US 20/26, Corridor Study Jct I-84 to Eagle Road
Project No. STP-3230(106); Key No. 07826

ENVIRONMENTAL ASSESSMENT

SUBMITTED PURSUANT TO 42 USC § 4332 (2)(C) AND
49 USC § 303 BY THE
US DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
IDAHO TRANSPORTATION DEPARTMENT
BOISE, IDAHO

February 2017

2/6/17
Date of Approval

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For Idaho Transportation Department

2/6/2017
Date of Approval

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For Federal Highway Administration

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ACRONYMS

AADT	annual average daily traffic volume
ACCHD	Association of Canyon County Highway Districts
ACHD	Ada County Highway District
ACHP	Advisory Council on Historic Preservation
ACM	asbestos containing material
ACS	American Community Survey
APE	Area of Potential Effect
AST	above-ground storage tank
BG	block groups
BGG	Blueprint for Good Growth
BMPs	Best Management Practices
BOD	biological oxygen demand
BOR	Bureau of Reclamation
CAA	Clean Air Act
CatEx	Categorical Exclusion
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFI	Continuous Flow Intersection
cfs	cubic feet per second
CGP	Construction General Permit
CIM	Communities in Motion
CIP	Capital Improvements Plan
CO	carbon monoxide
COD	chemical oxygen demand
COMPASS	Community Planning Association of Southwest Idaho
CPC	Corridor Preservation Committee
CT	census tract
CWA	Clean Water Act
dB	decibels
dBA	A-weighted sound level in decibels
DO	dissolved oxygen

ACRONYMS (CONTINUED)

EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
FAST	Fixing America's Surface Transportation Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	finding of no significant impact
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
GARVEE	Grant Anticipation Revenue Vehicle
GHG	Green House Gas Emissions
GWMA	Groundwater Management Area
HCM	Highway Capacity Manual
HTF	Highway Trust Fund
I-84	Interstate 84
IDAPA	Idaho Administrative Procures Act
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDL	Idaho Department of Lands
IDWR	Idaho Department of Water Resources
IFWIS	Idaho Fish and Widlife Information System
INPS	Idaho Native Plant Society
ISTEA	Intermodal Surface Transportation Efficiency Act
ITD	Idaho Transportation Department
ITIP	Idaho Transportation Investment Plan
KN	Key Number
Leq	energy equivalent level
LOMR	Letter of Map Revision
LOS	Level of Service
LUST	leaking underground storage tank

ACRONYMS (CONTINUED)

MAP-21	Moving Ahead for Progress in the 21st Century Act
MP	Milepost
mph	miles per hour
MPO	metropolitan planning organization
MS4	Municipal Separate Storm Sewer System
MSAT	Mobile Source Air Toxic Emissions
MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOx	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PJD	preliminary jurisdictional determination
PM10	coarse particulate matter
PM2.5	fine particulate matter
ppm	parts per million
Q&A	question and answer
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROW	right-of-way
RPWs	relatively permanent waters
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act, A Legacy for Users
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SOx	sulfer oxides
SPUI	single point urban interchange

ACRONYMS (CONTINUED)

STAR	State Tax Anticipation Revenue
SWPPP	Stormwater Pollution Prevention Plan
TAZ	Transportation Analysis Zone
TCP	traffic control plan
TEA-21	Transportation Equity Act for the 21st Century
TMDL	total maximum daily load
TNM	Traffic Noise Model
TWSC	two-way stop-controlled
UPRR	Union Pacific Railroad
US 20/26	US Highway 20/26
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USDOT	US Department of Transportation
USFWS	US Fish and Wildlife Service
UST	underground storage tank
VRT	Valley Regional Transit

1. PURPOSE OF ENVIRONMENTAL ASSESSMENT

This Environmental Assessment (EA) evaluates the potential impacts of the US Highway 20/26 (US 20/26) Corridor Study on the natural and human environment. The EA was prepared in compliance with the requirements of the National Environmental Policy Act (NEPA) (42 USC § 4332(2)(c)), Federal Highway Administration (FHWA) regulations (23 CFR 771.119), FHWA Environmental Guidebook (FHWA 2015), and Idaho Transportation Department (ITD) Environmental Process Manual (ITD 2011). The project sponsors are FHWA and ITD.

1.1 Background and History

ITD is proposing to improve approximately 15 miles of US 20/26 in Ada and Canyon Counties, from the US 20/26 interchange at Interstate 84 (I-84) to Eagle Road (see Figure 1). The foundation for this project is the regional long-range transportation plan, *Communities in Motion* (CIM). CIM was adopted in July 2014 by the Board of Directors for the regional metropolitan planning organization (MPO), the Community Planning Association of Southwest Idaho (COMPASS). As the MPO, COMPASS develops the long-range transportation plan, facilitates regional cooperation, and directs where and how federal transportation funds will be spent in Ada and Canyon Counties. While COMPASS does not own buses or build roads, it is COMPASS' responsibility to ensure that when federal transportation dollars are spent in Ada and Canyon Counties, the projects benefit the region as a whole. CIM identifies US 20/26 as a vital east-west transportation route between Caldwell and Boise, and supports regional travel in Treasure Valley more than any other arterial roadway.

CIM identified US 20/26, between Middleton Road and Locust Grove Road, as the third priority of improvements in the region due to existing heavy congestion on the two-lane highway, which is expected to worsen with anticipated development including housing, shopping centers, and mixed-use neighborhoods along the corridor. CIM recognized the need for expansion of the corridor to ease future congestion and accommodate increased demand.

Funding to complete the conceptual design and EA and initiate right-of-way (ROW) acquisition for the project is programmed in the Idaho Transportation Investment Plan (ITIP). Funding to construct most of the US 20/26 corridor improvements is not currently available. It is not expected that funding will become available to complete all corridor improvements at one time, thus the project will be completed in phases (see Chapter 6).

1.2 Existing Conditions

The US 20/26 corridor is owned and maintained by ITD and serves as one of the few east-west commuter routes that connects Boise to Caldwell. The majority of US 20/26 is a two- and three-lane rural highway between Boise and Caldwell. Some intersections include left and/or right turn lanes, and a continuous median left-turn lane exists in the eastern portion of the project from Long Lake Way to Eagle Road. Access to US 20/26 includes traffic signals or stop signs at intersections. Numerous residential and business driveways connect to US 20/26, allowing vehicles to turn left or right directly onto the roadway. Although there are a few short stretches of pedestrian facilities (sidewalks) associated with residential subdivisions, there are currently no consistent, corridor-wide pedestrian facilities along this segment of US 20/26. Additionally, there are currently no designated bike facilities along the corridor, and bicyclists use the shoulder for travel. Existing ROW varies from 60 to 80 feet for most of the corridor with a posted speed of 55 miles per hour (mph), except from east of Eagle Road to Royal Park Avenue where the posted speed is 50 mph and on the very west end of the corridor from I-84 to KCID Road where the posted speed is 35 mph.

Recent roadway improvements completed within the corridor include the Franklin Road Interchange at I-84, Aviation Way to Smeed Parkway widening, and US 20/26 and Linder Road intersection improvements. The Franklin Road Interchange at I-84 at the west end of the corridor was reconstructed in 2008 with improvements extending east to Aviation Way. Improvements included two travel lanes in each direction with a center median. The City of Caldwell completed a widening project in 2012 that included three travel lanes in each direction and a center median between Aviation to Smeed. The US 20/26 and Linder Road intersection was widened in 2011 as part of adjacent development. The first phase of the SH-16 extension, between SH-44 and US 20/26 was completed in the summer of 2014.

Land uses along the corridor consist of higher density residential and commercial development in the urban areas of Caldwell on the west end, and Meridian, Eagle, and Boise at the east end. Agricultural and low-density residential land uses are most prominent in the relatively undeveloped central section of the corridor between Middleton and Ten Mile Roads. However, development continues to transform the corridor from primarily agricultural uses to residential and commercial uses.

The rapid urbanization of rural land adjacent to US 20/26 is resulting in increased traffic volumes on the highway. COMPASS' *2014 Development Monitoring Report* provides an overview of development trends within Ada and Canyon Counties (COMPASS 2014a). The report indicates 3,779 new construction permits were issued in Ada and Canyon Counties in 2014, approximately 16 percent more than were issued in 2013. The US 20/26 corridor covers five Transportation Analysis Zones (TAZ). The 2014 land use/development data reported for those TAZs indicated there were 929 new single-family residential units and 112 new multi-family residential units along US 20/26. Most of the residential units are located between SH-16 and Eagle Road, and a few located between I-84 and Middleton Road.

1.3 Proposed Action

The Proposed Action is to widen and improve approximately 15 miles of US 20/26 between I-84 and Eagle Road to accommodate the forecasted increase in traffic through 2040. The project would widen the highway to include six travel lanes and a center median. Additional ROW would be acquired resulting in a new ROW width varying from 140 feet to 200 feet. Improvements would be made to intersections to include new signals and/or expanded footprints and channelization changes to facilitate traffic flow. The improvements include six high-capacity intersections located at Middleton Road, Star Road, Linder Road, Meridian Road, Locust Grove Road, and Eagle Road. Access control measures would be implemented where possible to improve safety. In addition, facilities for pedestrians and bicyclists including sidewalks, bike lanes, and/or a multi-use path would be constructed (see Section 2.2.2 for a complete description of the Proposed Action Alternative).

1.3.1 Project Location/Study Area

US 20/26 is a primary east-west corridor located within the city limits of Caldwell, Meridian, Eagle, and Boise and unincorporated areas of Ada and Canyon counties (Figure 1). The logical termini for the project are the western terminus at I-84 and the eastern terminus at Eagle Road. The limits of improvements on the west side of the project would extend to the east side of the I-84 interchange but do not include the interchange (Milepost [MP] 25.00). The limits of improvements on the east side of the project extend to approximately 1,100 feet east of the Eagle Road intersection (MP 40.44).

For the purposes of this EA, the study area was generally defined as the area within 250 feet on each side of the existing highway centerline. The proposed crossing of US 20/26 by SH-16 near McDermott Road was evaluated in the SH-16 Environmental Impact Study (EIS) and was excluded from this study.

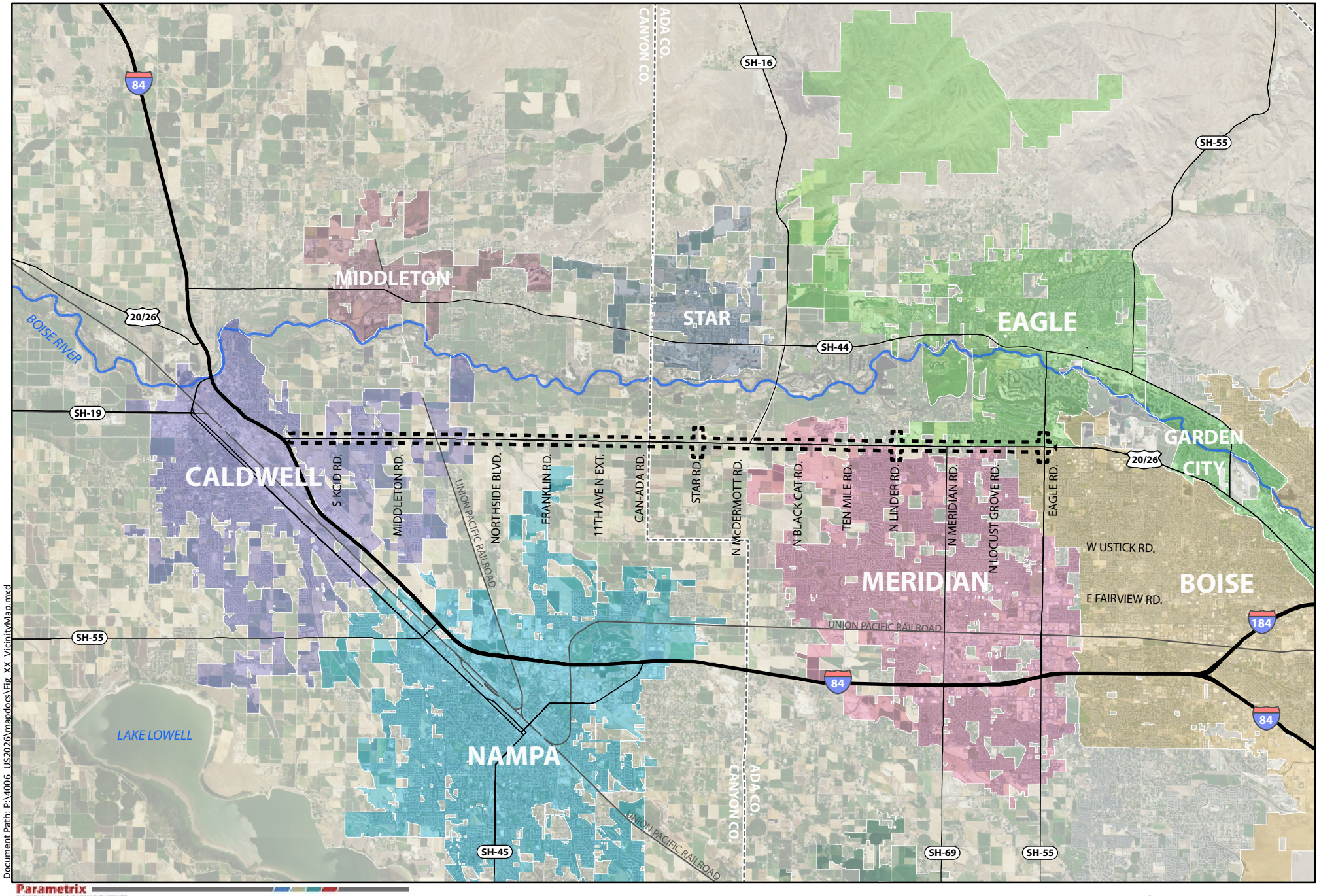

FIGURE 1
Vicinity Map

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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1.3.2 Project Purpose and Need

The purpose of the Proposed Action is to increase surface transportation capacity of US 20/26 for both the near-term and long-term (year 2040). The Proposed Action will improve operating conditions and safety between I-84 and Eagle Road.

The Proposed Action is needed for the following reasons:

- Rapid development of rural land adjacent to the US 20/26 corridor is causing an increase in traffic volumes and the capacity of the existing roadway and intersections are not adequate to safely serve future traffic volumes. Nine of the twenty-two intersections evaluated in the corridor currently operate below the desired level of service (LOS) of D. If the Proposed Action is not implemented, sixteen of the twenty-two intersections will operate below a LOS D in the design year 2040.
- The existing system does not meet current design standards and safety concerns will increase as traffic and congestion in the corridor continue to grow.
- There are insufficient facilities to safely serve non-motorized travel and the demand for non-motorized travel will increase as development continues.
- US 20/26 is one of the few east-west commuter routes that connects I-84 in Caldwell to Eagle Road in Boise.

1.4 Interrelated Activities

An *interrelated activity* are those actions that may or may not be connected to the Proposed Action, and should be evaluated with the Proposed Action to determine if there is a significant impact when reviewed together. Interrelated activities for the US 20/26 improvements are identified in this section and shown in Figure 2. These activities are evaluated, together with the Proposed Action in Chapter 3.

1.4.1 SH-16, I-84 to SH-44 Environmental Study

Under the Grant Anticipation Revenue Vehicle (GARVEE) program, ITD received environmental approval to extend SH-16 from SH-44 to I-84 as a new four-lane divided highway. The GARVEE program also funded the construction of the highway from SH-44 to US 20/26 and acquired the ROW for future interchanges at both SH-44 and US 20/26. This first phase was constructed and opened in the summer of 2014.

The remainder of the SH-16 corridor extension, from US 20/26 to I-84, is unfunded at this time. The corridor is being planned as a four-lane divided highway with access only at future interchanges. These interchanges are planned at SH-44, US 20/26, Ustick Road, Franklin Road, and I-84.

While this project is considered in the cumulative impacts sections of this document, the impacts of this project, including the connection with US 20/26, were addressed in the SH-16 EIS and not in this EA. Since SH-16 is anticipated to use an alignment near McDermott Road where it crosses US 20/26, this location is referred to as SH-16 for the purposes of this EA.

1.4.2 SH-44 Corridor Study

ITD and FHWA are preparing an environmental study for the proposed acquisition of ROW, addition of lanes, consideration of alternatives around downtown Middleton, improvements to intersections, and other associated modifications to approximately 16 miles of the SH-44 corridor between I-84 and Ballantyne Lane. SH-44 is a parallel east-west route to US 20/26, and is located approximately 2 miles north of US 20/26, on the north side of the Boise River. This project is included in this EA in the assessment of cumulative impacts.

1.4.3 US 20/26 Improvements

Several projects are planned and/or programmed along the US 20/26 corridor. Projects described below are included in current planning documents adopted by the local agency with jurisdiction over the roadway. These projects are not building to the ultimate configuration described in the Proposed Action. It is anticipated the design of these projects will fit within the footprint of the ultimate build conditions identified in this study and, therefore, impacts will be evaluated as part of the Construction and Operational Impacts of the Proposed Action.

Funded Improvements

The projects listed below are included in either the ITD 2017-2021 ITIP or Ada County Highway District (ACHD) 2017-2021 Integrated Five Year Work Plan. These documents, updated annually, identify projects, and their funding source with anticipated construction dates. The projects listed below are anticipated to be constructed within the next five years:

- ***US 20/26, Middleton Road to Locust Grove Road:*** ITD has programmed a pavement restoration project along US 20/26 between Middleton Road and Locust Grove Road for construction in 2017 (Key No. 19412).
- ***US 20/26 at Midland Road, Northside Boulevard, and Can-Ada Road:*** ITD has programmed a project to add right turn lanes at the three intersections (Key No. 19415) with construction in 2019 (ITD 2016).
- ***US 20/26 at Franklin Road:*** ITD has programmed a project to improve and widen the intersection (Key No. 19111) with construction in 2019 (ITD 2016).
- ***Phyllis Canal Bridge:*** ITD has programmed the replacement of the Phyllis Canal Culvert (Key No. 20227) with construction in 2021 (ITD 2016).
- ***US 20/26, Locust Grove Road to Eagle Road***: Programmed for construction in Fiscal Year (FY) 2021 under ITD's Strategic Initiative Program, the project (Key No. 19944) includes widening US 20/26 between Locust Grove Road and Eagle Road from two to four lanes (ITD 2016).

Unfunded Improvements

The projects listed below have been identified in agency plans and/or have been identified as future projects but have no identified funding at this time. Several projects below are from ACHD's 2012 Capital Improvements Plan (CIP), which was prepared in 2012 as a long-range (20 year) plan.

- ***US 20/26 at Star Road:*** ACHD has identified a project in their CIP to modify the signal, add one lane to the east and west approaches, and add four lanes to the north and south approaches. This project is planned for 2017 to 2021 (ACHD 2012).

- ***US 20/26 at Black Cat Road:*** ACHD has identified a project in their CIP to reconstruct and widen the approaches. This project is planned for 2027 to 2031 (ACHD 2012).
- ***US 20/26 at Linder Road:*** ACHD has identified a project in their CIP to add one lane to the east and west approaches and add one lane to the north and south approaches. This project is planned for 2017 to 2021 (ACHD 2012).
- ***US 20/26, Meridian Road to Locust Grove Road:*** Widening US 20/26 between Meridian Road and Locust Grove Road has been placed in ITD's "Early Development" program, which allows limited development of high priority projects prior to inclusion in the ITIP. Projects in this program will compete against other projects throughout the state for funding through the Strategic Initiatives Program Fund. Projects competing for Strategic Initiatives funding are evaluated on their return on investment in safety, mobility, economic opportunity, bridge repair and maintenance and ROW purchases (ITD 2016).
- ***US 20/26 at Meridian Road:*** ACHD recognizes that ITD is working to fund and construct improvements to US 20/26, between Locust Grove Road and Meridian Road. Although currently unfunded, ACHD has identified that they would seek federal grant funds to improve the Meridian Road intersection in conjunction with ITD's widening project (ACHD 2016).
- ***US 20/26 at Locust Grove Road:*** ACHD recognizes that ITD is working to fund and construct improvements to US 20/26, between Eagle Road and Locust Grove Road. Although currently unfunded, ACHD has identified that they would seek federal grant funds to improve the Locust Grove Road intersection in conjunction with ITD's widening project (ACHD 2016).

1.4.4 Future Residential and Commercial Development

COMPASS projects that the Treasure Valley's population will almost double from 600,000 in 2013 to 1,022,000 by the year 2040 (COMPASS 2014b). US 20/26 is a regionally important corridor, supporting more regional travel in the Treasure Valley than any other arterial roadway. Development along the corridor has increased over the last 10 years with more development planned. As a part of these developments, local agencies involved with the US 20/26 study are encouraged to plan for and construct a system of circulator roads to provide connections from developments to the north-south collector or arterial roads to limit direct access to US 20/26.

These residential and commercial developments, along with their associated access and circulation roadways are included in this EA in the assessment of cumulative impacts. Section 3.2 describes the future land use plans for the jurisdictions along the corridor.

1.5 Summary of Impacts and Mitigation Measures

Table 1 summarizes the impacts of the US 20/26 project alternatives and recommended mitigation measures.

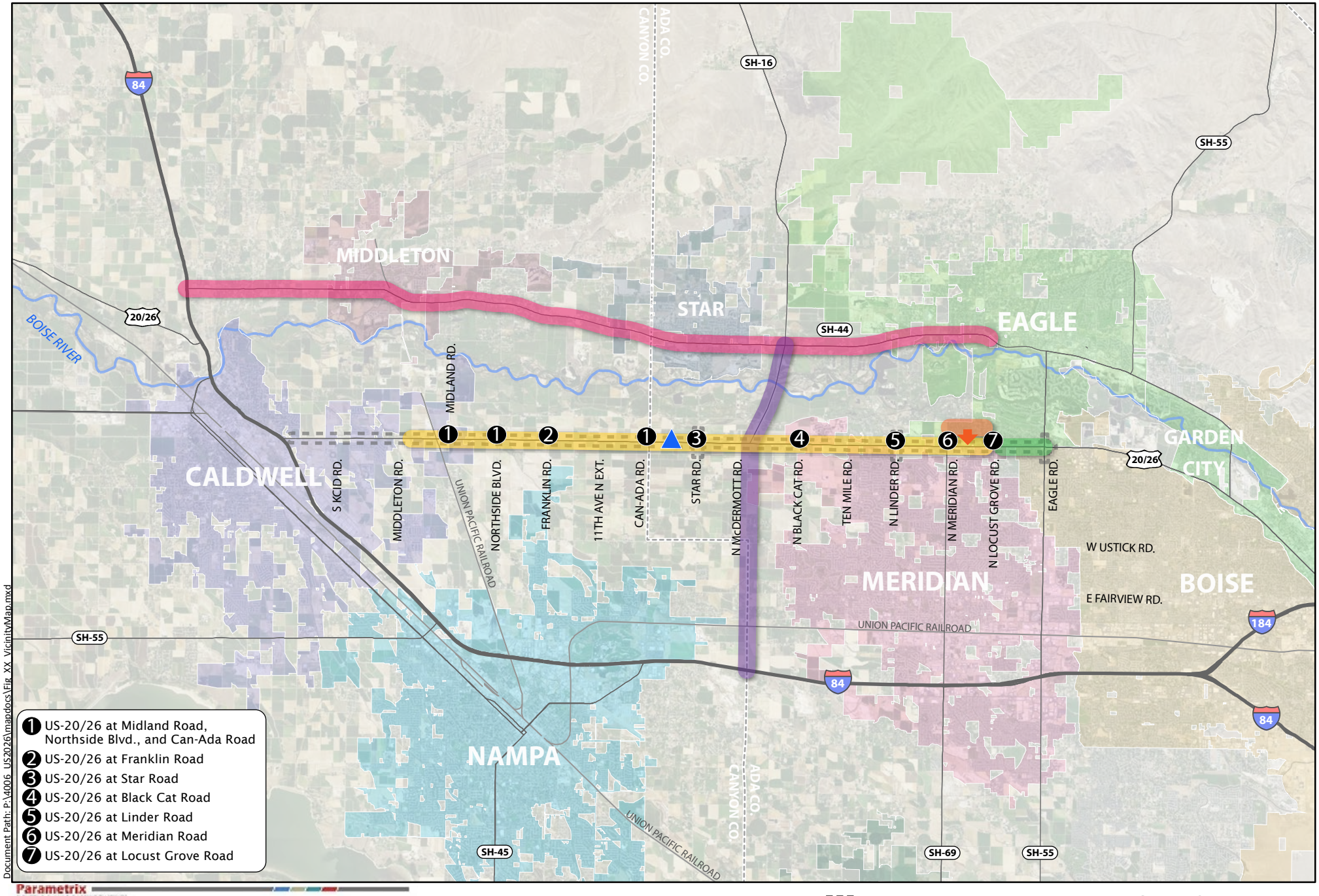

FIGURE 2
Interrelated Activities

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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Table 1. Summary of Impacts and Mitigation Measures

Element of the Environment	Environmental Impacts		Commitments/Mitigation Measures
	Proposed Action Alternative	**No Action Alternative**	
Transportation	Temporary construction impacts include travel delays and increased congestion caused by temporary lane closures and detours. Access to adjacent properties may be temporarily changed and there would be increased truck traffic from construction vehicles. It also may become more difficult for emergency vehicles, bicycles, and pedestrians to move through the construction zone. Long term, the Proposed Action Alternative would increase the capacity on the roadway to serve future demand. With the Proposed Action, all 22 intersections along the corridor are anticipated to operate at Level of Service (LOS) D in 2040, meeting the LOS goal. Access would be restricted to right-in/right-out movements, except at signalized intersections. Bicycle and pedestrian facilities would be improved along the corridor.	Future traffic volumes will exceed roadway capacity. It is anticipated that by 2040, 16 of the 22 existing intersections would operate at LOS E or worse and do not meet the intersection LOS goal. This will increase congestion and travel times along the corridor. Congestion will make it harder to access properties along US 20/26, including homes and businesses.	Mitigation for construction impacts includes development of a Traffic Control Plan that will provide the contractor with minimum standards for maintaining traffic during construction (see Section 3.1.3). Mitigation for operations is essentially the project itself. The Proposed Action Alternative would increase the capacity on the roadway to serve future demand and increase safety by improving intersections, adding non-motorized facilities, and managing access to the highway. ITD and local jurisdictions will coordinate to potentially include designated locations for U-turns along the highway.
Land Use and Relocation	Construction impacts include increased noise, dust, difficulty accessing properties, and increased congestion during construction activities. Approximately 228 acres of land would be acquired for ROW. This includes 112 acres of agricultural land, 53 acres of residential land, and 63 acres of commercial land. Approximately 24 residences and 15 businesses would be displaced.	The No Action Alternative would not support planned development in the area due to lack of adequate capacity on US 20/26. Increased traffic congestion could reduce development potential due to impacts at adjacent properties including increased noise, air pollution, and difficulty accessing property.	Mitigation for construction impacts related to noise, dust (air quality), and transportation operations are addressed in Sections 3.6.6, 3.7.3, and 3.1.3, respectively. The acquisition of ROW will be conducted in accordance with federal and state laws and regulations including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (see Section 3.2.3). Where business or residential parking stalls are displaced by the project, ITD will work with property owners during design to expand or reconfigure parking and circulation areas to replace impacted parking stalls. If there are areas where parking stalls cannot be replaced, then property owners will be compensated for the loss through the ROW acquisition process.

Table 1. Summary of Impacts and Mitigation Measures (continued)

Element of the Environment	Environmental Impacts		Commitments/Mitigation Measures
	Proposed Action Alternative	No Action Alternative	
Prime Farmland	Temporarily, construction could affect farmland soils through vegetation disturbance, soil compaction, and introduction of noxious weeds during earthwork. Farm operations may be temporarily disrupted due to difficulty in accessing property, conflicts between farm and construction equipment and construction work on irrigation structures. Approximately 112 acres of agricultural land would be converted to a transportation use. The acquired agricultural land would be in strips along the edges of farms, thus no farms would be bisected by the project and none would be impacted so that it was no longer a viable operation.	The No Action Alternative would not have any immediate effect on existing prime farmland along the corridor. However, growth is anticipated to occur along the corridor, and none of the land along the corridor is planned to remain as farmland.	Access to farms will be maintained during construction and efforts will be made to minimize any conflicts between farm equipment and construction vehicles and equipment. All work on water delivery and irrigation systems will be timed to occur in the non-growing season of the year to the extent possible. In addition, provisions for erosion, dust control, and runoff will be included during the construction phase to protect soil, water, and air resources (see Section 3.3.3). Loss of agricultural strips of land converted to a transportation use along US 20/26 would be mitigated through the ROW acquisition process, as described in Section 3.2.3.
Socioeconomics & Environmental Justice	Temporary construction-related effects of increased traffic congestion, reduced mobility, and increased noise would have a temporary impact on the study area population, including environmental justice populations and the organizations that serve them. The increased roadway capacity accommodates anticipated growth, increases mobility, and reduces traffic congestion. The addition of pathways, sidewalks, and signalized intersections will improve opportunities for non-motorized travel. Enhanced accessibility would support regional employment opportunities for residents and workers who live near and/or use the corridor. It would also improve the response times for emergency vehicles traveling along the corridor. Utility and irrigation facilities would require relocation with the project. Impacted canals or ditches running parallel to US 20/26 would be relocated outside the ROW and within permanent easements.	There would be no direct impact to social or economic conditions or to environmental justice populations. Congestion and travel times would increase and affect the ability to access residences, businesses, and public facilities and services. Over time, there would be an adverse effect on response times for emergency vehicles (fire, police, and medical) due to increased congestion on US 20/26. Additionally, the lack of non-motorized facilities including sidewalks and bikeways would make travel difficult for all non-motorized users, including environmental justice populations.	Mitigation for temporary construction impacts includes coordination with emergency service responders, school districts, and ValleyRide bus services to minimize impacts to their operations. Access to businesses and social services will be maintained during construction. Coordination with utility providers will occur during design and construction (see Section 3.4.3). Any displacements of low-income or minority persons will be conducted in accordance with federal and state laws, as described in Section 3.2.3.

Table 1. Summary of Impacts and Mitigation Measures (continued)

Element of the Environment	Environmental Impacts		Commitments/Mitigation Measures
	Proposed Action Alternative	**No Action Alternative**	
Cultural, Historic, and Archaeological Resources	There are no known archaeological resources in the study area. During construction, the setting and character at or near historic properties would be temporarily altered due to the presence of construction vehicles and equipment. The Proposed Action will result in a minor use, no adverse effect, of 16 eligible historic sites.	The No Action Alternative would not have any immediate effect on cultural, historic, and/or archaeological resources. It is anticipated that given the growth trend, the study area will be largely urbanized by 2040, and impacts to historic properties from such development is possible.	During construction, if any cultural resources are encountered, all ground disturbing activities will cease until a qualified archaeologist is consulted. No operational mitigation is required (see Section 3.5.3).
Traffic Noise	Construction of the new roadway will cause localized, short-duration noise impacts. Operation of the roadway under the Proposed Action Alternative will generate traffic noise from truck and passenger vehicles. The traffic noise modeling revealed that sound levels are predicted to increase from 0 to 14.9 dBA under the Proposed Action Alternative, and that the project would impact 74 of the 165 receivers.	Over time, traffic would increase on US 20/26, which would result in a slight rise in sound levels from traffic. Modeling of the No Action Alternative indicated that sound levels in the year 2040 would range from 53.8 to 72.6 dBA along the corridor. In the 2040 No Build condition, 48 of the 165 receivers would be impacted.	Construction mitigation includes standard noise control methods to reduce sound levels (see Section 3.6.6). Existing berms adjacent to the corridor would be retained or replaced to the extent practical utilizing berms and/or retaining walls to minimize impacts to private property. Based on the completed studies, ITD intends to install noise abatement measures in the form of seven noise barrier walls for 13 sensitive receivers. Additional coordination with landowners (including re-evaluating barrier feasibility and desirability) will be completed prior to each phase of construction.
Air Quality	Construction activities are likely to temporarily emit several air pollutants from construction activities, equipment, and vehicles. The Proposed Action Alternative is anticipated to increase carbon monoxide (CO) emissions. However, operations will not violate the National Air Quality Standards. Project-level conformity determination requirements are met for PM_{10}. The Proposed Action will not increase MSAT emissions or concentrations, and improvements that reduce congestion will lower fuel consumption and reduce GHG emissions.	The increase in traffic volumes by 2040 would increase fuel consumption and CO emissions. However, CO levels will not violate the National Air Quality Standards. PM_{10} impacts for 2040 are estimated to be well below the established threshold of 60.1 tons per day, there would be no significant increase in MSAT emissions or concentrations, and any increase in GHG emissions by an increase in traffic will be offset by federally-requirement improvements in fuel efficiency and formulation.	Construction Best Management Practices (BMPs) will be used to reduce air emissions such as spraying exposed soils, stabilizing construction entrances, and reducing equipment idling time. The BMPs will comply with the Idaho Department of Environmental Quality (IDEQ) regulations for controlling fugitive dust during construction. Long term mitigation is not required (see Section 3.7.3).

Table 1. Summary of Impacts and Mitigation Measures (continued)

Element of the Environment	Environmental Impacts		Commitments/Mitigation Measures
	Proposed Action Alternative	**No Action Alternative**	
Visual Quality	Construction activities would temporarily change the visual character in the area and may increase the amount of light and glare. The Proposed Action Alternative will not adversely affect the corridor, since the existing roadway corridor is already a prominent feature in the visual landscape. However, the wider roadway with additional travel lanes, non-motorized facilities and Continuous Flow Intersections (CFIs) at some intersections will be visually different and may be confusing to first-time users. Although the majority of the existing landscaped berms adjacent to the corridor would be impacted by the road widening, they will be replaced, to the extent practical, with new landscape berms and/or walls. There will be a visual change for two residences from moving 14 of the high-power transmission poles north to a location closer to these homes.	It is anticipated that over time, light and glare from vehicles would increase due to the projected increase in traffic. Other changes to the visual resources along the corridor would be from future development which may restrict views of the mountains and Boise River habitat.	Mitigation measures for light and glare impacts during construction will include phasing construction; locating staging areas and parking construction vehicles away from areas that are easily viewed or where glare from equipment could affect viewers; re-vegetating disturbed areas as soon as practical; and using lighting for nighttime work that is angled downward instead of outward (see Section 3.8.3). Existing landscaped berms impacted by the project would be replaced, to the extent practical, with new landscaped berms and/or textured walls. To reduce light and glare, street lighting will be designed to avoid affecting surrounding residential areas.
Geology and Soils	The Proposed Action Alternative will change local topography through grading and cut-and-fill earthwork during construction. Roughly 300 acres of land would be cleared to accommodate roadway construction and for equipment staging and material stockpiling during construction. The project would require approximately 1,500,000 yds^3 of cut and 400,000 yds^3 of fill. Areas cleared of vegetation would leave soils exposed to potential erosion from wind and stormwater runoff. Operation of the Proposed Action Alternative would result in an increase in the amount of impervious surface. This would increase the quantity of stormwater runoff and increase the potential for erosion.	Under the No Action Alternative, future soil disturbance would be related to normal or unexpected roadside or roadway maintenance activities.	Construction BMPs to minimize soil disturbance will be used such as clearing only the areas needed, reestablishing vegetation as soon as practical, and scheduling earthwork for drier periods if practical (see Section 3.9.3). Restoration planning for soil areas disturbed during construction will help reduce long-term impacts from erosion. This would include plans for re-vegetation and irrigation of disturbed soil areas, and preservation (or removal and stockpiling) and reapplication of topsoil in graded areas.

Table 1. Summary of Impacts and Mitigation Measures (continued)

Element of the Environment	Environmental Impacts		Commitments/Mitigation Measures
	Proposed Action Alternative	**No Action Alternative**	
Hazardous Materials	Leaks and spills of materials such as fuel, oil, and other contaminants onto the ground may occur during construction. Displaced properties may contain hazardous materials on site, thus earthwork may disturb soils that contain hazardous materials. There would be an increase in the amount of hazardous materials that end up on the roadway surface caused from increased traffic and the generation of hazardous materials such as petroleum, and contaminants from brake and tire wear.	Since there would be no road widening or improvements to intersections under the No Action Alternative and no ground disturbance, there would be no potential to disturb any sites that contain hazardous materials. As traffic increases over time, road operations would increase the generation of hazardous materials such as petroleum and contaminants from brake and tire wear.	During construction, BMPs will be implemented and all local, state and federal laws and regulations will be followed regarding handling and disposal of hazardous materials (see Section 3.10.3). Mitigation for hazardous materials generated by operation of the roadway consists of implementing stormwater control and treatment facilities. Environmental site assessments will be conducted prior to ROW acquisition to determine the nature and extent of suspected contamination. If site contamination is identified, all local, state and federal regulations will be followed to clean up the site(s) either by ITD or the landowner, as determined during the ROW acquisition process.
Surface Water, Floodplains, and Groundwater	Construction impacts would include disturbance of banks and bottoms of surface water features, soils disturbance due to grading and fill activities, and potential leaks or spills of gasoline and other petroleum products which would all result in a temporary decrease in water quality. There would be an increase in stormwater runoff from increased impervious surface area with the project, but water quality would improve by implementing stormwater collection and treatment facilities that do not currently exist. Widening the roadway will require fill to be placed in the floodplain for Mason and Fifteenmile Creeks.	As traffic increases over time, road operations would increase the generation of hazardous materials such as petroleum and contaminants from brake and tire wear. This leads to runoff from US 20/26 to carry contaminants into groundwater and surface water located in the vicinity of the project.	Construction BMPs will be used to minimize water quality impacts resulting from stormwater runoff. Any permit conditions such as those related to Section 404, NPDES construction stormwater, MS4 permits will be followed (see Section 3.11.3). Mitigation for operational impacts includes the addition of permanent stormwater facilities, including collection, conveyance and treatment facilities. A hydraulics analysis will be completed at Mason and Fifteenmile Creeks to evaluate designs of roadway fills, culverts, bridges, and/or retaining walls placed in the floodplain and/or floodway. This analysis will be used to obtain a Floodplain Development Permits from the local jurisdiction (Canyon County and/or City of Caldwell) and demonstrate that the project meets Federal Emergency Management Agency (FEMA) requirements of a 'No-Rise' condition.

Table 1. Summary of Impacts and Mitigation Measures (continued)

Element of the Environment	Environmental Impacts		Commitments/Mitigation Measures
	Proposed Action Alternative	**No Action Alternative**	
Wetlands	Construction activities such as ground disturbance from heavy equipment operation, removal of vegetation (e.g., clearing of trees, shrubs, or herbaceous vegetation during construction work within the ROW), and potential contaminant spills (such as leaks from construction equipment and accidental spills of fuel or other fluids) may have an adverse effect on wetlands. The roadway improvements would result in a loss of 1.84 acres of wetland areas. Long-term effects to wetland and riparian habitat may also occur from the introduction and establishment of noxious weedy plant species.	As traffic increases on US 20/26, there would be an increase in the amount of contaminants from vehicles on the roadway surface that could impact adjacent wetlands.	Construction BMPs will be used to minimize soil disturbance and to prevent impacts from stormwater runoff. Permit conditions will be complied with, such as those related to a Section 404 permit. Wetland delineations will be conducted and ITD will obtain a Preliminary Jurisdictional Determination (PJD) prior to construction of each phase. Mitigation for wetland impacts will then be achieved via purchasing credits at a private wetland bank. Areas of vegetation removal will be reseeded/replanted with native plants (see Section 3.12.3).
Vegetation, Wildlife, and Threatened and Endangered Species	Construction impacts would include a short-term potential for decreased water quality from stormwater runoff, removal of some terrestrial and riparian vegetation, soils disturbance due to grading and fill activities, temporary noise and habitat impacts to wildlife species. Nests for migratory bird species may be disturbed during construction. The Proposed Action would result in a permanent loss of terrestrial and riparian habitat with approximately 200 acres of new impervious surface. However, the total amount of habitat potentially displaced for highway improvements is small on a landscape scale, and the quality of such habitat is fairly marginal. There would be some effects to aquatic and riparian habitat occurring from increased stormwater runoff. However, the project would provide a benefit by incorporating stormwater collection and treatment facilities into the roadway that do not currently exist. The wider roadway and increase in traffic would likely increase the mortality rates for wildlife crossing the highway.	The existing highway would continue to be a barrier to mammals, amphibians, and reptiles that travel across the road and there would be an elevated risk of vehicle collisions and the mortality rate would likely increase as traffic increases. Stormwater runoff would continue to carry contaminants into surface water, which would slightly affect water quality and aquatic species.	Construction BMPs will be used to minimize soil disturbance and to prevent impacts from stormwater runoff. Ground-disturbing activities and vegetation removal will be minimized. Mitigation to address removal of trees, shrubs, and other vegetation that provide habitat structure for migratory birds and small mammals will include replanting with native species the riparian areas and other areas disturbed within the project footprint. Additionally, construction will be timed to avoid the general nesting period for the bird species of concern and other migratory birds that occur in the vicinity of the study area (see Section 3.13.3).

1.6 Permits and Approvals

The environmental planning, consultation, and impact analysis processes have been integrated to comply with all applicable federal, state, and local regulations. The permits and/or approvals potentially required for environmental clearance are listed in Table 2. Some, or all, of these permits will apply depending on the phase of development.

Table 2. Potentially Required Permits and Approvals

Agency	Activity
US Environmental Protection Agency (EPA)	Issuance of a National Pollution Discharge Elimination System (NPDES) Stormwater Construction General Permit
US Army Corps of Engineers (USACE)	Issuance of a CWA Section 404 permit
Idaho Department of Environmental Quality (IDEQ)	Issuance of a CWA Section 401 certification
Idaho State Historic Preservation Office (SHPO)	Concurrence with Determination of No Adverse Effect for Section 106
Central District Health Department – Ada County	Review and approval of disposal of construction debris and excess excavation
Southwest District Health Department – Canyon County	Review and approval of disposal of construction debris and excess excavation
Idaho Department of Water Resources (IDWR) and Idaho Department of Lands (IDL)	Issuance of a Stream Channel Alteration Permit
Pioneer Irrigation District and Settlers Irrigation District	Issuance of license agreements and/or approval for crossing or alterations to irrigation canals
Local Agencies (Ada and Canyon Counties) FEMA	Floodplain Development Permit Floodplain No-Rise Certification Conditional Letter of Map Revision

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2. DESCRIPTION OF THE ALTERNATIVES INCLUDING THE PROPOSED ACTION

NEPA requires that agencies examine various ways the purpose of a project might be accomplished. For this project, the process involved identification of alternatives through public and agency input, coordination with ITD and COMPASS, and formation of a Corridor Preservation Committee (CPC) made up of local agencies, elected officials, and transportation organizations. Alternatives identified through public and agency outreach were evaluated through a screening process, which resulted in a Proposed Action Alternative that is included in this EA.

2.1 Alternatives Evaluation

ITD uses a screening process to help determine suitable alternatives for road projects. The goal is to identify reasonable and feasible alternatives that meet the purpose and need for the project, which can then be analyzed during environmental review. Screening allows for meaningful early input from the public, agencies, and stakeholders on the type, design, and location of facilities. This provides for wide-ranging consideration of options for meeting the purpose and need. The process is typically conducted in several stages to narrow down the alternatives to ones best suited for the project.

The screening and alternative development process for the US 20/26 Corridor Study was conducted over several years beginning in late 2005. Based on the early screening of alternatives, the initial recommended build alternative described in Section 2.1.4.3 was developed in 2008 based on the projected traffic needs for the design year 2030. By that time, the economic recession that began in 2007 was continuing and development in the corridor slowed significantly. The priority for funding the corridor study, ROW acquisition, and roadway construction was also reduced as ITD's overall program focused more on maintenance preservation and less on system expansion. As the economy rebounded, the US 20/26 corridor improvements were again prioritized in 2012 and it was determined then that the study design year needed to be extended to 2040. Updated traffic projections for 2040 required changes to the recommended build alternative to meet the increased travel demand which resulted in the modified recommended build alternative described in Section 2.1.5.2. Comments received during the 2015 public open house indicated a high level of interest in how the US 20/26 proposed improvements would tie into and affect the Eagle Road intersection. Additional studies on the Eagle Road intersection were then completed to finalize the recommended build alternative that is evaluated in the EA as the Proposed Action Alternative, as described in Section 2.2.2.

The detailed screening process and alternative development used for the US 20/26 Corridor Study is illustrated in Figure 3 and is summarized in chronological order below.

2.1.1 Scoping and Initial Alternative Development (Design Year 2030)

Scoping is the process of determining the range of actions, alternatives, and impacts to be considered for an environmental evaluation. It includes obtaining the public's opinion on what important issues should be addressed and what alternatives should be included. Although not formally required for an EA, the process helps shape the range of alternatives and impacts to be addressed and facilitates early coordination with key stakeholders.

A comprehensive public involvement plan was prepared in 2005 and 2006 to lay out the strategy for involving the public and agencies in the project, including the alternatives development process. The plan identified key stakeholders and the need to form a CPC. The CPC included representatives from the

following agencies: ITD, COMPASS, Ada County, ACHD, Canyon County, Canyon Highway District #4, City of Caldwell, City of Eagle, City of Meridian, City of Middleton, City of Nampa, City of Star, and Valley Regional Transit. The CPC was part of the alternative development process and provided numerous recommendations to ITD. Formation of the CPC allowed local agencies and jurisdictions to coordinate land development proposals with the corridor plans, limit and manage direct access, and preserve ROW for needed road improvements. Eight meetings were held with the CPC regarding the US 20/26 project between March of 2006 and July of 2007.

In August and September of 2005, interviews were conducted with individuals who are residents along US 20/26, use the US 20/26 corridor, and/or are involved in some aspect of managing the corridor. These interviews were informal and provided information while engaging over 30 key stakeholders. The stakeholders expressed a desire for a facility that moves traffic safely and efficiently. They also indicated a high level of support for the goals of CIM in the corridor, including access management (RBCI 2005).

On May 10 and 11, 2006, public/agency open house scoping meetings were held at two locations along the corridor (one in Ada County, one in Canyon County) seeking input on design issues, access types, roadway features, experiences along the corridor, the preliminary purpose and need statement, and the CIM vision (RBCI 2006).

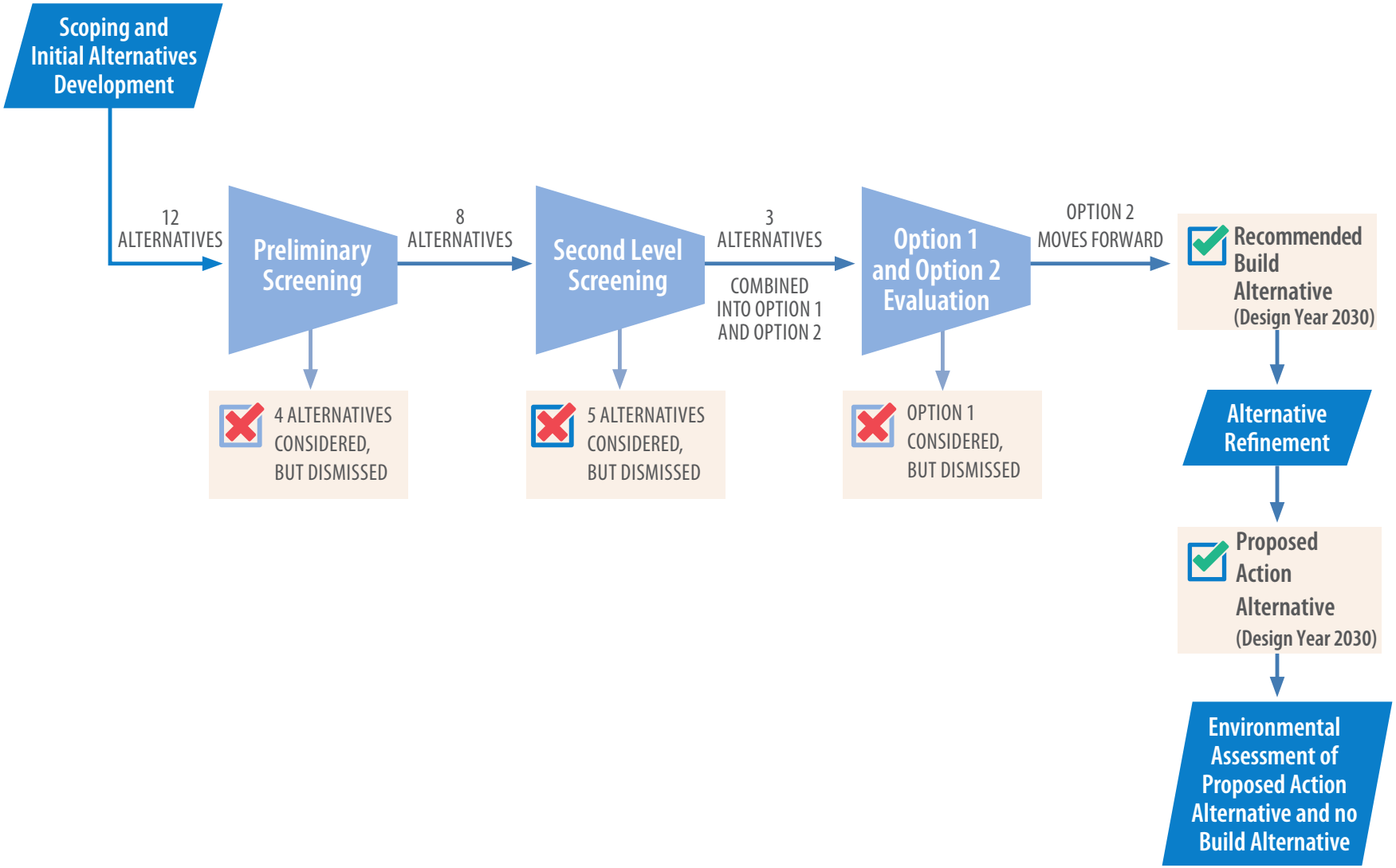
Based on input from the project scoping process and coordination with the CPC, ITD identified a total of 12 initial alternatives to be considered for preliminary screening, along with a number of design options.

2.1.2 Preliminary Screening (Design Year 2030)

Each of the 12 initial alternatives developed during project scoping was reviewed and screened for consistency with: (1) project purpose and need; (2) local and state policies; and (3) the CIM: 2035 Regional Long-Range Transportation Plan (COMPASS 2010).

Eight of the alternatives passed the preliminary screening and include the following:

- Alternative 1: A 4- to 6-lane highway with at-grade, signalized intersections at 1/2-mile spacing.
- Alternative 2: A 4- to 6-lane highway with at-grade, signalized intersections at 1-mile spacing with right-in/right-out access at 1/2-mile spacing.
- Alternative 3: A 4- to 6-lane highway with at-grade, signalized intersections at 1-mile spacing.
- Alternative 4: A 4- to 6-lane highway with at-grade, signalized intersection spacing greater than 1 mile apart and right-in/right-out access at 1/2-mile spacing.
- Alternative 5: A 4- to 6-lane highway with at-grade, signalized intersection spacing greater than 1 mile apart.
- Alternative 6: Limited access 4- to 6-lane highway with at-grade, signalized intersections at 1-mile spacing except for interchanges at four existing cross streets that have existing or proposed Boise River crossings.
- Alternative 7: CIM Expressway (six interchanges, eight overpasses).
- Alternative 8: CIM Expressway with High-Occupancy Vehicle Lane(s).



