOT revisited the study's alternatives evaluation. The *Interchange Study* evaluated 10 distinct interchange configurations for the I-25/I-80 and I-25/Lincolnway interchanges. Two levels of screening were conducted. Level 1 screening was composed of a fatal flaw analysis against purpose and need. Level 2 screening applied a quantitative assessment to prioritize and measure alternatives. Five categories of screening criteria were developed to measure the effectiveness of proposed improvements while also identifying potential impacts to social and natural resources:

1) Safety
2) Mobility
3) Environmental impacts
4) Existing and planned development impacts
5) Implementation

These criteria and the larger alternatives process from the *Interchange Study* were reviewed at a project stakeholders workshop held in May 2019 (Chapter 5).

## 2.3: Vetting the Recommendations with Stakeholders

WYDOT validated the Interchange Study recommendations with stakeholders

The May 2019 stakeholder meeting included Laramie County, Francis E. Warren Air Force Base (F.E. Warren AFB), Cheyenne Metropolitan Planning Organization (MPO), City of Cheyenne (the City), Wyoming State Patrol, Laramie County Emergency Services, Union Pacific Railroad (UPRR), and business owners. The Project team presented the updated conditions previously discussed in this chapter and collaborated with stakeholders through the *Interchange Study* alternatives screening and evaluation. The stakeholders agreed the *Interchange Study* remains applicable to evaluate alternatives. The group agreed the *Interchange Study* alternative's process and findings are valid for present-day conditions.

The *Interchange Study* produced a recommended alternative for both the I-25/I-80 and I-25/Lincolnway interchanges. The recommended configuration for I-25/I-80 includes a so-called double-loop turbine interchange while a weaved diamond was identified for I-25/Lincolnway. The recommended alternative for both interchanges was combined to form the baseline project of the Build Alternative evaluated in this EA. The Project team then refined the design through a collaborative process with an interdisciplinary team of WYDOT design staff and stakeholders.

## 2.4: Refining the Interchange Concepts

After validating the alternatives process with stakeholders, the Project team hosted a 3-day concept design workshop in May 2019 to take the recommended alternative from the *Interchange Study* and refine the conceptual-level of design. The workshop included a tour of the Project site, brainstorming of refinement concepts, and comprehensive analysis of interchange operation. The team weighed in on refinements that impacted the scope, cost, constructability, and traffic mobility of the Project.

*Design Refinement workshop, held in May 2019*

Of the ten proposed design refinements evaluated in the workshop, eight were selected to be incorporated into the Build Alternative. Table 2-1 summarizes the eight design refinements. The full design refinement workshop report, including the refinements that were not incorporated into the Project, is included as Appendix B (Public and Agency Coordination) to this EA.

**Table 2-1: Design Refinements Summary**

| Design Refinement Number | Type of Refinement | Description |
|---|---|---|
| 1 | Interstate Roadway Section | To reduce bridge lengths and total roadway section, design the interchanges for a future six-lane section with a closed median for both I-25 and I-80 |
| 2 | I-25 Alignment Shift | Shift I-25 35 feet west to allow construction of mainline bridges to occur while maintaining traffic on existing I-25; reduce right-of-way impacts |

**Table 2-1: Design Refinements Summary**

| Design Refinement Number | Type of Refinement | Description |
|---|---|---|
| 3 | I-80 Alignment Shift | Shift I-80 35 feet south to facilitate offline construction of mainline bridges and increase curve radius |
| 4 | Eastbound I-80 to Northbound I-25 | Construct a flyover as opposed to an underpass because of the high water table and to reduce the number of structures |
| 5 | I-25 Mainline Bridges | Based on a cost/benefit analysis, completely replace the mainline bridges that carry I-25 over I-80 as opposed to widening and rehabilitation |
| 6 | Project Phasing | Reverse Phases I and II from the *Interchange Study* because of their relative benefits and costs |
| 7 | I-25/I-80 Interchange to College Weave | Add auxiliary lanes between College Drive and the I-80 ramps to mitigate the reduced weave length created by the replacement I-80 ramps |
| 8 | Traffic Control and Future Phases | Considerations were included in all the design refinements |

## 2.5: What Alternatives are being Evaluated in this Environmental Assessment?

This EA combines the revised recommended alternatives at the I-25/I-80 and Lincolnway interchanges into the Build Alternative. A No Build Alternative also is evaluated to provide a baseline comparison with the Build Alternative.

### Alternative 1: No Build Alternative

This EA evaluates the No Build and Build alternatives

Future improvements could include maintenance, safety improvements (such as dynamic message signs, static signs, and guardrail) which would likely increase as the structures and pavement ages. The No Build Alternative also would include projects that are reasonably foreseeable to be implemented by the Design Year 2045. Several such projects have been identified in the *State Transportation Improvement Program* (WYDOT 2019) and the Cheyenne MPO's *Transportation Improvement Program* (2020). However, none of the nearby improvements in either plan would affect or influence future traffic through the interchanges.

### Alternative 2: Build Alternative

The Build Alternative would include full replacement of both the I-25/I-80 and I-25/Lincolnway interchanges. Lengthened merge and diverge areas, flyover ramps, auxiliary lanes, and braided ramps would be constructed. Additionally, the Build Alternative would widen the curve along eastbound I-80 approaching the interchange and expand the radius of the remaining cloverleaf ramps. Curves

throughout the interchanges would be super-elevated, commonly known as a roadway banking. Both variable message and new static signage will be constructed.

To accommodate future traffic volumes and support local development, the Build Alternative would include bridge structures capable of accommodating three-lane roadway sections in each direction of I-25 and I-80. To support access with the surrounding roadway network, full movements would be maintained between the interchanges and with Lincolnway.

Improvements specific to each interchange are discussed in subsequent subsections. Improvements shared across both interchanges would include the following:

- Replacing 5 existing major roadway structures and constructing 13 new major roadway structures
- Widening existing I-25 and I-80 to the inside to accommodate a proposed third lane in each direction of I-25 and I-80, making use of the existing 32-foot grassy median (Figure 2-2 and Figure 2-3). Accommodating this third lane and full-width shoulder also would require some widening to the outside of existing pavement
- Installing new culverts for the full length of the proposed roadway width and median drain inlets for roadway drainage.

**Figure 2-2: Existing I-25 and I-80 Interstate Typical Sections**

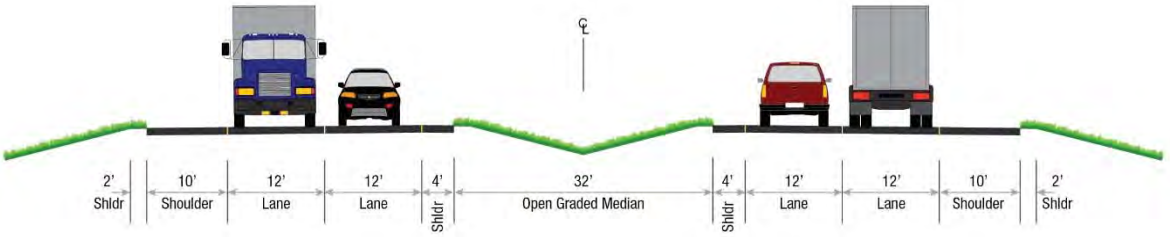
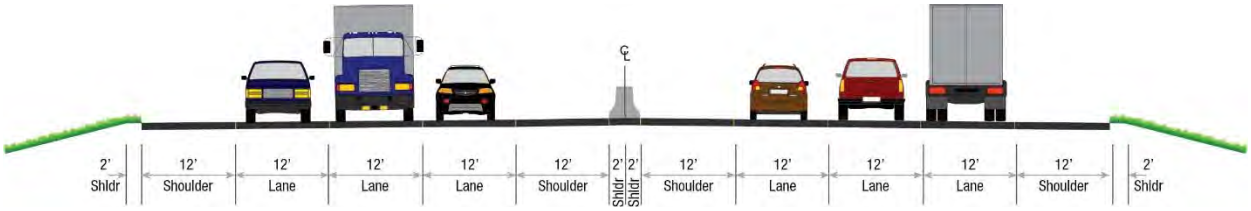



**Figure 2-3: Proposed Ultimate I-25 and I-80 Interstate Typical Sections[6]**




Full access to and from both interchanges and Lincolnway would continue to be provided. The existing right-of-way widths at the I-80/I-25 interchange vary considerably because of the ramp alignments.

[6] As described in Chapter 4, the project is anticipated to be constructed in phases. The inside median would be left open during the first three project phases (interim condition), with grading, pavement, and striping added in a subsequent phase to create the ultimate condition.

The following sections describe general improvements proposed at each of the two interchanges. Construction is anticipated to be delivered in phases, as discussed in Chapter 4 of this EA.

### *I-25/I-80 Interchange*

For the I-25/I-80 system-level interchange, the main elements of the Build Alternative would include the following:

- Replacing both the westbound-to-southbound and eastbound-to-northbound cloverleaf ramps with directional flyover ramps and increasing the radii of the two remaining loop ramps to meet modern design speeds and capacity requirements
- Reconstructing the directional ramps in each of the four interchange quadrants to fit the new flyover ramp alignments
- Constructing two new structures over the UPRR
- Adding auxiliary lanes between ramps throughout the interchange
- Shifting the I-25 alignment 35 feet west and the I-80 alignment 35 feet south to reduce construction costs and duration, limit traffic disturbance during construction, and improve a known accident hotspot on eastbound I-80 when approaching the interchange.

### *I-25/Lincolnway Interchange*

For the service-level interchange at I-25 and Lincolnway, the major elements of the Build Alternative would include the following:

Braided on- and off-ramps separate Lincolnway traffic from interstate traffic

- Removing the northbound I-25 off-ramp and southbound I-25 on-ramp
- Adding braided ramps to separate I-25/I-80 traffic from traffic accessing Lincolnway
- Creating new grade-separated ramp connections to a crossroad on a new structure over I-25; the crossroad will provide access between the interchange and Lincolnway

The resulting roadway design would consolidate the access between I-25 and Lincolnway to the eastern side of I-25. Direct Lincolnway access would be maintained both to and from I-25.

**Figure 2-4: Build Alternative**


DEN I:\I25_I80_INTERCHANGE\MAPS\REPORT\EA\I25I80_EA_BUILDALTERNATIVE.MXD

# Chapter 3 Affected Environment and Environmental Consequences

## 3.1: Land Use

### Existing Conditions

The study area is located within the City of Cheyenne (City) and portions of unincorporated Laramie County. Information on existing and future land use was gathered from the *PlanCheyenne Cheyenne Area Master Plan* (Cheyenne MPO et al. 2014a) and coordination with the City of Cheyenne and Laramie County.

PlanCheyenne serves as the guide to where and how future growth will occur in the Cheyenne area

PlanCheyenne is an integrated community master plan developed cooperatively by the City, Laramie County, and the Cheyenne Metropolitan Planning Organization (MPO) to serve as a guide to where and how growth will occur within the designated area, which includes the study area. Implemented in 2006, and subsequently updated in 2014, PlanCheyenne contains three major plan components:

- Community (Land Use) Plan
- Transportation Plan
- Parks and Recreation Plan

The plan recognizes the potential for growth occurring in the Cheyenne area and calls for "developing a connected and diverse transportation system" (Cheyenne MPO et al. 2014a). The plan notes that "as the Cheyenne Area grows, the transportation system will need to grow also to meet the mobility needs of both people and freight…" In addition, the plan states that "Cheyenne and the County will improve existing roadways… [and] improvements to roads and truck movement must occur with minimal impact to our existing neighborhoods."

PlanCheyenne reinforces the community's commitment to economic growth and vitality, stating "the Cheyenne area will accommodate truck and freight goods movement."

### Existing Land Use

The following subsections discuss existing land uses for the four quadrants of the Interstate 25 (I-25)/I-80 interchange. Land uses for the I-25/U.S. Highway 30 (Lincolnway) interchange are discussed as part of the northeastern quadrant.

#### *Northeastern Quadrant*

Of the four interchange quadrants, the northeastern quadrant has undergone the most industrial and commercial development (Figure 3-1). Manufacturing, distribution, and storage businesses are located along Lincolnway and Southwest Drive. Commercial development located north of the railroad, between the I-25/I-80 and I-25/Lincolnway interchanges, includes several hotels, car

dealerships, restaurants, large box retail, and distribution centers. Clear Creek Park is situated immediately east of Clear Creek Drive.

### *Southeastern Quadrant*

In 2006, the City approved the Swan Ranch planned development, which comprised much of the southeast and southwestern quadrants and called for urban residential and mixed-use development. In 2019, the Cheyenne City Council approved a land exchange involving portions of the Swan Ranch property on either side of Clear Creek (City of Cheyenne 2019a). Through the trade, approximately 419 acres of land was acquired by Dyna Nobel, a company that operates an industrial facility located west of the interchange. This area is identified in PlanCheyenne's 2014 Future Land Use map (Cheyenne MPO et al. 2014a) as an open natural resource area.

To the southeast, beyond the study area, land use is primarily medium-density residential and commercial. A handful of low-density residential properties are located near I-80 south to West College Drive where community businesses surround the Clear Creek Parkway/West College Drive interchange.

### *Southwestern Quadrant*

Existing land use southwest of the I-25/I-80 interchange is primarily undeveloped. Most of this quadrant in and near the study area is part of the Swan Ranch property. As with the southeastern quadrant, the property adjacent to Clear Creek is privately owned by Dyna Nobel. Four miles south of the I-25/I-80 interchange at the Speer Boulevard interchange is the Cheyenne Logistics Hub. Located within the Swan Ranch Business Park, the facility serves as a transloading facility for both Union Pacific Railroad (UPRR) and BNSF Railroad, transferring cargo between trucks and railcars.

### *Northwestern Quadrant*

Directly northwest of the interchange is Little America Hotel and Resort, located north of Lincolnway. This facility can host large numbers of people with its expansive meeting spaces, golf course, and various amenities.

Directly north, the Francis E. Warren Air Force Base (F.E. Warren AFB) is home to the 90th Missile Wing and approximately 4,300 military members and civilian employees (F.E. Warren Air Force Base 2019).

The North Range Business Park is located on a 620-acre parcel of land located north of I-80 at Roundtop Road and west of the I-25/I-80 interchange. The park currently consists of a Walmart distribution center, the National Center for Atmospheric Research, and Microsoft data center.

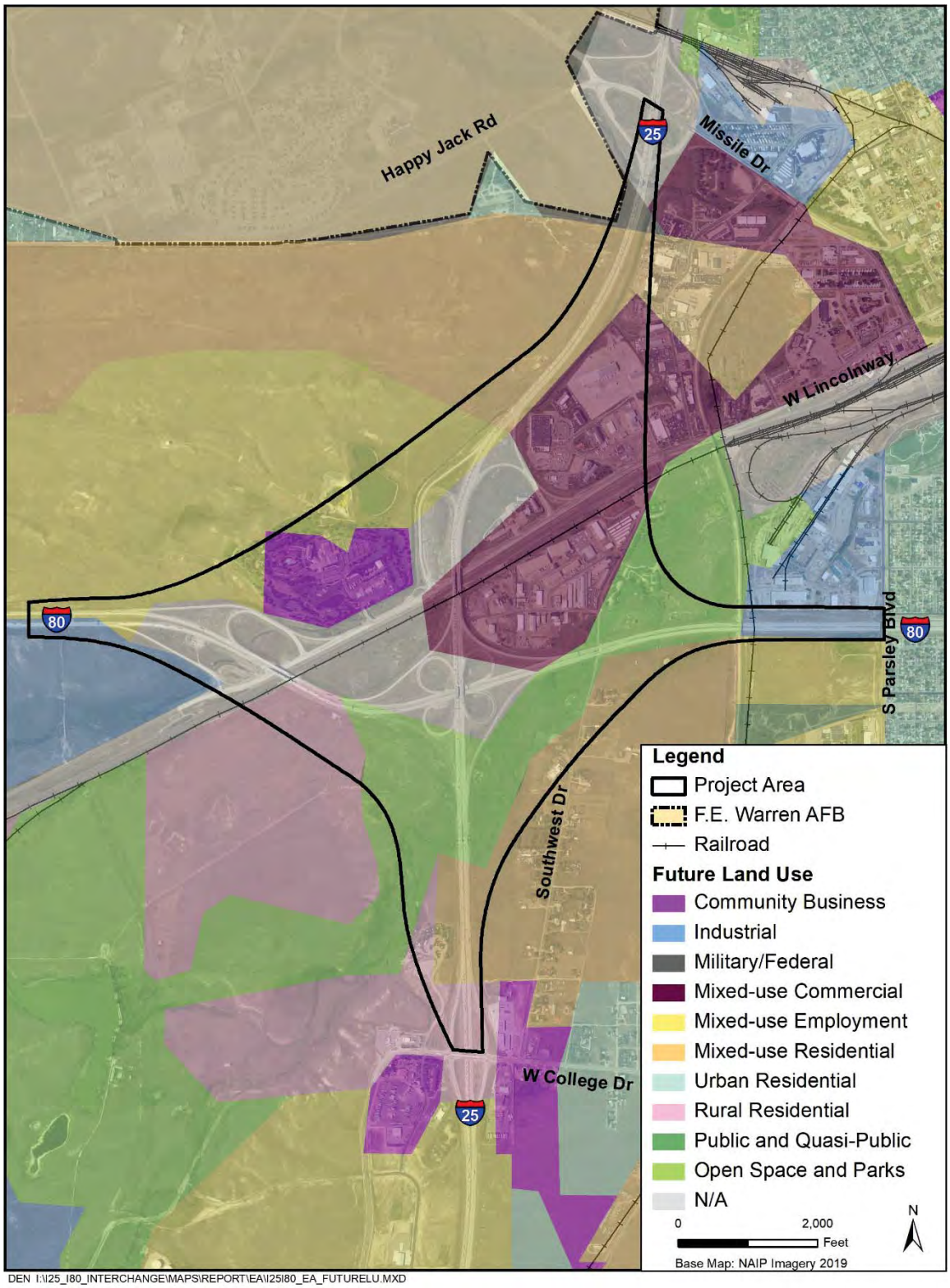
## Future Land Use

The 2010 U.S. Census reported Cheyenne's population at 59,466 residents. Between the 2010 census and 2018, the U.S. Census Bureau's Population Estimate Program estimates a growth rate of 7.4 percent, bringing Cheyenne's

estimated population to 63,957 in 2018 (Census 2018b). To accommodate for projected population growth, 52 percent of the City's vacant land is currently zoned for residential use. Another 25 percent is currently dedicated to business and industry, and the remaining 23 percent of vacant land zoned for heavy industry (Cheyenne MPO et al. 2014a). Growth is anticipated to primarily occur in and around the City, extending beyond the municipal limits of the City.

For the study area, future land uses shown in PlanCheyenne (Cheyenne MPO et al. 2014a) are very similar to existing land uses and reflect continued development of the area for residential and employment use (Figure 3-1). The I-25/I-80 northeastern quadrant is planned for commercial and industrial growth with green space and Clear Creek Park. Southeast of the interchange is mainly slated for residential purposes with a few areas reserved for industrial and public green space paralleling Clear Creek. In the northwest, plans call for mixed-use residential and employment along with a community business area geared toward retail and office use in support of adjacent neighborhoods.

**Figure 3-1: Future Land Use – Cheyenne, Wyoming**




Source: PlanCheyenne (Cheyenne MPO et al. 2014a)

## Impacts

### *No Build Alternative*

Under the No Build Alternative, undeveloped land within the study area would continue to develop to residential, industrial, and employment uses as a result of changing demographics and local planning efforts. The existing right-of-way would continue to accommodate ongoing maintenance activities.

With traffic volumes estimated to double by 2045, the I-25/I-80 and I-25/Lincolnway interchanges will continue to approach design capacity, increasing future operational deficiencies, worsening congestion, and potentially intensifying crash frequency and severity. Neglecting to address these transportation issues goes against the principles identified in PlanCheyenne (Cheyenne MPO et al. 2014a).

The No Build Alternative would not fully meet the mobility needs of the area's projected population growth and could hinder economic growth by compromising the ability of the interchanges to effectively accommodate the movement of goods by trucks or freight.

### *Build Alternative*

The Build Alternative would accommodate the predicted growth of Cheyenne to meet the future needs of both people and freight. In and near the study area, the proposed improvements would support continued development called for in PlanCheyenne's Community Plan (Cheyenne MPO et al. 2014b). Therefore, the Build Alternative is consistent with the concepts in PlanCheyenne. Improving the transportation infrastructure for truck mobility and industrial development would improve the existing economic drivers in the area and increase the area's attractiveness to new business and industrial development.

The Build Alternative supports PlanCheyenne's land use principals

The Build Alternative would require additional right-of-way, resulting in the direct conversion of some land to transportation uses. As discussed in Section 3.4: Right-of-Way, the Build Alternative would convert approximately 32 acres to transportation use, most of which is undeveloped land within the southeastern quadrant. The improvements also would impact light-industrial land uses in the northeastern quadrant. However, converting these properties to transportation use would not affect local land use planning efforts or the region's ability to implement PlayCheyenne. The Build Alternative would not convert community facilities or resources to a transportation use.

Short-term construction impacts could temporarily affect access to local businesses. However, access would be maintained to all businesses, and coordination will occur with local businesses to minimize other short-term construction impacts. For additional information on short-term business impacts, see Section 3.3: Economic Resources.

### Mitigation

Because the Build Alternative would not adversely affect land use planning goals, no mitigation is required. See Section 3.4: Right-of-Way for mitigation for land use conversions.

## 3.2: Socioeconomics

### Existing Conditions

#### *Demographics*

The City of Cheyenne is Wyoming's largest city and accounts for over half the population of Laramie County. Historically, Cheyenne and Laramie County have experienced similar growth rates, with population increasing by approximately 12 percent from 2000 to 2010. Since the last U.S. Census in 2010 (Census 2010b), population growth rates between Cheyenne and Laramie County continue to parallel each other, with projected growth rates of 7.5 percent and 7.8 percent, respectively, from 2010 to 2018 (Table 3-1).

**Table 3-1: Population Statistics**

| Population | 2000 | 2010 | % Change from 2000-2010 | 2018 | % Change from 2010-2018 |
|---|---|---|---|---|---|
| Cheyenne, Wyoming | 53,011 | 59,466 | 12.18% | 63,957 | 7.55% |
| Laramie County, Wyoming | 81,607 | 91,738 | 12.44% | 98,976 | 7.88% |

Source: Census 2018a

Cheyenne and Laramie County populations grew at similar rates over the past decade

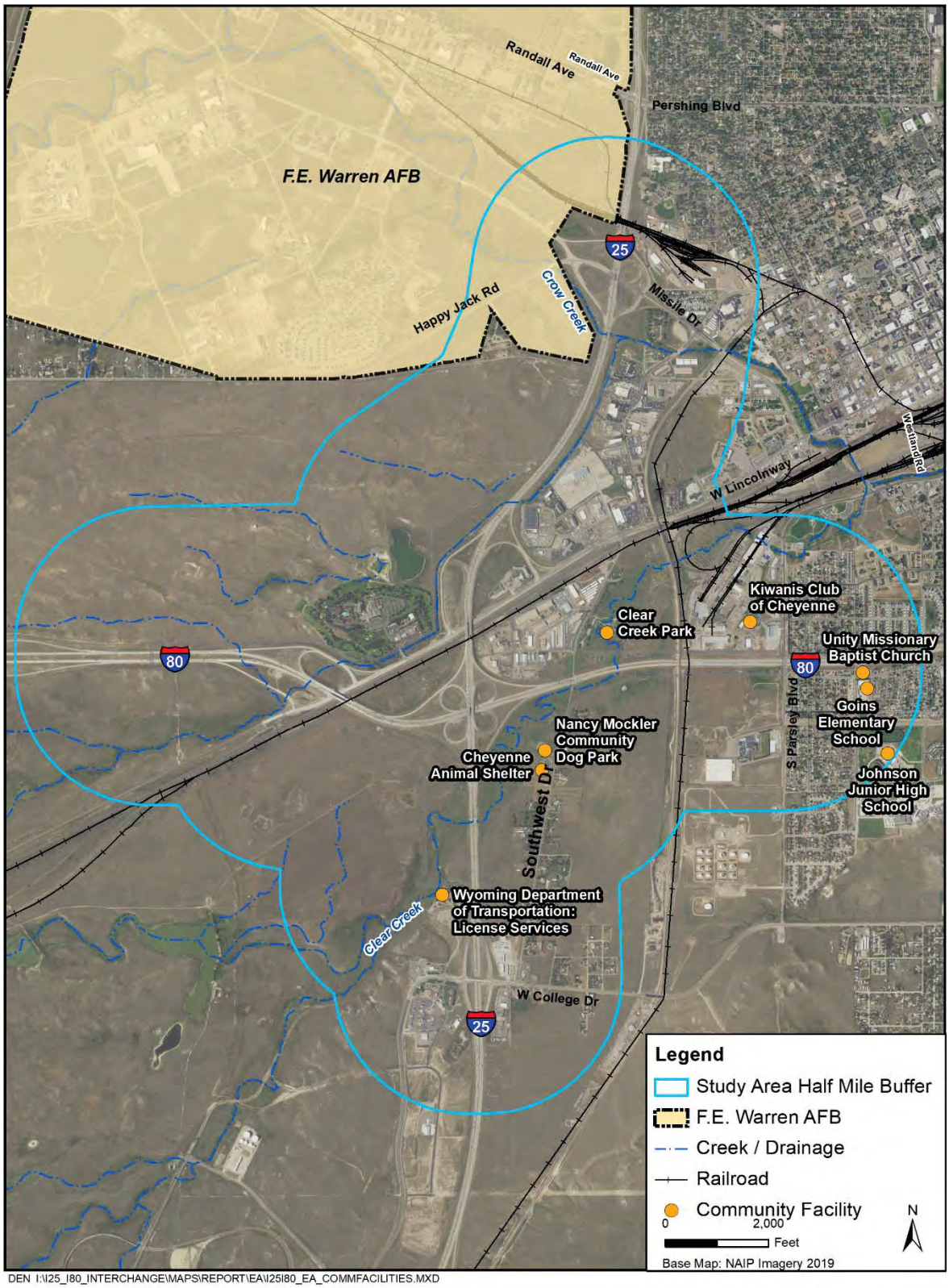
In 2018, the Cheyenne-Laramie County Corporation for Economic Development (Cheyenne LEADS) conducted a survey to identify the top five employers within the Cheyenne area. F.E. Warren AFB was the largest employer with a reported 4,177 employees in 2018, followed by the State of Wyoming (3,755 reported employees), Laramie County School District No. 1 (2,289 reported employees), the federal government (1,728[7] reported employees), and Cheyenne Regional Medical Center (1,900[1] reported employees) (Cheyenne LEADS 2019c).

#### *Businesses and Amenities*

Businesses and amenities in the study area are primarily commercial, industrial, lodging, and public parks/trails. Community facilities located less than 0.5 mile from the study area are depicted on Figure 3-2.

[7] Counts were not provided for 2018, these numbers reflect the previous year, 2017.

**Figure 3-2: Community Facilities**



Few community facilities exist within the study area

Few community facilities are located in the study area, aside from existing parks and one planned greenway. Clear Creek Park, Nancy Mockler Dog Park, Clear Creek Parkway (planned), and the Cheyenne Animal Shelter are located within or near the study area.

Located less than 0.5 mile from the study area, to the east are two schools, two churches, a community park/center, and the Kiwanis Club of Cheyenne, which hosts various youth programs. Access to these resources is not available via I-25 or I-80 but through local roadways. The Wyoming Department of Transportation (WYDOT) Drivers License Services is located south of the study area and can be accessed from West College Drive.

## Environmental Justice

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to incorporate environmental justice into the National Environmental Policy Act of 1969 (NEPA) evaluation process. The purpose of EO 12898 is to ensure that minority and low-income communities do not receive disproportionately high and adverse human health or environmental impacts as a result of federal actions. Federal Highway Administration's (FHWA's) envionmental justice procedures are clarified in the U.S. Department of Transportation's Order 5610.2(a).

To identify environmental justice populations, U.S. Census data (2010b) were used to identify potential minority and low-income populations and compare the percentages of these populations within the study area with percentages of the same populations in Laramie County. A minority population includes people who are not single-race white and not Hispanic, as defined by the U.S. Census Bureau.

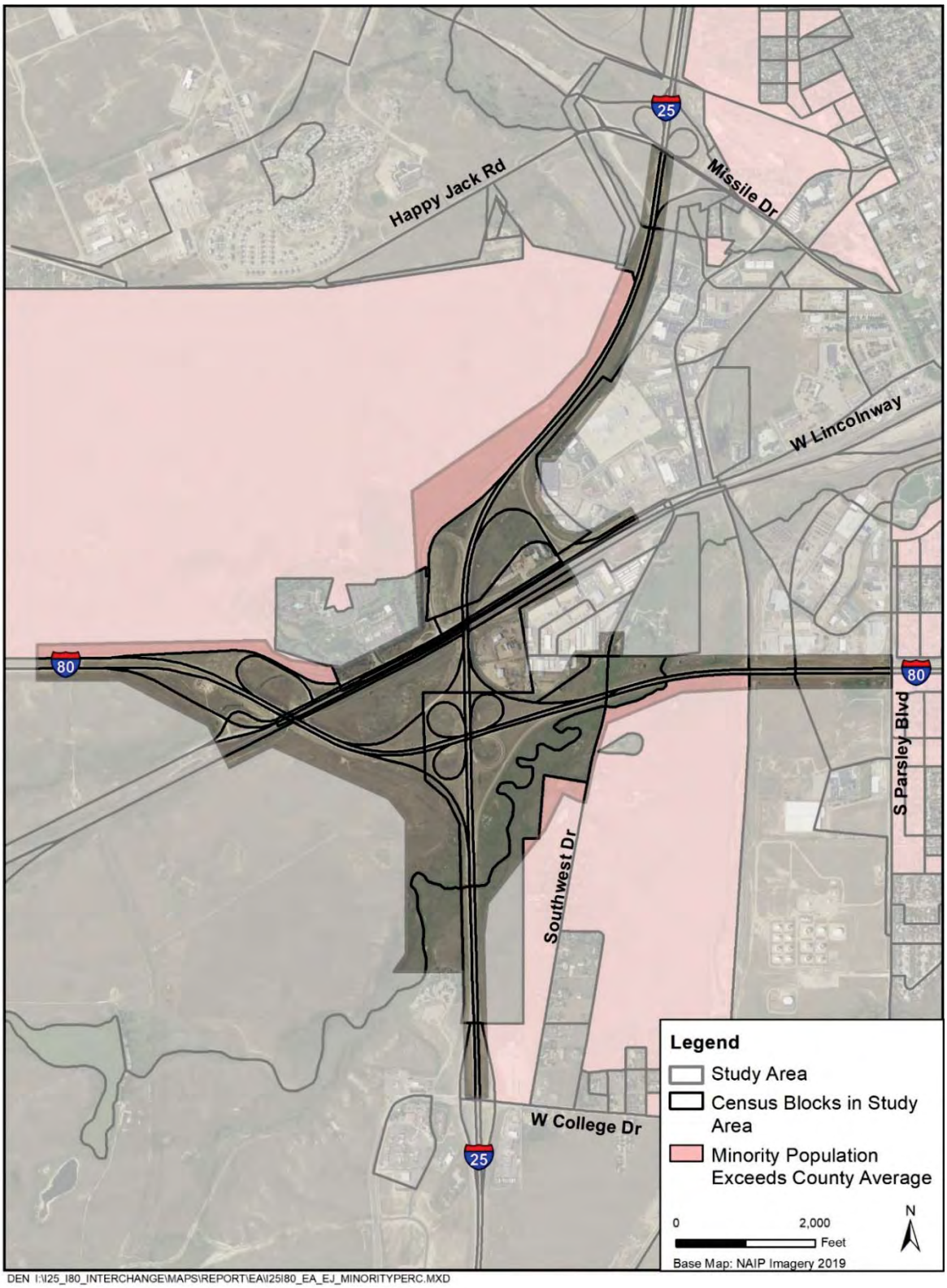
### *Minority Populations*

Low-income and minority populations are present within the study area

Minority populations within the study area were determined at the U.S. Census block level. Because the Laramie County average was determined to be lower (i.e., more conservative) than Cheyenne's, Laramie County's 19 percent minority population threshold was used in this analysis.

Of the 237 census blocks within or partially within the study area, 60 (25 percent) exceeded Laramie County's minority population threshold. As shown on Figure 3-3, these blocks primarily include residential areas to the east of the study area.

**Figure 3-3: Census Blocks Above the County Minority Threshold**



### *Low-Income Populations*

Low-income populations were defined using a combination of the U.S. Census average household size data and the income limits set annually by the U.S. Department of Housing and Urban Development for identifying housing needs. The proportion of low-income households within Laramie County (12 percent) provides the threshold to which households within the study area are compared. Table 3-2 shows the percent of low-income households by census block group within or near the study area. Figure 3-4 shows locations of census block groups which are at or above county levels (i.e., greater than or equal to 12 percent). These block groups are located to the east of I-25.

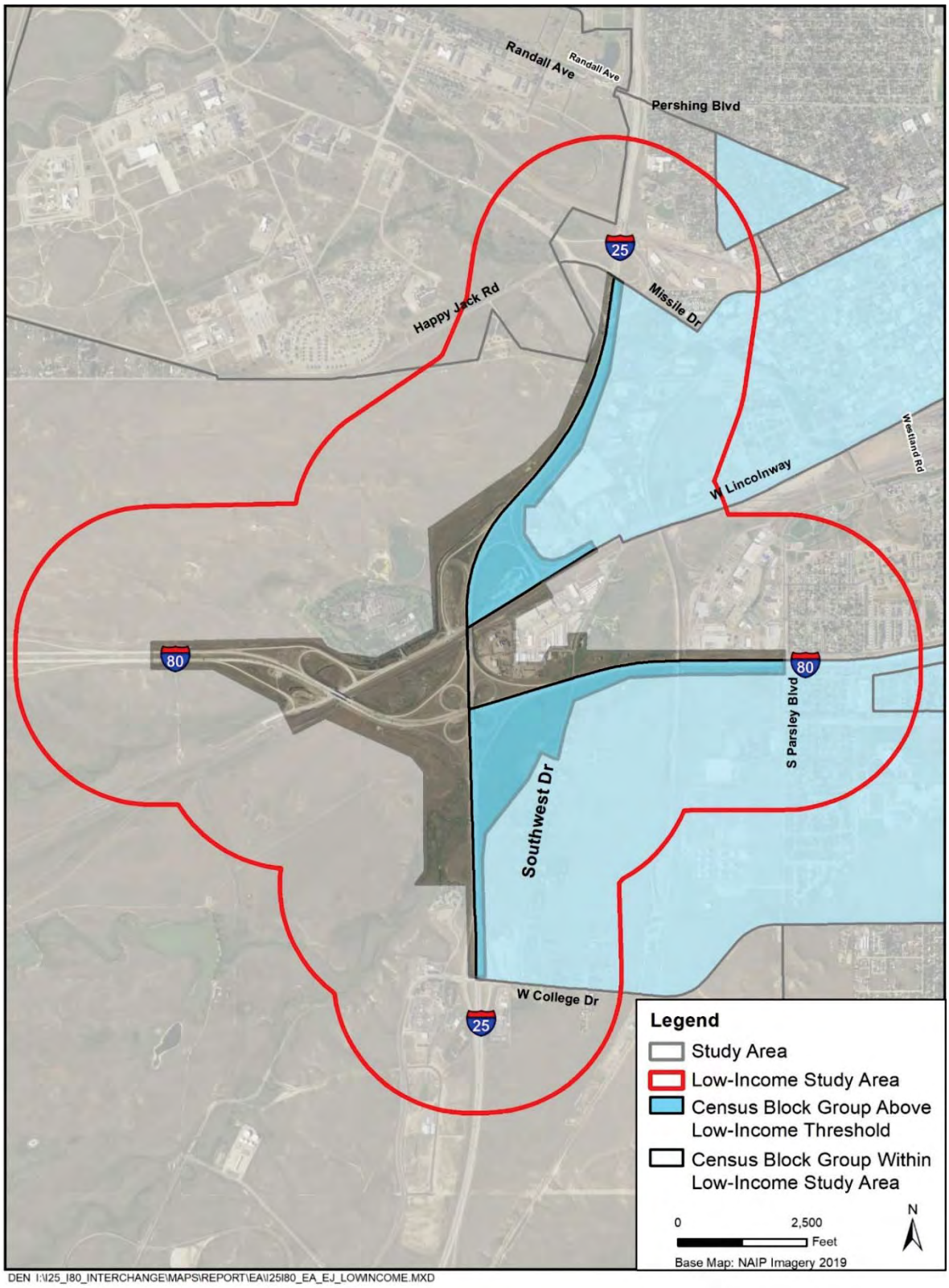
**Table 3-2: Low-Income Status of Household by Block Group**

| Geography | Total Households | Low-Income Households | Percent Low-Income | Exceeds Threshold? |
|---|---|---|---|---|
| Laramie County, Wyoming | 38447 | 4760 | 12% | N/A |
| Block Group 3, Census Tract 2 | 756 | 72 | 10% | No |
| Block Group 1, Census Tract 3 | 386 | 61 | 16% | Yes |
| Block Group 2, Census Tract 3 | 954 | 121 | 13% | Yes |
| Block Group 1, Census Tract 7 | 673 | 279 | 41% | Yes |
| Block Group 1, Census Tract 10 | 328 | 18 | 5% | No |
| Block Group 3, Census Tract 10 | 352 | 55 | 16% | Yes |
| Block Group 2, Census Tract 11 | 176 | 6 | 3% | No |
| Block Group 1, Census Tract 19.02 | 443 | 32 | 7% | No |

Source: Census 2018a

N/A = not applicable

**Figure 3-4: Low-Income Populations by Block Group**



## Impacts

### No Build Alternative

The No Build Alternative would not improve the safety and traffic flow of the intersections. Without transportation improvements, traffic operations and congestion will worsen, likely increasing crash severity and frequency. Goals for PlanCheyenne (Cheyenne MPO et al. 2014a) to cultivate a connected and diverse transportation system that accommodates the many uses of the community would not be achieved.

No disproportionately high or adverse impacts to minority or low-income populations would occur under either alternative

Effects of the No Build Alternative would not be borne by any particular segment of the population, and both minority/low-income and non-minority/non-low-income populations would be similarly affected. Therefore, the No Build Alternative would not cause disproportionately high and adverse effect on any minority or low-income populations.

### Build Alternative

The Build Alternative would not change existing access to community facilities located within or beyond the study area. Community facilities would benefit from increased connectivity to the surrounding communities.

Property acquisition would be required from three commercial properties within the study area. As described in Section 3.4: Right-of-Way the full property acquisitions are limited to the northeastern project quadrant. These businesses are not known to be minority owned and do not provide services that are of unique importance to minority or low-income communities.

The Build Alternative would increase mobility and connectivity to the surrounding community

Although minority and low-income populations have been identified in the study area, project impacts, including anticipated right-of-way, would not occur in residential areas where environmental justice populations primarily occur.

Construction-related impacts would include temporary roadway congestion in and around the area, noise and emissions from construction equipment, fugitive dust from earthmoving activities, and temporary detours and out-of-direction travel. Construction-related impacts would not be predominantly borne by minority or low-income populations but shared by all users. Temporary access restrictions would not impact community facilities, because these facilities are primarily accessed via different routes. Short- and long-term economic benefits provided by the Project, discussed in Section 3.3: Economic Resources, would benefit all population segments.

Based on the previous discussion and analysis, the Build Alternative would not result in disproportionately high or adverse impacts to minority or low-income populations. No further environmental justice analysis is required.

## Mitigation

During construction, WYDOT or its contractor will coordinate with local businesses, first responders, and state patrol as necessary to minimize construction-related impacts. Construction activities, detours, and access changes

will be advertised to reduce unexpected impacts or delays to roadway users, including the general public as well as emergency services and first responders.

## 3.3: Economic Resources

Transportation improvements can impact the local economy by influencing growth rates, business activity, and tax revenues. Economic impacts are generally related to changes in the accessibility of an area and/or changes in the local economic environment.

