Alternative	Screening Results	Summary of Rationale for Eliminating or Forwarding Alternatives
W-3	Eliminated	High effects to visual resources, prime farmlands, rare plant communities and floodplains. This alignment also crossed an area known to support ungulate populations.
W-4	Forwarded for detailed analysis	Least cultural resource (based on preliminary information), floodplain and visual quality effects compared to the other western corridor alternatives. No effects to ungulate habitat or rare plant communities.
C-1	Eliminated	High effects to historic resources Highest predicted number of crashes. High effects to cultural resources, residential displacement and wetlands.
C-2	Eliminated	High effects to cultural resources. High effects to floodplains, wetlands and visual resources.
C-3	Forwarded for detailed analysis	Least floodplain, visual and wetland effects in the central corridor. No effects to cultural resources.
E-1	Eliminated	Only alternative in the eastern corridor that affects a historic resource. High effects to wetlands and rare plant communities
E-2	Forwarded for detailed analysis	Less effect to wetlands and tributaries compared to other corridor alternatives. Avoided cultural resources. Greater safety benefit compared to alternatives in other corridors
E-3	Eliminated	Similar to E-2 but with slightly higher effects to wetlands. Affected two rare plant communities that E-2 avoided.

Comparison of Initial Alternatives

Western Corridor

The four western corridor alternatives have relatively similar effects. All of the alternatives would affect wetlands, floodplains, noise, prime farmlands, visual quality and cultural resources. The W-4 Alternative was forwarded for detailed analysis due to its low effects to floodplains, visual quality, ungulate habitat, rare plant communities and a lower crash rate. Based on preliminary information the W-4 Alternative was believed to have less effects to historic resources compared to the other western alternatives. During the more detailed analysis of W-4 it was determined to affect a historic farmstead; however, due to the other factors involved, W-4 would still have been forwarded. The W-1 and W-3 alternatives were eliminated from further consideration due to their higher effects to ungulate habitat, prime farmlands and two rare plant communities. In addition, W-1 had the highest crash rate in

the western corridor, which does not meet the purpose and need to the same extent as the other alternatives.

Central Corridor

The three central corridor alternatives would all affect cultural resources, wetlands, floodplains, prime farmlands and displace businesses and residences. The C-1 Alternative was eliminated from further consideration because it had the highest crash rate of the three alternatives. It affected two historic resources and had the greatest number of displacements. In addition to these effects the C-1 Alternative also affected 2.9 more acres of wetland than the C-3 Alternative.

While the central corridor alternatives resulted in similar crash rates, C-2 was eliminated due to its higher impacts to wetlands, floodplains and visual effects. The C-3 Alternative was forwarded for detailed analysis because it had no adverse effects to historic resources and had the least wetland, cultural and visual effects compared to the other central corridor alternatives.

Eastern Corridor

The alternatives in the eastern corridor resulted in very similar effects. All of the alternatives in this corridor had effects to wetlands, displacements, noise, visual and prime farmlands. The E-1 Alternative was eliminated from further consideration because it affected one historic resource while the other two alternatives avoided historical resources. In addition, the E-1 Alternative had the highest effects to wetlands and visual quality in the corridor.

The E-2 Alternative was forwarded for further consideration because it had the least effect to wetlands, cultural resources and was the only alternative to not affect rare plant communities. The E-3 Alternative effects were very similar to the E-2 Alternative but E-3 resulted in three more residential displacements and twice as many business displacements than E-2. The E-3 Alternative affected two rare plant communities and resulted in slightly higher effects to prime farmlands compared to E-2. While the differences were small they were higher and more adverse. The E-2 Alternative was forwarded for detailed analysis because it had the least overall effects compared to the other alternatives in the eastern corridor. The Action Alternatives alignments that were forwarded are shown in Exhibit 12. Alternatives Forwarded for Detailed Analysis and detailed in Exhibits 13 to 18 Alignment Alternative Maps.