Parametrix

FIGURE 3
Screening Process

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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Four of the 12 initial alternatives failed to meet preliminary screening criteria and were dropped from further consideration. The four alternatives dropped for further consideration include:

- Light Rail – The CIM Plan identifies a light-rail corridor further south along the existing rail line. A second regional light-rail corridor along US 20/26 was determined to be inconsistent with the CIM.
- A US 20/26 and SH-44 Couplet – This concept would make the two highways into one-way roads, one in the eastbound direction and one in the westbound direction, thus lessening the need to widen the roads. However, a couplet was deemed inconsistent with the CIM. In addition, connectivity between the US 20/26 and SH-44 would be challenging given the extended distance between the routes and the lack of connectivity due to the limited crossings of the Boise River.
- Toll Road – A toll road is a funding mechanism rather than an alternative and is not identified as an option for funding in the CIM, and, therefore, determined to be inconsistent with the Proposed Action.
- Reversible Lane – This alternative consists of an added traffic lane where flow direction is based on the time of day and prevailing traffic direction. This alternative was determined to be inconsistent with state practices and policies.

Other suggestions made by project stakeholders during the scoping process were not considered standalone corridor alternatives, but instead included optional features that could be incorporated into the project corridor alternatives. These optional features were considered as the project alternatives were developed:

- Add lanes to the existing facility.
- Provide a multi-use pathway.
- Allow for bus/rideshare.
- Phase improvements.
- Avoid the use of new signals.
- Consider non-traditional intersections, like roundabouts or continuous-flow intersections.
- Utilize transportation demand management strategies.
- Incorporate intelligent transportation systems.
- Provide a local circulation system.
- Utilize access management strategies.

2.1.3 Second Level Screening (Design Year 2030)

A second level screening process was conducted on the eight alternatives that passed the preliminary screening. Screening criteria included US 20/26 travel time, sub-regional delay, and disruption to north-south travel; cost; displacements; impacts to wetlands, historic resources, and air quality; and proximity impacts such as increased noise. The alternatives were screened using this criteria and initial traffic studies were completed to assess the overall operations in the corridor. The results of the screening were presented during public meetings held at two locations in May of 2007 to update the

public on progress of the project and to gain additional input on alternatives. A summary of the feedback received at the meeting is discussed in Section 4.2.2.

This second-level screening process completed by ITD and the CPC resulted in two options emerging for further study. The options involved a combination of three of the eight alternatives considered during the second level screening and can be described as follows:

- ***Option 1 (with Interchanges):*** This option combines Alternatives 1 and 6 and proposes a 4-lane highway with at-grade signalized intersections spaced at 1/2-mile intervals from I-84 to Midland Road; a 4-lane highway with at-grade signalized intersections spaced at 1-mile intervals from Midland Road to McDermott Road (SH-16); a 6-lane highway with at-grade signalized intersections spaced at 1/2-mile intervals east from McDermott Road (SH-16) to Eagle Road; and includes interchanges instead of signals at Middleton, Franklin, McDermott (SH-16), and Linder roads.

  Interchanges were selected at these locations because they would either involve high traffic volumes that would not operate well with a signalized intersection; are located at roadways with an existing or planned crossing of the Boise River; and/or provide somewhat evenly spaced interchanges throughout the corridor at least 3 miles apart.

- ***Option 2 (without Interchanges except at SH-16):*** This option combined Alternatives 1 and 3, which results in the same configuration as Option 1, but signalized intersections would be used instead of interchanges at Middleton, Franklin, and Linder roads. The McDermott Road (SH-16) interchange would still be used since it was proposed as a part of the SH-16, I-84 to SH-44 project Environmental Study.

These two options best met the second level screening criteria, were verified to be consistent with the preliminary screening criteria described above, and were carried forward into the next level of screening.

The other alternatives were not carried forward for further study based on the following:

- Alternative 2: This alternative is similar to Alternative 3, but it plans for right-in/right-out spacing every 1/2 mile at all locations within the corridor. To promote corridor mobility and increase safety, ITD and the CPC recognized the importance of limiting access along US 20/26 as much as practical and there appeared to be areas in the central portion of the corridor where the 1/2-mile access points may not be required. Therefore, this alternative was removed due to the increased travel time on US 20/26 and recommendations from the CPC that closely spaced signals were not preferred.
- Alternatives 4 and 5: These alternatives planned for signalized intersections at greater than 1-mile spacing, and the CPC members did not feel like this intersection spacing provided enough local access to meet their land use plans for economic development.
- Alternatives 7 and 8: These alternatives involve an expressway with limited access using overpasses and/or interchanges at 14 of the north-south arterials. While these two alternatives would result in the lowest travel times and delay for travel along US 20/26, the costs are by far the highest and involve the most significant impacts and displacements to residents and businesses along the corridor. Increased impacts to historic resources and increased noise impacts would also be higher than other alternatives.

2.1.4 Evaluation of Options 1 and 2 (Design Year 2030)

As a result of the second level screening, Options 1 and 2 were carried forward and evaluated in more detail using a design year of 2030. Since the differences between these options primarily center on the use of interchanges at four locations in the corridor, this evaluation focused on the need and feasibility of locating an interchange at the four locations identified in Option 1. As a part of this evaluation, additional traffic studies comparing the operational differences between Options 1 and 2 were completed (H.W. Lochner and Parametrix 2007). Also as a part of the evaluation, US 20/26 roadway alignment options were considered.

2.1.4.1 Interchange Evaluation

Below is a summary of the considerations made for each of the four interchange locations identified in Option 1 as evaluated with the 2007 traffic study and per CIM 2030. Further refinements to these alternatives are described in Section 2.1.5 when the design year was changed to 2040.

Middleton Road Interchange

Based on the 2007 traffic study, a signalized intersection at Middleton Road without an interchange would operate at an acceptable level of service (LOS) C in the design year 2030. However, the results of the second level screening still recommended an interchange at this location as an option since Middleton Road is the only Boise River crossing road in the area, with the next existing river crossing road located 6 miles to the east at Star Road.

As the evaluation began, the City of Caldwell proposed a revised road configuration on the western end of the corridor which involved a frontage-road/slip-ramp system for the western segment of US 20/26, from Aviation Way to Midland Road. This concept would replace the Middleton Road interchange concept and use the bridge overpasses for US 20/26 at the 1-mile north-south arterials (KCID Road, Middleton Road, and Midland Road). A two-lane, one-way frontage road would be used on each side of the highway with frontage road at-grade intersections at the 1-mile arterial roads. Movement between the one-way frontage roads and US 20/26 would occur with the use of slip-ramps. The City of Caldwell indicated that this type of road system would be more compatible with their current and future land use plans.

This new concept was compared to Option 1 (described previously) for the west segment of the corridor using the second-level screening criteria. This comparison alone did not provide sufficient justification for eliminating the new concept because there were advantages to each proposal. While the frontage-road/slip-ramp system configuration has higher costs and similar, though slightly increased, environmental impact when compared to Option 1 (increased impervious surface and resulting storm water runoff, and increased visual impact to one historic property), this option will have improved traffic operations.

Information regarding the frontage-road/slip-ramp system was presented to the CPC during their October 2007 meeting. At that meeting, the CPC formally supported the frontage-road/slip-ramp design as the recommended configuration for this segment of the project in place of Option 1.

Franklin Road Interchange

Based on the 2007 traffic study, a signalized intersection at Franklin Road without an interchange would operate at an acceptable LOS C in the design year 2030. Although operations are shown to be adequate with a signalized intersection, Franklin Road was selected as an appropriate interchange location early in the project because Franklin Road is considered as a possible future river crossing.

The previously approved long-range plan prepared by COMPASS in the CIM 2030 identified a number of "special future studies," one of which would determine an alignment for a future Boise River crossings in Canyon County that would likely align with Franklin Road or Northside Boulevard. As part of the US 20/26 Corridor Study, Franklin Road was chosen as the more appropriate future river crossing location because it provided better interchange spacing along the corridor than the Northside Boulevard location. However, it was also recognized that this location could not be finalized without a more broad evaluation of an alignment study for a future Boise River crossing, and this evaluation was well outside the scope and project limits of the US 20/26 study.

ITD decided that the Franklin Road interchange would not be advanced as a build action in the US 20/26 EA since an appropriate level of evaluation cannot be made at this time and the interchange is not required to meet the design year traffic demands. Instead, the Proposed Action Alternative will consist of an at-grade signalized intersection at this location.

McDermott (SH-16) Interchange

An at-grade signalized intersection at McDermott Road (SH-16), US 20/26 would operate at a LOS F in the design year. This was determined during the SH-16, I-84 to SH-44 project Environmental Study, which evaluated the impacts of constructing an interchange at this location. Therefore, while an interchange is proposed at SH-16, it will not directly be evaluated as part of the Proposed Action Alternative in the US 20/26 EA, although it will be evaluated as a cumulative impact.

The SH-16 extension from SH-44 to US 20/26 was completed in 2014 and includes a new signalized at-grade intersection with US 20/26. As a part of that project, ROW was purchased to construct a future interchange at this location.

Linder Road Interchange

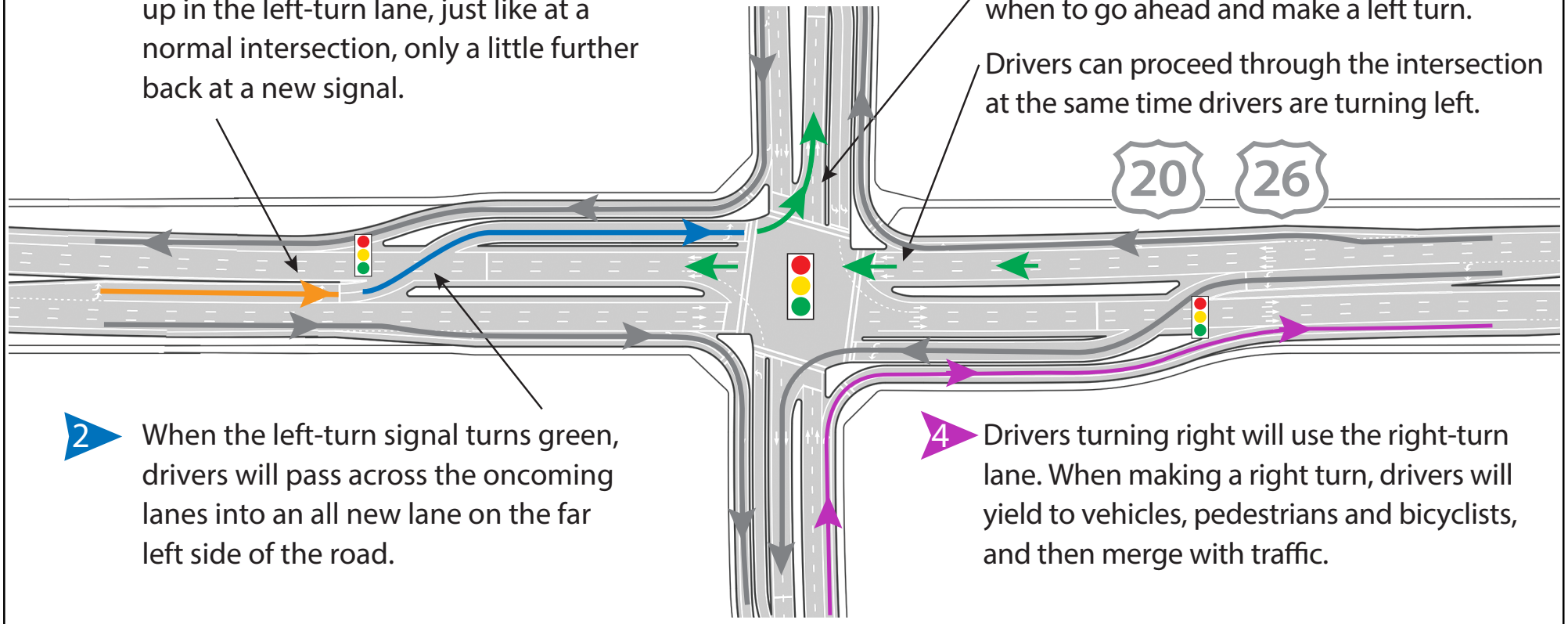
An interchange was considered at Linder Road since it is a Boise River crossing road, and the 2007 traffic study indicated it would operate at a LOS E in the design year 2030 without an interchange, as compared to a LOS B with an interchange. Significant constraints at this intersection include the adjacent signalized intersections along US 20/26 located approximately 1/2 mile east and west of the Linder Road intersection. Relocation of these signals would be difficult based on existing development in the area. A number of different interchange types were considered at this location, including a standard diamond interchange, a single point urban interchange (SPUI), and a tight diamond interchange. Because none of the interchange configurations provided adequate spacing between the interchange ramps and 1/2-mile signals, these configurations were dismissed in favor of a Continuous Flow Intersection (CFI). A CFI is an innovative, at-grade signalized intersection in which the left-turning vehicles cross over the travel lanes of the opposing through movements in advance of the intersection. This allows the left-turn and the through movements at the main intersection to proceed simultaneously thereby increasing the intersection capacity. An additional signal is used on each leg of the intersection at the point where the left turn lanes cross over the through traffic. A CFI can be configured so the left turn movements cross over the through movements on two legs of the intersection (Partial CFI) or on all four legs (Full CFI). The operations of a CFI are illustrated in Figure 4.

Studies comparing the performance of traffic operations of a CFI with that of a similar conventional signalized intersection indicate an approximate 60 percent increase in capacity with a CFI (Jagannathan and Bared 2004). There are over 20 CFIs operating in the United States today and more are planned.

1 Drivers turning left will begin by lining up in the left-turn lane, just like at a normal intersection, only a little further back at a new signal.

3 A second left-turn signal will tell drivers when to go ahead and make a left turn.

Drivers can proceed through the intersection at the same time drivers are turning left.



2 When the left-turn signal turns green, drivers will pass across the oncoming lanes into an all new lane on the far left side of the road.

4 Drivers turning right will use the right-turn lane. When making a right turn, drivers will yield to vehicles, pedestrians and bicyclists, and then merge with traffic.

Parametrix

Signalized Intersection on US 20/26

FIGURE 4
Continuous Flow Intersection

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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While the CFI has traditionally been called a Continuous Flow Intersection, now many times the CFI is referred to as a Crossover Displaced Left-Turn Intersection.

Several CFIs have recently been constructed in Utah with successful results; however, many regional drivers have not experienced driving through one. Because some movements on a CFI are different than a conventional intersection, a driver may need additional time to acclimate to the change. This is expected to be similar to a typical driver's first experience driving through a roundabout or SPUI, which are new intersection types currently used in Treasure Valley.

The CFI was specifically evaluated at the Linder Road intersection due to the capacity needs expected at this location and limited space available for an interchange. CFIs were not considered at the other at-grade signalized intersections where a standard at-grade signal could be utilized to meet anticipated intersection capacity needs with less ROW impacts and at a lower cost. The Full CFI was advanced as the preferred intersection treatment at Linder Road since the costs and impacts were less when compared to interchange options.

Funded by development, an intersection improvement project was completed in 2011 at Linder Road and US 20/26 that included intersection widening with turn lanes, new signals, and pedestrian ramps. This project will improve near-term traffic operations at this location, but the CFI is still required to meet the design year traffic demands.

2.1.4.2 Alignment Assessment

Several corridor alignments were evaluated to establish a roadway alignment that would balance environmental and ROW impacts with project costs. It was recognized that the corridor was constrained by land uses or sensitive environmental resources in some portions of the corridor and some combination of alignment shifts and equal widening around the centerline of the existing road should be considered. Therefore, options for both full corridor realignment and partial realignments were considered.

Full Realignment

Several full corridor realignment options were considered including a new corridor alignment; shifting the corridor alignment entirely to the north of the existing alignment; and shifting the corridor alignment entirely to the south of the existing alignment.

It was determined that shifting the corridor to a new alignment that departs from the existing ROW was not feasible given current and forecasted transportation revenue sources and increased impacts anticipated. Since the improvements to US 20/26 need to be phased over time, improving the existing corridor was more compatible with a phased approach. In addition, the need for a new east-west US 20/26 corridor was not identified in the CIM Plan.

Shifting the entire US 20/26 alignment to the north or south was also considered. Under these alignments, new ROW would be acquired only to the north or south of the existing roadway. These alignments options were not considered reasonable because of impacts to existing urban development patterns established by the local municipalities, particularly in the east and west ends of the corridor. Shifting the entire alignment in these areas to the north or south would result in numerous residential and business displacements, as well as impacts to environmental resources such as historic properties.

Partial Realignment

In addition to full corridor realignment options, alternatives to realign only a portion of the roadway were considered. On the east and west ends of the corridor, east of SH-16 and west of KCID Road, there is insufficient land available to move the alignment to the north or south without significant displacement of existing residences and buildings or disruption of approved developments. However, land is available to widen the road equally on both sides of the existing centerline with fewer displacements or environmental resource impacts. Conversely, in the central portion of the corridor, generally from KCID Road to Star Road, there is opportunity to shift the alignment to avoid or minimize impacts to adjacent land uses and environmental resources. Thus, several partial shift alignment alternatives were considered in this central area.

Between KCID and Star Roads, mid-corridor alignment shifts focused on minimizing impacts to environmental resources, residential and commercial properties, and the high voltage power line (a 230kV line located on the north side of US 20/26 between the Union Pacific Railroad (UPRR) line and Can-Ada Road). Also, because each alignment shift involves a reverse curve roadway alignment, it was preferred to minimize the number of alignment shifts.

Generally, for each proposed alignment shift, the new ROW would align with the existing ROW on one side or the other, with the majority of the ROW impact occurring on the opposite side. The following partial alignment alternatives were considered:

- ***Centerline (Alternative A):*** This option would widen the road equally around the centerline and match the existing road centerline. Thus, there are essentially no shifts or curvature in the alignment, and an equal amount of ROW impact occurs on both sides of the road.
- ***South/North Shift in Mid-Corridor (Alternative B):*** This alternative is aligned to have both a south and north shift to minimize impact to historic properties while having some impact on the high voltage power line poles. The alignment shifts from the existing centerline to the south just west of KCID Road and then shifts to the north just west of 11th Avenue North. It shifts back to the existing centerline just east of Star Road.
- ***Partial South Shift in Mid-Corridor (Alternative C):*** This alternative is aligned to shift south only in the area needed to avoid impact to the power lines. The alignment shifts from the existing centerline to the south just west of the UPRR tracks (just west of Midland Road) and shifts back to the existing centerline just east of Can-Ada Road.
- ***Full South Shift in Mid-Corridor (Alternative D):*** This alternative is also aligned to miss the power lines, but the south shift is extended both to the west and east, compared to Alternative C, to eliminate additional residential and commercial displacements and to utilize land available east of KCID Road. This alignment shifts from the existing centerline to the south just west of KCID Road and shifts back to the existing centerline just east of Star Road.

Comments were taken from the public on possible alignment shifts during the May 2007 public open house with comments varying on a preferred alignment option. The partial realignment alternatives were evaluated and compared based on the number of historic sites impacted (including canals), possible hazardous material sites impacted, residential and commercial relocations, wetland areas impacted, power poles impacted and costs, and the number of alignment shifts. See Table 3 for a summary of the alignment evaluation.

Table 3. Alignment Shift Evaluation

Item Evaluated	Alternative A Centerline	Alternative B South/North Shift	Alternative C South Shift (Partial)	Alternative D South Shift (Full)
Number of Alignment Shifts:	0	3	2	2
Historic Sites: Adverse Effect Minor Use/No Adverse Effect	 6 1	 0 1	 5 1	 3 1
Hazardous Material Sites Impacted:	15	13	14	13
Relocated Canal (number/feet):	3 / 9200	3 / 6800	3 / 7500	3 / 7200
Residential Displacements:	28	14	24	19
Commercial Displacements:	13	10	10	9
Wetlands Impacted (acres):	2.39	1.84	2.28	1.87
Power Poles Impacted:	41	14	0	0

Because the South/North Shift (Alternative B) has fewer impacts to residential and commercial properties, historic sites, wetlands, and hazardous material sites; and had only moderate impacts to the power poles, ITD decided to advance the South/North Shift (Alternative B) alignment as the preferred alignment in the build alternative.

2.1.4.3 Recommended Build Alternative (Design Year 2030)

As a result of the additional evaluation of the corridor options and coordination with the CPC, ITD advanced the No-Build Alternative and the Option 2 Build Alternative. The Option 2 Alternative would now include the frontage-road/slip-ramp system, as proposed by the City of Caldwell in the west end of the corridor.

To summarize, the Recommended Build Alternative was advanced with the following characteristics, although it was later revised as described in Section 2.1.5 for the design year 2040:

- The highway would be widened to four lanes from I-84 to SH-16, and would be widened to six lanes from SH-16 to Eagle Road.
- A frontage-road/slip-ramp system would be used from Aviation Way to Midland Road with one-way frontage roads on the north and south sides of the highway. Overpasses on US 20/26 would be spaced at 1-mile intervals to coincide with the major north-south surface streets and allow traffic to move between the eastbound and westbound one-way frontage roads. Slip ramps would be used to move traffic between US 20/26 and the frontage roads.
- Traditional at-grade signalized intersections would be used at 1-mile spacing from Midland Road to Black Cat road, except a full interchange would be used at SH-16.
- Traditional at-grade signalized intersections would be used at 1/2-mile spacing from Black Cat Road to Eagle Road, except a full CFI would be used at Linder Road.
- The US 20/26 roadway would follow the existing roadway alignment, the South/North Shift (Alternative B) would be used from just west of KCID Road to 11th Avenue (where the roadway alignment would be shifted south) and from just west of 11th Avenue to just east of Star Road (where the alignment would be shifted north).

This Build Alternative was presented to local agencies and to property owners that live along the corridor during four public meetings (two in Ada County and two in Canyon County) held on July 18 and July 19, 2012. The meetings were held to provide an opportunity for adjacent property owners to learn more about the project and speak with project representatives about how the proposed improvements could affect their properties. Feedback from the public did not require any modifications to the proposed Build Alternative. A summary of the feedback received at the meeting is discussed in Section 4.2.3.

2.1.5 Alternative Refinement (Design Year 2040)

Funding for transportation expansion projects has become increasingly difficult for public agencies to obtain, and particularly since the 2007 to 2009 economic recession. As ITD recognized that funding for improvements in the US 20/26 corridor were unlikely to be secured so construction could begin soon, they understood that the project design year set at 2030 needed to be extended to 2040. COMPASS also had updated their regional travel demand model for newer demographic and land use projections with that model also extended to the year 2040.

Additionally, the FHWA requested that ITD further evaluate whether a less expensive option could be utilized in the western end of the corridor where the frontage-road/slip-ramp system concept was being proposed. FHWA wanted to ensure consideration was given to less expensive alternatives that still met the purpose and need of the project, understanding that construction funding is limited.

2.1.5.1 Design Year 2040 Traffic Study

The traffic operations analysis was updated to assess the expected operations of the previous recommended Build Alternative using the design year 2040 projected traffic. Based on the updated regional travel demand model information obtained from COMPASS, the design year 2040 traffic was higher than the 2030 traffic by approximately 50 to 100 percent, depending on the location in the corridor.

When the intersections along the corridor were analyzed with the newer design year 2040 traffic projections, it was found that one-third of the intersections in the corridor operated at LOS E or worse, which is lower than the LOS D standard ITD had set to achieve in the corridor. All but two of the substandard intersections were west of SH-16, where a four-lane road section on US 20/26 was proposed.

The intersection analysis was also run with standard signalized intersections used at 1/2-mile spacing from KCID to Midland Road instead of the frontage-road/slip-ramp system that was previously proposed in this area. In this case, 12 intersections did not meet the LOS D threshold, with 10 of those found in the four-lane road section on US 20/26 west of SH-16. This same configuration was then evaluated with a six-lane road section used on US 20/26 where the four lanes were previously used. It was then found that all the intersections in the corridor operated with a LOS D or higher except four. Those four intersections included Middleton and Star roads for the area west of SH-16 and Meridian and Locust Grove roads for the area to the east.

Since a CFI was already being proposed for the Linder Road intersection, the four failing intersections were evaluated using CFIs and it was found that Middleton Road, Meridian Road, and Locust Grove Road all would operate with a LOS D with a partial CFI (cross-over left turns used only on the US 20/26 legs), but Star Road would require a full CFI (cross-over left turns used on all four legs of the intersection) similar to Linder Road.

Additionally, since numerous other innovative intersection types have recently emerged and are successfully being implemented around the United States, FHWA developed a tool to evaluate the traffic capacity analyses of these various intersection types. This CAP-X software is available through FHWA and it compares, on a planning-level, the operations of different intersection types and/or configurations based on peak-hour intersection traffic volumes. It then reports a ranking of the intersections evaluated based on the operational performance from the calculated volume-to-capacity ratio of the intersection. There are 15 possible intersection types and configurations evaluated with this program, including various forms of a conventional signal, a quadrant roadway, a CFI, a restricted crossing U-turn, and median U-turn intersection.

When the US 20/26 intersection traffic volumes were input into CAP-X for each location where a standard signal did not show adequate operations, it was found that the full CFI was ranked most favorable in every case, with the partial CFI coming in second. The results of the CAP-X program for the Linder Road Intersection, which is the highest volume intersection in the corridor where a CFI is being considered, indicated that the CFI is likely the only at-grade intersection type included in this program that could operate at or near ITD's goal of LOS D for the corridor. To maintain consistency within the corridor and minimize the potential for driver confusion, ITD wanted to limit the number of unconventional intersection types used throughout the corridor. The CFI was selected to be used throughout the corridor in cases where a standard signalized intersection would not operate effectively.

2.1.5.2 Modified Recommended Build Alternative (Design Year 2040)

Based on the updated 2040 traffic evaluation, ITD made the following modifications to the Recommended Build Alternative:

- From I-84 to SH-16, the highway would be six lanes instead of four lanes.
- From Aviation Way to Midland Road, the frontage-road/slip-ramp system (with overpasses at 1-mile arterials) would no longer be used and traditional signalized intersections would be used at 1/2-mile spacing, except at Middleton Road where a partial CFI would be used.
- Instead of traditional signalized intersections, a full CFI would be used at Star Road and partial CFIs would be used at Meridian Road and Locust Grove Road intersections.

To summarize, the Modified Recommended Build Alternative was advanced with the following characteristics:

- The highway would be widened to six lanes from I-84 to Eagle Road.
- Traditional at-grade signalized intersections would be used at 1/2-mile spacing from Aviation Way to Midland Road, except a partial CFI would be used at Middleton Road.
- Traditional at-grade signalized intersections would be used at 1-mile spacing from Midland Road to Black Cat Road, except a full CFI would be used at Star Road and a full interchange would be used at SH-16.
- Traditional at-grade signalized intersections would be used at 1/2-mile spacing from Black Cat Road to Eagle Road, except a full CFI would be used at Linder Road and partial CFIs would be used at Meridian and Locust Grove Roads.
- The US 20/26 roadway alignment would follow the existing roadway alignment, except for minor shifts at intersections and the South/North Shift (Alternative B) would be used from just west of KCID Road to 11th Avenue (where the roadway alignment would be shifted south) and from just west of 11th Avenue to just east of Star Road (where the alignment would be shifted north).

This Modified Build Alternative was presented to local agencies and to the public during two open house meetings held on June 23, 2015, at the Thomas Jefferson Carter School located in the west end of the corridor and on June 25, 2015, at the Ambrose School located on the east end of the corridor. On June 26 and June 30, 2015, ITD hosted a live online question and answer (Q&A) session. A summary of the feedback received at the open houses and online Q&A is discussed in Section 4.2.4.

Comments from the individuals representing the Eagle Island Marketplace development located on the northeast corner of US 20/26 and Linder Road indicated they did not feel the full CFI at this location provided sufficient access to their business development and felt like a standard signalized intersection would operate adequately in the future. The City of Eagle also indicated a signalized intersection should be considered for the main entrance to this development off Linder Road, located approximately 740 feet north of US 20/26, to provide sufficient access. ITD completed additional traffic studies to confirm that a standard signalized intersection could not operate at an acceptable LOS during the design year 2040 at this location. ITD also evaluated adding a signal along Linder Road, with the resulting operations indicating a signal could be added at this location to improve business access with the use of the full CFI.

As a result of the public open house, additional coordination with the local agencies, and additional traffic study at the Linder Road intersection, ITD elected to complete the EA with the Modified Build Alternative described above, only adding the additional signal on Linder Road.

2.1.5.3 Eagle Road Intersection

Eagle Road was not included as part of the corridor study when it was initiated and no interchange or intersection types were evaluated or presented to the public at the open houses. Comments received during the June 2015 public open houses and jurisdictional meetings indicated a high level of interest in how the US 20/26 proposed improvements would tie into and affect the intersection.

Eagle Road is on the eastern boundary of the corridor and crosses the Boise River like many of the other high-volume intersections that were evaluated for interchanges and high-capacity intersections. The US 20/26 and Eagle Road intersection was evaluated using the same criteria as the other high volume intersections previously discussed.

Similar to the aforementioned analysis, the Eagle Road intersection was evaluated with the CAP-X software using the 2040 traffic projections from CIM 2040. The partial cloverleaf interchange ranked highest with the diamond interchange and SPUI also having a high LOS. The cloverleaf was eliminated based upon its high impact to the surrounding area. The diamond and SPUI, which had a LOS A, were also eliminated because of the impacts to adjacent businesses and residential properties.

The CAP-X software indicated that at-grade intersections such as the CFI and partial CFI would perform at an acceptable LOS in the design year (LOS B for a full CFI and LOS D for a partial CFI). The cross-over left movement of the partial CFI is required on Eagle Road instead of on US 20/26 to meet an acceptable LOS at this intersection in the design year.

Significant constraints exist at this intersection due to the built environment. Furthermore, this corridor study is not considering any additional lanes on Eagle Road or US 20/26 east of Eagle Road. The intersection currently operates at a LOS F (102 seconds of delay) in the peak hour. If no improvements were made at this intersection, the 2040 LOS dropped significantly (to 305 seconds of delay).

Based on this evaluation for the Eagle Road intersection, the partial CFI with the cross-over left movement on Eagle Road approaches was included in the Modified Build Alternative and advanced for further study.

2.2 Alternatives Carried Forward for Detailed Study

2.2.1 No Action Alternative (Design Year 2040)

NEPA requires that the No Action Alternative be evaluated. The No Action Alternative would retain the US 20/26 roadway as it currently exists through the study area. There would be no construction activities, and other than continued routine maintenance, there would be no realignment of the existing roadway or improvements to intersections or non-motorized facilities. The existing roadway would not be improved to meet current standards or satisfy the purpose and need of the project. Traffic safety hazards, increased congestion, and pedestrian hazards would continue to occur and are projected to worsen without roadway improvements.

2.2.2 Proposed Action Alternative (Design Year 2040)

Based on the results of the alternatives evaluation process, the Modified Recommended Build Alternative (Design Year 2040) including the Eagle Road intersection is the Proposed Action Alternative. The Proposed Action is to widen and improve approximately 15 miles of US 20/26 between I-84 and Eagle Road to accommodate the forecasted increase in traffic through 2040 (Figure 5). The proposed roadway typical sections are shown in Figure 6 and strip maps showing the proposed roadway layout are included in Appendix A. The project would widen the highway to include six travel lanes, and the highway would become a divided facility with a minimum median width of four feet (the exact width and treatment of the median would be determined during the design process).

Additional ROW would be acquired so the road and intersections could be widened. Improvements would also extend onto cross streets; for example, cross streets will be widened, right turn lanes may be added and sidewalks may wrap around and extend for a short distance onto the cross street (these improvements would be determined during preliminary design). The project includes adding facilities for pedestrians and bicyclists (sidewalks and bike lanes, or a multi-use path), adding standard width roadway shoulders, signage, traffic signals, new access control measures, and improvements to intersections. It would also be necessary to relocate some utilities and make changes to irrigation canals.

Facilities would be constructed to control and treat stormwater runoff, which would include a combination of curbs, gutters, catch basins, underground seepage beds, roadside ditches, and/or surface ponds constructed within the proposed ROW. In the event that facilities would be needed outside the proposed ROW, the potential impacts would be assessed in a NEPA reevaluation.

2.2.2.1 Roadway Improvements

For purposes of the project environmental evaluation, the corridor has been divided into three 5-mile segments which are described in more detail below.

West Segment: I-84 to Franklin Road

The West Segment of US 20/26 extends from the westbound I-84 on- and off-ramps to Franklin Road. In this area, US 20/26 would be a six-lane divided highway facility with at-grade signalized intersections at 1/2-mile spacing between Aviation Way and Midland Road and 1-mile spacing between Midland Road and Franklin Road. The Middleton Road intersection would be an at-grade partial CFI.

The proposed ROW within this segment is 200 feet. The roadway section includes three 12-foot eastbound travel lanes and three 12-foot westbound travel lanes separated by a center median, shoulders on the inside and outside of the roadway, and a 10-foot detached multi-use pathway on both sides of the highway. The roadway design speed is 55 mph.

The highway will be widened symmetrically around the existing centerline from I-84 to approximately 1,500 feet west of KCID Road. At that point, the highway alignment would shift to the south of the existing road centerline approximately 50 feet and stay on that alignment through this segment.

ITD and the City of Caldwell recently improved a portion of US 20/26, between Aviation Way and Smeed Parkway, to six lanes with a center median. In this area, additional improvements needed with the Proposed Action include adding right turn lanes at the intersections, constructing a multi-use pathway on both sides of the highway, and adding new median areas in some locations.

Central Segment: Franklin Road to Black Cat Road

The Central Segment of US 20/26 extends from Franklin Road to Black Cat Road. In this area, US 20/26 would be a six-lane divided highway facility with at-grade signalized intersections at 1-mile spacing. The Star Road intersection would be an at-grade full CFI. A grade-separated interchange is proposed at SH-16, as part of the SH-16, I-84 to SH-44 project. Therefore, it would not be constructed as part of the US 20/26 project.

The proposed ROW within this segment is 200 feet. The roadway section includes three 12-foot eastbound travel lanes and three 12-foot westbound travel lanes separated by a center median, shoulders on the inside and outside of the roadway, and a 10-foot detached multi-use pathway on both sides of the highway. The roadway design speed is 55 mph.

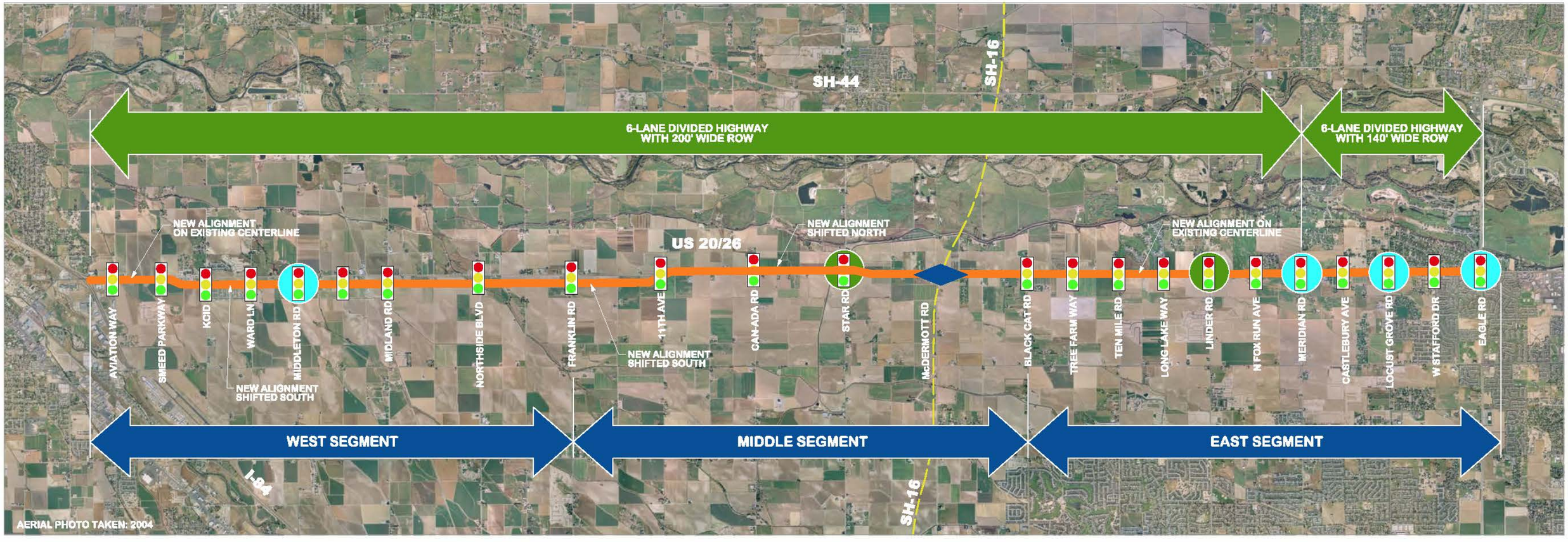
The highway alignment is shifted approximately 50 feet south of the existing road centerline from the west segment until approximately 1,500 feet west of 11th Avenue. At that point, the highway alignment would shift to approximately 60 feet north of the existing road centerline. The alignment would continue being shifted to the north of the existing centerline to a point approximately 1,000 feet east of Star Road. The alignment then shifts back to the existing centerline for the remainder of this segment so that the highway widening would occur symmetrically around the existing road centerline. Due to the alignment shift, some of the large electrical transmission power poles on the north side of US 20/26 would need to be relocated. This would affect approximately 14 of the 41 electrical transmission power poles located between Midland Road and Can-Ada Road, with all 14 poles affected located in the Central Segment of the corridor where the alignment is shifted north.

East Segment: Black Cat Road to Eagle Road

The East Segment of US 20/26 extends from Black Cat Road to the eastern project limits located just east of Eagle Road. In this area, US 20/26 would be a six-lane divided highway facility with at-grade intersections at 1/2-mile spacing. The Linder Road intersection would be an at-grade full CFI. The Meridian Road, Locust Grove Road, and Eagle Road intersections would be at-grade partial CFIs.

The proposed ROW within this segment varies depending on the location. A 200-foot ROW section is proposed between Black Cat Road and Meridian Road. Similar to the previous two sections, the roadway typical section includes three 12-foot eastbound travel lanes and three 12-foot westbound travel lanes separated by a center median, shoulders on the inside and outside of the roadway, and a 10-foot detached multi-use pathway on both sides of the highway. East of Meridian Road, the proposed ROW is 140 feet. The roadway typical section in this area includes three 12-foot eastbound travel lanes and three 12-foot westbound travel lanes separated by a center median, shoulders on the inside and outside of the roadway with the outside shoulder consisting of an 8-foot shoulder/bikeway, and a 7-foot sidewalk on both sides of the roadway. Design speed is 55 mph.

The roadway alignment is widened symmetrically around the existing centerline throughout this segment, although minor alignment shifts would occur at the CFI intersection locations.



Parametrix

Signalized Intersection on US 20/26

Partial Continuous Flow Intersection (CFI)

Full Continuous Flow Intersection (CFI)

Interchange Location

US 20/26

FIGURE 5
Modified Recommended Alternative (Design Year 2040)

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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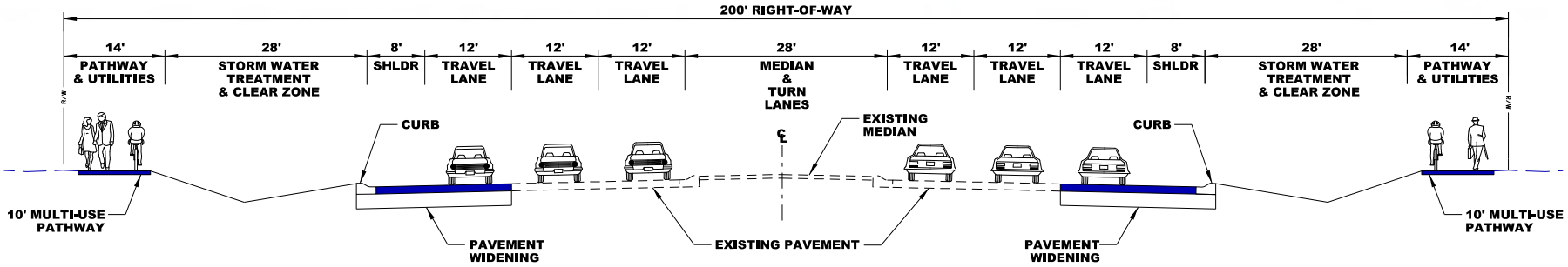
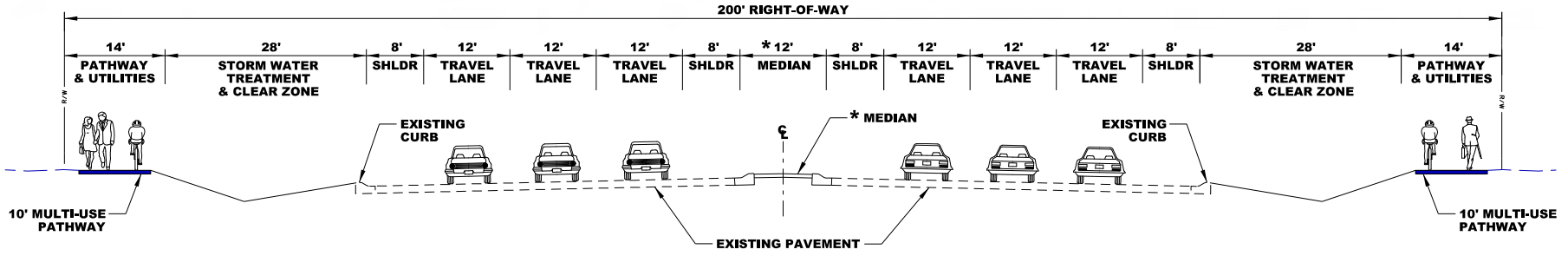
US 20/26 TYPICAL ROADWAY SECTION
I-84 TO AVIATION WAY



US 20/26 TYPICAL ROADWAY SECTION
AVIATION WAY TO SMEED PARKWAY



* CONSTRUCT MEDIAN WHERE IT DOES NOT CURRENTLY EXIST TO LIMIT ACCESS TO RIGHT-IN / RIGHT-OUT

Parametrix

FIGURE 6a
Typical Cross Sections

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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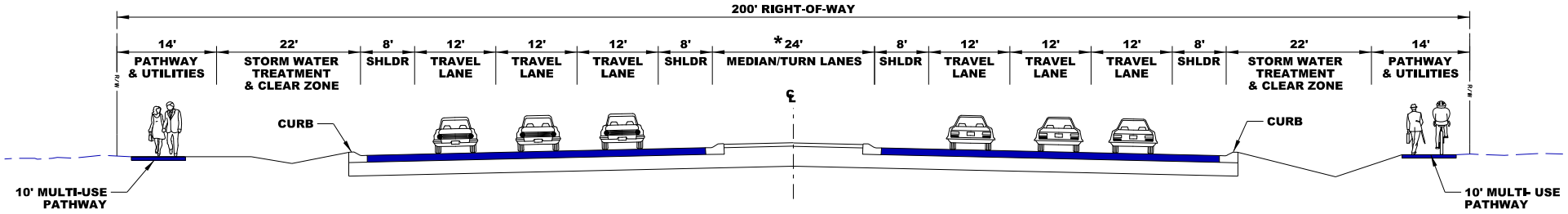
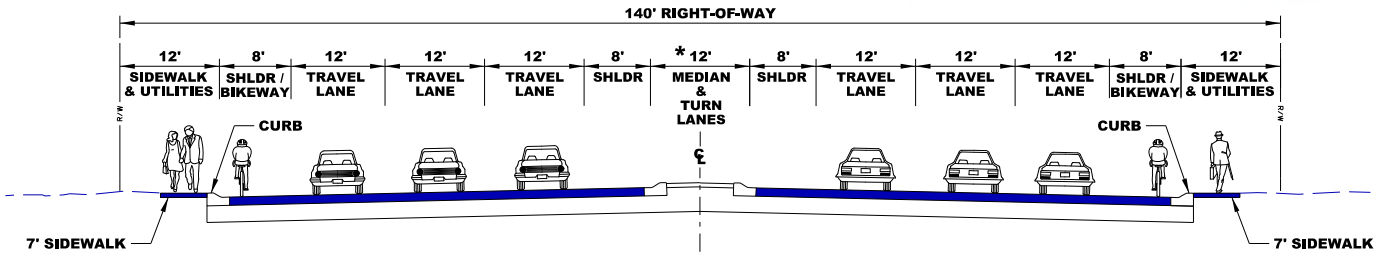
US 20/26 TYPICAL ROADWAY SECTION
SMEED PARKWAY TO MERIDIAN ROAD



* FINAL MEDIAN WIDTH AND TREATMENT WILL BE DETERMINED DURING PRELIMINARY DESIGN.

US 20/26 TYPICAL ROADWAY SECTION
MERIDIAN ROAD TO EAGLE ROAD



* FINAL MEDIAN WIDTH AND TREATMENT WILL BE DETERMINED DURING PRELIMINARY DESIGN.

Parametrix

FIGURE 6b
Typical Cross Sections

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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2.2.2.2 Access Management

Access management is an integral part of the US 20/26 study because of its role in improving roadway operations and safety. Access along US 20/26 and other state highways in Idaho is governed through the current Idaho Administrative Procures Act (IDAPA), Section 39.03.42 – Rules Governing Highway Right-of-Way Encroachments on State Right-of-Way, which was made effective on October 1, 2012 and established standards and guidelines for encroachments on state highway ROW.

The IDAPA establishes minimum recommended distances between approaches and signals based on the type of facility and area in which the facility is located. For the purposes of IDAPA, US 20/26 is designated as a "Statewide Route" which dictates a minimum signal spacing of 1-mile in rural and transitional areas and ½-mile in urban areas. ITD uses the IDAPA to evaluate and issue encroachment permits to any entity that desires to add, modify, change use, relocate, maintain, or remove an encroachment (access) on a state highway.

The signal spacing identified in the Proposed Action alternative follows the IDAPA access guidelines. The overall access management concepts included in the Proposed Action were developed with the following principles/elements:

- US 20/26 will be a divided roadway to restrict full movement access to the signalized intersections.
- Existing public and private access points may remain until alternate access can be provided or until accident history indicates a safety issue exists, but existing access points may be restricted to right-in/right-out.
- New temporary right-in/right-out interim accesses to US 20/26 may be permitted if it is still determined these interim accesses will have future alternative access to the future frontage roads, back roads, or other circulator roads.
- Median U-turn movements may be considered between the signalized intersections, as approved by ITD.
- A system of local circulator roads developed parallel to and approximately 1/4 mile away from US 20/26 will limit access to US 20/26 and help ensure all properties abutting US 20/26 have local street access and connections to the north-south collector or arterial roads. These local roads would be constructed by the local governments as the area develops and must be coordinated between developments so a parallel and continuous road network is provided. While the construction of the circulator roads would benefit the operations and safety of US 20/26, the future operations and impacts of constructing the Proposed Action Alternative is not dependent on the implementation of these circulator roads.
- Local agencies should adopt or revise ordinances to support access management goals along US 20/26. Should these local ordinances be stricter than set forth in the state guidelines, and as provided for in IDAPA 39.03.43, ITD may delegate authority to a local highway agency to issue permits to use state highway ROW if adequate local ordinances are in place and are enforceable.
- Coordination between ITD and local agencies and developers on development plans is required to ensure access management principles are used on the north-south arterial roads connecting to US 20/26.

2.2.2.3 Project Phasing

It is not anticipated that funding would be available to construct the Proposed Action Alternative for the entire corridor in a single project. Instead a phased approach is proposed to complete the corridor improvements with a series of smaller projects. These projects would include intersection improvements or road widening along US 20/26 that are sized to match available funding and logical termini. Because of the time delay in implementing the phases, there will be a need to conduct NEPA reevaluations of this EA as conditions in the study area and design elements change over time.

Chapter 6 provides a description of the planned approach to implement the project phasing.

3. AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

Chapter 3 characterizes the affected environment of the study area, analyzes the potential environmental impacts of the No Action Alternative and Proposed Action Alternative, and recommends mitigation measures for adverse impacts. The impact discussion addresses the following topics: transportation; land use and relocation; prime farmland; socioeconomic and environmental justice; cultural resources; noise; air quality; visual quality; geology and soils; hazardous materials; surface water, floodplains and groundwater; wetlands and vegetation, wildlife and threatened and endangered species.

Each topic of discussion provides an analysis of direct impacts associated with the No Action and Proposed Action alternative. Indirect and cumulative effects of the Proposed Action are also evaluated. The discussion includes evaluation of the Proposed Action in three ways: construction impacts, operational impacts, and cumulative impacts. Construction impacts are those caused by the Proposed Action for the duration of construction. Operational impacts are both direct and indirect impacts caused by the Proposed Action. Direct impacts are those caused by the Proposed Action alone and indirect impacts represent those caused by the Proposed Action that affect the environment beyond the immediate footprint of the improvements. Cumulative impacts are those which result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. The projects that will be considered as present or reasonable foreseeable future actions in the vicinity of the project include SH-16 and SH-44, as well as future residential and commercial development along the corridor (see Section 1.4).

3.1 Transportation

This section describes the existing roadway characteristics and assesses the potential impacts of the US 20/26 project alternatives on the transportation system. Information for this section was derived from the project Traffic Memorandum (Parametrix 2016 and ITD 2017).

3.1.1 Affected Environment

Roadway and Access Control

In the study area, US 20/26 is a two- and three-lane rural highway with substandard shoulders and speeds up to 55 mph. Over the length of the US 20/26 study area, there are currently over 225 public and private access approaches to US 20/26. These access points include public intersections, business driveways, residential driveways, and agricultural access points. Most accesses allow full movement access to and from the high-speed, principal highway. The public road approaches consist of signalized or two-way stop controlled intersections, most of which do not include turn lanes on US 20/26 to separate slow turning traffic from the higher speed mainline lanes.

Previous state access control standards have made it difficult for ITD and local agencies to restrict access along US 20/26. The new access management standards and guidelines included in IDAPA, as discussed in Section 2.2.2.2, will improve ITD's ability to restrict access in the corridor.

Crash data along the corridor was reviewed for the years 2009 to 2013. In that timeframe, there were a total of 473 accidents along the corridor, which included 199 injury accidents and 7 accidents with

fatalities. Rear-end crashes were the most common, representing over 50 percent of the total number of crashes in the corridor. Over 50 percent of the crashes during that period occurred in the eastern end of the corridor between Linder Road and east of Eagle Road.

Traffic Operations

US 20/26 is considered an urban arterial roadway, with signalized intersections at 1/2-mile or 1-mile spacing in some areas of the corridor. When signals are spaced that close, intersection operations typically control the overall operations of a corridor instead of the roadway segment capacity. Therefore, the intersection LOS is used to report the expected operations along the corridor.

LOS is a transportation measurement that is used to assess the quality of average traffic operations. It uses a qualitative grading scale from A to F with LOS A representing the best traffic operations and LOS F the worst. LOS can be used to characterize the overall traffic operations along a roadway or at intersections. The operational goal set for the US 20/26 corridor is LOS D, which is commonly used for urban transportation improvements. An LOS D represents a facility that is approaching unstable flow but is not yet operating at the full roadway and/or intersection capacity as would be the case with a LOS E.

Intersection LOS is determined using delay in units of seconds per vehicle, as defined by the 2010 Highway Capacity Manual (HCM) and shown in Table 4.

Table 4. LOS Thresholds

Stop-Controlled Intersection Delay (seconds per vehicle)	LOS	Signalized Intersection Delay (seconds per vehicle)
<10	A	<10
10 – 15	B	10 – 20
15 – 25	C	20 – 35
25 – 35	D	35 – 55
35 – 50	E	55 – 80
>50	F	>80

Source: Parametrix 2016.