### Existing Conditions

The I-80/I-25 interchange and adjacent highway facilities are the largest and most heavily used in Wyoming. This system serves local, regional, state, and national travel needs and is the state's primary interchange for interstate commerce (WYDOT 2018b).

State and local governments are Laramie County's primary employer, accounting for 26 percent of all jobs and generating 39 percent of all earnings by place of work (Wyoming Center for Business and Economic Analysis 2019). According to the Cheyenne Area Convention & Visitors Bureau, Cheyenne is a "commerce center" that has become the "northern anchor city for the Rocky Mountains' Front Range" (Cheyenne Area Convention & Visitors Bureau 2018). In addition, Cheyenne is the retail and service market center for Wyoming's southeastern region (Cheyenne LEADS 2019b). Therefore, the City's function as the state capital and its proximity to I-25 and I-80 influence business development and transportation in the area.

Cheyenne's proximity to the I-25/I-80 interchange influences business development and transportation in the area

Cheyenne is home to F.E. Warren AFB, which is the City's largest employer (Cheyenne MPO et al. 2014a). The base is a command center for U.S. Intercontinental Ballistic Missiles (ICBM) and a training ground for the U.S. Air Force. Located approximately 0.6 mile north of the I-25/I-80 interchange on the western side of I-25, the base is one of three ICBM storage locations in the U.S. The base has a total impact of $352 million annually as a result of expenditures and indirect jobs (SWEDD 2014). Congress is investing $90 billion in modernizing ICBMs, which is projected to start in 2020. The portion of this funding that will go to F.E. Warren AFB is currently unknown, but is expected to be "the largest economic development investment in Wyoming history" (Wyoming Business Council 2018, Visit Cheyenne 2020a).

The largest sector of Wyoming's economy is the energy mineral industry, which contributes 70 percent of the state's revenue and 30.1 percent of the state's gross domestic product. (ENDOW 2017). Laramie County's oil production rose by over 30 percent from 2017 to 2018. The 2018 *Transforming Wyoming 20-Year Economic Diversification Strategy* proposes diversifying and expanding Wyoming's economy by supporting diverse industries and calling for investment in transportation infrastructure. The plan notes that "the quality and reliability of transportation … is a significant consideration in investment decisions," and

includes an "aspiration" for the state to be "connected to advanced air and ground transportation systems" (ENDOW 2018).

Several commercial / industrial complexes are strategically located near the project interchanges

Cheyenne is home to a wide variety of businesses and offers numerous commercial development opportunities. The value of new industrial/commercial construction rose both in Cheyenne and in Laramie County in 2018 to $24.3 million in the City and $550.9 million in the county. In the City, the new Frontier Days Headquarters, located 2.0 miles north of I-80 immediately east of I-25, accounted for over 25 percent of total new industrial/commercial construction valuation. In the county, Microsoft's data center expansion (just north of I-80 and approximately 2.7 miles west of I-25) accounted for over 97 percent of industrial/commercial construction in 2018 (Wyoming Center for Business and Economic Analysis 2019).

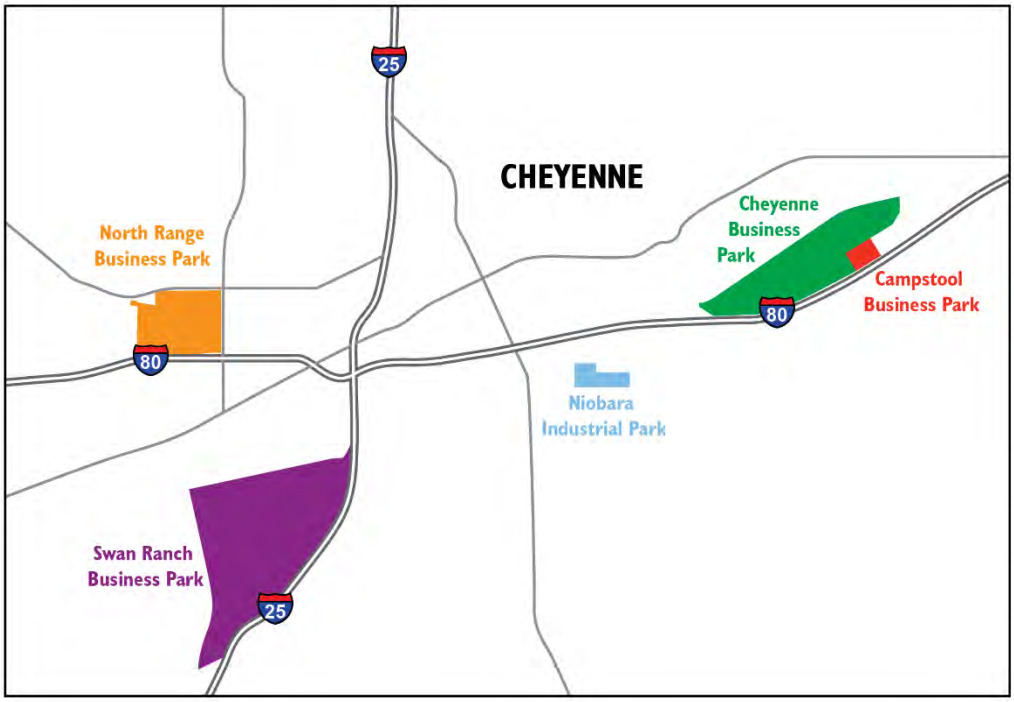
Cheyenne LEADS owns and offers industrial/commercial build-to-suit lands in the vicinity of the I-25/I-80 interchange; most of these areas have some existing tenants. These areas are shown on Figure 3-5 and include the following (Cheyenne LEADS 2019a):

- North Range Business Park: 620 acres between I-80 and Highway 210 on the west side of Roundtop Road; includes the Microsoft data center
- Cheyenne Business Park: 900 acres east of central Cheyenne and north of I-80
- Campstool Business Park: 200 acres east of Cheyenne Business Park
- Swan Ranch Business Park: 7,000 acres south of I-80 and east of I-25
- Niobara Industrial Park: south of I-80 and 4.0 miles east of I-25 (acreage unknown)

Easy access to I-25 and I-80 is noted as a benefit for businesses to locate in these areas (Cheyenne LEADS 2019a).

Cheyenne's travel and hospitality industry is the state's second largest. The 2018 *Transforming Wyoming 20-Year Economic Diversification Strategy* identifies an aspiration to grow the tourism industry's statewide contributions by $4 billion by 2028 and $8 billion by 2038, and to add 10,000 workers in the tourism sector by 2038 (ENDOW 2018). In Laramie County, total travel spending increased by 3.5 percent from 2007 to 2017 (Wyoming Office of Tourism 2018). Cheyenne Frontier Days, the world's largest outdoor rodeo, is a top Wyoming attraction, behind Yellowstone National Park, Jackson, and Grand Teton National Park, with attendance increasing in recent years. Economic impacts resulting from direct visitor spending totaled approximately $28 million, up from $25 million in 2012 (Cheyenne Frontier Days 2019).

**Figure 3-5: Cheyenne Industrial/Commercial Areas**




Wyoming's transportation industry employs 9,500 people, primarily in truck transportation (ENDOW 2017). The state's trucking industry is connected to oil and gas extraction, public warehousing and storage, and gas stations (Saulcy 2001). Commercial vehicle trucks comprise approximately 50 percent of the traffic volume on I-80 in the Cheyenne area.

In Laramie County, both total taxable sales and total retail sales rose by 11.9 percent and 7.5 percent, respectively, from 2017 to 2018. These tax receipts are the highest levels recorded in Laramie County, exceeding the previous high in 2014. Unemployment remained constant in Laramie County from 2017 to 2018 at 3.7 percent, below the state rate of 3.9 percent (Wyoming Center for Business and Economic Analysis 2019).

The number of building permits for new single-family homes fell in Cheyenne by 13.5 percent from 2017 to 2018, but new apartments/duplexes rose by 57.1 percent in the same timeframe. Outside the City, the number of single-family building permits in Laramie County rose by 1.1 percent from 2017 to 2018 (Wyoming Center for Business and Economic Analysis 2019).

The *2014 Comprehensive Economic Development Strategy (CEDS)* (SWEDD 2014) lists the following economic threats for the City: (1) Deterioration of transportation infrastructure and (2) concern that fast-paced growth will not to be able to keep up with transportation and infrastructure needs. According to the 2017 *Socioeconomic Assessment of Wyoming*, I-80 and I-25 act as "enablers" for the state's transportation industry. The report refers to "success with Sierra Trading Post, Lowes's, and Walmart distribution centers" in its discussion about transportation,

and includes a recommended policy to "commit to the improvement of transportation infrastructure" (ENDOW 2017).

## Impacts

### No Build Alternative

As noted previously, I-80 and I-25 are key components to the area's businesses. All of the business parks owned by Cheyenne LEADS are directly proximate to the highways, which are identified as "enablers" for the state's transportation industry. Therefore, the expected increase in congestion and decrease in level of service (LOS) and safety could affect the City's ability to attract and retain businesses, which would be particularly crucial as the City, state, and county diversify their industries. As noted in the 2018 *Transforming Wyoming 20-Year Economic Diversification Strategy,* "the quality and reliability of transportation … is a significant consideration in investment decisions" (ENDOW 2018) In addition, congestion and safety issues expected under the No Build Alternative would not support the rebounding oil and gas industry and the state's trucking industry.

The No Build Alternative does not support the area's economic development policies

Although slight changes in housing development are not expected to influence traffic, expanding business investments would. Additional industrial/commercial development, including investments at F.E. Warren AFB, the expanding Microsoft data center, and the relocated Frontier Days Headquarters, would increase traffic on I-80 and I-25, particularly heavy truck use. In addition, increased tourism, including increased attendance at Frontier Days, could alter the traffic mix and increase congestion in the study area, potentially influencing attendance to area events or attractions, and hence, tax revenue.

The No Build Alternative would not directly address the economic threats identified in the *Comprehensive Economic Development Strategy* (SWEDD 2014) related to deterioration of transportation infrastructure. In addition, the No Build Alternative would not support the recommended policy identified in the *Socioeconomic Assessment of Wyoming* to "commit to the improvement of transportation infrastructure" (ENDOW 2017).

### Build Alternative

The Build Alternative supports the area's continued economic growth

The Build Alternative would support further development of the business parks owned by Cheyenne LEADS by improving the highways they directly access, representing an "investment decision" to improve "the quality and reliability of transportation" (ENDOW 2018). Such action would potentially enhance the City's ability to attract and retain businesses, which would be crucial to industry diversification. In particular, the Build Alternative would support continued development and occupation of the industrial and commercial parks in the area by improving access and safety. Furthermore, improvements under the Build Alternative would support the rebounding oil and gas industry and its associated tax revenues.

Traffic is expected to increase in the area as a result of increased activity at F.E. Warren AFB, the expanded Microsoft data center, the new Frontier Days

Headquarters, and increased tourism. The Build Alternative would support this anticipated increase, particularly in heavy truck traffic. This alternative would also better accommodate the diverse traffic mix associated with these various industries as tourism continues to increase. The result would be a beneficial impact to the area economy by enhancing the movement of people and goods.

The Build Alternative would address the economic "threats" identified in the *Comprehensive Economic Development Strategy* by alleviating the deterioration of transportation infrastructure and meeting transportation and infrastructure needs (SWEDD 2014). In addition, the Build Alternative would support the recommended policy identified in the *Socioeconomic Assessment of Wyoming* to "commit to the improvement of transportation infrastructure" (ENDOW 2017).

The Build Alternative would not adversely impact the economic viability of area businesses

The Build Alternative would result in minor changes to traffic patterns through the I-25/I-80 and I-25/Lincolnway interchanges. As described in the Transportation section, these changes would minimally increase travel time (less than 2 minutes) to some businesses along Lincolnway. Furthermore, all existing business accesses would remain unchanged. As a result, the Build Alternative would not adversely impact the economic viability of the businesses in the study area.

Minimal temporary impacts are expected during construction. Much of the Build Alternative would be constructed immediately adjacent to the existing interstates, allowing traffic to continue using existing highways until construction is complete.

### Mitigation

No mitigation is necessary as no adverse impacts are expected.

## 3.4: Right-of-Way

This section analyzes potential property right-of-way acquisitions and permanent and temporary easements resulting from the Project, as well as access to affected properties. A right-of-way acquisition is the direct purchase of land to be incorporated into a project. An easement is a purchase of rights to alter the land, rather than a transfer of land ownership. Under a permanent easement, the original property owner retains ownership of the land, but cannot use it in any way that would interfere with the alterations. Permanent easements for transportation projects typically include slope, drainage, and utility easements. A temporary easement involves leasing a portion of the land for the time needed to complete the Project, typically a temporary construction easement. Full ownership of the land then reverts to the property owner at the end of the Project.

### Existing Conditions

Existing WYDOT right-of-way in the study area is irregular because of current ramp alignments. Along I-80 and I-25, right-of-way widths generally range from 300 to 500 feet, with rights-of-way enlarging considerably around the interchanges

to encompass ramps. Both the Project's physical elements and construction-related uses (e.g., staging areas, grading areas) are included in this analysis.

## Impacts

### No Build Alternative

The No Build Alternative would continue to accommodate ongoing maintenance activities, with no conversion of adjacent lands to transportation use through acquisition of new rights-of-way. As a result, the No Build Alternative would not impact right-of-way.

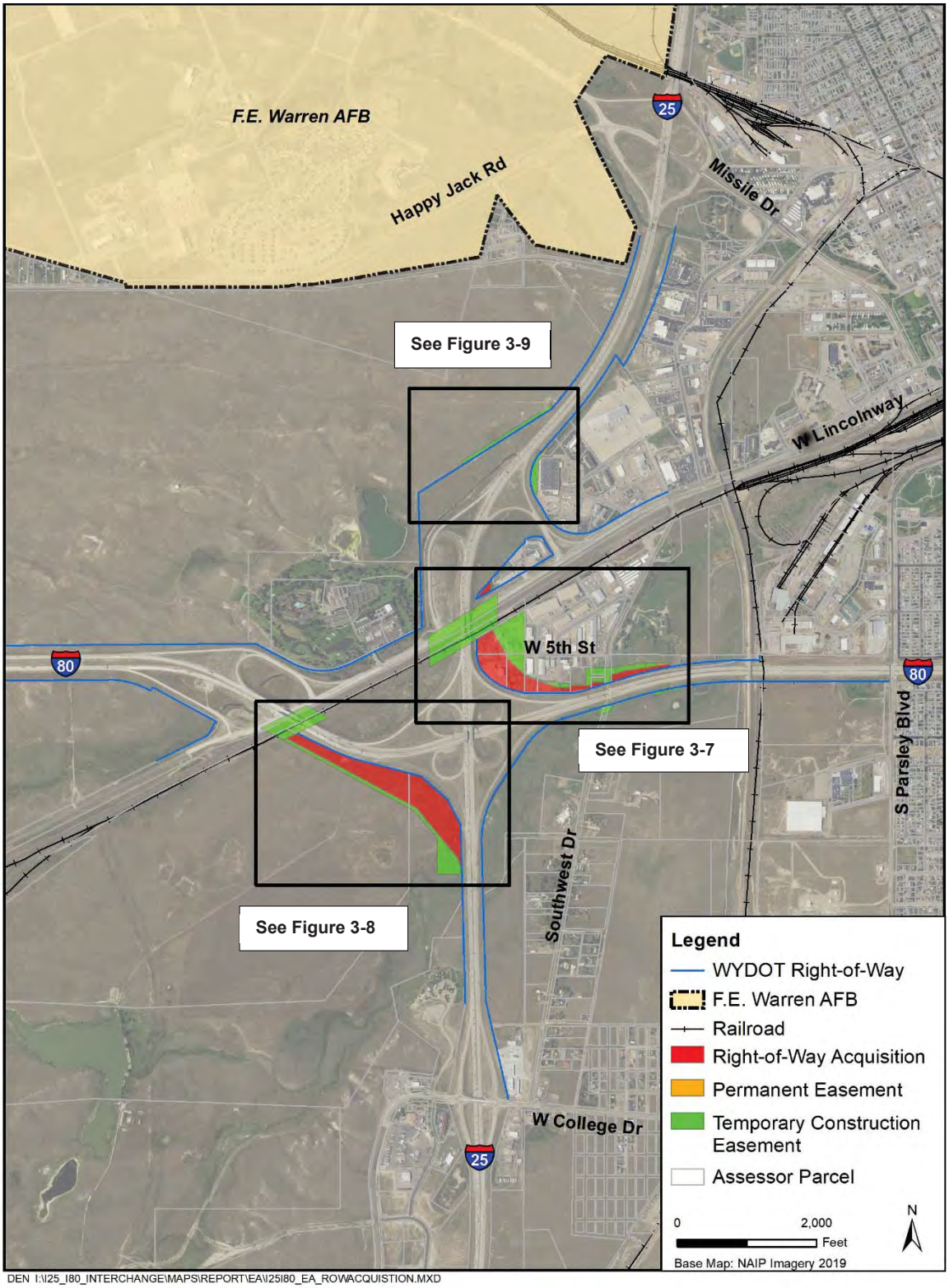
The Build Alternative would require right-of-way acquisition and easements from adjacent properties

### Build Alternative

To accommodate the new interchange configuration, the Build Alternative would require temporary construction easements, permanent easements, and right-of-way acquisition from properties surrounding the interchange. In total, 18 properties would be impacted (Table 3-3). Figure 3-6 shows general locations of these affected properties. Figure 3-7 through Figure 3-9 depict each of the 18 properties and the type of right-of-way needed for the Project. Parcel information and the area of project needs are identified in Table 3-3.

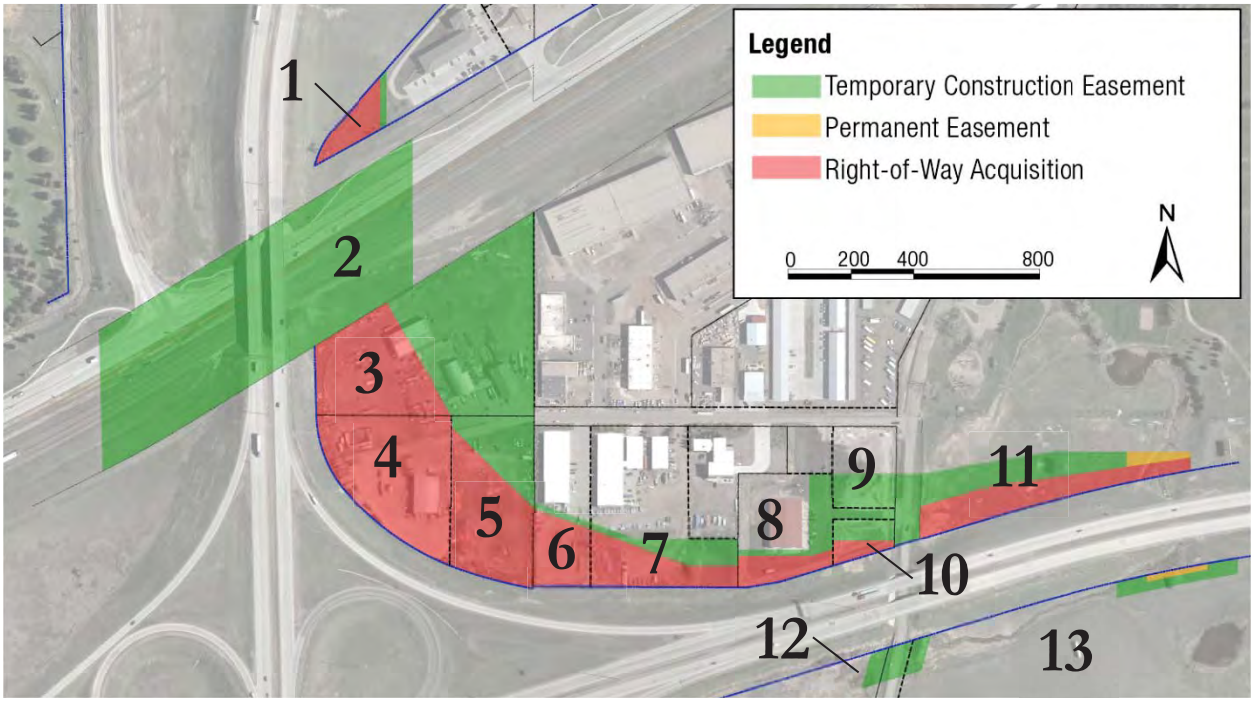
In the northeastern quadrant, reconfiguring the ramp connecting westbound I-80 to northbound I-25 would result in the most right-of-way impacts (Figure 3-7). 5th Street and Southwest Drive would continue to provide access to all parcels they currently serve. During January 2019, WYDOT completed a Categorical Exclusion (CE Number 20-1) to begin negotiations to acquire parcels 3, 4, and 5, because they were for sale at that time. The completed Categorical Exclusion is included as Appendix A to this Environmental Assessment (EA). Should early right-of-way acquisitions occur, WYDOT will comply with procedures set forth in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (1989).

**Figure 3-6: Estimated Build Alternative Right-of-Way Impacts**



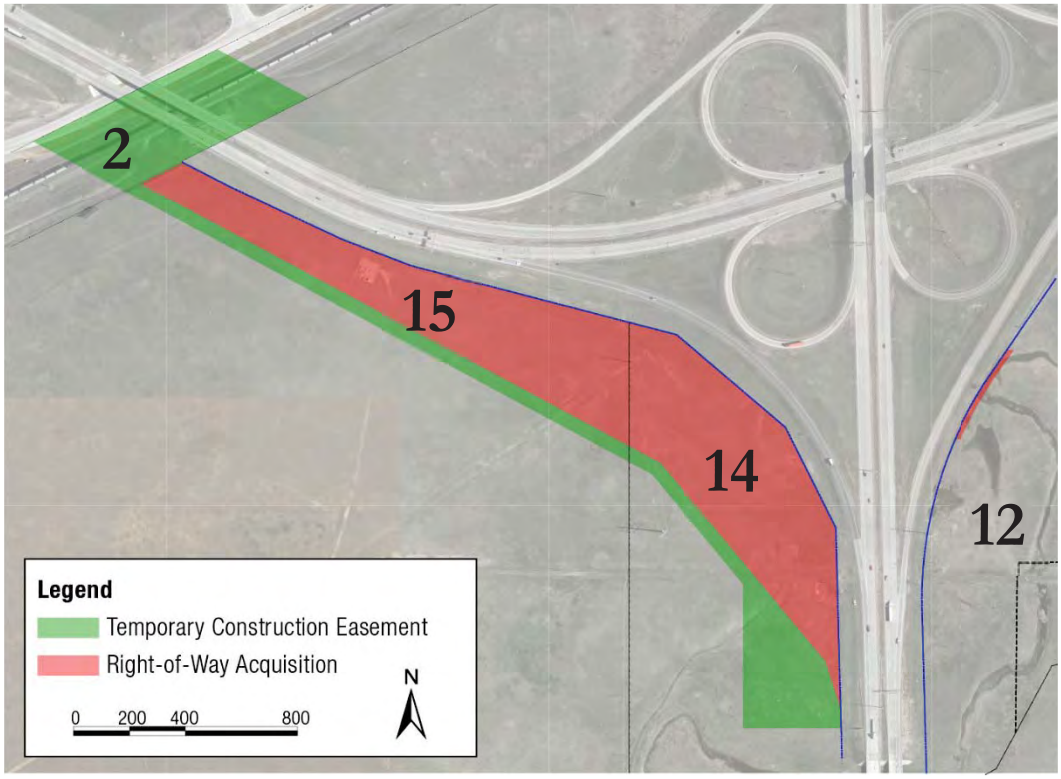

Right-of-way estimates based on preliminary design and subject to refinement.

**Figure 3-7: Build Alternative Northeast Quadrant: Estimated Right-of-Way Impacts**



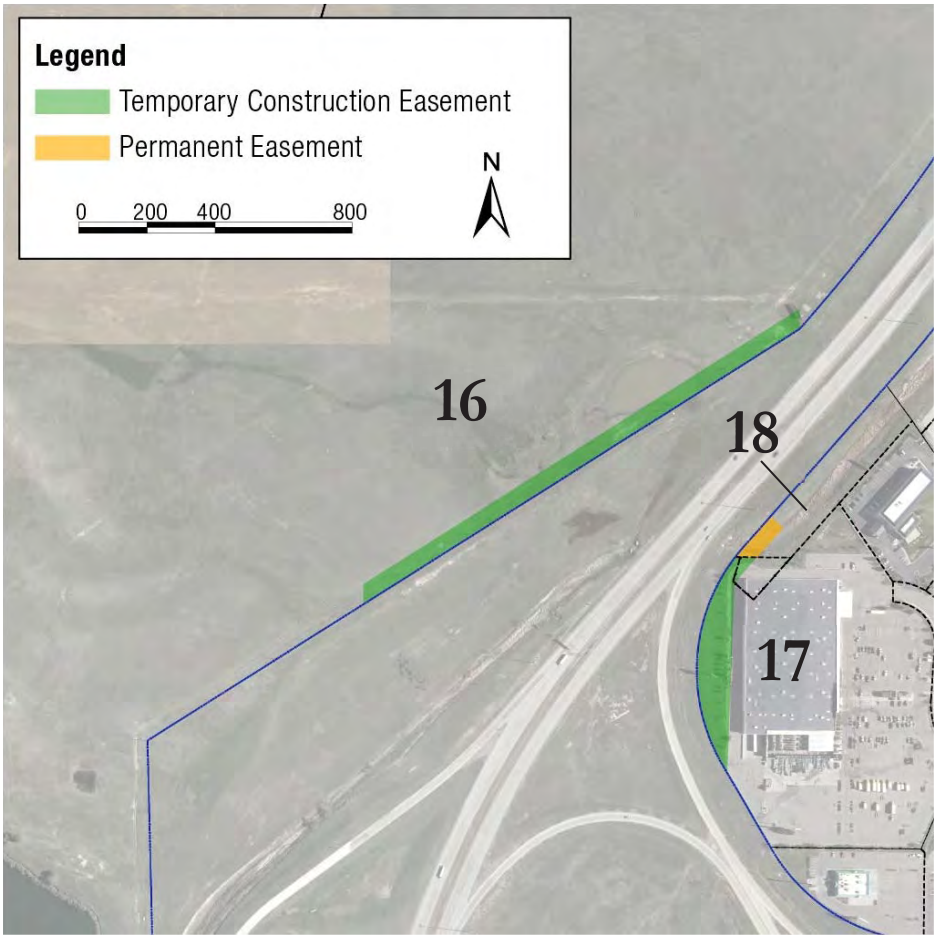

Right-of-way estimates based on preliminary design and subject to refinement.

**Figure 3-8: Build Alternative Southwest Quadrant: Estimated Right-of-Way Impacts**




Right-of-way estimates based on preliminary design and subject to refinement.

**Figure 3-9: Build Alternative Northern Study Area: Estimated Right-of-Way Impacts**




Right-of-way estimates based on preliminary design and subject to refinement.

**Table 3-3: Estimated Right-of-Way Impacts by Parcel**

| Map ID | State Parcel ID | Owner Name | Parcel Type | Structures | Total Parcel Size (Acres) | Permanent Acquisition (Acres) | Permanent Easement (Acres) | Temporary Construction Easement (Acres) |
|---|---|---|---|---|---|---|---|---|
| 1 | 13670240100400 | 8th Ave Lodging LLC Et Al | Commercial | Motel | 2.58 | 0.51 | | 0.08 |
| 2 | N/A | Union Pacific | Railroad | Railroad Tracks | N/A | | | 15.69 |
| 3 | 13670240000100 | Profile Properties LLC | Commercial: Improved Land | One office building, four outbuildings | 7.00 | 2.35 | | 4.57 |
| 4 | 13671110100100 | Profile Properties LLC | Commercial: Improved Land | One light utility commercial building | 3.26 | 3.11 | | |
| 5 | 13671110100200 | Profile Properties LLC/ Fencetrak Inc. | Commercial: Improved Land | One outbuilding | 3.15 | 2.14 | | 1.00 |
| 6 | 13671220300200 | Kemp Ranch Family Ltd Ptnsp | Commercial: Improved Land | One storage warehouse | 2.12 | 0.88 | | 0.09 |
| 7 | 13671220300400 | Southwest Properties LLC | Commercial: Improved Land | One storage warehouse | 4.22 | 1.14 | | 0.58 |
| 8 | 13671220100600 | C H Yarber Crane Services Inc | Industrial: Improved Land | One industrial light manufacturing, one outbuilding | 2.48 | 0.52 | | 0.70 |
| 9 | 13671220100800 | C H Yarber Crane Services Inc | Industrial: Vacant | None | 1.19 | | | 0.50 |
| 10 | 13671220100900 | C H Yarber Crane Services Inc | Industrial: Vacant | None | 0.53 | 0.23 | | 0.30 |

**Table 3-3: Estimated Right-of-Way Impacts by Parcel**

| Map ID | State Parcel ID | Owner Name | Parcel Type | Structures | Total Parcel Size (Acres) | Permanent Acquisition (Acres) | Permanent Easement (Acres) | Temporary Construction Easement (Acres) |
|---|---|---|---|---|---|---|---|---|
| 11 | 13671210000600 | Nextmedia Northern Colorado Inc | Commercial: Vacant Land | None | 7.68 | 1.48 | 0.16 | 1.18 |
| 12 | 13671220600100 | Dyno Nobel, Inc. | Commercial: Vacant | None | 39.82 | 0.17 | | |
| 13 | 13671220400300 | Heiduck, Donald F | Industrial: Vacant Land | None | 22.38 | | 0.09 | 0.49 |
| 14 | 13671110200100 | Dyno Nobel, Inc. | Commercial: Vacant | None | 377.57 | 9.72 | | 3.68 |
| 15 | 13671040000100 | Swan Ranch LLC | Agricultural Production: Rangeland | 10 outbuildings (none in study area) | 1,613.67 | 9.58 | | 2.31 |
| 16 | 13670120000300 | Holdings Little America Inc C/O Sinclair Oil Corp | Agricultural Production: Rangeland | None | 1,303.28 | | | 1.73 |
| 17 | 13670120500500 | HD Dev of Maryland Inc | Commercial | Warehouse Discount Store | 12.45 | | | 1.05 |
| 18 | 13670120500800 | Fleischli Enterprises Inc | Commercial: Vacant | None | 0.80 | 0.51 | | |
| | | | | **Acreage Totals** | | 32.34 | 0.25 | 33.95 |

Source: Laramie County 2020

Note: Right-of-way estimates based on preliminary design and subject to refinement.

### Mitigation

All right-of-way actions will be completed on a case-by-case basis in compliance with the Uniform Act

WYDOT will conduct right-of-way acquisitions and relocations in accordance with the Uniform Act and its *Right-of-Way Manual* (WYDOT 2018b). Relocations will be completed on a case-by-case basis, taking into consideration the circumstances of the displaced property and the status of the Project. The process includes initial property appraisal, determination of just compensation, negotiations, payment, relocation, and rights under eminent domain. Benefits under the act, to which each eligible owner or tenant may be entitled (including early [or hardship] acquisition), will be determined on an individual basis, in addition to information regarding their financial options.

## 3.5: Transportation and Traffic

### Existing Conditions

Major transportation facilities within the study area include I-25, I-80, and Lincolnway. The I-25/I-80 interchange is one of two system-level interchanges in Wyoming. Originally constructed in the 1960s, the I-25/I-80 interchange configuration is a full cloverleaf with loop ramps in all four interchange quadrants (Figure 3-10).

**Figure 3-10: I-25/I-80 Interchange Existing Traffic Pattern**

Originally constructed in the 1950s and 1960s, the I-25/I-80 interchange is a full cloverleaf design

The I-25/ Lincolnway interchange is a diamond configuration

Located just 0.5 mile north of the I-25/I-80 interchange, the I-25/Lincolnway interchange is a diamond configuration. Because the UPRR tracks are adjacent to Lincolnway, hook ramps connect I-25 to Lincolnway north of Lincolnway (Figure 3-11) The diamond interchange is a common post-World War II design used where arterial roads cross interstates. Although direct access to I-80 eastbound is not provided by this interchange, access to I-80 eastbound is indirectly provided from Lincolnway by first merging onto I-25 southbound then using the I-80 eastbound loop ramp. Direct access to I-80 westbound from Lincolnway is provided at a partial diamond interchange at the western limit of the study area.

**Figure 3-11: I-25/Lincolnway Interchange Existing Traffic Pattern**


Through the study area, both I-25 and I-80 are four lanes (two lanes in each direction) with a grassy median approximately 32 feet wide and paved shoulder widths that vary between 3 feet and 20 feet wide. Lincolnway is classified as a principal arterial and is the main roadway connecting Cheyenne to the interstate system.

## Existing and Future Traffic Volumes

Traffic analyses were performed to evaluate traffic operations with and without implementation of the Build Alternative in both the existing year (2018) and future year 2040 conditions (Appendix A contains the complete *Interchange Traffic Report*). The Cheyenne MPO model is in the process of being updated for 2045,

and forecast volumes for the design year (2045) were not available at the time of this traffic analysis. Therefore, the analysis used the most recent available forecast volumes for 2040. Following this EA, WYDOT will perform a sensitivity analysis using the latest 2045 traffic to assess traffic growth between 2040 and 2045.[8] To support the project phasing, a mid-year traffic operations analysis was also completed for 2030 (see Chapter 4 for mid-year traffic discussion).

Existing data was used to evaluate traffic operations for study area roadway segments, ramps, and intersections. For the interstate and Lincolnway segments, average annual daily traffic (AADT) and peak hour volumes and percentages were used for 2018. AADT is defined as the total traffic for a roadway over a 1-year period then divided by 365 to find the average daily traffic. By averaging the traffic over a 1-year period, the AADT values are seasonally adjusted for the fluctuations in traffic throughout the course of a calendar year.

The traffic analysis developed traffic forecasts for the No Build and Build alternatives

For the interchange ramps, the analysis used the most recently available 3- to 5-day short-term traffic counts and vehicle classification percentages. In general, the volumes in off-peak periods and on weekends were less than during the typical weekday commuter periods. To more accurately capture traffic patterns, the traffic analysis considered weekday morning (a.m.) and weekday evening (p.m.) peak hours, as well as conditions over an average weekday.

The future No Build scenario traffic forecasts were developed using growth trends between the base year (2010) and future year (2040). The adjusted growth was applied to the existing traffic volumes to estimate the 2040 No Build Alternative traffic volumes.

The 2040 Build Alternative traffic forecasts were developed from an MPO vision model that includes the interchange improvements. Traffic shifts and patterns from this vision model were compared to the 2040 no-build results. The traffic volumes on the interstate segments grow at an annual average rate of 2 to 4 percent from existing year to future year (2040) for both the No Build and Build Alternative forecasts, with higher growth rate occurring on the I-25 mainline segments. The interstate ramp segments grow at a lower rate compared to mainline segments. Table 3-4 shows AADT volumes forecasts for roadway facilities in the study area.

AADT through the I-25/I-80 interchange is projected to double by 2040

AADT is expected to approximately double from 2018 to 2040 regardless of construction of the improvements included in this EA. Truck volumes for I-25 and I-80 within the study area are approximately 43 percent under existing conditions and are estimated to remain steady for future scenarios. This truck percentage is 10 times higher than the national average for interstate facilities, reflecting the predominance and importance of freight traffic though the study area.

[8] This approach is consistent with *Interim Guidance on the Application of Travel and Land Use Forecasting in NEPA* (FHWA 2010).

**Table 3-4: Average Annual Daily Traffic**

| Roadway | Road Segment | Existing (2018) | 2040 No Build Alternative [a] | 2040 Build Alternative [a] |
|---|---|---|---|---|
| I-80 | Roundtop to Lincolnway | 15,800 | 32,500 | 36,600 |
| | Lincolnway to I-25 | 15,600 | 32,300 | 36,800 |
| | East of I-25 | 21,350 | 40,750 | 41,450 |
| I-25 | South of I-80 | 22,800 | 55,400 | 56,450 |
| | I-80 to Lincolnway | 18,900 | 42,850 | 33,400 |
| | Lincolnway to Missile | 18,800 | 40,700 | 42,850 |
| Lincolnway | Between I-80 and I-25 | 3,200 | 5,900 | 6,400 |
| | I-25 to I-25 northbound ramp | 4,000 | 7,500 | N/A |
| | East of I-25 northbound Ramp | 6,000 | 10,100 | 12,800 |

## Mobility and Level of Service

Without improvements, LOS in 2040 drops to E on both directions of I-25

In addition to traffic volumes, the traffic analysis also evaluated LOS for I-25, I-80, and Lincolnway. As explained in Section 1.2: Project Setting and shown on Figure 1-4, LOS is a measure of vehicle delay and roadway performance. WYDOT guidance (2019) establishes LOS D as acceptable for interstate ramps and LOS C acceptable for the interstate mainlines and major arterial roads, such as Lincolnway.

In the existing conditions, all roadway segments operate at high LOS's in peak hours (LOS A or B). With no improvements to either interchange, the LOS in 2040 drops to E for the northbound and southbound segments of I-25 near the I-80 on- and off-ramps. The I-25/Lincolnway interchange LOS also drops to LOS B or C, with the northbound I-25 to eastbound Lincolnway ramp dropping to LOS E.

The *Interchange Traffic Report* completed for the Project is available in Appendix A.

## Safety Analysis

Nearly half of all crashes are "fixed obstacle" type, occurring when a vehicle leaves the travel lanes

A safety analysis was completed for the study and is included in the *Interchange Traffic Report* (Appendix A). This analysis evaluated crash statistics from 2014 through 2018 and identified the most common types of crashes, where they occur most frequently, and the factors relating to them. During this period, 351 crashes were recorded (Table 3-5). Fixed-obstacle crashes, which occur when a vehicle leaves the travel lanes, are the most common, representing nearly half of all crashes in the study area. Approximately 70 percent of the obstacles hit are the I-80 and I-25 medians and guardrails. Fixed-obstacle crashes are concentrated near the merge and diverge points of the I-25/I-80 intersection ramps. Roadway surface and excessive speed for the conditions may be causal factors to the vehicle departing the roadway and hitting a fixed object.

**Table 3-5: Total Crashes by Year (2014-2018) for Each Segment in the Study Area**

| Year | I-25 | I-80 | Lincolnway | Ramps | Total |
|---|---|---|---|---|---|
| 2014 | 35 | 47 | 2 | 4 | **88** |
| 2015 | 38 | 27 | 3 | 4 | **72** |
| 2016 | 26 | 27 | 4 | 0 | **57** |
| 2017 | 32 | 24 | 6 | 5 | **67** |
| 2018 | 32 | 27 | 5 | 3 | **67** |
| **Total** | **163** | **152** | **20** | **16** | **351** |

Side-swipe crashes are the most frequent at the I-25/I-80 interchange merge and diverge areas

After fixed-object crashes, the second most frequent crashes are angle and side-swipe. Angle crashes are concentrated where the northbound I-25 button-hook ramp meets Lincolnway. Angle crashes are associated with driver error and failing to yield. Side-swipe crashes are most frequent at the I-25/I-80 interchange merge and diverge areas. Side-swipe crashes suggest there may not be adequate roadway length for drivers to adjust their speed and execute a lane change.

Over half of the total crashes and injury crashes occurred on dry pavement. The road surface was icy or wet for approximately 20 percent of the crashes. Roadway surface condition is not an over-represented crash factor, suggesting the proportion of crashes that occurred on icy or wet pavement is similar to other areas along I-25 and I-80 in Wyoming.

The proportion of injury to total crashes was approximately 18 percent for both mainline facilities. One fatal crash occurred on Lincolnway at its intersection with the westbound I-80 off-ramp. This angle collision involved passenger vehicles and occurred at nighttime under lighted conditions with fair weather and road conditions. Heavy trucks were involved in 17 percent of the total crashes and 14 percent of the injury crashes within the study area.