Existing intersection LOS was analyzed using the PM peak-hour traffic volume collected. Table 5 shows the existing control type (either two-way stop-controlled (TWSC) or signalized), existing PM peak-hour traffic volumes, LOS, and delay. As shown in **bold** in the table, 9 of the 22 existing intersections operate at LOS E or worse in 2013 and, therefore, do not meet the LOS D goal for the corridor operations.

Table 5. 2013 Existing PM Peak-Hour LOS

Intersection	Existing Control Type	Intersection Volume	LOS	Average Delay (seconds)
Aviation Way	Signal	1370	B	18.0
Smeed Parkway	Signal	1130	C	30.3
KCID Road	TWSC	1120	**F**	64.3
Ward Road	TWSC	960	**E**	35.1
Middleton Road	Signal	1690	D	42.0
Midland Road	TWSC	1020	D	29.4
Northside Boulevard	TWSC	1190	**E**	40.1
Franklin Road	TWSC	1280	**F**	77.8
11th Avenue	TWSC	1300	D	31.9
Can-Ada Road	TWSC	1520	**F**	160.4
Star Road	Signal	2310	**E**	55.7
Black Cat Road	TWSC	1530	**F**	64.3
Tree Farm Way	Signal	1560	A	9.2
Ten Mile Road	Signal	1800	B	11.7
Long Lake Way	Signal	2000	B	14.9
Linder Road	Signal	2880	C	30.8
Fox Run Way	Signal	1990	B	14.0
Meridian Road	Signal	2300	D	35.7
Castlebury Avenue	Signal	2110	B	16.3
Locust Grove Road	Signal	2540	D	50.7
Stafford Drive	TWSC	2200	**F**	162.8
Eagle Road	Signal	5399	**F**	101.6

Transit Service

There is currently no transit service along US 20/26 in the study area except for two Valley Regional Transit bus routes that either cross or follow US 20/26 west of Aviation Way. CIM designates SH-44 (State Street) to the north and the existing rail line (between Fairview Avenue and Franklin Road) to the south as the nearest primary east-west transit corridors. Future transit plans for the region include adding bus service along the length of US 20/26, which from an infrastructure improvement standpoint would mostly involve adding bus pull-out areas and shelters.

Non-Motorized Travel

There are few bicycle or pedestrian facilities along the corridor and minimal opportunities for non-motorized travel. In some areas, newer developments have provided sidewalks along US 20/26, but there is poor system-wide connectivity so non-motorized travel over an extended distance is limited.

Although a formal bicycle/pedestrian study has not been completed, based on on-site observations there is not a high volume bicycle/pedestrian movement crossing US 20/26 in the north/south direction at this time. Bike and Pathway Plans for the cities of Caldwell, Meridian, and Eagle include future pathways and bike routes that cross US 20/26 at signalized intersections.

3.1.2 Environmental Consequences

The COMPASS 2040 Travel Demand Model was used to project 2040 traffic volumes along the corridor. The 2040 model forecasts anticipated growth and development to the regional roadway network. The roadway network assumes the existing configuration and projects included in the state or local capital improvement programs.

3.1.2.1 No Action Alternative

The 2040 No Action Alternative would include no improvements along US 20/26, including roadway widening, access management and intersection improvements, or bicycle and pedestrian upgrades. The COMPASS Regional Travel Demand Model forecasts 2040 volumes with this alternative to range from approximately 25,000 to 45,000 vehicles per day, depending on the location. The Travel Demand Model estimates an afternoon peak hour trip between I-84 and Eagle Road would take approximately 40 minutes with the No Action Alternative. For comparison, that same trip in the existing conditions model is estimated to take approximately 21 minutes.

Table 6 shows the intersection control type (either two-way stop controlled or signalized), 2040 PM peak-hour traffic volumes, LOS, and delay under the 2040 No Action Alternative. As shown highlighted and in **bold** in the table, 16 of the 22 existing intersections operate at LOS E or worse and, therefore, do not meet the LOS D goal. The 16 intersections include nine stop-controlled and seven signalized intersections. All of the stop-controlled intersections evaluated fail due to the substantial increase in traffic volumes along US 20/26, which eliminates available gaps in traffic for the cross road vehicles to enter onto US 20/26. Northbound and southbound vehicles would only be able to turn onto US 20/26 if motorists stopped in congested traffic along US 20/26 allow them to enter. The signalized intersections operate poorly due to the substantial increase in traffic volumes along US 20/26, which causes volumes approaching the intersection to exceed capacity. For the signalized intersections operating at a LOS F, significant vehicle queues will occur with motorists waiting through multiple signal cycles to travel through those intersections. Other full movement access points to private developments would also fail and transit bus services would experience delays with increased congestion.

With the No Action Alternative, motorists will experience increased corridor and region-wide congestion in the design year due to the number of intersections that operate below LOS D. Traffic conditions throughout the corridor for the 2040 No Action Alternative would be worse than drivers currently experience along US 20/26 in the Eagle Road and Locust Grove Road intersection areas.

Table 6. 2040 No Action Alternative PM Peak-Hour LOS

Intersection	Existing Control Type	Intersection Volume	LOS	Average Delay (seconds)
Aviation Way	Signal	3670	D	49.7
Smeed Parkway	Signal	2520	C	22.9
KCID Road	TWSC	3030	F	[a]
Ward Road	TWSC	2800	F	[a]
Middleton Road	Signal	4050	F	285.1
Midland Road	TWSC	2680	F	[a]
Northside Boulevard	TWSC	2710	F	[a]
Franklin Road	TWSC	2620	F	[a]
11th Avenue	TWSC	2520	F	[a]
Can-Ada Road	TWSC	2870	F	[a]
Star Road	Signal	5220	F	320.6
Black Cat Road	TWSC	2800	F	[a]
Tree Farm Way	Signal	2510	D	39.8
Ten Mile Road	Signal	3070	D	36.4
Long Lake Way	Signal	2720	D	55.0
Linder Road	Signal	7300	F	171.7
Fox Run Way	Signal	2910	E	74.7
Meridian Road	Signal	3410	F	153.6
Castlebury Avenue	Signal	2630	D	39.5
Locust Grove Road	Signal	3540	F	193.9
Stafford Drive	TWSC	2590	F	[a]
Eagle Road	Signal	7644	F	304.9

[a] TWSC delay is not reported because the volumes along US 20/26 are so high, there are insufficient gaps for vehicles to enter the roadway.

3.1.2.2 Proposed Action Alternative

Construction Impacts

Construction of the proposed improvements will impact traffic operations during construction. Anticipated impacts could include:

- Temporary lane closures and detours (this may also result in traffic cutting through adjacent developments).
- Increased congestion at intersections.
- Temporary changes in access to properties along the road.
- Increased truck and construction vehicle traffic.
- Mud and dirt on the roadway.

- Difficulty for emergency vehicles to access or move through the construction zone.
- Difficulty for bicyclists and pedestrians to navigate through the construction zone.
- Temporary construction noise impacts, including the possibility of work occurring at night.

It is also possible that use of the existing roadways by construction equipment may result in damage to existing roadway surfaces.

Operational Impacts

Roadway and Access Control

With the Proposed Action, US 20/26 would be improved to current roadway standards and intersections would be improved to include new signals and turn lanes.

The Proposed Action would be a divided facility which would restrict access along US 20/26 right-in/right-out movements, except where signalized intersections are planned. Some public road connections to US 20/26 are proposed to be closed to reduce the unnecessary access points between the signals. These roads include Knott Lane and Madison Road in the west segment of the corridor, Prescott Lane in the central segment, and Shandee Drive in the east segment. These connections to US 20/26 would only be closed if backage roads can be completed as a part of development that provide a connection to the adjacent ½-mile north-south arterial or collector roads. U-turn movements would be designed at signalized intersections to facilitate access. If requested by local agencies, mid-block U-turns would also be considered by ITD during design but the approval would be based on need and safety for the area in which they are proposed.

Traffic Operations

Operational impacts were analyzed with projected 2040 traffic volumes assuming six travel lanes along US 20/26 for the entire 15-mile corridor and improved signalized intersections (traditional signals or CFIs) at the 22 studied intersections. The COMPASS Regional Travel Demand Model forecasts 2040 volumes with this alternative to range from approximately 59,000 to 85,000 vehicles per day, depending on the location. The Travel Demand Model estimates an afternoon peak hour trip between I-84 and Eagle Road would take approximately 25 minutes with the Proposed Action Alternative, compared to 40 minutes in the No Action Alternative.

The Proposed Action has positive traffic operation impacts. This is true for not only traffic travelling east-west along US 20/26, but also applies to north-south traffic travelling across US 20/26 or trying to gain access to US 20/26 from adjacent neighborhoods along the corridor. As shown in Table 7, a LOS D can be achieved at all 22 intersection locations along the corridor if the proposed improvements are implemented. With the LOS D operations, traffic will operate at the posted speed during off-peak hours with some slower speeds occurring during peak hours. Signalized intersections will still operate under capacity so most vehicles will clear the intersection during a single signal cycle without significant queuing.

Table 7. 2040 Recommended Build PM Peak-Hour LOS

Intersection	Configuration	Intersection Volume	LOS	Average Delay (seconds)
Aviation Way	Signal	5820	D	52.7
Smeed Parkway	Signal	4970	D	48.3
KCID Road	Signal	6030	D	49.4
Ward Road	Signal	6250	D	54.6
Middleton Road	Partial CFI	7850	D	52.9
Midland Road	Signal	6360	D	41.2
Northside Boulevard	Signal	6410	D	54.2
Franklin Road	Signal	6320	D	53.7
11th Avenue	Signal	6200	D	53.6
Can-Ada Road	Signal	6570	D	51.8
Star Road	Full CFI	8950	D	33.1
Black Cat Road	Signal	6300	D	54.9
Tree Farm Way	Signal	6010	D	54.6
Ten Mile Road	Signal	6370	D	54.5
Long Lake Way	Signal	6070	D	54.6
Linder Road	Full CFI	10700	D	50.8
Fox Run Way	Signal	6530	D	49.4
Meridian Road	Partial CFI	7240	D	48.6
Castlebury Avenue	Signal	6260	D	42.2
Locust Grove Road	Partial CFI	7510	D	50.9
Stafford Drive	Signal	6260	D	52.3
Eagle Road	Partial CFI	6913	D	47.4

Transit Service

Future transit plans to add bus service along the length of US 20/26 will be enhanced with increased accessibility to bus stops for both motorized and non-motorized travel. The location of future bus stops and shelters cannot be identified at this time since they are dependent on future bus routes designations and how development occurs, however the Proposed Action does not preclude the implementation of these facilities in the future.

Non-Motorized Travel

The Proposed Action improves bicycle and pedestrian connectivity along the corridor. The addition of the detached multi-use pathway west of Meridian Road and shoulder/bikeway and sidewalk east of Meridian Road, provides dedicated facilities for east-west bicycle and pedestrian traffic where few facilities exist today. Although traffic volumes would be higher with the Proposed Action and the US 20/26 roadway would be wider which would require longer crossing times, marked and protected crossings will be available at the signalized intersections to increase safety for north-south travel. This will increase the connectivity for neighborhoods, business, and public facilities located on each side of US 20/26.

Due to the increased intersection widths and number of raised islands found with CFIs, crossings at the CFI locations will require either longer crossing times or multi-stage crossings for pedestrians and bicyclists. Although CFIs are typically not as user-friendly as traditional signalized intersections for non-motorized travel, CFIs will accommodate the needs for pedestrians and bicyclists along the corridor.

Cumulative Impacts

The regional travel demand model provided by COMPASS includes other planned projects in the vicinity of US 20/26, as well as future population and development projections to develop future traffic volumes. Thus, the cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, are captured in the model results.

3.1.3 Mitigation Measures

To mitigate construction impacts, a project specific construction staging plan and traffic control plan (TCP) will be developed in conformance with ITD standards and the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD). Along with ITD standard plans and specifications, the TCP would provide the contractor with the minimum requirements for maintaining traffic or limiting work activities. It is anticipated that these requirements will include the following:

- Continuity of traffic to all destinations currently served will be maintained.
- At least one lane in each direction on US 20/26 will be kept open during construction, unless otherwise directed by ITD's Resident Construction Engineer.
- Use of unpaved surfaces for traffic will be avoided where possible and kept to a minimum.
- No lane closures will be allowed on holidays or other specific times when vehicular traffic is expected to be unusually heavy.
- Changes to the TCP will need to be approved by ITD's Resident Construction Engineer.
- Detours onto local streets will be limited to short durations.
- Use of warning lights, barricades, and temporary fencing will be used to ensure the safety of pedestrians, bicyclists, and motorists.
- Access through the construction zone or an acceptable detour for emergency vehicles will be provided at all times and coordinated with the emergency service providers.
- Traffic control personnel (flaggers) will be used to direct traffic through construction areas, if needed.
- The contractor will be responsible for cleaning the road surface of mud or dirt resulting from construction.
- Property owners will be given adequate advance notice of night work and the timing and duration of construction activities impacting their access.
- The contractor will follow all local work hour and noise ordinances, or secure approvals from local agencies allowing waivers or deviations.
- Construction activities that create excessive noise, such as pile driving, will not be completed at night. Lighting used for night construction will be limited to the construction areas and set to minimize impacts to surrounding neighborhoods.

Mitigation for operations is essentially the project itself. The Proposed Action Alternative would increase the capacity on the roadway to serve future demand and increase safety by improving intersections, adding non-motorized facilities, and managing access to the highway. ITD and local jurisdictions will coordinate to potentially include designated locations for U-turns along the highway.

3.2 Land Use and Relocation

This section describes the affected environment and evaluates the effects of the alternatives on land use, land ownership, state and local plans, and relocation within this study area. The study area for this resource is approximately 1 mile on each side of the centerline.

3.2.1 Affected Environment

3.2.1.1 Existing Land Use

Land uses, development types, and density vary along the US 20/26 corridor. Development is primarily located on the corridor between I-84 and Midland and Black Cat and Eagle Road, with the area between (Midland to Black Cat) largely comprised of farmland and single-family detached residences.

Existing land uses in the west segment include the Idaho Department of Health and Welfare, Flying J, Truck Stop/Fuel Station, Idaho Department of Labor, Thomas Jefferson Charter School, Sky Ranch Business Center, Jackson's Food Store and Gas Station, Metalwest, Franklin Community Church, Ridgevue High School, and several residential subdivisions. A UPRR track crosses US 20/26 just west of Midland Road with several nearby industrial-type businesses. East of Midland Road is primarily farmland with single-family residences and farm structures with the exception of Nampa Tractor Salvage at the southwest corner of US 20/26 and Northside Boulevard and Franklin Junction convenience store and gas station at the corner of US 20/26 and Franklin Road.

Existing land uses in the central segment include farmland (cultivated cropland and pasture) with low-density, older single-family detached residences and farm outbuildings. Syngenta's office building, greenhouses, and agricultural facilities are located adjacent to US 20/26 west of Can-Ada Road.

The eastern segment of the corridor experienced rapid development on both the north and south side of US 20/26 in the early to mid-2000s before the downturn in the economy. *COMPASS' 2014 Development Monitoring Report* indicates single-family residential growth is slowly increasing along the corridor after decreasing in 2006/2007 and staying somewhat flat through 2009. Existing land uses within this area of the corridor include single-family residential subdivisions, a few multi-family developments, commercial businesses (Fred Meyer, Zamzows, Staples, Target, Walgreens, numerous commercial strip malls), churches (Holy Apostles Catholic Church, Valley Life Community Church, Friendship Celebration Church, and Church of Jesus Christ of Latter-Day Saints), and schools (Ambrose School, Central Academy, Rocky Mountain High School, Paramount Elementary, Willow Creek Elementary, Challenger School). A Meridian Fire Department station is located on Linder Road, south of US 20/26.

There are no public parks or recreation areas adjacent to US 20/26. However, Hobble Creek Park, Eagle Island State Park, Heroes Park, and the Boise River are located nearby. Spurwing Country Club, a private golf course, is located along US 20/26 west of Linder Road.

Jurisdiction and Future Land Use

The US 20/26 corridor passes through the jurisdictions or areas of impact of Ada County and Canyon County and the cities of Boise, Meridian, Eagle, Nampa, and Caldwell. As such, there is a variety of zoning and plans for future land use along the corridor. It is clear from the analysis of local comprehensive plans that the entire corridor (both within and around the study area), over time, will be surrounded by urban density development—residential, commercial, office, and light industrial—as the study area continues to grow. None of the land adjacent to the US 20/26 corridor is planned to remain rural or agricultural in the future.

Consistency with Planning Efforts

Improvements to US 20/26, including access management, are consistent with current regional, county, and local plans including:

- COMPASS CIM 2040 Long-Range Transportation Plan.
- ITD 2017-2021 ITIP.
- The Blueprint for Good Growth (BGG).
- Canyon County Comprehensive Plan.
- Association of Canyon County Highway Districts (ACCHD) Highway Standards and Development Procedures
- City of Caldwell Comprehensive Plan.
- City of Nampa Comprehensive Plan.
- Ada County Comprehensive Plan.
- ACHD Policy Manual
- City of Meridian Comprehensive Plan.
- City of Eagle Comprehensive Plan.
- City of Boise Comprehensive Plan.

Current Regional Planning

Communities in Motion

CIM is the regional long-range transportation plan for Ada and Canyon Counties and develops a vision and transportation plan for the Treasure Valley through the year 2040. Adopted by the COMPASS Board on July 21, 2014, CIM evaluates projected population and employment growth, current and future transportation needs, as well as projected budgetary constraints.

CIM describes US 20/26 as a regionally vital corridor to Treasure Valley and as an alternate route to I-84, supporting more regional travel in Treasure Valley than any other arterial roadway. The Plan acknowledges the increasing development along the corridor, the existing congestion, and worsened effects if improvements are not made.

2017-2021 ITIP

The ITIP is a statewide prioritized program of transportation projects covering a period of 5 years. The purpose of the ITIP is to provide a fiscally sound, 5-year capital improvements plan for the state's transportation program.

The FY 2017 to 2021 ITIP identifies five projects along the US 20/26 corridor including roadway widening, intersection improvements, bridge replacement, and pavement restoration (ITD 2016). More information on those projects can be found in Section 6.2.1.

Blueprint for Good Growth

The BGG is an ongoing regional growth management planning process in Ada County, Idaho. The intent of BGG is to coordinate land use decisions across the county with public facilities planning so that growth does not outpace the provision of public services. A consortium of officials from public agencies throughout the county was created to guide the process, which includes Ada County, ACHD, ITD, and the cities of Boise, Eagle, Garden City, Kuna, Meridian, and Star. The Consortium adopted the Phase 1 report for BGG on September 15, 2006 (BGG 2006). The Phase 1 report includes goals and policies intended for incorporation into the plans, regulations, and ordinances of consortium partners. The proposed goals and policies address issues such as tiered growth, transportation, public utilities, schools, and open space. Phase 1 of BGG was developed in coordination with CIM 2035. While CIM focuses specifically on the future transportation system, BGG expands that focus within Ada County to include other public infrastructure. As such, it is intended as a growth management guide to coordinate land use decisions with the future transportation system plan and the vision for future land use.

Local Planning Policies

The agencies with land use authority along the US 20/26 corridor have policies related to land use and/or transportation that will influence what improvements should occur on the corridor. The following is a sampling of policies from the adopted Comprehensive Plans of Canyon County; Ada County; and the cities of Caldwell, Nampa, Meridian, Eagle, and Boise. A summary of adopted design standards related to highways such as US 20/26 from the Association of Canyon County Highway Districts (ACCHD) and ACHD are also described.

Canyon County

Policies from the Canyon County 2020 Comprehensive Plan encourage access control, coordination between transportation and land use, and safety measures, as follows:

- Promote and improve traffic safety in the design and development of local and regional transportation facilities.
- Help coordinate and integrate land use and transportation planning and development to ensure that it mutually supports overall community goals and uses resources in an efficient and cost-effective manner.
- Require new development to provide stub streets that will connect to future developments on adjacent lands wherever possible in accordance with highway district standards.
- Work with highway districts, ITD, cities, and others to reserve ROW for planned transportation facilities.
- Analyze specific applications to protect functionally classified ROW where not in direct conflict with other county goals and policies. Consider adequate ROW and access control for the integrity of the transportation system.

Association of Canyon County Highway Districts

AACHD's Highway Standards and Development Procedures includes policies related to access management along arterial or collector highways which include:

- Preserving the integrity of routes by restricting the number of access points in order to reduce safety problems and allow traffic to flow expeditiously and unimpeded.

City of Caldwell

The City of Caldwell includes very specific access management policies related to the US 20/26 corridor in their Comprehensive Plan, as follows:

- A significant challenge in maintaining the integrity of the street and highway system is from the developing areas along US 20/26 and SH-55. Significant amount of vacant or developing land is located adjacent to these state highways that are principal arterials. Limiting access and preserving ROW within these travel corridors will be essential if these highways are to continue to perform inter-city and region travel functions. Access should be limited to 1-mile intervals in rural areas and ½-mile intervals in urban areas.
- To preserve the integrity of US 20/26 as an existing high-speed corridor with multi-modal capacity and access management control.
- Work with ITD to provide for frontage/back roads and limited access into the development design along Karcher Road, Ustick Road, and US 20/26.

City of Nampa

The City of Nampa relies on US 20/26 as a major regional connection. Nampa's Comprehensive Plan also supports the general policies of limiting access along major roadways, improving roads to meet the demands of growth, preserving ROW, and beautification, as follows:

- Nampa is well connected to the major state and federal road systems in the region. I-84 connects with US 20/26, 30, and 95 and Idaho 45 and 55, providing excellent access to state and regional networks.
- Preserve 100 feet on the south side ROW along US 20/26 for the safe movement of people, goods, and services.

Ada County

The Ada County Comprehensive Plan supports access management, including limited and shared access points and ROW preservation, as follows:

- Protect the traffic-bearing capacity of major arterial roads designed for through traffic.
- Use land-management development requirements to limit the number, location, and design of access points onto designated arterials and collector roads.

Ada County Highway District

ACHD's Policy Manual includes technical guidance for access management which include:

- Limiting direct access to major roadways. Roadways that serve higher volumes of regional through traffic need more access control to preserve their traffic function and capacity. Frequent and direct property access is more compatible with the function of local and collector roadways.
- Preserving the functional area of intersections and interchanges. Access connections too close to intersections or interchange ramps can cause serious traffic conflicts that impair the function of the affected facilities.

- Limiting the number of conflict points. Drivers make more mistakes and are more likely to have collisions when they are presented with complex driving situations created by numerous conflicts.
- Using non-traversable medians to manage left-turn movements. Medians channel turning movements on major roadways to designated locations. Therefore, non-traversable medians and other techniques that minimize left turns or reduce conflicts can be especially effective in improving roadway safety. Full median openings, which allow left turns from either direction, are best provided at signalized intersections and unsignalized junctions of arterial and collector streets. Full median openings in other unsignalized locations can adversely affect safety and traffic flow, but may be appropriate in some areas where analysis indicates that traffic operations and safety would be improved.
- Providing a supporting street and circulation system. Interconnected street and circulation systems provide alternative route for bicyclists, pedestrians, and drivers alike. Alternatively, commercial strip development with separate driveways for each business forces even short trips onto arterial roadways, thereby impeding safety and mobility. Connectivity can be maintained while advancing access management objectives for arterial roadway by ensuring that local street connections to the arterial conform with the adopted connection spacing interval.

City of Meridian

The City of Meridian Comprehensive Plan includes specific analysis and policies for US 20/26 within their jurisdiction. The new Comprehensive Plan policies include a system of mid-mile connections and back roads along the corridor, as well as the following policies:

- US 20/26 (Chinden Boulevard). This highway serves as the north boundary of the City of Meridian's Area of Impact east of Linder Road and bisects the Area of Impact west of Linder Road. It is expected to be five to seven lanes wide at build-out of the city. It separates Meridian's distinctly urban growth patterns from the City of Eagle, with its low density, semi-rural character. The City of Meridian will establish ordinances and development standards that preserve the highway as a major regional transportation facility, connecting the cities of Caldwell, Nampa, Star, Meridian, Eagle, and Boise. The City of Meridian believes this roadway needs to be protected from multiple access points and preserved as a high-capacity connector road. The City of Meridian supports beautification and appropriate sound mitigation measures along the US 20/26 corridor.
- The City of Meridian will work together with the transportation authorities, specifically ACHD, COMPASS, and ITD, to protect the US 20/26 and SH-69 corridors as regional transportation routes and gateways to not only Meridian but also to Boise, Eagle, Star, Kuna, Nampa, and Caldwell.
- US 20/26 will be a limited access highway that retains a speed of at least 45 mph.
- Intersections of new collector roads, Chinden Boulevard, and US 20/26 shall be limited to one per mile and located as close to the ½ mile spacing as feasible.

City of Eagle

The City of Eagle Comprehensive Plan policies include several statements and policies that apply to the development of the corridor. Eagle's plan supports updating the transportation network including multiple modes of travel, as follows:

- Transportation planning and land use planning should be compatible with Eagle's transportation system and should take into account projected land use as depicted on the Eagle Land Use Map. The City of Eagle's existing network of roadways represents only a portion of the system needed to serve future growth and development. As the City of Eagle continues to experience growth, population will increase and the number of vehicles using the transportation system will increase. In addition to adding new streets and roadways, modifications and extensions to the existing routes will be necessary in order to create a fully integrated, modern, efficient transportation system that will effectively serve the residents of Eagle, the business community, and the traveling public.
- Encourage the preservation of ROW for future grade-separated intersections where appropriate within the SH-44, SH-55, US 20/26, and SH-16 corridors.
- Promote land use policies that limit access as necessary to maintain safe and efficient operation of the existing street system while allowing reasonable access to individual development parcels.
- Coordinate with COMPASS, ACHD, Valley Regional Transit (VRT), and ITD to ensure consistency between transportation system improvements and the land use plans and decisions of the City of Eagle and surrounding city and county governments.
- Work regionally to integrate the pathway system with the ongoing planning and design efforts for the SH-44, SH-16, SH-55, and US 20/26 corridors.
- Encourage the preservation of ROW for future grade-separated intersections where appropriate within the SH-44, SH-55, US 20/26, and SH-16 corridors.
- Develop transit supportive corridors along SH-44, SH-16, SH-55, and US 20/26.

City of Boise

The City of Boise Comprehensive Plan (Blueprint Boise) includes transportation policies that indicate the need for traffic management strategies, pathway provisions, and/or sidewalks, as follows:

- The City of Boise shall advocate the use and further creation of effective traffic management strategies as a means of protecting service levels of streets from increasing traffic volumes, as well as mitigation for new development.
- The City of Boise's top priority for investment of federal and local transportation dollars is to maintain the roadway, transit, and pedestrian/bicycle system. All improvements to the roadway system will be designed to accommodate all modes of transportation.
- Coordinate with ACHD, ITD, and neighborhood associations and schools to fix "gaps" in the pedestrian system that were identified through the ACHD Pedestrian-Bicycle Transition Plan.

Summary of Planning Documents

The most frequently cited policies that affect planning for the future of the corridor include support for the following components:

- Access Management.
- ROW Preservation.
- Provision of Multi-Use Pathways/Sidewalks.

Support for access management is the single most often repeated policy among all of the jurisdictions. Many of the jurisdictions include general policies for access management along principal arterials. Other jurisdictions, including the cities of Meridian and Caldwell, include policies and planning specifically for access management along US 20/26. Most of the jurisdictions mention improvements to US 20/26 as a high priority project.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

The No Action Alternative would retain the existing US 20/26 roadway through the study area and existing land uses along the corridor would not immediately change. Growth is anticipated to continue along the corridor and the trend is for medium dense residential development and commercial development to occur. However, the No Action Alternative would not support the future development due to lack of adequate capacity on US 20/26. Increased traffic congestion could reduce development potential due to impacts at adjacent properties including increased noise, air pollution, and difficulty accessing property.

3.2.2.2 Proposed Action Alternative

Construction Impacts

Temporary impacts to adjacent land uses will include increased noise and dust, difficulty in accessing property, and increased congestion on areas roads. These impacts are addressed in the noise, air quality, and transportation sections of this EA.

Operational Impacts

The Proposed Action Alternative would not adversely affect planned development or zoning along the corridor but rather would complement planned future development. Moreover, the Proposed Action Alternative is compatible with regional and local plans such as CIM, and there would be no adverse impact on plans and policies.

Land use impacts under the Proposed Action Alternative would consist mainly of ROW acquisitions and displacements. It is anticipated that approximately 228 acres of ROW would be required for the proposed road improvements. This includes acquisition of the following land use types: approximately 112 acres of agricultural land, 53 acres of residential land, and 63 acres of commercial/industrial land. Potential displacements are shown in Table 8 and include 24 residential properties and 15 commercial properties.

Table 8. Potential Business and Residential Displacements by Location

Location	Number of Business Displacements	Number of Residential Displacements
I-84 to KCID Road	5	1
KCID Road to Middleton Road	0	2
Middleton Road to Midland Road	0	3
Midland Road to Northside Boulevard	1	1
Northside Boulevard to Franklin Road	1	3
Franklin Road to 11th Avenue	1	1
11th Avenue to Can-Ada Road	1	0
Can-Ada Road to Star Road	0	3
Star Road to McDermott Road	0	4
McDermott Road to Black Cat Road	1	2
Black Cat Road to Ten Mile Road	2	1
Ten Mile Road to Linder Road	0	0
Linder Road to Meridian Road	0	0
Meridian Road to Locust Grove Road	1	0
Locust Grove Road to east of Eagle Road	2	3
Total	**15**	**24**

Several businesses would not be displaced by the project, but would be affected in some way. Most impacts involve strips of land taken from property fronting US 20/26 and in other cases parking stalls are impacted.

Spurwing County Club is a privately owned golf course located along the north side of US 20/26 between Ten Mile Road and Linder Road. The course includes an 18-hole championship course and a newer 9-hole executive course. Although no buildings on the property have been identified for displacement, it has been determined that in order to widen US 20/26 along this segment of the corridor property acquisition from the golf course would be needed. Under the Proposed Action Alternative, approximately 5.6 acres of land would be needed for corridor development. This would impact the golf course by acquiring property currently used for the five holes adjacent to US 20/26 and would require some reconfiguration of these holes. Two of the impacted holes are on the championship course with only minor impacts to hole 1 (near the out-of-bounds area on the back side of the green) and impacts to the entire south edge of hole 2, but outside of the tee box, fairway, and putting green. Three holes on the executive course are impacted, but the impacts are limited to landscaping on the south edge of the out-of-bounds areas.

The developments at the corners of Linder Road and US 20/26 would be impacted due to ROW acquisition. The developments on the west side of Linder Road were under construction at the time this EA was being prepared and the development on the northeast corner was partially developed. Based on the development plats for the northwest and southwest corners, no structures will be impacted. Similarly, no existing structures would be displaced on the northeast corner. However, landscaping, and potentially parking stalls will be impacted with the CFI layout. In addition, access to and from Linder Road would be modified to accommodate the CFI.

The business park on the northwest corner of Meridian Road and US 20/26, as well as the Catholic Church on the southeast corner of the intersection, will be affected due to ROW acquisition, without

being relocated. The proposed ROW is within 10 feet of the structures on the northwest corner, and within 30 feet of the Church at the southeast corner. In addition, the existing full access on the east side of the church to US 20/26 would be restricted to right-in/right-out.

East of Meridian Road, Zamzows and the Friendship Church would be impacted due to ROW acquisition. It is anticipated that both of these locations would have existing parking impacts, and an impact to a commercial structure on the Zamzows parcel (included in the displacements in Table 8).

East of Eagle Road, 14 residences and 7 businesses would be impacted due to partial (13 residences, 5 commercial) or full (1 Residential, 2 Commercial) ROW acquisition. It is anticipated that these locations would have existing parking impacts, and an impact to as many as 10 access points. Impacts to these properties will be mitigated through the ROW acquisition process.

Overall, the Proposed Action Alternative has the potential to slightly influence land use changes along and near the corridor because of access management and reduced congestion. These factors can make the land along the corridor more desirable for development.

Cumulative Impacts

Transportation projects such as US 20/26, SH-16, and SH-44 generally do not have long-term cumulative impacts on land use itself, because the transportation network ultimately serves and supports the desired land uses of a community. There would be land use changes to a transportation-type land use. For example, farm land, residences, and business properties would be displaced or lose property because of the various road projects.

The project, along with other past, present, and reasonably foreseeable actions, will make the surrounding area more desirable for development due to better access and reduced travel times, causing future development to occur at a somewhat faster rate than would otherwise occur without the project.

3.2.3 Mitigation Measures

Mitigation for temporary construction impacts related to increased noise, dust, and transportation operations are addressed in Sections 3.6.6, 3.7.3, and 3.1.3, respectively.

Impacts to business, residential, and agricultural property would be mitigated through the ROW acquisition process. The acquisition of ROW where displacements/relocations would occur will be conducted in accordance with federal and state laws and regulations. These laws and regulations include Titles I and II of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 that authorizes agencies to provide relocation assistance, make payments to displaced persons, and take any other actions to comply with the provisions of the Act. This assistance is for compensation or reimbursement to displaced persons or owners of real property. The project sponsors (ITD and FHWA) must assure that displaced persons are given the proper assistance and provided all the payment that they are entitled without discrimination.

Where business or residential parking stalls are displaced by the project, ITD will work with property owners during design to expand or reconfigure parking and circulation areas to replace impacted parking stalls. If there are areas where parking stalls cannot be replaced, then property owners will be compensated for the loss through the ROW acquisition process. This could involve a full buyout of the property if local building codes related to parking cannot be met.

3.3 Prime Farmland

This section describes the prime farmland in the study and potential impacts of the project on prime farmland. Coordination with the Natural Resource Conservation Service (NRCS), including soil maps and completed forms, can be found in Appendix B.

"Prime Farmland" is generally defined in the Farmland Protection Policy Act (FPPA) as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of the Department of Agriculture. Prime farmland does not include land that is clearly not farmland, land within an urban boundary (city limits), land identified as an "urbanized areas" on US Census Bureau maps, or land with density of 30 structures or more per 40 acre area. Based on these guidelines, several miles on both the west and east ends of the corridor are exempt.

3.3.1 Affected Environment

The *US Department of Agriculture (USDA) NRCS Soil Survey* was used to obtain information about the presence of prime farmland in the study area (USDA 2016). Table 9 shows the soil types in the study area that are classified as prime farmland.

Table 9. Prime Farmland Soils in Ada and Canyon Counties

Soil Unit Name	Rating
Ada County	
Aquic Torriothents, 0-3% slopes	Prime farmland if irrigated and drained
Purdam Silt Loam, 0-2% slopes	Prime farmland if irrigated
Canyon County	
Draper Loam, 0-1% slopes	Prime farmland if irrigated
Moulton Loam, 0-1% slopes	Prime farmland if irrigated and drained
Power Silt Loam, 1-3% slopes	Prime farmland if irrigated
Power-Purdam Silt Loam, 0-1% slopes	Prime farmland if irrigated
Purdam Silt Loam, 1-3% slopes	Prime farmland if irrigated

Source: NRCS, 2016.

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

The No Action Alternative would not have any immediate effect on existing prime farmland along the corridor. However, growth is anticipated to occur along the corridor and none of the land along the corridor is planned to remain as farmland. Planning documents target the corridor for residential, commercial, office, and light industrial uses.

3.3.2.2 Proposed Action Alternative

Construction Impacts

Construction activities could affect farmland soils through vegetation disturbance, soil compaction, and introduction of noxious weeds during clearing and earthwork. Farm operations may also be temporarily disrupted due to difficulty in accessing property, conflicts between farm and construction equipment, and construction work on irrigation structures.

Operational Impacts

The Proposed Action Alternative would acquire approximately 112 acres of agricultural land to a transportation use and take this land out of active agricultural production. The acquired agricultural land would be in strips along the edges of farms, thus no farms would be bisected by the project and none would be impacted so that it was no longer a viable operation.

To assist in evaluating the extent of project impacts on prime farmland, the NRCS has developed a Farmland Conversion Impact Rating system and form. The form includes a point system for totaling acres of prime farmland to be directly or indirectly converted, a land valuation and 10 site assessment criteria.

Per guidelines in Section 1600 of the ITD Environmental Manual, projects both within urban areas (land within city limits or identified as an urban area per the Census Bureau), or those with less than 10 acres of farmland acquisition per lineal mile are exempt under the FPPA. Based on those guidelines, impact rating forms were completed for six, one-mile segments along US 20/26 that required acquisition of at least 10 acres per linear mile. If any of the 1-mile segments total 160 or more points, then the federal agency must consider alternatives that avoid impacts and measures to minimize harm to prime farmlands. The impact rating forms resulted in ratings between 86 and 131. Thus, no formal mitigation for loss of prime farmland is required. ITD considered alignment alternatives that minimized impacts to adjacent land uses including prime farmland during the alternatives screening process. In addition, NRCS recommends that provisions for erosion, dust control, and runoff be included during the construction phase to protect soil, water, and air resources. The documentation with NRCS, including forms, are in Appendix B.

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, have reduced and will continue to reduce the availability of prime farmland from productive farming use. However, the comprehensive plans for the general area call for urban-type development to accommodate future growth as the highest and best use for this land, with many of the local jurisdictions that oversee land use identifying commercial, residential, or industrial uses on their zoning and future land use maps (Note: This loss is not due to the proposed project). Therefore, there would be a cumulative loss of prime farmland that would be similar under either alternative. As described in Section 3.2 (Land Use), reduced travel times and better access may speed up the rate of conversion of prime farmland to residential/commercial uses.

3.3.3 Mitigation Measures

Access to farms will be maintained during construction and efforts will be made to minimize any conflicts between farm equipment and construction vehicles and equipment. During conceptual design, impacts on farms and prime farmland were considered and minimized. ITD will coordinate with farm businesses during the design and construction phases of the project and all work on delivery and

irrigation systems will be timed to occur in the non-growing season of the year to the greatest extent possible. In addition, provisions for erosion, dust control, and runoff will be included during the construction phase to protect soil, water, and air resources.

Loss of agricultural strips of land converted to a transportation use along US 20/26 would be mitigated through the ROW acquisition process, as described in Section 3.2.3.

3.4 Socioeconomics including Environmental Justice

This section describes the social, economic, and environmental justice conditions along the corridor and evaluates the potential impacts of the US 20/26 project alternatives on these elements of the environment. Socioeconomic resources are the economic, demographic, and social assets of a community. Key elements include population, housing, community facilities such as churches and schools, and economics. Environmental justice evaluates the characteristics of the population—specifically minorities and low-income groups. The study area for this resource includes Ada and Canyon Counties, including the cities of Caldwell, Meridian, Eagle, and Boise, except for environmental justice which uses census tract data. The US Census Bureau 2014 American Community Survey (ACS) 5-year estimates were used as a primary source of statistical data, unless otherwise noted.

3.4.1 Affected Environment

Population

US 20/26 is located within Canyon and Ada Counties, including the cities of Caldwell, Meridian, Eagle, and Boise. Table 10 shows the recent and projected population for these municipalities. Population forecasts by COMPASS indicate that growth is occurring in all communities within the study area. Specifically, development is encroaching the US 20/26 corridor at both the western and eastern ends. Development of various types, including housing, shopping centers, and mixed-use neighborhoods are anticipated along the corridor. Regionally, CIM 2040 forecasts a total population in Ada and Canyon Counties of 1,022,000 in 2040, a 76 percent increase from the 2010 population.

The population growth expected in Canyon and Ada Counties will impact US 20/26 as more vehicles enter the transportation system. US 20/26 currently does not have the capacity to serve the anticipated traffic demand.

Table 10. Population

Region	2010 Population	2040 Population Forecast
Canyon County	188,923	347,683
Caldwell	50,672	109,111
Ada County	392,365	674,317
Meridian	83,786	154,780
Eagle	23,122	52,246
Boise	237,241	317,192

Source COMPASS 2014b.

Age statistics for the jurisdictions within the study area are provided in Table 11. As shown, the percentage of population age 65 and older ranges from 10.0 to 13.4 percent within the study area and the population age 18 and under ranges from 22.2 to 33.1 percent.

Table 11. Age

Region	Under 5 years (%)	Under 18 years (%)	65 years and over (%)
Canyon County	8.3	30.6	11.7
Caldwell	9.8	30.8	10.3
Ada County	6.6	25.7	11.5
Meridian	7.9	33.1	10.0
Eagle	3.6	29.5	13.4
Boise	6.2	22.2	12.0

Source: US Census Bureau ACS 5-year estimates.

The study area population is predominately white, as shown in Table 12. Hispanic or Latino populations (of any race) range from 5.1 to 34.9 percent and are larger in Canyon County than Ada County.

Table 12. Race and Ethnicity

	Race					Ethnicity
Region	White Alone[a] (%)	Black or African American Alone[a] (%)	American Indian or Alaska Native Alone[a] (%)	Asian Alone[a] (%)	Native Hawaiian and Other Pacific Islander Alone[a] (%)	Hispanic or Latino[b] (%)
Canyon County	91.1	0.4	0.9	0.8	0.1	24.3
Caldwell	90.8	0.5	0.9	1.0	0.0	34.9
Ada County	91.6	1.1	0.6	2.7	0.2	7.4
Meridian	94.0	0.8	0.0	2.0	0.1	7.1
Eagle	94.6	0.1	0.5	1.0	0.0	5.1
Boise	89.5	1.5	0.8	3.6	0.2	7.7

Source: US Census Bureau ACS 5-year estimates

[a] Includes persons reporting only one race.

[b] Hispanics or Latinos may be of any race, so also are included in applicable race categories.

Housing

Residential housing is located along most of the US 20/26 corridor. The denser areas of residential housing are primarily located along the far west end of the corridor, between KCID Road and Middleton Road, and the east end of the corridor, between Black Cat Road and Eagle Road. Housing in these denser areas are primarily residential subdivisions with single-family detached homes. In the more rural areas of the corridor, between Middleton Road and Black Cat Road, housing consists of single-family ranch style homes surrounded by agricultural land.

As noted in Section 3.2, the study area is experiencing growth and development. Specifically along US 20/26, farmlands are being converted to residential subdivisions. The conversion of farms to higher density residential subdivisions along the corridor generates more traffic on US 20/26.

Economic

Canyon and Ada Counties include a civilian labor force of approximately 306,000, nearly 40 percent of the entire state. US 20/26 is a vital east-west highway that serves some of the labor force to travel to/from their place of employment.

Major employers in Canyon County are Amalgamated Sugar Company, Caldwell School District, Canyon County, City of Nampa, J.R. Simplot, St. Alphonsus Regional Medical Center, Nampa School District, Plexus Corporation, Woodgrain Millwork Inc., Vallivue School District, Walmart, and West Valley Medical Center (Idaho Department of Labor 2016b). US 20/26 serves traffic for those traveling to Eagle Road, I-84, and other roadways to these places of employment. There are some industrial-type businesses (Western Stockmen's Inc. Farm Service, O'Neal Flat Rolled Metals, and Valley Retreading/Goodyear) located in proximity to the Union Pacific shortline railroad located in Canyon County between Middleton and Midland Roads. Other businesses along US 20/26 that provide employment and serve the surrounding community include schools, neighborhood medical facilities, and gas stations.

Major employers in Ada County are St. Luke's Regional Medical Center, St. Alphonsus Regional Medical Center, Blue Cross of Idaho Health Services, DirecTV, Hewlett Packard, Idaho Power Company, Micron Technology, Fred Meyer, Walmart, Citicorp, and Albertsons (Idaho Department of Labor 2016a). Several of these businesses are located along US 20/26, including Hewlett Packard and Fred Meyer. Although others are not located directly along US 20/26, the highway serves traffic for those traveling to Eagle Road, I-84, and other roadways to these places of employment. Other businesses along US 20/26 that provide employment and serve the surrounding community include schools, neighborhood medical facilities, and commercial shopping centers.

In the study area, commercial (retail and office) businesses are mostly concentrated within the cities of Caldwell, Meridian, and Eagle. Agricultural business activity in the corridor is predominantly in the unincorporated areas of the counties and includes cropland cultivation, sod growth operations, and nurseries, as well as an agri-business research company (Syngenta Seed).

Public Services

Public services that are provided to residents in the study area include fire, police, other emergency response services, schools, places of worship, and medical and social health facilities. The Caldwell, Meridian, and Eagle Fire Departments provide fire protection. The Cities of Caldwell, Meridian, and Eagle provide police services with the assistance of the Canyon and Ada Counties Sherriff's Offices, and Idaho State Patrol. These services rely on US 20/26 to provide fast and safe emergency response.

Some of the major health care and social service facilities serving the study area include Columbia West Valley Medical Center in Caldwell, Intermountain Hospital in Boise, St. Alphonsus Regional Medical Center in Boise and Nampa, and St. Luke's Meridian Medical Center in Meridian. Ada County paramedics provide ambulance service for the county, including the cities of Eagle and Meridian. Canyon County paramedics provide ambulance service for the county, including the City of Caldwell.

The Caldwell, Vallivue, and West Ada School Districts serve the study area. Several public schools are located in the study area, including Thomas Jefferson Charter, Ridgevue High School, Challenger School, Willow Creek Elementary School, Paramount Elementary School, Heritage Middle School, Rocky Mountain High School, and Central Academy High School. These schools generate traffic on US 20/26 during the school year (generally late August through early June) for short periods before and after school.

Several churches are located along the US 20/26 corridor, including Church of Jesus Christ of Latter Day Saints, Franklin Community Church, Holy Apostles Catholic Church, Valley Life Community Church, and

Friendship Celebration Lutheran Church. These churches generate traffic on US 20/26 typically on Saturday and Sundays during off-peak periods.

Additional organizations that provide health care and other social services for residents along the corridor include Idaho Department of Health and Welfare, Idaho Commission on Hispanic Affairs, Idaho Food Bank, Boise Senior Activities Center, Eagle Senior Center, Meals on Wheels, Caldwell Senior Center, Nampa Senior Center/Council on Aging, Idaho Assisted Living, Hispanic Cultural Center of Idaho, and United Way of Treasure Valley. As with other commercial and retail businesses, these organizations generate trips for employees during the am and pm peak travel times, as well as periodically through the day for customers.

Utilities and Irrigation Districts

Utility providers in the study area include Idaho Power (electricity); Intermountain Gas and Williams Gas (natural gas); CenturyLink (telephone); Cable One (cable television); United Water Idaho (water); the Cities of Caldwell, Meridian, and Boise (water and wastewater); and irrigation districts. These utilities providers use the US 20/26 corridor ROW as an area to locate and access utilities away from private land. A 230 kV electrical transmission line runs parallel to and north of US 20/26 in a 30-foot private easement for approximately 4.5 miles, from ¼ mile west of Midland Road to Can-Ada Road where it crosses US 20/26. Also, two parallel transmission gas lines (one 22-inch and one 24-inch) cross US 20/26 approximately 2,200 feet west of Can-Ada Road

There are two main irrigation districts in the study area. The Pioneer Irrigation District owns and/or operates the major drainages and canals that cross US 20/26 west of Star Road. Settlers Irrigation District owns and operates North Slough No. 2. The smaller irrigation ditches and laterals are owned and operated by a boards of control made up of local residents. Many of the irrigation facilities are located within or adjacent to the US 20/26 ROW and nearby residents, businesses, and farms rely on continuous supply of irrigation water during the summer months.

Environmental Justice

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population,* directs federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable as permitted by law.

The FHWA Order (6640.23) provides the following definitions to guide addressing potential impacts to environmental justice populations:

- "Minority" means a person who is Black or African American, Hispanic, Asian American or American Indian/Alaskan Native and Native Hawaiian or Pacific Islander.
- "Low-Income" means a household income at or below the US Department of Health and Human Services poverty guidelines as defined for Environmental Justice (the 2015 guideline for poverty was $24,250 for a family of four).
- "Minority Population" means any readily identifiable group of minority persons who live in geographic proximity who would be affected by a proposed FHWA program, policy, or activity.
- "Low-Income Population" means any readily identifiable group of low-income persons who live in geographic proximity who would be affected by a proposed FHWA program, policy, or activity.

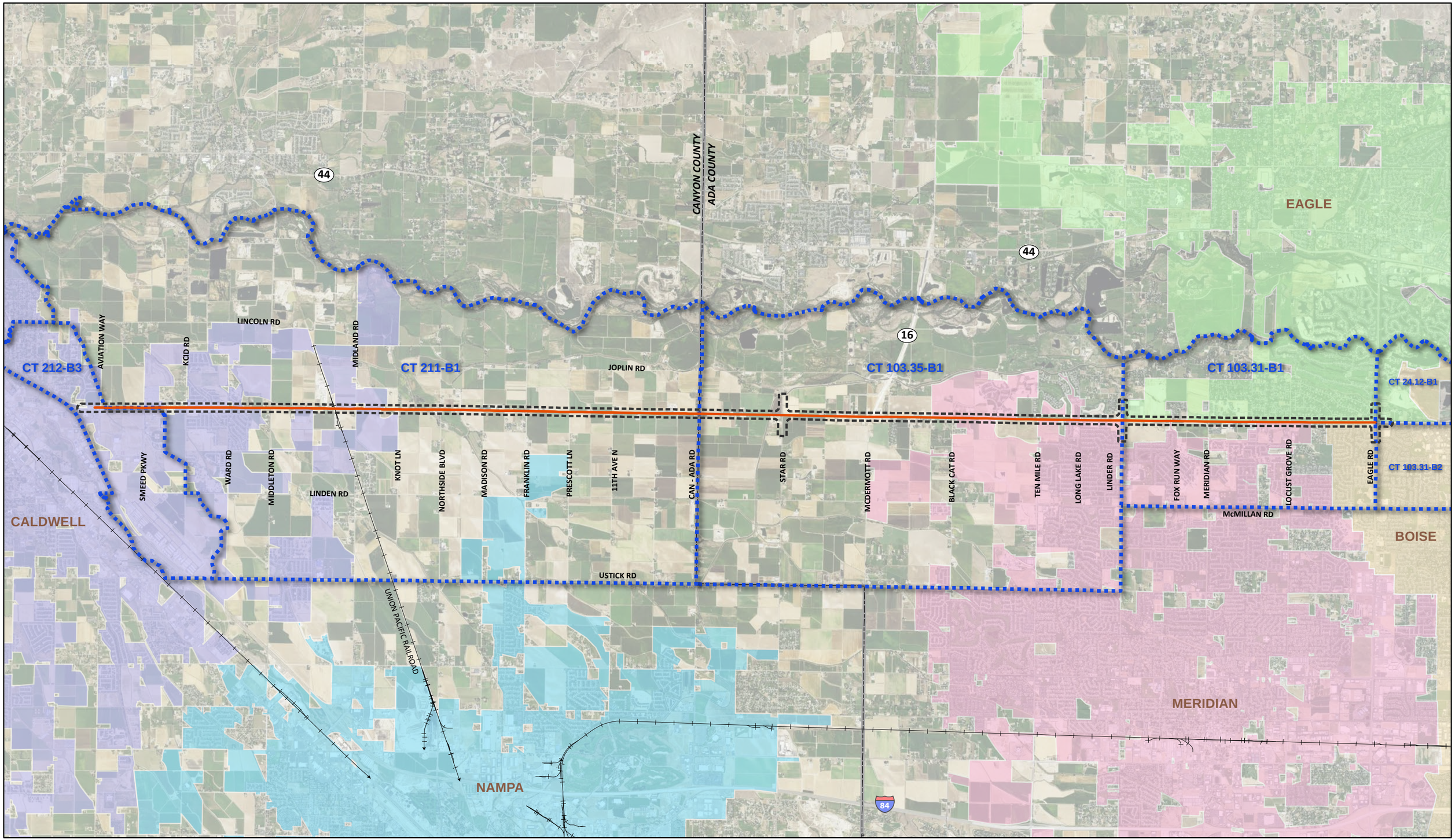
To identify areas with environmental justice populations, criteria was developed using methodologies described in *Promising Practices for EJ Methodologies in NEPA Reviews* (EPA, 2016).

- A **minority** community is defined as a group with a minority population greater than 50 percent of the total population or 10 percent higher than the reference population. Minority populations include persons who are American Indian and Alaskan Native, Asian, Black or African-American, Hispanic or Latino, and Native Hawaiian or other Pacific Islander.
- A **low-income** community is defined as a group with the percentage of low-income households under the poverty level is greater than 50 percent of the total households or 10 percent higher than the reference population. The poverty level is defined by the US Department of Health and Human Services Poverty Guidelines.

Because the proposed improvements to US 20/26 would provide regional benefits, combined Canyon and Ada County information was used as the reference population. For example, if the reference population has 20 percent of an ethnic group the threshold for determining an environmental justice population would be if the analysis unit has 30 percent. 2010 Census and 2014 ACS data were used. Census tract (CT) block groups (BG) were identified along the US 20/26 corridor. Six BGs were identified adjacent to the US 20/26 and comprise the environmental justice study area (see Figure 7):

- Canyon County:
  - CT 212, BG 3.
  - CT 211, BG 1.
- Ada County:
  - CT 103.35, BG 1.
  - CT 103.31, BG 1.
  - CT 24.12, BG1.
  - CT 103.31, BG 2.

Minority populations within the environmental justice study area were identified using 2014 ACS 5-year estimates on race and ethnicity and limited English speaking households (shown in Table 13). As shown in the table, CT 212, BG 3 has a Hispanic or Latino population more than ten percent above the two-county reference population. This BG is located south of US 20/26 on the western end of the corridor, from west of I-84 to just east of Smeed Parkway. Housing in this BG is located away from the US 20/26 corridor, south US 20/26 and west of I-84.



Parametrix

0 0.5 1 2 Miles

Block Group*
* Label is Block Group Number
US 20/26
Railroad
Study Area
County
Boise
Caldwell
Eagle
Meridian
Nampa

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 7
Census Boundaries

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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Table 13. Environmental Justice Study Area Race and Ethnicity

Region	White Alone[a] (%)	Black or African American Alone[a] (%)	American Indian or Alaska Native Alone[a] (%)	Asian Alone[a] (%)	Native Hawaiian and Other Pacific Islander Alone[a] (%)	Hispanic or Latino[b] (%)	Limited English Speaking Households (%)
Canyon & Ada Counties	91.4	0.9	0.9	0.7	2.1	12.9	2.1
CT 211 BG 1	91.9	0.0	0.0	0.6	0.0	22.0	1.2
CT 212 BG 3	84.3	0.0	1.4	0.9	0.0	33.1	4.3
CT 24.12 BG 1	98.4	0.0	0.0	0.6	0.0	6.5	1.7
CT 103.31 BG 1	96.6	0.3	0.0	1.5	0.0	3.5	0.0
CT 103.31 BG 2	90.6	2.0	0.3	5.2	0.0	0.0	0.0
CT 103.35 BG 1	95.8	0.0	0.3	2.6	0.0	7.1	0.0

Source: US Census Bureau ACS 5-year estimates

[a] Includes persons reporting only one race.

[b] Hispanics may be of any race, so also are included in applicable race categories.

Low-income populations within the environmental justice study area were identified using 2014 ACS 5-year estimates on households below the poverty level, as defined by the US Department of Health and Human Services poverty guidelines. As shown in Table 14, none of the BGs have a 10% higher portion of households below poverty compared to the two-county reference population. It should be noted that CT 212 BG 3 has notably more low-income households is also the same BG with a comparably higher Hispanic or Latino population. Other BGs in the environmental justice study area have near or below the proportion of low-income households as the two-county reference population.

Table 14. Households Below Poverty

Region	Households below Poverty
Canyon & Ada Counties	13.9
CT 211 BG 1	10.1
CT 212 BG 3	19.7
CT 24.12 BG 1	13.0
CT 103.31 BG 1	5.7
CT 103.31 BG 2	14.1
CT 103.35 BG 1	4.3

Source: US Census Bureau ACS 5-year estimates

In addition to the US Census Bureau data, observations made during visits along the corridor were used to identify potential environmental justice populations. These visits identified Lakey's Mobile Home Park on the north side of US 20/26 and west of KCID Road, as an area which could house low-income households. Other residential neighborhoods near the corridor were reviewed during field visits and do not discernibly appear to predominantly house low-income and/or minority populations.

The businesses adjacent to US 20/26 south of the mobile home park, which are expected to be acquired as part of the Proposed Action, include a Quick Loans, The Ranch Bar, and an auto repair shop that appears to be out of business. The Ranch Bar and auto repair shop do not appear to predominately serve low-income and/or minority populations. The Quick Loans business appears to serve low-income populations. Other stores providing these services are located throughout Canyon and Ada counties, several of which are not near low-income populations. Over 15 of these types of stores are located within five miles of the Quick Loans on US 20/26. Additionally, there are vacant parcels along US 20/26, with appropriate commercial zoning where these businesses could relocate. No signs or store names were observed in languages other than English along the corridor.

Vallivue School District covers the majority of the study area in Canyon County. Attendance boundaries for Vallivue School District indicate residents within the study area attend East Canyon Elementary, Sage Valley Middle School, and Ridgevue High School. All Vallivue schools, including the three that serve the study area, are designated as Title 1 schools. Schools qualify for a Title 1 program when 35% or more students and enrolled from low-income families and/or when 40% or more of the student population receive free or reduced lunch. In addition to the Title 1 program, Vallivue also has a program for helping students to learn English. Five of the six elementary schools, two middle schools, and one high school offer English Language Development programs for non-English speaking students to help them develop English proficiency. These programs are provided at East Canyon Elementary and Sage Valley Middle school. Almost all communication to students and parents through Vallivue School District is provided in both English and Spanish.

The Caldwell Department of Health and Welfare office is located south of US 20/26, east of I-84 and provides food stamps and other assistance benefits, child support services, and substance abuse assistance. An Idaho Department of Labor office is located south of US 20/26, off Smeed Parkway. These organizations offer services to low-income populations including unemployment benefits and assisting people in finding employment.

Based on the US Census Bureau data, field observations, and local school data, it has been determined that environmental justice populations live near and/or utilize the US 20/26 corridor for motorized and non-motorized travel.

Public outreach activities have been conducted throughout the project area, as described in Section 4. Outreach efforts provided environmental justice populations opportunities for meaningful engagement on the project by providing notification of the public meetings through the mail, postings in the newspaper, radio, and tv. In addition, the information was available on social media sites. At the open houses, translators were available for Spanish-speaking attendees.

In anticipation of the 2017 Public Hearing, meeting notifications were sent out to previous meeting attendees, local jurisdictions, property owners along the corridor and distributed to Lakey's Mobile Home Park, the Department of Health and Welfare office, the Idaho Department of Labor office, and VRT. The press release was also provided to the Spanish radio stations for public release. Spanish-speaking translators and hearing officers will be available to accommodate Spanish-speaking meeting attendees.

3.4.2 Environmental Consequences

This section summarizes the potential effects of the Project alternatives—including the No Action Alternative—on social and economic elements and environmental justice within the study area.

3.4.2.1 No Action Alternative

Under the No Action Alternative, there would be no improvements to US 20/26 and no construction activities. There would be no direct impacts to social or economic conditions or to environmental justice populations.

Congestion and travel times would increase and affect the ability to access residences, businesses, and public facilities and services. Over time, there would be an adverse effect on response times for emergency vehicles (fire, police, and medical) due to increased congestion on US 20/26. Additionally, the lack of non-motorized facilities including sidewalks and bikeways would make travel difficult for all non-motorized users, including environmental justice populations. These conditions can potentially be unsafe for non-motorized travelers. Although there would be no direct impact to utilities, the utility companies would need to complete work to maintain and/or replace aging facilities and expand for new development. These long-term effects would result in adverse impacts. The impacts would occur throughout the entire study area, and no disproportionate adverse effects on environmental justice populations are anticipated as a result of the No Build Alternative.

3.4.2.2 Proposed Action Alternative

Construction Impacts

It is anticipated the Proposed Action would be constructed in several phases. During each phase, temporary effects from construction are anticipated, including:

- Noise, dust, and fumes from construction.
- Traffic delays, detours, and traffic spillover into adjacent neighborhoods.
- Increased emergency vehicle response times due to lane closures and other access issues.
- Temporary access impacts to businesses and other neighborhood facilities.
- Use of property easements for temporary construction staging areas.

The short-term construction-related effects of increased traffic congestion, reduced mobility, and increased noise would have a temporary impact on the study area population, including environmental justice populations and the organizations that serve them. Construction impacts would be throughout the study area and would not disproportionately impact environmental justice populations.

Irrigation facilities and utilities such as electrical lines, drainage and sewer facilities, cable television, telephone lines, and other communication lines would be relocated during construction. Disruption of services to users during construction would be limited.

Operational Impacts

Population

COMPASS expects the population in Canyon and Ada Counties to reach over one million people in 2040, and US 20/26 does not currently have the capacity to serve a population of that size. The Proposed Action would benefit the population of Canyon and Ada Counties by providing increased roadway capacity and improved traffic operations on US 20/26. The improved mobility and reduction in congestion would likely facilitate residential development by making it easier to access property along the corridor.

Housing

Operation of the Proposed Action Alternative is not expected to have an adverse impact on housing. Rather, it would benefit residential neighborhoods by reducing congestion and increasing safety by

providing more capacity along US 20/26. The addition of bicycle lanes, sidewalks, and signalized intersections will improve opportunities for non-motorized travel. The overall improved mobility would facilitate residential development and as properties develop and urbanize, higher valuations and increased tax revenues are expected for local municipalities and school districts. The inclusion of bicycle and pedestrian facilities along US 20/26 would also benefit housing because such facilities are considered desirable amenities in residential communities.

Economic

The expanded roadway would benefit the economy by accommodating growth and making the corridor more attractive for development by increasing mobility, and reducing traffic congestion. The increased capacity and road improvements included in this project would improve the regional movement of people, goods, and services.

The Proposed Action would require modification of some business accesses and would change some full-access movements to right-in/right-out. However, the increased capacity and improved safety along the corridor would, overall, provide enhanced accessibility and mobility. This would support regional employment opportunities for residents and workers who live near and/or use the corridor, as well as enable businesses along this corridor to attract customers from outside the immediate area.

The inclusion of bicycle and pedestrian facilities provide safe, non-motorized routes for trips to/from home, work, and neighborhood facilities.

Public Services

The added capacity and roadway improvements associated with the project would result in reduced traffic congestion, increased mobility, and better traffic operations along US 20/26. This would support the regional travel to/from public services such as schools, churches, and medical facilities. Additionally, these improvements would improve the response times for emergency vehicles traveling along the corridor.

The Proposed Action would close some roads connections to US 20/26, but these closures would not impact public services because alternative routes would be available, and access to public services would not be eliminated by the closures.

Utilities and Irrigation Districts

The Proposed Action would require relocation of utilities, but there will be an expanded ROW for the relocations and for future utility upgrades needed to accommodate growth. Approximately 14 of the 41 large Idaho Power electrical transmission towers located on the north side of US 20/26 between 11th Avenue and Can-Ada Road would be relocated.

Irrigation facilities would also require relocation with the project. Impacted canals or ditches running parallel to US 20/26 would be relocated outside the ROW and within permanent easements. Impacts to irrigation facilities would be coordinated with the irrigation districts or other representatives responsible for oversight of the facilities, and licensing agreements with irrigation districts would be executed prior to construction.

Environmental Justice

The residential displacements do not occur where environmental justice populations have been identified. The commercial displacements near Lakey's Mobile Home Park include two businesses that do not primarily serve low-income or minority populations. The Quick Loans business, which does serve low-income populations will be relocated during the ROW acquisition process. There are over 15 of these types of stores within approximately five miles from this Quick Loans location. Although it appears

the location of the business does not have to be within low-income neighborhoods, as seen with other locations of these stores throughout Canyon and Ada counties, there are vacant parcels zoned for commercial development along US 20/26 where the business could relocate.

Added vehicle lanes could lead to higher travel speeds along US 20/26, resulting in a general increase in traffic noise along the corridor. The Lakey's Mobile Home Park has been identified as an area where noise volumes exceed the threshold and a noise barrier at this location was deemed reasonable and feasible (see Section 3.6.6).

In addition to the impacts, the Proposed Action would also result in benefits for the communities adjacent to the project corridor, which include environmental justice populations. With increased capacity and improved traffic operations, the project would reduce wait times for accessing the highway from adjacent properties, thus increasing mobility for those who live or work along the corridor. The added roadway capacity would allow for higher speeds, which would result in reduced travel times. The Proposed Action also benefits non-motorized users, with the addition of pedestrian and bicycle facilities.

The impacts and benefits that Environmental Justice populations would experience from the project would be the same impacts and benefits that all people living near the project would experience. Therefore, based on the above discussion and analysis contained in this EA, the Proposed Action will not cause disproportionately high or adverse effects on any minority or low-income populations in accordance with the provisions of Executive Order 12898 and FHWA Order 6640.23.

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would be to improve mobility and reduce travel times throughout the region. Generally, this would provide beneficial effects on socioeconomic conditions by supporting land development policies, economic activity, and general circulation and access.

Past actions such as residential and commercial development projects have had some limited impact on environmental justice populations that included construction and operation noise, changes in visual character, and increased traffic. Similarly, present and future actions, including the Proposed Action Alternative and other road projects, could have some impact on environmental justice populations. These impacts include displacements; increases in traffic, noise, and visual changes; as well as short-term effects from construction (noise, dust, light, glare, and traffic). However, these impacts are spread out along the various road corridors and not concentrated in any areas that solely contain environmental justice populations. Similarly, present and future residential and commercial development is planned to occur throughout the study area and would not be concentrated in any one area. Thus, there would be no disproportionate cumulative impacts to environmental justice populations.

3.4.3 Mitigation Measures

Construction mitigation includes ensuring that emergency vehicles can safely and quickly pass through the construction zone and that any lane/road closures or detours are communicated to the various emergency service providers, school districts and ValleyRide bus services. Efforts will be made to maintain access during construction to business and social service providers. Public involvement efforts will continue through construction to provide the traveling public, nearby property owners, business owners, and emergency service providers information on road and lane closures and construction timeframes. Mitigation measures to reduce potential impacts to environmental justice populations

during construction (such as increased dust, noise, light, and glare impacts) are addressed in their respective sections of this EA.

Mitigation for the impact on the electrical transmission lines includes coordination with Idaho Power to relocate the towers in advance of project construction and reimbursement for the relocation expense. In addition, it will be necessary to coordinate design and construction with other utility owners in the area such as sewer, water, communications, and irrigation districts.

The acquisition of ROW where displacements/relocations would occur will be conducted in accordance with federal and state laws and regulations, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

3.5 Cultural Resources – Archaeological and Historic

Cultural resources include historic districts, sites, buildings, structures and objects, archaeological resources, and Native American cultural items. Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires that federal agencies identify and assess the impacts of federally-assisted undertakings on historic properties, consult with others to find acceptable ways to avoid or mitigate adverse impacts, and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment.

Resources protected under Section 106 of the NHPA are those listed on or are eligible for listing on the National Register of Historic Places (NRHP). Eligible resources generally must be 50 years old, possess integrity of physical characteristics, and meet at least one of the four criteria of significance, including:

- Association with a significant person.
- Association with a significant historic event.
- Architectural significance
- Likelihood to yield information important to history.

Historic and archaeological resources were identified through research and a cultural resource scan-level survey and report and addendums (see Appendix C). The objective of the cultural investigation was to identify cultural resources within the Area of Potential Effect (APE) of the project that were not previously identified during prior investigations, and document and evaluate resources for eligibility to be listed in the NRHP. Furthermore, the objective was to determine potential project impacts to eligible sites and make recommendations to minimize or avoid impacting these resources.

The APE for the Cultural Resources analysis was limited to the footprint of the proposed improvements, along US 20/26 (including the alignment shifts), with north-south extensions at the Star Road, Linder Road, and Eagle Road intersections to account for the CFI layouts.

3.5.1 Affected Environment

3.5.1.1 Archaeological and Historic Resources

A cultural resource investigation was conducted and documented as part of the *Archaeological and Historic Survey Report* (Appendix C). The investigation included research conducted at the Idaho State Historic Preservation Office (SHPO), and other local, state, and federal resources. An intensive survey was conducted on properties within the APE, totaling 378 acres (properties where access was granted) and on properties encompassing 209 acres where surveys were conducted using reconnaissance

methods (non-intensive windshield-type survey) (Bionomics 2009). An addendum was prepared to document historic sites at the US 20/26 and Eagle Road intersection in November 2016. This included intensive field investigation consisting of 15 acres (Bionomics 2016a). The addendum is also included in Appendix C.

A total of 111 potentially historic sites were identified, recorded, and evaluated for eligibility to be listed on the NRHP including all properties within the APE that were constructed in 1970 or earlier. Of the 111 potential sites, 24 sites within the APE were determined to be individually eligible for the NRHP: 9 architectural sites, 1 bridge, 1 railroad, 1 trail, and 12 waterways, (see Figure 8; a, b, and c).

No prehistoric archaeological sites have been recorded in the APE. Much of the Boise Valley has been disturbed by flooding and urban and rural land uses, thus intact sites are generally found at higher elevations where there has been little land disturbance.

The more rural areas surrounding US 20/26 are made up of older turn-of-the-century buildings and farmsteads, which include nine sites (houses, barns, silos, outbuildings, and a school) considered eligible for the NRHP due to historic architecture, setting, and/or association with historic events. The architectural styles of this period that are considered historically important included the Craftsman and Bungalow style, which were popularized through magazines and available in kit form. The architectural features included extensive use of natural materials, low-pitched gable roofs with overhanging eaves, dormer windows and double-hung windows, and exposed rafter ends.

Phyllis Canal Bridge crosses Phyllis Canal on US 20/26 west of Star Road. The bridge was built in 1956 by the Idaho Department of Highways. The bridge is eligible for the NRHP based on its historical importance to agriculture and being an archetypical example of a one-span T-beam bridge.

The Maddens Branch line of the UPRR historically began in Nampa and proceeded northwest through Middleton and on to Emmett where it met with the Idaho Northern and Pacific line from Payette to McCall. The total length of the historic railroad was 26 miles; however, the track only extends to the Boise River south of Middleton now for a distance of 8 miles. The 8-mile section appears to be on its historical alignment, and its materials have not changed, giving the site good historical integrity. The railroad is eligible for the NRHP based on its importance to the broad patterns of history and the transportation, settlement, and economic patterns of southwestern Idaho.

The historic Oregon Trail was used as a travel corridor for emigrants moving west. Heavy use of this trail began in the 1840s. This site has been previously recorded numerous times and was determined eligible for the NRHP under Criterion A for its association with broad patterns of history and settlement of southwest Idaho. No visible remnants of the trail were observed during field investigations, and the segment within the APE is considered a non-contributing segment.

In the mid to late 1800s, it was recognized that irrigation would be vital to farming efforts in the Boise Valley. A system of irrigation canals, drains, and natural streams were developed and interconnected to supply farming and mining efforts with water. Many of these irrigation features are considered historic and eligible for the NRHP. In the project vicinity, the 11 waterways eligible for the NRHP include A Drain, Horton Lateral, Solomon Drain, Bolton Lateral, Noble Drain, Mason Creek, Weymouth Lateral Canal, Fifteen Mile Creek, Caldwell Highline Canal, Phyllis Canal, and North Slough. Zinger Lateral, which is located within the Eagle Road intersection APE, has previously been determined eligible for the NRHP for its importance to broad patterns of irrigation, agriculture, and settlement history of Eagle and Meridian. Within this project's APE, the canal is piped underground and therefore considered a non-contributing segment.

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

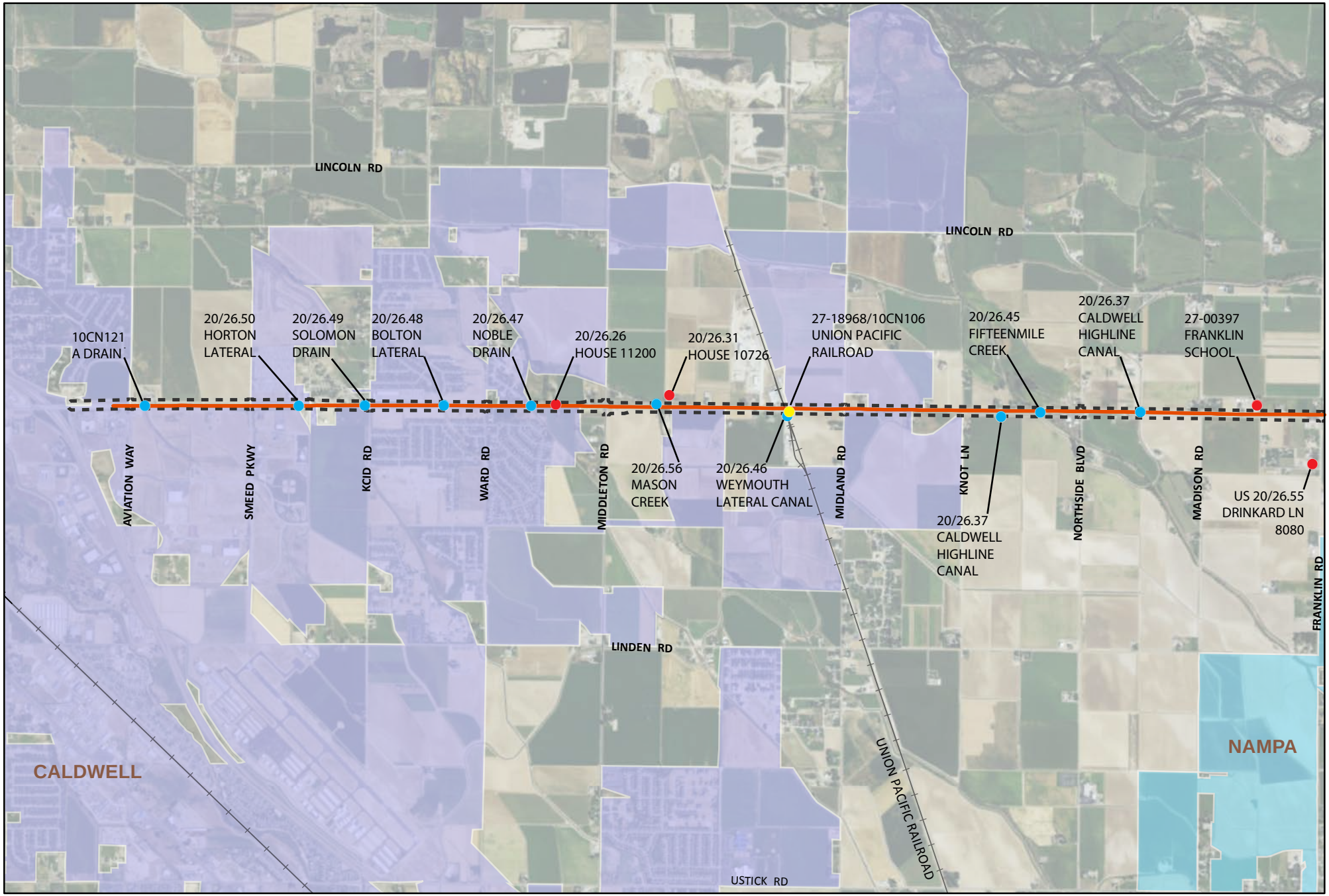
No widening on US 20/26 would occur under the No Action Alternative, thus there would be no construction-related impacts to cultural resources. It is anticipated that given the growth trend, the study area will be largely urbanized by 2040, and impacts to historic properties from such development is possible.

3.5.2.2 Proposed Action Alternative

Construction Impacts

There are no known archaeological resources in the study area, and it is unlikely that any remain undisturbed due to the land disturbance caused by past agricultural activities. Construction activities such as clearing and grading are thus unlikely to cause any impacts to archaeological resources.

During construction, the setting and character at or near historic properties would be temporarily altered due to the presence of construction vehicles and equipment, staging areas, disturbed soils, and increased noise and dust. However, this would only last for the duration of construction.



Parametrix

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Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Cultural Resources
- Waterway
- House or School
- Bridge or Railroad Crossing
- Trail

US 20/26

Railroad

Area of Potential Effect

County

Nampa

Caldwell

FIGURE 8a - WEST
Cultural Resources

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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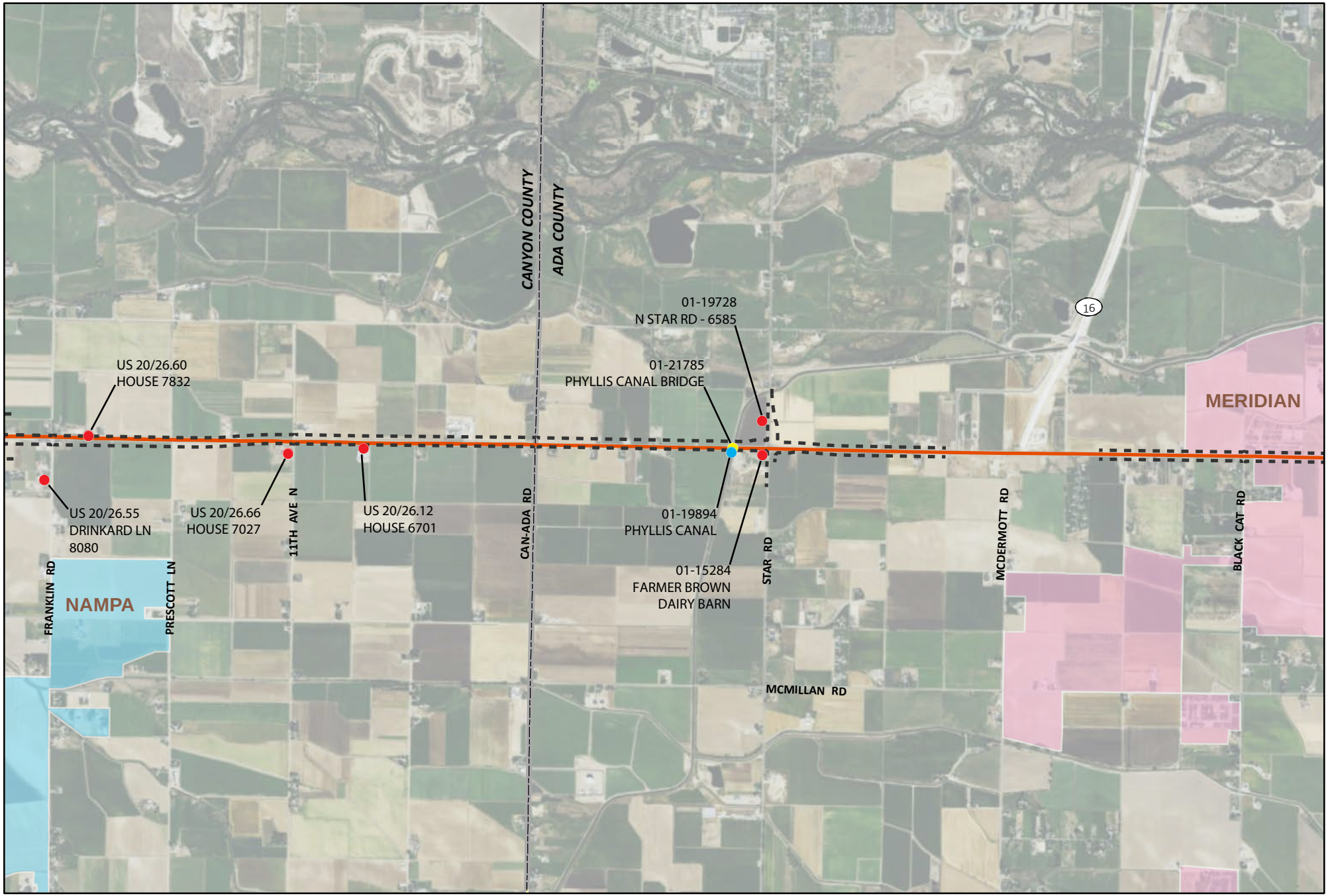

Parametrix

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Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Cultural Resources
- Waterway
- House or School
- Bridge or Railroad Crossing
- Trail

US 20/26

Railroad

Area of Potential Effect

County

Nampa

Meridian

FIGURE 8b - CENTRAL Cultural Resources

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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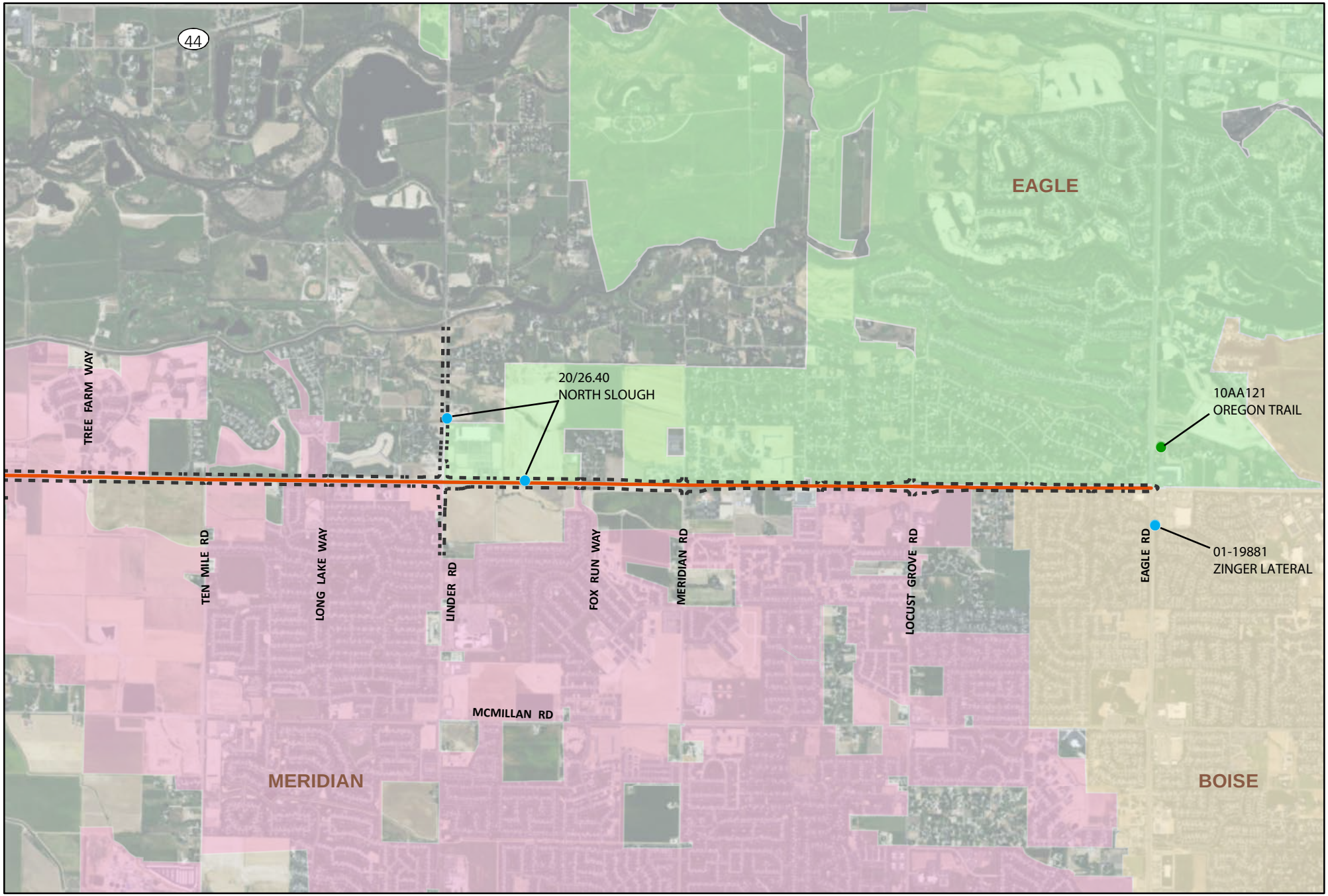

Parametrix

0 0.25 0.5 1 Miles

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Cultural Resources
- Waterway
- House or School
- Bridge or Railroad Crossing
- Trail

US 20/26

Railroad

Area of Potential Effect

County

Boise

Eagle

Meridian

FIGURE 8c - EAST
Cultural Resources

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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Operational Impacts

During conceptual design, alignment shifts, ROW reductions, interchange options, and other methods were considered to avoid and minimize impacts to historic/cultural resources. The APE includes 24 NRHP-eligible resources. The proposed improvements will result in eight no effect determinations and 16 minor use, no adverse effect determinations. Most of the impacts to historic/cultural resources involve minor uses that have no adverse effect, which include partial takes of NRHP eligible property for ROW; or in the case of the NRHP eligible irrigation system, additional canal areas would be crossed by US 20/26. A summary of the findings is shown in Table 15.

Table 15. NRHP-Eligible Resources and Impacts

Site ID	Eligible Site	Historic Feature(s)	Project Effect
10CN121	A Drain	Irrigation drainage system	Minor Use, No Adverse Effect
20/26.50	Horton Lateral	Irrigation canal	Minor Use, No Adverse Effect
20/26.49	Solomon Drain	Irrigation drainage system	Minor Use, No Adverse Effect
20/26.48	Bolton Lateral	Irrigation canal	Minor Use, No Adverse Effect
20/26.47	Noble Drain	Irrigation drainage system	Minor Use, No Adverse Effect
20/26.26	House – 11200	Entire site (house, garage, outhouse)	No Effect
20/26.56	Mason Creek	Irrigation delivery system	Minor Use, No Adverse Effect
20/26.31	House – 10726	Barn	No Effect
20/26.46	Weymouth Lateral Canal	Irrigation canal	Minor Use, No Adverse Effect
10CN106	Union Pacific Railroad	Railroad	Minor Use, No Adverse Effect
20/26.45	Fifteenmile Creek	Irrigation delivery system	Minor Use, No Adverse Effect
20/26.37	Caldwell Highline Canal	Irrigation canal	Minor Use, No Adverse Effect
27-00397	Franklin School	School	No Effect
20/26.55	Drinkard Lane – 8080	Barn	No Effect
20/26.60	House – 7832	House, barn, shed, and garage	Minor Use, No Adverse Effect
20/26.66	House – 7027	Three barns and two silos	Minor Use, No Adverse Effect
20/26.12	House – 6701	Barn	No Effect
01-19894	Phyllis Canal	Irrigation canal	Minor Use, No Adverse Effect
01-21785	Phyllis Canal Bridge	Bridge	Minor Use, No Adverse Effect
01-19728	House – 6585	House, three sheds, and an outbuilding	No Effect
01-15284	Farmer Brown Dairy	Barn, garage, and shed	Minor Use, No Adverse Effect
20/26.40	North Slough	Irrigation delivery system	Minor Use, No Adverse Effect
01-19881	Zinger Lateral	Irrigation delivery system	No Effect
10AA121	Oregon Trail	Historic travel corridor	No Effect

Source: Bionomics, 2016.

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would contribute to the diminished historic setting of the Treasure Valley and a reduction of the integrity of those historic sites in close proximity to US 20/26. The region has experienced an increase in development and subsequent loss of historic properties in recent years. Historic properties will continue to be replaced by modern buildings and historic waterways placed in pipes to accommodate development in the future. Adding the Proposed Action and other road projects to other reasonably foreseeable growth and development would contribute to the continued loss and diminishing integrity of historic sites.

3.5.3 Mitigation Measures

The Proposed Action resulted in an overall project finding of minor use with no adverse effect (see Appendix C – Signed 1502 and supplemental letters from SHPO). In total, the study area contains 24 NRHP-eligible resources and the Proposed Action will result in 16 minor use, no adverse effect determinations. Therefore, no formal mitigation is needed for the project to proceed. However, if any cultural resources are encountered during the course of the project, all ground disturbing activities will cease until a qualified archaeologist is consulted.

3.6 Traffic Noise

This section describes existing noise levels along the road corridor and assesses the potential impacts of the US 20/26 project alternatives on sensitive receivers (such as residences). A traffic noise report was prepared for the project that included measuring existing noise levels throughout the corridor and modeling noise that would be generated by traffic in the year 2040. Additional analysis was conducted to include the Eagle Road improvements and were documented in the Traffic Noise Technical Study Technical Memorandum (Appendix D).

3.6.1 Noise Terminology

Sound is created when an object vibrates and radiates part of its energy as acoustic pressure or waves through a medium such as air, water, or a solid object. Noise is defined as unwanted sound. Sound levels are expressed in units called decibels (dB). The dB scale is logarithmic and provides a convenient system for considering the large differences in audible sound intensities. Since the human ear does not respond equally to all frequencies (or pitches), measured sound levels (in dB at standard frequency bands) are often adjusted or weighted according to the frequency response of human hearing and the human perception of loudness. The weighted sound level is designated as the A-weighted sound level in decibels (dBA). All sound levels in this EA are reported in dBA.

On the dBA scale, a 10 dBA increase represents a perceived doubling of loudness to someone with normal hearing. Therefore, a 70 dBA sound level will sound twice as loud as a 60 dBA sound level. Under ideal listening conditions, people generally cannot detect differences of 1 dBA, while differences of 2 or 3 dBA can usually be detected by people with normal hearing. In the outside environment, and especially near complex noise sources such as roads, sound level changes of 2 or 3 dBA might not be noticeable to most people, while a 5 dBA change would likely be perceived as a clear and noticeable change.

Sound levels caused by line sources (relatively long, variable, or moving sound sources such as traffic) decrease at a rate of 3 dBA when the distance from the road is doubled due to distance attenuation.

Sounds from discrete events or stationary point sources, such as an idling bus, decrease by 6 dBA when the distance from the source is doubled. Typical sound levels of some familiar noise sources are summarized in Table 16.

Table 16. Sound Levels Produced by Common Noise Sources

Thresholds/Noise Sources	Sound Level (dBA)	Subjective Evaluations	Possible Effects on Humans
Human Threshold of Pain Carrier jet takeoff at 50 feet	140	Deafening	Continuous exposure to levels above 70 dBA can cause hearing loss in a majority of the population
Siren at 100 feet Loud rock band	130		
Jet takeoff at 200 feet Auto horn at 3 feet	120		
Chain saw Noisy snowmobile	110		
Lawn mower at 3 feet Noisy motorcycle at 50 feet	100	Very Loud	
Heavy truck at 50 feet, maximum	90		
Pneumatic drill at 50 feet Busy urban street, daytime	80	Loud	
Normal automobile at 50 mph Vacuum cleaner at 3 feet	70		Speech Interference
Air conditioning unit at 20 feet Conversation at 3 feet	60	Moderate	
Quiet residential area Light auto traffic at 100 feet	50		Sleep Interference
Library/quiet home	40	Faint	
Soft whisper at 15 feet	30		
Slight rustling of leaves	20	Very Faint	
Broadcasting Studio	10		
Threshold of Human Hearing	3		

Source: EPA 1974.

Factors affecting the sound transmission and the potential related noise impact include distance from the source, frequency of the sound, absorbency of the ground surface, the presence or absence of barriers and the absorbency or reflectivity of the barrier, and the duration of the sound. Noise transmission can also be affected by wind, temperature, fog, and topography. For example, wind can cause sound waves to bend in the direction that the wind blows. The degree of impact on humans will also depend on existing sound levels, and on who is listening. For example, if existing sound levels are high, introducing a new noise source tends to have less impact than in an environment where background noise levels are low.

Several descriptors are used to express noise levels, which correlate with human perception. FHWA uses the energy equivalent level (L_{eq}) noise exposure descriptor for assessing the impacts of roadway projects. L_{eq} is calculated by averaging the dBA noise levels measured over a specified period of time. FHWA and ITD assess roadway noise levels in terms of a 1-hour L_{eq}, which is the average of instantaneous dBA sound levels measured over a 1-hour period. Use of L_{eq} is appropriate for traffic noise

analyses because these levels are sensitive to both the frequency of occurrence and the duration of transportation noise events.

3.6.2 Noise Criteria

The traffic noise analysis was conducted in accordance with Title 23 of the Code of Federal Regulations Part 772 (23 CFR 772) and ITD's Environmental Process Manual, Section 1300 – Traffic Noise (ITD 2011). The FHWA has established criteria based on varying land uses to specify noise levels considered to be the upper levels of acceptability for outdoor and certain indoor activities. These Noise Abatement Criteria (NAC) are shown in Table 17.

Table 17. FHWA Noise Abatement Criteria

Activity Category	Leq (h) (dBA)	Description of Activity Category
A	57	Land 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	67	Residential
C	67	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52[a]	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	72	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A-D or F.
F	–	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	–	Undeveloped lands that are not permitted.

Source: 23 CFR 772.

[a] Denotes interior noise level.

The ITD Traffic Noise Policy defines traffic noise impacts as occurring under either of the following conditions:

- When the comparison of predicted design year traffic noise levels to the noise "abatement criteria" levels noted in the above table for various land use activity categories are approached or exceeded. This is referred to as an "absolute" impact. Approach means at or within 1 dBA of the NAC, or at or greater than 66 dBA L_{eq} for Activity Category B.
- When the predicted design year traffic noise level substantially exceeds the existing noise level. "Substantial" is defined as 15 dBA or greater.

If an impact (exceedance of NAC) is predicted, FHWA procedures and ITD policy require mitigation be considered. Abatement measures must be both reasonable and feasible to be implemented. According to ITD policy, "feasibility deals primarily with engineering considerations (can a barrier be built given the topography of the location; can a substantial noise reduction be achieved given certain access, drainage,

snow removal, safety, or maintenance requirements; are other noise sources present in the areas, etc.)."

Reasonableness includes, but is not limited to, factors such as amount of noise reduction provided; cost of abatement; views from affected residences; future noise levels; timing and consideration of development along the highway; and location of isolated receivers.

3.6.3 Methodology

Traffic noise levels were evaluated using the Traffic Noise Model (TNM) version 2.5, which predicts hourly L_{eq} volumes for free-flowing traffic conditions. TNM estimates the acoustic intensity at a receiver location resulting from traffic (the source) traveling on a series of straight-line roadway segments. The program considers characteristics of the path of traffic noise transmitted between the source and the noise receiver by including the effects of intervening barriers, topography, trees, and atmospheric absorption. Peak-hour noise volumes were used for existing and 2040 conditions, when noise levels would be the highest. Traffic volumes for the existing, no-build, and build conditions were developed from existing traffic counts, as well as data developed by COMPASS. Also, 165 receivers along the US 20/26 corridor were added to the model for analysis (Axiom Points 2016).

3.6.4 Affected Environment

3.6.4.1 Existing Noise Levels

Existing noise level measurements were taken at nine representative sensitive receiver locations along the corridor between November 1, 2014, and March 5, 2015. One additional reading was taken on October 10, 2016 at the Eagle Road intersection. Three 10-minute readings were obtained at each receiver location. Measured noise levels along the corridor range from 56 to70 dBA.

The field measurements were used to determine the existing traffic noise levels and to validate the accuracy of the TNM, which was used to predict traffic noise levels within the study area. The conditions experienced during the field measurements, including meteorological conditions and traffic counts were added to the TNM. ITD requires that measured and modeled noise levels are within 3 dBA. All ten of the receivers were within the accepted criteria, and therefore, the model was validated.

3.6.5 Environmental Consequences

3.6.5.1 No Action Alternative

In the short term, there would be no construction or project-related traffic as a result of the No Action Alternative. However, over time traffic would increase on US 20/26, which would result in a slight rise in sound levels from traffic. Modeling of the No Action Alternative indicated that sound levels in the year 2040 would range from 53.8 to 72.6 dBA along the corridor. In the 2040 No Build condition, 48 of the 165 receivers would approach or exceed their respective NAC.

3.6.5.2 Proposed Action Alternative

Construction Impacts

Construction of the new roadway will cause localized, short-duration noise impacts. The most prevalent construction noise source is generated by equipment powered by internal combustion engines (usually diesel). Construction noise differs from traffic noise in several ways:

- Construction noise can be minimized during more sensitive hours, whereas traffic noise during operation can occur at any hour.
- Construction activities are generally of a short-term nature, and depending on the nature of construction operations, could last from seconds (e.g., a construction truck passing a receiver) to months. In contrast, traffic noise during operation is typically a permanent impact.
- Construction noise is intermittent and depends on the type of operation, location, and function of the equipment, and the equipment usage cycle, whereas traffic noise during operation is typically present in a more continuous fashion after construction activities are completed.

Table 18 shows noise levels for typical construction equipment at a distance of 50 feet from the noise source. Noise from some construction equipment likely to be used on this project (e.g., tractors, trucks, graders, pile drivers, etc.) is expected to range up to 96 dBA when measured from a distance of 50 feet.

Table 18. Typical Construction Equipment Noise

Types of Activities	Types of Equipment	Range of Noise Levels at 50 Feet
Materials handling	Concrete mixer	75-87
	Concrete pump	81-83
	Crane (moveable)	76-87
	Crane (derrick)	86-88
Stationary equipment	Pump	69-71
	Generator	71-82
	Compressor	74-87
Impact equipment	Pneumatic wrench	83-88
	Rock drill	81-98
Land clearing	Bulldozer	77-96
	Dump truck	82-94
Grading	Scraper	80-93
	Bulldozer	77-96
Paving	Paver	86-88
	Dump truck	82-94

Source: Axiom Points 2016.

Operational Impacts

ITD policy states that traffic noise impacts on sensitive receivers require consideration of noise mitigation when the predicted noise level exceeds the existing noise level by 15 dBA or more, or when the predicted noise level approaches the NAC (66 dBA for residential and 71 dBA for commercial).

Operation of the roadway under the Proposed Action Alternative will generate traffic noise from truck and passenger vehicles. The traffic noise modeling revealed that under the Proposed Action Alternative, sound levels are predicted to increase between 0 to 14.9 dBA depending on the location in the corridor. In general, the receivers that experience the highest increase are those located closest to the roadway. Other features that impact noise levels include terrain, and whether an existing berm is present. With those increases, the project would impact 74 receivers where the NAC is exceeded. Figure 9; a, b, and c show each of the 165 receivers used in the analysis and whether they are anticipated to be impacted or relocated. Traffic noise levels for the Proposed Action assumed that existing berms would be retained and/or replaced to the extent practical utilizing landscaping and/or retaining walls to minimize impacts to private property. Of the 74 impacted receivers, 48 of the locations would also be impacted if the project were not constructed (No Action Alternative).

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would increase ambient noise levels. The recent trend in redevelopment of the corridor from agriculture to urban uses will continue and this will result in more vehicles and noise generating activities. The noise modeling included traffic data to 2040 based on the regional travel demand model, which includes other planned projects in the vicinity of US 20/26, as well as future population and development projections effecting traffic volumes. These volumes effectively captured the anticipated increase in population growth and resulting traffic noise. Thus, the noise results presented above includes the cumulative effects of this growth on traffic noise.

3.6.6 Mitigation Measures

Short-term construction noise impacts would be addressed through standard noise control methods including early and ongoing communication with the general public, sequencing construction operations to minimize potential construction noise impacts, utilizing alternative construction methods as appropriate, turning off idling construction equipment when not in use, utilizing mufflers and keeping good maintenance on all construction equipment, and minimizing nighttime work.

To minimize noise impacts during construction activities, low-cost, easy-to implement measures would be incorporated into the project plans and specifications, such as:

- All exhaust systems on equipment would be in good working order.
- Properly designed engine enclosures and intake silencers would be used where appropriate.
- Equipment would be maintained on a regular basis.
- New equipment would be subject to new product noise emission standards.
- Stationary equipment would be located as far away from sensitive receivers as practical.
- Construction equipment would be turned off during prolonged periods of non-use.
- A public information program would be developed to address responsive compliance for construction noise.
- Construction noise would be mostly limited to daylight hours unless otherwise approved. Nighttime work could be required, but it would require prior approval from ITD and in compliance with local noise jurisdictional authorities. Nighttime work would likely consist of preparatory and finishing types of work such as forming, placement/curing of materials (e.g.,

concrete), and paving. The same typical equipment for normal construction would be used for nighttime work, such as haulers, back/track hoes, cranes, and service trucks.

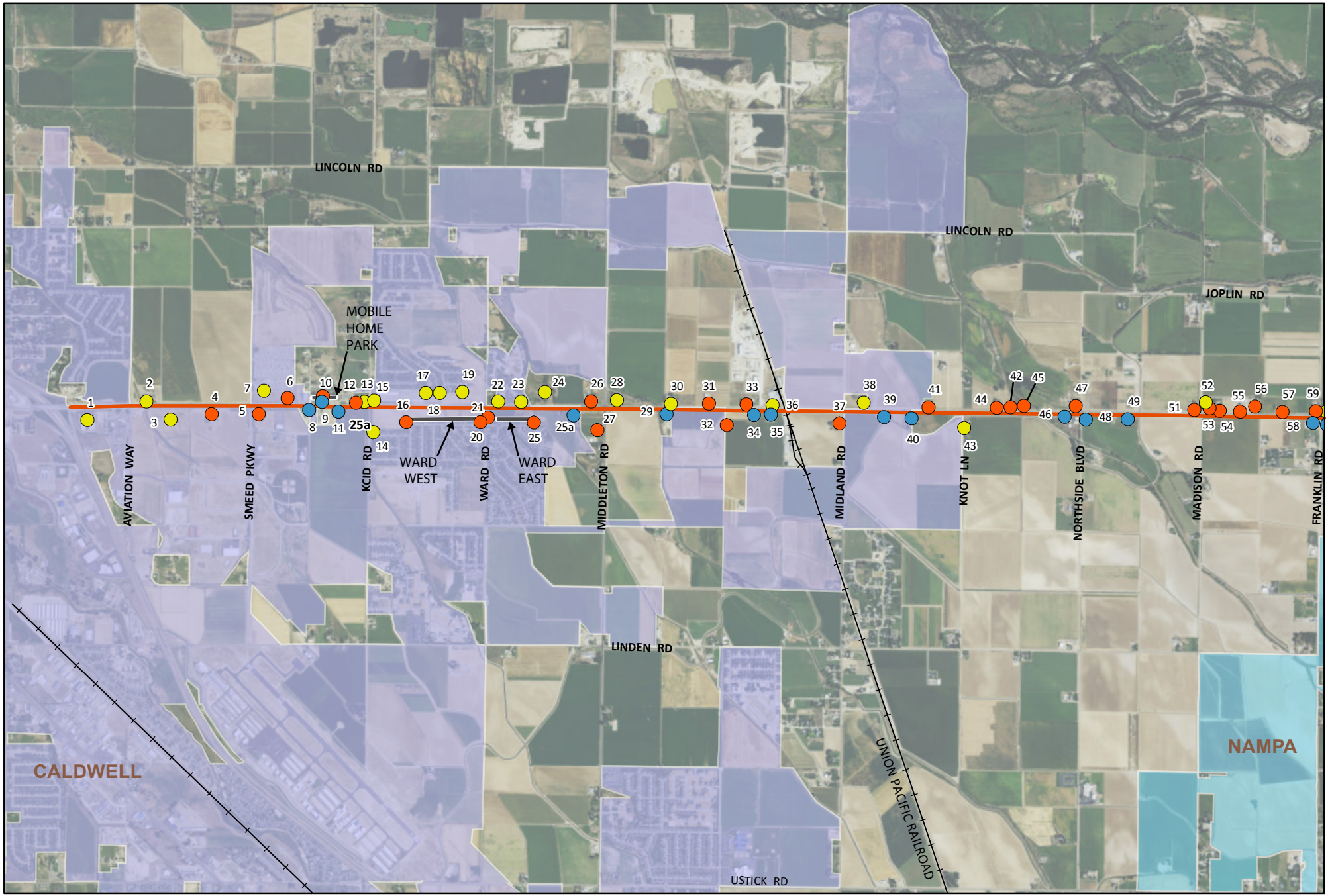
The traffic noise analysis indicated that the noise levels for the 2040 Proposed Action will increase relative to existing noise levels. Areas of higher density single-family residential development that would experience the noise level increases are concentrated primarily on the east side of the US 20/26 corridor between Locust Grove Road and Eagle Road. These areas, as well as all other impacted noise receiver locations, were evaluated for operational noise mitigation such as noise walls.