Conclusions from the safety analysis are supported by public comments received during public outreach. A strong theme in the public comments is the difficulty navigating the merge and diverge areas when traffic is present. Many accounts of near misses while driving through the I-25/I-80 interchange were relayed to the Project team. Some avoid the interchange entirely and instead use local roads to access I-25 or I-80 at a different on-ramp.

The No Build Alternative does not address the underlying safety needs of the interchanges

## Impacts

### *No Build Alternative*

The future transportation network modeled for the No Build Alternative reflects those improvements identified in the *State Transportation Improvement Program* report (WYDOT 2020) and the Cheyenne MPO's *Transportation Improvement Program* report (2020). None of the nearby improvements in either plan would affect or influence future traffic through the interchanges.

The No Build Alternative includes reactive and routine maintenance and winter service actions, which would continue to address seasonal safety issues such as snow removal and icy roadway conditions. However, routine maintenance activities would not address the underlying causes of safety issues previously described, would not address the deteriorating LOS (especially on I-25), and would not accommodate increasing traffic volumes as Cheyenne develops and more freight is moved via the interstates. Furthermore, the projected doubling of traffic volumes between 2018 and 2040 would increase the number and frequency of accidents regardless of the level of maintenance actions.

The Build Alternative reconfigures how vehicles move through the interchanges and directly addresses the underlying safety needs

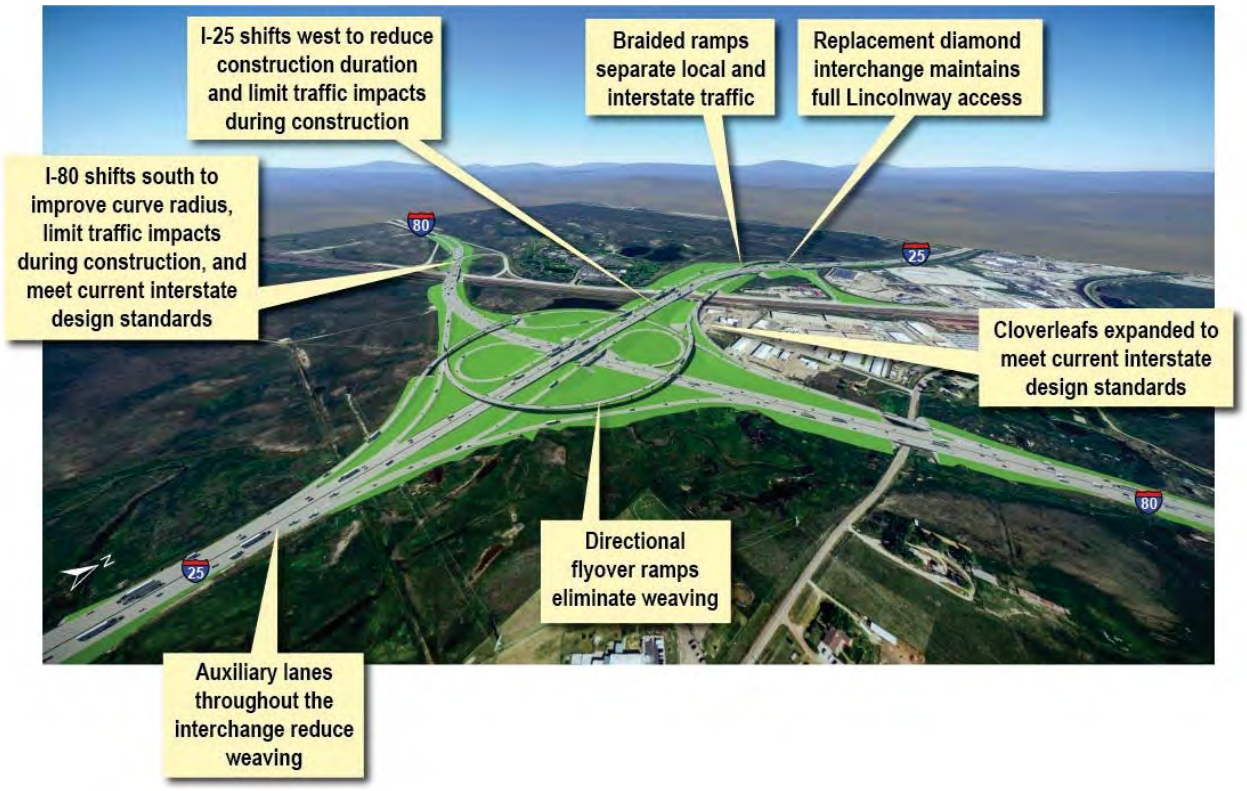
### *Build Alternative*

The Build Alternative would accommodate the forecasted traffic growth. It also would reconfigure how vehicles move through and between the I-25/I-80 and I-25/Lincolnway interchanges. As described in detail in Chapter 2, the reconfigured interchange potentially would reduce the frequency and severity of crashes within the study area by addressing the crash patterns identified in the safety analysis. These safety benefits directly support the safe and efficient movement of freight by reducing the number of weave points and providing more distance for vehicles and trucks to complete lane changes (Figure 3-12).

The Build Alternative would result in minor changes to existing traffic patters

Traffic volumes at the I-25 ramp intersections are anticipated to increase with better access to the interstates provided by the Build Alternative. A slight reduction in the traffic on Lincolnway through the interchange is expected because the access to the southbound I-25 ramp connections is moved further east.

**Figure 3-12: Build Alternative Transportation Improvements**



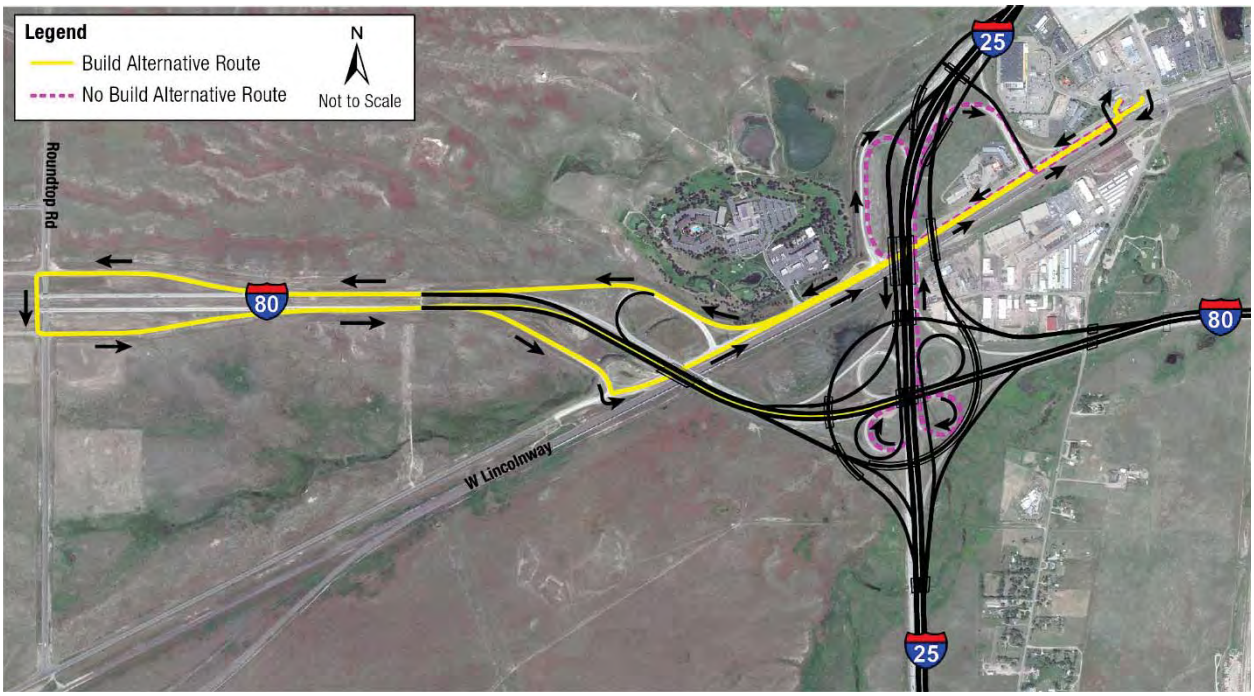

### *Traffic Circulation and Patterns*

The Build Alternative would alter traffic circulation patterns, with most changes being minor. Notable changes include access to and from Lincolnway from I-80, discussed in detail later in this subsection.

The Build Alternative would reconfigure the Lincolnway/I-25 interchange by relocating the ramp terminal intersections, resulting in minor changes in traffic patterns. The existing hook ramps providing access to southbound I-25 from Lincolnway and from I-25 northbound to Lincolnway would be removed and access to Lincolnway provided through directional ramps that intersect a new crossroad that would be constructed over I-25 (Figure 2-4). The crossroad intersections with the ramps and Lincolnway would be stop-controlled when the Project is initially constructed and then upgraded to signal control in the future when warranted.

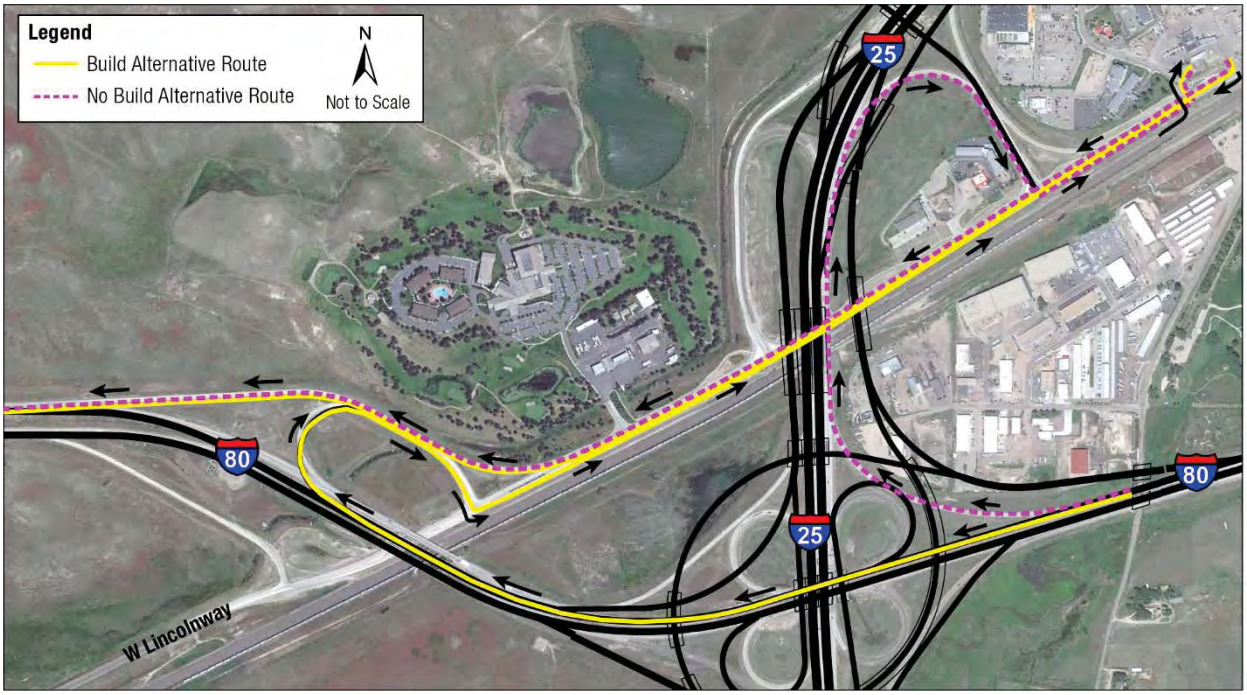
The resulting roadway configuration would eliminate the indirect access of I-80 eastbound from Lincolnway via the I-25/I-80 interchange. The Build Alternative would require drivers on Lincolnway to access eastbound I-80 via the Round Top Road/I-80 interchange to the west or the US-85/I-80 interchange to the east (Figure 3-13).

**Figure 3-13: Lincolnway to/from I-80 Eastbound**



Likewise, the ability to access Lincolnway from I-80 westbound on the eastern side of the I-80/I-25 interchange would be eliminated. Westbound I-80 could still be accessed directly through the existing Lincolnway/I-80 interchange with no out-of-direction travel (Figure 3-14). The greatest travel distance increase would be between southbound I-25 ramp access and Little America. This results because the southbound I-25 ramps access point from Lincolnway would move approximately 1,990 feet to the east.

**Figure 3-14: Lincolnway to/from I-80 Westbound**




The Build Alternative would minimally (less than 2 minutes) increase travel time to businesses along Lincolnway

The Project team analyzed differences in travel times to specific businesses because of the access changes. The longer travel distances mostly would result from the access changes at Lincolnway, previously discussed. The Build Alternative also would increase travel distance because of the longer ramps that would meet modern design standards. Overall, increases in travel times from the Build Alternative to and from businesses along Lincolnway, from I-25 and I-80, would be less than 2 minutes.

Table 3-6 provides travel time changes based on build alternatives to and from businesses along Lincolnway within the study area. Although traffic patterns would undergo minor changes, all existing direct access between Lincolnway, I-25, and I-80 would be maintained by the Build Alternative.

**Table 3-6: Comparison of Travel Distances and Times**

| From | To | No Build Alternative | | Build Alternative | | Change | |
|---|---|---|---|---|---|---|---|
| | | Distance (feet) | Time (minute) | Distance (feet) | Time (minute) | Distance (feet) | Time (seconds) |
| Northbound I-25 | Little America | 5100 | 2.17 | 5690 | 2.02 | 590 | -9 |
| Northbound I-25 | Big D | 3190 | 1.55 | 3780 | 1.78 | 590 | 13.8 |
| Little America | Northbound I-25 | 4945 | 2.13 | 6020 | 2.63 | 1075 | 30.6 |
| Big D | Northbound I-25 | 2730 | 0.80 | 4110 | 1.92 | 1380 | 67.2 |
| Southbound I-25 | Little America | 3790 | 1.39 | 5755 | 2.39 | 1965 | 60.6 |
| Southbound I-25 | Big D | 5860 | 2.06 | 3845 | 2.16 | -2015 | 6.0 |
| Big D | Southbound I-25 | 5800 | 2.23 | 4010 | 2.58 | -1790 | 21.0 |
| Little America | Southbound I-25 | 3730 | 1.83 | 5920 | 3.30 | 2190 | 88.2 |
| Westbound I-80/Lincolnway | Big D | 6980 | 2.89 | 6980 | 3.01 | 0 | 7.2 |
| Big D | Westbound I-80/Lincolnway | 7965 | 2.34 | 7965 | 2.57 | 0 | 13.8 |
| Westbound I-80/Lincolnway | Little America | No change | | | | | |
| Little America | Westbound I-80 Lincolnway | No change | | | | | |
| Westbound I-80/I-25 | Big D | 6515 | 2.49 | 12,080 | 3.78 | 5565 | 77.4 |
| Westbound I-80/I-25 | Little America | No change | | | | | |
| Big D | Westbound I-80 | No change | | | | | |
| Little America | Westbound I-80 | No change | | | | | |

**Table 3-6: Comparison of Travel Distances and Times**

| From | To | No Build Alternative | | Build Alternative | | Change | |
|---|---|---|---|---|---|---|---|
| | | Distance (feet) | Time (minute) | Distance (feet) | Time (minute) | Distance (feet) | Time (seconds) |
| Eastbound I-80/I-25 | Big D | 5715 | 2.55 | 8590 | 3.01 | 2875 | 32.4 |
| Eastbound I-80/I-25 | Little America | No change | | | | | |
| Big D | Eastbound I-80 via RoundTop | 9,825 | 4.08 | 20,215 | 5.43 | 10390 | 81.0 |
| Big D | Eastbound I-80 via Greeley Highway | 23,685 | 6.95 | 15,500 | 7.03 | -8185 | 5.4 |
| Little America | Eastbound I-80/I-25 | 7755 | 3.68 | 16,100 | 4.46 | 8345 | 46.8 |

The Build Alternative would likely be constructed in three main phases using crossovers and traffic control to minimize full interstate closures

Construction of the Build Alternative is suggested to be accomplished in three main phases and generally includes excavation, grading, paving, utility adjustments, and bridge construction. The Project would be constructed under traffic control using crossovers to avoid closing both lanes of either interstate in one direction. All construction phases would require shoulder closures, lane closures, and lane shifts. Overnight full closure of I-25 would be needed to safely set bridge girders on the new overpass connecting Lincolnway to I-25. Full closure of I-25 would require a temporary detour to Happy Jack Road or Missile Drive, and back to I-25.

Construction could temporarily affect travel mobility, increase traffic congestion, and temporarily alter access to residences and businesses. However, WYDOT anticipates no local road closures associated with construction. Construction activities would increase dust, noise, runoff, and visual intrusions to motorists and residents.

### Mitigation

Overall, long-term effects of the Build Alternative would benefit transportation by improving the safety of the interchanges and facilitating the safe and efficient movement of goods and people. Therefore, no mitigation is needed.

During construction, WYDOT or its contractor will implement the following measures to minimize impacts to the traveling public:

- Develop a detailed traffic control plan.
- Maintain traffic flow during peak travel times by minimizing lane closures, if possible.
- Schedule full closures of I-25 and I-80 to nighttime hours for closures exceeding 1 hour in duration.
- Maintain access to businesses and residences located along Lincolnway and Southwest Drive at all times.
- Proactively communicate with residents, businesses, first responders, and the traveling public ahead of lane closures and mainline closures through the use of social media, advanced signage, and other direct engagement strategies throughout construction.
- Coordinate construction sequencing, timing, and detours with Wyoming Highway Patrol, Cheyenne, and Laramie County to minimize impacts to residents and traffic, including first responders.

## 3.6: Air Quality and Climate Change

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to establish national ambient air quality standards (NAAQS) for six criteria pollutants: ozone, nitrogen dioxide, carbon monoxide, particulate matter less than 10 and 2.5 micrometers in diameter, sulfur dioxide, and lead. The State of Wyoming has adopted the NAAQS as the state ambient air quality standards.

A geographic area that is below the NAAQS for one or more pollutant is known as an attainment area. If the concentration of any one pollutant exceeds the limit of the NAAQS in an area, that area is designated as being in non-attainment. An area can also be designated as a maintenance area if that area has previously been designated as non-attainment but has since demonstrated attainment of the standard.

The project is within an air quality attainment area of Laramie County

Under the conformity provisions of the Clean Air Act, regionally significant and federally funded projects located in designated non-attainment or maintenance areas must demonstrate transportation conformity to State Implementation and Maintenance Plans under 40 Code of Federal Regulations (CFR) Part 93, Subpart A. Transportation projects outside of non-attainment and maintenance areas are not subject to these regulations.

## Existing Conditions

The proposed project is located within a part of Laramie County that is designated as an attainment area for all criteria pollutants. Therefore, this Project is not subject to the transportation conformity regulations, and regional- and project-level hot spot analyses are not required.

Land uses surrounding the I-25/I-80 interchange consist of undeveloped land to the northwest with military, residential, and commercial land uses further north, commercial and industrial uses to the northeast, undeveloped land and residential development to the southeast, and undeveloped land and agricultural to the southwest. Surrounding land uses of agricultural and industrial can be sources of air pollution.

## Impacts

### *No Build Alternative*

Air quality would be adversely impacted by the No Build Alternative

Traffic volumes would increase under the No Build Alternative, as population increases, resulting in increased air emissions. Air quality would be further affected as LOS degrades, particularly during summer months when tourism peaks and more vehicles are on the road and ground level ozone is more likely to form because of higher temperatures (EPA 2020b). Under the No Build Alternative, higher densities and lower speeds are anticipated because of traffic growth. In addition, the delay per vehicle on averge would more than double compared to existing conditions at the intersection of West Lincolnway and northbound I-25 ramps.

### *Build Alternative*

Future traffic volumes for the No Build Alternative are projected to be higher than the Build Alternative volumes. The reconstruction of the I-25/I-80 interchange would help improve traffic conditions and reduce congestion compared to the No Build Alternative, allowing for more free flowing of traffic and a reduction in air pollutants. Consequently, the Build Alternative is expected

The Build Alternative results in fewer emissions because of reduced congestion and improved traffic flow

to operate at LOS C or better in Design Year 2045 and result in fewer emissions than the No Build Alternative.

### Mobile Source Air Toxics

Projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT) are categorized as having low potential for MSAT effects. Year 2045 traffic for each of the alternatives would be lower than this threshold, and a quantitative analysis is not required. Therefore, a qualitative analysis of potential MSATs was conducted.

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments of 1990, where Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. Mobile Source Air Toxics (MSATs) are a subset of air toxics, which include nine compounds emitted from highway vehicles, trucks, buses, and nonroad equipment. Diesel particulate matter remains the dominant MSAT of concern for highway and other transportation projects. No federal or state ambient standards exist for MSATs.

The vehicle miles traveled (VMT) estimated for the Build Alternative (350,919 VMT) is slightly higher than that for the No Build Alternative (339,234 VMT) because the proposed improvements increase the efficiency of the interchanges and attract rerouted trips from elsewhere in the transportation network. Also, the Build Alternative would have longer flyover ramps that would increase VMT. The emissions increase is offset somewhat by lower MSAT emission rates because of increased speeds and as a result of the EPA's national control programs. These programs are projected to reduce annual MSAT emissions between 2010 and 2050 (FHWA 2016). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area likely would be lower in the future in nearly all cases.

In sum, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset because of increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). MSAT would be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, would over time cause substantial reductions that, in almost all cases, would cause region-wide MSAT levels to be significantly lower than today.

### Greenhouse Gases

Human activity is changing the earth's climate by causing the buildup of heat-trapping greenhouse gas (GHG) emissions through the burning of fossil fuels and other human actions. These emissions are different from criteria air pollutants because their effects in the atmosphere are global rather than local, and also because they remain in the atmosphere for decades to centuries, depending on the species.

GHG emissions from vehicles using roads are a function of distance traveled (expressed as VMT), vehicle speed, and road grade. The Build Alternative is expected to increase speeds because of more effective travel and less congestion, which would decrease GHG emissions compared to the No Build Alternative.

### *Construction*

Air emissions would temporarily increase during construction

The Build Alternative would result in temporary construction emissions. This includes emissions resulting from clearing, earthwork activities, grading, removing and improving existing roadways, and paving roadway surfaces. Construction emissions can vary depending on the level of activity, the specific type of operation, and prevailing weather conditions. The most common pollutant is particulates from construction equipment and vehicles generating dust within the study area as well as exhaust emissions.

### Mitigation

No long-term mitigation is necessary as no permanent impacts are expected. To mitigate potential temporary air quality emissions, WYDOT or its contractor will adhere to the Wyoming Air Quality Standards and Regulations Chapter 3: General Emissions Standards, Section 2f(i): Fugitive Dust, construction/demolition activities. Best management practices will be implemented during construction to reduce any air pollutants.

A major factor in mitigating increases in VMT is the EPA's GHG emissions standards, implemented in concert with national fuelsomy standards. This expected improvement in vehicle emissions rates is more than sufficient to offset the increase in VMT. Refer to Appendix A for the full GHG analysis.

## 3.7: Noise

WYDOT performed a noise analysis as part of this EA

Traffic noise is typically a concern for residents living adjacent to heavily traveled roadways. Traffic noise tends to be loudest when a large volume of traffic flows at high speeds. Loudest traffic noise can be expected just before and after the peak travel period, when traffic volumes are still heavy but speed is not diminished.

WYDOT has developed guidelines for the analysis and abatement of highway traffic noise in accordance with regulations developed by FHWA (23 CFR 772). The methods employed for this analysis are consistent with both FHWA and WYDOT guidelines set forth in the *Wyoming Noise Analysis and Abatement Policy* (WYDOT 2011) for analyzing traffic noise, as described in the *Traffic Noise Analysis Report* (Appendix A).

FHWA's approved Traffic Noise Model (TNM 2.5) was used for this analysis. The basic inputs to noise modeling include roadway network layout, site characteristics, traffic volume projections, fleet mix, and vehicular operating speeds.

Highway traffic noise impacts occur when the predicted highway traffic noise levels approach (within one A-weighted decibel [dBA]) or exceed Noise Abatement Criteria (NAC), or when the predicted highway traffic noise levels

substantially exceed the existing highway traffic noise levels (defined below). FHWA established NAC for different types of land uses and human activities, as shown in Table 3-7. Table 3-7 depicts noise in dBA, which are sound levels that best approximate the human ear over a specific period of time, indicated as the hourly equivalent sound level (Leq[h]).

**Table 3-7: FHWA Noise Abatement Criteria, Hourly dBA**

| Activity Category | Activity Leq(h)[1] | Evaluation Location | Activity Description |
|---|---|---|---|
| A | 57 | Exterior | Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. |
| B[2] | 67 | Exterior | Residential |
| C[2] | 67 | Exterior | Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites,[3] schools, television studios, trails, and trail crossings. |
| D | 52 | Interior | Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios. |
| E[2] | 72 | Exterior | Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A through D or F. |
| F | N/A | N/A | Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing. |
| G | N/A | N/A | Undeveloped lands that are not permitted. |

Source: WYDOT 2011

[1] The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.

[2] Includes undeveloped lands permitted for this activity category

[3] See Chapter 6 for description of Section 4(f) sites.

## Existing Conditions

Noise measurements were taken at four monitoring locations within the study area to determine ambient noise levels. These measurements were used to validate the TNM and ensure noise level predictions are as accurate as possible. Locations were selected that best represent the study area, which has direct line of sight to the roadway and no existing noise barriers (Table 3-8).

**Table 3-8: Field-recorded and TNM-predicted Noise Levels**

| Location | Field-recorded Noise Levels (dBA) | TNM-predicted Noise Levels (dBA) | Difference (+/-) |
|---|---|---|---|
| Meter Location 1 (La Quinta) | 57.3 | 57.4 | +0.1 |
| Meter Location 2 (Americas Best Value) | 60.0 | 60.3 | +0.3 |
| Meter Location 3 (Little America Golf Course) | 59.4 | 57.5 | -1.9 |
| Meter Location 4 (WYDOT Driver's Services) | 67.6 | 67.4 | -0.2 |

Noise-sensitive properties or areas, referred to as receptors, include category B (residences), category C (recreational areas such as a park and golf course), and category E (commercial properties such as hotels and restaurants). Several noise-sensitive receptors occur within the study area and were included in the noise model (Figure 3-15).

Noise models were developed for all noise-sensitive receptors within the study area to predict existing and future noise levels, identify potential impacts, and assess noise abatement as necessary.

## Impacts

### *No Build Alternative*

By Design Year 2045, forecasted traffic increases would increase noise levels to noise-sensitive receptors in the study area. However, only one receptor (R12) would approach the NAC under the No Build Alternative.

### *Build Alternative*

By the year 2045, none of the noise-sensitive receptors would approach or exceed the NAC under the Build Alternative. However, the greatest increase in noise levels would be near receptor R8, a hotel, where the I-25/Lincolnway ramps would move closer to this receptor (Figure 3-15). Noise levels for Little America Golf Course would be lower compared to the No Build Alternative since the proposed improvements would shift the I-25 ramps away from these receptors resulting in lower noise levels. No receptors would experience a substantial noise increase of 15 dBA over existing conditions.

Noise sensitive receptors are not impacted by the Build Alternative

## Mitigation

Noise abatement measures are considered to mitigate a project's noise impacts. However, because the Build Alternative would not impact any of the noise-sensitive receptors, noise abatement was not considered. Because the No Build Alternative only includes routine maintenance activities, noise abatement measures were not considered.

**Figure 3-15: Traffic Noise Analysis Map**

# 3.8: Water Resources and Water Quality

Water resources and water quality are regulated under the Clean Water Act (CWA). The purpose of the CWA is to promote the restoration and/or maintenance of the chemical, physical, and biological integrity of the nation's surface waters, and to support the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water. Surface water quality standards in Wyoming, most recently updated in April 2018, are established by the Wyoming Department of Environmental Quality (WDEQ). WDEQ reviews and issues Water Quality Certifications under Section 401 (WDEQ 2019). A Section 401 certification is required before a Section 404 permit can be authorized.

## Existing Conditions

### *Water Resources*

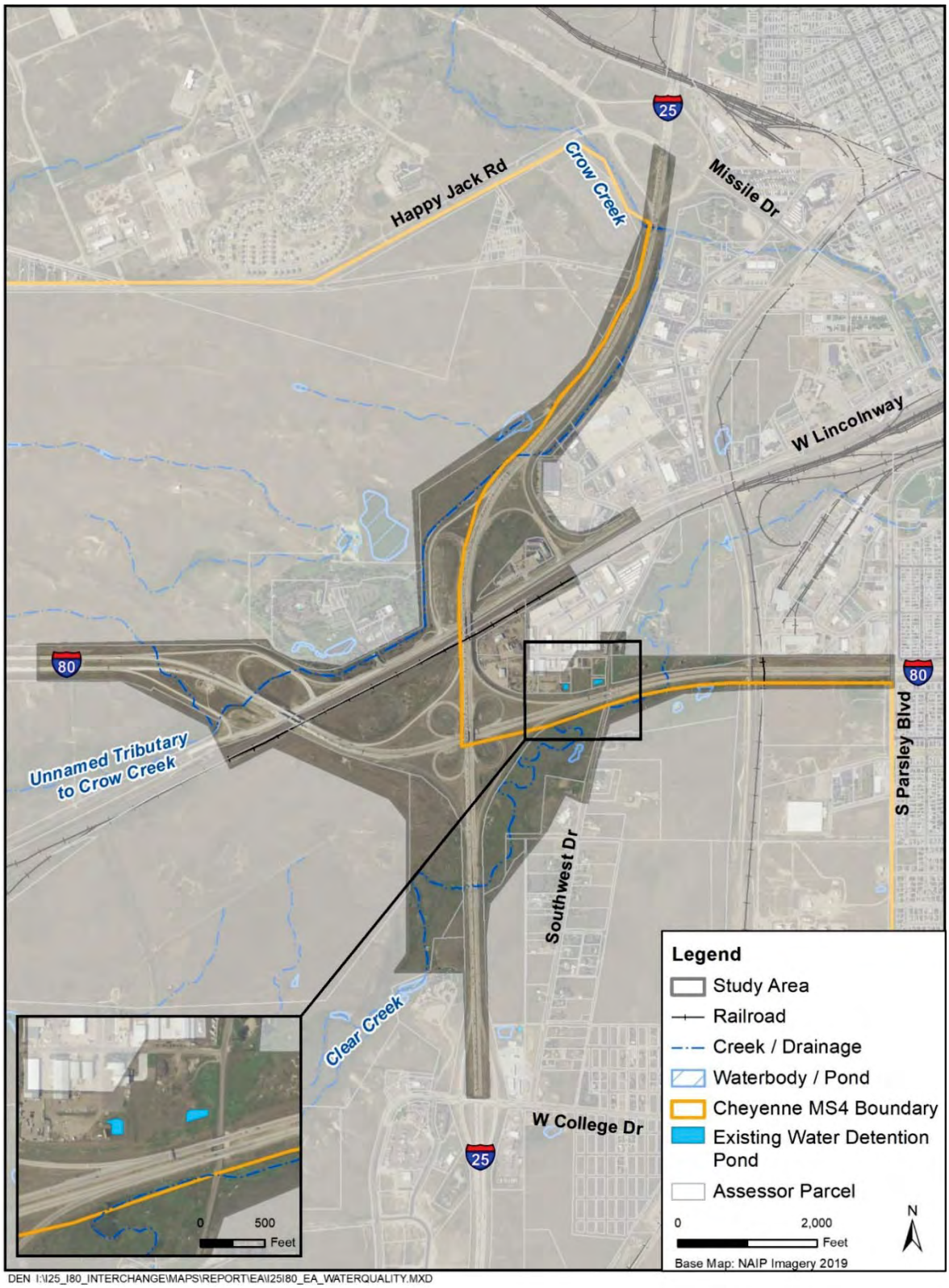
The study area is located within the South Platte River Basin's Crow Creek Sub-basin. Water resources in the study area are shown in Figure 3-16 and include the following:

- Crow Creek
- One unnamed tributary to Crow Creek
- Clear Creek
- Three small, unnamed ponds
- Two private property water detention ponds

Clear Creek and Crow Creek are the largest drainage features in the study area

Crow Creek and Clear Creek are the two largest drainage features in the study area. Crow Creek is a perennial stream that flows west to east and crosses I-25 at milepost (MP) 10.4, the northernmost limit of the study area. Clear Creek is a vegetated swale that flows from the west and crosses I-25 at MP 8.4, near the southern limit of the study area. After crossing I-25, Clear Creek also crosses I-80 east of the interchange at MP 360.1. Clear Creek converges with Crow Creek east of the study area in Cheyenne; Crow Creek continues to flow south until it meets the South Platte River.

**Figure 3-16: Water Resource**



*Clear Creek under I-25 bridge (MP 8.4), looking east*

An unnamed tributary to Crow Creek is also located in the study area. This tributary flows from the southwest to northeast through the study area, crossing I-80 west of the I-25/I-80 interchange at MP 358.7. After crossing I-80, the tributary follows I-25 and crosses underneath I-25 north of the I-25/Lincolnway interchange at MP 9.6 before it continues flowing north to its confluence with Crow Creek.

*Unnamed tributary to Crow Creek, culverts under I-25 (MP 9.6), looking southwest*

Three small, unnamed ponds are located within the study area. These small depressions are associated with the Clear Creek floodplain south of I-80 near MP 360 and with an unnamed stream. Two small water detention ponds also are located on commercial properties in the northeast quadrant of the Project.

No streams in the study area are protected under Wild and Scenic, National Recreational Rivers, or Nationwide Rivers Inventory (NPS 2017, 2019).

### Water Quality

Under Section 303(d) of the CWA, states must establish water quality standards for waters within their borders (EPA 2018). States must also identify impaired waters and develop total maximum daily loads for these water bodies. A total maximum daily loads establishes the maximum amount of a pollutant allowed in a water body. Impaired waters and their pollutants are identified in biannual reports created by the state and approved by the EPA.

Crow Creek is an impaired stream for sediment and E. coli

According to Wyoming's most recent report, the *2016/2018 Integrated 305b and 303d Report*, the portion of Crow Creek that crosses the study area at MP 9.6 is listed as impaired for E. coli and sedimentation. As part of establishing total maximum daily loads for Crow Creek, WDEQ identified the major sources of E. coli as nearby wastewater treatment plants, septic systems, and defecation from livestock and wildlife. The identified source of sediment contamination is stormwater runoff.

The Laramie County Conservation District, in cooperation with the Wyoming Game and Fish Department (WGFD), the City, and the Cheyenne Board of Public Utilities have created a restoration plan for Crow Creek (LCCD 2009) extending from its crossing with Happy Jack Road to Westland Road. WYDOT participated in funding for the restoration for Crow Creek. This reach includes Crow Creek's crossing of I-25 at MP 9.6. The plan was set in place to help restore, revitalize, and enhance the ecological value and function of Crow Creek and its tributaries for public enjoyment. Implementation of the plan is set to begin in summer 2020.

### Roadway Drainage

Stormwater runoff from straight sections of I-25 and I-80 flow into the adjacent roadside areas. Stormwater runoff from the I-25 and I-80 ramps flow into roadside areas and a median ditch. From there, runoff flows into Clear Creek or the unnamed tributary to Crow Creek. No permanent water quality features, such as sediment vaults or water quality ponds, currently exist within the study area, except for the two water quality ponds mentioned above (Figure 3-16).

No permanent water quality features currently exist in the study area

The study area contains 39 highway drainage features, mostly concrete and metal culverts. The larger drainage crossings in the study area include a box culvert where Clear Creek crosses I-80, a culvert where the tributary to Crow Creek crosses I-25, and a 3-span bridge where Clear Creek crosses I-25. Originally constructed in the early 1960s, these drainage structures were observed to be in generally good condition during field inspection and sufficiently sized to convey a 100-year flood event.

Water quality within the City of Cheyenne is regulated under a Municipal Separate Storm Sewer Systems (MS4) permit. By definition, a municipal separate storm sewer is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains). The study area is partially within Cheyenne's MS4 boundary, and the Project will comply with Cheyenne's MS4 permit requirements and water quality guidelines identified in Cheyenne's *Unified Development Code* (City of Cheyenne 2019).

## Impacts

### *No Build Alternative*

The No Build Alternative would include routine deicing activities and maintenance of existing highway drainage features. It would not alter the existing roadway drainage system, water detention ponds, or streams through the study area. The E. Coli impairment of Crow Creek through the study area is not related to roadway activities and would be unaffected by the No Build Alternative. Roadway stormwater runoff would likely continue to contribute to the sediment impairment of Crow Creek. The restoration of Crow Creek would continue as part of the Crow Creek Revival Project.

### *Build Alternative*

The Build Alternative would generally maintain the current type of drainage on I-25 and I-80. In ramp areas, median drain inlets would be constructed to collect roadway runoff and convey it to new drainage outfalls to Clear Creek and Crow Creek. New storm pipes and culverts would drain the infield areas. Drainage inlets and pipes would be installed at each end of the elevated flyovers. The new ramps throughout the Project would require new cross culverts.

The Build Alternative includes two new water quality ponds

The Build Alternative would result in a net increase of approximately 14.9 acres of impervious surface because of the reconfigured ramps and new paved areas through both interchanges. In compliance with Cheyenne's MS4 permit and water quality regulations, two new water quality ponds would be constructed. Water quality ponds provide an area to store water, allowing settlement and filtration of pollutants. One water quality pond would be constructed in the southwestern corner of the reconfigured I-25/I-80 interchange and the second constructed immediately north of Lincolnway and east of I-25. The combined storage volume of the two new water quality ponds would meet Cheyenne's water quality guidelines.

The Build Alternative would impact the two existing water detention ponds on private properties. The ponds would be reconstructed immediately north of their current locations, remaining within the existing property boundaries and continuing to provide stormwater storage and attenuation for the respective properties.

A Crow Creek tributary would be realigned to accommodate new roadway fill

Existing culverts would be replaced and/or extended to match the new roadway template. The box culvert conveying Clear Creek under I-80 would be extended to the north to accommodate the widening of I-80 for an exit ramp. Approximately 1,100 feet of the unnamed tributary to Crow Creek would be realigned approximately 200 feet northwest of its current location to accommodate new roadway slopes.

The bridge carrying I-25 over Clear Creek would be replaced with a new bridge. Although the existing bridge is hydraulically sufficient to convey the 100-year flow, it cannot accommodate the widened I-25 roadway template and does not facilitate a potential future greenway (see Section 3.18: Parks and Recreation for more discussion). The Build Alternative would not impact Crow Creek or the surrounding sources of its E. Coli impairment. The ponds would, at a minimum, treat an amount of stormwater runoff equivalent to the increase in Project pavement areas by providing sediment removal and infiltration. Therefore, no net impacts to water quality are anticipated from operation and maintenance of the Build Alternative.

Negative impacts to water quality are not anticipated from the Build Alternative

Construction activities such as clearing and grubbing, excavation, and grading can lead to erosion of soils, sedimentation, and transport of spilled fuels or other hazardous materials into the adjacent streams and water bodies. Short-term effects to surface waters (i.e., during and immediately following construction) can include the following:

- A temporary increase in sedimentation and turbidity during and immediately following nearby land disturbances.
- An increased risk of contamination associated with the presence of heavy equipment fluids (such as fuels and lubricants) and construction-related chemicals (such as paints and concrete additives).

Potential impacts to water quality during construction would be minimized through the implementation of erosion control best management practices (BMPs) as required by WDEQ's Large Construction General Permit.

## Mitigation

Because no net impacts to water quality are anticipated, no long-term mitigation measures are required.

During construction, negative impacts to water quality would be minimized

During construction, the contractors will be required to adhere to measures outlined in the Large Construction General Permit, including specific measures to protect water quality during construction. These measures require implementation of a stormwater pollution prevention plan in compliance with the National Pollution Discharge Elimination System to accomplish the following:

- Control and minimize erosion and sedimentation during and after the construction phase of the Project.
- Minimize the potential for contaminants entering stormwater and receiving waters during construction activities.
- Reduce pollutants in post-construction stormwater runoff (stormwater quality management) by implementing permanent erosion control and stormwater measures to address cut and fill slope erosion and highway runoff.
- Continue maintenance of BMPs. Construction, operation, and maintenance BMPs will include both nonstructural and structural erosion control measures, as needed, along the Project corridor right-of-way, including stream crossings. BMPs would include erosion control grading techniques, such as slope drains, sediment control, and vehicle tracking control pads.
- Develop a spill prevention and emergency response plan for use during construction concerning the storage, handling, and use of chemicals and other such products.

## 3.9: Wetlands and Waters of the U.S.

Wetlands provide numerous benefits to people, fish, and wildlife

Wetlands provide numerous benefits for people, fish, and wildlife. Some of these benefits include protecting and improving water quality, providing fish and wildlife habitats, storing floodwaters, and maintaining surface water flow during dry periods (EPA 2020c).

### Regulatory Environment

As described under Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) and the EPA regulate the discharge of dredged and fill materials into waters of the U.S. through the Section 404 permit program. Waters of the U.S. are those waters that are subject to Section 404 and are referred to as *jurisdictional* (i.e., are under federal jurisdiction). Waters of the U.S. generally include wetlands and *other waters*, such as intrastate lakes, rivers, streams, mudflats, and tributaries to those waters. Swales, erosional features such as gullies, and small washes characterized by low volume and infrequent or short duration flow are not regulated under the CWA.

The project must comply with the Clean Water Act and compensate for unavoidable wetland impacts

Under Section 404, no discharge of dredged or fill material is permitted into waters of the U.S. if (1) a practicable alternative exists that is less damaging to the aquatic environment, or (2) the nation's waters would be significantly degraded. The USACE generally requires the issuance of a permit, or coverage under an existing permit, for all actions that have the potential to degrade or modify waters of the U.S. When applying for a permit, applicants must first show that steps have been taken to avoid impacts to wetlands, streams, and other aquatic resources; that potential impacts have been minimized; and that compensation would be provided for all remaining unavoidable impacts.

The Wyoming Regulatory Office of the USACE administers and enforces Section 404 of the CWA in Wyoming for the Omaha District.

In addition to the CWA, EO 11990 states that each federal agency "shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for acquiring, managing, and disposing of Federal lands and facilities."

Wetlands and other waters were mapped within the study area

For the purposes of this EA, delineated wetlands within the study area were preliminarily categorized as potentially jurisdictional or potentially isolated, based on delineator experience and field conditions. The *Aquatic Resources Inventory Report* (see Appendix A) will be submitted to the USACE for jurisdictional determination.

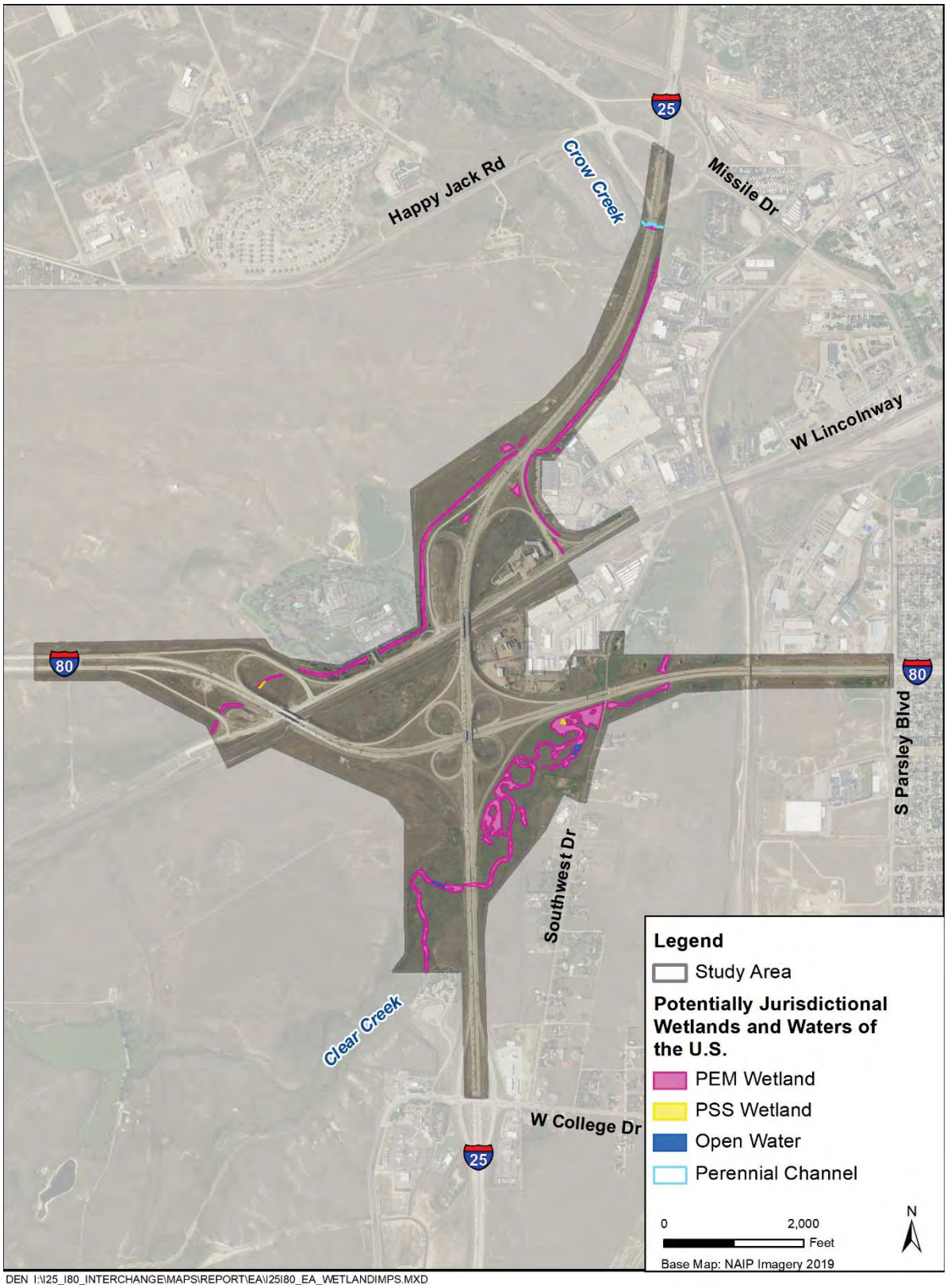
## Existing Conditions

Wetlands and other waters mapped within the study area total approximately 32.36 acres. These consist of 27 palustrine emergent (PEM) and 4 palustrine scrub-shrub (PSS) wetlands, 4 open water features, and 1 perennial channel. These resources are described in the following sections. Figure 3-17 identifies potentially jurisdictional delineated wetlands and other waters within the study area. Details can be found in the *Aquatic Resources Inventory Report* prepared for WYDOT in February 2020 (see Appendix A).

Large wetland complexes were mapped along Clear Creek and an unnamed tributary to Crow Creek

Palustrine wetlands include all non-tidal wetlands dominated by trees, shrubs, persistent emergent vegetation, emergent mosses, or lichens (Cowardin et al. 1979). Two classes of palustrine wetlands are identified in the study area: PEM and PSS. PEM wetlands are dominated by emergent vegetation and contain less than 30 percent cover from shrubs or trees (Cowardin et al. 1979). PSS wetlands are defined by a layer of shrubs meeting a 30 percent cover minimum (Cowardin et al. 1979). Trees may be present but do not exceed 30 percent cover. Areas of open water are defined as being less than 2 meters deep and have low cover by emergent vegetation (Cowardin et al. 1979).

**Figure 3-17: Potentially Jurisdictional Wetlands and Waters of the U.S.**



PEM wetlands within the study area total 31.26 acres. Dominant herbaceous species in these wetlands include narrowleaf cattail (*Typha angustifolia*), three-square (*Schoenoplectus pungens*), soft-stem club-rush (*S. tabernaemontani*), Baltic rush (*Juncus balticus*), reed canary grass (*Phalaris arundinacea*), coastal salt grass (*Distichlis spicata*), and fox-tail barley (*Hordeum jubatum*). PSS wetlands within the study area total 0.17 acre. Dominant shrub species in these wetlands include narrowleaf willow (*Salix exigua*) and peachleaf willow (*S. amygdaloides*). Open water within the study area totals 0.82 acre. Two open water features are stock ponds with fringe PEM and/or PSS wetlands. The other two open water features are found within PEM wetlands. Approximately 0.12 acre (330 linear feet) of perennial channel was mapped within the study area. This channel, Crow Creek, crosses underneath I-25 at the northern end of the study area.

The study area includes two large wetland complexes: the Clear Creek drainage in the south and a large unnamed drainage in the north. The Clear Creek drainage appears to be a relict channel that has filled in with wetland vegetation and no longer exhibits channel features (for example, a defined bed and bank). This drainage flows south to north on the southwestern side of I-25, crosses east under I-25, and meanders northeast through a large wet meadow complex. This drainage crosses north under I-80 and continues northeast beyond the study area until its confluence with Crow Creek. This wetland complex has high plant species diversity, and is predominantly PEM wetland, with two areas of open water.

The large unnamed drainage in the north also appears to be a relict channel now full of vegetation. This drainage enters the study area just north of Lincolnway, crosses under I-80 through a reinforced culvert, and continues east then north along southbound I-25. It crosses I-25 through a large box culvert just north of the Lincolnway interchange and continues north along northbound I-25 before flowing into Crow Creek. Several small ditch wetlands connect to this drainage on the northeastern side of the Lincolnway interchange. This unnamed drainage is predominately a narrowleaf cattail marsh (PEM), with two small areas of PSS wetland. Crow Creek flows west to east under I-25 at the northern end of the study area. The remaining wetlands within the study area consist of stock ponds and their fringing wetlands, and several small PEM wetlands interspersed among the on- and off-ramps. These wetlands are dominated by fox-tail barley and Baltic rush.

## Impacts

Impacts to wetlands and other waters are categorized as either temporary or permanent. Temporary impacts include disturbances that can be restored to pre-construction conditions after construction is complete. Permanent impacts include disturbances that fill, flood, excavate, or drain a wetland. These disturbances may change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change its use.

### No Build Alternative

Under the No Build Alternative, no temporary or permanent impacts to wetlands or other waters would occur.

The Build Alternative would result in permanent and temporary impacts to wetlands

### Build Alternative

Under the Build Alternative, permanent impacts to wetlands or other waters would result from fill because of interstate widening, new ramps, and embankment. Temporary impacts would occur from construction of temporary ramps and roads, grading, and other construction-related activities. Table 3-9 shows these approximate impacts. Refer to the *Aquatic Resources Inventory Report* (Appendix A) for figures showing permanent and temporary impacts to wetlands and other waters.

**Table 3-9: Temporary and Permanent Wetland Impacts from the Build Alternative**

| | Impacts (acres) | |
|---|---|---|
| | Temporary | Permanent |
| Potentially Jurisdictional | 1.31 | 1.85 |
| Potentially Isolated | 2.46 | 3.90 |
| **Total** | **3.77** | **5.75** |

The Build Alternative would impact PEM wetlands only. Potentially jurisdictional wetland impacts are associated with the two major wetland complexes discussed previously. Potentially isolated wetlands impacted by the Build Alternative include numerous wetlands associated with on- and off-ramps and several small wetlands north of Clear Creek in the southwestern quadrant.

Most permanent impacts to potentially jurisdictional wetlands would result from reconfiguring the Lincolnway service interchange. Other permanent impacts to potentially jurisdictional and isolated wetlands would occur because of the following:

- The various ramps and flyovers connecting the two interstates
- The I-25 realignment over Clear Creek
- The realignment and widening of the I-80 mainline
- Permanent tie-ins at all interchanges

Temporary impacts would occur from a temporary road proposed to accommodate southbound I-25 to westbound I-80 traffic during construction. Other temporary impacts would result from construction of the northbound I-25 to eastbound I-80 ramp, other ramps and flyovers, temporary connections to I-25, the I-80 culvert installation, the realignment and widening of the I-80 mainline, and construction staging.

### *Permitting*

A Clean Water Act Section 404 permit is required prior to construction

As discussed in Chapter 5, FHWA and WYDOT met with the USACE in December 2019 to discuss the project, estimated impacts, and mitigation opportunities. Before the Project is constructed, WYDOT will pursue and acquire all appropriate permits from the USACE.

## Mitigation

Under Section 404 of the CWA, permanent impacts must be avoided and minimized to the extent practicable. WYDOT has attempted to avoid and minimize impacts to wetlands during the preliminary design stage. For example, a retaining wall was added to the preliminary design to minimize impacts to potentially jurisdictional wetlands from a proposed ramp in the I-25/I-80 southwestern quadrant. WYDOT will continue to seek opportunities to avoid and minimize impacts during final design.

Temporarily impacted wetlands will be revegetated and restored to previous condition

Wetlands temporarily impacted by construction will be restored to previous conditions and revegetated with a native seed mix approved by WYDOT. Permanent impacts to wetlands will require mitigation.

Compensatory mitigation is required for unavoidable impacts to replace the loss of wetland and aquatic resource functions in the watershed. Compensatory mitigation is defined as "the restoration, establishment, enhancement, and/or in certain circumstances, the preservation of wetlands, streams or other aquatic resources for the purpose of offsetting unavoidable adverse impacts" (EPA 2020a). Per USACE coordination, a compensatory mitigation ratio of 1.5:1 for federally jurisdictional PEM wetlands is anticipated for this Project.

FHWA regulations established a goal of a net gain of wetlands, regardless of jurisdiction (23 CFR 777 2000). Also, a program-wide goal of increasing net wetlands acreage by 50 percent, a 1.5:1 ratio, was established as part of the National Clean Water Action Plan (EPA 1998). This compensatory mitigation ratio is anticipated for permanently impacted wetlands not under USACE jurisdiction.

Table 3-10 provides a preliminary estimate of the acres of mitigation wetlands anticipated for the Project by jurisdictional status.

**Table 3-10: Anticipated Compensatory Wetland Mitigation**

| Jurisdiction | Permanent Impacts (Acres) | Mitigation Ratio | Mitigation (Acres) |
|---|---|---|---|
| Potentially Jurisdictional | 1.85 | 1.5:1 | 2.78 |
| Potentially Non-Jurisdictional | 3.90 | 1.5:1 | 5.85 |

WYDOT will work with USACE to determine an appropriate strategy for a mitigation wetland, which may include onsite mitigation and/or purchase of credits through a wetland bank. As outlined in USACE guidance, compensatory mitigation requirements will be calculated using impacted acres and wetland function scores (USACE 2002). Determining the functions provided by an impacted wetland helps achieve no net loss of wetland function. Functional assessments of each permanently impacted wetland will be performed using the Montana Department of Transportation Wetland Assessment Method.

WYDOT will work closely with USACE to identify onsite wetland mitigation opportunities

Per USACE coordination, the mitigation wetland(s) may need to occur onsite and connect to the floodplain of a jurisdictional water. Further, the wetlands will need to be in-kind replacement, that is, have the same physical and functional types of the impacted wetlands. Potentially suitable sites within the study area include a section of the Clear Creek complex to the south of I-80 and along Crow Creek, where restoration activities are ongoing. These and other options will be evaluated based on constructability, cost, and technical requirements. A mitigation proposal package will be submitted for approval by USACE as part of the Section 404 permitting process.

## 3.10: Floodplains

### Existing Conditions

A flood zone is a geographic area that the Federal Emergency Management Agency (FEMA) defines according to varying levels of flood risk. An area designated as floodplain Zone AE, which is defined as an area with a one percent annual chance of flooding (referred to as the 100-year floodplain), is considered at high risk of flooding by FEMA. A Zone A floodplain is an area likely to be inundated by a 100-year flooding event, but for which a detailed analysis has not been performed to identify the depth of flooding. A floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height (FEMA 2019).

The Clear Creek and Crow Creek floodplains intersect the study area

Two Zone A floodplains associated with Clear Creek and Crow Creek are located within the study area (Figure 3-18). The Clear Creek floodplain varies in width from approximately 250 feet to 450 feet throughout the study area. In addition, a small area of the Crow Creek floodway is located within the study area where Crow Creek crosses I-25 at MP 10.4. The Crow Creek floodway begins immediately east of the I-25 alignment south of the Missile Drive interchange and extends eastward along Crow Creek. Similarly, the Clear Creek floodway extends east from the edge of the study area along I-80.

**Figure 3-18: Floodplains and Floodways**

## Impacts

### *No Build Alternative*

Routine maintenance and winter service activities under the No Build Alternative would not impact the existing floodplain or floodway, and therefore not increase flood risk to nearby properties.

### *Build Alternative*

No increase in the 100-year base flood elevation would result from the Build Alternative

The Build Alternative would widen I-25 where it crosses the Clear Creek floodplain at MP 8.4, resulting in a minor encroachment of the floodplain. However, the minor encroachment would not result in a rise to the base flood elevation. No encroachments into either the Crow Creek or Clear Creek floodways would occur. As a result, the Build Alternative would not result in negative impacts to any floodplain or floodway resources in the study area. A Floodplain Development Permit would be obtained through Laramie County Planning and Development Office before beginning construction.

### *Mitigation*

WYDOT or its contractor will obtain a floodplain development permit from the Laramie County Planning and Development prior to the start of construction.

# 3.11: Vegetation and Noxious Weeds

## Existing Conditions

This section describes the existing vegetation, including the presence of noxious weeds, in the study area. The study area is located within the Moderate Relief Plains sub-ecoregion of the High Plains ecoregion as defined by the EPA. The High Plains is a landscape of rolling plains and tablelands formed by uplift and the erosion of the Rocky Mountains. Moisture is a limiting factor in the rainshadow of the Rocky Mountains; as a result, drought-resistant shortgrass and prairie grasslands dominate the plains vegetation. Most precipitation in this region generally falls during the growing season (Chapman et al. 2004). The average annual precipitation is approximately 15 inches, with total snowfall of approximately 56 inches (WRCC 2016).

The study area is characterized by rolling plains with grassland vegetation

In Wyoming, prairie grasslands are typically below 7,000 feet in elevation and are predominantly located in the eastern portions of the state. Shortgrass prairie occurs mainly in the southeast corner of the state and extends south into Colorado. The Cheyenne area is primarily dominated by shortgrass prairie with appropriate associated plant species including needle-and-thread (*Hesperostipa comata*), prairie junegrass (*Koeleria macrantha*), western wheatgrass (*Pascopyrum smithii*), blue grama (*Bouteloua gracilis*), buffalo grass (*Bouteloua dactyloides*), Indian ricegrass (*Achnatherum hymenoides*), winter fat (*Krascheninnikovia lanata*), and scattered yucca (*Yucca* spp.). The plains surface steadily increases in elevation as it rises to a subtle boundary transition with the Laramie Mountains to the west (Chapman et

al. 2004; WGFD 2017). The topography within and surrounding the study area is categorized as being relatively flat with little topographical variation. The elevation of the study area is approximately 6,100 feet above mean sea level.

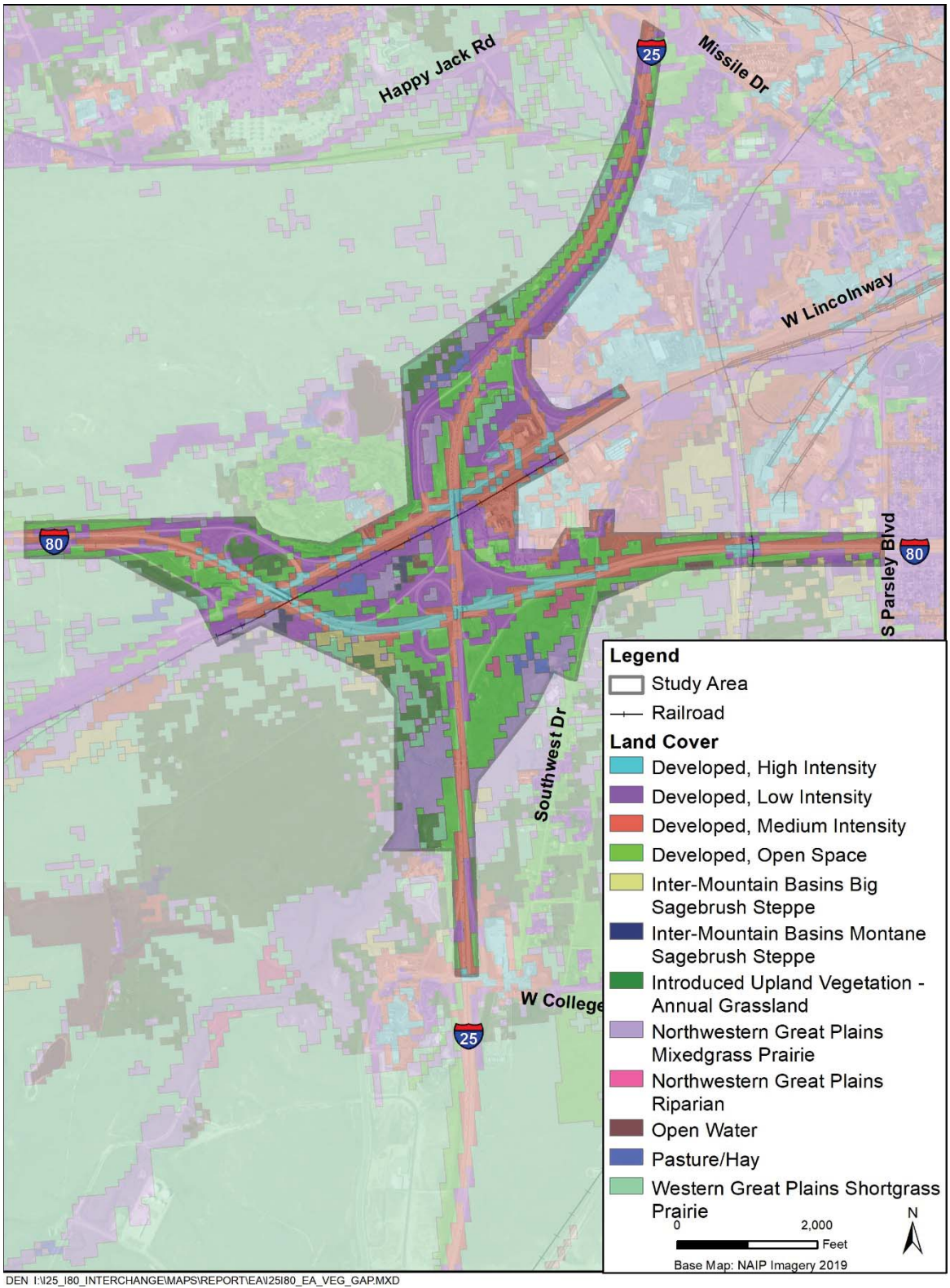
General vegetation types (land cover types) have been mapped for the State of Wyoming as part of the Wyoming Gap Analysis Project, a Geographic Information System (GIS) database describing vegetation types for the entire state (USGS 2011). The Wyoming Gap Analysis Project, as well as field reconnaissance, is the basis for the description of vegetation in the study area. Dominant vegetation types in the study area are developed landscapes and mixed-grass and shortgrass prairie (Figure 3-19). Acreages of each land cover type within the study area are outlined in Table 3-11.

**Table 3-11: Land Cover Type Acreages within the Study Area**

| Cover Type | Acres | Cover Type | Acres |
|---|---|---|---|
| Developed | 317 | Great Plains Mixed-grass Prairie | 59 |
| Open Space | 164 | Great Plains Riparian | 3 |
| Inter-mountain Basins Big Sagebrush Steppe | 8 | Open Water | 2 |
| Inter-mountain Basins Montane Sagebrush Steppe | 3 | Pasture/Hay | 7 |
| Introduced – Annual Grassland | 28 | Shortgrass Prairie | 24 |

Both the federal and state governments have requirements concerning noxious weeds. EO 13112 requires federal agencies to prevent the introduction of invasive species, detect and control populations of such species, monitor invasive species populations, and restore native species and habitats that have been invaded to the extent practical and permitted by law.

**Figure 3-19: Vegetation Cover Types**



At the state level, the 1973 Wyoming Weed and Pest Control Act was enacted to control designated weeds and pests throughout the state. The Weed and Pest Control Act established each Wyoming county as a district to address specific weed or pest concerns in each county. Under the Weed and Pest Control Act, landowners that are responsible for a weed infestation and fail or refuse to perform remedial requirements are subject to fines. The purpose of the Weed and Pest Control Act is controlling designated and declared weeds and pests.

- Declared weed – Means any plant species which the board and the Wyoming Weed and Pest Council have found, either by virtue of its direct or indirect effect to negatively impact management of agricultural or natural ecosystems, or as a carrier of disease or parasites, to be detrimental to the general welfare of persons residing within a district.
- Designated noxious weed – Means plant species having seeds or other plant parts determined to be detrimental to the general health or welfare of the state based upon the following:
  - Has demonstrated the ability to aggressively invade native plant communities and agricultural crops
  - Is injurious or poisonous to livestock
  - Is a carrier of disease or parasites
  - Can, by virtue of either direct or indirect effect, negatively impact management of agricultural or natural ecosystems (Wyoming Department of Agriculture 2015)

Several species of weeds are present throughout the study area

Jacobs Engineering Inc. (Jacobs) biologists conducted a field survey of the study area between July 29 and August 2, 2019. Field observations indicated that most of the study area and adjacent lands have been disturbed through the construction of the I-25 and I-80 transportation corridors, secondary roads, and business and residential development. As such, the amount of native prairie grassland vegetation is limited and not high quality. Weed species identified throughout the study area include Canada thistle (*Cirsium arvense*), cheatgrass (*Bromus tectorum*), dalmatian toadflax (*Linaria dalmatica*), field bindweed (*Convolvulus arvensis*), houndstongue (*Cynoglossum officinale*), leafy spurge (*Euphorbia esula*), musk thistle (*Carduus nutans*), perennial sowthistle (*Sonchus arvensis*), quackgrass (*Agropyron repens*), Russian olive (*Elaeagnus angustifolia*), and wild licorice (*Glycyrrhiza lepidota*). Except for cheatgrass and wild licorice, all weeds noted are listed as designated noxious weeds in Wyoming. Cheatgrass and wild licorice are designated as declared weeds in Laramie County (Wyoming Weed and Pest Council 2018).

Field reconnaissance found that noxious weeds are lightly dispersed throughout the study area. The exception is the southeastern portion of the study area where Canada thistle and leafy spurge occur at medium to high densities.

## Impacts

### *No Build Alternative*

Existing vegetation and land cover generally would remain unchanged under the No Build Alternative. Vehicles used for maintenance and the winter service actions could bring noxious weeds into the study area. However, any additional impacts to vegetation or noxious weeds are expected to be negligible.

The Build Alternative would convert vegetated areas to transportation use

### *Build Alternative*

Replacing both the I-25/I-80 and I-25/Lincolnway interchanges under the Build Alternative would convert disturbed and naturally vegetated areas to pavement or other permanent features. Short-term impacts include the disturbance of vegetated areas from construction activities, such as vegetation and topsoil removal to construct the road and slope. Short-term impacts to natural vegetation would be minimal as most impacts would occur to previously disturbed landscapes. Impacted areas typically would recover over time and provide similar vegetation types to conditions that existed before construction.

Temporarily disturbed vegetated areas would be reclaimed with WYDOT approved seed mix

Land disturbance where noxious and invasive weed species exist can greatly increase seedling establishment, creating or increasing infestations. Most noxious and invasive weed species are aggressive pioneers that have a strong competitive advantage over other species on disturbed sites. Therefore, all areas disturbed by the Build Alternative provide potential substrate for these species to become established. Severity of impacts depends on the species, degree of invasion, and control measures employed. In addition, construction vehicles could bring noxious weeds into the study area. Severity of impacts depends on the species, degree of invasion, and control measures employed. Adverse impacts from noxious and invasive species could include, at a minimum, loss or degradation of native vegetation and landscapes.

## Mitigation

WYDOT's contractor will reclaim disturbed ground with a seed mix composed of species appropriate to site conditions, as developed by the WYDOT agronomist. Further, WYDOT's contractor will comply with Sections 207 and 806 of WYDOT's Standard Specifications for Road and Bridge Construction (2010) to avoid the spread of noxious weeds. Based on Section 207, before topsoil removal, overlying brush, grass, crops, and other suitable material will be cleared and mulched, and then incorporated into the topsoil. Topsoil storing will consist of removing the stockpiling topsoil within the limits of the Project, in uniform piles and out of the way of other activities.

# 3.12: Wildlife and Fisheries

Fish and wildlife contribute to ecosystem diversity, provide a source of enjoyment for recreationists, and provide a source of food for people and other animals.

Transportation projects can affect fish and wildlife through changes such as habitat fragmentation, human encroachment, and disruption of migration routes.

## Existing Conditions

The study area is located within the prairie grasslands terrestrial habitat type within the High Plains ecoregion. Land use is commonly livestock grazing in contrast to cropland agriculture, which is more prominent to the east (Chapman et al. 2004; WGFD 2017). See Section 3.11: Vegetation and Noxious Weeds for a more detailed discussion on vegetation and land cover types within the study area.

Most of the Project study area and adjacent lands have been disturbed through the construction of the I-25 and I-80 transportation corridors, secondary roads, and business and residential development. Consequently, the amount of available prairie grassland habitat is limited and not of high quality.

### Big Game

No big game seasonal migration corridors are present in the study area

The WGFD big game geospatial data show that the study area is located within year-long range for the following big game species: elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), and pronghorn (*Antilocapra americana*). Along the study area, I-25 serves as a dividing line for pronghorn habitat. Winter/year-long range is mapped west of I-25, while year-long range is mapped to the east. The study area also overlaps with pronghorn crucial winter/year-long range, which is mapped west of I-25, north of I-80 (Figure 3-20).

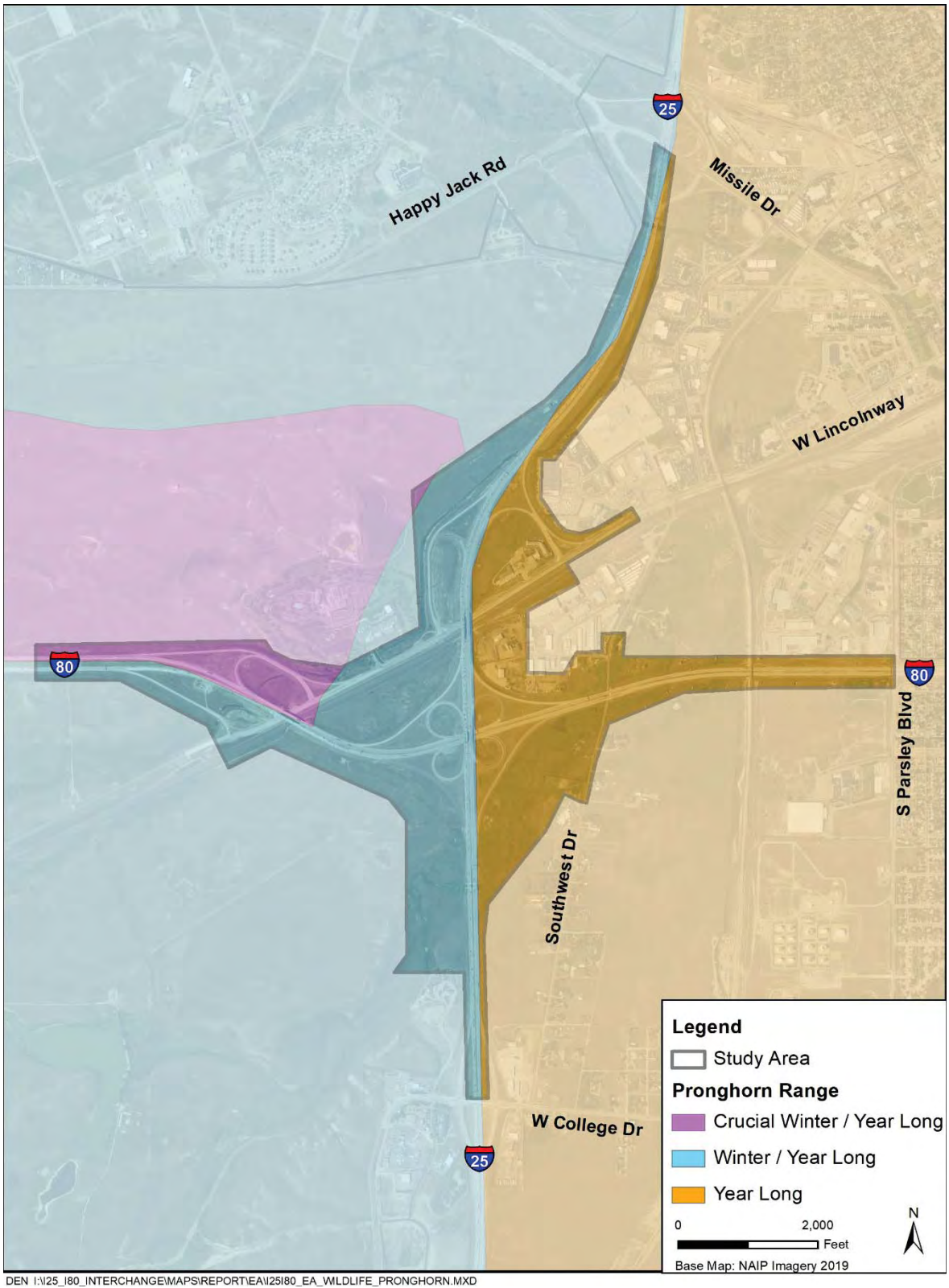
WGFD has not identified seasonal migration corridors within the study area. Because of traffic volumes and right-of-way fencing along the interstates, WGFD identified I-80 west of the study area as a movement barrier for mule deer, while both I-25 and I-80 pose barriers for pronghorn (WGFD 2019). No wildlife crossing structures, fencing or escape ramps currently exist along I-25 or I-80 within the study area.

### General Wildlife

Most of the natural habitat in the study area has been previously disturbed

As previously discussed, most of the study area has been disturbed before and the amount of available natural habitat is limited. Buildings, parking lots, roads, and lawns have replaced native wildlife habitat. Wildlife commonly abandon or alter use of habitats with greater human and pet activity. Furthermore, noxious weeds and invasive vegetation have become well-established throughout portions of the study area in part because of the commercial, residential, and transportation development. As such, wildlife species potentially found within the study area include generalists that are common and adapted to living in developed environments (e.g., raccoon [*Procyon lotor*], red fox [*Vulpes vulpes*], coyote [*Canis latrans*], striped skunk [*Mephitis mephitis*], eastern cottontail [*Sylvilagus floridanus*], black-billed magpie [*Pica hudsonia*], American robin [*Turdus migratorius*], house finch [*Haemorphus mexicanus*], or European starling [*Sturnus vulgaris*]).

**Figure 3-20: Pronghorn Habitat**



### Fisheries

The study area is not located within a WGFD aquatic conservation area or any aquatic crucial habitat priority areas. Crucial habitat areas are based on significant biological and ecological values including habitats that support important life stages needed for maintaining game species, sensitive native non-game species, unique species assemblages and ecologically important species or communities (WGFD 2015).

Crow Creek is a Yellow Ribbon stream able to support fish

Fisheries habitat is relatively limited within the study area. Two waterways cross the study area, Crow Creek, a perennial stream to the north and Clear Creek, an intermittent stream to the south and west of the I-25/I-80 interchange. Crow Creek is classified as a Yellow Ribbon stream which is defined as a stream with between 50 to 300 pounds of sport fish per mile (WGFD 2016). According to the WDEQ classifications, Crow Creek is classified as Class 2ABWW, which is a cold-water non-game fishery. Clear Creek is classified as a Class 3B water, and within the study area, likely does not have the hydrology to support fish (WDEQ 2013).

### Birds

Most native bird species (birds naturally occurring in the U.S.) are protected by the Migratory Bird Treaty Act (USFWS 2015a). The Migratory Bird Treaty Act is a federal statute (United States Code [USC] Title 16 Section 703 et. seq.) under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) intended to protect migratory birds. The Migratory Bird Treaty Act provides protection to 861 species based on the most recent revised list (USFWS - 50 CFR Part 10).

The USFWS published the *Birds of Conservation Concern 2008* list to identify species that may need conservation measures to prevent or remove the need for future Endangered Species Act (ESA) listings. Bird species considered for the Birds of Conservation Concern list include the following:

- non-game birds
- game birds without hunting seasons
- subsistence-hunted non-game birds in Alaska
- ESA candidate, proposed, and recently delisted species

The study area is located in the USFWS *Birds of Conservation Concern 2008*/Bird Conservation Region 18 (Shortgrass Prairie), which lists 26 species. USFWS Region 6, which includes Wyoming, also maintains a list of Focal Species, which have been identified as having a high conservation need (USFWS 2015b). Twenty species comprise this list, of which eight (Bald Eagle, Burrowing Owl, Golden Eagle, Long-billed Curlew, Mountain Plover, Snowy Plover, and Upland Sandpiper) are also included on the *Birds of Conservation Concern 2008*/Bird Conservation Region 18 list. Table 3-12 outlines the *Birds of Conservation Concern 2008* that are listed in Bird Conservation Region 18, along with their primary habitat type(s).

**Table 3-12: Birds of Conservation Concern that are Listed in Bird Conservation Region 18**

| Common Name | Scientific Name | Primary Habitat Type(s) | Likelihood of Occurrence |
|---|---|---|---|
| Bald Eagle | *Haliaeetus leucocephalus* | Montane Riparian, Plains/Basin Riparian | **Low**. Species may forage in the vicinity but nesting substrate not available in the study area. |
| Bell's Vireo | *Vireo bellii* | Willows, Thickets, Streamsides | **None**. Study area is outside species range. |
| Burrowing Owl | *Athene cunicularia* | Shortgrass Prairie | **Low**. Study area is within mapped range, although no prairie dog colonies were observed during field surveys. |
| Chestnut-collard Longspur | *Calcarius ornatus* | Shortgrass Prairie | **Moderate**. Study area within range and habitat present. |
| Golden Eagle | *Aquila chrysaetos* | Specialized (cliffs) | **Low**. Species may forage in the vicinity, but nesting substrate is not available in the study area. |
| Lark Bunting | *Calamospiza melanocorys* | Shortgrass Prairie, Shrub-steppe | **High**. Study area within range, habitat present, and species has been documented in the vicinity. |
| Lesser Prairie-chicken | *Tympanuchus pallidicinctus* | Shortgrass Prairie | **None.** Suitable habitat not present. |
| Lewis's Woodpecker | *Melanerpes lewis* | Low Elevation Conifer, Plains/Basin Riparian | **None.** Suitable habitat not present. |
| Long-billed Curlew | *Numenius americanus* | Shortgrass Prairie, Meadows | **Moderate**. Study area within range and habitat present. |
| McCown's Longspur | *Calcarius mccownii* | Shortgrass Prairie | **High**. Study area within range, habitat present, and species has been documented immediately north of study area. |
| Mountain Plover | *Charadrius montanus* | Shortgrass Prairie | **Moderate**. Study area within range and habitat present. Species historically documented in Project vicinity. |
| Prairie Falcon | *Falco mexicanus* | Specialized (cliffs) | **Low**. Species may forage in the vicinity, but nesting substrate is not available in the study area. |
| Snowy Plover | *Charadrius nivosus* | Wetlands | **None**. Study area is outside species range. |
| Sprague's Pipit | *Anthus spragueii* | Shortgrass Prairie | **None**. Study area is outside species range. |

**Table 3-12: Birds of Conservation Concern that are Listed in Bird Conservation Region 18**

| Common Name | Scientific Name | Primary Habitat Type(s) | Likelihood of Occurrence |
|---|---|---|---|
| Upland Sandpiper | *Bartramia longicauda* | Shortgrass Prairie | **Low**. Study area is within mapped range, although preferred habitat not present. |
| Willow Flycatcher | *Empidonax traillii* | Montane Riparian, Plains/Basin Riparian | **None.** Suitable habitat not present. |

Source: USFWS 2019a

Raptors are fairly common in the study area vicinity because of the amount of open landscape. Numerous raptors were observed during field visits conducted between July 29 and August 2, 2019, including American Kestrel (*Falcon sparverius*), Bald Eagle (*Haliaeetus leucocephalus*), Northern Harrier (*Circus cyaneus*), Red-tailed Hawk (*Buteo jamaicensis*), and Swainson's Hawk (*Buteo swainsoni*). No nests were observed within the Project study area.