It is important to note that noise walls are designed to reduce traffic noise levels to a tolerable level, but cannot completely eliminate traffic noise. Noise barriers along a highway are only effective for homes within approximately 300 feet of the highway. Beyond that, noise barriers are less effective, but the natural decrease in traffic noise with distance usually reduces noise levels. Therefore, even with noise barriers, residents within 500 to 1,000 feet of US 20/26 will likely be able to hear traffic noise. If there are any substantial changes in the horizontal or vertical alignment of the corridor as final design progresses, they will require additional noise impact analysis and mitigation evaluation.

Mitigation barriers were determined to be not reasonable and/or feasible for commercial properties and isolated residential receivers because the barriers are ineffective for single properties or where the noise wall must be breached frequently for access.

ITD uses a noise abatement checklist to determine if a noise barrier is feasible, reasonable, and desirable and therefore warranted. Feasibility is assessed on several factors yielding a yes or no answer including: (1) whether or not the barrier can reduce sound levels by at least 5 dBA; (2) does the barrier conform to project standards regarding traffic safety, drainage, and maintenance concerns; (3) can a barrier be constructed considering the existing site characteristics and topography without reconfiguring the site or neighborhood; and (4) is traffic noise the dominant noise source in the study area and will a noise barrier be effective in spite of any other source not associated with the project.

Barrier reasonability is assessed on when the development took place, the existing and projected noise levels with and without a noise barrier, and the cost per resident that would benefit from a noise barrier. In addition, consideration is given to any attempts at the local level to prevent incompatible development adjacent to a highway. The final criterion is whether or not a majority of the impacted residents desire a noise barrier. For purposes of the concept design, it was assumed that property owners would support a barrier and, if reasonable and feasible, barriers were included in the concept design layouts. During design of a roadway project, ITD will work with residents to determine whether they desire the barrier to be designed and constructed with the project.



Parametrix
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0 0.25 0.5 1 Miles

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Noise Receivers
- No Impact
- Impact
- Relocation
- Noise Barrier Considered
- Proposed US 20/26 Centerline
- Railroad
- County
- Nampa
- Caldwell

FIGURE 9a - WEST
Noise Receiver Locations

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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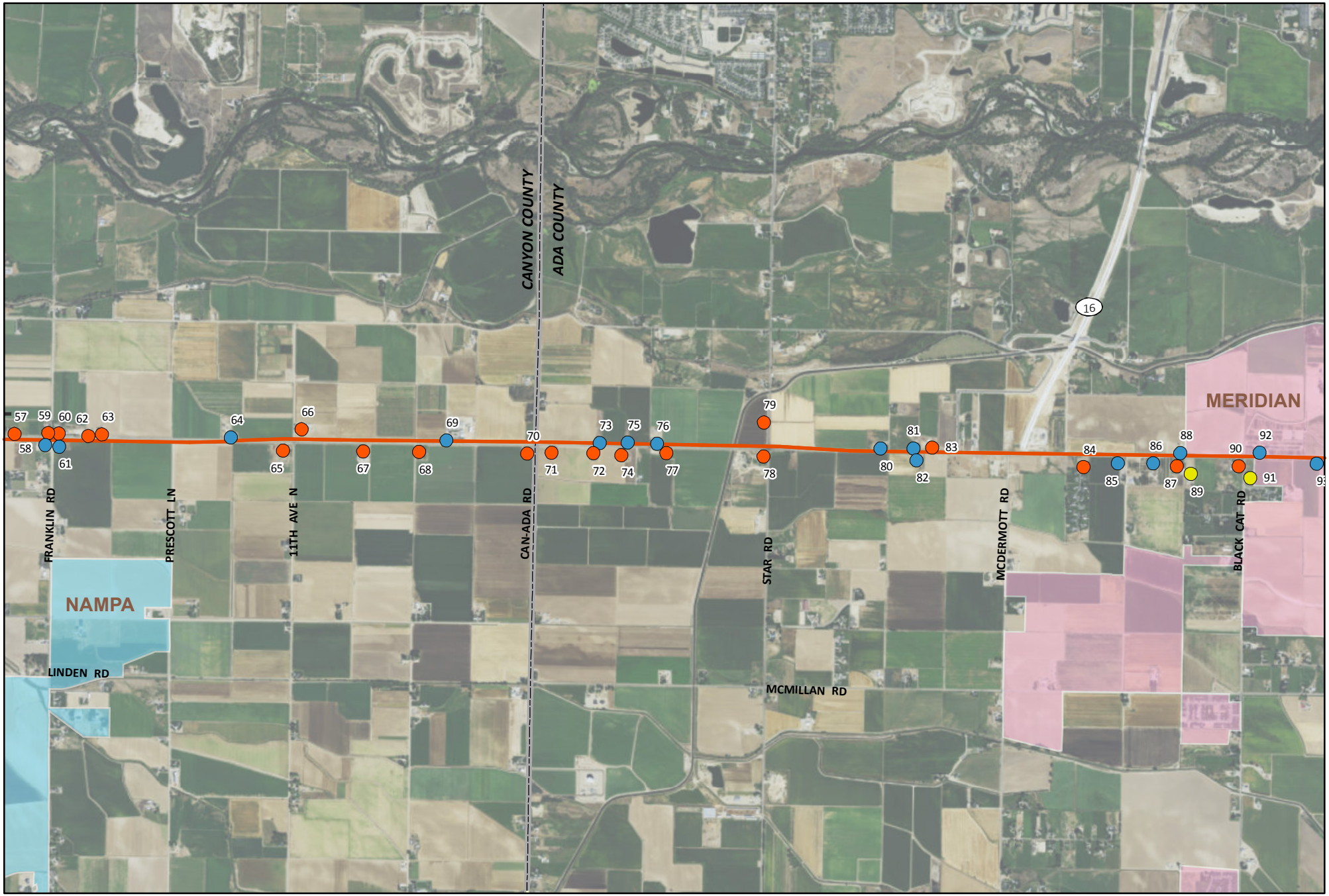

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Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Noise Receivers
- No Impact
- Impact
- Relocation
- Noise Barrier Considered
- Proposed US 20/26 Centerline
- Railroad
- County
- Nampa
- Meridian

FIGURE 9b - CENTRAL
Noise Receiver Locations

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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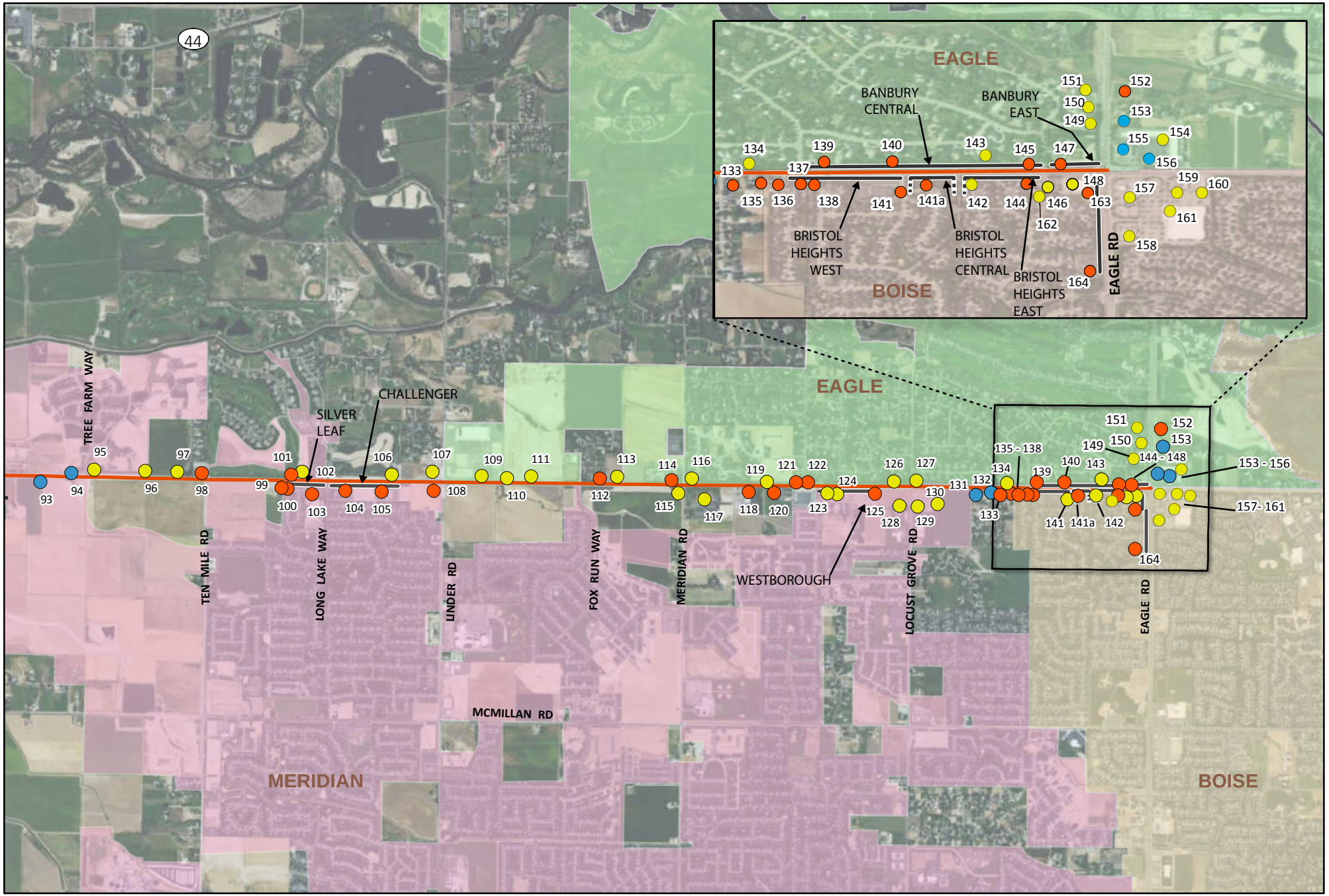

Parametrix

0 0.25 0.5 1 Miles

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Noise Receivers

- No Impact
- Impact
- Relocation
- Noise Barrier Considered
- Existing Berm / Wall
- Proposed US 20/26 Centerline
- Railroad
- County
- Boise
- Eagle
- Meridian

FIGURE 9c - EAST
Noise Receiver Locations

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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Twelve noise barriers were evaluated, and seven were found to be feasible and reasonable (see Table 19). At this time, ITD expects to install noise abatement measures in the form of noise barrier walls at seven of the twelve locations where the barriers were found to be feasible and reasonable based on completed studies. Installing noise barriers at these twelve locations will provide mitigation for thirteen of the sensitive receivers shown as impacted on Figure 9. These preliminary indications of likely abatement measures are based upon planning-level costs and modeled noise reduction for each barrier. The location of the seven feasible and reasonable noise barriers are shown on Sheets 1, 7, 8, and 11 of the Proposed Action Strip Maps in Appendix A.

Traffic noise abatement will be re-evaluated during the final design phase of each project to reflect conditions at those times. A final decision of the installation of the abatement measure(s) will be made upon completion of the project design and its related public involvement process.

Table 19. Summary of Noise Barriers Evaluated

Barrier ID	Location/Neighborhood	Feasible?	Reasonable? (Why Not?)
1	Jan N Mobile Home Park	Yes	Yes
2	Ward West	Yes	No (Cost)
3	Ward East	Yes	No (Cost)
4	Silverleaf	Yes	Yes
5	Challenger School	Yes	No (Cost)
6	Westborough	Yes	Yes
7	Bristol Heights West	Yes	Yes
8	Bristol Heights Central	Yes	Yes
9	Bristol Heights East	Yes	Yes
10	Banbury Central	Yes	No (Cost)
11	Banbury East	Yes	No (Cost)
12	Bristol Heights Eagle Road	Yes	Yes

Source: Axiom Points 2016.

The following describes the characteristics of the seven feasible and reasonable walls. However, barrier design will be completed during future roadway design phases, which could change the barrier placement, length, and height.

- Jan N Mobile Home Park: In the noise model, the noise barrier was placed north of the 200-foot ROW with the assumption that the frontage business would be acquired for ROW. The noise barrier was modeled to be 410 feet long and 12 feet tall.
- Silverleaf: In the noise model, the barrier was placed south of US 20/26. It is anticipated the wall could be constructed and maintained through easements and/or from ITD ROW. The noise barrier was modeled to be 944 feet long and 12 feet tall.
- Westborough: In the noise model, the barrier was placed south of US 20/26. It is anticipated the wall could be constructed and maintained through easements and/or from ITD ROW. The noise barrier was modeled to be 1200 feet long and 14 feet tall.

- Bristol Heights West: In the noise model, the barrier was placed south of US 20/26. It is anticipated the wall could be constructed and maintained through easements and/or from ITD ROW. The noise barrier was modeled to be 944 feet long and 8 to 10 feet tall.
- Bristol Heights Central: In the noise model, the barrier was placed south of US 20/26. It is anticipated the wall could be constructed and maintained through easements and/or from ITD ROW. The noise barrier was modeled to include 387 feet of new wall along US 20/26 that is 8 to 10 feet tall.
- Bristol Heights East: In the noise model, the barrier was placed south of US 20/26. It is anticipated the wall could be constructed and maintained through easements and/or from ITD ROW. The noise barrier was modeled to include 577 feet of new wall along US 20/26 that is 8 to 12 feet tall.
- Bristol Heights Eagle Road: In the noise model, the barrier was placed on the west side of Eagle Road between the Staples exit driveway and the next commercial access driveway to the south. To maintain the existing pathway access between the Bristol Heights neighborhood and Eagle Road, the barrier is separated into two overlapping segments. The overlap is approximately 6 feet to the north and south with the pathway re-routed through the break. The noise barrier was modeled to include a total of 601 feet of new wall along Eagle Road that is 9 feet tall.

Future development along the corridor should consider the effects of traffic noise on residential units located close to US 20/26 and employ methods such as increased setbacks and/or developer-funded berms or noise walls to limit noise exposure. Following approval of this environmental document, FWHA and ITD are no longer responsible for providing traffic noise abatement for new development adjacent to the highway that is not already permitted.

3.7 Air Quality

This section describes the existing air quality and evaluates the potential impacts of the US 20/26 project alternatives on air quality. An Air Quality Analysis was conducted for the project and is included as Appendix E, along with an addendum to the analysis to include the Eagle Road intersection.

3.7.1 Affected Environment

3.7.1.1 Introduction to Air Quality Terminology and Methodology

The project is located in Canyon and Ada Counties, which are the two most heavily urbanized counties in the state, and air emissions are concentrated in this part of the greater Boise area. Ada County has a history of violating the National Ambient Air Quality Standards (NAAQS) established by the EPA for carbon monoxide (CO) and coarse particulate matter (PM_{10}). Past violations led Northern Ada County to be designated as a non-attainment area for both pollutants. Currently, the County is in attainment of the NAAQS for these pollutants and is no longer considered a non-attainment area. Instead, Northern Ada County is classified as a "limited maintenance area" for CO and "maintenance area" for PM_{10}. For all other pollutants, Ada County is considered an attainment area, and do not require project or regional level analyses.

Carbon Monoxide

The Code of Federal Regulations (40CFR93.123(a)) identifies the requirements for project-level CO analysis. Non-exempt transportation projects that are located in non-attainment or maintenance areas

where violations of the CO NAAQS are possible (as identified by the State Implementation Plan (SIP) or maintenance plan) are required to quantify the impacts of the project. Likewise, projects that affect intersections operating, or forecasted to operate, at LOS D or worse in a non-attainment or maintenance area are also required to quantify the impacts of the project. The widening of US 20/26 does not meet the criteria for an exempt project as given by 40CFR93.126, and a portion of the project is located in an area where past violations of the CO NAAQS have occurred. The project also involves several intersections forecasted to operate at LOS D or worse by 2040.

An analysis methodology for the project was developed in consultation with the applicable resource agencies per IDAPA 58.01.01.563 including COMPASS, ITD, IDEQ, and FHWA's Idaho Office. MOVES and CAL3QHC were selected as the models for generating emissions factors and conducting the dispersion modeling, respectively. MOVES was selected for the analysis because it will provide results that are consistent with current regional conformity demonstrations. CAL3QHC was selected for dispersion modeling because the project only requires quantitative analysis of CO impacts.

Particulate Matter (PM_{10})

Per 40CFR93.123(b)(1), only projects of the following five types warrant analysis (qualitative or otherwise) as these types of projects have been determined by EPA to have the most impact on ambient concentrations of PM_{10} and/or $PM_{2.5}$:

- New or expanded highway projects that have a significant number or significant increase (greater than 10,000 trucks/day) in the number of diesel vehicles.
- Projects affecting intersections that will operate at LOS D or worse due to a significant number of diesel vehicles or significant increase in diesel vehicle traffic.
- New transit (bus and rail) terminals and transfer points that have a significant number of diesel vehicles.
- Expanded transit (bus and rail) terminals and transfer points that significantly increase the number of diesel vehicles.
- Projects near locations identified in the SIP and/or maintenance plan as having the potential to violate the NAAQS for PM_{10} and/or $PM_{2.5}$.

Given these criteria, the widening of US 20/26 does not require an analysis of particulate matter impacts.

Mobile Source Air Toxic Emissions (MSAT)

EPA has yet to list a preferred/recommended dispersion model for project-level MSAT analyses, although MOVES is capable of estimating emissions factors for some toxic air pollutants. In December 2012, FHWA updated their interim guidance on the analysis of MSAT pollutants and developed a tiered approach for addressing MSAT impacts for NEPA purposes. FHWA guidance places projects into one of three MSAT categories (or tiers):

1. Exempt projects with no meaningful effects. These are projects listed in 23CFR771.117I, 40CFR93.126, or ones with no meaningful impact on future traffic volumes/vehicle mix.
2. Projects with low potential for effects. These are projects that improve operations without substantial new capacity or meaningfully increasing MSAT emissions. The annual average daily traffic volume (AADT) of the design year of a project should be below the 140,000 to 150,000 range to be considered as having a low potential.
3. Projects with high potential for effects. These are projects which create or alter major intermodal freight facilities or create/add substantially more capacity to an urban transportation

system located in proximity to populated areas. The AADT of the design year of a project should be in excess of 150,000 to be considered in this category.

The US 20/26 project falls into the second category; therefore, MSAT emissions do not require further analysis.

Green House Gas Emissions (GHG)

On August 2, 2016, the Council on Environmental Quality published a final version of its guidance to federal agencies, including FHWA, requiring the consideration of GHG emissions and effects on climate change when evaluating potential impacts of a federal action in NEPA reviews. The guidance recommends that agencies exercise judgment when considering the application of this guidance to an on-going NEPA process. The final version of this guidance was published after the air quality analysis and report was approved by FHWA, and therefore a full analysis of GHG emissions and effects on climate change is not practicable. However, qualitative discussion is provided on GHG emissions.

3.7.1.2 Existing Air Quality

When the initial project-level air quality analysis was completed for the corridor study, the intersection at Linder Road and US 20/26 had the largest traffic volumes along the corridor (AECOM 2016a). Therefore, this intersection was used for the air quality analysis and represented the "worst-case" intersection within the corridor. When the study was extended east to include the Eagle Road intersection, it was recognized that this intersection had a higher existing year traffic volumes than the Linder Road intersection so an addendum to the original analysis was prepared to address the addition of the Eagle Road intersection (AECOM 2016b). Both documents are included in Appendix E.

Carbon Monoxide (CO)

In the existing PM peak hour condition, the highest 1-hour predicted concentration of CO at the Linder Road and US 20/26 intersection was 3.20 parts per million (ppm). This is well below the 1-hour NAAQS for CO of 35.0 ppm. The modeled 1-hour CO concentrations were converted to 8-hour concentrations. In the existing condition, the Linder Road and US 20/26 intersection is producing 8-hour ambient CO concentrations of 1.92 ppm, well below the 8-hour CO standard of 9.0 ppm. Although the existing traffic at the Eagle Road intersection is higher than at the Linder Road intersection, it is estimated that the CO concentration levels would be no more than double those found at the Linder Road intersection, and therefore will be well within the NAAQS.

PM_{10}

US 20/26 does not produce a significant amount of PM_{10} because the majority of PM_{10} produced from transportation sources comes from road dust. Road dust is considered an area (or regional) source of pollution by IDEQ as it is too dispersed to quantify at a specific spot or location. Therefore, road dust emissions are addressed by COMPASS' regional conformity analyses.

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

Under the No Action Alternative, traffic volumes at US 20/26 and Linder Road are forecasted to increase by 25 percent by the year 2040. Under this scenario, the US 20/26 and Eagle Road intersection would have approximately 5 percent higher volumes than US 20/26 and Linder Road intersection. The footprint of US 20/26 and all intersections (including Linder Road) are unchanged from the existing condition.

CO Impacts

The highest one-hour predicted concentration of CO at the Linder Road and US 20/26 intersection in the 2040 PM peak hour was 3.30 ppm. This is well below the 1-hour NAAQS for CO of 35.0 ppm. The forecasted 8-hour CO concentration is 1.98 ppm, also below the NAAQS of 9.0 ppm. In general, ambient CO is slightly higher in 2040 given increases in traffic volumes. Delay at the intersection is also anticipated to increase which results in more fuel consumed, and increased CO emissions. The increase, however, is partially offset due to the vehicle fleet assumed for 2040, having cleaner and more fuel efficient engines than those present today. Since the No Action traffic volumes at the Eagle Road intersection are very similar to the Linder Road intersection and both intersections would operate at a LOS F, the potential maximum CO impacts at the Eagle Road intersection are expected to be similar to those at the Linder Road intersection and will be well within the NAAQS.

PM_{10} Impacts

A project level No Action analysis for PM_{10} is not required for the US 20/26 corridor project as there will be no increase to the proportion of diesel powered vehicles. Emissions resulting from on-road mobile sources (including road dust) in 2040 were qualitatively estimated to be well below the established threshold for 60.1 tons per day.

MSAT Impacts

The No Action alternatives meets the definition of a “project with low potential MSAT effects” because it will not result in any meaningful changes in traffic volumes, vehicle mix, or cause a significant increase in MSAT emissions/concentrations.

GHG Impacts

Increases in GHG emissions due to increases in traffic volume between now and 2040 will be more than offset by federally-required improvements in fuel efficiency and fuel formulation. As fuel economy standards for vehicles sold in the U.S. become more conservative, less fuel will be consumed. Thus GHG reductions will be realized as newer vehicles replace older ones.

3.7.2.2 Proposed Action Alternative

Construction Impacts

Construction of the build option for the US 20/26 corridor will be broken into separate phases over a period of several years. During each phase, ITD intends to maintain one lane of traffic in each direction of travel on US 20/26 during peak periods.

Construction activities are likely to temporarily emit several air pollutants. PM_{10} emissions are associated with dust created from demolition, land clearing, ground excavation, cut-and-fill operations, and road construction. The amount of PM_{10} emitted from the site will be minimized using Best Management Practices (BMPs) for construction. BMPs will comply with IDEQ’s regulations for controlling fugitive dust during construction.

All other pollutants ($PM_{2.5}$, CO, SO_x, NO_x, MSAT, and GHG) are generated from heavy duty diesel engines used by construction equipment and vehicles. Trucks and construction equipment emissions powered by heavy duty diesel engines will be temporary and concentrated around the construction site.

Operational Impacts

Under the Proposed Action Alternative, peak-hour traffic volumes are expected to increase dramatically. Specifically at the Linder Road and US 20/26 intersection, PM peak-hour volumes are forecasted to increase 200 percent by 2040 compared to existing volumes and would be higher than the Eagle Road Intersection volumes. The modeled roadway footprint included six travel lanes along US 20/26 and a CFI at the intersection.

CO Impacts

The highest one-hour predicted concentration of CO at the Linder Road and US 20/26 intersection in the 2040 PM peak hour was 3.60 ppm. This is well below the 1-hour NAAQS for CO of 35.0 ppm. The forecasted 8-hour CO concentration is 2.16 ppm, also below the NAAQS of 9.0 ppm. Since the traffic volumes are higher at the Linder Road intersection than at the Eagle Road intersection and both intersections operate at a LOS D, the Linder Road intersection results represent the worst-case intersection within the corridor for the Proposed Action Alternative.

Ambient concentrations of CO in the 2040 Proposed Action Alternative are slightly higher than the No Action Alternative. This is likely a result of higher traffic volumes given a six-lane roadway and higher free flow speeds (i.e., less congestion) resulting from the CFI design. Increased speeds and more vehicles along the corridor result in more fuel being consumed, which results in an increase in CO emissions.

PM_{10} Impacts

The Proposed Action does not meet any of the criteria needed to be considered a "project of air quality concern" for particulate matter as it does not have a significant effect on the proportion of diesel vehicles using the highway; does not expand bus, rail, or freight terminals; nor are any PM_{10} "hot-spots" identified in Ada County's maintenance plan. Therefore, project-level conformity determination requirements of 40 CFR 93.166 have been satisfied and no qualitative particulate matter hot-spot analysis is necessary.

MSAT Impacts

The Proposed Action meets the definition of a "project with low potential MSAT effects" because it will not result in a change in traffic volumes over 150,000 AADT, nor will it result in a significant change to the vehicle mix in the corridor, nor will it cause a significant increase in MSAT emissions/concentrations.

GHG Impacts

Rules controlling ambient concentrations of GHG pollutants generated by transportation projects do not exist. Therefore, neither EPA nor IDEQ enforces any ambient GHG standards and transportation conformity does not apply. It is difficult, at best, to determine the impacts the project will have on GHG emissions. However, an improved 15-mile corridor will result in reduced congestion and improved travel times throughout the region. This will, in turn, lower rates of fuel consumption. Because less fuel will be consumed, a reduction in daily GHG emissions is assumed.

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would reduce congestion and delay. A reduction in delay would result in a reduction in air emissions, in particular given the requirements to make vehicles more fuel efficient over the next couple of decades. Thus, there would be a positive cumulative effect on air quality.

In addition, regional emissions analyses were conducted that included funded transportation projects, which take into consideration projected development within the region. Both CIM 2040 and the FY

2016–2020 Regional Transportation Improvement Program passed the required budget tests for PM_{10}, NO_x, and volatile organic compounds. Both analyses also concluded less CO was emitted in their respective 2040 build scenarios.

3.7.3 Mitigation Measures

The Air Quality analysis conducted indicated project-level conformity was met and therefore long-term mitigation is not required. However, IDEQ will require the control of fugitive dust during construction. Fugitive dust emissions associated with construction will be mitigated by implementing applicable BMPs. These include:

- Spraying disturbed ground with water as necessary.
- Wetting materials hauled in trucks, providing adequate freeboard (space from the top of the material to the top of the truck), or covering loads to reduce emission during material transportation/handling.
- Providing wheel washers at site accesses to prevent track-out of materials onto paved roadways.
- Removing tracked-out materials deposited onto adjacent roadways.
- Wetting or covering material stockpiles to prevent wind-blown emissions.
- Stabilizing disturbed areas as soon as possible to reduce wind-blown dust.

Mitigation for pollutants other than fugitive dust is not required by IDEQ. However, the increased temporary emissions associated with construction are mitigated by:

- Routing and scheduling construction site traffic to reduce congestion and delay.
- Minimizing the number and duration of lane closures during construction.
- Requiring appropriate emission-control devices on all construction equipment.
- Requiring the use of cleaner burning fuels.
- Using only properly operating, well-maintained construction equipment.

3.8 Visual Quality

This section describes the visual quality along the US 20/26 corridor. Visual quality includes important views, landscapes, and landmarks that are character-defining aspects of the study area, as well as views of the road and from the road.

3.8.1 Affected Environment

The study area is located just south of the Boise River in the broad, level Snake River Plain. Small creeks and canals that cross or are parallel to US 20/26 are visible from the roadway. In some places along US 20/26, the path of the Boise River can be detected by the continuous canopy of tall black cottonwoods lining the riverbanks. The Owyhee Mountains to the southwest and the foothills of the Boise Mountains to the east frame the plain and provide topographic and visual relief.

The visual character of the surrounding area of the project is primarily agrarian, with suburban development at the east terminus and a major transportation corridor (I-84) at the west terminus. The

study area is level and flat, without any dominant land forms or built structures. Most of the buildings are small scale in that the buildings are one to three stories tall and of small (residential) to medium (commercial/industrial) footprints. While the scale throughout the corridor is generally uniform, the structures exhibit a high diversity of uses, materials, forms, and detailing because of the wide variety of land and building uses such as residences, tack-and-feed shops, golf courses, equipment and gas services, distribution centers, cultural activity centers, and historic structures.

Vegetation is predominantly low-growing agricultural crops and sod, with bands of grasses and low-growing shrubs lining the drainage canals. Other than the Boise River riparian forest, trees tend to be in small groves or solitary specimens near homes or wet depressions. Native trees and shrubs follow the larger streams and gulches, but the only mature, large trees are those that are associated with farmsteads or community buildings. The study area has high visual continuity because of this openness and uniformity of vegetation. In contrast, the newer subdivision developments, particularly toward the east end of the corridor, have very young trees along streets and in landscaped perimeters. Because the houses are close to each other, the long views and openness of the agricultural portion of the study area are lost. No one structure or other feature dominates the suburban landscape.

The area between Middleton and Ten Mile Roads is defined by the agricultural uses of the surroundings; in particular, by the general quality of visual expansiveness and the rectangular form of agricultural fields, drainage canals, roads, and fences that together create a north-south/east-west grid. The regularity of the grid is occasionally broken by a creek channel that runs diagonally between straight drainage canals that follow the grid formed by property lines and roadways.

Because the flatness of the terrain and the sparseness of vegetation do not substantially block or frame views, the views extend unobstructed to the horizon: the Owyhee Mountains to the south and the foothills of the Boise Mountains to the north. No noteworthy viewpoints or vistas offering dramatic or scenic views were identified along the corridor; however, the proximity of the Boise Mountain foothills is scenic from many different locations. While there is an overall character of openness and expansiveness, the only non-agricultural open space directly adjacent to the roadway is the Spurwing Golf Course.

Transportation uses include a UPRR railroad spur, which cuts across US 20/26 west of Midland Road, SH-16, which extends north of US 20/26, and many rural cross streets and driveways. Overhead traffic signals exist predominantly in the eastern part of the corridor between Ten Mile Road and Eagle Road. The US 20/26 roadway is lined continuously with overhead power and telephone lines, with a series of very tall (estimated height 150 feet) metal towers carrying electrical power transmission lines between Can-Ada Road and the UPRR railroad spur (approximately 4.5 miles) within the study area.

Viewers along the corridor are primarily motorists, who are likely focused on driving, but could possibly be distracted by elements such as overhead lines, driveways, and signs. Given the high traffic volumes on the central portion of the highway, the high posted speeds (50 mph and 55 mph), and the continuous lines of power and telephone poles and overhead cables, the overall sensitivity of motorists is likely to be low to moderate. Viewers who are stationary (residents), slow moving (pedestrians or cyclists), or who are passengers in vehicles will have greater visual sensitivity than vehicle drivers. For the stationary or slow-moving viewers, sensitivity to the spacious qualities of the agrarian landscape and the mountains enclosing the valley will be moderate to moderately high because these viewers have time to observe the surroundings. This is especially true in the central segment where there are fewer obstructions to distant views.

3.8.1.1 Landscape Units

There are three landscape units within the corridor, as shown in Table 20 and Figure 10. The visual attributes and resources that helped define the units are:

- Existing development, building scale and massing, building/open space texture, land use patterns, and neighborhoods.
- Topography, vegetation, and water patterns.
- Street grid, development texture, and open-space patterns.
- Parks, trails, and other recreation areas.
- Areas of special visual or aesthetic character.
- Individual buildings, landmarks, or clusters of development that are important in defining the visual character of an area.

Table 20. Visual Resources by Landscape Unit

Landscape Unit	Visual Character	Visual Resources
Caldwell Mixed Uses	Variety of structures and uses; highway interchange	Distant views of Owyhee and Boise Mountains
Agrarian-Rural	Agricultural with dispersed agriculture-related structures and businesses	Distant views of Owyhee and Boise Mountains; agricultural landscape
Chinden Suburban	Suburban residential and shopping areas	Distant views of the foothills of the Boise Mountains

Visual quality is evaluated and discussed using these terms:

- **Unity** is the degree of visual coherence and compositional harmony of the landscape considered as a whole.
  - *Low* unity indicates that the man-made features of a landscape were placed and built without sensitivity to the natural setting.
  - *Moderate* unity indicates that man-made features are somewhat responsive to the natural setting.
  - *High* unity indicates that the natural and built components of a landscape are in balance and harmony with each other. High unity frequently attests to the careful design of individual components and the relationship of the components to the landscape.
- **Vividness** is the degree of drama, memorability, or distinctiveness of the landscape components.
  - *Low* vividness indicates a landscape that is mundane or non-descript.
  - *Moderate* vividness indicates the presence of some features that have striking and attractive attributes such as textures, colors, shapes, or sizes.
  - *High* vividness indicates the presence of a dominant feature or a collection of features that are distinctive and very memorable.

- **Intactness** is a measure of the visual integrity of the natural and/or human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings.
  - *Low* intactness indicates that the integrity of the landscape is greatly reduced either by the removal of large portions of the landscape or the prevalence of inharmonious structures. This can be due to conflicting scales, colors, or purposes, among others.
  - *Moderate* intactness indicates the presence of some features that are not compatible with the existing landscape, or a loss of part of the landscape.
  - *High* intactness indicates that the landscape is still basically in one piece because it is not broken up from features that are out of place. An unbroken expanse of native prairie vegetation would have high intactness.

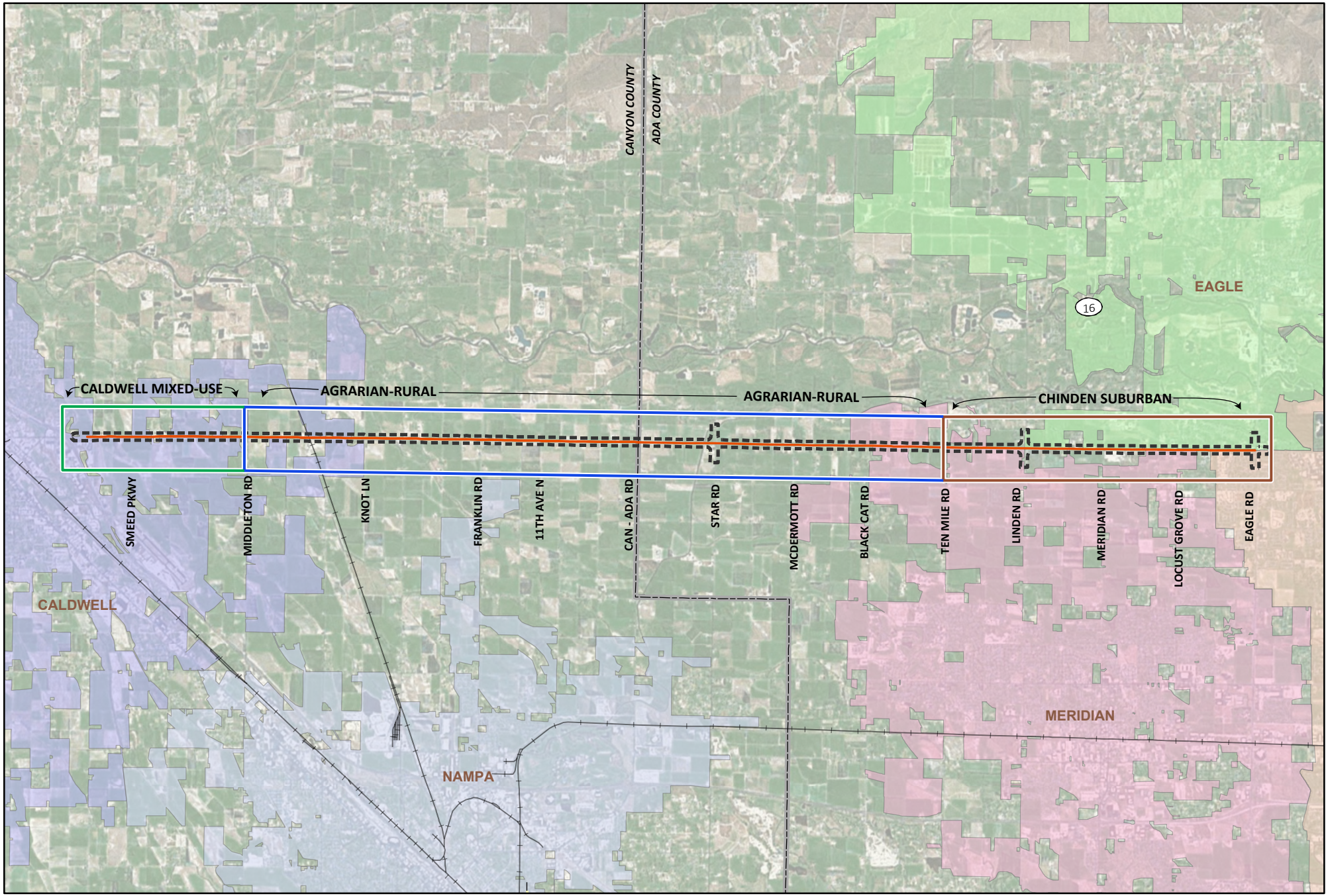
The visual qualities of the three landscape units are noticeably different from each and can be summarized as:

- Caldwell Mixed Uses:
  - Unity – Moderate.
  - Vividness – Low.
  - Intactness – Low to moderate.
- Agrarian-Rural:
  - Unity – Moderate to high.
  - Vividness – Low to moderate.
  - Intactness – Moderate to high.
- Chinden Suburban:
  - Unity – Moderate to high.
  - Vividness – Low to moderate.
  - Intactness – Moderate to high.

The visual quality of the US 20/26 roadway is compromised of the continuous rows of power and telephone poles and overhead cables. These features add a high level of visual clutter that reduces the unity and intactness of views throughout the corridor. These poles are also much larger in scale than the typical roadside buildings and taller than most vegetation, which makes the poles a dominant feature in the landscape.

3.8.1.2 Light and Glare

Existing sources of light are concentrated on the western and eastern ends of the project where there is more dense development and more overhead lighting, as well as at the lighted US 20/26 intersections. However, most of the highway is unlighted. Other sources of light and glare are vehicles using the road and outside lighting at adjacent land uses, particularly commercial uses since these typically have lighted parking areas and security lighting around structures.



Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

0 0.75 1.5 3 Miles

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Landscape Units

- Caldwell Mixed-Use
- Agrarian - Rural
- Chinden Subrban

- US 20/26
- Railroad
- Study Area
- County
- Boise
- Caldwell
- Eagle
- Meridian
- Nampa

FIGURE 10
Landscape Units

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

Under the No Action alternative, the only changes to the visual resources along the corridor would be from future development adjacent to the corridor. Land uses within the study area will continue to change, and by 2040, it is anticipated that the mix of land uses will be different than it currently is with a more developed appearance and character. The addition of residential and commercial development will include buildings and trees that block views that some areas of the corridor currently have of the mountains and Boise River habitat. Over time, light and glare from vehicles would increase due to the projected increase in traffic.

3.8.2.2 Proposed Action Alternative

Construction Impacts

Construction activities change the visual character and near views for the duration of construction. Views would be typical of a construction site with disturbed soils; areas of cleared vegetation, stockpiled soil, construction materials or demolition debris; construction vehicles including large trucks, bull dozers, backhoes, and other equipment; and construction workers. Some of the construction equipment will have reflective surfaces that cause glare, and construction sites will be lighted at night for nighttime work and/or security purposes.

Operational Impacts

The Proposed Action Alternative will not adversely affect any of the three landscape units, since the existing roadway corridor is already a prominent feature in the visual landscape. The proposed scale of the roadway will not compromise the levels of unity, intactness, or vividness.

The majority of the existing landscaped berms adjacent to the corridor would be impacted by the roadway widening but they would be replaced, to the extent practical, with newly constructed landscaped berms and/or walls to minimize impacts to private property. In the short term, new berms could have young vegetation that would not provide the same visual shielding as the older, mature landscape that was removed.

There will be a visual change from moving 14 of the high power transmission poles north of the existing location. This will cause a slight visual change at two residences (the power poles will become slightly more visible). However, this is not likely to create an adverse effect, because the power poles are already a visually dominant feature at these two residences and this will not change. Conversely, the residences located south of the roadway will have the power poles become slightly less visible, but as described above, the height of the power poles make the poles a visually dominant feature in the landscape.

Views from the Proposed Roadway

The driver's view from the roadway will be relatively unchanged. The roadway under the Proposed Action Alternative will generally follow the existing alignment, thus maintaining distant views of the mountains and vegetation along the Boise River.

Views of the Proposed Roadway

The proposed roadway would look different largely because of the wider cross section of the road from adding travel lanes and non-motorized facilities, and because US 20/26 would become a divided highway. In addition, drivers would experience a different view of the intersections at Middleton Road, Star Road, Linder Road, Meridian Road, and Locust Grove Road because the proposed CFIs would be unique to most drivers' experience. This type of intersection has not been used in Idaho before and thus it may be visually confusing to first-time users.

Light and Glare

The amount of light on the road would increase with the addition of signalized intersections. ITD installs roadway lighting at the intersections, and may include additional roadway lighting along the corridor if requested and paid for by local jurisdictions. The use of lighting shields to minimize glare outside the roadway will be evaluated during design. Light and glare from vehicles will also increase due to the projected increase in future traffic.

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would have a cumulative visual effect on the landscape. The new SH-16 roadway was constructed across mostly farmland and includes a bridge over the Boise River, which is a new visual element, along with the road itself. For drivers using SH-16, the roadway has opened new views and vistas of the Boise River and more distant views of the Boise and Owyhee Mountains. The other road projects would have far less visual impact since those projects generally involve making improvements to existing facilities (for example, adding lanes). There will be continuing residential subdivision and commercial development along the corridor, which will change the visual environment from rural to urban and increase light and glare. A wider US 20/26 will add to the change in visual character to urban.

3.8.3 Mitigation Measures

Mitigation measures for light and glare impacts during construction will include phasing construction; locating staging areas and parking construction vehicles away from areas that are easily viewed or where glare from equipment could affect viewers; re-vegetating disturbed areas as soon as practical; and using lighting for nighttime work that is angled downward instead of outward.

Visual mitigation measures for operations are mainly in the form of project design. For example: structures such as retaining walls will be textured; additional landscaping (more than what currently exists) may be added if requested and paid for and maintained by the local governments.

The existing landscaped berms impacted by the project would be replaced, to the extent practical, with newly constructed landscaped berms and/or walls. Berms and walls constructed as part of the project would reduce light and glare from vehicles and provide shielding from the roadway to properties adjacent to the roadway. Signage is used to pass information to drivers, but signage design can also be used to create unity along a road corridor. To reduce light and glare, street lighting will be designed to focus downward or limited in terms of the amount of light used to preserve the night sky and avoid affecting surrounding residential areas. The use of lighting shields to minimize glare outside the roadway will be evaluated during design.

3.9 Geology and Soils

This section describes the existing geology, soils, and geologic hazards in the study area and analyzes the potential impacts of the US 20/26 project alternatives on geology and soil resources. Information for this section was derived from the project geotechnical report (GeoEngineers, Inc. 2006) and NRCS.

3.9.1 Affected Environment

The main physiographic feature in the project vicinity is the Boise River and the lower Boise River Basin, which comprises about 560 square miles, including portions of Canyon and Ada Counties. The regional slope of the valley floor is generally westward to northwestward with the slope of the Boise River floodplain at approximately 13 feet per mile (USGS 1998). The topography of the study area is relatively flat to very gently sloping, with an elevation change of roughly 60 feet of rise between Caldwell and Eagle, Idaho. The terrain tends to slope to the north towards the Boise River through the study area. US 20/26 sits on a bench above the Boise River floodplain.

The geologic units in the study area include thick, unconsolidated Quaternary-age alluvial deposits that overlie Tertiary-age sediments. The primary deposit within the study area is gravel that consists of sandy pebble and cobble gravel ranging in thickness from about 16 to 80 feet thick (Othberg and Stanford 1992) covered with 3 to 7 feet of loess (wind-blown and deposited sand and silt). Also, in the western portion of the study area, gravels are covered with fine-to course-grained sediments related to the Bonneville flood. Area soils have potential for erosion from wind and stormwater runoff.

The Boise Front fault zone is the most potentially active structure in the study area. Based on historic records, the study area has not experienced any serious earthquakes from 1872 to the present (Zollweg 2001). Three distant earthquakes have occurred that produced light non-structural damage. However, there are no active faults located near the study area and no liquefaction zones (GeoEngineers, Inc. 2006).

Other than seismic hazards, there are no other geologically hazardous areas such as landslide areas or steep slopes, because the topography is flat.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

Under the No Action Alternative, there would be no changes to the existing roadway. Thus, there would be no changes in topography or soil disturbance. There is a possibility of future soil disturbance related to normal or unexpected roadside or roadway maintenance activities. Any soil disturbance increases the potential for erosion to occur.

3.9.2.2 Proposed Action Alternative

Construction Impacts

The Proposed Action Alternative will change local topography through grading and cut-and-fill earthwork during construction. These changes will also alter existing drainage patterns. Roughly 300 acres of land would be cleared to accommodate roadway construction, and for equipment staging and material stockpiling during construction. The project would require approximately 1,500,000 yds^3 of cut (excavation) and 400,000 yds^3 of fill (embankment). Areas cleared of vegetation would leave soils exposed to potential erosion from wind and stormwater runoff. Similarly, stockpiled soil materials would

be vulnerable to erosion. Eroded soils can impact drainages by increasing the sediment load into receiving waters. Increased sediment degrades water quality by increasing turbidity and causing changes in water chemistry, such as increasing the biological oxygen demand, and by carrying contaminants into the water on the soil particles.

New embankment fills, retaining walls, and bridge footings constructed on loose or soft soils can be subject to settlement. However, loose soils would be compacted and any further settlement would occur rapidly, being essentially complete within a few weeks of completion of the new structures. It is not anticipated that any other geologic hazards would be affected or adversely affect the project, although there is a slight risk of seismic activity.

Operational Impacts

Operation of the Proposed Action Alternative would result in an increase in the amount of impervious surface. This would increase the quantity of stormwater runoff and increase the potential for erosion of soil in existing un-vegetated areas and within unlined drainage channels near the roadway.

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would impact soils over a fairly wide area. Soil disturbance has already occurred along US 20/26 and SH-44 and disturbance would continue for future projects. The greatest effect on soils was due to construction of SH-16 because of the entirely new alignment between SH-44 and US 20/26. Similarly, the study area is slated for conversion from agriculture to residential and commercial development.

These future projects would involve clearing and grading and placement of structural fill. This would remove topsoil and limit or eliminate soil productivity in those areas. Combining the area of soil disturbance that would occur under the Proposed Action Alternative with other projects would result in long-term impacts to soil, because of the wide-spread nature of the effects.

3.9.3 Mitigation Measures

Construction BMPs will be used to minimize soil disturbance (refer to Section 3.11) including:

- Clear and grub only those areas where construction is necessary, minimize the amount of vegetation disturbance, and minimize the duration of soil exposure.
- Reestablish vegetation as soon as construction is completed.
- Stabilize any stockpiled soil materials.
- Schedule earthwork to occur during drier periods, if practical.

Restoration planning for soil areas disturbed during construction will help reduce long-term impacts from erosion. This would include plans for re-vegetation and irrigation of disturbed soil areas, and preservation (or removal and stockpiling) and reapplication of topsoil in graded areas.

3.10 Hazardous Materials

This section identifies possible locations where hazardous materials may be handled or stored and evaluates the potential impacts of the US 20/26 project alternatives on hazardous materials.

Hazardous materials are defined as materials which pose harmful risks to human health or the environment. Hazardous materials are regulated under a variety of federal laws including the Clean Air Act (CAA), Clean Water Act (CWA), Toxic Substances Control Act, Resource Conservation and Recovery Act (RCRA), and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

3.10.1 Affected Environment

A database search, aerial photo review, and field reconnaissance were conducted to identify sites of possible environmental concern related to hazardous materials. The database review consisted of contacting federal and state regulatory agencies and examining their databases for known and regulated hazardous material sites. The following databases were reviewed:

- The EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and RCRA.
- The EPA National Priorities List (NPL).
- The EPA Envirofacts website.
- IDEQ underground storage tank (UST) and leaking underground storage tank (LUST) database.
- The Idaho Department of Health and Welfare's Idaho Clandestine Drug Laboratory Site Property List and Solid Waste Landfill Inventory.

The EPA and IDEQ regulate sites that store hazardous materials, as well as sites that have been identified as contaminated. These agencies also have programs that include inspecting regulated sites, preventing further contamination and ensuring site clean-up, which may require tank removal or replacement, as well as any removal or remediation of soils and groundwater. As shown in Table 21 below, research of the databases identified two sites listed by EPA as handling hazardous materials. Additionally, four sites were listed by IDEQ as having USTs, one of which with history of a LUST. Although it did not show up on either EPA's or IDEQ's databases, a windshield survey identified two sites as potentially having a UST.

Also during the windshield survey, land uses and activities were observed to determine the potential for hazardous materials to be used or stored on sites. Table 21 lists these potential hazardous material sites and the types of materials that may occur. A number of nurseries, farms, and commercial uses were observed that probably have used and stored chemicals on site in quantities that may present a risk to the environment. For example, a number of above-ground storage tanks (ASTs) without secondary containment were observed at several locations in the corridor. Self-storage facilities are also present, which could be locations for unknown hazardous materials. In addition to the sites shown in Table 21, there are transformers on power poles along the entire length of the corridor, which may contain polychlorinated biphenyls. The historic Phyllis Canal Bridge may contain asbestos cement.

Existing sources of hazardous materials, other than the EPA and IDEQ regulated sites, are also likely present throughout the project corridor due to historic and current land uses (see Figure 11; a, b, and c). These potential undocumented sites were identified through review of aerial photos and a windshield survey as shown in Table 21. Photos were reviewed for the study area for the years 1972, 1980, 1986, 1990, 2000, 2006, and 2013. Aerial photo coverage for the eastern end of the corridor from SH-55 (Eagle

Road) to west of Linder Road was available for 1963 and 1969. No coverage was available for the area prior to 1963. From 1972 on, aerial photos were available for the entire corridor.