### Sensitive Species

The study area is located outside current greater sage-grouse (*Centrocercus urophasianus)* range, which is mapped approximately 25 miles to the northwest. As such, the study area is not a sage-grouse core area, as designated in EO 2019-3, and is not a sage-grouse connectivity area (WGFD 2019). Overall, preferred habitat for the species (i.e., sagebrush stands) is not present within or adjacent to the study area and it would be highly unlikely for the species to be present.

The likelihood of Wyoming designated sensitive species to occur in the study area is low

WGFD has developed a system to designate low and declining species recognized as Species of Greatest Conservation Need (SGCN). SGCN are species whose conservation status warrants increased management attention and funding, as well as consideration in conservation, land use, and development planning. WGFD identifies SGCN by assigning tier ranks. Tier 1 species are the highest conservation priority, Tier 2 species are a moderate priority, and Tier 3 species are the lowest priority (WGFD 2017).

The study area is not located within a Key Non-game Wildlife Area as designated by WGFD. Such areas were created to focus on management and monitoring efforts for SGCN, and were developed based on faunal diversity and density, uniqueness of habitat, intactness of habitat, and the species' importance to maintaining native SGCN fauna in Wyoming. Wildlife values are to be maintained in these areas. Overall, the likelihood for SGCN to occur within the Project study area is considered relatively low because of the disturbed nature of much of the habitat in combination with the heavily used travel corridors. Consequently, the proposed project is not likely to cause population declines of any SGCN species that would jeopardize their continued existence or lead to potential federal listing.

## Impacts

### No Build Alternative

Under the No Build Alternative, no impacts to wildlife and fisheries are expected.

### *Build Alternative*

As discussed in Section 3.11: Vegetation and Noxious Weeds, long-term impacts to vegetated areas mostly would occur to previously disturbed landscapes; therefore, effects to associated wildlife habitat would be minor. Further, big game usage patterns or habitats are not anticipated to be altered from current conditions after completion of the Project. Fisheries habitat would not be altered and, as discussed in Section 3.8: Water Resources and Water Quality, water quality degradation is not anticipated.

Neither big game nor fish habitat would be permanently impacted by the Build Alternative

Short-term impacts from construction activities could include removing vegetation and topsoil to construct roads, slopes and bridges. These areas typically would recover over time and provide similar vegetation types and wildlife habitat to pre-construction conditions. All areas disturbed by the Build Alternative would provide potential substrate for noxious and invasive weed species species to become established. Adverse impacts from noxious and invasive species could include, at a minimum, loss or degradation of wildlife habitat and reduction of native landscapes.

Construction during migratory birds' breeding or migration seasons could impact migratory birds, causing disturbance or displacement-related impacts on migratory birds nesting or migrating near construction areas. General wildlife species may also be impacted by construction noise, ground disturbance, and the increased human presence. However, these general wildlife species are typically habitat generalists and would likely respond by dispersing to adjacent available habitats.

### Mitigation

No long-term impacts to wildlife and fisheries are anticipated; therefore, no mitigation is required. WYDOT's contractor will reclaim disturbed ground with a seed mix composed of species appropriate to site conditions, as developed by the WYDOT agronomist.

## 3.13: Threatened and Endangered Species

The primary federal law protecting threatened and endangered species is the federal ESA: 16 USC Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Plant and wildlife species have been listed under the ESA as threatened or endangered, or have been proposed to be listed as threatened or endangered, because of declining or limited populations. Under Section 7 of the ESA, federal agencies are required to consult with the USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species.

The Endangered Species Act protects threatened and endangered species

## Existing Conditions

On July 1, 2019, Jacobs requested a list of threatened, endangered, and proposed species that may be present in the action area using the USFWS's Information for Planning and Consultation (iPAC) online system. Table 3-13 includes the threatened, endangered, and proposed species, and/or designated critical habitat that may be located within the action area and could potentially be affected by the proposed project.

The Colorado butterfly plant was delisted from the Endangered Species Act in December of 2019

At the time the species list was generated via the iPAC system, the Colorado butterfly plant (*Oenothera colorandensis*) was covered under the ESA as a threatened species. However, USFWS submitted a final rule on November 5, 2019, delisting the species effective December 2, 2019 (USFWS 2019b). During field surveys conducted by Jacobs biologists between July 29 through August 2, 2019, this species was identified in the southeastern portion of the study area near Clear Creek. However, the species will not be evaluated since it no longer receives protection under the ESA.

Four species in Table 3-13 are downstream residents or migrants within the Platte River corridor: whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), pallid sturgeon (*Scaphirhynchus albus*), and western prairie fringed orchid (*Platanthera praeclara*). Federal agencies must consult with USFWS under Section 7 of the ESA for projects in Wyoming that may lead to water depletions or have the potential to impact water quality in the Platte River system, because these actions may affect threatened and endangered species inhabiting the downstream reaches of these river systems.

**Table 3-13: Federal ESA-listed Species that May be Affected by the Proposed Action**

| Common Name | Scientific Name | Status | Habitat Association | Suitable Habitat Present? | Critical Habitat Present? | Reason for Exclusion from Analysis |
|---|---|---|---|---|---|---|
| ***Mammals*** | | | | | | |
| Preble's meadow jumping mouse | *Zapus husonius preblei* | Threatened | Well-developed riparian habitat with adjacent relatively undisturbed grassland communities and a nearby water source between 4,650 to 7,600 feet elevation (USFWS 2016) | No | No | Suitable habitat is not present within the area of proposed disturbance. While the Project would impact the 100-year floodplain of Clear Creek, suitable riparian habitat is not present. |
| ***Birds*** | | | | | | |
| Least tern[1] | *Sterna antilarrum* | Endangered | Downstream Platte River system | No | No | Depletions to the Platte River system are addressed between WYDOT and the State Engineers Office. |
| Piping plover[1] | *Charadrius melodus* | Threatened | Downstream Platte River system | No | No | Depletions to the Platte River system are addressed between WYDOT and the State Engineers Office. |
| Whooping crane[1] | *Grus americana* | Endangered | Downstream Platte River system | No | No | Depletions to the Platte River system are addressed between WYDOT and the State Engineers Office. |
| ***Fishes*** | | | | | | |
| Pallid sturgeon[1] | *Scaphirhynchus albus* | Endangered | Downstream Platte River system | No | No | Depletions to the South Platte River system are being addressed programmatically between WYDOT and the USFWS. |

**Table 3-13: Federal ESA-listed Species that May be Affected by the Proposed Action**

| Common Name | Scientific Name | Status | Habitat Association | Suitable Habitat Present? | Critical Habitat Present? | Reason for Exclusion from Analysis |
|---|---|---|---|---|---|---|
| ***Plants*** | | | | | | |
| Colorado butterfly plant | *Oenothera coloradensis* | Threatened | Sub-irrigated and wetland habitats along floodplains on the High Plains between 5,000 and 6,400 feet elevation (USFWS 2019b) | No | No | On December 5, 2019, the species was delisted and is no longer covered under the ESA (USFWS 2019b). |
| Ute ladies'-tresses orchid | *Spiranthes divulvialis* | Threatened | In Wyoming, species can be found between 4,200 and 5,500 feet elevation (West 2015) | No | No | Study area is above 5,500 feet elevation, which represents the upper elevational limit for the species in Wyoming. Additionally, the species was not observed during field surveys. |
| Western prairie fringed orchid[1] | *Platanthera praeclara* | Threatened | Downstream Platte River system | No | No | Depletions to the Platte River system are addressed between WYDOT and the State Engineers Office. |

[1] Water depletion projects in the Platte River system may affect this species.

## Impacts

### *No Build Alternative*

The No Build Alternative would not affect species covered under the ESA.

### *Build Alternative*

The Build Alternative would not impact threatened or endangered species

No effect to species covered under the ESA are anticipated as a result of the Build Alternative. Federally listed species will be addressed by WYDOT in their updated Programmatic Biological Assessment (PBA) and the USFWS's subsequent Biological Opinion that will include the proposed I-25/I-80 interchange project. The purpose of the PBA is to evaluate the effects of typical WYDOT highway improvement projects on endangered, threatened, proposed, and experimental nonessential species listed under the ESA and species listed as candidates for listing. The PBA defines the general highway project types, provides the typical impacts connected with the project types on the listed species in Wyoming, and concludes with an effect determination for each potential impact.

Regarding potential Platte River water depletions (which may affect the Platte River species denoted with Note 1 in Table 3-13), WYDOT provides the State Engineer's Office their water usage from the Platte River Basin at the end of each construction season; who in turn coordinates with USFWS (Hart, personal communication 2019). This accounting helps assure that WYDOT remains in compliance with Section 7 of the ESA.

## Mitigation

Because no adverse effects are expected to threatened and endangered species, no mitigation is required.

# 3.14: Soils and Geology

Geologic features that could impact transportation projects include formations that are unstable or erode easily, areas of former or active underground mining, and faults or areas of seismic activity. Soil features that may affect projects include soil erodibility and permeability. This section discusses potential effects to these resources.

## Existing Conditions

Groundwater in the study area is relatively shallow and flows to the northeast

The Project occurs within the Crow Creek watershed, which is part of the Platte River Basin. Unconsolidated deposits are on the Ogallala Formation. Thickness of these deposits over the bedrock is widely variable because of the layering of the formation. The estimated depth to groundwater is approximately 10 to 25 feet below ground surface based on reported static water levels of registered industrial- and commercial-use wells. Elevation data indicates that groundwater flow in the area is to the east and northeast toward Crow Creek, which then goes on to flow into the South Platte River.

Soils in the study area are primarily Ipson-Evanston complex, Merden silty clay loam and complex, and Poposhia-Trimad complex. These soils tend to be fine-laomy soils, loamy-skeletal, and mixed (USDA 2020).

A review of the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey was completed in July 2019 (USDA 2020). Also a geotechnical investigation was completed for the Project that characterized soil and geologic conditions including for subgrade modulus for pavement design, characterized strength values for embankment and foundation construction, and determined soil compaction at seven boring locations throughout the study area. Boring samples were transported to the Strata lab in Casper, Wyoming, for classification and testing. (Strata 2019).

Petroleum and metal impacted soils were identified within the study area

The soil profiles throughout the study area vary between silt, clay, and gravel. However, they generally consist of sands ranging from silty/poorly graded sands to clayey sands. The sand primarily has a relative density of medium dense to dense; however, softer soils are expected in wetland areas. The southeast quadrant is expected to have higher groundwater, contributing to softer soils. Petroleum-contaminated soils were discovered in the northeast project quadrant. Additional analysis and recommendations can be found in the *Phase I and Limited Phase II Environmental Site Assessment* found in Appendix A.

### *Database Review*

The USDA NRCS soil type database (2020) suggests that risk of corrosion of concrete is primarily rated as low, with the Clear Creek drainage rated as moderate risk of concrete corrosion (USDA 2019a). Corrosion risk is based on the sulfate and sodium content and acidity of the soil. Concrete is most at risk when installed at the intersections of soil boundaries. By pouring concrete over fill material, this minor risk can be mitigated (see Mitigation subsection).

No geologic fault lines were found to be present

Risk of corrosion of steel is primarily rated as moderate, with the Clear Creek drainage rated as high (USDA 2019b). The rate of corrosion of uncoated steel is related to soil moisture, acidity, and conductivity of the soil. Steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel in installations that are entirely within one kind of soil or within one soil layer. Because of the variability in the layering of the soils in the study area, this can be mitigated by using coated steel (see Mitigation subsection).

No geologic fault lines are present within or adjacent to the study area.

## Impacts

### *No Build Alternative*

Routine maintenance and winter service activities proposed under the No Build Alternative would not be restricted by or impact the geologic and soil characteristics of the study area. Therefore, the No Build Alternative would not result in any adverse effects to soils or geology.

### *Build Alternative*

The Build Alternative includes replacing 5 existing major roadway structures and constructing 13 new major roadway structures. Soil excavation would occur at structure locations and cut slope areas. Soil imported from outside of the study area would likely be needed to support new fill slopes along the widened roadways and at new structure locations. Soil excavation and import would have no adverse impact to the remaining soils or underlying geology of the study area.

A limited Phase II Environmental Site Assessment was performed to investigate soil contamination

Without proper planning, certain soil characteristics such as corrosiveness, composition, density, and drainage could affect the design, cost, and construction of the Project. Construction of the Build Alternative may require deep foundations, and the extent of sandy soils could pose challenges regarding soil stability.

## Mitigation

During the final design phase of the Project, WYDOT will incorporate appropriate measures to avoid and minimize project impacts from soils. Mitigation measures may include short- and long-term dewatering, deep embankments, geopiers, over-excavation, reinforced soils, coated steel, and pre-loading embankment fills. Deep foundations may be required at structure locations and will be evaluated on an individual basis.

# 3.15: Visual Resources

Visual resources are those elements that define the visual character of an area. This section analyzes the impacts that the alternatives would have on the study area's visual character. Analysis of visual impacts was based on the FHWA 2015 *Guidelines for the Visual Impact Assessment of Highway Projects*. The guidelines' comparative matrix (FHWA 2015) was used to identify the assessment level required for this Project, which was determined to be a memorandum based on public scoping input, research, and field visits. Therefore, the analysis conducted in this chapter serves as a visual impacts assessment memorandum and adheres to the analysis process defined in the FHWA guidelines.

Visual resources are elements that define the visual character of an area

## Existing Conditions

### *Existing Visual Character*

The visual character of the study area is transportation focused

The existing visual character is predominantly urban and transportation-focused; the City's western boundary generally abuts the eastern side of I-25, which is where development is concentrated. I-80, I-25, Lincolnway, and their associated interchanges are notable visual components of the landscape (Figure 1-1). Highway interchanges are elevated and therefore visually prominent from viewers at grade. I-25 is elevated above I-80 and Lincolnway, the latter of which is paralleled on the southern side by four freight railroad tracks. I-80 is elevated above Lincolnway and Roundtop Road. Associated corridor landscaping and signage add to the highly developed transportation setting. None of the roads within the study area are designated scenic byways (America's Scenic Byways n.d.). A paved shared-use path follows the north side of Lincolnway from the Little America complex (which is north of Lincolnway and west of I-25) to the study area's eastern extent (Cheyenne MPO et al. 2014a). No other bicycle or pedestrian facilities exist in the study area.

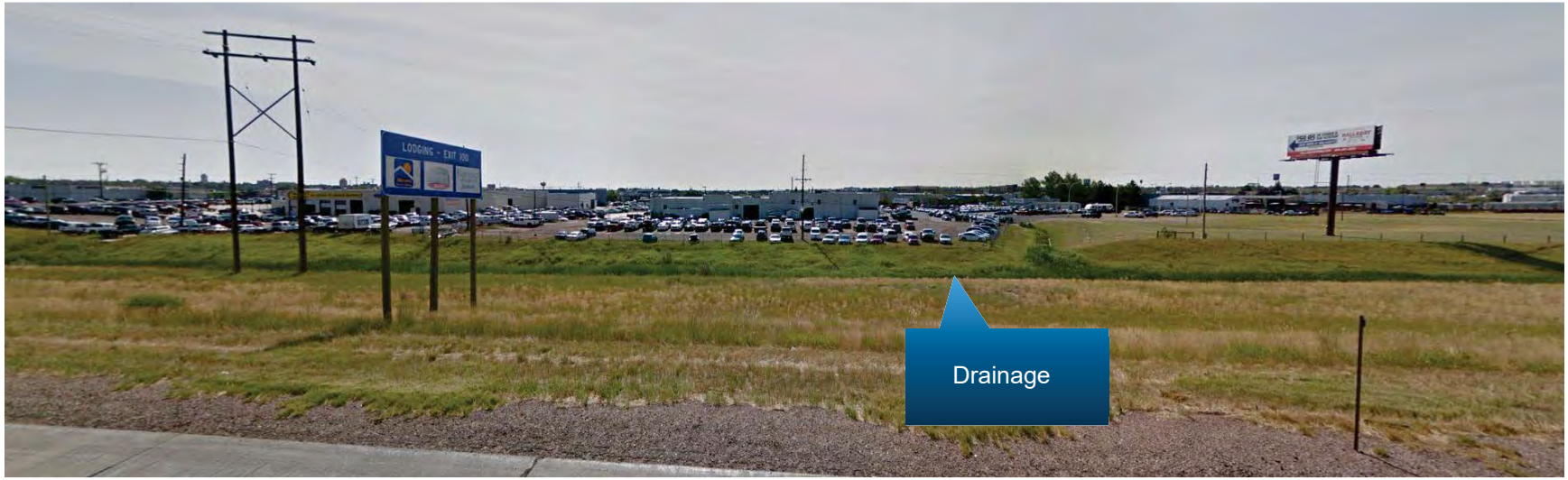
Vegetation in the study area consists primarily of short, native grasses, with one notable exception at the Little America Travel Center/Hotel and Resort on the north side of Lincolnway just west of I-25. This complex is heavily landscaped with evergreen trees that surround most of the property (Figure 3-21). These trees screen views to and from Lincolnway and I-25 and provide the only notable vegetative elements in the study area. Low deciduous trees encircle a pond adjacent to the complex to the north.

Few water features exist in the study area. The pond located north of the Little America complex (Figure 3-21) is not readily visible from the roadways or interchanges. I-25 crosses Crow Creek at the northern limit of the study area. Crow Creek crosses beneath I-25 south of the interchange at MP 9.6. An unnamed drainage travels north into Crow Creek just east of I-25. This drainage parallels the east side of the interstate (Figure 3-22), crossing under it just north of Lincolnway, then hugging the north side of Lincolnway to roughly the I-80 interchange. This channel is usually dry and below grade; therefore, it is not a noticeable feature of the landscape (Figure 3-16 in Section 3.8: Water Resources and Water Quality).

**Figure 3-21: View from I-25 Looking North toward Proposed Lincolnway Interchange Replacement**


*Source: Google Maps 2018*

**Figure 3-22: View from I-25 Looking East from Project Area's Northern Terminus**




*Source: Google Maps 2018*

### Existing Visual Quality

Large tracts of undeveloped land characterized by flat to rolling grasslands occupy most of the west side of I-25 (Figure 3-21). The landscape is punctuated by freight trains and various vertical elements associated with highway infrastructure (e.g., overhead lights, utility poles of differing heights and girths, and raised highway signs), as well as billboards. Occasional industrial facilities, such as water tanks and wind turbines, are visible in the distance. A climbing section along I-80 at the west end of the study area traverses a grassy road cut which blocks views to the north and south. While the setting is primarily natural, it is not vivid, and the landscape composition reflects the random placement of the human-made elements. Therefore, visual quality on the west side of the highway is low and lacks natural harmony and coherence.

The visual quality of the landscape is low

The landscape on the east side of I-25 north of I-80 is mostly occupied by industrial and service industries and infrastructure, such as hotels, big box stores, chain restaurants, large cell towers, utility poles and lines, several car dealerships, expansive parking lots, billboards, and one-story industrial buildings (Figure 3-22). The landscape's composition contains no vivid components. Downtown Cheyenne is not visible. The landscape east of I-25 and south of I-80 is mostly undeveloped except for medium-density residential areas approximately 0.25 mile from the highway, many of which are surrounded by vegetated wind screens. For these reasons, visual quality on the east side of I-25 is low, particularly north of I-80, as these elements lack natural harmony, cultural order, and coherence.

### Affected Population

#### Neighbors

Neighbors are defined as people with views of the road. A small, dispersed medium-density residential area along Southwest Drive is south of I-80 approximately 0.25 mile east of I-25. Mature deciduous and evergreen trees screen views of the highway for most of these residents. The highway is at grade in this area, so its presence from Southwest Drive is mostly indicated by large freight trucks (Figure 3-23).

The Nancy Mockler Dog Park is located south of I-80 on the western side of Southwest Drive, approximately 0.25 mile from the I-25 to I-80 on-ramp. Visitors have views of the interchange and both highways. A row of young evergreen trees lines the north and west side of the park. Several tall utilities (transmission, phone, and lighting poles), as well as low fences, are primary visual features.

Clear Creek Park is a 45-acre park on the eastern side of Southwest Drive approximately 650 feet north of I-80. The Laramie County web site describes the park, which features walking paths, grills, a playground, and horseshoe pits, as "a popular location for parties, picnics, and family gatherings" (Laramie County n.d.). I-80 occupies views to the south, where the highway is above grade on a grassy rise as it approaches and crosses Southwest Drive. The elevated highway blocks views farther south (Figure 3-24). A handful of deciduous trees partially

screens views of I-80 from the park. Two very large billboards occupy an expanse of land between the park and I-80, which is otherwise vacant except for scattered industrial debris, particularly to the east.

Billboards and rows of evergreen trees obstruct views of the interchanges

The Little America Travel Center/Hotel and Resort complex on the northwestern side of I-80 and I-25 offers guest rooms, conference space, a restaurant and lounge, café, golf course, pool, and travel center (Visit Cheyenne 2020b). The eastern side of the complex is comprised of an large parking lot, behind which a dense cluster of predominantly evergreen trees screens views beyond the complex to the east (Figure 3-25). Views toward I-80 are similarly obscured. These neighbors would be temporary, meaning they are not permanently at this location, and are likely focused on specific activities within the self-contained complex.

Other neighbors include employees and customers of the various service industries located on the eastern side of I-25, such as the hotels and numerous car dealerships. These populations would also be transient and likely focused on specific business-related activities.

### *Travelers*

Travelers are drivers who have views from the road. The I-25/I-80 interchange is the most heavily used interchange in the state and experiences heavy commercial truck volumes (Figure 3-26). Travelers include commuters, tourists, local drivers, and a large number of commercial freight drivers, all of whom are driving at highway speeds and likely focused on reaching their destinations.

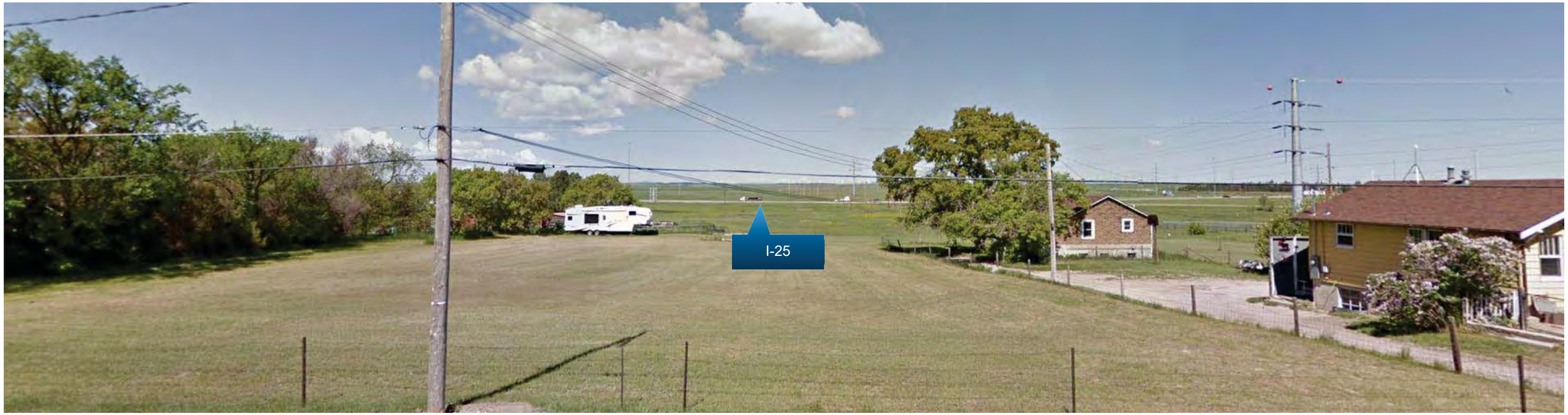
## Area Planning

The PlanCheyenne Community Plan (Cheyenne MPO et al. 2014b) identifies gateways within the study area at I-25 and the intersections with West College Drive and Lincolnway. The plan defines Community Gateways as entries into the City from interstates and major corridors. At Community Gateways, the plan recommends enhancing overpass bridges with surface treatments (e.g., stucco, stone, or brick), plantings, and signage (Cheyenne MPO et al. 2014b).

PlanCheyenne identifies gateway features at two locations in the study area

The plan also identifies Landscape Gateways, "where the natural topography reveals and frames the views into Cheyenne from the interstate and state highways." The plan also identifies a Landscape Gateway at I-80 between Round Top Road and Lincolnway at the study area's western end. Design for Landscape Gateways should focus on conservation of natural features and views, and integration of native plantings and landscaping where appropriate (Cheyenne MPO et al. 2014b).

**Figure 3-23: Looking West toward I-25 from Residential Area on Southwest Drive**

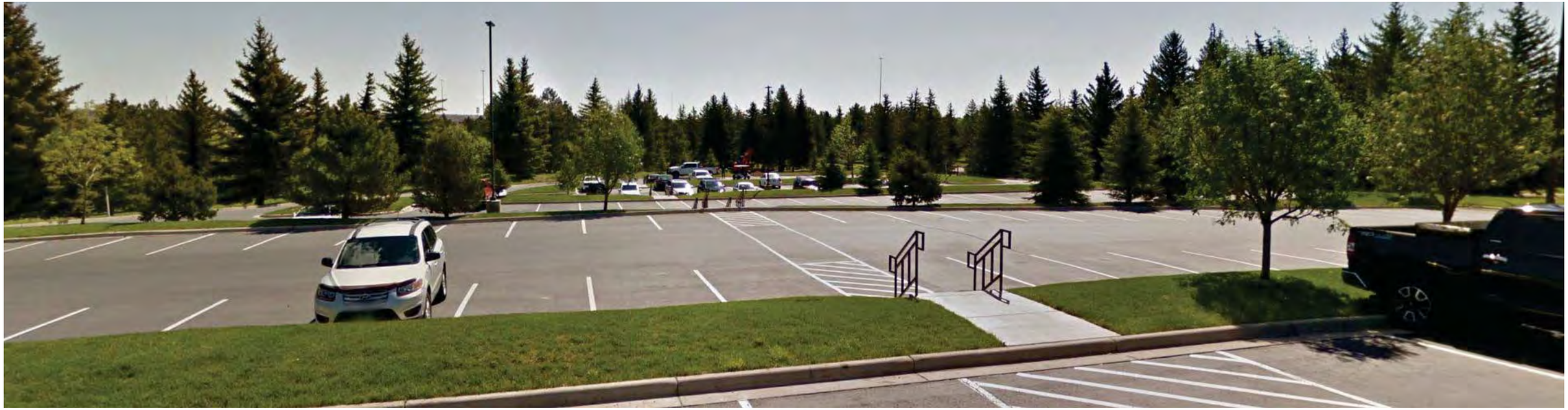



*Source: Google Maps 2018*

**Figure 3-24: Looking South from Southwest Corner of Clear Creek Park toward I-80**


*Source: Google Maps 2018*

**Figure 3-25: Looking East toward I-25 from Little America Hotel and Resort**



*Source: Google Maps 2018*

**Figure 3-26: Looking East on I-80 toward I-25 at Location of Proposed Flyover**


*Source: Google Maps 2018*

## Impacts

### *No Build Alternative*

As noted in Chapter 1, traffic and congestion will increase under the No Build Alternative. More traffic would be visible on the congested roadways, resulting in slight degradation of visual quality. However, views from the road for travelers would not noticeably change. Neighbors along Southwest Drive and those visiting Little America would be minimally affected, as most views from these locations are screened by vegetation and attenuated by distance. Visitors to the Nancy Mockler Dog Park and Clear Creek Park would see increased highway traffic, but they would be focused on recreational activities. Other neighbors, such as area employees and shoppers, would also be focused on specific business-related activities. Therefore, adverse impacts to neighbors would be minimal.

Cheyenne's plans for gateways at specific locations within the study area, if installed, would result in a slight and localized beneficial impact to visual quality.

### *Build Alternative*

The Build Alternative would lessen congestion, thereby alleviating visual impacts associated with the No Build Alternative. Although increased traffic expected by 2045 would call further attention to the highway's presence, the traffic would flow basically uninterrupted, thereby appearing similar to existing conditions.

Build Alternative visual elements are consistent with the existing, transportation-focused landscape character

The landscape would undergo substantial visual changes, primarily resulting from the placement of fill and elevating structures over the height of existing elements, as well as the construction of new approximately 14-foot-high wind walls. The largest concentration of fill material would be along I-25 north of I-80, particularly at the northeastern corner of the intersection. Wall segments would also be added throughout the study area. These walls would range in height from approximately 3 feet to 22 feet above grade, with the highest and longest located west of Southwest Drive (approximately 600 feet long and 22 feet high). Remaining walls would range from approximately 240 feet long to 470 feet long. The I-25/I-80 interchange flyovers would be approximately 35 feet to 40 feet high above existing at-grade conditions.

Although the Build Alternative would substantially modify the existing interchange configurations, the visual elements would be consistent with the type of transportation features currently in place. The landscape character is an urban, developed setting with a prominent transportation component. Therefore, no change to the existing visual character or low visual quality would occur.

Adverse visual impacts to neighbors would be minimal

Neighbors would be minimally affected. Widening the highways would not make them more visible to neighbors within the study area. Visitors to Clear Creek Park may notice I-80's increased elevation and the new wall on the west side of Southwest Drive. However, these visitors would likely be engaged in recreational activities and would be transient. In addition, the vacant land between the park and I-80 offers some visual attenuation. Users of the Nancy Mockler Dog Park would see the new fill and raised interchange structures. As the evergreen trees to

the west and north of the park mature, they would help screen these views. These transient park visitors are expected to be focused mostly on their animals and less on views, which are currently of low quality.

Residents farther south on Southwest Drive would have more distant views of the new interchange elements, but most of these homes face directly east or west rather than toward the intersection and are landscaped with screening vegetation. Therefore, their views would be minimally impacted. No impacts are expected to visitors to Little America, as it is surrounded by dense vegetation that blocks outward views. The most substantial visual changes are expected at the northeast side of the interchange due to a new wall and substantial fill; however, people at this highly commercial area would be focused on business activities.

Wind walls on the new flyover ramps at the I-25/I-80 interchange would be visible to neighbors on Southwest Drive, particularly those closest to the interchange. However, as mentioned above, views for these residents are primarily away from the intersection and most are blocked by vegetative screening. These opaque walls would block views of the landscape for drivers navigating these ramps and would partially obscure views for travelers approaching them from other directions. However, drivers on the ramps would be concentrated on negotiating the curves, and travelers approaching the walls would be focused on navigation. These travelers would also have views in other directions. Therefore, the wind walls would have only a slight adverse impact on travelers, and would not noticeably degrade the study area's low visual quality.

Widening I-25 and I-80 within the inside medians and adding culverts would slightly alter views from the road for travelers, but travelers would be focused on navigating the interchange, as described above.

The Build Alternative would be constructed in phases, extending the amount of time that construction equipment and demolition activities would be visible. Heavy work equipment and building materials would be visible throughout the study area for duration of construction. Temporary material staging areas would introduce a new visual element in the short term. Visual impacts of construction would primarily affect routine commuters. Neighbors are not expected to experience noticeable visual impacts during construction for the reasons described above.

## Mitigation

Areas disturbed during construction will be revegetated in a manner that is consistent with adjacent landscape features. Native and indigenous species will be used for revegetation. Project designers will work with the City to incorporate design elements identified for Community Gateways and Landscape Gateways, to help uphold the City's vision for these areas.

## 3.16: Cultural Resources

Historic properties are protected by the National Historic Preservation Act

Historic properties are protected under Section 106 of the National Historic Preservation Act of 1966 (as amended) and other statutes, as well as Section 4(f) of the U.S. Department of Transportation Act of 1966. Section 106 requires federal agencies to take into account the effects that their undertakings have on historic properties, which are properties that are listed on, or eligible for listing on, the National Register of Historic Places (NRHP). In accordance with Section 106, and for the purposes of this EA, historic properties include any NRHP listed or NRHP eligible prehistoric site; or district, site, building, structure, or object.

### Existing Conditions

A cultural resources ground survey was completed to support this analysis

To determine if the undertaking would affect historic properties, Jacobs and Rosenberg Historical Consultants conducted a survey of the built environment and archeological resources within the Area of Potential Effect (APE) established for this undertaking (Figure 3-27). Survey results are documented in the *Class III Cultural Resources Inventory, I-25/I-80 Interchange Project, Laramie County, Wyoming* (Jacobs and Rosenberg 2019). The survey noted that most of the APE has been disturbed by interstate and road construction as well as commercial and industrial development, but relatively intact areas of land occur in the northwestern and southern portions of the APE. After the APE was surveyed, minor refinements to the preliminary project design were made that resulted in a small portion of the Project impact area falling outside the southwestern APE boundary. In consultation with the Wyoming State Historic Preservation Officer (SHPO), it was determined that the extended impact area has a low probability of containing historic properties as defined in 36 CFR 800.16(l)(1) because of previous disturbance; therefore, no further identification efforts in that area are warranted (Appendix B).

The SHPO indicated that the UPRR tracks that traverse the APE are not considered contributing to the overall NRHP eligibility of the railroad because it has been continually upgraded and maintained. The 2019 survey conducted for this study evaluated one newly recorded site (Site 48LA3788 – 2500 West Lincolnway [formerly Phillips 66 Service Station]) and three previously recorded sites (Site 48LA541 – Happy Jack Road, Site 48LA1402 – Cheyenne-Miracle Mile Transmission Line, and Site 48LA117.13 – Lincoln Highway [U.S. Route 30] Segment) within the APE for NRHP eligibility (Figure 3-27). No surviving segments of 48LA541 were found, all physical remnants of 48LA117.13 (Lincoln Highway Segment) have been erased by modern highway construction and improvements, and all physical evidence of 48LA1402 has been removed. The survey noted that the Clear Creek floodplain located in the southern portion of the APE is considered to have a high potential for buried prehistoric archeological sites.

**Figure 3-27: Area of Potential Effects**

No historic properties are located within the APEs

Based on survey results, and in consultation with the SHPO, WYDOT determined that the newly recorded site and three previously recorded sites did not meet NRHP criteria and, as such, were determined to be ineligible for listing on the NRHP (48LA117.3-Lincoln Highway Segment was determined a non-contributing segment of the eligibility of the overall linear resource). The SHPO concurred with that determination on December 5, 2019 (SHPO 2019).

## Impacts

### *No Build Alternative*

The No Build Alternative would have no effect on historic resources.

### *Build Alternative*

The Build Alternative would not affect historic or prehistoric resources

It was determined under Section 106 that the Build Alternative would result in *no historic properties adversely affected*. The SHPO concurred with this determination on December 5, 2019 (SHPO 2019). Project construction activities would be isolated to previously disturbed areas adjacent to the Clear Creek floodplain. The actual depth of construction impacts is unknown at this time. However, based on the preliminary design of the Build Alternative, no excavation is expected to occur within the Clear Creek floodplain, and, therefore no impacts to prehistoric resources are anticipated.

## Mitigation

Because the Build Alternative would result in *no historic properties adversely affected*, no mitigation is required. If Project changes occur that would result in subsurface impacts to undisturbed land in the Clear Creek floodplain, archeological testing will be conducted for this portion of the APE before construction to identify potentially buried prehistoric archeological sites. If cultural materials are discovered during construction, work in the area will stop immediately; WYDOT and SHPO will be contacted; and the materials will be evaluated by an archeologist or historian who meets the Secretary of the Interior's Professional Qualifications standards, per Federal Register Volume 48 Number 22716 dated September 1983.

# 3.17: Hazardous Materials

Hazardous materials could be encountered during construction of a transportation project. Therefore, properties that may contain contamination should be identified before right-of-way acquisition and construction so they can be avoided or their impacts minimized. Hazardous materials are defined as any waste product that is considered flammable, corrosive, reactive, or toxic. Hazardous materials can be found in various forms and can originate from a variety of sources. Examples of potential sites that may contain hazardous waste include landfills, service stations, industrial areas, railroad corridors, agricultural sites, and mine sites.

## Existing Conditions

*Phase I and Limited Phase II Environmental Site Assessments* (ESAs) (found in Appendix A) were performed to assess the study area for sites with known or suspected *recognized environmental conditions* (RECs). RECs are the presence or likely presence of hazardous substances, hazardous materials, or petroleum products on a property under conditions that indicate an existing release, past release, or material threat of a release of any such substances into structures on the property or into the ground, groundwater, or surface water of the property (ASTM 2013a, 2013b). This section summarizes the *Phase I and Limited Phase II ESAs* (Appendix A).

The *Phase I ESA* (Appendix A) included a review of existing land use, environmental regulatory records, historical aerial photos, topographic maps, and an onsite inspection.

Most of the study area consists of undeveloped land, but also includes industrial sites, commercial and residential developments, recreational areas, water resources, and roadway and railroad rights-of-ways (Section 3.1: Land Use).

To assess the potential for past contamination, historic topographic and aerial maps of the study area ranging in dates from 1911 through 2017 were reviewed. Older mapping shows that the study area generally was undeveloped except for a few local roadways. But the 1976 aerial photo shows land uses similar to existing conditions, including the presence of Little America Resort, commercial and industrial development northeast of the interchange, and the I-25/I-80 interchange.

Environmental Data Resources, Inc. (EDR) maintains federal, state, and local regulatory databases for registered sites. An EDR report was generated (dated July 2019) to locate potential RECs within and near the study area. The standard ASTM International search distances up to 1 mile were used for the study area. The EDR report identified 23 RECs, summarized in Table 3-14.

**Table 3-14: EDR Mapped Sites of Concern**

| REC # | Site Name | Site Address | Status | Priority |
|---|---|---|---|---|
| 1 | F.E. Warren AFB | I-25 and Randall Avenue | The site consists of 10 areas, referred to by the EPA as operable units. These units include three landfills, two fire-protection training areas, six spill sites, base-wide groundwater, a firing range, a battery-acid disposal site, and an open burning/open detonation area. | This site is considered **Low Priority** based on the distance to the Build Alternative, upgradient nature of the study area and the presence of a groundwater divide, and the well-defined extent of groundwater plumes. |
| 2 | Salt Creek Freightways | 2300 West Lincolnway | Historic leaking underground storage tank resolved in 1990. Soil sample SB-38 collected west of REC site with no detections above EPA regional screening levels (RSLs). Groundwater flow to the east northeast. | **Medium Priority** based on proximity to the study area. |
| 3 | Brutger Equities, Inc. | 1632 Fleischli Parkway | Voluntary Cleanup Program (VCP) Certificate of Completion and closure for soils/groundwater 06/19/2008. Soil sample SB-38 collected south of REC site with no detections above EPA RSLs. Groundwater flow to the east northeast. | **Low Priority** based on closure status and downgradient proximity to the study area. |
| 4 | Former Denny's Restaurant-Cheyenne VRP | 2414 West Lincolnway | No Further Action (NFA) issued 03/26/02, conditioned to not include arsenic in groundwater. Soil sample SB-32 collected in vicinity with no detections above EPA RSLs. Groundwater flow to the east northeast. | **Medium Priority** based on proximity to proposed design footprint and petroleum odor detected in adjacent geotechnical borings B-26, B-31, and B-35. |
| 5 | Chevron 70500 | 2420 West Lincolnway | Leaking underground storage tank resolved 03/17/1995. Soil sample SB-32 collected northwest of historical REC site with no detections above EPA RSLs. Groundwater flow to the east northeast. | **Medium Priority** based on proximity to proposed design footprint and petroleum odor detected in adjacent geotechnical borings B-26, B-31, and B-35**.** |

**Table 3-14: EDR Mapped Sites of Concern**

| REC # | Site Name | Site Address | Status | Priority |
|---|---|---|---|---|
| 6 | Western 66 | I-25 and Lincolnway | Tank removed from the ground, close date 08/20/2003. Phase II ESA soil sample SB-32 collected northwest and SB-38 collected east of this site with no detections above EPA RSLs. | **Medium Priority** based on proximity to proposed design footprint and petroleum odor detected in adjacent geotechnical borings B-26, B-31, and B-35. |
| 7 | Fleischli Oil Company, Inc. | 2200 West Lincolnway | Facility or area was assigned a corrective action priority. Soil sample SB-32 collected west and SB-38 collected south of this REC with no detections above EPA RSLs. Groundwater flow to the east. | **Medium Priority** based on downgradient but adjacent proximity to the study area. |
| 8 | Big D Exxon Truck Stop #30 | 2310 West Lincolnway | Tank remediation program contaminated site; resolved 01/27/2012. Soil sample SB-38 collected southwest of REC site with no detections above EPA RSLs. Groundwater flow to the east northeast. | **Low Priority** based on closure in 2012 and downgradient proximity to the study area |
| 9 | Tyrrell-Doyle Chevrolet Company | 2142 West Lincolnway P.O. Box 11 | VCP withdrawn. 1,000 feet east of eastern Project limit. Groundwater flow to the east/northeast. | **Low Priority** based on downgradient proximity to the study area. |
| 10 | Wyoming Machinery Co. | 1700 Cutler | Resolved 01/2000 (Tank Remediation Program Contaminated Sites). Groundwater flow to the east northeast. | **Low Priority** based on downgradient proximity to the study area. |
| 11 | Little America - Cheyenne | 2800 West Lincolnway | Tank Program Contaminated Sites Project, Added 09/02/1998. Not resolved. Located 750 feet west of the study area. Soil sample SB-15 collected south of REC site and SB-32 collected east northeast of REC site with no detections above EPA RSLs. Groundwater sample collected from SB-15 has several metals exceeding EPA RSLs. | **Medium Priority** based on upgradient proximity to the study area. |

**Table 3-14: EDR Mapped Sites of Concern**

| REC # | Site Name | Site Address | Status | Priority |
|---|---|---|---|---|
| 12 | CNF Transportation Terminal & Maintenance Repair | 1900 Cutler Road | Tank Remediation Program Contaminated Sites. Resolved: 07/02/2002.; hazardous waste corrective action (Active). Groundwater flow to the east northeast. | **Medium Priority** based on downgradient but adjacent proximity to the study area. |
| 13 | Art's Truck Service | 3306 West College Drive | Tank Program Contaminated Sites Project. Added Date: 08/27/1991, 07/28/2016. Resolved. Groundwater flow to the east northeast. | **Medium Priority** based on downgradient but adjacent proximity to the study area. |
| 14 | Halladay Motors Inc. | 2100 Westland Road | Tank Remediation Program Contaminated Sites. Resolved 10/14/2003. Groundwater flow to the east northeast. | **Medium Priority** based on downgradient but adjacent proximity to the study area. |
| 15 | United Parcel Service | 1920 Westland Road | Tank Remediation Program Contaminated Sites. Resolved 02/26/2009. Groundwater flow to the east northeast. | **Low Priority** based on site closure and downgradient proximity to the study area. |

**Table 3-14: EDR Mapped Sites of Concern**

| REC # | Site Name | Site Address | Status | Priority |
|---|---|---|---|---|
| 16 | Cheyenne Progress Center Industrial Park-Cyne Prgrss Ctr\Nie | Parsley Boulevard/ Unicover Drive | The site has been impacted from a burn-and-bury dump, operated at the site by the City between 1949 and 1966, and chlorinated solvent contamination in the groundwater from the upgradient Wyott Facility (REC 19). Buried waste was observed to be in contact with groundwater at several locations in the Northeast Disposal Area at the site. As a result, a phased remediation was implemented at the site. Following this removal, it was determined that "if soil or groundwater located *on the site* are to be disturbed during future excavations or construction activities, proper procedures should be followed with respect to worker health and safety. If affected soil or groundwater is encountered it should be properly characterized, treated and/or disposed in accordance with applicable local, state or federal regulations" (EDR 2019). | Although previous site investigations indicate any remaining potential contamination is limited to the site, a **Medium Priority** was assigned based on its location immediately adjacent to the study area. |
| 17 | Flying J Travel Plaza | 2250 Etchepare Drive | Tank Remediation Program Contaminated Sites Project. Added 04/15/2002. Spill reported 05/28/2015 - 50 gallons. NFA; Closed. Spill reported 09/29/2017 - 45 gallons. NFA; Closed. Spill reported 10/02/2017 - 45 gallons. NFA; Closed. Spill reported 10/02/2017 - 45 gallons. NFA; Closed. Spill reported 09/14/2012 - 15 gallons. NFA; Closed. | **Low Priority** based on *de minimis* releases. |
| 18 | Nielson Trust Property-VRP | I-80 and South Parsley Boulevard (southwest corner) | Landfill. | **Medium Priority**. See REC 16 above for description. |

**Table 3-14: EDR Mapped Sites of Concern**

| REC # | Site Name | Site Address | Status | Priority |
|---|---|---|---|---|
| 19 | AMF Wyott | 1938 Wyott Drive | Hazardous waste corrective action. VCP #2216, Status Open, Remediation Agreement 02/18/2019. 3,400 feet east of the study area. Groundwater contamination from chlorinated solvents has been identified during previous environmental investigations at the site. Tetrachloroethene was formerly used at this site for degreasing purposes. In addition, metals and polynuclear aromatic hydrocarbon contamination in the soil associated with metal finishing operations and the adjacent former city dump operations were identified as a potential source. Institutional controls are in place at the site, and groundwater monitoring is in place to monitor plume toxicity, extent, and remediation through monitored natural attenuation. | Based on the evaluation of the plume extent conducted during this Phase I ESA, the downgradient proximity of this site relative to the study area, and the distance between this site and the study area, a **Low Priority** was assigned to this site. |
| 20 | Cheyenne Transit Bus Storage Facility-VRP | 2731 Happy Jack Road | VCP #1014, Status Closed, Institutional Controls. Greater than 1 mile west of the study area. Groundwater flow to the east northeast. | **Low Priority** based on closure status and proximity to the study area. |
| 21 | Old Texaco Station | 1659 West Lincolnway | Tank Remediation Program Contaminated Sites. Resolved 07/08/2003. Greater than 0.5 mile east of the study area. Groundwater flow to the east northeast. | **Low Priority** based on site closure and downgradient proximity to the study area. |
| 22 | Orphan Site #1 | 8305 Otto Road | *De minimis* releases, which in some instances are listed in databases that are not likely to impact the proposed improvements. 2 miles west of the study area. | **Low Priority** based on proximity to the study area. |
| 23 | Pipeline | General | Pipeline shown in 1994 Historical Topo Map (EDR 2019). No releases reported, but no other details available. Listed as REC based on potential for unknown leaks and potential impact to Project. | **Medium Priority** based on presence within proposed design limits. |

The results of the Limited Phase II ESA did not indicate the presence of environmental contamination in soils

Jacobs conducted an inspection of the study area and surrounding area for obvious or potential sources of environmental contamination that would have potential to impact the proposed project. The property inspection included a visual inspection of the roadway rights-of-way as well as driving reconnaissance of streets adjacent to the study area and of the exterior areas of REC sites, previously identified. The site reconnaissance did not identify areas of potential environmental impacts. Therefore, the *Limited Phase II ESA* focused on the results of the *Phase I ESA* to evaluate potential impacts to soil and groundwater related to the RECs in and near the study area (Appendix A). This involved conducting field screening and laboratory analysis of soil and groundwater samples collected from select geotechnical borings. The results of the *Limited Phase II ESA* did not indicate the presence of environmental contamination in soils. All sites with potential RECs are downgradient or cross-gradient from the study area, with the exception of Orphan Site[9] #1 (2 miles upgradient) and the petroleum pipeline (onsite).

## Impacts

### *No Build Alternative*

The No Build Alternative would not include construction or other ground-disturbing activities. Therefore, the hazardous material sites identified are not expected to affect these actions.

### *Build Alternative*

The likelihood of contamination from each of the EDR-listed sites and sites identified during additional research were evaluated to determine if they could impact the proposed improvements

Additional hazardous materials investigation is recommended prior to right-of-way acquisition

A priority was assigned to each site with RECs based on their potential to impact construction of the Build Alternative. Of the 23 sites, 12 are considered medium priority and 11 are considered low priority. Sites assigned a low priority are considered to have little to no potential impact on the proposed improvements. Sites assigned a medium priority may have a future impact based on historical activities and proximity to the proposed construction footprint. If contaminated soil or groundwater is encountered during construction associated with medium priority sites, it should be properly characterized, treated, and/or disposed in accordance with a materials management plan. No sites were assigned a high priority.

The Build Alternative would require partial and full property acquisitions in the northeastern quadrant of the study area. Impacts from REC sites #2 through #10 and #12, #14, and #15 should be considered when conducting additional ESA investigations at the proposed property acquisitions (Table 3-14).

[9] The term orphan site means that EDR could not pinpoint the exact location of the site with the listed address. A review of the listed address indicated that this facility is located 2 miles west of the study area.

The laboratory results for the groundwater sample revealed elevated metal concentrations (arsenic, barium, chromium, and lead) in groundwater at concentrations greater than their respective EPA RSLs. However, these elevated concentrations may be associated with high turbidity and may be naturally occurring.

## Mitigation

Additional Phase II ESA investigation is recommended on certain properties to satisfy environmental due diligence and identify any environmental liabilities associated with the property acquisitions. As right-of-way needs are determined, WYDOT will assess the need for additional investigations on a property-by-property basis based on the potential risks previously discussed.

As discussed in Section 3.4: Right-of-Way, WYDOT is beginning negotations to acquire property in the northeastern quadrant of the study area. Before any property acquisition, WYDOT or its contractor may conduct additional interviews, field reconnaissance, and Phase II subsurface investigation in the northeastern quadrant where olfactory evidence of petroleum contamination was identified during geotechnical investigations and where REC sites are present.

Field screening and laboratory analytical results collected during the Limited Phase II ESA in the study area did not indicate the presence of environmental contamination in soils at the targeted geotechnical boring locations (Figure 3-28). If, during construction, conditions are discovered that may indicate contamination in soil (e.g., petroleum odor, sheen), WYDOT or its contractor may conduct further sampling and analysis.

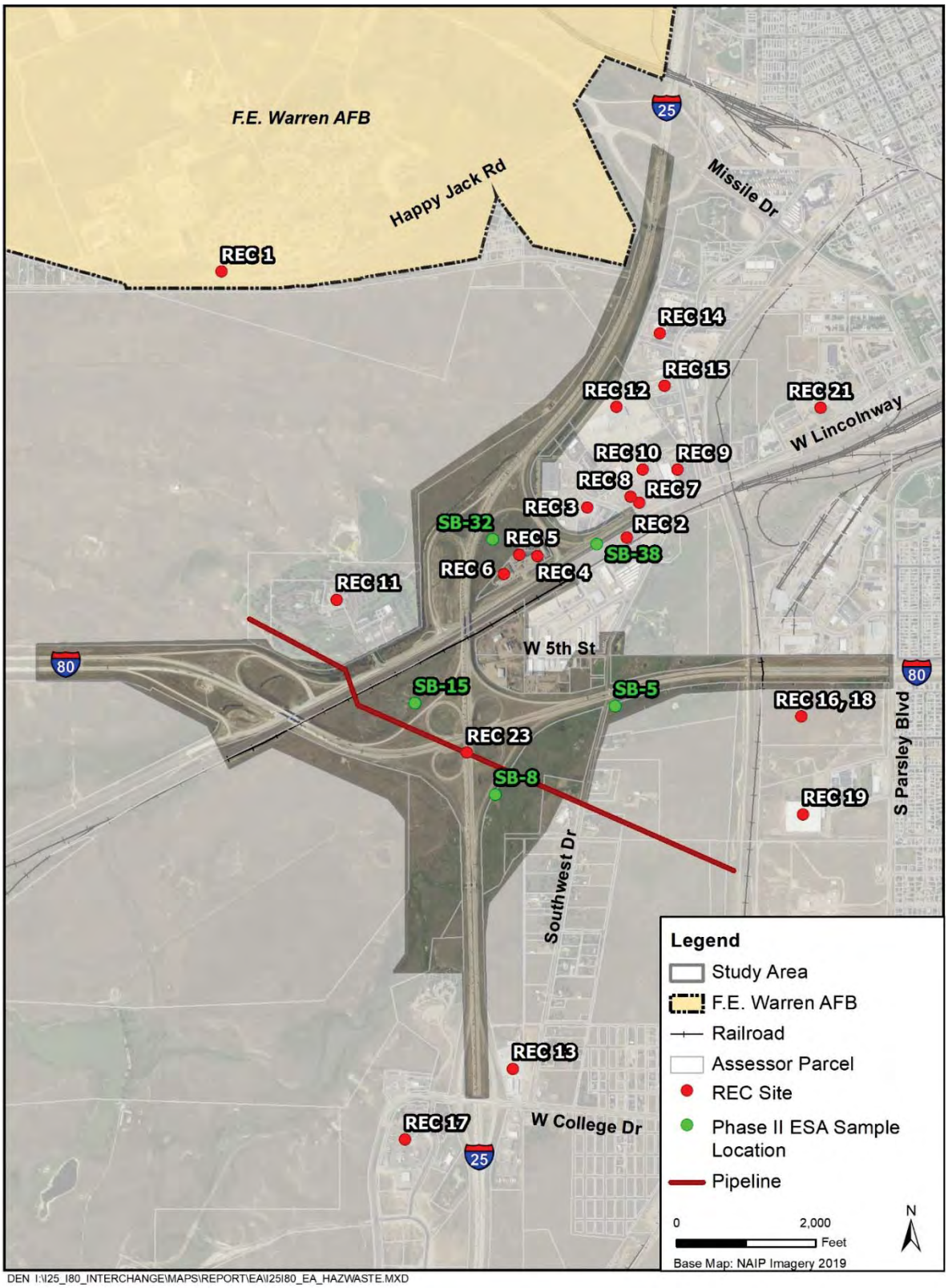
A Materials Management Plan will be created to address potential contamination encountered during construction

Because of the presence of metals in areas where dewatering may occur, WYDOT or its contractor may characterize generated water to determine handling and disposal procedures. The remediation of dewatering effluent may be necessary before discharge.

To address the uncertainty regarding subsurface conditions and groundwater in the vicinity of the study area, WYDOT or its contractor will prepare a health and safety plan and hazardous materials management plan to respond to any hazardous materials or waste that may be potentially encountered.

WYDOT or its contractor will implement BMPs during construction in accordance with the WDEQ and the WYDOT *Pollution Controls and Best Management Practices for Storm Water During Construction Field Guide* (n.d.).

**Figure 3-28: Summary of REC Sites**



# 3.18: Parks and Recreation Resources

Existing and planned park and recreation resources within the study area, including bicycle and pedestrian facilities, are described in this section and shown on Figure 3-29.

## Existing Conditions

Existing facilities within the study area include the following:

Park and recreation facilities are located within the Study Area

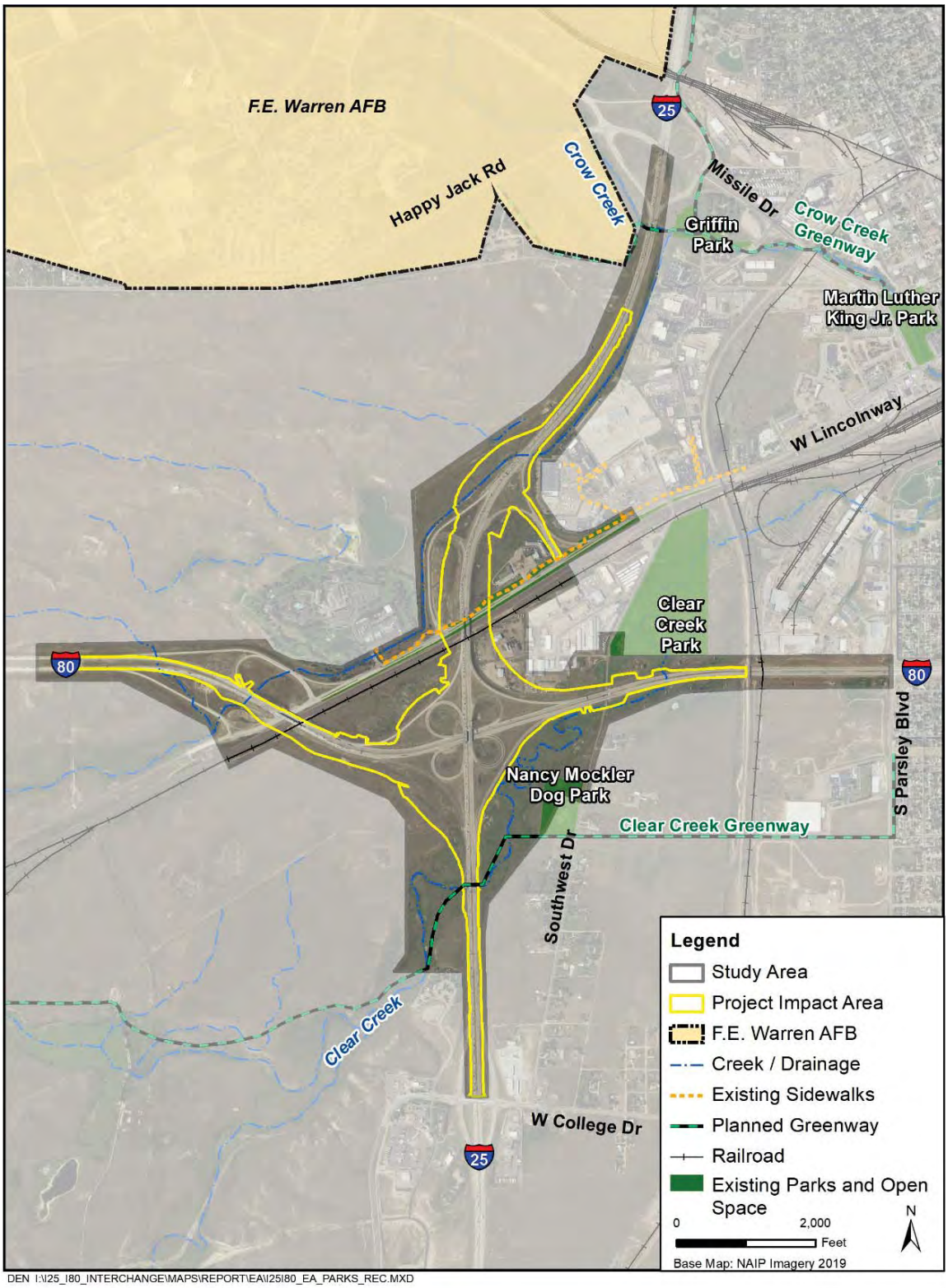
- **Clear Creek Park**: This park is located northeast of the I-25/I-80 interchange just east of Southwest Drive). This 45-acre public park is owned and managed by Laramie County. Park amenities include walking paths, playground, horseshoe pits, charcoal grills, restrooms, two covered shelters, and a parking lot (Laramie County n.d.).
- **Nancy Mockler Community Dog Park**: This park is a fenced off-leash park for dogs in the southeastern portion of the study area. It is located next to the Cheyenne Animal Shelter on Southwest Drive and is owned and maintained by the shelter. The dog park is open to the public from sunrise to sunset at no charge, although the park accepts donations (City of Cheyenne n.d.).
- **Bicycle and Pedestrian Facilities**: While downtown Cheyenne provides bicycle and pedestrian facilities in the form of sidewalks, shared-use paths, greenways, on-street facilities, and bike routes, these resources are very limited within the study area. The study area includes a sidewalk along the northern side of West Lincolnway, and does not contain greenways or trails (City of Cheyenne 2016).

### *Section 6(f)*

Properties purchased with Land and Water Conservation Fund grants are protected through Section 6(f) of the *Land and Water Conservation Fund Act*. The Clear Creek Park was developed with Land and Water Conservation Fund monies and, therefore, is protected under Section 6(f) (Jares, personal communication 2019).

Planned facilities within the study area include two greenways as described in the following bullets and shown on Figure 3-29.

**Figure 3-29: Existing and Planned Parks and Recreation and Bicycle/Pedestrian Facilities**



- **Crow Creek Greenway**: Crow Creek currently crosses under I-25 in the northern part of the study area. Past creek flows have caused scouring at the I-25 bridge footings. The Crow Creek Revival is undertaking stream restoration of Crow Creek, which is planned to occur in phases. The first phase (located between Happy Jack Road and Martin Luther King Jr. Park) has been designed, and construction is planned to be completed sometime in 2022. The City is coordinating with the Crow Creek Revival to build a new greenway along the restored Crow Creek. The greenway project is a high priority for the City, which anticipates a 3- to 5-year timeframe for funding, design, and construction. The City's goal is to provide a trail connection from the F.E. Warren AFB's planned residential development (known as the Enhanced Use Area) to the new greenway system, eventually connecting to downtown Cheyenne via Martin Luther King Jr. Park (Figure 3-29). The greenway would be owned and managed by the City (Zita, personal communication 2019).
- **Clear Creek Greenway**: The City has a goal for future development of a greenway that would generally follow along the Clear Creek alignment in the study area. This greenway is not included in City of Cheyenne or Laramie County planning documents. Plans for this greenway are conceptual, and land and funding for the design and construction of the greenway have not been secured. Timing of greenway development has not been specified; it may occur in 5 to 10 years, but depends on funding availability and the rate of area development (Zita, personal communication 2019).
- **Swan Ranch Open Space**: The City had previously planned to develop a passive recreational area referred to as the Swan Ranch Open Space on City-owned land south of the existing I-25/I-80 interchange. However, that land was sold to Dyno Nobel in late 2019; therefore, this area is no longer planned for recreational use and is not discussed further in this section.

## Impacts

Impacts to existing and planned parks and recreation facilities, including bicycle and pedestrian facilities, are described in the following sections.

### *No Build Alternative*

Under the No Build Alternative, no impacts to parks, recreational facilities, or bicycle and pedestrian facilities within the study area are anticipated. If Cheyenne formalizes plans for the Clear Creek Greenway, which is not currently funded or identified in PlanCheyenne (Cheyenne MPO et al. 2014a), the existing culvert carrying Clear Creek under I-25 would need to be replaced or widened to accommodate the greenway, if constructed.

### *Build Alternative*

The Build Alternative would result in no temporary or permanent impacts to existing park and recreation facilities within the study area. The planned Crow Creek Greenway would be located approximately 1,200 feetnorth of the Build Alternative impact area; therefore, no direct or indirect impacts to the greenway would occur and the Build Alternative would not preclude its development. Improvements under the Build Alternative along I-25 south of the I-25/I-80 interchange would include replacing the existing culvert that currently carries Clear Creek under I-25 with a new bridge that would be wide enough to accommodate the potential future Clear Creek Greenway. Therefore, no impacts to the planned Clear Creek Greenway are anticipated.

The Build Alternative would not result in adverse impacts to existing or planned parks and recreation resources

The Build Alternative is planned to be broken into phases that would be built at different times based on funding availability and other considerations (construction phasing is described in Chapter 4). Over time, the area where the Lincolnway sidewalk is located would experience three separate bridge construction projects as well as removal of the road ramp to Lincolnway. During each construction project, the Lincolnway sidewalk would be temporarily closed to sidewalk users. At most, approximately 1,600 feet of the Lincolnway sidewalk would be temporarily removed to accommodate bridge construction (the length of sidewalk removal may vary for each phase). Construction duration for each phase will be multiple years. As part of completing construction for each phase, the sidewalk would be replaced and would still be located along the northern side of Lincolnway, although small shifts in its alignment would occur (e.g., existing sidewalk curves would be straightened) to accommodate project improvements.

### *Section 6(f)*

The Build Alternative would have no temporary or permanent impacts to Clear Creek Park, a Section 6(f) resource.

### Mitigation

Connectivity of the Lincolnway sidewalk will be maintained during construction through measures such as temporary crosswalks with signage, flaggers, or temporary signals, when warrented, to direct sidewalk users to a detour along the southern side of Lincolnway. Signage and fencing will be provided for sidewalk user safety and to direct users to the detour. The specific measures to be employed will be determined during final design or construction. The sidewalk will be restored toward the end of each construction phase.

## 3.19: Farmland and Grazing Lands

This section assesses whether the alternatives include any activities that could potentially convert *important* farmland to a non-agricultural use. Important farmland includes prime farmland, unique farmland, and/or land of statewide or local importance as defined under the Farmland Protection Policy Act (7 CFR 658.2(a)).

## Existing Conditions

The study area does not contain prime or unique farmland

The USDA, NRCS provides soil data and information, including soils that constitute prime and unique farmland, produced by the National Cooperative Soil Survey (2019c). Two soils in the study area fall into these categories. The Evanston loam and Poposhia-Trimad complex soils are both listed as Prime Farmland if Irrigated. The NRCS data do not incorporate the exclusions for urban development areas defined in 7 CFR 658.2.

Within the study area, the land east of I-25 falls within Cheyenne's designated urban area (Census 2010a). Because census designated urban areas are not subject to the Farmland Protection Policy Act, no prime or unique farmland exists within this portion of the study area.

Cheyenne's designated urban area does not encompass the entire study area. West of I-25, the study area consists mainly of WYDOT right-of-way, and a small portion of one City parcel and one parcel owned by Dyno Nobel. The land within WYDOT right-of-way cannot be considered important farmland because it is preserved for transportation use as part of the I-25 and I-80 interstate corridors. The small portions of the City and Dyno Nobel properties are not irrigated and therefore are not considered prime or unique under the Farmland Protection Policy Act. Because the lands west of I-25 in the study area are preserved for transportation uses and are not irrigated for farming use, no prime or unique farmland exists west of I-25 within the study area.

No important farmland was identified within the study area.

## Impacts

### *No Build Alternative*

No important farmland exists within the study area. Therefore, the No Build Alternative would not impact important farmlands.

### *Build Alternative*

No important farmland exists within the study area. Therefore, the Build Alternative would not impact important farmlands.

## Mitigation

No mitigation is necessary because no impacts are expected.

# 3.20: Utilities

## Existing Conditions

The study area contains overhead, surface, and subsurface utilities. These include telecom fiber optic, natural gas, electricity, water and sewer, oil, and highway lighting and traffic systems.

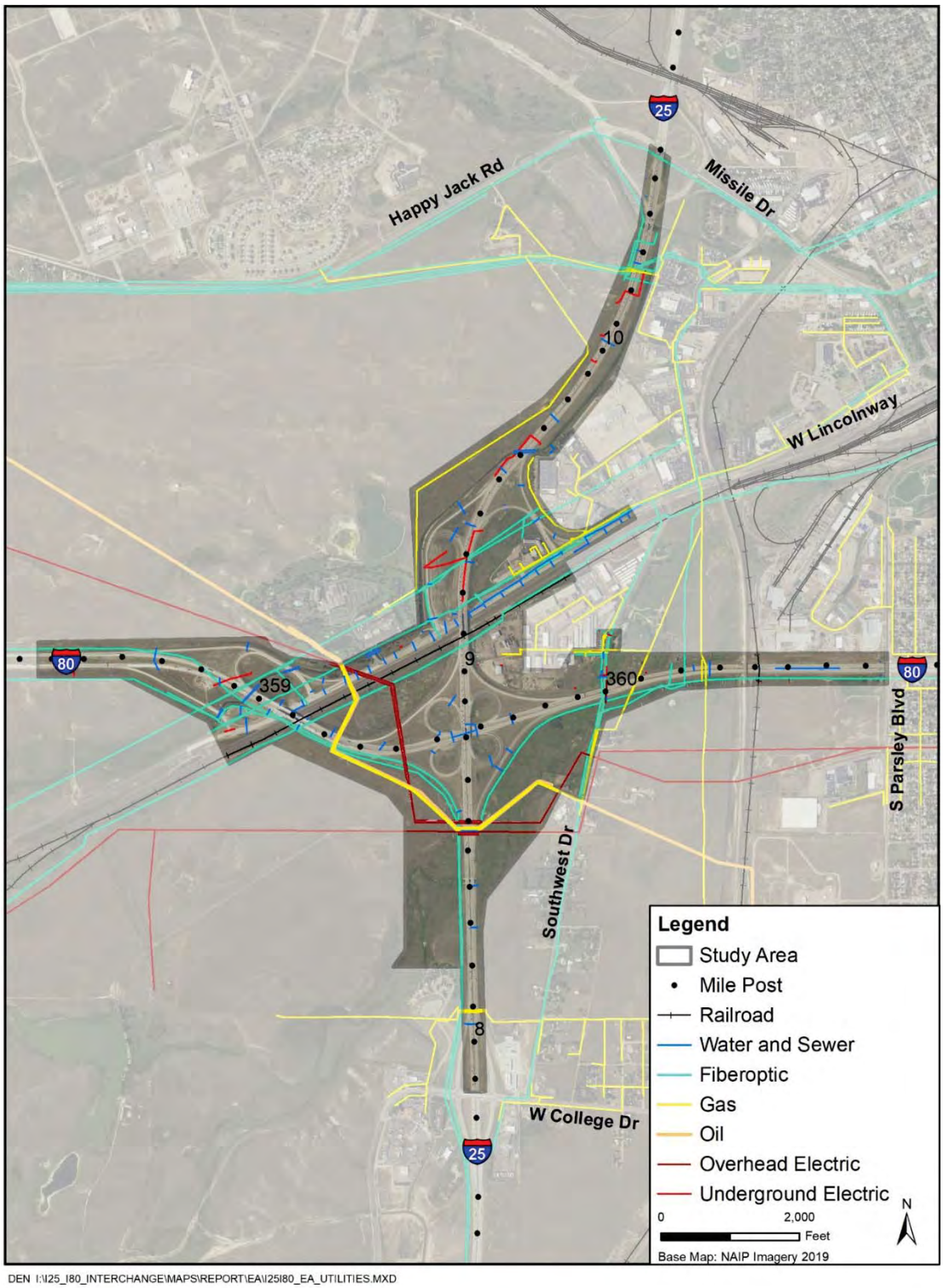
Numerous utilities are present within the study area

Multiple utilities parallel the existing I-25 and I-80 alignments. Telecom Fiber Optic lines parallel the western side of the I-25 alignment from the southern extent of the Project (approximately MP 7.9) to approximately MP 8.7 and from MP 10.1 to MP 10.4. These lines also parallel the southern side of I-80 from the western extent of the Project to MP 360.7. Underground electric lines are located along natural gas lines in these locations as well as overhead electric lines along the southern side of the I-80 eastbound ramps from approximately MP 359.3 to MP 359.9. Water and sewer lines parallel the western side of the I-25 alignment from approximately MP 9.2 to MP 10.2. WYDOT also has an underground electric utility line along both I-25 and I-80 to power the overhead highway lighting. Utility crossings perpendicular to the interstate alignments are shown in Figure 3-30.

Oil pipelines parallel the southern side of I-80 and the eastbound I-80 ramps from MP 359.2 to MP 359.7. The oil pipelines enter the study area near the I-80/Lincolnway interchange. The pipelines cross I-80 at approximately MP 359.2 and follow the southern side of the I-80 eastbound ramps to approximately MP 359.7, exiting the study area to the southeast.

Multiple natural gas lines providing service to residential and commercial properties cross or are near the study area. Natural gas lines parallel the western side of I-25 from approximately MP 9.2 to MP 9.9 and the eastern side from MP 10.0 to MP 10.4. Natural gas lines also parallel the northern side of I-80 from MP 359.6 to MP 360.0. Natural gas lines also cross the alignments in multiple locations. These lines along I-25 are located at approximately MP 8.1, MP 9.0, MP 9.6, and MP 10.2. Along I-80, they are located at approximately MP 359.7 to MP 360.0, MP 360.0, MP 360.2, and MP 360.7 through the eastern extent of the Project.

**Figure 3-30: Utility Locations**




DEN I:\I25_I80_INTERCHANGE\MAPS\REPORT\EA\I25I80_EA_UTILITIES.MXD

## Impacts

### *No Build Alternative*

The No Build Alternative would not replace or reconfigure either interchange included in the Project. However, improvements to Intelligent Transportation System, including new variable message boards at the I-25/I-80 interchange approaches, likely would occur. These Intelligent Transportation System improvements would require minor utility impact to tie-in and power for the Variable Message Signs. No utility relocations would occur as a result of the No Build Alternative.

### *Build Alternative*

The Build Alternative would replace and reconfigure the I-25/I-80 and I-25/Lincolnway interchanges, resulting in new fill slopes, retaining walls, and bridge structures. Given the numerous major utility lines both parallel and perpendicular to the existing interchanges, the new roadway elements would conflict with utilities in some areas within the existing and new right-of-way. Individual utility impacts would be determined once further design has been completed.

WYDOT will continue close coordination with utility owners throughout the project

WYDOT has met with appropriate utility owners and will continue to coordinate relocations when in conflict with the proposed design (see Chapter 5: Comments and Coordination). Utility owners relocating their respective utilities would complete their own environmental reviews and clearances for the new utility locations. Utility owners would acquire needed right-of-way or easements for the relocation of their respective utility. Existing WYDOT utilities would be relocated as needed when in conflict with the Project design.

## Mitigation

WYDOT will continue close coordination with utility companies throughout the Project, including through the final design process when utility conflicts will be defined in detail.

# 3.21: Cumulative Impacts

A cumulative impact is the impact on the environment that results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Figure 3-31 depicts the general concept.

**Figure 3-31: Cumulative Impacts General Concept**


Potential cumulative impacts are described for resources where cumulative effects are likely to occur when considering the project action and the presence of similar actions within the geography. For this Project, the cumulative impacts analysis focuses on the incremental impact this and other projects may have to wetlands because of estimated Project impacts. Other resources considered but dismissed from the cumulative analysis include land use and visual impacts. Cumulative effects to land use are unlikely because the Project would not adversely affect land use planning goals and the study area generally is planned for further growth. Also, the Project was not found to have long-term adverse visual impacts (Section 3.15: Visual Resources).

The general spatial boundary for this analysis is the Crow (10190009) hydrologic unit code (HUC) 8 watershed (including both Wyoming and Colorado portions of the watershed). The timeframe for past actions is 2005 and later, as the USACE Cheyenne office began its wetland permit database in 2005. The timeframe for reasonably foreseeable future actions is 2045, the design year for this Project.

## Past and Present Actions

USACE issued 74 CWA 404 permits between January 1, 2005, and February 26, 2020, within the HUC 8 watershed, most of which were nationwide permits. These permits resulted in the 2.45 acres of authorized fill and 2.13 acres of permanent loss, as well as 1.5 acres of mitigation (Table 3-15).

**Table 3-15: Wetland Impacts within HUC 8 Watershed (2005-2020)**

| Impact | Size |
|---|---|
| Acres of authorized fill[1] | 2.45 |
| Acres of permanent loss | 2.13 |
| Linear feet of authorized fill[2] | 574 |
| Acres of mitigation | 1.50 |

[1] Authorized fill within jurisdictional aquatic resources: mostly wetlands; includes a minimal number of Nationwide Permit 27 projects (aquatic habitat restoration, establishment, and enhancement activities). In this watershed, that would have resulted in a net benefit to the aquatic environment.

[2] Typically bank stabilization projects.

Source: Wolken, personal communication 2020

As noted in Section 3.1: Land Use, the Cheyenne City Council approved a land exchange in 2019 involving portions of the Swan Ranch property on either side of Clear Creek (City of Cheyenne 2019a). Laramie County Assessors parcel data (2019) confirms approximately 419 acres of City-owned land was acquired by Dyna Nobel. Before this exchange, this area was identified by the PlanCheyenne *Community Plan* (Cheyenne MPO et al. 2014b) for future residential and open space uses. Based on the the wetland delineation completed for this EA, which covers a portion of the area acquired by Dyna Nobel, Clear Creek supports a PSS wetland complex through this area. Swan Reservoir and Clear Creek Reservoir are two open water features east of the delineated area. Beyond the delineated area and based on USFWS National Wetlands Inventory data, the PSS wetland complex delineated for this Project extends east to Swan Reservoir and Clear Creek Reservoir.

Sweetgrass is an approximate 2,350-acre, mixed-use, master-planned village directly south of Laramie County Community College. The community's western border is approximately 2.0 miles southeast of the Project's eastern boundary (Sweetgrass 2020). Several riverine habitats flow north to south across the property based on National Wetlands Inventory data. Development of Phase One, which includes 13 commercial lots, 1 multi-family lot, and 90 residential lots, has started, as indicated by graded areas shown on aerial maps (Sweetgrass 2018a).

## Reasonably Foreseeable Future Actions

The planned Clear Creek Greenway would be adjacent to the wetlands associated with Clear Creek and within the Swan Ranch property acquired by Dyna Nobel previously described. Farther north, the planned Crow Creek Greenway would be adjacent to PSS wetlands along Crow Creek, flowing southeast from F.E. Warren AFB.

The remaining Sweetgrass parcels are expected to be developed in the future as shown on the *Sketch Master Plan* (Sweetgrass 2018b) for the property. Sweetgrass would include retail, entertainment, lodging, employment opportunities, and a variety of residential neighborhoods (Sweetgrass 2020). Future development identifies a total of 931 acres of developed residential parcels, 232 acres of developed non-residential parcels, and 1,036 acres of parks, school, golf, and open space (Sweetgrass 2018b).

Section 3.3: Economic Resources describes five industrial/commercial build-to-suit lands in the vicinity of the I-25/I-80 interchange, most of which have some existing tenants (Cheyenne LEADS 2019a). However, completely building out three of these business parks could potentially affect wetlands based on National Wetlands Inventory data. The plan for North Range Business Park indicates *park* land for most of the existing riverine habitat that enters the area from the east. The plan for Swan Ranch Business Park indicates *heavy industrial* use where riverine and freshwater emergent wetlands exist in the mostly undeveloped property from the north. The plan for the Cheyenne Business Park indicates *open space* surrounding the existing riverine habitat and freshwater emergent wetlands

that flow northwest to southeast in the area. (Campstool Business Park and Niobara Industrial Park are not expected to affect wetlands.)

## Impacts

### *No Build Alternative*

Under the No Build Alternative, no construction that would affect wetlands would occur, resulting in no impacts to wetlands. Therefore, there would be no additive impact from this alternative to past, present, or reasonably foreseeable future actions.

### *Build Alternative*

As discussed in Section 3.9: Wetlands and Waters of the U.S., the Build Alternative would result in permanent impacts to potentially jurisdictional and isolated wetlands. Applying a 1.5-to-1 compensatory mitigation ratio to estimated impacts would result in 2.78 acres of mitigation for potentially jurisdictional wetlands and 5.85 acres for potentially isolated wetlands. Because the wetlands impacted by this Project are expected to be compensated for by a 1.5-to-1 ratio, no net wetland loss is anticipated. Similarly, planned future development could potentially result in additional adverse effects. However, assuming these impacts would be offset by mitigation, no net loss of wetlands are expected. When combined with the acres of past and present mitigation identified in Table 3-15, no adverse cumulative impacts to wetlands are anticipated.

# 3.22: Selecting the Preferred Alternative

This EA includes a detailed evaluation of the No Build and Build alternatives. As described in Chapter 1, improving safety and traffic flow, accommodating future traffic needs, and supporting local development are the three project needs. The No Build Alternative fails to meet the need to improve traffic flow and safety because it does not address the underlying interchange design issues that give rise to these needs. The No Build Alternative also fails to meet the need to accommodate future traffic volumes because it does not improve interchange operations or provide additional interstate capacity. Finally, the No Build Alternative fails to meet the need to support local development because it is inconsistent with the transportation, economic, planning, and land use principles outlined in PlanCheyenne (Cheyenne MPO et al. 2014a) and other overarching planning documents for Cheyenne and Laramie County.

Conversely, the Build Alternative directly addresses the identified project needs. Although the Build Alternative would result in environmental impacts that would not result from the No Build Alternative, these impacts are not anticipated to be significant after mitigation; therefore, the Build Alternative is identified as the Preferred Alternative.