In the 1963 and 1969 photos, the eastern end of the corridor appeared as a rural road in an agricultural area. Large farms and small houses were present. Based on a largely agricultural use, pesticides, herbicides, and fertilizer were likely used and stored on the farm properties. There is also the possibility that fuel was stored on site and vehicles and equipment were refueled with the potential for spills or leaks to enter the ground. In addition, structures potentially include asbestos containing material (ACM) and/or lead based paint which will be determined through asbestos and lead paint inspections, as required by federal regulations

In the 1972 photos, an AST was visible on a farm west of the railroad tracks and south of the roadway, which likely contained fuel. A mobile home park was present north of the roadway at the western end of the corridor. There were a few commercial businesses along the corridor, but the area was still predominantly agricultural. A small housing development was present south of the roadway on the east end of the corridor. Since conditions were largely the same as in the 1960s, the potential for hazardous materials was similar to the earlier period.

In the 1980 photograph, increased development of the area and smaller farms were observed. The 1986 photo showed some change, with small areas of increased development at the western and eastern ends of the study area. The Nampa Tractor Salvage site appeared in this photo. In addition to farm use of hazardous materials, the salvage site is likely to have fuel, oil, and other vehicle contaminants present on the ground from salvage operations. The increase in smaller farms is likely to have resulted in additional locations for storage of hazardous materials over previous periods.

The 1990, 2000, 2006, and 2013 photos showed increasing development, subdivision of large farms, and an increase in housing. The Spurwing Golf Courses appeared in the 2000 photo and the 2006 photo showed rapid development of planned communities and commercial properties, particularly on the east end of the project. The increase in residential development has reduced the potential for hazardous materials in those areas because of the reduction in the number of farming operations, which rely on the use of fertilizers, pesticides, etc. If these areas did contain any hazardous materials, it is probable that these sites were cleaned up during development. However, the golf course would be a site where fertilizers and herbicides are used and stored.

3.10.1.1 Hazardous Materials from Road Operation

Vehicles on US 20/26 are a minor source of hazardous materials. It is typical for vehicles to emit small leaks such as fuel, oil, lubricants, anti-freeze, and other fluids. Brake use and tire wear also contribute contaminants such as heavy metals that end up on the road surfaces. These materials are carried off the road onto the road shoulder and into adjacent areas mainly by rainfall and stormwater runoff. Therefore, road shoulders typically contain very minor amounts of hazardous materials.

Table 21. Potential Hazardous Material Sites in the US 20/26 Corridor

Site	Issue	Source
Flying J Travel Plaza	UST	IDEQ Database
Steve Regan Farm Supply	Possible pesticides, solvents	Windshield survey
UAP Northwest Agri Supply	Possible pesticides	Windshield survey
La Chispa Auto Repair	Possible spills, hydrocarbons, solvents	Windshield survey
Lakey's Café	UST (LUST site)	IDEQ Database
Arctic Air	Possible freon	Windshield survey
Freedom Storage Center	Possible pesticides, solvents	Windshield survey
GSL Soda Blasting	Possible lead-based paint	Windshield survey
Valley Retreading/Goodyear	Possible hydrocarbon storage, solvents	Windshield survey
Western Farm Service	Fertilizer plant, possible pesticides	Windshield survey
Kapicka Farm	AST	Windshield survey
Nampa Tractor Salvage	Possible spills, hydrocarbons, solvents	Windshield survey
Residence	AST	Windshield survey
Farm	AST	Windshield survey
Franklin Junction Gas Station	UST	IDEQ Database
Syngenta Seed Company	Possible solvents, pesticides, herbicides	Windshield survey
Farm	AST	Windshield survey
Phyllis Canal Bridge	Possible asbestos cement	Hazardous materials report
Farm	Possible hydrocarbons and solvents	Windshield survey
Jones Drilling	UST	Windshield survey
Jayker Nursery Building	Possible pesticides	Windshield survey
Croslin Facility	UST	IDEQ Database
Blue Diamond Turf	Possible pesticides	Windshield survey
Zamzow's Feed Store / Nursery	Possible pesticides, solvents	Windshield survey
Boise Valley Fence	Hazardous Materials Handler	EPA Envirofacts
Sinclair Station	UST	Windshield survey
Target	Hazardous Materials Handler	EPA Envirofacts

Sources: Windshield Survey, IDEQ Database, EPA 2009 Envirofacts.

Notes: AST – Above-Ground Storage Tank; LUST – Leaking Underground Storage Tank; UST – Underground Storage Tank

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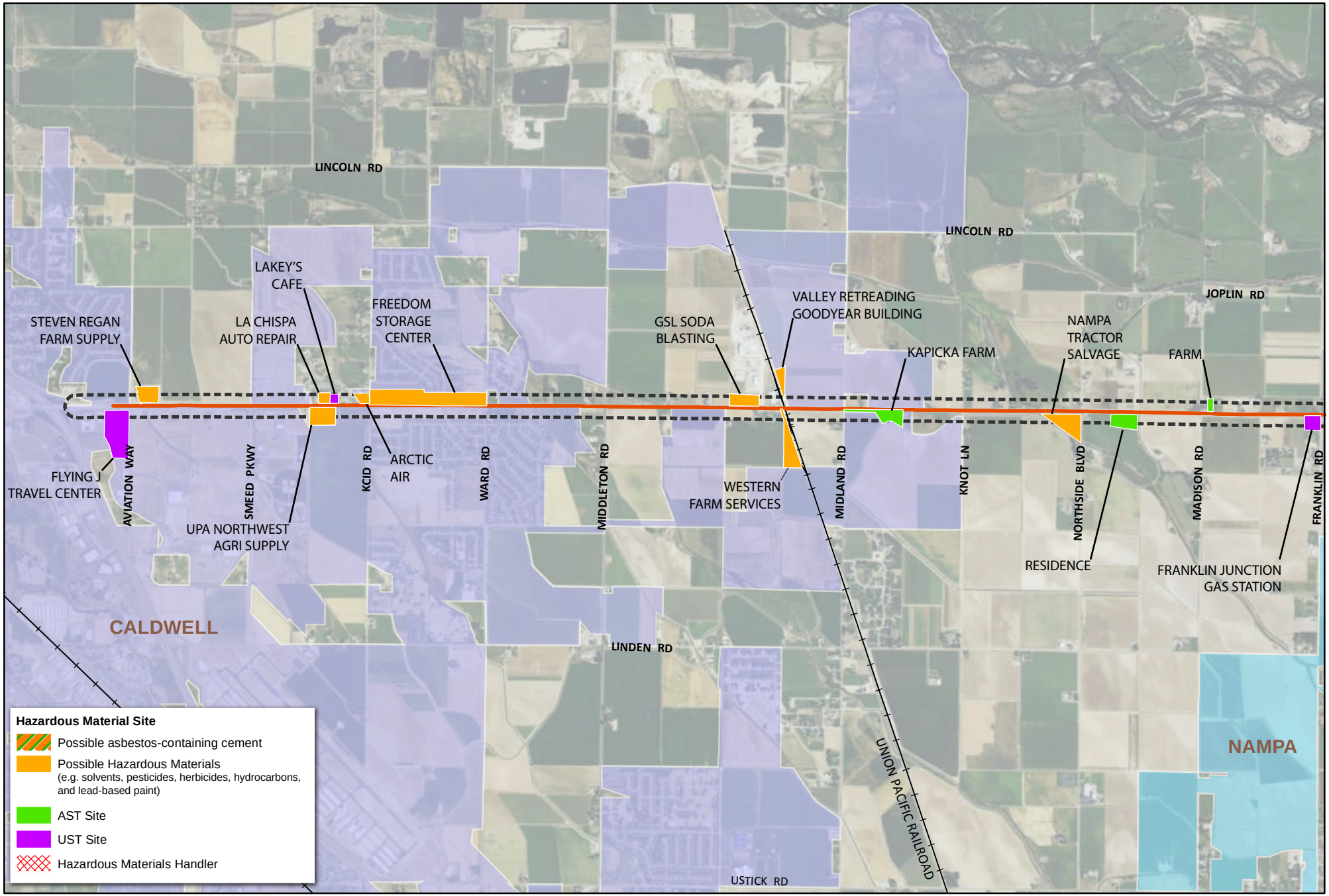

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 11a - WEST
Hazardous Material Sites

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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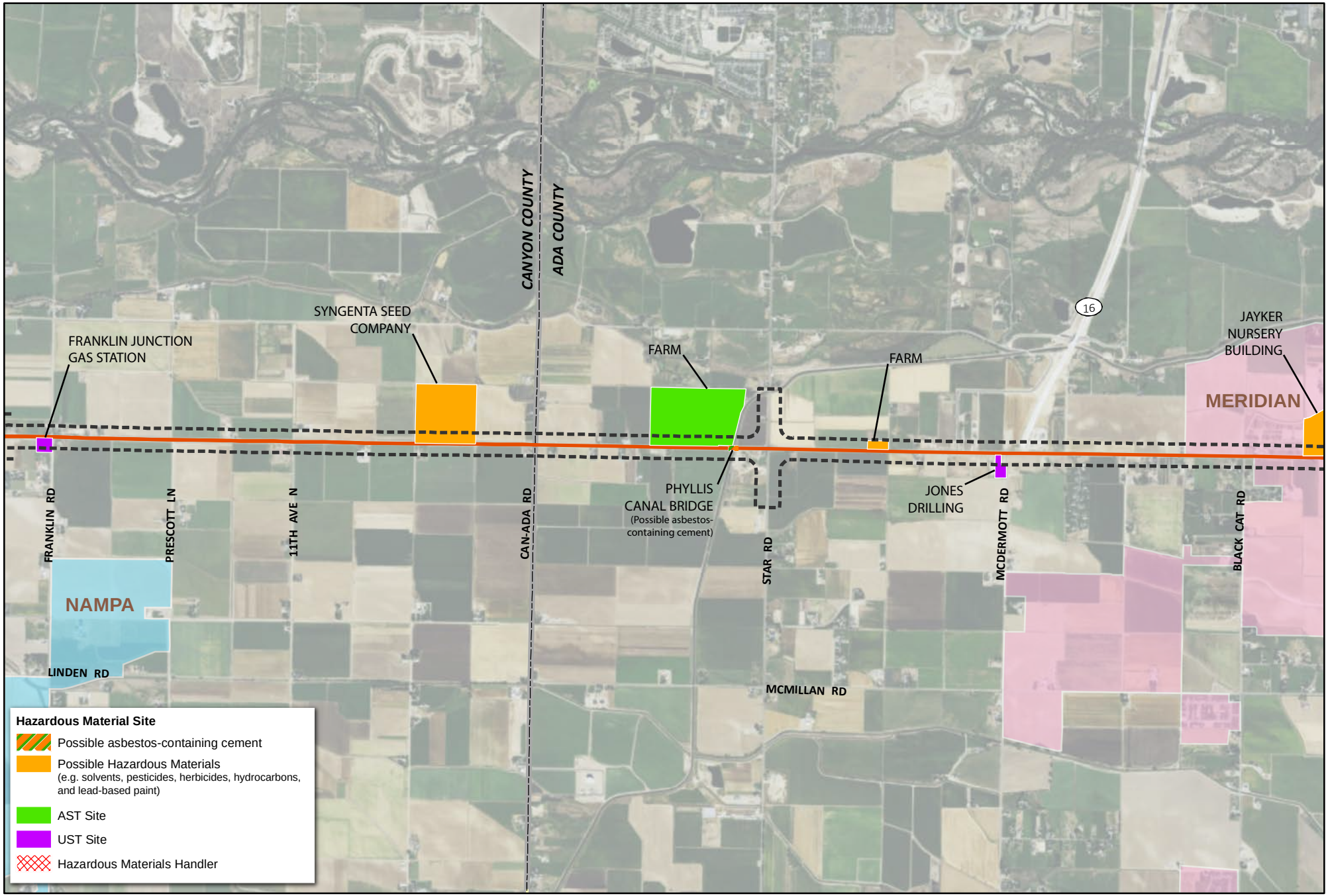

Parametrix

0 0.25 0.5 1 Miles

US 20/26
Railroad
Study Area
County
Nampa
Meridian

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 11b - CENTRAL
Hazardous Material Sites

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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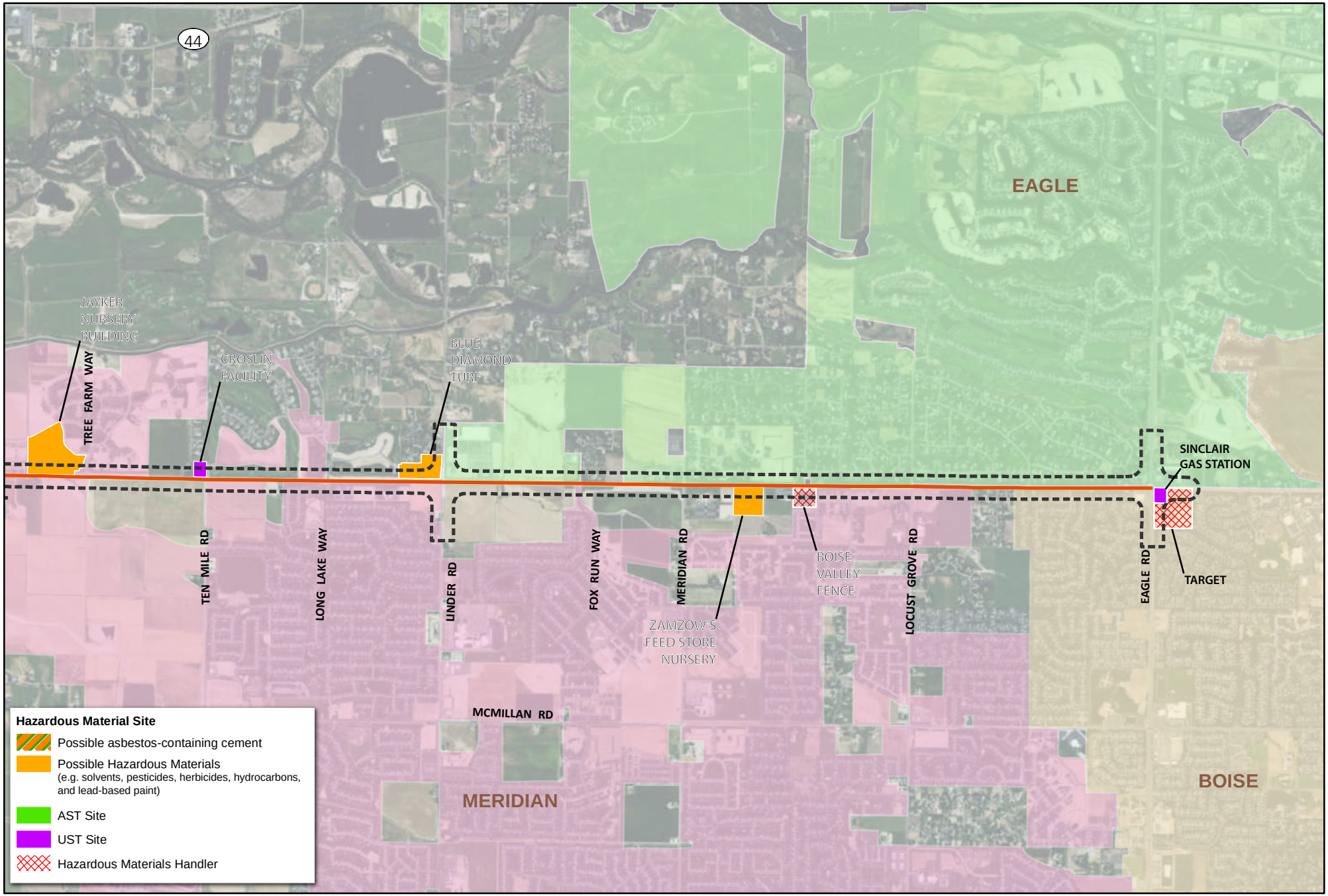

Parametrix

0 0.25 0.5 1 Miles

US 20/26
Railroad
Study Area
County
Boise
Eagle
Meridian

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 11c - EAST
Hazardous Material Sites

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

Since there would be no road widening or improvements to intersections under the No Action Alternative and no ground disturbance, there would be no potential to disturb any sites that contain hazardous materials. As traffic increases over time, road operations would increase the generation of hazardous materials such as petroleum, and contaminants from brake and tire wear. Thus, over time hazardous materials would continue to be deposited on the road surface by vehicles.

3.10.2.2 Proposed Action Alternative

Construction Impacts

Construction of the project involves the use of construction equipment and vehicles, which are typically refueled or serviced as needed at the construction site. Thus, there is the potential for leaks and spills of materials such as fuel, oil, lubricants, and other contaminants onto the ground, which may then be carried off-site into receiving water or infiltrated into the groundwater by rain and stormwater runoff. Typically, leaks from construction equipment and vehicles are relatively small with minimal potential for adverse impact, especially if the equipment and vehicles are well maintained. Signal heads and luminaires bulbs may contain hazardous materials. Any bulbs that are replaced as a result of this project will be reused or disposed of properly.

A spill of fuel or other material during refueling or handling of hazardous materials has the potential for larger adverse impacts on soil, and surface and ground water. Spills to soil can adversely change the growing characteristics of soil resulting in a zone where plants are unable to grow. Contaminants entering surface water would reduce water quality by increasing oxygen demand, changing pH levels, or increasing the level of organic pollutants, which could subsequently have an adverse effect on fish and other aquatic organisms. Similarly, pollutants entering groundwater could contaminate drinking water supplies.

Acquisition of ROW would displace a number of land uses that may have hazardous materials on site including businesses, as well as several farms and a residence. Construction would involve clearing and grading and soil disturbance, which may disturb soils that contain hazardous materials, ASTs, and USTs. Any properties that would be acquired as part of the ROW would be evaluated for hazardous materials. Responsibility to clean up spills on acquired parcels will be determined during the ROW acquisition process, and property owners would be required to clean up any spills of hazardous materials.

Operational Impacts

During road operations, there is limited potential for large releases of hazardous materials to the environment and this would only occur if there is an accident where a vehicle spills fuel onto the roadway. However, road operations do result in minor leaks and spills of fuel, oil, and other fluids onto the road surface from vehicles. Similarly, brake use and tire wear also leave small amounts of contaminants such as heavy metals on the road surface. Winter maintenance of the road such as use of de-icing chemicals would also result in additional hazardous materials on the roadway. Stormwater runoff typically carries these pollutants onto the road shoulder and into adjacent areas. Increasing the number of lanes on US 20/26 would allow a greater number of vehicles to use the road. Thus there would be an overall increase in the amount of hazardous materials that end up on the road surface and along the corridor. It is not anticipated that these materials would adversely impact the environment, because of the small amount that would be generated.

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would have a beneficial effect on the environment by removing hazardous waste materials. There would be an overall increase in the amount of hazardous materials that leak onto roadways from vehicles because of the increase in road surface area and the number of travel lanes that would be added to the transportation network from future projects, as well as the expected increase in population from redevelopment of the rural area to urban uses. Thus, over time there would be a slight cumulative effect on the amount of contaminants that are deposited on the road shoulders.

3.10.3 Mitigation Measures

Any contaminated soil or groundwater encountered during construction will be collected and disposed of in accordance with local, state, and federal regulations. If buildings are to be acquired as part of the ROW acquisitions, asbestos and lead paint inspections will be performed as required by federal regulations. If asbestos or lead paint are discovered, then remedial procedures will be implemented to remove and dispose of these materials, if necessary.

In addition, the following BMPs and mitigation measures will be implemented during the construction phase of the project to avoid or minimize impacts from hazardous materials:

- A Spill Prevention Plan will be prepared and implemented for the storage, handling, use, or disposal of hazardous materials. Specific areas will be designated for equipment repair, fuel storage, and refueling, which will include measures for containing spills.
- In the event of a hazardous material spill, the contractor will immediately notify ITD and if necessary, ITD will call the appropriate emergency response agency. The contractor would be required to have materials on site such as absorbent pads to ensure the spill is contained immediately. If hazardous material could enter a stormwater conveyance or surface waters, that conveyance will be blocked, dammed, or diked.
- All construction waste including petroleum waste products, chemicals, and hazardous wastes will be confined in sealed containers for removal to an ITD-approved waste facility in accordance with federal and state regulations.
- Signal heads and luminaire bulbs that are replaced as a result of this project will be reused or disposed of properly. Upon replacement, if it is determined that the bulbs contain hazardous materials, the bulbs will be disposed of in accordance with applicable local and federal regulations.
- The Contractor will be required to comply with the Idaho Hazardous Waste Management Regulations established under the authority of the Federal Resources Conservation and Recovery Act of 1976.
- Concrete truck washing will be conducted in accordance with the ITD BMP Manual.
- All hazardous materials used in construction will have a required Safety Data Sheet filed on-site. A hazardous material safety and communication plan will be required from each contractor with special emphasis on preventing hazardous materials from entering wetlands, ground, and surface waters.

- Environmental site assessments will be conducted prior to ROW acquisition on parcels where hazardous material contamination of soils is suspected to determine the nature and extent of the contamination. If site contamination is identified in the site assessment, local and federal regulations will be followed to clean up the site either by ITD or the landowner, as determined during the ROW acquisition process.
- EPA or IDEQ will be notified prior to construction when necessary.

Mitigation for hazardous materials generated by operation of the roadway consists of implementing stormwater control and treatment facilities. All stormwater from the roadway will be collected and directed to stormwater retention/detention facilities as described in Section 3.11.3. All applicable laws and regulations will be met at the time of design and construction.

3.11 Surface Water, Floodplains, and Groundwater

This section describes the hydrology of the affected environment, and documents existing conditions for surface water, floodplains and floodways, and groundwater. It also evaluates the potential impacts of the US 20/26 project alternatives on water resources. Information for this section was derived from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, Idaho Soil Conservation Commission, IDEQ, Drainage Concepts Technical Memorandum (Parametrix 2015), and the geotechnical report for the project (GeoEngineers, Inc. 2006).

3.11.1 Affected Environment

3.11.1.1 Surface Water

Waters of the United States as defined by the Clean Water Act found in the study area include ponds, streams, irrigation canals, and wetlands. These waters are addressed in this section, except for wetlands, which for the purposes of this EA are addressed separately in Section 3.12. Certain impacts to Waters of the United States from construction and other activities fall under the jurisdiction of the USACE and IDEQ in accordance with Sections 404 and 401 of the Clean Water Act. The USACE is responsible for making jurisdictional determinations for which waters (wetland and non-wetland) are subject to the Clean Water Act and related permitting requirements. A preliminary jurisdictional determination (PJD) for waters in and adjacent to the project corridor was issued by the USACE on February 8, 2016 (USACE 2016) and is included in Appendix F. Relevant findings of the PJD will be referenced in this section and Section 3.12.

The US 20/26 corridor lies within the lower Boise River watershed, which encompasses approximately 1,290 square miles of forests, agricultural and grazing lands, and urban areas (IDWR 2007). The main surface water feature in the general area is the Boise River, which lies north of and roughly parallels the road corridor (see Figure 12; a, b, and c). There are two streams that cross the US 20/26 alignment, Mason Creek and Fifteenmile Creek, and both streams flow seasonally into the Boise River. The Boise River, Mason Creek, and Fifteenmile Creek are designated as perennial, relatively permanent waters (RPWs) (USACE 2016), and are subject to Clean Water Act jurisdiction.

Lower Boise River flow is regulated by four dams in the upper watershed that provide flood control and irrigation storage. The US Bureau of Reclamation operates the dams and controls flows in coordination with the USACE. Average daily flows in the lower Boise River range from approximately 200 cubic feet per second (cfs) to over 9,000 cfs, with the higher flows occurring during the months that irrigation is needed (IDEQ 1999).

The two surface water bodies in the study area are Mason Creek and Fifteenmile Creek. The Mason Creek subwatershed encompasses approximately 49,000 acres. The creek begins near New York Canal and crosses US 20/26 nearly perpendicular in a 12-feet high by 24-feet wide box culvert east of Middleton Road. The creek immediately turns northwest after crossing under US 20/26, flows under Middleton Road in the 60-inch diameter metal pipe culvert, and then continues flowing northwesterly into the Boise River. The Fifteenmile Creek subwatershed drains approximately 45,000 acres. It includes the Fivemile and Tenmile Creek subwatersheds, which converge to form Fifteenmile Creek just south of US 20/26 (outside of the study area). Fifteenmile Creek crosses US 20/26 in a northwesterly direction in a 10-feet high by 22-feet wide box culvert west of Northside Boulevard and then flows northwesterly into the Boise River. Flow information for the creeks is shown in Table 22. Mason Creek is slightly larger in terms of flow when compared to Fifteenmile Creek, having a range from 55 to 190 cfs as compared to 15 to 170 cfs.

Table 22. Mean Monthly Flows in Streams near US 20/26 Corridor

Stream	Discharge at Mouth, Winter (cfs)	Discharge at Mouth, Summer (cfs)
Mason Creek	55-85	160-190
Fifteenmile Creek	15-45	125-170

Sources: IDEQ 2001a and IDEQ 2001b.

The stream channels of Mason and Fifteenmile Creeks are for the most part deeply entrenched and low gradient (less than 2 percent), with high width-to-depth ratios, and riffle/pool morphologies. The size of the materials in the streambeds ranges from silts and sand-sized materials to large cobbles. In most parts of the streams near US 20/26, the cobbles and gravels are severely embedded. Due to past stream alterations performed by the irrigation districts, the banks of each stream are typically stable and steeply sloped and the channels are relatively narrow and straight.

The existing water quality condition of surface waters in and near the US 20/26 study area has been identified as sensitive and/or impaired on several levels (Table 23). Under Section 303(d) of the CWA, Idaho has listed one segment of the Lower Boise River in the vicinity of the proposed US 20/26 corridor impaired for the temperature water quality criterion, and a portion of that segment for total phosphorous (IDEQ 2016).

For the purposes of the water quality impairment discussion, Fifteenmile Creek is addressed through the two streams that form the creek (Fivemile and Tenmile Creeks), which encompass most of the greater Fifteenmile Creek watershed. Mason, Fivemile and Tenmile Creeks are listed as impaired for toxics, fecal coliform (*Escherichia coli*), sedimentation/siltation, and nutrients. Mason Creek is also listed for temperature (see Table 23). To address the impaired uses, the State of Idaho is required to develop a total maximum daily load (TMDL) allocation plan, which documents the amount of each pollutant a water body can assimilate without exceeding the State's water quality standards (IDEQ 1999). Plans have already been developed for the Fifteenmile Creek and Mason Creek watersheds (Idaho Soil Conservation Commission 2003a and 2003b). Additionally, a TMDL for total phosphorous was approved by the EPA in December 2015 for the Boise River-Middleton to Indian Creek segment (IDEQ 2016).

Table 23. Impaired Surface Water in the Study Area

Surface Water	303d Impairment
Boise River (River Mile 50 to Indian Creek)	Temperature
Boise River (Middleton [River Mile 29] to Indian Creek)	Total phosphorous
Mason Creek (entire watershed)	Toxics, fecal coliform, sedimentation/siltation, nutrients, and temperature
Fivemile Creek (1st and 2nd order)[a]	Toxics, fecal coliform, sedimentation/siltation, and nutrients
Fivemile Creek (3rd order)[a]	Toxics, fecal coliform, sedimentation/siltation, and nutrients
Tenmile Creek (3rd order)	Toxics, fecal coliform, sedimentation/siltation, and nutrients

Source: IDEQ 2016.

[a] A first-order stream is an intermittent or perennial stream with no temporary or perennial tributaries; a second-order stream is created by the confluence of two first-order streams; and a combination of second-order streams results in a third-order stream.

IDEQ designates surface waters based on beneficial uses. Beneficial uses of water include, but are not limited to, aquatic life, recreation, water supply, wildlife habitat, and aesthetics. Within the general area, beneficial uses that have been designated for the Lower Boise River Basin include cold water aquatic life, salmonid spawning, and primary and secondary contact recreation.

Designated beneficial uses for Mason Creek and Fifteenmile Creek include modified aquatic life and secondary contact recreation. However, secondary recreational contact may not be appropriate for these highly regulated and irrigation driven systems (IDEQ 2014). The alteration of the natural flow regime has been identified as a factor affecting the beneficial uses of water bodies in the Lower Boise River Basin.

Because of the prominence of agricultural uses and the need for irrigation, much of the natural hydraulics of the Lower Boise River Basin has been altered by the local irrigation system. Prominent surface water features include a variety of irrigation ditches, laterals, sloughs, drains, and canals. The PJD designates these surface water features as intermittent RPWs (USACE 2016). Irrigation canals that receive water from natural streams and lakes, and divert water to streams and creeks, are connected as tributaries to those other waters and are subject to Clean Water Act jurisdiction. There are no lakes in the vicinity of the project. Table 24 displays the irrigation features that occur in proximity to the study area and the corresponding agencies that own or oversee the feature. The majority of these irrigation features cross US 20/26, including the Phyllis Canal, Caldwell Highline Canal, and Solomon Drain (see Figure 12; a, b, and c). The other irrigation features are located in the immediate vicinity of US 20/26 and generally run parallel to US 20/26.

Table 24. Irrigation Features and Jurisdiction

Irrigation Feature	Jurisdiction
A Drain	Pioneer Irrigation District
Bolton Lateral	Pioneer Irrigation District
Caldwell Highline Canal	Pioneer Irrigation District
Five Mile Drain (Fifteenmile Creek)	BOR; Operated by Pioneer Irrigation District
Horton Drain	Local Board of Control
Mason Drain (Mason Creek)	BOR; Operated by Pioneer Irrigation District
Miller Canal	Pioneer Irrigation District
Noble Drain	BOR; Operated by Pioneer Irrigation District
North Slough	Settlers Irrigation District
Phyllis Canal	Pioneer Irrigation District
Simpson Lateral	Local Board of Control
Solomon Drain	BOR; Operated by Pioneer Irrigation District
Weymouth Lateral	Pioneer Irrigation District
Zinger Lateral	Local Board of Control
5.17 Lateral	Pioneer Irrigation District

BOR = Bureau of Reclamation

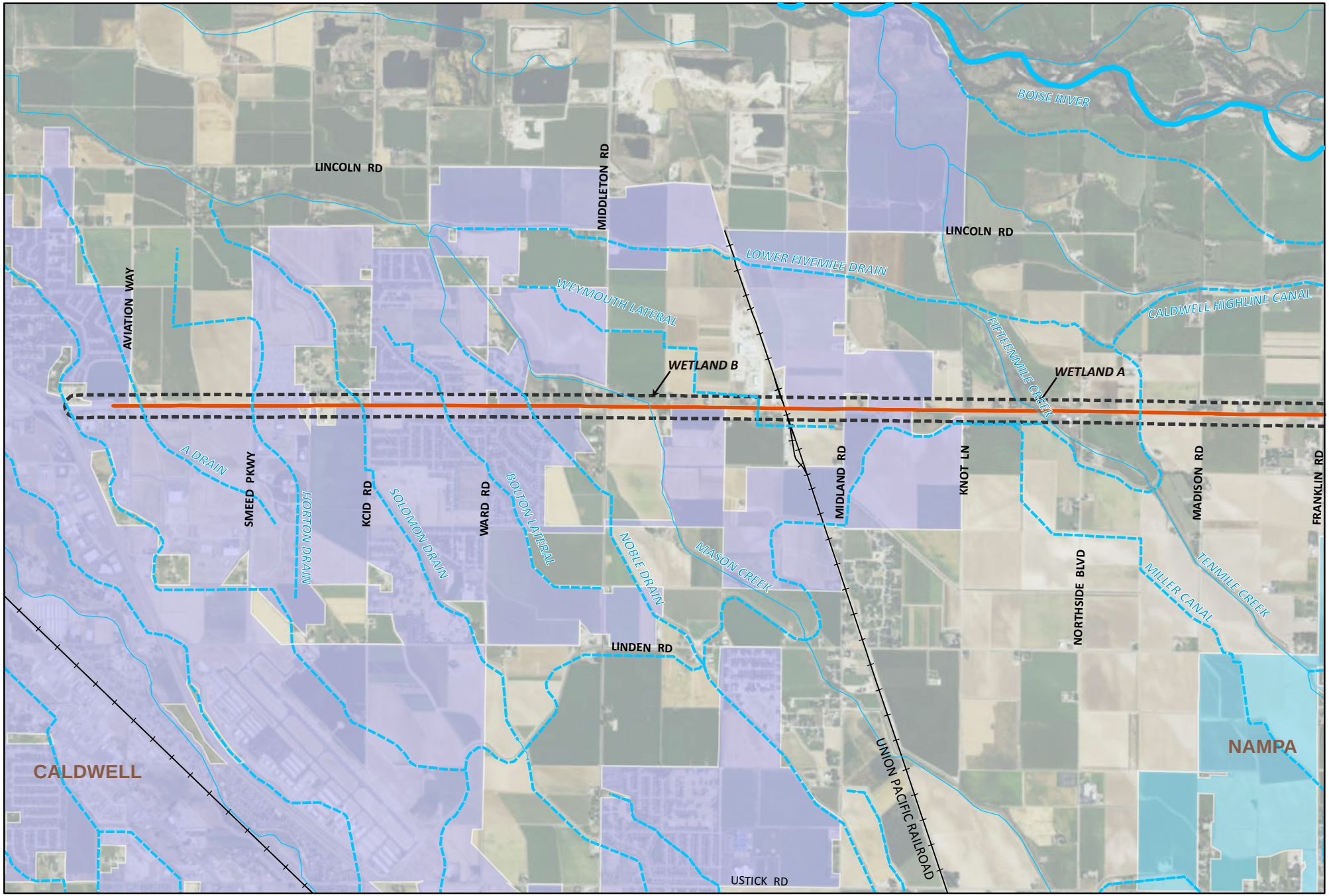
3.11.1.2 Floodplains and Floodways

A 100-year floodplain is defined as the area that would be covered by a flood during a 100-year storm event (a flood event that has a 1 percent probability of occurring in any year). A floodway is defined as the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that a 100-year storm can be carried without cumulatively increasing the floodwater surface elevation by more than 1-foot.

The Boise River has an extensive floodplain and floodway, but it is not located in or near the proposed US 20/26 ROW since the US 20/26 roadway sits on a bench above the Boise River floodplain. The floodplain and floodways mapped by FEMA for Mason and Fifteenmile Creeks are shown on the concept layout maps included in Appendix A. There is no mapped floodway for Fifteenmile Creek.

The floodway of Mason Creek is conveyed through the existing structure with a floodway width of 100-feet north and south of US 20/26. In the summer of 2016, a new convenience store/gas station was constructed in the floodplain of Mason Creek at the northeast corner of Middleton Road and US 20/26. As a part of this development, a retaining wall was constructed on the north side of the development to retain fill from entering the Mason Creek floodway.

FEMA requires that local jurisdictions manage and permit any development along or crossing waterways. Currently, both creek crossings are located in unincorporated areas of Canyon County, while a portion of the Mason Creek Crossing is also located in the City of Caldwell. Therefore, floodplain development permits may be issued by both Canyon County and the City of Caldwell. The local floodplain ordinances for both Canyon County and Caldwell City are similar, and while they prohibit any rise in the floodway water surface elevation (a “no-rise” condition), they do not limit development or fill from being placed in the floodplain. These ordinances also define floodways for drainage channels not already mapped by FEMA. In these cases, the floodway is defined as the width of the stream (from ordinary high water to ordinary high water) or 50-feet, whichever is greater (Canyon County 2016) (Caldwell 2016).



Parametrix

0 0.25 0.5 1 Miles

Boise River
Stream
Canal
US 20/26
Railroad
Study Area
County
Nampa
Caldwell

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 12a - WEST
Surface Water

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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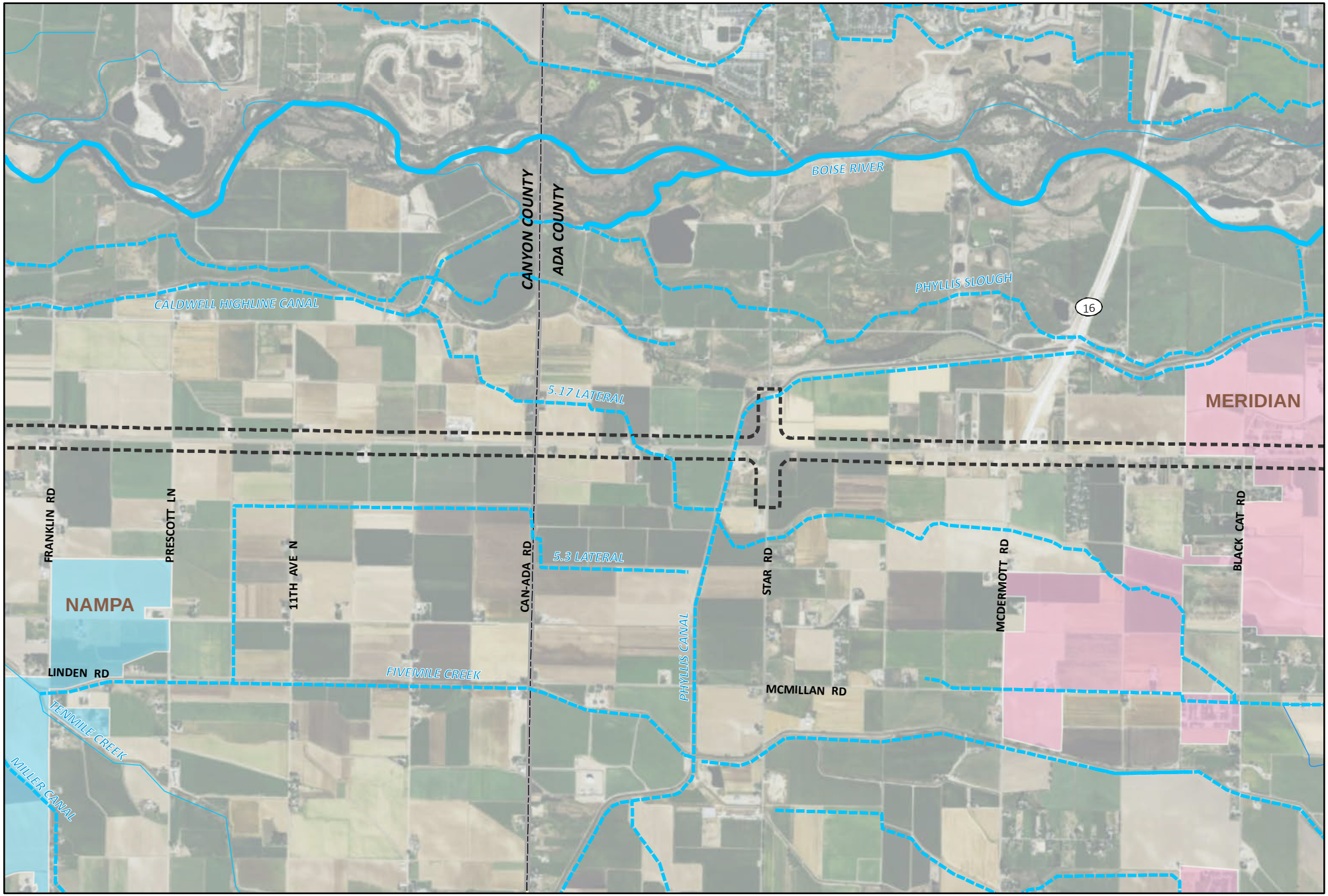

Parametrix

0 0.25 0.5 1 Miles

Boise River
Stream
Canal
US 20/26
Railroad
Study Area
County
Nampa
Meridian

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 12b - CENTRAL
Surface Water

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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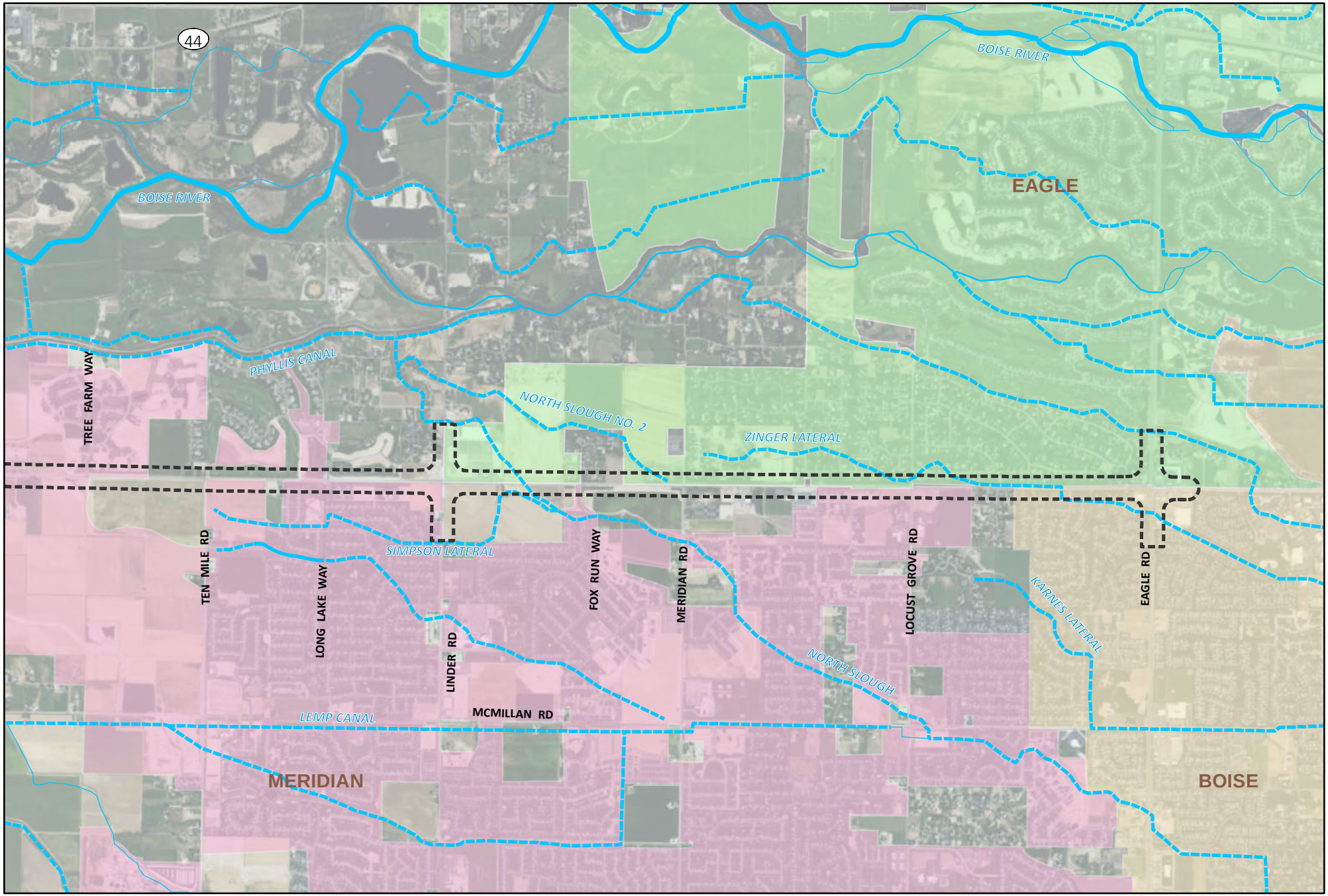

Parametrix

0 0.25 0.5 1 Miles

Boise River
Stream
Canal
US 20/26
Railroad
Study Area
County
Boise
Eagle
Meridian

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 12c - EAST
Surface Water

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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3.11.1.3 Groundwater

The US 20/26 corridor study area is located in the vicinity of the Boise Valley Aquifer, a sedimentary and volcanic aquifer. The Boise Valley Aquifer is classified as "general resource," which means that it is protected by the standards in the IDEQ's Groundwater Quality Rule. The Groundwater Quality Rule requires any project with the potential to impact a general resource aquifer to be managed in a way that maintains or improves the existing groundwater quality. The US 20/26 corridor study area is not located in the vicinity of any sole source aquifers.

According to IDWR, there are approximately 320 wells within ½ mile on either side of the US 20/26 corridor. There are 12 wells located within a few hundred feet of the corridor. The static water level of the wells in Canyon County ranges from 0 to 8 feet. The static water level of the wells in Ada County ranges from 0 to 37 feet. It is assumed that the groundwater flow direction is similar to that of surface water flow direction, which is northwesterly. Groundwater depth varies along the US 20/26 corridor ranging from 8 to 45 feet deep (GeoEngineers, Inc. 2006). Local areas of shallow groundwater are expected and may limit infiltration opportunities in some areas. There are no known wellhead protection areas in the study area.

The vulnerability of groundwater to contamination in the area surrounding the proposed US 20/26 corridor is classified as high to very high. This classification does not reflect any specific contamination status, but it does document the ease by which water moves from the surface into the ground.

At the east end of the US 20/26 corridor is a sensitive groundwater area known as the Boise Front Groundwater Management Area (GWMA). One of the uses of this aquifer has been to heat buildings. A GWMA is an area that, without protection, has the potential to degrade to the more serious classification of "critical groundwater area." The groundwater levels in this area have decreased over the last few decades because use of this groundwater has increased. In order to prevent additional impacts, an order was issued on June 10, 1988, which prevents additional use of the aquifer. The original end date of the moratorium on aquifer use has been extended several times and currently stands at May 5, 2019 (IDWR 2016).

3.11.2 Environmental Consequences

3.11.2.1 No Action Alternative

Under the No Action Alternative, there would be a slight change to the existing surface and groundwater conditions along US 20/26. There would continue to be contaminants carried from the road surface (which would increase over time due to the increased traffic) into surface and groundwater during stormwater runoff. This would have a slight adverse effect on water quality, particularly in surface waters. For groundwater, there would be some filtering of pollutants by the soil even though there are currently no stormwater quality treatment facilities associated with US 20/26. Pollutants potentially impacting surface water and groundwater quality come from a variety of sources including leaves and grass clippings, pesticides, herbicides, and fertilizers. Typical contaminants from road operations include small leaks of gasoline, oil, grease, and other engine fluids; heavy metals from brake wear; material from tire wear; and deposition of particles from vehicle exhaust. The concentration of pollutants in roadway runoff and the impact on receiving groundwater and surface water bodies varies considerably depending on many factors, including traffic volumes on the roadway and sensitivity of the receiving water body. Without the project, there would continue to be impacts to water quality from stormwater runoff.

There is potential for larger spills to occur from vehicular accidents. Although somewhat unlikely, accidental spills of chemicals or petroleum could have adverse impacts on receiving groundwater and surface water quality.

During the winter, sand is used on US 20/26 to improve traction, and in some instances de-icing chemicals are used to remove ice and increase safety (see Section 3.10.2). However, sanding is typically the principal method used to improve safety on US 20/26. Sand from roadways can become suspended in stormwater runoff, but due to the relatively large particles used, sand falls out of suspension quickly in sedimentation facilities or through use of other stormwater treatment BMPs. However, currently there are no stormwater treatment BMPs other than roadside ditches, which likely capture most of the sand and sediment from the roadway.

The No Action Alternative would have no impact on water quantity, floodplains, or floodways.

3.11.2.2 Proposed Action Alternative

Construction Impacts

Project construction has the potential to impact surface water quality in several ways. Widening the roadway will require crossing several irrigation features, as well as Mason and Fifteenmile Creeks, and require replacement or extensions to some culverts under US 20/26. Some of this work will disturb the banks or bottoms of surface water features in the proposed ROW corridor. These activities are likely to cause temporary increases in turbidity, which can adversely affect aquatic life.

Soil disturbance caused by grading and fill activities for the added vehicle lanes, bike/pedestrian pathways, and other facilities increases the potential for erosion to occur. There is also potential for leaks or spills of gasoline, oil, grease, and other engine materials from construction equipment and vehicles, and construction operations such as refueling. Stormwater runoff can carry eroded silt, sediment, and chemicals into receiving waters causing temporary impacts to water quality such as changes to the pH, biological oxygen demand (BOD), and chemical oxygen demand (COD) and dissolved oxygen (DO) in the receiving waters. Rainfall can also transmit chemical pollutants from construction into the groundwater.

Operational Impacts

Operational impacts would be similar to those described for the No Action Alternative. However, the Proposed Action Alternative will result in an increase of approximately 200 acres of impervious surface, which will increase the amount of stormwater runoff generated by the road surface (compared to approximately 75 acres of existing impervious surface). Also, the added capacity (added vehicle travel lanes) would allow more vehicles to use the road, which would potentially increase the amount of contaminants generated by vehicles over time.

Although the project would increase the impervious area and the amount of stormwater runoff, the project would provide a benefit by incorporating stormwater collection and treatment facilities into the roadway that do not currently exist. Drainage facilities will be handled on a project-by-project basis, in accordance with policies that are in place at that time.

The Proposed Action will utilize curb and gutter throughout the project to collect water from the road surface with inlets and storm drains used to discharge stormwater to roadside drainage swales, drainage detention ponds, or underground seepage beds. For the area on the west end of the corridor, from I-84 to Aviation Way, the discharge would be to the existing detention pond located within ITD's ROW at the northwest corner of US 20/26 and Aviation Way. This existing detention pond would be enlarged within

the existing ROW by approximately 10 percent to accommodate the additional impervious surface generated by the project. For the area between Aviation Way and Meridian Road where a 200-foot wide ROW is proposed, the discharge would be to roadside drainage swales located between the shared use pathway and the roadway. These drainage swale could provide up to 150% of the storage capacity needed, except in the CFI areas at Middleton, Star, Linder, and Meridian Roads where underground seepage beds would be used due to the limited space available for drainage swales. For the area between Meridian Road and Eagle Road where a 140-foot wide ROW is proposed, underground seepage beds would be used under the sidewalks and/or roadway due to the limited space available. A total storage volume of 12 to 17 cubic feet per lineal foot of roadway would be required for the seepage beds (Parametrix 2015). Soils found in the area are conducive to infiltration and generally consist of 16 feet to 80 feet of gravels covered with 3 to 7 feet of sands and silts. See Section 3.9 for additional information on soils.

It is anticipated that all drainage needs for future improvements related to the project can be addressed within the proposed ROW using roadside ditches and swales or with seepage beds. Overall, it is anticipated that surface and groundwater quality would improve with the project.

The project would require roadway fill be placed in the floodplain for Mason and Fifteenmile Creeks due to the roadway widening which would slightly reduce storage capacity for floodwaters. Additionally, new drainage structures would be constructed or existing structures lengthened. A hydraulics study completed during design would ensure the project would meet a “no-rise” condition for the floodways at both creeks. At Mason Creek, the proposed pathway on the north side of the road would be located near the US 20/26 roadway instead of near the ROW line to minimize encroachment into the floodway.

Only Practicable Alternative

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

All of the alternatives considered in Chapter 2, including the Proposed Action Alternative, would encroach upon a 100-year floodplain because US 20/26 follows an east-west direction and Mason and Fifteenmile Creeks and floodplains generally flow in a northwesterly direction. It is not possible to reroute the road to avoid crossing these floodplains. The only other alternative to avoid impacting these floodplains would be to completely bridge over the floodplain, which would be cost prohibitive. The project will conform to all applicable local floodplain protection standards and approvals (refer to Table 2).

Cumulative Impacts

The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would likely result in some cumulative impacts to water resources. In particular, the potential for siltation and sedimentation to occur would greatly increase temporarily during construction activities of the road projects and future residential and commercial development because of removal of vegetation and soil disturbance. Thus, there is the potential for short-term adverse effects on surface water such as increased sediment load and turbidity, which would also affect water quality parameters such as pH, BOD, and COD.