**Table 3-16: Summary of Impacts and Mitigation**

| Resource | Impact | | Mitigation Measure* |
|---|---|---|---|
| | No Build | Build | |
| Land Use | • Increased future operational deficiencies, worsened congestion, and potentially intensified crash frequency and severity<br>• Would not fully meet mobility needs of projected population; interchanges unable to effectively accommodate trucks or freight, potentially hindering economic growth<br>• Would not achieve PlanCheyenne goals to cultivate a connected and diverse transportation system | • Would meet transportation needs and goals<br>• Consistent with local land use goals<br>• Conversion of 32 acres of undeveloped land zoned for light-industrial use to transportation use | • For property acquisition, WYDOT will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act. |
| Socio-economics | • Worsened traffic operations and congestion, likely increased crash severity and frequency<br>• Would not achieve PlanCheyenne goals to cultivate a connected and diverse transportation system | • Benefit to community facilities from increased connectivity to surrounding communities<br>• Temporary roadway congestion during construction, noise and emissions from construction equipment, fugitive dust from earthmoving activities, temporary detours, and out-of-direction travel | • During construction, WYDOT or its contractor will coordinate with local businesses, first responders, and state patrol as necessary to minimize construction-related impacts. Construction activities, detours, and access changes will be advertised to reduce unexpected impacts or delays to roadway users, including the general public, emergency services, and first responders. |
| Economic Resources | • Reduced ability of the City to attract and retain businesses because of increased congestion and decreased LOS and safety, potentially hampering diversification of local industries | • Would result in minor changes to traffic patterns changes through the I-25/I-80 and I-25/Lincolnway interchanges | • No mitigation is required. |
| Right-of-Way | • No conversion of adjacent lands to transportation use through new right-of-way acquisitions | • Temporary construction easements (33.95 acres), permanent easements (0.25 acre), and right-of-way acquisition (32.34 acres) from 18 properties surrounding the interchange | • WYDOT will conduct right-of-way acquisitions and relocations in accordance with the Uniform Act and its Right-of-Way Manual. |
| Transportation and Traffic | • Continued reactive and routine maintenance and winter service actions to address seasonal safety issues<br>• No change to existing safety issues, deteriorating LOS (especially on I-25), would not be able to accommodate increasing traffic<br>• Increased number and frequency of accidents because of projected increased traffic volumes | • Would accommodate the forecasted traffic growth<br>• Underlying safety needs addressed by reconfigured intersections<br>• Minor changes to existing traffic patterns | During construction, WYDOT or its contractor will implement the following measures to minimize impacts to the traveling public:<br>• Develop a detailed traffic control plan.<br>• Maintain traffic flow during peak travel times by minimizing lane closures, if possible.<br>• Schedule full closures of I-25 and I-80 to nighttime hours for closures exceeding 1 hour in duration.<br>• Maintain access to businesses and residences located along Lincolnway and Southwest Drive at all times.<br>• Proactively communicate with residents, businesses, first responders, and the traveling public ahead of lane closures and mainline closures through the use of social media, advanced signage, and other direct engagement strategies throughout construction.<br>• Coordinate construction sequencing, timing, and detours with Wyoming Highway Patrol, the City, and Laramie County to minimize impacts to residents and traffic, including first responders.<br>• No long-term mitigation is required. |

**Table 3-16: Summary of Impacts and Mitigation**

| Resource | Impact | | Mitigation Measure* |
|---|---|---|---|
| | No Build | Build | |
| Air Quality and Climate Change | • Increased traffic volumes and air emissions because of increased population<br>• Degraded air quality with degraded LOS | • Improved traffic conditions and reduced congestion; more traffic free flow and reduced air pollutants | • No long-term mitigation is necessary as no permanent impacts are expected.<br>• To mitigate potential temporary air quality emissions, WYDOT or its contractor will adhere to the Wyoming Air Quality Standards and Regulations Chapter 3: General Emissions Standards, Section 2f(i): Fugitive Dust, construction/demolition activities.<br>• Best management practices will be implemented during construction to reduce any temporary air pollutants. |
| Noise | • Increased noise levels to noise-sensitive receptors from forecasted traffic increases | • No noise-sensitive receptors would approach or exceed noise abatement criteria<br>• No substantial noise increase of 15 dBA over existing conditions for noise-sensitive receptors | • No mitigation is required. |
| Water Resources and Water Quality | • Roadway stormwater runoff likely to continue contributing to sediment impairment of Crow Creek | • Increased runoff from net increase of 14.9 acres of impervious surface<br>• Two new water quality ponds<br>• Existing culverts replaced and/or extended to match new roadway template<br>• Approximately 1,100 feet of the unnamed tributary to Crow Creek realigned approximately 200 feet northwest to accommodate new roadway slopes<br>• No long-term impacts to water quality | • During construction, the contractors will be required to adhere to measures outlined in the Large Construction General Permit, including specific measures to protect water quality during construction.<br>• No long-term mitigation is required. |
| Wetlands and Waters of the U.S. | • No temporary or permanent impacts to wetlands or other waters | • Estimated 5.75 acres of permanent impacts to wetlands or other waters from fill because of interstate widening, new ramps, and embankment<br>• Estimated 3.77 acres of temporary impacts from construction of temporary ramps and roads, grading, and other construction-related activities | • Wetlands temporarily impacted by construction will be restored to previous conditions and revegetated with a native seed mix approved by WYDOT.<br>• Total wetland acreage lost to permanent impacts will be mitigated and replaced at a minimum ratio of 1.5 to 1.<br>• WYDOT will work with USACE to determine an appropriate strategy for wetland mitigation.<br>• Wetland mitigation options will be evaluated based on constructability, cost, and technical requirements. A mitigation proposal package will be submitted for approval by USACE as part of the Section 404 permitting process.<br>• WYDOT and its contractors will comply with all Section 404 permit conditions. |
| Floodplains | • No impact to existing floodplain or floodway, no increased flood risk to nearby properties | • Minor floodplain encroachment because of widening I-25 at Clear Creek floodplain crossing (MP 8.4), but no rise to base flood elevation.<br>• No negative impacts to any floodplain or floodway resources | • WYDOT or its contractor will obtain a floodplain development permit from the Laramie County Planning and Development Office before the start of construction. |

**Table 3-16: Summary of Impacts and Mitigation**

| Resource | Impact | | Mitigation Measure* |
|---|---|---|---|
| | No Build | Build | |
| Vegetation and Noxious Weeds | • Negligible impacts from noxious weeds entering study area via maintenance and winter service vehicles | • Conversion of disturbed and naturally vegetated areas to pavement or other permanent features<br>• Minimal short-term impacts to natural vegetation, as most of the landscape is previously disturbed<br>• Potential establishment of noxious and invasive species because of land disturbance, potentially resulting in loss or degradation of native vegetation and landscapes | • WYDOT's contractor will reclaim disturbed ground with a seed mix composed of species appropriate to site conditions, as developed by the WYDOT agronomist.<br>• WYDOT's contractor will comply with Sections 207 and 806 of WYDOT's Standard Specifications for Road and Bridge Construction (2010) to avoid the spread of noxious weeds. |
| Wildlife and Fisheries | • No impacts to wildlife and fisheries | • Minor impacts to wildlife habitat because of previously disturbed vegetated landscapes<br>• Short-term construction impacts from removing vegetation and topsoil to construct roads, slopes, and bridges<br>• Potential impacts to migratory birds, including disturbance or displacement-related impacts on nesting or migrating near construction areas if construction occurs during breeding or migration seasons<br>• Potential impacts to general wildlife species from construction noise, ground disturbance, and increased human presence, but these species would likely disperse to adjacent available habitats | • WYDOT's contractor will reclaim disturbed ground with a seed mix composed of species appropriate to site conditions, as developed by the WYDOT agronomist.<br>• No long-term mitigation is required. |
| Threatened and Endangered Species | • No impact to species covered under the Endangered Species Act | • No impact to species covered under the Endangered Species Act | • No mitigation is required. |
| Soils and Geology | • No adverse effects to soils or geology | • No adverse impact from soil excavation and importation to remaining soils or underlying geology<br>• Impacts to project design, cost, and construction because of certain soil characteristics | • During the final design phase of the project, WYDOT will incorporate appropriate measures to avoid and minimize project impacts from soils.<br>• Deep foundations may be required at structure locations and will be evaluated on an individual basis. |
| Visual Resources | • Slight degradation of visual quality because of visibility of increased traffic<br>• Sight and localized beneficial impact to visual quality from Cheyenne's plans for gateways at specific locations, if installed | • Substantial visual changes primarily from placing fill and elevating structures over the height of existing elements, and construction of new wind walls<br>• Short-term impacts from views of heavy work equipment, building materials, and demolition activities during construction<br>• Short-term impacts from views of temporary material staging areas | • Areas disturbed during construction will be revegetated in a manner that is consistent with adjacent landscape features.<br>• Native and indigenous species will be used for revegetation.<br>• Project designers will work with the City to incorporate design elements identified for Community Gateways and Landscape Gateways, to help uphold the City's vision for these areas. |

**Table 3-16: Summary of Impacts and Mitigation**

| Resource | Impact | | Mitigation Measure* |
|---|---|---|---|
| | No Build | Build | |
| Cultural Resources | • No effect on historic resources | • No adverse effects to historic properties and no impacts to prehistoric resources | • If project changes occur that would result in subsurface impacts to undisturbed land in the Clear Creek floodplain, archaeological testing will be conducted for this portion of the APE before construction to identify potentially buried prehistoric archaeological sites.<br>• If cultural materials are discovered during construction, work in the area will stop immediately; WYDOT and SHPO will be contacted; and the materials will be evaluated by an archaeologist or historian who meets the Secretary of the Interior's Professional Qualifications standards, per Federal Register Volume 48 Number 22716 dated September 1983.<br>• No mitigation is required. |
| Hazardous Materials | • No impacts to hazardous material sites | • Of the 23 hazardous materials sites within the study area, little to no impact to 11 sites, possible future impact to 12 sites based on historical activities and proximity to the proposed construction footprint | • As right-of-way needs are determined, WYDOT will assess the need for additional investigations on a property-by-property basis based on the potential risks previously discussed.<br>• If, during construction, conditions are discovered that may indicate contamination in soil (e.g., petroleum odor, sheen), WYDOT or its contractor may conduct further sampling and analysis.<br>• Because of the presence of metals in areas where dewatering may occur, WYDOT or its contractor may characterize generated water to determine handling and disposal procedures. The remediation of dewatering effluent may be necessary before discharge.<br>• To address the uncertainty regarding subsurface conditions and groundwater in the vicinity of the study area, WYDOT or its contractor will prepare a health and safety plan and hazardous materials management plan to respond to any hazardous materials or waste that may be potentially encountered.<br>• WYDOT or its contractor will implement best management practices during construction in accordance with the WDEQ and the WYDOT Pollution Controls and Best Management Practices for Storm Water During Construction Field Guide (n.d.). |
| Parks and Recreation Resources | • No impacts to parks, recreational facilities, or bicycle and pedestrian facilities | • Temporary closure of the Lincolnway sidewalk during construction | • Connectivity of the Lincolnway sidewalk will be maintained during construction through measures such as temporary crosswalks with signage, flaggers, or temporary signals. The sidewalk will be restored toward the end of each construction phase. |
| Farmland and Grazing Lands | • No impacts to important farmland (none in study area) | • No impacts to important farmland (none in study area) | • No mitigation is required. |
| Utilities | • Improvements to Intelligent Transportation System, including new variable message boards at the I-25/I-80 interchange approaches<br>• No utility relocations | • Conflicts with utilities and new roadway elements in some areas within existing and new right-of-way; individual utility impacts determined once further design completed | • WYDOT will continue close coordination with utility companies throughout the project, including through the final design process when utility conflicts will be defined in detail.<br>• Utility owners relocating their respective utilities would complete their own environmental reviews and clearances for the new utility locations. Utility owners would acquire needed right-of-way or easements for the relocation of their respective utility.<br>• Existing WYDOT utilities would be relocated as needed when in conflict with the project design. |
| Cumulative Impacts | • No additive impact from this alternative to past, present, or reasonably foreseeable future actions | • Permanent impacts to potentially jurisdictional and isolated wetlands; no adverse cumulative impacts to wetlands when combined with the acres of past and present mitigation | • No mitigation is required. |

* Mitigation measures only apply to the Build Alternative.

# Chapter 4 Phasing and Constructability

## 4.1: Introduction

Phasing construction has several key benefits

The Preferred Alternative has been designed to be constructed in phases. Dividing the Project into phases has several key benefits:

1) Maximizing available funding: full project funding is not required to begin construction and improve the traffic operations of both interchanges. Project costs can be spread over a longer period of time.
2) Minimizing traffic impacts: phasing provides construction sequencing that minimizes the frequency and duration of mainline interstate closures.
3) Project sequencing: the phase order minimizes disruption to higher traffic volume segments and therefore assists to reduce the potential for operational and safety issues during construction.

Three major construction phases are suggested to complete the interim build condition (see Chapter 4). Each phase would function independently and provide stand-alone benefits, regardless of subsequent phases. Further, each phase could be left in place should funding not be available to complete subsequent phase(s). The major improvements and durations are detailed for each of the three phases in this chapter.

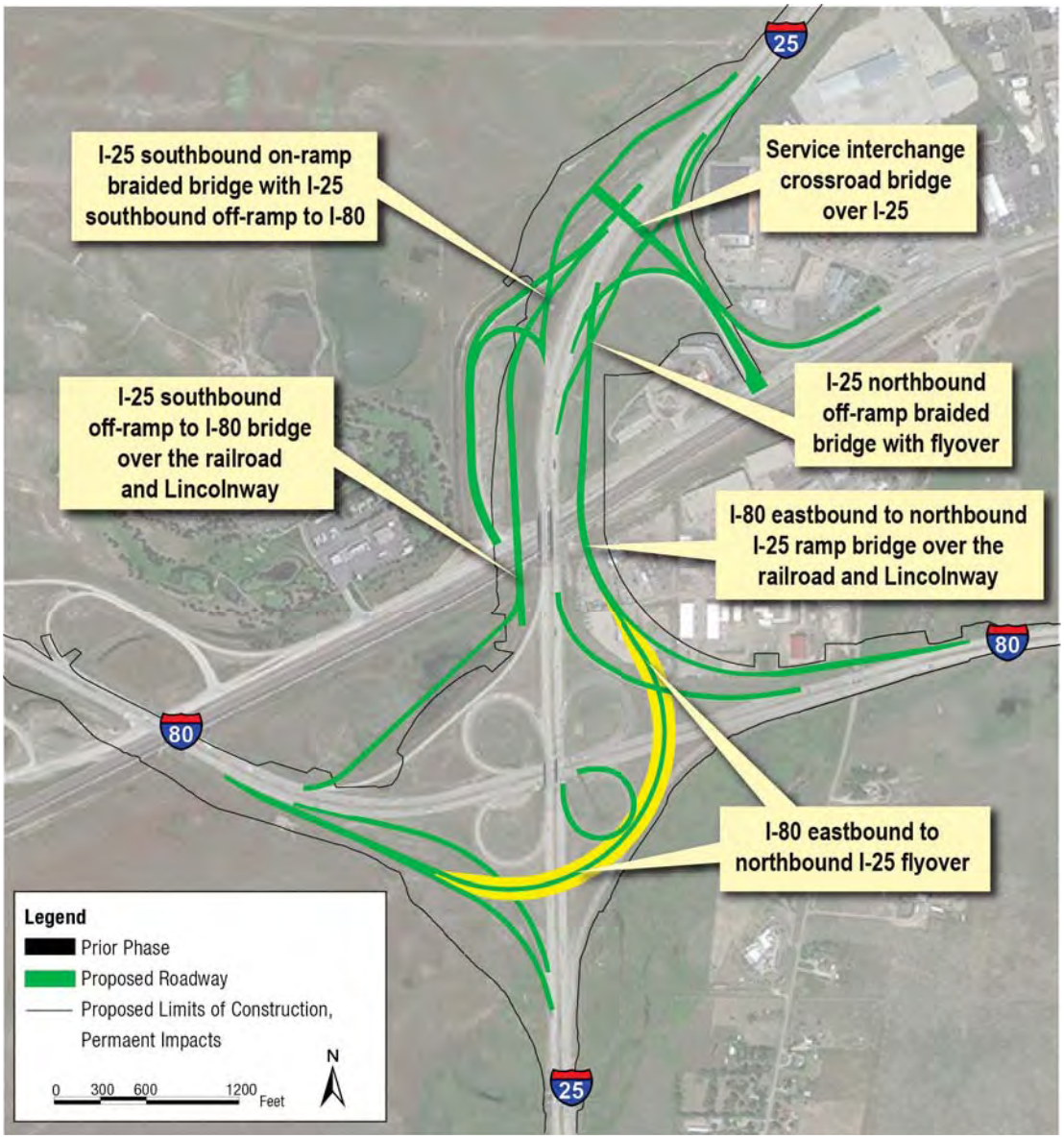
The phases described in this chapter represent one approach to constructing the Project. Future contractor(s), in cooperation with Wyoming Department of Transportation (WYDOT), have flexibility to increase the number of phases by further dividing the Project, and have the flexibility to reorder construction activities. Maintaing flexibility allows future construction contractors and WYDOT to align improvements with available construction funding and timing.

## 4.2: Construction Phase A

Phase A includes construction of the eastbound I-80 to northbound I-25 elevated flyover

The first of three phases, Construction Phase A, would eliminate two existing weave points. The eastbound Interstate 80 (I-80) to northbound I-25 weave point would be eliminated by constructing an elevated flyover ramp. The weaving movement between U.S. Highway 30 (Lincolnway) to southbound I-25 on-ramp and I-25 southbound to I-80 westbound off-ramp would also be eliminated by constructing new bridges and braided ramps that separate interstate traffic from local traffic. Phase A would also include the construction of six major structures. Major structures included in Phase A are identified as callouts on Figure 4-1.

**Figure 4-1: Construction Phase A**



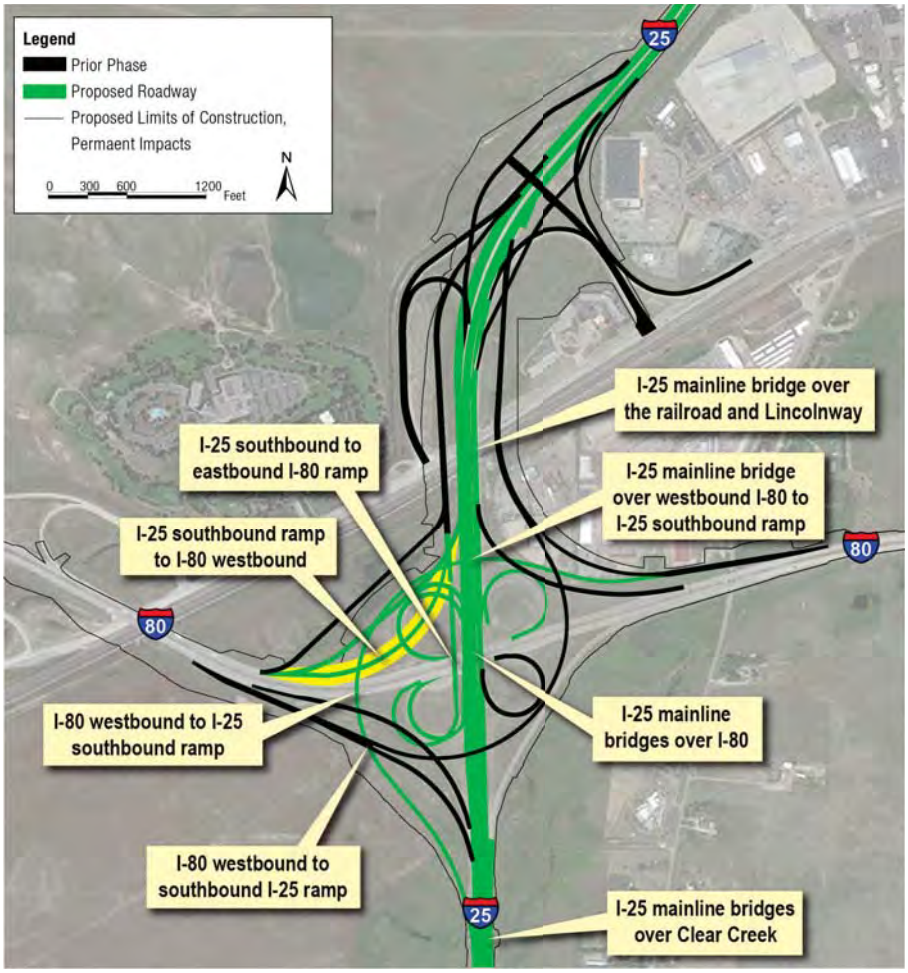
Phase A would include all the ramps and signals for the new elevated service interchange with Lincolnway. The new crossroad bridge over I-25 would extend southeast, connecting to a new stop-controlled intersection with Lincolnway. Signals would be added to the new intersection with Lincolnway when warranted. Temporary ramp tie-ins to and from Lincolnway to I-25 would last for 2 to 3 years. At the end of Phase A, three temporary tie-ins between ramps and I-80 would remain; four would remain on I-25. The approximate timeframe to complete Phase A construction is 3 years. Work likely would occur during warmer, construction seasons and cease during winter months.

## 4.3: Construction Phase B

Phase B further reduces weave points, improving traffic flow and safety

The second of three phases, Phase B would further improve traffic operations by eliminating another weave area. The new eastbound I-80 to southbound I-25 ramp, which would go underneath I-25 and then elevate as it travels over I-80, would eliminate the existing weave at the center of the interchange between the I-25 southbound on- and off-ramps. The new ramp would separate interstate traffic from local traffic and would require the construction of 12 new major structures, with I-25 mainline bridges requiring two structures—one for each direction of travel. Major structures included in Phase B are identified as callouts on Figure 4-2.

**Figure 4-2: Construction Phase B**

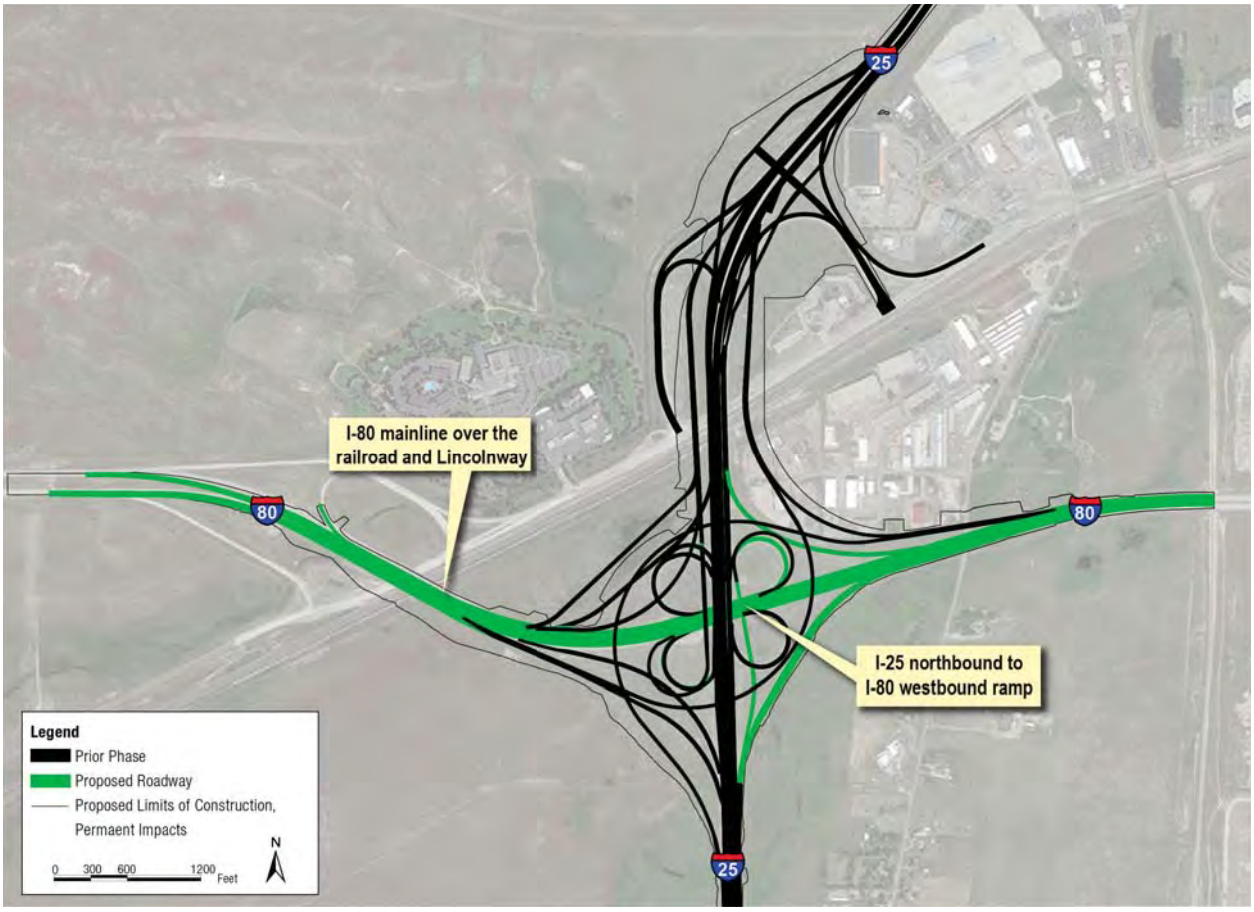



At end of Phase B, the service interchange ramps would be permanently tied in to I-25, and the temporary tie-ins would be eliminated. The I-25 bridges would be complete. The auxiliary lanes for ramps could also be accommodated. The approximate timeframe to complete Phase B construction is 3 years.

## 4.4: Construction Phase C

The third construction, Phase C, would complete all the I-25/I-80 ramp tie-ins and the minor (approximately 30-foot) shift of the I-80 mainline and curve realignment of I-80 west of the interchange. Three major structures would be constructed during this phase, with the I-80 mainline requiring a separate bridge in each travel direction. Major structures included in Phase C are identified as callouts on Figure 4-3.

**Figure 4-3: Construction Phase C**




Phase C would complete all system interchange ramp tie-ins and the I-80 structures. The approximate timeframe to complete Phase C construction is 3 years.

## 4.5: Interim and Ultimate Buildout Conditions

In addition to the three-phased construction previously described, WYDOT would phase widening I-25 and I-80 from four to six lanes. Initially, construction would keep the interstate mainlines at four lanes in each direction—the so-called **interim condition**. As traffic increases, WYDOT plans to widen each interstate to six lanes in each direction, referred to as the **ultimate condition.** For the interim condition, the new bridge structures through both interchanges would be constructed to accommodate the future widening from two to three lanes in each direction. The four-lane interim condition at the end of Phase C would maintain an open median between the opposing directions of I-25 and I-80. The ultimate condition would include median pavement and striping for the additional lanes on both I-25 and I-80 and would need to occur in a subsequent construction phase.

The **ultimate condition** includes median grading, pavement, and striping for a third lane in both directions of I-25 and I-80

### Traffic Analysis for Four-lane Section

To support the decision to construct the interim condition, WYDOT analyzed forecasted traffic to confirm that the four-lane sections could accommodate demand through the first pavement lifecycle (typically 20 years). Peak hour operating conditions were analyzed for three different scenarios (refer to the *Interchange Traffic Report* [Appendix A] for details on this analysis). Key findings include the following:

- In Year 2040, a four-lane section for the 2040 horizon year would operate at Level of Service (LOS) D or better during peak hours.
- In Year 2040, a six-lane section for the 2040 horizon year would operate at LOS C or better during peak hours.
- In Year 2030, a four-lane section would operate at LOS C or better during peak hours, indicating that acceptable peak hour operations are achievable with four-lane sections at least through Year 2030.

# Chapter 5 Comments and Coordination

## 5.1: Introduction

The Wyoming Department of Transportation (WYDOT) has conducted public and agency involvement throughout the enviromental assessment (EA) process to ensure widespread public awareness of the Project and to provide opportunities for timely input to project decision making. Participants included interested citizens, property owners, representatives from the City of Cheyenne (City), business owners and operators, and local, state, and federal agencies.

## 5.2: Public Involvement

WYDOT conducted public outreach to provide information to the public and to obtain input on issues to be addressed

As part of the effort to involve area residents, businesses, and landowners, WYDOT conducted public outreach to provide information to the public and to obtain input on issues to be addressed in the development of the EA. Public involvement materials, meeting summaries, and media can be viewed in Appendix B.

### Public Scoping Meeting

WYDOT held a public scoping meeting in May 2019 to present preliminary project information to the public. Scoping is an early and open process for determining the scope of issues to be addressed and identifying the significant issues related to the Project. The purpose of the meeting was to obtain public input on any potential transportation, environmental, socioeconomic, or other concerns within the study area.

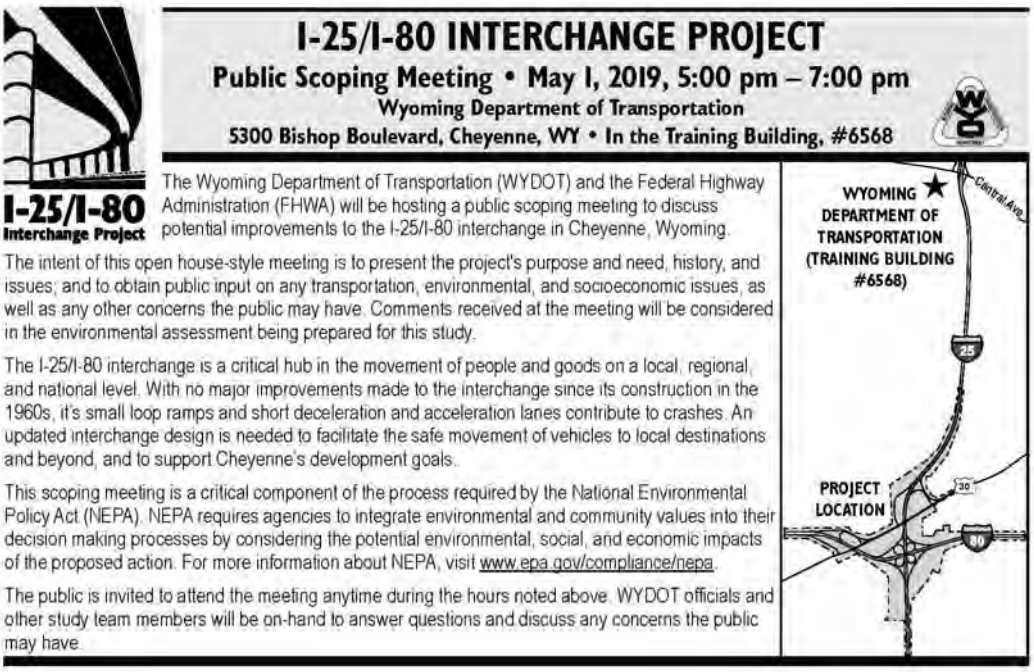
WYDOT held the public scoping meeting on May 1, 2019, from 5:00 p.m. to 7:00 p.m., at the WYDOT-U Training Building (Bldg. 6568) at 5300 Bishop Boulevard, Cheyenne, Wyoming 82009-3340.

The meeting was conducted in an open house format. The study team provided notice of the meeting through the following means:

- Sending mailings to landowners and stakeholders (Figure 5-1)
- Distributing a meeting announcement to WYDOT media contacts on April 22, 2019
- Posting meeting advertisements in the Wyoming Tribune Eagle from Wednesday, April 24, 2019, until the day of the meeting (May 1, 2019)
- Announcing the meeting on the Project website

The meeting presented information on the Project's purpose and need, alternatives review process, the environmental process, environmental resources within the study area, and major findings from the *I-80/I-25 Interchange Study* (WYDOT 2008). Members of the public viewed information displayed around the meeting room.

**Figure 5-1: Post Card Announcing Public Scoping Meeting**



I-25/I-80 Interchange Project

# I-25/I-80 INTERCHANGE PROJECT

**Public Scoping Meeting • May 1, 2019, 5:00 pm – 7:00 pm**

**Wyoming Department of Transportation**

**5300 Bishop Boulevard, Cheyenne, WY • In the Training Building, #6568**

The Wyoming Department of Transportation (WYDOT) and the Federal Highway Administration (FHWA) will be hosting a public scoping meeting to discuss potential improvements to the I-25/I-80 interchange in Cheyenne, Wyoming.

The intent of this open house-style meeting is to present the project's purpose and need, history, and issues; and to obtain public input on any transportation, environmental, and socioeconomic issues, as well as any other concerns the public may have. Comments received at the meeting will be considered in the environmental assessment being prepared for this study.

The I-25/I-80 interchange is a critical hub in the movement of people and goods on a local, regional, and national level. With no major improvements made to the interchange since its construction in the 1960s, it's small loop ramps and short deceleration and acceleration lanes contribute to crashes. An updated interchange design is needed to facilitate the safe movement of vehicles to local destinations and beyond, and to support Cheyenne's development goals.

This scoping meeting is a critical component of the process required by the National Environmental Policy Act (NEPA). NEPA requires agencies to integrate environmental and community values into their decision making processes by considering the potential environmental, social, and economic impacts of the proposed action. For more information about NEPA, visit www.epa.gov/compliance/nepa.

The public is invited to attend the meeting anytime during the hours noted above. WYDOT officials and other study team members will be on-hand to answer questions and discuss any concerns the public may have.



*Public Scoping Meeting*

The Project team was available to discuss the Project and answer questions. Questionnaires were provided for attendees to complete and submit at the public meeting, through postage, or via the Project website.

Seventeen people signed in at the public meeting, with attendees including residents and business owners. A total of three questionnaires were submitted either at the public meeting or by the May 23, 2019, deadline. Comments included the following:

- The Project should include a northbound Interstate 25 (I-25) to westbound I-80 flyover because enlarging the existing loop ramp movements will not improve traffic operations.

- The I-25/I-80 interchange represents the crossroads of the nation and is the most important in the country. Design and construction should occur with this in mind.
- The bridges should be designed with excess clearance to avoid wind tunnel effects.
- This is the opportunity to avoid future congestion.
- Preference for Alternative IV from the *Interchange Study*.

## Public Hearing

WYDOT will hold a public hearing to solicit and record comments on this EA. Comments received during the public hearing and minimum 30-day comment period will be collected, analyzed, and responded to in the decision document.

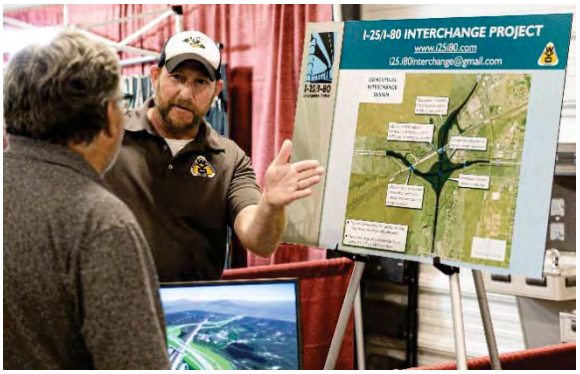
## Public Events

WYDOT conducted additional in-person outreach by securing project booths at the Laramie County Fair and the Archer Craft Fair. These events were selected largely because of their popularity and high attendance. During these events, Project staff provided updates and useful materials, answered questions, and solicited public input.

### *Laramie County Fair*

At the Laramie County Fair, WYDOT was able to discuss the project with hundreds of residents and gather over 120 comments

The Laramie County Fair is an annual event hosting approximately 20,000 local and regional attendees over a 10-day period in early August. The Project team secured and staffed a fair booth for 7 consecutive days beginning Sunday, August 4, 2019.



*Project information booth at the Laramie County Fair*

The project booth included a 3D video flyover of the interchange's conceptual design, information brochures, and an aerial map identifying key design improvements included in the project. WYDOT was able to discuss the Project with hundreds of residents and gather over 120 comments. Individuals who provided input included daily commuters, first responders, regional travelers, commercial truck drivers, high school students, school bus drivers, and others.

The overwhelming majority of those who visited the booth expressed support for the Project. The following list summarizes key themes from comments collected at the fair:

- Merging onto I-25 from I-80 when travelers are exiting I-25 is dangerous. When one or more commercial trucks are present, navigating the I-25 merge or diverge movement is even more difficult.
- The loop ramps at the I-25/I-80 interchange are tight. With winter conditions, vehicles can hit the guardrail or run off the road when using loop ramps.
- Many of the vehicles going through the I-25/I-80 interchange are from out of state and are not familiar with how to anticipate the merge movements and navigate the interchange safely.
- Some drivers avoid the interchange because of the merging difficulty and instead access I-25 and I-80 from nearby interchanges.
- The interchange is outdated and needs to be replaced.

### *Archer Craft Fair*

WYDOT secured a booth at the Archer Craft Fair, held Saturday, November 16, 2019. Similar to the county fair, the craft fair booth included a 3D video flyover of the interchange's conceptual design, information brochures, and an aerial map identifying key design improvements.


*Project information booth at the Archer Craft Fair*

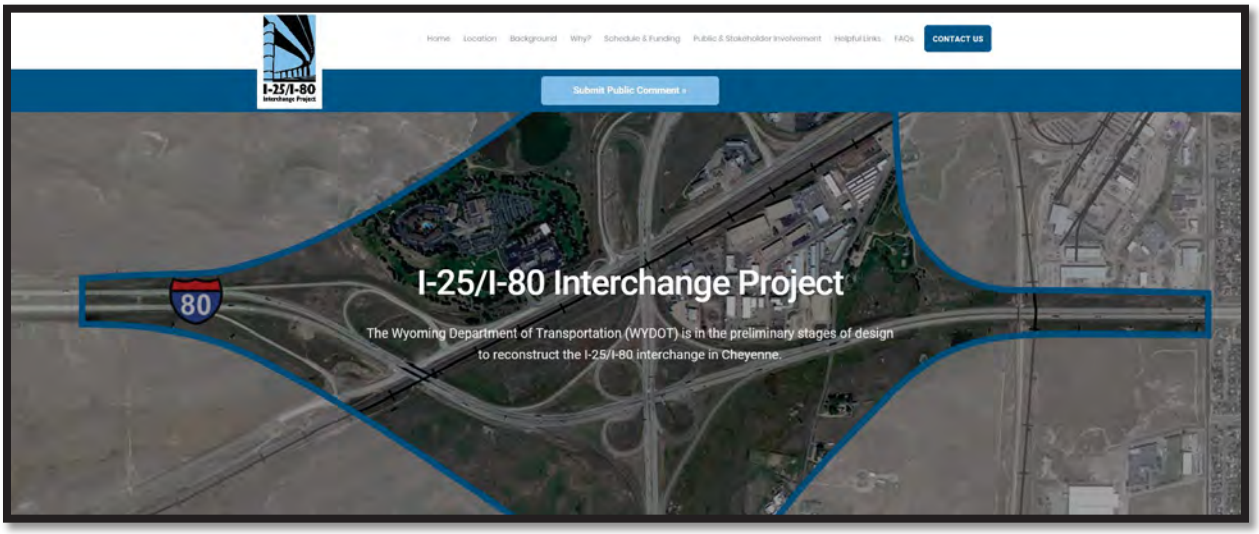
Themes identified at the Laramie County Fair were reinforced by the public input received at the craft fair. New themes identified included the following:

- What are the anticipated impacts to area businesses? Will business access in the northeast quadrant be changed?
- How are the traffic patterns changed by the Project? Why can't Lincolnway [U.S. 30] traffic access the I-80 eastbound ramp?

## Project Media and Information

### *Project Website*

The study team created a Project website (http://www.i25i80.com ) that was updated throughout the EA process. The website provides Project information regarding the purpose and need, Project background, funding information, the Project schedule, public involvement materials, a 3D video flyover, frequently asked questions, and other helpful WYDOT links. Public comments are collected through the website's comment tool.




*I-25/I-80 Interchange Website*

The website features an interactive map that allows users to provide comments on specific design features or locations within the Project study area. Comments submitted through the Project website's interactive map included the following:

Among other features, the project website features an interactive map and a 3D video flyover

- Can direct business access be provided from the new Lincolnway connection in the northeast project quadrant?
- How can I access I-80 eastbound from Lincolnway?
- How is Lincolnway accessed from I-80 eastbound?
- The remaining two cloverleafs should be turned into flyovers.