Construction work is also likely to temporarily affect water quality (increase turbidity) in irrigation canals and streams that cross the project corridors, because of the need to extend, replace, or install culverts. However, these effects are short-term and do not typically produce lasting adverse effects. Potential longer-term cumulative effects, such as erosion, siltation, and sedimentation caused by increased

stormwater runoff created by present and future road and residential and commercial projects can be eliminated or result in a net improvement through the use of stormwater BMPs and treatment facilities.

3.11.3 Mitigation Measures

Mitigation for construction impacts includes implementing construction BMPs to avoid or minimize water quality impacts resulting from uncontrolled stormwater runoff. BMPs will be selected from the Erosion and Sediment Control – Best Management Practices Manual (ITD 2014). For example, some BMPs will include the following:

- Use sediment barrier BMPs near sensitive areas such as the stream crossings of Mason and Fifteenmile Creeks to contain sediment on site and keep sediment out of these areas. Delineate grading limits near adjacent wetland areas with construction fencing so these areas are undisturbed by construction.
- Use geoweb, plastic sheeting, straw mulch, tackifiers, or other erosion control devices over disturbed soils to minimize erosion, if needed.
- Use treatments to trap sediment on site such as check dams and sediment traps.
- Use temporary diversion devices such as culverts or sand trenches to direct surface water runoff away from exposed slopes.
- Monitor and check BMPs frequently to ensure they are proper operation (for example, silt fences, sediment traps, storm water runoff controls, etc.).

Section 404 of the Clean Water Act requires that a permit from the USACE be obtained for the discharge of dredged and/or fill material into Waters of the United States. Construction activities below the ordinary high water mark in water bodies within the project corridor such as culvert replacement or extensions will trigger the need for a USACE permit. These permits typically include conditions regarding potential water quality impacts, mitigation, and the use of BMPs.

A National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) will be required for the project. The NPDES permit requires development of a Stormwater Pollution Prevention Plan (SWPPP) to prevent the discharge of pollutants to waters of the United States.

Mitigation for operational impacts includes the addition of permanent stormwater facilities, including stormwater collection, conveyance and treatment facilities. These facilities will include a system of curbs, gutters, catch basins equipped with oil/water separators, ditches, swales, seepage beds, and/or stormwater infiltration basins. Infiltration swales and/or seepage beds will have no discharge to any adjacent waterways up to the design storms. BMPs would be implemented along the project corridor to help protect groundwater. Portions of the project are located within the Boise and Nampa urbanized areas and thus will be covered by ITD District 3's Municipal Separate Storm Sewer System (MS4) permit which requires that stormwater be treated to the maximum extent practical and pollutant loads cannot be increased.

The Proposed Action crosses several ditches and drainages. These crossings will be fitted with appropriately sized culverts or bridges to ensure uninterrupted water flow. A hydraulics analysis will be completed at Mason and Fifteenmile Creeks to evaluate designs of roadway fills, culverts, bridges, and/or retaining walls proposed to be placed in the floodplain or floodway. This analysis will be used to demonstrate that the project meets FEMA and local floodplain ordinance requirements of a "No-Rise" condition for the floodway. Floodplain development permits from the local jurisdictions (Canyon County and/or City of Caldwell) will be obtained. To meet the "No-Rise" condition, the size of the existing box culverts may need to increase to mitigate for additional hydraulic losses of the longer structures. It is

expected that any increase in size would be minimal and may not involve increasing the height of the structure or raising the roadway elevation. In the unlikely event that a “no-rise” condition cannot be met, the project will go through the process to modify the FEMA maps and base flood elevation by going through the Letter of Map Revision (LOMR) process.

3.12 Wetlands

This section describes wetland areas within the study area and evaluates the potential impacts of the US 20/26 project alternatives on those areas. Information for this section was derived the Wetland Delineation Report (ITD 2015) which is included in Appendix F. In September of 2016 a wetlands field survey was conducted to address potential wetland impacts due to the addition of a partial CFI at the intersection of Eagle Road and US 20/26. No wetlands were identified in this area.

3.12.1 Affected Environment

Wetlands in the study area were identified and evaluated by reviewing available wetland data. This included an examination of topographic maps, aerial photos, the soil surveys of Canyon and Ada Counties (USDA 2016), and National Wetland Inventory (NWI) maps. Following review of existing data, field reconnaissance and wetland determinations were conducted in 2007, 2008, 2010, and 2015 (ITD 2015).

Four wetlands and three ponds are located within the study area (see Figure 13; a, b, and c). The wetlands are identified as Wetland A, B, C and F. Two additional wetlands identified as Wetland D and E were present when the US 20/26 study was initiated, but no longer exist due to the lack of wetland vegetation.

Wetlands A and B are riparian wetlands associated with Fifteenmile and Mason Creeks, respectively, both of which cross US 20/26. Fifteenmile Creek crosses at US 20/26 west of Northside Boulevard and flows northwest into the Boise River. Wetland A is located on both banks of the Fifteenmile Creek channel with 0.57 acre of wetlands located to the north of US 20/26 and 0.31 acre of wetlands located to the south of US 20/26 in the study area (wetland area within the proposed ROW).

Mason Creek crosses US 20/26 east of Middleton Road, flowing northwest into the Boise River. Wetland B is located on both banks of the Mason Creek channel with 0.70 acre of wetlands located to the north of US 20/26 and 0.16 acre located south of US 20/26 in the study area.

Wetlands A and B (located within the West Segment along Fifteenmile and Mason Creeks, respectively), support woody vegetation along the shorelines and appear to be flooded seasonally. Hydrology is likely driven by surface and shallow groundwater flows from the adjacent stream channels. Fifteenmile and Mason Creeks are natural streams; however, both have been altered by channel straightening, vegetation clearing, and landscaping throughout the study area. Consequently, the narrow riparian wetlands occurring within the study area serve as valuable remnant habitat. Fifteenmile Creek retains marginal shade and habitat from several mature trees along the creek banks. Trees are less frequent along Mason Creek; consequently shade, cover, and other associated habitat functions are comparatively diminished. Substrates in both streams consist of silts with limited gravels and cobbles.

Wetland C (located along an un-named canal west of Star Road) is an approximately 0.60 acre palustrine emergent wetland located on either side of US 20/26 along a north-oriented canal. Habitat functions for this wetland are affected by livestock grazing and manipulation of water levels.

Wetland F (located on the northeast corner of US 20/26 and a private driveway east of Star Road) is a small, triangularly shaped palustrine emergent wetland. A high percentage (approximately 30 percent) of bare ground at this wetland and surrounding area appear due to grazing. Wetland F is approximately

0.16 acre in area. All of these wetland features may fall under Clean Water Act Jurisdiction as noted in the 2016 PJD (USACE 2016).

Three manmade ponds/landscaped surface water features (Ponds 1, 3, and 4) were noted during the 2015 wetland reconnaissance. These ponds may be jurisdictional waters regulated under the Clean Water Act as noted in the 2016 PJD (USACE 2016). Ponds 1, 3, and 4 are 0.14, 0.40, and 0.29 acres in size, respectively.

Other waterway features in the study area include irrigation canals, laterals, and drains (discussed in Section 3.11). Some of these may be non-jurisdictional with respect to the USACE but may contain wetland vegetation that provides important water quality and/or habitat functions. In this area, the Boise River is both the primary source and the eventual outfall destination of water in these conveyance systems.

Habitat functions associated with the unlined irrigation channels are confined within the channel banks. For those channels with extended periods of inundation, hydrophytic (wetland) vegetation may occur at the water line and extend to near the top of the bank. Other unlined channels are flooded less frequently, thus hydrophytic vegetation concentrates near the base of the channel prism.

Vegetation is cleared from some of the unlined irrigation channels as a maintenance practice by the irrigation districts or property owners, thus the hydrologic regime was more difficult to determine. The concrete-lined canals have minimal wetland function, serving as surface water conduits only. Approximately 5.9 miles of the 15.6 miles of irrigation channels within the study area are concrete lined.

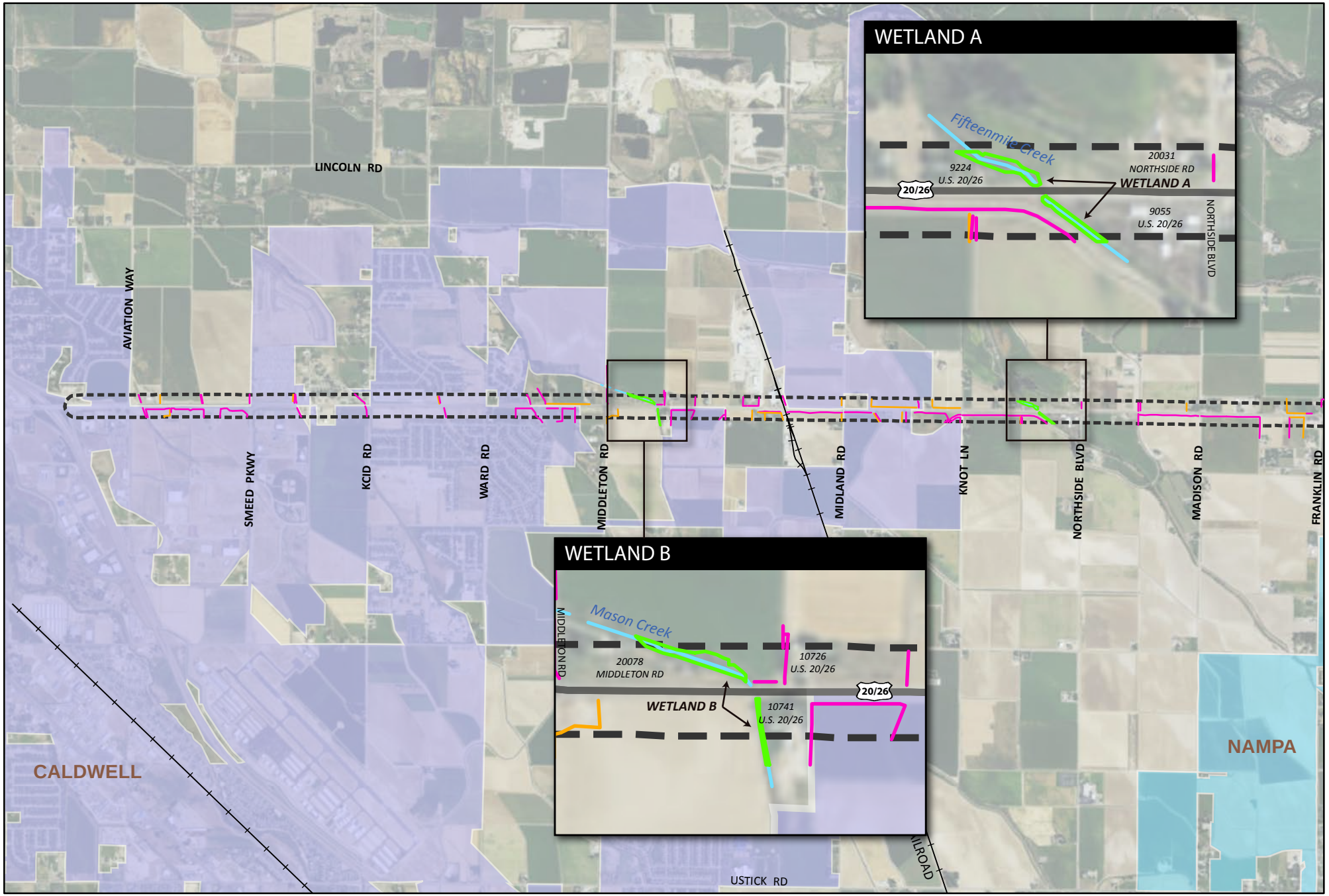
Because of the well-defined boundaries of the numerous waterways located within the study area, sample plots were recorded in those potentially jurisdictional areas that did not consist of manmade canals, laterals, or irrigation ditches. Instead, interpretation of aerial photographs, along with field verification, was used extensively to identify and locate those potentially jurisdictional canals, laterals, and irrigation ditches.

Wetland and riparian habitat were evaluated using the Montana Rapid Assessment Methodology (Apfelbeck and Farris 2005) in order to assess functional capacity of these features. The wetland areas, canals, and two streams were evaluated separately. The Montana method rates observations of habitat conditions as Excellent Condition (<0.9-1.0), Good Condition (<0.7-0.9), Fair Condition (<0.5-0.7) and Poor Condition (0-0.5). Overall scores for wetlands associated with the two streams described above; for the actual streams; and for the manmade canals, laterals, and ditches were Poor. This designation of Poor indicates that the wetland provides relatively low existing habitat functions. Table 25 lists the results from the evaluation.

Table 25. Results of Montana Rapid Assessment Method

Wetland Function Summary of Ratings	Wetlands	Canals (Riverine)	Streams (Riverine)
Hydrogeomorphic Condition Index	0.20	0.50	0.27
Vegetation Condition Index	0.63	0.40	0.62
Water Quality Condition Index	–	0.75	0.75
Buffer Condition/Stressor Score	0.23	0.10	0.10
Wetland Impact Score	0.42	0.51	0.51
Overall Score	**0.38**	**0.44**	**0.46**
Overall Condition	**Poor**	**Poor**	**Poor**

Sources: ITD 2015.



Parametrix

0 0.25 0.5 1 Miles

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Concrete Lined Channel
- Unlined / Dirt Channel
- Pond
- Natural Stream
- Potential Wetland Area
- Railroad
- Study Area
- County
- Nampa
- Caldwell

FIGURE 13a - WEST Wetlands

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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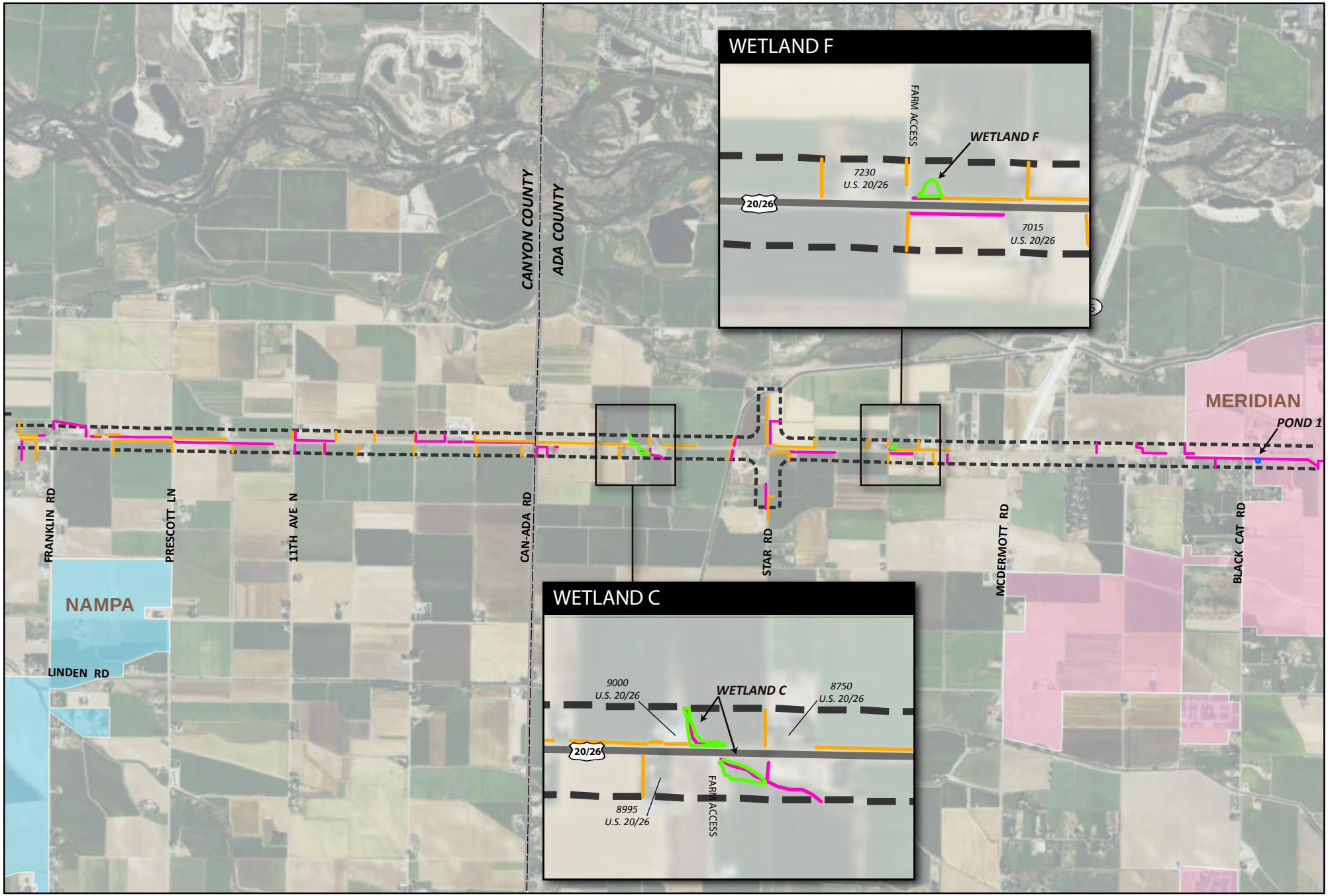

Parametrix

0 0.25 0.5 1 Miles

Concrete Lined Channel
Unlined / Dirt Channel
Pond
Natural Stream
Potential Wetland Area
Railroad
Study Area
County
Nampa
Meridian

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

FIGURE 13b - CENTRAL Wetlands

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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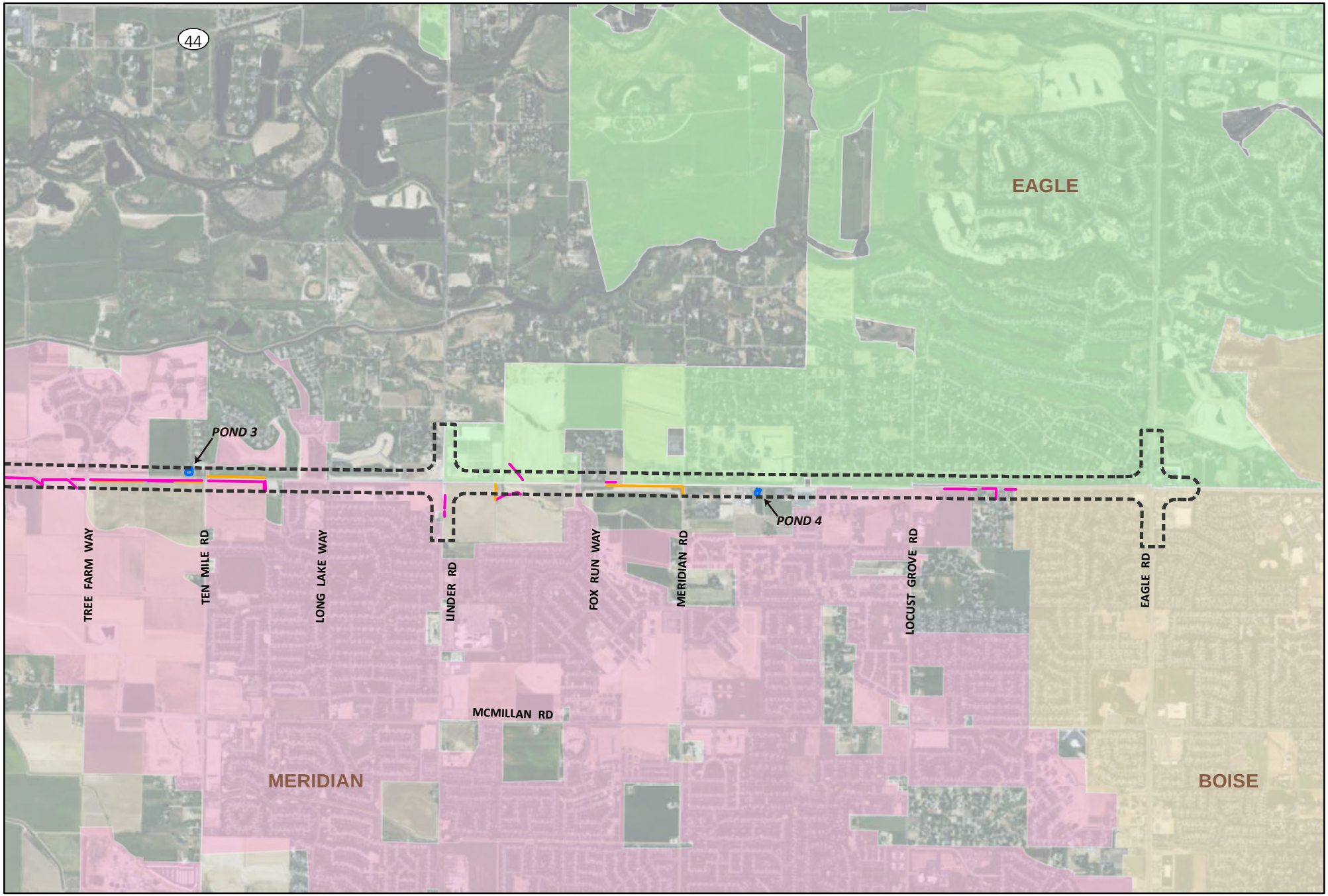

Parametrix

0 0.25 0.5 1 Miles

Service Layer Credits: US Census Bureau; Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Concrete Lined Channel
- Unlined / Dirt Channel
- Pond
- Natural Stream
- Potential Wetland Area
- Railroad
- Study Area
- County
- Boise
- Eagle
- Meridian

FIGURE 13c - EAST Wetlands

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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3.12.2 Environmental Consequences

3.12.2.1 No Action Alternative

Under the No Action Alternative, there would be little impact on wetlands or streams in the study area. Over time as traffic increases on US 20/26, it is anticipated that there would be some slight increase in the amount of contaminants from vehicles on the roadway surface. Contaminants that may be present in stormwater runoff associated with highways include suspended sediments; nutrients; petroleum; antifreeze from leaks; cadmium and zinc from tire wear; and copper from wear and tear from brake pads, bearings, metal plating, and engine parts. Thus, the amount of contaminants in stormwater runoff from the road would increase slightly and have some effect on water quality in receiving wetlands and waterways.

3.12.2.2 Proposed Action Alternative

Construction Impacts

Construction activities would result in impacts to the wetlands at Mason and Fifteenmile Creeks. It would be necessary to extend the culverts under US 20/26 because of the added travel lanes and multi-use path, which would widen the roadway. It would be necessary to extend culverts for irrigation features or place irrigation features into culverts. This is likely to result in short-term increases in siltation and sedimentation causing turbidity in the water column. Other construction activities such as ground disturbance from heavy equipment operation, removal of vegetation (e.g., clearing of trees, shrubs, or herbaceous vegetation during construction work within the ROW), and potential contaminant spills (such as leaks from construction equipment and accidental spills of fuel or other fluids) may also have an adverse effect on wetlands. For example, wetland vegetation provides habitat structure and water quality functions, which would be lessened by removal of vegetation. Contaminant spills may lessen vegetation productivity, which in turn affects the ability of the wetland to filter out pollutants in stormwater runoff.

Operational Impacts

The new roadway and related project footprint would result in a permanent loss of approximately 0.24 acre of Wetland A and 0.22 acre of Wetland B for a total riparian wetland loss of 0.46 acre. The project will impact approximately 0.39 and 0.16 acre of palustrine emergent wetland in Wetland C and Wetland F, respectively. It is assumed that all three pond areas would also be impacted for a total impact to the ponds of 0.83 acre. The total combined wetland impact would be 1.84 acres. The increase in impervious surface associated with adding travel lanes, and other roadway improvements would increase the volume and quality of surface runoff entering creeks, canals, and irrigation ditches. During road operations, there is limited potential for large releases of hazardous materials to the environment and this would only occur if there is an accident where a vehicle spills fuel onto the roadway. However, road operations do result in minor leaks and spills of fuel, oil, and other fluids onto the road surface from vehicles. Similarly, brake use and tire wear also leave small amounts of contaminants such as heavy metals on the road surface. Reduced water quality in these waterways could affect wetland habitat quality. However, an overall reduction in untreated stormwater runoff from US 20/26 is anticipated due to proposed stormwater-runoff management measures as discussed in Section 3.11.

Long-term effects to wetland and riparian habitat may also occur from the introduction and establishment of noxious weedy plant species. Ground disturbance from construction activities and

introduction of seeds of weedy species from contaminated equipment poses a risk to native and desirable plant community assemblages. Loss of desirable plant community structure could affect wetland habitat quality.

Only Practicable Alternative

In accordance with Executive Order 11990, an analysis of alternatives to avoid placing fill in wetlands was conducted. As described in Chapter 2, numerous alternatives were considered in selecting the Proposed Action Alternative, including a number of alignment shifts to avoid impacting sensitive areas such as wetlands. Table 26 illustrates the potential impacts on wetlands of the possible alignment shifts. As shown in the table, other than the No Action Alternative, the Proposed Action Alternative would have the least impact on wetlands.

Table 26. Long-term Direct Impacts to Wetlands and Other Waters from Full Alternatives

Affected Resources	Proposed Action Alternative (Alt B)	No-Action	Shift Around the Centerline	Partial South Shift (Alt C)	Full South Shift (Alt D)
Wetland A (at Fifteenmile Creek)	0.24	0	0.35	0.24	0.24
Wetland B (at Mason Creek)	0.22	0	0.55	0.55	0.22
Wetland C	0.39	0	0.50	0.50	0.42
Wetland F	0.16	0	0.16	0.16	0.16
Pond 1	0.14	0	0.14	0.14	0.14
Pond 3	0.40	0	0.40	0.40	0.40
Pond 4	0.29	0	0.29	0.29	0.29
Total Wetland Impact (acres)	**1.84**	**0**	**2.39**	**2.28**	**1.87**

Sources: ITD 2015.

Other alternatives than those shown above are not practical for reasons of total project cost and potential for a high number of displacements and impacts to historic properties (see alternatives discussion in Chapter 2). The Proposed Action Alternative took into consideration the possibility of first avoiding wetland impacts altogether and then minimizing impacts as much as possible. Since there will be a loss of wetland area and function, mitigation in the form of wetland banking credits is proposed.

Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the Proposed Action includes all practicable measures to minimize harm to wetlands which will result from such use.

Cumulative Impacts

Even though wetlands were fairly uncommon in the general area, over time wetland area has been lost due to agricultural use and residential/commercial development. The cumulative impacts of the Proposed Action, in addition to impacts from past, present, and reasonably foreseeable actions, would impact wetlands within the region. However, roadway projects would provide mitigation that would result in no significant cumulative impacts to wetlands due to these projects at the regional level. The continuing development of residential and commercial properties is likely to result in loss of wetland area and wetland functions, particularly since many agricultural properties may not be recognized as wetlands.

3.12.3 Mitigation Measures

A PJD was issued by the USACE in February 2016 based on the wetland areas delineated in the report. In the PJD, the USACE states that it "treats all wetlands and waters on the project site as Waters of the U.S." To that end, the wetlands and their associated impacts described in this section relate to those areas that are most likely to be considered jurisdictional based on best available scientific knowledge. Given that the Proposed Action will be constructed in phases over an extended period of time and is dependent upon need and funding sources available, additional wetland delineations will be conducted and ITD will obtain an updated or amended PJD prior to construction of each phase. Waters found to be jurisdictional will be regulated under a USACE permit, which will require mitigation for impacts.

Under EO 11990 (23 CFR 771.125), agencies providing federally undertaken, financed or assisted construction and improvements "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 accordance with the EO, ITD also considers impacts to non-jurisdictional waters and therefore prior to implementing a project phase, ITD will provide mitigation for impacts to non-jurisdictional waters, including use of an approved mitigation bank.

Section 404 of the Clean Water Act requires that a permit from the USACE be obtained for the discharge of dredged and/or fill material into Waters of the United States, including wetlands. Construction activities in wetlands and other jurisdictional waters within the project corridor would trigger the need for a USACE permit. It will be determine during the design of each project phase if a nationwide 404 permit could be used or if an individual and project specific permit is required. An individual permit would be required for any project phase with over 0.5 acres of wetland impact and would require additional time during project development for agencies to review and issue the permit.

These permits typically include conditions regarding potential water quality impacts, mitigation and the use of BMPs. For wetland impacts within the project corridor, it is anticipated that wetland mitigation banks will be utilized. To do this, credits will be purchased at a private wetland bank to mitigate for impacts to wetlands. As shown in Table 25, the wetlands within the corridor are considered poor quality. The wetland banks used for mitigation are comprised of higher quality wetlands that are maintained by wetland biologists. Coordination with the wetland banks indicate there are sufficient mitigation banking credits available at the Barber Valley Wetland Mitigation Bank in southeast Boise, approximately 15 miles east of the US 20/26 and Eagle Road intersection. To protect remaining wetlands and jurisdictional waters in and adjacent to the study area during both construction and operational phase, it is anticipated that BMPs similar to those presented in Section 3.11.3 will be used. Areas of vegetation removal will be reseeded and/or replanted with native species following project completion.

3.13 Vegetation, Wildlife, and Threatened and Endangered Species

This section describes the existing biological resources: vegetation, habitat, fish and wildlife, and threatened and endangered species. The threatened and endangered species addressed only include those species federally listed as occurring in Canyon and Ada Counties by the US Fish and Wildlife Service (USFWS) on the list dated November 29, 2016. Also addressed in this section are the potential impacts of the US 20/26 alternatives on biological resources.

3.13.1 Affected Environment

Vegetation/Wildlife Habitat

The landscape surrounding the study area is characterized by agricultural use, scattered residential and commercial buildings, and more dense residential development. Because of this development, wildlife habitat in the study area is limited.

Native plant communities associated with the high desert ecosystems of the Boise River valley, including sagebrush and saltbrush steppe, have been largely replaced in the study area by irrigated agriculture and by a mix of native and non-native vegetation.

Vegetation along the highway includes native and non-native grasses, forbs, and small to medium shrubs. Non-native reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry (*Rubus discolor*) are common in riparian areas. Trees, including natives such as cottonwoods (*Populus* spp.) and willow (*Salix* spp.) are present in low abundance along riparian areas. Table 27 identifies the plant species observed in the US 20/26 Study area.

Table 27. Plant Species Observed in the US 20/26 Study Area

Latin Name	Common Name
Agropyron repens	Quackgrass
Anthemis cotula	Stinking daisy
Bidens sp. (prob. B. cernua)	Bedstraw
Brassica campestris	mustard
Bromus tectorum	Cheatgrass
Cichorium intybus	Chickory
Cirsium arvense	Canada thistle
Cirsium undulatum	Wavy-leaf thistle
Cirsium vulgare	Bull thistle
Echinochloa crus-galli	Barnyardgrass
Festuca arundinacea	Tall fescue
Grindelia squarrosa	Hook-headed grindelia
Heracleum lanatum	Cow parsnip
Hypericum perforatum	St. John's wort
Lactuca serriola	Prickly lettuce
Lolium multiflorum	Italian ryegrass
Meilotus alba	White sweetclover
Phalaris arundinacea	Reed canarygrass
Poa bulbosa	Bulbous bluegrass
Polygonum hydropiper	Marshpepper smartweed
Polygonum persicaria	Spotted lady's thumb
Polypogon monspeliensis	Rabbitfoot grass
Populus balsamifera	Cottonwood
Robinia pseudo-acacia	Black locust
Rubus discolor	Himalayan blackberry
Rumex acetosella	Sheep sorrel
Sagittaria latifolia	Wapato
Salix spp.	Willow
Tanacetum vulgare	Tansy

Table 27. Plant Species Observed in the US 20/26 Study Area (continued)

Latin Name	Common Name
Tragopogon dubius	Goatsbeard
Trifolium repens	White clover
Typha latifolia	Cattail

Source: ITD 2015.

Irrigation canals and a small number of naturally occurring streams (e.g., Fifteenmile and Mason Creeks) cross the landscape and flow under the highway. Water in these creeks and canals is conveyed from the Boise River, as well as from surface and subsurface sources. Many of these canals hold water only at high flows and are dry much of the year. Fifteenmile Creek and Mason Creek have been degraded from historical conditions by channel straightening and bank armoring (e.g., riprap). Riparian vegetation has been degraded by clearing and landscaping throughout the study area. Fifteenmile Creek retains marginal shade from mature trees along its banks, but shade is minimal along Mason Creek. Ephemeral flow and low habitat complexity reduce the quality of these waterways as aquatic habitat.

As discussed in Sections 3.11 and 3.12, there are four wetlands, three ponds, and two streams in the study area. There are multiple irrigation channels intersecting the study area that are also jurisdictional based on connectivity of these channels to other jurisdictional waters. The wetlands, streams, and irrigation features were given poor function ratings, based on criteria in the Montana Rapid Assessment Method applied to these feature. The low abundance and poor quality of wetland habitat in the study area provide low value as wildlife habitat.

Habitat suitable for wildlife corridors is limited in the study area. The corridor is in an area of growth where much of the landscape is changing from rural to urban or is already urbanized. The highway serves as a passage barrier as mammals, reptiles, and amphibians are at risk of collisions with vehicles. Culverts associated with the numerous canals and streams that run under US 20/26 provide passage for wildlife under the highway only at low flows. The most likely migratory species which could be impacted in the area is deer, but any migration routes through the area have been lost due to development. There is not a history of animal vehicle collisions in any specific areas that would indicate existing deer migration routes.

Special Status Plants

The Idaho Native Plant Society (INPS) maintains a list of special status species for the state of Idaho (INPS 2016). This list was checked against special status plant occurrence records within the limits of the study area obtained from the Idaho Fish and Wildlife Information System (IFWIS) in February 2016 (IFWIS 2016). The IFWIS contains no historical records of any special status plant observations within the study area.

Wildlife Species and Wildlife Species of Conservation Concern

Native wildlife occurring in the area includes small-to-medium sized mammals (skunks, raccoons, coyotes), migratory birds, birds of prey (kestrels, hawks), and reptiles and amphibians. Fish such as large- and smallmouth bass, trout, sturgeon and whitefish may occur in Fifteenmile and Mason Creeks. Deer, bobcats, and other wildlife less habituated to human-dominated landscapes may occur in the study area; however, habitat for medium-to-large mammals is fragmented and limited in quality. Bats may occur in the study area; however, no sign of bat use of the culverts was observed during a site visit in November 2007. The culvert surfaces of US 20/26 are fairly smooth and provide little to no crevices to provide suitable bat habitat.

The Idaho Department of Fish and Game (IDFG) maintains a list of species of greatest conservation need (IDFG 2016) in association with the Idaho Comprehensive Wildlife Conservation Strategy, which is the Idaho guiding document for managing and conserving at-risk species. This list was compared against occurrence records within 1-mile buffer of the study area using data obtained from IFWIS in February 2016 (IFWIS 2016). Of the 30 species on the current conservation list, three species have been noted within 1 mile of the study area. The three species are all bird species and include Franklin's gull (*Leucophaeus pipixcan*), American white pelican (*Pelecanus erythrorhynchos*), and lesser goldfinch (*Spinus psaltria*).

Franklin's Gull

The Franklin's gull is a migratory bird that utilizes terrestrial, riparian, and aquatic habitats. It is primarily an insectivore and catches insects in mid-flight, in recently plowed fields, and in small ponds and sloughs (where it may eat small fish, as well). It nests in colonies of up 15,000 to 20,000 individuals, typically utilizing dead marsh plants, which may be a floating structure anchored to a living plant stem. Breeding season typically begins in early May or June (NatureServe 2016).

IFWIS 2016 records included Franklin's gull sightings between 2007 and 2013 within 1 mile of the study area at multiple ponds and in a farmer's field west of Star Road and north of the study area. Another observation of multiple birds was made during this same time period within 1 mile of the study area east of Star Road and north of the study area.

Suitable perching and feeding habitat for the Franklin's gull is located within the study area. Although potential nesting habitat (ponds) are within the study area, no records of nesting colonies is recorded in the IFWIS data, and it is unlikely that any nesting habitat for the Franklin's gull occurs within the study area.

American White Pelican

The American white pelican is a large white migratory water bird that possesses a large beak. Pelicans are piscivorous, typically foraging in shallow waters. Pelicans rest/roost on islands and peninsulas and usually nest on islands or peninsulas in brackish or freshwater lakes. Egg-laying typically occurs in late April to June (NatureServe 2016).

The IFWIS 2016 reporting of American white pelican included two observations in 2010 within 1 mile north of the study area.

Suitable feeding habitat for the pelican is located within the study area, in ponds and possibly in ditches and creeks. No records of nesting pelicans occur within the study area, and it is unlikely that any nesting habitat is present within the study area.

Lesser Goldfinch

The lesser goldfinch is a small bird found in variety of habitats, including riparian areas, croplands, shrublands, orchards, and woodlands. The birds feed primarily on thistle and other seeds, foraging on or near the ground. Nests are usually built in trees or shrubs, 2 to 30 feet above the ground.

The IFWIS 2016 reporting of the lesser goldfinch included one observation in 2011 within 1 mile south of the study area.

Suitable perching and feeding habitat is located within the project. IFWIS 2016 data did not indicate lesser goldfinch nesting within the study area but suitable nesting habitat is present in shrubs or trees along the study area. However, due to the limited amount of these types of vegetation, suitable nesting sites are limited.

Threatened and Endangered Species

Species lists for federally listed species were obtained on November 29, 2016, from the US Fish and Wildlife Service (USFWS 2016). These were used to determine if any federally-listed species were located within the study area. A No Effect letter was prepared for this project to document that project construction and operation will not affect species that are listed or proposed for listing as threatened or endangered under the Endangered Species Act (ESA) (see Appendix G).

Listed Plant Species

There is no documentation of federally listed threatened or endangered plant species occurring in the study area. However, slickspot peppergrass (*Lepidium papilliferum*), which is federally listed as threatened, is endemic to Idaho's Snake River plains and adjacent foothills and may occur in Canyon and Ada Counties. Slickspot peppergrass is a flowering plant that occurs in either an annual or biennial form and occupies "slickspots," which are small areas within larger sagebrush habitat (OSC 2016). Slickspot peppergrass was originally listed on October 8, 2009, as a threatened species throughout its range. On August 8, 2012, this listing was removed. Effective September 16, 2016, slickspot peppergrass was relisted as a threatened species throughout its range. Critical habitat for slickspot peppergrass is currently proposed (81 FR 55058, August 17, 2016).

A slickspot peppergrass survey was performed in conjunction with this EA in October 2015. No slickspot peppergrass, habitat, nor critical habitat were identified during the survey. Additionally, the IFWIS 2016 database indicates that the nearest known observation of the species is 26 miles to the east of the project and no potential habitat is known to occur within the study area. Additionally, no critical habitat for slickspot peppergrass is proposed within the study area (USFWS 2016).

Listed Wildlife Species

No listed threatened or endangered wildlife species or designated critical habitat for wildlife species are known to occur in the study area.

3.13.2 Environmental Consequences

3.13.2.1 No Action Alternative

Vegetation/Wildlife Habitat

Existing effects to vegetation and wildlife habitat under the No Build Alternative would not change in the short term. The highway fragments habitat for these species and current land uses restrict habitat availability within the study area. However, as development and growth takes place along the corridor and traffic increases on US 20/26, impacts to wildlife habitat is anticipated to worsen and potential habitat area would diminish.

Stormwater runoff would continue to carry contaminants from the road surface into adjacent streams and canals. Contaminants include small amounts of gasoline, oil, and other engine fluids; heavy metals from brake wear; particles from vehicle exhaust; and sand from deicing operations (see Section 3.11.2). These materials can have a slight localized effect on water quality such as changes to pH, BOD, COD, and DO, which impact aquatic habitat.

Special Status Plants

No special status plants are known to occur in the study area and, therefore, no effect to special status plants are anticipated from the No Action Alternative.

Wildlife Species and Wildlife Species of Conservation Concern

Effects to wildlife and fish under the No Build Alternative would not change in the short term. Wildlife would continue to be at risk of fatal collisions with vehicles. However, as development and growth takes place along the corridor and traffic increases on US 20/26, impacts to wildlife particularly would worsen. The highway would continue to act as a barrier to animals that cross the highway and they would face an elevated risk of vehicle collisions as traffic increases. Traffic noise would also increase and add to the potential of disturbing wildlife. However, many of the wildlife species in the study area likely avoid the highway and/or are habituated to the ambient noise levels created by traffic.

Stormwater runoff would continue to carry contaminants from the road surface into adjacent streams and canals. Contaminants include small amounts of gasoline, oil, and other engine fluids; heavy metals from brake wear; particles from vehicle exhaust; and sand from deicing operations (see Section 3.11.2). These materials can have a slight localized effect on water quality such as changes to pH, BOD, COD, and DO, which impact aquatic species such as fish.

Three state-designated bird species of conservation concern have been observed to occur within 1 mile of US 20/26. Feeding and perching habitat for all three species, as well as for other migratory bird species, may occur in the study area and nesting habitat may be present for the lesser goldfinch. Under the No Action Alternative, impacts to these species would be consistent with existing conditions.

Threatened and Endangered Species

No federally listed threatened or endangered species or designated critical habitat for listed species are known to occur in the study area. Therefore, there will be no effect to listed species or to designated critical habitat from the No Action Alternative. The highway fragments habitat for these species and current land uses restrict habitat availability within the study area. Wildlife would continue to be at risk of fatal collisions with vehicles.

3.13.2.2 Proposed Action Alternative

Construction Impacts

Vegetation/Wildlife Habitat

In the Proposed Action Alternative, terrestrial habitat may be impacted in the short term by construction activities such as grading, use of the area for staging vehicles and equipment, removal of vegetation, and noise and ground vibration disturbance. This habitat may be disturbed for the duration of the construction work and could occur during all life stages for terrestrial species. Project work could cause noise disturbance and habitat degradation sufficient to preclude most wildlife use of the area during construction.

Riparian and aquatic habitat could also be impacted in the short term by project activities. Aquatic habitat in the study area for waterbirds and aquatic species includes ponds, streams, and irrigation ditches. These areas could be impacted by erosion and surface runoff, accidental oil and vehicle fluid spills, culvert lengthening or replacement, and removal of riparian vegetation providing habitat structure. These impacts could result in short-term degradation of riparian and aquatic habitat, precluding the species' potential use of the area.

Special Status Plants

No special status plants are documented in the study area and, therefore, no impacts to special status plants are anticipated from construction activities related to the Proposed Action Alternative.

Wildlife Species and Wildlife Species of Conservation Concern

Three state-designated bird species of conservation have been observed to occur within 1 mile of US 20/26. Browsing habitat for all three species may occur in the study area and nesting habitat may be present for the lesser goldfinch. Additionally, other migratory bird species may nest, perch, and feed in the area where trees and shrubs occur, particularly along creeks and irrigation canals. Swallow nests were also observed in culverts under US 20/26 in November 2007. Project activities are likely to impact nesting, perching and feeding in the short term as trees, shrubs, and other vegetation are removed to widen the existing roadway, create staging areas for equipment, and accommodate construction activities as necessary. Nesting swallows would be disturbed if culverts are removed, rebuilt, and/or retrofitted during construction. Construction noise is also likely to disturb migratory birds nesting adjacent to the study area if construction activities occur during nesting season (approximately mid-March to mid-August). Disturbance during nesting season could lead to nest abandonment and/or nesting failure.

Threatened and Endangered Species

No listed threatened or endangered species are documented to occur in the study area and no designated habitat for listed species is present within the study area. Therefore, there will be no effect to listed plant species or to designated critical habitat by the Proposed Action Alternative from construction activities.

Operational Impacts

Vegetation/Wildlife Habitat

Terrestrial habitat would be impacted in the long term with approximately 200 acres of new impervious surface that would be constructed to accommodate new travel lanes and improve intersections. Terrestrial habitat would be displaced by the construction of new roadway facilities and land adjacent to new roadway surfaces would likely be heavily compacted, reducing its ability to support vegetation and provide other habitat structure for ground-dwelling species. However, any habitat currently occurring within the project footprint is highly degraded. The total amount of habitat potentially displaced for highway improvements is small on a landscape scale, and the quality of such habitat is fairly marginal.

As noted in Section 3.11, some wetland and riparian habitat would be permanently lost within the study area. Additionally, long-term effects to aquatic and riparian habitat would occur from increased stormwater runoff. Contaminants present in stormwater runoff associated with highways include suspended sediments; nutrients, petroleum, and antifreeze from leaks; cadmium and zinc from tire wear; and copper from wear and tear from brake pads, bearings, metal plating, and engine parts. An increase in impervious surface associated with adding travel lanes, improving intersections, and other roadway improvements could increase the volume of surface runoff entering creeks, canals, and irrigation ditches in the study area. However, as discussed in Section 3.11, improvements related to surface water treatment and disposal in the Proposed Alternative is likely to actually contribute to improved water quality in aquatic habitat within the study area over existing conditions.

Special Status Plants

No special status plants are documented in the study area and, therefore, no impacts to special status plants are anticipated from the operation of the Proposed Action Alternative.

Wildlife Species and Wildlife Species of Conservation Concern

The proposed roadway improvements do not present a new barrier for mammals, reptiles, or amphibians since the existing highway already constitutes a barrier. Although the speed limit of the

proposed highway will be comparable to the existing condition, the widened roadway and increase in traffic will likely increase the mortality rates slightly for any wildlife crossing the highway. The operation of the Proposed Action Alternative would be similar to that of the No Action Alternative and would have no significant impacts to wildlife species.

As discussed above, although contaminants in stormwater runoff associated with highways could increase as a result of increased traffic along the highway and roadway improvements could increase the volume of surface runoff entering creeks, canals, and irrigation ditches in the study area, the improvements related to surface water treatment and disposal in the Proposed Action Alternative is likely to actually contribute to improved water quality in aquatic habitats within the study area over existing conditions. Therefore, no significant impacts to fish are anticipated due to the Proposed Action Alternative.

No long-term impacts to the described species of concern or other migratory birds are expected. Removal of vegetation providing nesting, perching, and/or feeding habitat (shrubs and trees) would be addressed through mitigation to replant these areas. Therefore the Proposed Action Alternative would have no significant impact upon wildlife species of concern.

Threatened and Endangered Species

No listed threatened or endangered species are documented to occur in the study area and no designated habitat for listed species is present within the study area. Therefore, there will be no effect to listed plant species or to designated critical habitat by the operation of the Proposed Action Alternative.

Cumulative Impacts

The most significant past impact to wildlife and wildlife habitat in the area has been the establishment of agriculture as the most prevalent land use in the study area. The change in land use and the conversion of native shrub and riparian woodland habitat to crop and livestock use has resulted in a direct reduction of habitat suitable for many native species. More recently, redevelopment of the agricultural land for residential and commercial uses has occurred, and this progression to a more urbanized landscape has further reduced the availability of wildlife habitat and fragmented the remaining habitat in the area. It is anticipated that this pattern would continue in the future with anticipated continued reduction in wildlife habitat and increasing fragmentation. Existing conditions, however, do provide habitat for wildlife species that are able to adapt to a human-influenced landscape.

Roadway improvements proposed for US 20/26 under the Proposed Action Alternative, as well as improvements to SH-44 and SH-16, will encourage residential development along the project corridor and in the general area as access is improved and travel times are reduced. Development on the outskirts of the cities of Caldwell, Nampa, Middleton, Star, Meridian, Eagle, and Boise will indirectly impact wildlife and habitat through noise and visual disturbance, change in habitat edges from agriculture to urban development, and direct mortality from an increase in traffic. The impacts of these disturbances may lower habitat quality in some locations.

3.13.3 Mitigation Measures

Numerous creeks, canals, and other waterways, which provide wildlife habitat, occur along the project corridor. To avoid and minimize potential impacts to water quality, measures will be implemented during construction and operation to address drainage, erosion control, and potential impacts to water quality. These measures include, but are not limited to, using silt fencing and wattles to contain runoff, and appropriate signing and flagging to indicate sensitive areas such as wetlands and buffer areas

between construction staging areas and waterways, and delineating grading limits near adjacent wetland areas with construction fencing so these areas are undisturbed by construction (refer to Sections 3.9 and 3.11 for additional BMPs). To reduce impacts to riparian habitat, ground disturbing activities and vegetation removal will be minimized to the extent practical. Riparian vegetation will be reseeded and/or replanted with native species following project completion.

Minimal long-term impacts are expected to terrestrial habitat. Mitigation to address removal of trees, shrubs, and other vegetation that provide habitat structure for migratory birds and small mammals will include replanting with native species the riparian areas and other areas disturbed within the project footprint. Additionally, removal of vegetation will be timed to avoid the nesting period for the bird species of concern and other migratory birds that occur in the vicinity of the study area.

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4. PUBLIC INVOLVEMENT AND AGENCY COORDINATION

The public and agency involvement program was initiated with a scoping process used to identify key stakeholders, determine community and stakeholder needs and concerns, and identify a broad range of initial alternatives. Scoping activities for the project included stakeholder interviews, public scoping meetings, and formation of a CPC. The public and agency outreach continued throughout the course of concept development of the project and will continue through construction of the project.

4.1 Stakeholder Interviews

In August and September of 2005, interviews were conducted with individuals who use the US 20/26 corridor, live along the corridor, and/or are involved in some aspect of managing the corridor. These interviews were informal and provided insightful information while engaging over 30 key stakeholders. The stakeholders expressed a desire for a facility that moves traffic safely and efficiently. They also indicated a high level of support for the goals of CIM in the corridor, including access management.

4.2 Public Meetings

A series of public meetings were held between May 2006 and June 2015. Meetings were “open house” format and opportunities were provided for both oral and written comments.

4.2.1 Series 1 – May 2006

Two scoping meetings were held on May 10 and 11, 2006, in order to solicit input from a full range of interested citizens along the corridor. The purpose of the scoping workshops was to provide the public with an opportunity to:

- Learn about the project.
- Express their concerns, needs, and vision for the corridor.
- Provide input on environmental issues and concerns.

Notification for the open houses occurred in several ways:

- A detailed brochure was produced that included the open house dates, along with study information. The brochure was mailed to nearly 13,300 people. Of those, nearly 12,800 were delivered by mail carrier route to people who live and work along the corridor. The other 500 were sent to a database of people who have an interest in the project.
- Personal letters were sent to targeted stakeholders (developers, property owners, and agencies) inviting them to attend an open house meeting specifically designated for their group.
- Media releases about the study and the open houses were sent on May 9, 2006. These were followed up with media kits that were delivered to The Idaho Statesman, the Idaho Press-Tribune, KBCI Channel 2, KIVI Channel 6, KTRV Fox 12, and KTVB Channel 7. Coverage about the open houses was received by The Idaho Statesman, KTVB Channel 7, and KTRV Fox 12.
- A display ad ran in The Idaho Statesman on May 10, 2006, and in the Idaho Press Tribune on May 11, 2006.

- Open house notification was placed on the Idaho Transportation Department homepage and on the study web page.
- Open house notification was sent to COMPASS; Canyon County; and the cities of Caldwell, Eagle, Meridian, and Nampa to be placed on their homepages.
- Sandwich boards notifying motorists about the open houses were placed at the following locations along the corridor:
  - Star Road.
  - Middleton Road.
  - Friendship Celebration Church.
  - Idaho Department of Health and Welfare.

Approximately 156 people attended the open houses and 81 comment forms were received. Of those who attended, many participated in a facilitated discussion. The facilitated discussions were recorded on flip chart notes. No requests for assistance in other languages were received for either meeting.

The top issues that workshop participants considered when choosing improvements to US 20/26 were:

- Safety – Make sure the roadway is safe.
- Property Acquisition – How much will be needed and how much will it cost?
- Traffic Congestion – Limit the number of traffic signals and access points.
- Alternative Forms of Transportation – Light rail, bicycle/pedestrian paths, and bus routes.