### *Newsletters*

WYDOT distributed newsletters to provide project updates to the public and project stakeholders. The Project distribution list consisted of residents, landowners, businesses, and agencies in the immediate Project vicinity and extending into Cheyenne.

- A November 2019 newsletter was sent to provide general Project description, Project background, proposed construction phasing information, and a flyover image of the redesigned interchange.

- A second newsletter was distributed in March 2020 to provide stakeholders with Project updates, summarize recent public involvement activities, and give advanced advertisement of the EA public hearing.

I-25/I-80 INTERCHANGE PROJECT

What's the schedule of the project?

Preparation of an Environmental Assessment (EA) and preliminary design are currently underway. WYDOT has hired Jacobs Engineering to support these efforts. The EA is anticipated to be made available for public comments in Summer 2020; preliminary design plans are scheduled for late 2020. The Federal Highway Administration will issue a decision for the project which is anticipated to occur in late 2021. Final project design could be completed by 2024 or earlier.

When will construction begin?

Timing for project construction will depend on when WYDOT secures full construction funding. WYDOT is actively seeking federal funding for construction.

How much is the project going to cost?

The estimated cost for this project is between $207.2 million and $310.7 million.

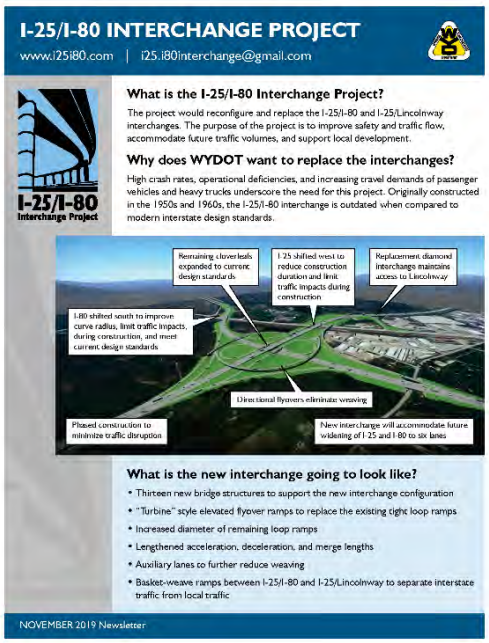
How will construction affect traffic?

WYDOT is committed to minimizing traffic impacts during construction. As part of the project, the I-25 alignment will be shifted slightly to the west and the I-80 alignment will be shifted to the south. These shifts will minimize construction duration and allow existing traffic flow to be maintained. Preliminary construction phasing can be viewed on the project website.

How can the public become involved?

Input from the public is encouraged throughout all phases of the project. Comments can be provide through the project website:
www.i25i80.com
or by contacting the project team at:
i25.i80interchange@gmail.com
The next public open meeting is scheduled Summer 2020.

NOVEMBER 2019 Newsletter



I-25/I-80 INTERCHANGE PROJECT

www.i25i80.com | i25.i80interchange@gmail.com

What is the I-25/I-80 Interchange Project?

The project would reconfigure and replace the I-25/I-80 and I-25/Lincolnway interchanges. The purpose of the project is to improve safety and traffic flow, accommodate future traffic volumes, and support local development.

Why does WYDOT want to replace the interchanges?

High crash rates, operational deficiencies, and increasing travel demands of passenger vehicles and heavy trucks underscore the need for this project. Originally constructed in the 1950s and 1960s, the I-25/I-80 interchange is outdated when compared to modern interstate design standards.

Remaining cloverleafs expanded to current design standards
I-25 shifted west to reduce construction duration and limit traffic impacts during construction
Replacement diamond interchange maintains access to Lincolnway
I-80 shifted south to improve curve radius, limit traffic impacts during construction, and meet current design standards
Directional flyovers eliminate weaving
Phased construction to minimize traffic disruption
New interchange will accommodate future widening of I-25 and I-80 to six lanes

What is the new interchange going to look like?

- Thirteen new bridge structures to support the new interchange configuration
- "Turbine" style elevated flyover ramps to replace the existing tight loop ramps
- Increased diameter of remaining loop ramps
- Lengthened acceleration, deceleration, and merge lengths
- Auxiliary lanes to further reduce weaving
- Basket-weave ramps between I-25/I-80 and I-25/Lincolnway to separate interstate traffic from local traffic

NOVEMBER 2019 Newsletter

*Newsletter distributed November 2019 to the public and Project stakeholders*

## 5.3: Agency and Stakeholder Coordination

WYDOT consulted with local, state, and federal agencies to ensure compliance with agency policies, procedures, and transportation planning requirements, and to ensure accurate resource identification and impact evaluation. Scoping letters were sent to the following agencies and stakeholders:

WYDOT sent a scoping letter to agencies and stakeholders to solicit input on the project

- Local, state, and federal agencies:
  - Laramie County Public Works
  - City of Cheyenne
  - Cheyenne Metropolitan Organization (MPO), Cheyenne Policy Committee, Cheyenne Technical Committee
  - Federal Highways Administration (FHWA)
  - Francis E. Warren Air Force Base (F.E. Warren AFB)
  - United States Army Corps of Engineers (USACE)
  - United States Fish and Wildlife Service (USFWS)
  - Cheyenne/Laramie County Emergency Management
  - The Cheyenne-Laramie County Corporation for Economic Development (Cheyenne LEADS)
  - Wyoming Highway Patrol
  - Cheyenne Board of Public Utilities

- Private entity stakeholders:
  - Union Pacific Railroad (UPRR)
  - Wyoming Trucking Association
  - Adjacent property owners and business operators

Six agencies responded to the scoping letter request; comments are summarized in the following subsections.

## Comanche Nation Historic Preservation Office

The Comanche Nation Historic Preservation Office reviewed the Project location and determined no properties were identified that may potentially contain prehistoric or historic archeological materials.

## Tribal Historic Preservation Office – Northern Cheyenne Tribe

The Northern Cheyenne Tribe deferred additional consultation regarding cultural resource concerns and recommendation to the Northern Arapaho Tribe and/or Shoshoni Tribe of Wyoming.

## Wyoming Game and Fish Department

The Wyoming Game and Fish Department (WGFD) reviewed the Project and identified a small amount of pronghorn crucial winter range located at its western edge. Should any work occur beyond existing right-of-way, seasonal stipulations between November 15 and April 30 were recommended by the Department. No aquatic concerns were associated with this Project provided the Department's recommendations to prevent the spread of aquatic invasive species are followed.

## United States Fish and Wildlife Service

Following review of the Project, the USFWS provided an Information, Planning, and Conservation System for the Project team to use as an initial scoping tool. Based on the information requested by the Project team, the USFWS recommended resources to review the recommendations for the protection of migratory birds.

## F.E. Warren AFB

The F.E. Warren AFB indicated they are not aware of any groundwater contamination plumes that originate from the installation that could potentially affect the Project. One concern raised for the installation is how construction of the Project might result in impacts to the operations of the AFB. Additional contacts for the F.E. Warren AFB National Environmental Policy Act of 1969 (NEPA) manager and community planner were provided should the Project team require additional support.

### City of Cheyenne – Planning and Development Department

The City Planning and Development Department had no concerns regarding the Project. Project plans for streamway improvements to Crow Creek were provided to the Project team. The Department also suggested additional contacts to engage in future coordination efforts regarding the Project: the Laramie County Conservation District, Board of Public Utilities, and the Crow Creek Revival.

The Project team also requested information from the City regarding any known environmental issues regarding the Project. The City replied that no known environmental issues were apparent at the time of their review.

## 5.4: Stakeholder Scoping Meeting

A stakeholder and agency scoping meeting, was held on May 1, 2019, to determine the scope of issues to be addressed and identify significant issues specific to entities directly affected by the Project. The following were the goals of the meeting:

- Review major decisions of the *I-80/I-25 Interchange Study* (WYDOT 2008) relative to updated conditions
- Collect input and feedback
- Inform the EA process, next steps, and future coordination

Twenty-seven individuals attended a stakeholder scoping meeting in May 2019

Twenty-seven individuals signed in at the stakeholder scoping meeting, representing various organizations and agencies including the Cheyenne MPO, the City, Cheyenne LEADS, Laramie County Emergency Services, F.E. Warren AFB, Laramie County, UPRR, and property owners. Many of these stakeholders were also involved in the 2008 *Interchange Study*. Following discussions, the stakeholder group relayed their support of the Project and agreed the recommended alternative for the 2008 *Feasibility Study*, with a few refinements, remained the alternative that will best meet the purpose and need of the Project.

### Concept Design Refinement Workshop

WYDOT held a 3-day Concept Refinement Workshop in May 2019

WYDOT held a Concept Refinement Workshop from May 7 through 9, 2019, at the WYDOT offices in Cheyenne to discuss and refine the Project's conceptual design. The workshop was attended by the Wyoming Highway Patrol and utility owners. The discussions were based on the recommended alternative from the *Interchange Study* and the *2018 Reconnaissance Report* issued by WYDOT. The 3-day workshop included a tour of the Project site, sharing of previous efforts and design concepts, an update on the current state of the Project and funding mechanisms, brainstorming of refinement concepts, and comprehensive analysis with executive presentation. The design refinements resulting from this workshop are discussed in Section 2.4: Refining the Interchange Concepts of this EA.

*Concept Refinement Workshop*

## Clean Water Act Permitting Scoping Meeting

A Clean Water Act (CWA) scoping meeting was held December 10, 2019, on the WYDOT campus to discuss anticipated impacts to wetlands and waters of the U.S., potential mitigation opportunities, and future Section 404 permitting approaches. The meeting was attended by WYDOT, USACE, FHWA and the Project team.

## Union Pacific Railroad Coordination Meeting

A meeting was held February 13, 2020, between the design team and UPRR representatives. The purpose of this meeting was to discuss comments that UPRR had provided regarding the Project. Ten comments from UPRR were discussed at the meeting with responses and next steps agreed upon by all parties.

## Utility Coordination Meeting

A utility coordination meeting was held August 19, 2019. Nineteen attendees signed in, either in person or over the phone. The Project background, status, and schedule were presented to utility stakeholders. The utility information gathered and assessed by the consultant team was presented, as well as a review of a utility risk matrix, developed to assign risk to utilities for design coordination efforts. Utility owners requested the results of the utility survey be distributed and the design team encouraged the owners to provide comments on any missing information. Additional one-on-one meetings with utility owners and the design team and WYDOT were discussed.

## Individual Property Owner Meetings

In fall 2019, WYDOT decided to investigate early acquisition of three parcels in the northeastern project corner. Individual property/business owner meetings specific to these three properties have occurred during the development of this EA.

## 5.5: Decision Process

The EA will be available for review by the public and agencies for a minimum of 30 days

A Notice of Availability of the EA, as well as an announcement of a public hearing to present its findings and receive comments on it, was published in local newspapers, including the Wyoming Tribune Eagle. The EA will be available for review by the public and agencies for a minimum of 30 days. The general public and agencies will be given an opportunity to provide official comment on the Project. Written comments, to be included as an official part of WYDOT's records, will be accepted for a minimum of 30 days following the Notice of Availability. The FHWA will prepare a decision document following the EA public and agency review.

# Chapter 6 Section 4(f) Properties

## 6.1: Introduction

Section 4(f) protects public parks, recreation areas, wildlife and waterfowl refuges, and historic properties

Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended, and codified in 49 *United States Code* (USC) 303 and 23 USC 138, states that "special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." The Federal Highway Administration (FHWA) has adopted regulations (23 *Code of Federal Regulations* [CFR] 774) to ensure its compliance with Section 4(f).

Documentation of compliance with Section 4(f) is required for a transportation project that may receive federal funding and/or discretionary approvals through the U.S. Department of Transportation. This Project meets that requirement. Therefore, this chapter evaluates the proposed Interstate 25 (I-25)/I-80 Interchange Improvement Project (Project) relative to Section 4(f).

FHWA may not approve the use, as defined in 23 CFR 774.17, of Section 4(f) property unless there is no feasible or prudent avoidance alternative and all possible planning to minimize harm has been included in the Project.

As defined in 23 CFR 774.17 and 774.15, where applicable and not excepted, the use of a protected Section 4(f) property can be classified as a direct use, temporary occupancy, or constructive use. In addition, a finding of *de minimis* impact can be made if the impact to a Section 4(f) property is determined to be minimal. Constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the Project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished.

## 6.2: Section 4(f) Resources

### Historic Properties

No historic 4(f) properties are present within the study area

WYDOT determined under the Section 106 consultation conducted for this undertaking that there are no sites within the area of potential effect (APE) that are eligible for the National Register of Historic Places (NRHP) (refer to Section 3.16:, Cultural Resources, for details). Therefore, no historic properties protected under Section 4(f) are present within the APE.

### Parks and Recreational Resources

The study area contains two public parks—Clear Creek Park and the Nancy Mockler Community Dog Park—that are Section 4(f) resources. Two recreational facilities are planned within the study area: Crow Creek Greenway and Clear Creek Greenway. These resources are shown on Figure 6-1. Please refer to

Section 3.18: Parks and Recreation for details about resources discussed in this section.

Crow Creek currently crosses under I-25 in the northern part of the study area. The Crow Creek Revival is currently undertaking stream restoration of Crow Creek, which is planned to occur in phases. Design of the first phase (located between Happy Jack and Martin Luther King Jr. Park) has been designed and construction is anticipated to be completed sometime in 2022. The City of Cheyenne (City) is coordinating with the Crow Creek Revival to build a new greenway along the restored Crow Creek. The greenway project is a high priority for the City, which anticipates a 3- to 5-year timeframe for funding, design, and construction. The City's goal is to provide a trail connection from the Francis E. Warren Air Force Base's (F.E. Warren AFB's) planned residential development (known as the Enhanced Use Area) to the new greenway system, eventually connecting to downtown Cheyenne via Martin Luther King Jr. Park. The greenway would be publicly owned and managed by the City (Zita, personal communication 2019). Based on the above, Section 4(f) applies to this resource.

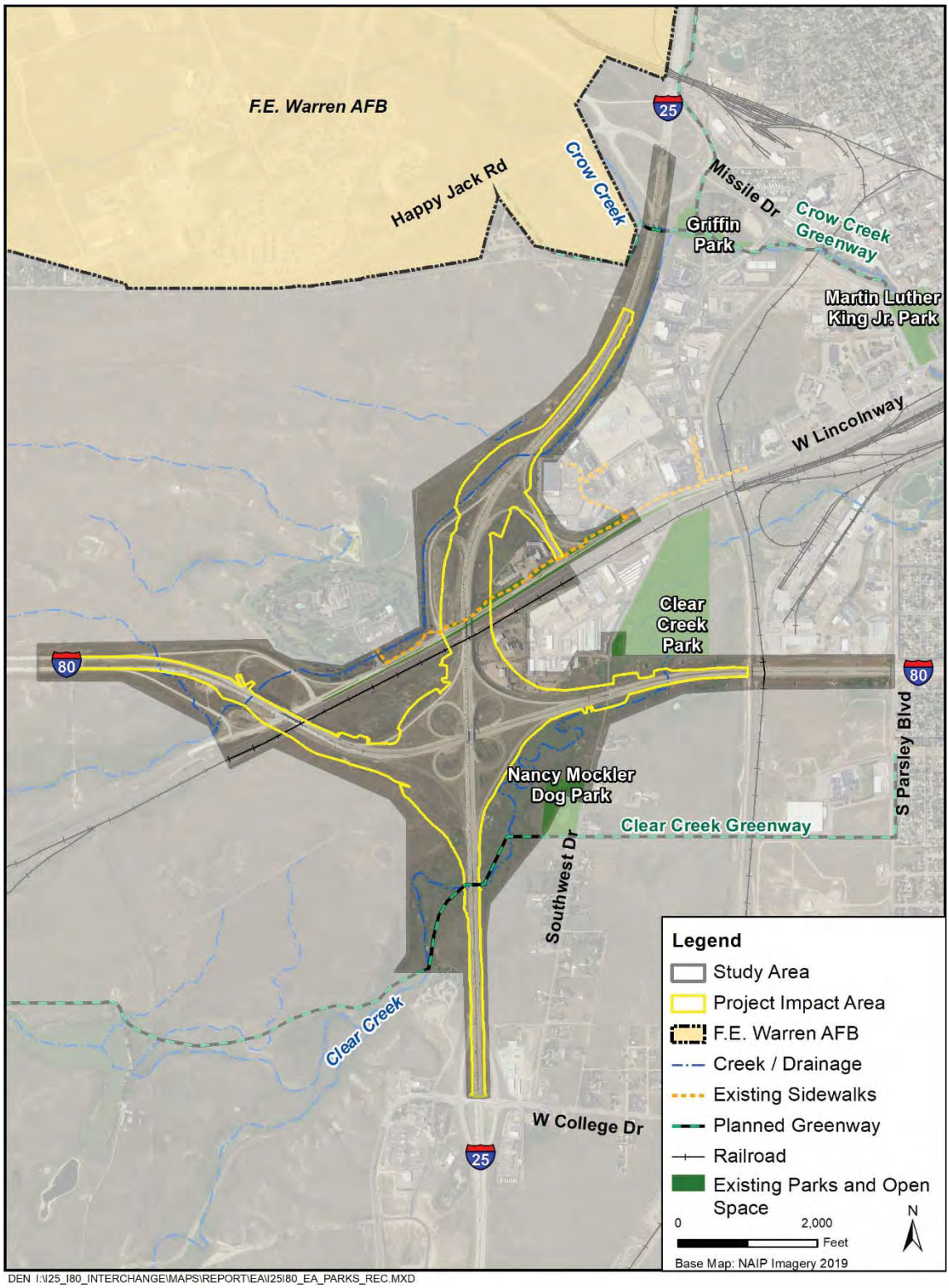
Recreational 4(f) properties are present within the study area

The City has a goal for future development of a public greenway along Clear Creek that would generally follow the Clear Creek alignment through the study area. This greenway is not formally designated in City of Cheyenne or Laramie County planning documents. Plans for this greenway are conceptual, no land has been set aside or conveyed for construction of the trail, the exact location and design of the trail has not been established, and no funding has been identified for design and construction. Development of the greenway may occur in 5 to 10 years; however, that is dependent on funding availability and rate of area development (Zita, personal communication 2019). Section 4(f) does not apply to this resource as outlined in FHWA's 2012 Section 4(f) Policy Paper-Question 25.

## Bicycle and Pedestrian Resources

The study area has limited bicycle and pedestrian facilities, with only one City-owned sidewalk along the northern side of West Lincolnway (U.S. 30) (City of Cheyenne 2016). The City indicated that the sidewalk is considered a transportation facility and not a recreation facility (Lloyd, personal communication 2020). Therefore, the requirements of Section 4(f) would not apply to this resource per 23 CFR 774.13(f).

**Figure 6-1: Existing and Planned Parks and Recreation and Bicycle/Pedestrian Facilities**



## 6.3: Use of Section 4(f) Resources

Section 4(f) applies to three resources in the study area: Clear Creek Park, Nancy Mockler Community Dog Park, and the planned Crow Creek Greenway.

The Build Alternative would not result in the use of any 4(f) property

As shown on Figure 6-1, Clear Creek Park and the Nancy Mockler Community Dog Park fall outside the direct impact area of the Build Alternative and, therefore, would not experience direct impacts. Neither park would experience indirect impacts under the Build Alternative, such as noise or visual effects, that would constitute a constructive use. The planned Crow Creek Greenway falls approximately 1,200 feet north of the direct impact area of the Build Alternative and would experience no direct or indirect impacts. Therefore, the Build Alternative would not result in the use of a Section 4(f) resource as defined in 23 CFR 774.17 and 774.15.

# Chapter 7 References

America's Scenic Byways. n.d. *Wyoming.* https://scenicbyways.info/state/WY.html

ASTM International (ASTM). 2013a. ASTM E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* West Conshohocken, PA, 2013.

ASTM International (ASTM). 2013b. ASTM E1903-11, *Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process.* West Conshohocken, PA, 2011.

Chapman, S.S., S.A. Bryce, J.M. Omernik, D.G. Despain, J. ZumBerge, and M. Conrad. 2004. *Ecoregions of Wyoming* (color poster with map, descriptive text, summary tables, and photographs). Reston, Virginia, U.S. Geological Survey (map scale 1:1,400,000).

Cheyenne Area Convention & Visitors Bureau. 2018. "Cheyenne." http://www.ultimatewyoming.com/businessdirectory/buspages/sec6/cacvb.html

Cheyenne Frontier Days. 2019. "Cheyenne Frontier Days™ Releases Updated Economic Impact Study." https://www.cfdrodeo.com/2016/02/cheyenne-frontier-days-releases-updated-economic-impact-study/

Cheyenne LEADS. 2019a. "Available Sites." http://cheyenneleads.org/doing-business-here/available-sites/

Cheyenne LEADS. 2019b. "Demographics." http://cheyenneleads.org/doing-business-here/why-cheyenne/demographics/

Cheyenne LEADS. 2019c. Top Employers. http://cheyenneleads.org/doing-business-here/top-employers/

Cheyenne Metropolitan Planning Organization (MPO), City of Cheyenne, and Laramie County. 2006. *PlanCheyenne: Cheyenne Area Master Plan.* November. http://www.plancheyenne.org/PlanCheyenne2014FINAL/Original2006Plan/ExecutiveSummaryFinal.pdf

Cheyenne Metropolitan Planning Organization (MPO), City of Cheyenne, and Laramie County. 2014a. *PlanCheyenne: Cheyenne Area Master Plan.* Adopted April. https://www.plancheyenne.org/about-cheyenne-mpo/plancheyenne-cheyennne-area-master-plan/

Cheyenne Metropolitan Planning Organization (MPO), City of Cheyenne, and Laramie County. 2014b. *Cheyenne Area Master Plan Community Plan.* April. http://www.plancheyenne.org/PlanCheyenne2014FINAL/PlanCheyenne%20County%20Version%20-%20April%202014%20-%20Final%20Clean.pdf

Cheyenne Metropolitan Planning Organization (MPO), City of Cheyenne, and Laramie County. 2014c. *Cheyenne Area Master Plan Transportation Plan*. April. http://www.plancheyenne.org/PlanCheyenne2014FINAL/PlanCheyenneTransportationPlanCityVersionADOPTEDApril2014.pdf

Cheyenne Metropolitan Planning Organization (MPO). 2016. *Regional Freight Mobility Plan*. June 30. https://www.plancheyenne.org/wp-content/uploads/2013/03/Final-Report-and-Appendix8.19small.pdf

Cheyenne Metropolitan Planning Organization (MPO). 2019. *Transportation Improvement Program Annual and Four Year Element for Fiscal Years 2020 – 2023*. June 26. https://www.plancheyenne.org/transportation/transportation-improvement-program/

Cheyenne Metropolitan Planning Organization (MPO). 2020. *Transportation Improvement Program*. https://www.plancheyenne.org/transportation/transportation-improvement-program/

City of Cheyenne. 2007. *Flood Information*. https://www.cheyennecity.org/DocumentCenter/View/2640/Floodplain-Info?bidId=

City of Cheyenne. 2016. *Greater Cheyenne Greenway & Trail User Map*. March. https://www.cheyennecity.org/DocumentCenter/View/15136/Greenway-Paths-2016-Map?bidId=

City of Cheyenne. 2019a. *Record of Proceedings for the Governing Body of the City of Cheyenne*. September 9. https://www.cheyennecity.org/ArchiveCenter/ViewFile/Item/3878

City of Cheyenne. 2019b. *Unified Development Code*. As amended October 9. https://www.cheyennecity.org/2429/Unified-Development-Code

City of Cheyenne. 2019c. *Cheyenne Municipal Code*. Chapter 13.24 – Floodplain and Surface Water Management. October 14. https://library.municode.com/wy/cheyenne/codes/code_of_ordinances?nodeId=TIT13PUSE_CH13.24FLSUWAMA

City of Cheyenne. n.d. "Nancy Mockler Dog Park." https://www.cheyenne.org/listing/nancy-mockler-dog-park/1255/

Cowardin L.M., V.C. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. FWS/OBS 79/31. Washington, D.C.

Economically Needed Diversity Options for Wyoming (ENDOW). 2017. *Socioeconomic Assessment of Wyoming*. August 30. https://www.dropbox.com/sh/26n3prcs0mbbuap/AADdvKgrQL4S48nW16m3vdjLa?dl=0&preview=ENDOW+Socioeconomic+Assessment.pdf

Economically Needed Diversity Options for Wyoming (ENDOW). 2018. *Transforming Wyoming 20-Year Economic Diversification Strategy*. August. https://3706579a-b62e-451c-b576-31a8ca50ae57.filesusr.com/ugd/e4e133_2c1746a901754418be4d6fbd50b19f32.pdf

Energy Information Administration (EIA). 2016. *International Energy Outlook 2016*. May. DOE/EIA-0484(2016). https://www.eia.gov/outlooks/ieo/pdf/0484(2016).pdf

Environmental Data Resources, Inc. (EDR). 2019. *I25/I80 Interchange Radius Map Report with GeoCheck, Certified Sanborn Map Report, Historical Topo Map Report, and Aerials*.

F. E. Warren Air Force Base. 2010. "Fact Sheets." November 1. https://www.warren.af.mil/About-Us/Fact-Sheets/

Federal Emergency Management Agency (FEMA). 2019. *Flood Zones*. https://www.fema.gov/flood-zones [2019].

Federal Highway Administration (FHWA). 2010. *Interim Guidance on the Application of Travel and Land Use Forecasting in NEPA*. March. https://www.environment.fhwa.dot.gov/nepa/Travel_LandUse/travel_landUse_rpt.aspx

Federal Highway Administration (FHWA). 2015. *Guidelines for the Visual Impact Assessment of Highway Projects*. Document No. FHWA-HEP-15-029. January. Website: https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.aspx

Federal Highway Adminstration (FHWA). 2016. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Memorandum*. October. https://www.fhwa.dot.gov/environMent/air_quality/air_toxics/policy_and_guidance/msat/

Hart, Tom, Wildlife Specialist, WYDOT. 2019. Personal communication (email) with Pat Basting, Senior Biologist, Jacobs. August 9.

Jacobs Engineering Group Inc. and Rosenberg Historic Consultants (Jacobs and Rosenberg). 2019. *Class III Cultural Resources Inventory, I-25/I-80 Interchange Project, Laramie County, Wyoming*.

Jares, Janet, Grant Specialist, Outdoor Recreation Office & Division of State Parks & Trails. 2019. Personal communication (email) with Misty Swan, Jacobs. November 19.

Laramie County. 2016. Laramie County Comprehensive Plan. June 7. https://www.laramiecounty.com/_departments/PlanningDevelopment/_pdfs/Adopted%202016%20Laramie%20County%20Comp%20Plan/Adopted%202016%20Laramie%20County%20Comp%20Plan.pdf

Laramie County. 2017. *Laramie County, Wyoming Floodplain Interactive Map*. https://arcims.laramiecounty.com/floodplainmap/

Laramie County. 2019. Assessor data, Parcel ID 13671110200100. https://greenwoodmap.com/laramie/map#zcr=6.744083216641929/740379.8335437727/217973.8075939467/0&lyrs=a19,publiclands,physftr,ownership,roads&filter=(pidn%20in('13671110200100'))

Laramie County. 2020. *Assessor's MapServer*. https://maps.laramiecounty.com/

Laramie County. n.d. "Clear Creek Park and Picnic Area." https://www.laramiecounty.com/_departments/ParksAndRec/ClearCreekPark.aspx

Laramie County Conservation Disctrict (LCCD). 2009. *Crow Creek Watershed Plan*. https://www.lccdnet.org/water-documents

Lloyd, Seth, City of Cheyenne. Personal communication (email) with Misty Swan, Jacobs. January 10.

National Aeronautics and Space Administration (NASA). 2004. "Tango in the Atmosphere: Ozone and Climate Change." February. https://www.giss.nasa.gov/research/features/200402_tango/

National Park Service (NPS). 2017. *Nationwide Rivers Inventory*. December 21. https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm

National Park Service (NPS). 2019. *National Wild and Scenic Rivers System*. December. https://www.rivers.gov/index.php

Natural Resources Conservation Service (NRCS). 2014. *NRCS-CPA-106: Farmland Conversion Impact Rating for Corridor Type Projects*. [2019].

Saulcy, Sara. 2001. "An Overview of the Trucking Industry. Wyoming Labor Force Trends." August. http://doe.state.wy.us/LMI/0801/0801.pdf

Southeast Wyoming Economic Development District (SWEDD). 2014. *2014 Comprehensive Economic Development Strategy (CEDS)*. http://www.southeastwyomingedd.org/pdf/2014/CEDS%20Report%20FINAL.pdf

State of Wyoming. 2003. *Wyoming State Capitol District Vision 2020 Plan*. October. Prepared by Civitas, Inc. and GSG Architecture. https://www.wyoleg.gov/InterimCommittee/2015/3.%20Vision%202020%20Plan.pdf

Strata. 2019. *Preliminary Geotechnical Investigation Results*.

Sweetgrass Land Co., LLC (Sweetgrass). 2018a. Sweetgrass 1st Filing Sheet 1 of 3. https://static1.squarespace.com/static/5ac4201ca2772cadfcf8600a/t/5cad5f884e17b60bc5bb1edf/1554866059707/Phase1-UnderContract.png

Sweetgrass Land Co., LLC (Sweetgrass). 2018b. *Sweetgrass Planned Unit Development Sketch Master Plan*. Final. https://static1.squarespace.com/static/5ac4201ca2772cadfcf8600a/t/5cad42737817f757cfa60652/1554858618453/20180323-SweetgrassFinalPUD-SketchPlan.pdf

Sweetgrass Land Co., LLC (Sweetgrass). 2020. Sweetgrass. March. https://www.sweetgrasswyoming.com/

U.S. Army Corps of Engineers (USACE). 2002. *Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899*. Regulatory Guidance Letter. RGL 02-2. December 24. https://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl02-02.pdf

U.S. Census Bureau (Census). 2010a. *2010 Census of Population and Housing Unit Counts*. U.S. Government Printing Office Washington, D.C. 2012. https://www2.census.gov/library/publications/decennial/2010/cph-2/cph-2-52.pdf

U.S. Census Bureau (Census). 2010b. *2010 Census Summary*. American FactFinder. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

U.S. Census Bureau (Census). 2010c. *Wyoming Incorporated Place Population Estimates: April 1, 2010 to July 1, 2018*.

U.S. Census Bureau (Census). 2017. *2013-2017 American Community Survey 5-Year Estimates*. American FactFinder. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

U.S. Census Bureau (Census). 2018a. *2013-2017 American Community Survey and Puerto Rico Community Survey*.

U.S. Census Bureau (Census). 2018b. *Population and Housing Unit Estimates., Population Estimates Program (PEP)*. July 1. https://www.census.gov/quickfacts/fact/table/cheyennecitywyoming/PST120218#PST120218

U.S. Department of Agriculture Natural Resources Conservation Service (USDA). 2019a. "Web Soil Survey: Corrosion of Concrete." July 10. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Department of Agriculture Natural Resources Conservation Service (USDA). 2019b. "Web Soil Survey: Corrosion of Steel." July 10. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Department of Agriculture Natural Resources Conservation Service (USDA). 2019c. "Web Soil Survey: Farmland Classification." July 10. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Department of Agriculture Natural Resources Conservation Service (USDA). 2020. "Web Soil Survey: Soil Taxonomy Classification." February 27. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

U.S. Department of Transportation (USDOT). 2012. "Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." Order 5610.2(a). May 2. https://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/

U.S. Department of Transportation (USDOT). 2016. "DOT releases 30-Year Freight Projections." https://www.bts.gov/newsroom/dot-releases-30-year-freight-projections

U.S. Department of Transportation, Bureau of Transportation Statistics (BTS). 2018. *Transportation Statistics Annual Report 2018*. https://www.bts.dot.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/transportation-statistics-annual-reports/Preliminary-TSAR-Full-2018-a.pdf

U.S. Environmental Protection Agency (EPA). 1998. *Clean Water Action Plan: Restoring and Protecting America's Waters*. Executive Office of the President. EPA/840-R-98-001. Washington, D.C. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=20004J7S.PDF

U.S. Environmental Protection Agency (EPA). 2014. *Water Quality Assessment Report: 2014 Waterbody Report for Crow Creek*. https://ofmpub.epa.gov/waters10/attains_waterbody.control?p_list_id=WYSP101900090107_04&p_report_type=T&p_cycle=2012#causes

U.S. Environmental Protection Agency (EPA). 2018. *Overview of Identifying and Restoring Impaired Waters Under Section 303(d) of the CWA*. https://www.epa.gov/tmdl/overview-identifying-and-restoring-impaired-waters-under-section-303d-cwa

U.S. Environmental Protection Agency (EPA). 2019. *CWA Section 401 Certification*. August 9. https://www.epa.gov/cwa-401/basic-information-cwa-section-401-certification

U.S. Environmental Protection Agency (EPA). 2020a. "Background about Compensatory Mitigation Requirements under CWA Section 404". February 10. https://www.epa.gov/cwa-404/background-about-compensatory-mitigation-requirements-under-cwa-section-404

U.S. Environmental Protection Agency (EPA). 2020b. "Ground-level Ozone Basics." https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics

U.S. Environmental Protection Agency (EPA). 2020c. "Why are wetlands important?" February 10. https://www.epa.gov/wetlands/why-are-wetlands-important

U.S. Fish and Wildlife Service (USFWS). 2008. *Birds of Conservation Concern 2008*. 85 pp, Arlington, VA: Division of Migratory Bird Management.

U.S. Fish and Wildlife Service (USFWS). 2015a. "Migratory Birds & Habitat Program." https://www.fws.gov/pacific/migratorybirds/definition.html

U.S. Fish and Wildlife Service (USFWS). 2015b. Focal Species. November 23. https://www.fws.gov/birds/management/managed-species/focal-species.php

U.S. Fish and Wildlife Service (USFWS). 2016. *Preble's Meadow Jumping Mouse Recovery Plan, Colorado*. Region 6, Lakewood, Colorado.

U.S. Fish and Wildlife Service (USFWS). 2019a. "Wyoming ES - Species of Concern." July 8. https://www.fws.gov/wyominges/Species/BirdsConsvConcern.php

U.S. Fish and Wildlife Service (USFWS). 2019b. *Federal Register*. Vol. 84, No. 214. "Removing *Oenothera Coloradensis* (Colorado Butterfly Plant) From the Federal List of Endangered and Threatened Plants." November 5.

U.S. Geological Survey (USGS). 2011. *Gap Analysis Project, 20160513, GAP/LANDFIRE National Terrestrial Ecosystems 2011*. https://doi.org/10.5066/F7ZS2TM0

Visit Cheyenne. 2020a. "F.E. Warren Air Force Base." February. https://www.cheyenne.org/listing/f-e-warren-air-force-base/128/

Visit Cheyenne. 2020b. Little America Hotel and Resort. February https://www.cheyenne.org/listing/little-america-hotel-%26-resort/20/

West. 2015. *Western EcoSystems Technology, Inc. Programmatic Biological Assessment Endangered, Threatened, Experimental-Nonessential, Proposed & Candidate Species*. Wyoming Department of Transportation Projects Statewide 2015 – 2019.

Western Regional Climate Center (WRCC). 2016. Cheyenne Muni Ap, Wyoming (481675) Period of Record Monthly Climate Summary – Precipitation. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?wy1675

Wolken, Paige, Senior Project Manager, Plant Ecologist, USACE. 2020. Personal Communication (email) to Jim Clarke, Jacobs. February 27.

Wyoming Business Council. 2018. "Cheyenne Chamber offers statewide tools to prepare for military project." September 10. https://www.wyomingbusiness.org/news/cheyenne-chamber-offers-statewide-tools-/11057

Wyoming Center for Business and Economic Analysis. 2019. *Economic Indicators for Greater Cheyenne, Annual Trends Edition*. March. https://www.wyomingeconomicdata.com/wp-content/uploads/TRENDS-Fourth-Quarter-Indicators-Mar-2019-with-cover.pdf

Wyoming Department of Agriculture. 2015. *Wyoming Weed and Pest Control Law Book*. http://legisweb.state.wy.us/InterimCommittee/2016/SSD-0708APPENDIXG.pdf

Wyoming Department of Environmental Quality (WDEQ). 2013. *Wyoming Surface Water Classification List*: *Water Quality Division Surface Water Standards*. http://deq.wyoming.gov/media/attachments/Water%20Quality/Surface%20Water%20Quality%20Standards/2013-0726_wqd-wpp-surface-water-standards_Wyoming-Surface-Water-Classification-List.pdf

Wyoming Department of Environmental Quality (WDEQ). 2018. *Wyoming's 2016/2018 Integrated 305B and 303D Report*. http://deq.wyoming.gov/media/attachments/Water%20Quality/Water%20Quality%20Assessment/Reports/2016-2018_Integrated-305b-and-303d-Report_EPA-Submit_2018-0815.pdf

Wyoming Department of Environmental Quality (WDEQ). 2019. *401 Certification*. December. http://deq.wyoming.gov/wqd/401-certification/

Wyoming Department of Transportation (WYDOT). 2008. *I-80/I-25 Interchange Study*. Prepared by CH2M HILL. November http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Public%20Affairs/research%20reports/I-25_I-80_Interchange_Report_070108.pdf

Wyoming Department of Transportation (WYDOT). 2011. *Noise Analysis and Abatement Policy. July*. http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Environmental_Services/Documents/2011%20Noise%20Analysis%20and%20Abatement%20Policy.pdf. July 13, 2011

Wyoming Department of Transportation (WYDOT). 2017. *Wyoming Statewide Freight Plan*. Amended as of 2017. http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Planning/Freight%20Plan/WyomingSFPW-Addenda2017-Web.pdf

Wyoming Department of Transportation (WYDOT). 2018a. *I-80 Corridor Study: Master Plan Implementation Report*. Final. March. http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Planning/Transportation-Plans/Final-Implementation-Report%20wAppendices_Final%20March%202018.pdf

Wyoming Department of Transportation (WYDOT). 2018b. *Right-of-way Program Manual*. December. http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Right_of_Way/-Reduced-%20Right%20of%20Way%20Program%20Manual_Rev%20Dec%202018.pdf

Wyoming Department of Transportation (WYDOT). 2019. *State Transportation Improvement Program*. http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Planning/2020%20STIP/FY%202020%20STIP.pdf

Wyoming Department of Transportation (WYDOT). n.d. *Pollution Controls and Best Management Practices for Storm Water During Construction Field Guide.* http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Construction/WYDOT%20Storm%20Water%20Field%20Guide%204-6-11.pdf

Wyoming Game and Fish Department (WGFD). 2015. *Strategic Habitat Plan.* August. https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/Strategic%20Habitat%20Plan/SHP2015_Final.pdf

Wyoming Game and Fish Department (WGFD). 2016. "Stream Classification and Mitigation." https://wgfd.wyo.gov/Fishing-and-Boating/Stream-Classification

Wyoming Game and Fish Department (WGFD). 2017. *State Wildlife Action Plan.* https://wgfd.wyo.gov/Habitat/Habitat-Plans/Wyoming-State-Wildlife-Action-Plan

Wyoming Game and Fish Department (WGFD). 2019. *Wyoming Wildlife and Roadways Initiative.* Geospatial Data. https://wgfd.maps.arcgis.com/apps/MapSeries/index.html?appid=ef666ba292b74c56a339efc10fca5332

Wyoming Office of Tourism. 2018. *Wyoming Travel Impacts 2004 – 2017*. Dean Runyan and Associates. March. https://travelwyoming.com/wp-content/uploads/uploads/industry/State%20and%20County%20Economic%20Impact%20Report%202017.pdf

Wyoming State Historic Preservation Officer (SHPO) 2019. *I806212; I-25/I-80 Interchange; Laramie County*, DBU_WY_2019_1575, DBI_WY_2019_1296, DBPR_WY_2019_160. Letter to Wyoming Department of Transportation. December 5.

Wyoming Weed and Pest Council. 2018. "Listed Species." https://wyoweed.org/noxious-species/listed-species/

Zita, Richard, City of Cheyenne Greenway/Park Project Manager. 2019. Personal communication (email) with Misty Swan, Jacobs. May 8.