The top responses workshop participants preferred for access types along US 20/26 were:

- Express way, including frontage and back roads.
- Traffic signals every mile now, but with the long-term goal of an expressway without signals.
- Signals every mile.

The top roadway features workshop participants would like to see along US 20/26 are:

- Bike and pedestrian pathways.
- Medians, with some support for landscape.
- Landscaping, though not too extensive.
- Sound barrier.
- No bike or pedestrian pathways.

The top experiences workshop participants want to have when traveling US 20/26 are:

- Travel time.
- Safety.
- Speed (would like to move 45 mph or faster).

4.2.2 Series 2 – May 2007

Two public meetings were held on May 30 and 31, 2007, to provide stakeholders with an update on the project. The purpose of the open houses was to provide the public with an opportunity to learn about the project and provide input on:

- Managing access on and off the roadway.
- Environmental studies for the corridor.
- Roadway alignment and design options.

Notification for the open houses occurred in several ways:

- A newsletter was produced that included open house dates and study information. The newsletter was mailed to approximately 15,300 people. Of those, nearly 14,600 were delivered by mail carrier route to people who lived and worked along the corridor. The other 700 were sent to a database of people who had expressed interest in the project.
- Personal letters were sent to Ada County and Canyon County property owners inviting them to attend a May 30, 2007, meeting with ITD to discuss possible impacts to their property.
- Media releases about the study and open houses were sent on May 25, 2007, to the Idaho Statesman, Idaho Press-Tribune, KBCI Channel 2, KIVI Channel 6, KTRV Fox 12, and KTVB Channel 7. Coverage about the open houses was included in the Idaho Statesman, KTVB Channel 7, and KTRV Fox 12.
- Display ads ran in the Middleton Gazette, Valley Times, Idaho Business Review, Star Independent, Idaho Statesman, and Idaho Press-Tribune.
- An open house notification was placed on the Idaho Transportation Department homepage and on the study web page.
- Open house notifications were sent to COMPASS; Ada County; Canyon County; and the cities of Caldwell, Eagle, Meridian, and Nampa to be placed on their homepages.
- COMPASS and the City of Meridian sent out an e-mail notification, from their databases, about the open houses.
- Sandwich boards notifying motorists about the open houses were placed at the following locations along the corridor 1 week before the meetings:
  - Star Road.
  - Middleton Road.
  - Friendship Celebration Church.
  - Thomas Jefferson Charter School.

Approximately 218 people attended the meetings, and 58 completed comment sheets (RBCI 2007). Meeting attendees were asked to comment on a proposed access management plan and design options for the west, middle, and east segments; environmental issues for the entire corridor; and three potential alignments for the middle segment. Frequent comments included:

- Save ROW for future use.
- Prioritize speed on the future roadway.

- Reduce impacts to homeowners (including noise).
- Consider reducing the signal frequency, traffic flow, and speed.
- Consider surrounding roads.
  - Consider the future circulator system, roundabouts, and access to I-84 or the river.
  - Support for frontage and back roads.
- Prioritize homeowners, power lines, and straight roadway when evaluating the alignment options.
  - Comments varied widely on all three alignment options.

4.2.3 Series 3 – July 2012

Four property owner meetings were held on July 18 and 19, 2012, to provide property owners adjacent to the corridor an opportunity to learn about the project and speak with a project representative about how the proposed improvements could affect property(ies) (RBCI 2012).

Meeting notification included a personal letter from ITD to 370 property owners adjacent to the corridor. The letter notified the property owners of the meeting and informed them that this would be an opportunity to speak individually with project representatives to discuss issues, concerns, and/or ideas.

Approximately 66 people attended the meetings and 17 written comment sheets were received. Frequent comments included:

- The need for improvements on this corridor is understandable.
- The need for a six-lane highway is questionable.
- There are concerns about how the improvements will impact private property.
- Property owners appreciate ITD taking the time to meet with them and share information about the corridor study and proposed improvements.

4.2.4 Series 4 – June 2015

Two public meetings were held on June 23 and 25, 2015, to give the community an opportunity to comment on the US 20/26 Corridor Study and recommended improvements (RBCI 2015). All materials from the open houses were posted on ITD's website in an online public meeting format beginning on June 26, 2015. Live online Q&A sessions with the project manager were held on Monday June 29, 2015, (Noon to 1:00 p.m.) and Tuesday, June 30, 2015 (6:00 to 7:00 p.m.).

Notification for the open houses occurred in several ways:

- Residents, property owners, agencies, business owners, and elected officials received a postcard notifying them of the public open houses, online public meeting, and the live online Q&A sessions.
- Advertisements for the open house ran in the Idaho Statesman on Sunday, June 21, 2015; the Idaho Press Tribune on Sunday, June 21, 2015; the Meridian Press the week of June 19-June 25, 2015; and the Valley Times on Monday June 22, 2015.

- Each property owner along US 20/26 from Eagle Road to I-84 in Caldwell received a personal letter from ITD inviting them to the public open houses, online public meeting, and the live online Q&A sessions.
- The invitation to the public open houses, online public meeting, and the live Q&A sessions was posted on ITD's website.
- Postcards were hand delivered to staff at the City of Meridian, the City of Eagle, and the Holy Apostles Catholic Church.
- A news release announcing the public open houses, online public meeting, and the live online Q&A sessions was distributed through ITD's media manager system on Friday, June 19, 2015.
- Sandwich signs were posted on June 23, 2015, and June 25, 2015, at key locations on US 20/26 to advertise the location and time for the public open houses.

Approximately 189 people attended the meetings, and 107 comment sheets were submitted. Frequent comments included:

- Improvements to US 20/26 are greatly needed as soon as possible and are long overdue.
  - There were mixed opinions about how to best improve the corridor. Some attendees were very supportive of the proposed improvements while others were not.
  - Consider widening the corridor to four lanes in the very near future and then building it out to six lanes at a later time.
  - The intersection of US 20/26 and Eagle Road needs to be improved; the current turning movements at this intersection are not adequate.
  - The number of traffic lights on US 20/26 from Eagle to Caldwell should be reduced, or the signals need to be better synchronized to improve the flow of traffic and reduce congestion.
- Concern regarding impacts to property owners, businesses, and residents who live on or adjacent to US 20/26 included:
  - Maintaining access to existing businesses and future development is important when planning the corridor improvements.
  - Noise levels are of particular concern; increasing capacity will increase noise from traffic so sound walls should be included as part of the improvements.
  - ITD should keep in communication with those property owners who may need to sell ROW; also, keep them informed and involved when decisions are made about the future of this corridor.
  - Impacts to the environment and landscaping should be taken into account. The corridor needs to be improved, but keeping it visually attractive is also important or as least maintaining a sense of a greenbelt.
- Comments on the CFI concept included:
  - May be more efficient at moving traffic, but it is unfamiliar, and seems difficult and unsafe for motorists to navigate.
  - Have a very large footprint and would require a greater amount of ROW.
  - Would not operate well because there is not enough traffic to support this design.

- Seems difficult for bicyclists and pedestrians to travel through.
- Would require public education to prevent collisions.
- Some participants who have used CFIs in Utah commented that they disliked CFIs and thought CFIs would be confusing for Idaho drivers.

4.3 Agency Involvement

The importance of involving the local governing agencies frequently and at a high level was recognized at the outset of the project. Corridor preservation requirements to be coordinated between ITD, COMPASS, and local governments included the following key concepts:

- Setbacks: Without setbacks being managed through development agreements, future road widening would impact homes, commercial buildings, parking lots, and other land improvements. This would lead to impacts that would substantially increase project costs to improve US 20/26.
- Access Management: The ramifications of unmanaged access points are well documented. Current state access management policies alone do not control access adequately. Local governing agencies must assist ITD in controlling access to US 20/26 through development agreements to preserve the transportation integrity of the corridor.
- Noise Abatement: If residential development is allowed without noise abatement features along the highway, the state will consider those areas less likely for noise abatement. Future development should include increased setbacks and/or developer-funded berms or noise walls. This would protect future residents from traffic noise on US 20/26.

Recognizing these critical needs, the CPC was formed during the scoping phase to advise COMPASS and ITD on the proposed improvements. The CPC was comprised of elected and appointed officials representing local governments along the corridor and has provided numerous recommendations for COMPASS and ITD to consider. The CPC met frequently through the beginning of the project as the overall vision for the corridor was developed and concept design was prepared. More information on the CPC and its role on the project is described in Section 2.1.1.

Coordination with environmental resource agencies such as USACE, SHPO, NRCS and IDFG have also occurred throughout the project duration to provide updates and seek input as needed.

Individual meetings were conducted with the jurisdictions along the corridor on June 29, June 30, and July 1, 2015. The meetings were held to provide the local jurisdictions with an opportunity to review and provide comment on the recommended preferred alternative for the corridor, speak with the project team in a small setting to learn and ask questions, and present the next steps for the project. Meetings were held with the following agencies:

- ACHD.
- Ada County.
- Canyon County.
- Canyon Highway District No. 4.
- City of Boise.
- City of Caldwell.

- City of Eagle.
- City of Meridian.
- City of Nampa.
- COMPASS.
- VRT.

The agencies were generally in support of the recommended preferred alternative for the corridor. A few frequently-heard comments included:

- Questions/concerns regarding access management
- Questions/concerns regarding bike and pedestrian connectivity, accessibility, and safety
- Requests to plan and program constructing improvements as soon as possible

Comments from the agencies were considered when finalizing the Recommended Build Alternative, and the comments will continue to be evaluated during design and construction of individual phases of the project.

4.4 Other Public and Government Outreach

ITD has provided periodic project updates in the form of newsletters to stakeholders and the public. Three newsletters were distributed throughout the project and one additional newsletter is planned to be sent out prior to the Public Hearing. ITD also maintains a project website that is updated on a regular basis to provide general information about the project, meeting displays, public meeting summaries, and project contact information. The website is located at http://apps.itd.idaho.gov/apps/us2026CorridorStudy/default.html.

Early on, the Building Contractors Association had significant interest in the project and the team met with their representatives several times to discuss the typical section features of the roadway and proposed ROW width during the development of alternatives.

Although no tribes would be affected by the project, ITD coordinated with the Shoshone Bannock tribes during the outreach process.

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5. SECTION 4(F) EVALUATION

During the planning phases of the US 20/26 project, potential Section 4(f) properties were identified and considered when defining and analyzing alternatives. Section 4(f) properties include public parks, recreation areas, wildlife and waterfowl refuges, and historic sites. When feasible and prudent, alternative alignments were adjusted to avoid or minimize impacts to potential Section 4(f) properties.

5.1 Section 4(f) of the Department of Transportation Act of 1966

Section 4(f) was enacted as part of the Department of Transportation Act of 1966. The FHWA Section 4(f) Title 23 USC 138 states:

> "[T]he Secretary shall not approve any program or project (other than any project for a park road or parkway under Section 204 of this Title) which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as determined by the Federal, State or local officials having jurisdiction thereof, or any land from an historic site of national, State, or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use."

5.2 Section 4(f) De Minimis Impacts

Section 6009(a) of Safe, Accountable, Flexible, Efficient Transportation Equity Act, A Legacy for Users (SAFETEA-LU), Public Law. 109-59, amended existing Section 4(f) legislation at USC Section 138 of Title 23 and Section 303 of Title 49, to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). The *de minimis* impact criteria and associated determination requirements specified in SAFETEA-LU are different for historic sites than for parks, recreation areas, and wildlife and waterfowl refuges. *De minimis* impacts related to historic sites are defined as the determination of either "no adverse effect" or "no historic properties affected" in compliance with Section 106 of the NHPA. *De minimis* impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not "adversely affect the activities, features, and attributes" of the Section 4(f) resource.

The revision provides that once the USDOT determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, mitigation, or enhancement measures, and required concurrence, results in a *de minimis* impact on that property, an analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete. On December 13, 2005, FHWA issued guidance for determining *de minimis* impacts to Section 4(f) resources. For historic properties the *de minimis* criteria are met when:

- The process required by Section 106 of the NHPA results in the determination of "no adverse effect" or "no historic properties affected" with the concurrence of the SHPO in the Section 106 consultation;
- The SHPO is informed of FHWA's intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination; and
- FHWA has considered the views of any consulting party's participation in the Section 106 consultation.

The Proposed Action would not affect any parks, recreation areas, or wildlife or waterfowl refuges; therefore, the *de minimis* process for these resources is not needed.

5.3 Resources Impacted by the Proposed Action

5.3.1 Avoidance Alternative Analysis

Section 4(f) states that a feasible and prudent alternative that avoids the use of all Section 4(f) resources must be sought. If such an alternative cannot be developed, the alternative that does the least harm to Section 4(f) resources must be chosen. To identify this alternative, an evaluation of the relative importance of the resources being used and the relative severity of the uses is required.

As indicated in Section 3.5.2.2, 24 sites were determined to be individually eligible for the NRHP. The proposed improvements will result in 16 minor use, no adverse effect determinations: 11 waterways, 1 railroad, and 4 architectural sites (Bionomics 2016b).

5.3.2 Impacted 4(f) Properties

The Archaeological and Historical Survey of Alternatives and Determination of Eligibility and Effects have been coordinated through ITD and SHPO as part of the EA process. Potentially impacted Section 4(f) properties are described below and listed in Table 15 (Section 3.4). These properties were evaluated per requirements of NHPA Section 106 and findings of No Effect or No Adverse Effect for each property were concurred upon by SHPO, which provided the basis for the FHWA *De Minimis* finding.

5.3.2.1 Waterways

Waterways that are potentially impacted by the project include:

- Caldwell Highline Canal – The Caldwell Highline Canal is a delivery system that begins at the Boise River and flows east for 12 miles ending at the Maddens Spur Drain. The Proposed Action will permanently impact a total of 2,122 feet of the 12-mile-long canal.
- North Slough – The North Slough is both a delivery and drainage system that begins at the Ridenbaugh Canal and flows for 8.8 miles where it connects to the Phyllis Canal. The Proposed Action will permanently impact 372 feet of the 8.8-mile-long waterway.
- Fifteenmile Creek – Fifteenmile Creek is a natural creek used as an irrigation delivery system. Fifteenmile Creek begins at the intersection of Tenmile and Fivemile Creeks located to the south of US 20/26 and flows northwest for 3.8 miles where it drains into the Boise River. The Proposed Action will permanently impact 311 feet of the 3.8-mile-long waterway.
- Weymouth Lateral – The Weymouth Lateral is a delivery system that starts at the Caldwell Highline Canal and ends east of Mason Creek, and flows for a total length of 2 miles. The Proposed Action will permanently impact 2,795 feet of the 2-mile-long waterway.
- Noble Drain – The Noble Drain is a drainage system that carries excess water from farm lands starting west of the UPRR near I-84 and West Karcher Road. The Proposed Action will permanently impact a total of 222 feet of the 5-mile-long drain.
- Bolton Lateral – The Bolton Lateral is a delivery system that begins at the Caldwell Highline Canal and flows for 5.5 miles to the Solomon Drain. The Proposed Action will permanently impact 224 feet of the 5.5-mile-long lateral.

- Solomon Drain – The Solomon Drain is a naturally occurring drainage system that collects storm and agricultural runoff east of Middleton Road, between Nampa and Caldwell. The Proposed Action will permanently impact 219 feet of the 4.5-mile-long drain.
- Horton Lateral – The Horton Lateral is a delivery canal that begins at the Caldwell Highline Canal and ends at the Solomon Drain, for a total length of 2.43 miles. The Proposed Action will permanently impact 218 feet of the 2.43-mile-long waterway.
- Mason Creek Ditch – Mason Creek Ditch is an irrigation delivery ditch that begins at the Phyllis Canal and drains into the A Drain for a total length of 8 miles. The Proposed Action will permanently impact 211 feet of the 8-mile-long waterway.
- Phyllis Canal – The Phyllis Canal originates from the south side of the Boise River southwest of Eagle and drains into the Renshaw Canal south of Greenleaf for a total length of 35 miles. The Proposed Action will permanently impact 107 feet of the 35-mile-long canal.
- A Drain – The A Drain is an irrigation drainage system that begins west of the Horton Lateral and drains into the Boise River, flowing for a total length of 2 miles. The Proposed Action will permanently impact 215 feet of the 2-mile-long drain.

De Minimis Finding for Waterways

Each of the waterways described above will have permanent impacts from the Proposed Action. However, all waterways will still be functional and the impacts will have minimal effects on the physical characteristics of the historic waterways. The impacts will not adversely affect the activities, features, and other attributes of the 4(f) resources. FHWA has determined that the Proposed Action will have *de minimis* impact to the Section 4(f) waterway resources described above.

5.3.2.2 Historic Railroad

This branch line of the UPRR, also called Maddens Branch, historically began in Nampa and proceeded northwest through Middleton and on to Emmett where it met with the Idaho Northern and Pacific line from Payette to McCall. The total length of the historic railroad was 26 miles; however, the track only extends to the Boise River south of Middleton now for a distance of 8 miles. Trains still use this section of track to haul agricultural products and other products to the main line. The Proposed Action will permanently impact 211 feet of the 8-mile-long segment.

De Minimis Finding for Historic Railroad

The impacts from the Proposed Action will have a minimal effect on the physical characteristics of this historic railroad and will not adversely affect the activities, features, and attributes of the Section 4(f) resource. Furthermore, the function of this section of the UPRR will not be altered, and the railroad will continue to operate as a railroad. FHWA has determined that the Proposed Action will have *de minimis* impact to the Section 4(f) historic railroad described above.

5.3.2.3 Historic Architectural Sites

Historic Cultural Resources that are potentially impacted by the project include:

- US 20/26 house – 7832: This site consists of a house, a shed, a garage, and a barn. The Proposed Action is shifted south to minimize impacts to this site which includes a total of approximately 2.6 acres. The alignment will encroach onto the site to impact approximately 2,190 square feet of the site, and will remain approximately 31 feet from the historic house. The acquisition will

result in a loss of part of the grass lawn and driveway, but does not impact the site buildings or the large mature bushes in front of the house.

- US 20/26 house – 7027: This site consists of a house, three barns, two silos, and a metal shed. The Proposed Action is shifted north to minimize impacts to this site which includes a total of approximately 3.5 acres. The alignment encroaches onto approximately 752 square feet of the northeast corner of this site. The following features are located within the northeast corner of the site, which will be impacted by the proposed alignment: a small portion of a gravel parking area, a short (approximately 1 foot in height) stone wall that separates a gravel parking area from the landscaped lawn, and a few small shrubs and landscape rock. None of the site buildings are impacted.
- Farmer Brown Dairy Barn – This site consists of a house, a barn, a garage, and a shed. The Proposed Action is shifted north to minimize impacts to this site which includes a total of approximately 57.2 acres. The alignment encroaches onto approximately 500 square feet along the northern boundary of the site and within the northeast corner of this site. The following features are located within the northeast corner of the site, which will be impacted by the proposed alignment: a landscaping bed with a natural stone edging with shrubs in it and a small portion of the grass lawn. None of the site buildings are impacted.
- Phyllis Canal Bridge – This site consists of a concrete one-span T-beam bridge that was built in 1956 by the Idaho Department of Highways. The Proposed Action would shift the alignment to the north to minimize impacts to this site. The existing bridge will be used for east-bound traffic. A new structure will be constructed adjacent to the north to carry west-bound traffic. The proposed improvement will rehabilitate the historic bridge without adversely affecting the historic bridge.

De Minimis Finding for Historic Architectural Sites

The project will have minimal effects on the physical characteristics of the historic architectural sites and will not adversely affect the activities, features, and attributes of the Section 4(f) resources. FHWA has determined that the Proposed Action will have *de minimis* impact to the Section 4(f) historic architectural sites described above.

6. PHASED PROJECT IMPLEMENTATION

This chapter includes a phased-project implementation plan that describes a potential build-out scenario of the Proposed Action Alternative. The Proposed Action was developed based on engineering analysis, an evaluation of environmental resources, and a public involvement effort that included coordination with public agencies and local elected officials. The scale of the Proposed Action and current funding limitations dictates that the project be constructed in phases.

6.1 Phased Implementation

6.1.1 Phased Implementation Requirements

For major transportation projects, physical and funding limitations associated with constructing the entire project at one time need to be identified and disclosed during the NEPA process.

Phasing of the Proposed Action presented in this chapter is consistent with FHWA's objective of analyzing and selecting transportation solutions on a broad enough scale to provide meaningful analysis. Phasing also avoids dividing the project into segments that offer only minimal public benefit. It is the intent of ITD and FHWA to work toward implementation of the Proposed Action in its entirety through this phased approach.

The Proposed Action is to widen and improve approximately 15 miles of US 20/26 between I-84 and Eagle Road. With an estimated cost of approximately $338 million, it represents a large investment of federal and state transportation funds and requires construction in phases. See Section 6.2.4for additional information on costs.

6.1.2 History of Phased Project Implementation in Idaho

Once a Record of Decision (ROD) or a Finding of No Significant Impact (FONSI) has been issued, or a Categorical Exclusion decision has been reached following an Environmental Evaluation, implementation is frequently accomplished through phasing, particularly of large or complex projects. ITD has successfully constructed numerous projects in phases once a NEPA approval has been issued. Table 28 provides some examples of ITD's phased projects.

Table 28. Idaho Transportation Projects Using Phased Construction

Project Name	NEPA Document (Type and Date)	Construction Phases	Status of Phases
US 93, Twin Falls Alternate Route	EA (FONSI) 2000	2 phases	All phases completed
I-84/US 93 Interchange	EE (CatEx) 2001	2 phases	All phases completed
City of Rocks Back County Byway	EE (CatEx) 2002	4 phases	All phases completed
US 30, McCammon to Lava Hot Springs	EA (FONSI) 2003	3 phases	2 phases completed
I-84, Karcher Interchange to Five Mile	EA (FONSI) 2008	8 phases	6 phases completed
SH-75, Timmerman to Ketchum	EIS (ROD) 2008	7 phases	2 phases completed
US-95, Garwood to Sagle	EIS (ROD) 2010	6 phases	3 phases completed
SH-16, SH-44 to I-84	EIS (ROD) 2011	2 phases	1 phase completed

6.2 Project Programming and Funding

6.2.1 Project Programming

The ITIP is a statewide prioritized program of transportation projects covering a period of 5 years. The purpose of the ITIP is to provide a fiscally sound, 5-year capital improvements plan for the state's transportation program. Only projects for which funding sources have been identified are included in the ITIP, so the total value of projects listed in the ITIP is limited by the amount of highway infrastructure revenue available. The ITIP indicates which projects have been selected, how much the projects are expected to cost, the funding sources used, and when the projects are scheduled to be completed. Once a project is added to the ITIP, it is assigned a Key Number (KN) for identification.

The FY 2017 to 2021 ITIP identifies five projects in the US 20/26 corridor as follows (ITD 2016):

- **KN19944 – Locust Grove Road to Eagle Road:** Widen US 20/26 between Locust Grove Road and Eagle Road from two lanes to four lanes. Construction funding is identified for 2021.
- **KN19111 – Franklin Road Intersection:** Add a traffic signal with other intersection improvements. Construction funding is identified for 2019.
- **KN19412 – Middleton Road to Locust Gove Road:** Restore pavement on US 20/26 with construction funding identified for 2017.
- **KN19415 – Midland Road, Northside Boulevard, Can-Ada Road Intersections:** Minor intersection improvements such as right-turn lanes and paved shoulders with construction funding identified for 2019.
- **KN20227 – Phyllis Canal Culvert:** Replace the Phyllis Canal Bridge with construction funding identified for 2021.

The COMPASS CIM 2040 is the regional long-range transportation plan for the identification and development of transportation projects within Canyon and Ada Counties and complements the shorter, 5-year project development and implementation schedule of the ITIP.

CIM 2040 identifies the US 20/26 Corridor in the study area as the number three priority unfunded corridor for improvements in the region behind I-84 (Centennial Way Interchange to Franklin Boulevard Interchange) and State Highway 44/State Street Corridor (I-84 to SH-16 and Glenwood Street to downtown Boise).

6.2.2 Project Funding

Funding for state transportation projects currently comes from federal, state, and local taxes and fees. Project funding is determined by programming projects in the ITIP based on federal and state revenues and appropriations by the Idaho Legislature. State revenue includes vehicle registration fees; state gasoline and special fuel taxes; and miscellaneous fees including license plate fees, driver licenses, and fines. Federal funding, which represents a major funding source for Idaho, includes the Highway Trust Fund (HTF), which receives revenue from federal user taxes such as the federal fuel tax.

Other funding mechanisms used for transportation improvements in Idaho include, but are not limited to, the Grant Anticipation Revenue Vehicle (GARVEE bonding and public/private partnerships).

6.2.2.1 Transportation Funding Bills

The HTF has been appropriated through a series of transportation funding bills. Between the early 1990s and 2015, four federal transportation funding bills have been authorized: Intermodal Surface Transportation Efficiency Act (ISTEA) for FY 1992 to 1997; Transportation Equity Act for the 21st Century (TEA-21) for FY 1997 to 2005; Safe, Accountable, Flexible, Efficient Transportation Act – a Legacy for Users (SAFETEA-LU) for 2005 to 2012; and Moving Ahead for Progress in the 21st Century Act (MAP-21) for FY 2012 to 2014. Figure 14 shows the funding allocated to the State of Idaho from the last three of these funding bills.

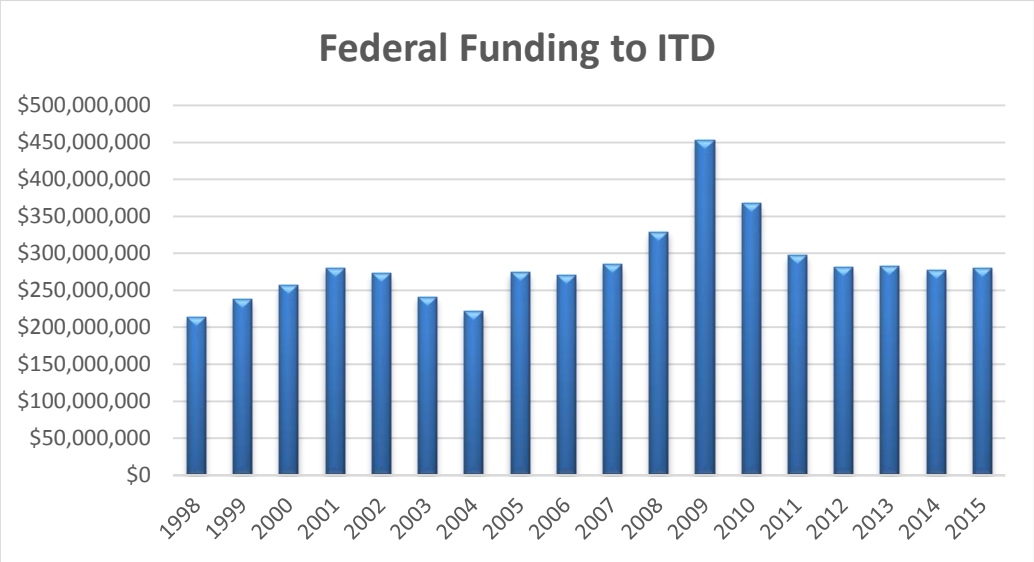

Figure 14. Federal Funding to ITD

On December 4, 2015, the replacement transportation authorization bill called the Fixing America's Surface Transportation Act (FAST) was passed in Congress and signed into law. ITD is working to understand the FAST funding programs and eligibilities to implement into the ITIP.

6.2.2.2 Grant Anticipation Revenue Vehicle (GARVEE) Bonds

GARVEE bonds are financing mechanisms that borrow from future annual federal appropriations to construct high priority safety and congestion relief projects immediately. GARVEE bonds were authorized in federal law by Section 311 of the National Highway System Designation Act of 1995, which amended 23 USC Section 122 (the Federal Aid Highway Act) to expand the eligibility of bond and other department instrument financing costs for federal aid reimbursement.

Idaho Code 40-315 authorizes the Transportation Board to select projects from a list of 13 corridors, request bonding authorization from the Idaho State Legislature, and enter into agreements with the Idaho Housing and Finance Association to secure bond financing for eligible projects. The US 20/26 corridor is not included in this current authorization.

6.2.2.3 Public/Private Partnerships

Completion of Idaho's planned surface transportation projects will include a continuation of public/private partnerships to contribute funding for ROW acquisition and construction. ITD has

partnered with both local governments and private sector interests to construct portions of transportation facilities in the state.

Canyon and Ada Counties have experienced high levels of sustained population growth over the past 10 years. Associated land development in the State of Idaho has presented opportunities to partner with local governments and the private sector to successfully implement transportation improvements. Examples of these include:

- **I-84/Isaacs Canyon Interchange East of Boise:** ITD partnered with Micron to construct this interchange in Boise.
- **I-84/Franklin Interchange Structure Widening in Nampa, Idaho:** ITD partnered with Micron to widen this structure in Nampa.
- **I-90/Beck Road Interchange between Post Falls and Washington State Line**: ITD partnered with a private developer to construct a new interchange in Post Falls. This project is being funded through Idaho's State Tax Anticipation Revenue (STAR) program.
- **SH-55, I-84 to Fairview Avenue Widening:** ITD plans to widen SH-55, from Franklin Road to Fairview Avenue, through a partnership with a private developer. This project is also funded through the STAR's program.

In the US 20/26 corridor, a public/private partnership was used to address one of the most immediate needs of the corridor. Through a public/private partnership arrangement between ITD, ACHD, and a private developer, improvements to the US 20/26 and Linder Road intersection were completed in 2011.

6.2.3 Project Programming and Funding Conclusion

Based on the history of federal and state funding of highways in the State of Idaho and the total capital expenditures on highways from all government sources, it is reasonable to conclude that federal funding and funding from state and local sources will continue to be available, at some level, to fund the design, acquire ROW, and construct the Proposed Action.

While design and construction funding is not currently programmed to construct the entire scope of the Proposed Action, it is reasonable that the Proposed Action evaluated in this EA can be funded and constructed based on the following:

- The history of federal and state highway funding since 1992 (since recent federal transportation funding bills have been enacted);
- ITD's successful partnering with private sector and local governments to implement transportation projects; and
- ITD's success in implementing phased projects.

ITD and FHWA will pursue funding through the annual update of the ITIP and as envisioned in COMPASS' CIM.

6.2.4 Identification of Logical Construction Phases and Priorities

The Proposed Action would involve the construction of a six-lane divided highway. Since the large scale of the project and current funding limitations restrict the ability to complete the entire 15-mile Proposed Action under one construction project, the Proposed Action was divided into constructible segments that would be built as funding permits.

A phasing study was completed to determine a logical sequence for construction projects in the corridor. The phasing study identified 14 primary projects to be constructed, which are shown in Figure 15 and summarized on the following page.

- **Project 1 – Linder Road to Eagle Road ($66 Million):** Reconstruct and widen US 20/26 to a four-lane divided highway from Linder Road to Eagle Road with a rural (no outside curb and gutter) or urban section (with outside curb and gutter). The project would also include the ultimate drainage improvements, where practical, including the subsurface drainage system needed to keep the stormwater discharge within the ROW. At-grade intersection improvements, involving standard signals and turn lanes, would be included at Fox Run Way, Meridian Road, Castlebury Avenue, Locust Grove Road, Stafford Drive, and Eagle Road. The Linder Road intersection has already been improved to four lanes on US 20/26, so few improvements would be needed at that location.
- **Project 2 – SH-16 to Linder Road ($49 Million):** Reconstruct and widen US 20/26 to a four-lane divided highway from SH-16 to Linder Road with a rural section (no outside curb and gutter). Stormwater treatment would largely be accommodated with a roadside ditch. At-grade intersection improvements, involving standard signals and turn lanes, would be included at Black Cat Road, Tree Farm Way, Ten Mile Road, and Long Lake Way. The SH-16 (McDermott Road) intersection has already been improved to four lanes on US 20/26, so few improvements would be needed at that location.
- **Project 3 – 11th Avenue to SH-16 ($47 Million):** Reconstruct and widen US 20/26 to a four-lane divided highway from 11th Avenue to SH-16 with a rural section (no outside curb and gutter) on the proposed shifted alignment (shifted north from 11th Avenue to just east of Star Road). Stormwater treatment would largely be accommodated with a roadside ditch. At-grade intersection improvements, involving standard signals and turn lanes, would be included at 11th Avenue, Can-Ada Road, and Star Road.
- **Project 4 – Midland Road to 11th Avenue ($51 Million):** Reconstruct and widen US 20/26 to a four-lane divided highway from Midland Road to 11th Avenue with a rural section (no outside curb and gutter) on the proposed shifted alignment (shifted south from east of KCID Road to east of 11th Avenue). Stormwater treatment would largely be accommodated with a roadside ditch. At-grade intersection improvements, involving standard signals and turn lanes, would be included at Midland Road, Northside Boulevard, and Franklin Road.
- **Project 5 – Smeed Parkway to Midland Road ($45 Million):** Reconstruct and widen US 20/26 to a four-lane divided highway from Smeed Parkway to Midland Road with a rural section (no outside curb and gutter) on the proposed shifted alignment (shifted south from east of KCID Road to east of 11th Avenue). Stormwater treatment would largely be accommodated with a roadside ditch. At-grade intersection improvements, involving standard signals and turn lanes, would be included at KCID Road, Ward Road, and Middleton Road. The Smeed Parkway intersection has already been improved, and US 20/26 has been widened to four lanes from I-84 to Aviation Way and to six lanes from Aviation Way to Smeed Parkway, so few improvements would be needed in those areas.
- **Project 6 – Linder Road to Eagle Road ($12 Million):** Widen US 20/26 to a six-lane divided highway from Linder Road to Eagle Road with an urban section. New inlets and storm drains would connect to drainage facilities constructed during Project 1. Project 12, 13 and 14, the partial CFI's at Eagle Road, Locust Grove Road, and Meridian Road could be included with Project 6, but according to the current traffic information these projects would not be needed until later. Also, if

the signals are designed in Project 1 to accommodate a six-lane US20/26 intersection, then the intersection improvements needed in Project 6 for standard intersections would be minor.

- **Project 7 – SH-16 to Linder Road ($18 Million):** Widen US 20/26 to a six-lane divided highway from SH-16 to Linder Road with an urban section. This project would reconstruct the Linder Road intersection to a full CFI.
- **Project 8 – SH-16 Interchange ($0 – Included in SH-16 Corridor):** Construct a partial cloverleaf interchange at the intersection of SH-16 and US 20/26 and widen US 20/26 in the vicinity of the interchange. This project will be programmed as a part of the SH-16 Corridor Project and the need for this improvement will be related to the extension of SH-16 south of US 20/26.
- **Project 9 – 11th Avenue to SH-16 ($13 Million):** Widen US 20/26 to a six-lane divided highway from 11th Avenue to SH-16 with an urban section. This project would reconstruct the Star Road intersection to a full CFI.
- **Project 10 – Midland Road to 11th Avenue ($9 Million):** Widen US 20/26 to a six-lane divided highway from Midland Road to 11th Avenue with an urban section.
- **Project 11 – I-84 to Midland Road ($10 Million):** Widen US 20/26 to a six-lane divided highway from I-84 to Midland Road with an urban section. The road segment from Aviation Way to Smeed Parkway has already been widened to six lanes with a divided median so limited work is required in this area. This project would reconstruct the Middleton Road intersection to a partial CFI.
- **Project 12 – Eagle Road Intersection ($8 Million):** Reconstruct Eagle Road intersection to a partial CFI.
- **Project 13 – Locust Grove Road Intersection ($5 Million):** Reconstruct Locust Grove Road intersection to a partial CFI.
- **Project 14 – Meridian Road Intersection ($5 Million):** Reconstruct Meridian Road intersection to a partial CFI.

The estimated cost for each project phase is in 2015 dollars and includes the costs for development (design), construction, and ROW acquisition. Inflation was not added into the costs since it's difficult to predict the year in which each project would be constructed. Costs for items that could be quantified based on concept layouts, such as roadway and pathway pavements, were calculated directly using available unit costs from similar and recent construction projects. For other items that are not well defined yet, such as roadway signing, contingency or lump sum amounts were added based on comparisons to other similar projects. A contingency amount of 10% was also added to each project to cover "phased" costs that would be incurred if the entire project was not built all at one time. An example a "phased" cost would be the temporary pavement needed to tie a newly constructed phase back into existing pavement until the next phase could be constructed. Estimated ROW costs for the complete project build-out are included in the first project that occurs in any one area of the corridor. For example, Phase 1 and Phase 6 occur in the same area of the corridor, but all the needed ROW costs are included in Phase 1. It is recognized, however, that funds may not be available to complete all the ROW acquisition in the initial phase.

The projects listed were prioritized according to the current projected traffic capacity needs. Anticipated construction of each phase was identified in Figure 15 as near, mid, and long terms. These terms were determined based on current funding constraints and anticipated future funding. Phases listed as near term represent those that could be constructed between 2016 and 2024. As noted in Section 1.4.3, ITD has identified potential projects to widen portions of Phase 1 in their current plans. Phases listed as mid-

term represent those that could be constructed between 2025 and 2032 and long term phases are those that could be constructed after 2033. It is important to note, other factors may emerge that move projects around in the priority listing. For example, projects in lower priority areas could advance if funding becomes available through local sources or development agreements, traffic demands may change in the corridor based on development activity, or high accident locations may arise that need to be addressed. As phases are advanced, environmental re-evaluations will address any modifications or updates to current regulatory requirements. The re-evaluations will also address any change conditions in the corridor or updates to the phasing implementation.

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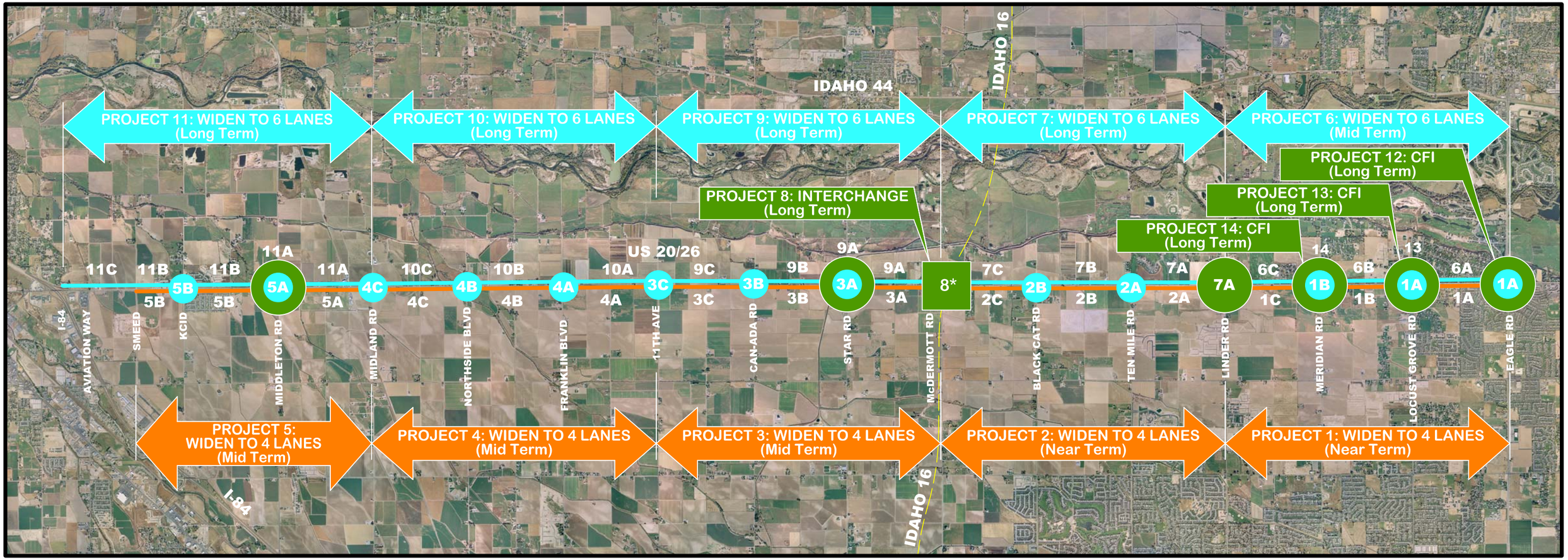

ANTICIPATED CONSTRUCTION TIME FRAMES
Near Term: 2016 - 2024
Mid Term: 2025 - 2032
Long Term: 2033 - 2040

** Construction time frames depend on funding availability, change in traffic demands, and /or safety conditions

*** PROJECT TO BE PROGRAMMED AND COMPLETED WITH THE IDAHO 16 CORRIDOR PROJECT**

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6C Roadway Widening Improvement Phase
6C Standard Signalized Intersection Improvement Phase
Continous Flow Intersection Improvement Phase
Interchange Improvement Phase
Segment Widening to 4 Lanes
Segment Widening to 6 Lanes

FIGURE 15
Phasing

US 20/26, Corridor Study
Jct I-84 to Eagle Road

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7. REFERENCES

Ada County Highway District. 2012. 2012 Capital Improvements Plan and Impact Fee Ordinance. Ada County Highway District, Garden City, Idaho. Available online at: http://achdidaho.org/Departments/ROWDS/CIP.aspx

Ada County Highway District. 2016. 2017-2021 Integrated Five Year Work Plan. Ada County Highway District, Garden City, Idaho. Available online at: http://www.achdidaho.org/Departments/PP/5Year.aspxAECOM. 2016a. US 20/26 Corridor Study, Air Quality Analysis. AECOM, Boise, Idaho.

AECOM. 2016b. US 20/26 Corridor Study, Air Quality Update for New Eagle Road Terminus. AECOM, Boise, Idaho.

Apfelbeck, R. and E. Farris. 2005. Montana Wetland Rapid Assessment Method Guidebook. Montana Department of Environmental Quality, Helena, MT.

Axiom Points. 2016. Traffic Noise Technical Study for US 20/26 Corridor Study. Axiom Points, Star, Idaho.

Bionomics. 2009. Archaeological and Historic Survey Report. Bionomics, Eagle, Idaho.

Bionomics. 2016a. Archaeological and Historic Survey Report Addendum. Bionomics, Eagle, Idaho.

Bionomics. 2016b. Section 4(f) De Minimis Report. US 20/26 Corridor Preservation Study. Bionomics, Eagle, Idaho.

BGG. 2006. Blueprint for Good Growth. Available online at: http://www.blueprintforgoodgrowth.com/Downloads.asp.

Canyon County. 2016. County Floodplain Ordinance. Available online at: http://www.sterlingcodifiers.com/codebook/index.phb?book_id=820.

City of Caldwell. 2016. City Floodplain Ordinance. Available online at: http://www.sterlingcodifers.com/codebook/index.phb?book_id=377.

COMPASS. 2010. Communities in Motion 2035: Regional Long-Range Transportation Plan. Community Planning Association of Southwest Idaho, Boise, Idaho. Available online at: http://www.compassidaho.org/prodserv/reg-archives.htm

COMPASS. 2014a. 2014 Development Monitoring Report. Community Planning Association of Southwest Idaho, Boise, Idaho. Available online at: http://www.compassidaho.org/documents/prodserv/reports/dmr/2014_DMR.pdf

COMPASS. 2014b. Communities in Motion 2040 Regional Long-Range Transportation Plan. Community Planning Association of Southwest Idaho, Boise, Idaho. Available online at: http://www.compassidaho.org/prodserv/cim2040.htm#Plan

EPA (US Environmental Protection Agency). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Technical Report No. EPA 55/9-74-004. US Environmental Protection Agency, Washington, D.C.

EPA (US Environmental Protection Agency). 2009. Envirofacts Database. US Environmental Protection Agency. Available online at: http://www.epa.gov/enviro

EPA (US Environmental Protection Agency). 2016. Promising Practices for EJ Methodologies in NEPA Reviews. A NEPA Committee and EJ IWG Document. Available online at: https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf

FHWA. 2015. FHWA Environmental Guidebook. Federal Highway Administration. Available online at: http://www.environment.fhwa.dot.gov/guidebook/index.asp

GeoEngineers, Inc. 2006. Phase I Geological Reconnaissance, US Highway 20/26 Corridor, Eagle Road to Interstate 84, ITD Project No. STP-3230(106); Key No. 7826, Ada and Canyon Counties, Idaho. File No. 4420-041-00. GeoEngineers, Boise, Idaho.

H.W. Lochner and Parametrix. 2007. US 20/26 Corridor Preservation Study Traffic Analysis Technical Memorandum. Parametrix, Boise, Idaho.

Idaho Department of Labor. 2016a. Workforce Trends for Ada County. Available online at: http://labor.idaho.gov/publications/lmi/pubs/AdaProfile.pdf

Idaho Department of Labor. 2016b. Workforce Trends for Canyon County. Available online at: http://labor.idaho.gov/publications/lmi/pubs/CanyonProfile.pdf

Idaho Soil Conservation Commission. 2003a. Fifteenmile Creek Subwatershed Agricultural TMDL Implementation Plan.

Idaho Soil Conservation Commission. 2003b. Mason Creek Subwatershed Agricultural TMDL Implementation Plan.

IDEQ (Idaho Department of Environmental Quality). 1999. Lower Boise River TMDL, Subbasin Assessment, Total Maximum Daily Loads. Originally published December 18, 1998. Revised September 29, 1999. Idaho Department of Environmental Quality, Boise, Idaho.

IDEQ (Idaho Department of Environmental Quality). 2001a. Fivemile and Tenmile Creek Subbasin Assessment. December, 2001. Idaho Department of Environmental Quality, Boise, Idaho.

IDEQ (Idaho Department of Environmental Quality). 2001b. Mason Creek Subbasin Assessment. Idaho Department of Environmental Quality, Boise, Idaho. December 2001.

IDEQ (Idaho Department of Environmental Quality). 2014. Department of Environmental Quality. Idaho's 2012 Integrated Report. Idaho Department of Environmental Quality, Boise, Idaho. Available online at: https://www.deq.idaho.gov/media/1117323/integrated-report-2012-final-entire.pdf

IDEQ (Idaho Department of Environmental Quality). 2016. Boise River (Lower) Subbasin at a Glance. Idaho Department of Environmental Quality. Available online at: https://www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/boise-river-lower-subbasin/

IDFG (Idaho Department of Fish and Game). 2016. Species of Greatest Conservation Need at https://idfg.idaho.gov/species/taxa/list/sgcn. Accessed on April 8, 2016.

IDWR (Idaho Department of Water Resources). 2007. Lower Boise River Basin Planning. Idaho Department of Water Resources, Water Resource Board. Accessed February 13, 2007, at: http://www.idwr.idaho.gov/waterboard/planning/Lower%20Boise/lower_boise.htm

IDWR (Idaho Department of Water Resources). 2016. Boise Front Ground Water Management Area. Available online at: https://www.idwr.idaho.gov/WaterInformation/GroundWaterManagement/BoiseFront/bf_gwma.htm

IFWIS (Idaho Fish and Wildlife Information System). 2016. Fish, Wildlife and Plan Data for US 20/26 Corridor Preservation Study.

INPS (Idaho Native Plant Society). 2016. Rare Plant List located at http://idahonativeplants.org/rare-plants-list/. Accessed on April 8, 2016.

ITD (Idaho Transportation Department). 2011. Environmental Process Manual. Idaho Transportation Department, Boise, Idaho. Available at: http://itd.idaho.gov/manuals/Manual%20Production/Environmental/environmental_cover.pdf

ITD. 2014. Best Practices Manual. Idaho Transportation Department, Boise, Idaho. Available at: http://www.itd.idaho.gov/enviro/Stormwater/BMP/default.htm

ITD (Idaho Transportation Department). 2015. US Highway 20/26 Corridor Preservation Study, Wetlands and Waters of the U.S. Report. Idaho Transportation Department, Boise, Idaho.

ITD (Idaho Transportation Department). 2016. FY 2017-2021 Idaho Transportation Investment Program (ITIP). Idaho, Transportation Department, Boise, Idaho. Available online at: http://itd.idaho.gov/funding/?target=itip

ITD (Idaho Transportation Department). 2017. Eagle Road Intersection Traffic Memo. ITD, Boise, Idaho.

Jagannathan R. and J.G. Bared. 2004. Design and Operation Performance of Crossover Displaced Left-Turn Intersections. Transportation Research Record, TRR No. 1881, Transportation Research Board, Washington D.C.

NatureServe. 2016. An Online Encyclopedia of Life at http://explorer.natureserve.org/. Accessed on April 8, 2016.

OSC (Office of Species Conservation). 2016. Idaho Governor's Office of Species Conservation. Slickspot Peppergrass. Accessed March 7, 2016. http://species.idaho.gov/list/slickspot.html

Othberg, K.L., and L.R. Stanford. 1992. Geologic Map of the Boise Valley and Adjoining Area, Western Snake River Plain, Idaho. Idaho Geological Survey Geologic Map Series GM-18, scale: 1:100,000.

Parametrix. 2015. Updated Drainage Concepts for US 20/26 Corridor Technical Memorandum. ITD Key No: 07826; Project No. STP-3220(106). Parametrix, Boise, Idaho.

Parametrix. 2016. Traffic Memorandum. ITD Key No: 07826; Project No. STP-3220(106). Parametrix, Boise, Idaho.

RBCI. 2005. US 20/26 Corridor Preservation Study Summary of Stakeholder Interviews. RBCI, Boise, Idaho.

RBCI. 2006. US 20/26 Corridor Preservation Study Summary of Scoping Meetings. RBCI, Boise, Idaho.

RBCI. 2007. US 20/26 Corridor Preservation Study Summary of Public Open Houses May 2007. RBCI, Boise, Idaho.

RBCI. 2012. US 20/26 Corridor Preservation Study Property Owner Meeting Summary. RBCI, Boise, Idaho.

RBCI. 2015. US 20/26 Corridor Study Summary of Public Open House & Online Public Meeting. RBCI, Boise, Idaho.

USACE (US Army Corps of Engineers). 2016. NWW-2006-2300025-B02, ITD US 20/26 Corridor Study ITD Key No. 07826 Preliminary Jurisdictional Determination. US Army Corps of Engineers, Walla Walla District.

USDA (US Department of Agriculture). 2016. Web Soil Survey. US Department of Agriculture, Natural Resource Conservation Service. Available online at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

USFWS (US Fish and Wildlife Service). 2016. Official Species List. Provided by Idaho Fish and Wildlife Office on November 29, 2016.

USGS (US Department of Geological Survey). 1998. Ground-Water Quality in Northern Ada County, Lower Boise River Basin, Idaho, 1985–96. USGS Fact Sheet FS–054–98. US Department of the Interior, Geological Survey, Boise, Idaho.

Zollweg, J. 2001. Earthquake Risk in the Boise, Idaho Metropolitan Area. Unpublished report. Cited in Field Trip Guide to the Natural Hazards of the Boise Area, Idaho. Willam M. Phillips. Idaho Geological Survey, University of Idaho, Moscow, Idaho.

8. DISTRIBUTION LIST

The following agencies, tribes, and organizations will either receive a paper copy of the EA or an electronic copy on a disk:

Federal Agencies

US Army Corps of Engineers
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US Department of Agriculture
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US Environmental Protection Agency
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US Fish and Wildlife Service
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State Agencies

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Interested Parties

As part of the public outreach program a mailing list of residential and commercial properties, key state and local elected officials, previous meeting attendees, and other interested persons is maintained and used for communicating activities related to the US 20/26 project. ITD informed media outlets in southwestern Idaho of developments in the project. Those media outlets include televisions stations that are in Ada and Canyon counties, at least two weekly newspapers and two daily newspapers. All listed interested parties will receive notice that the EA is available for review, how to obtain or view a copy of the EA, and an invitation to comment on the EA.

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