Exhibit 12. Alternatives Forwarded for Detailed Analysis

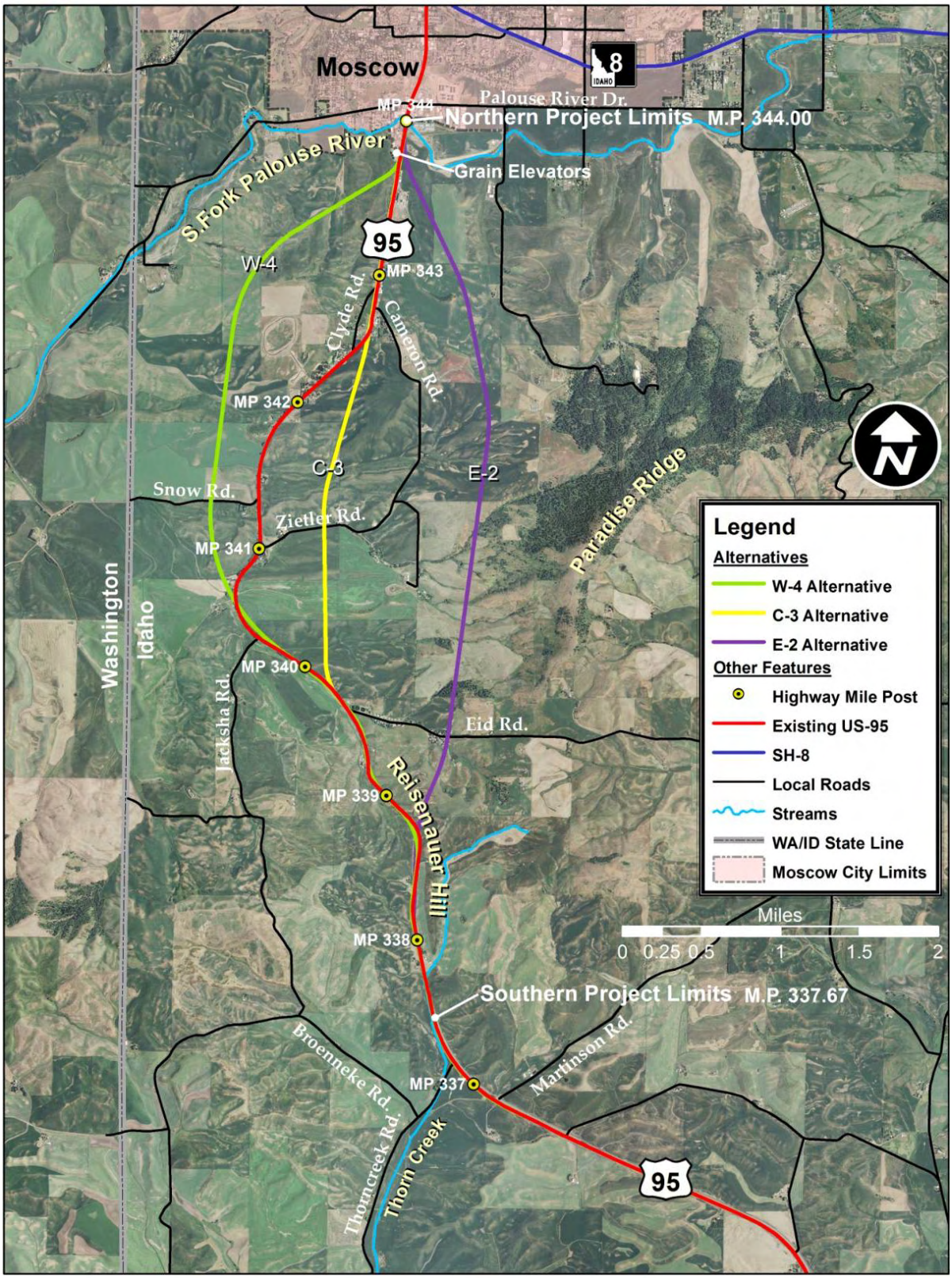


Exhibit 13. Alignment Alternatives

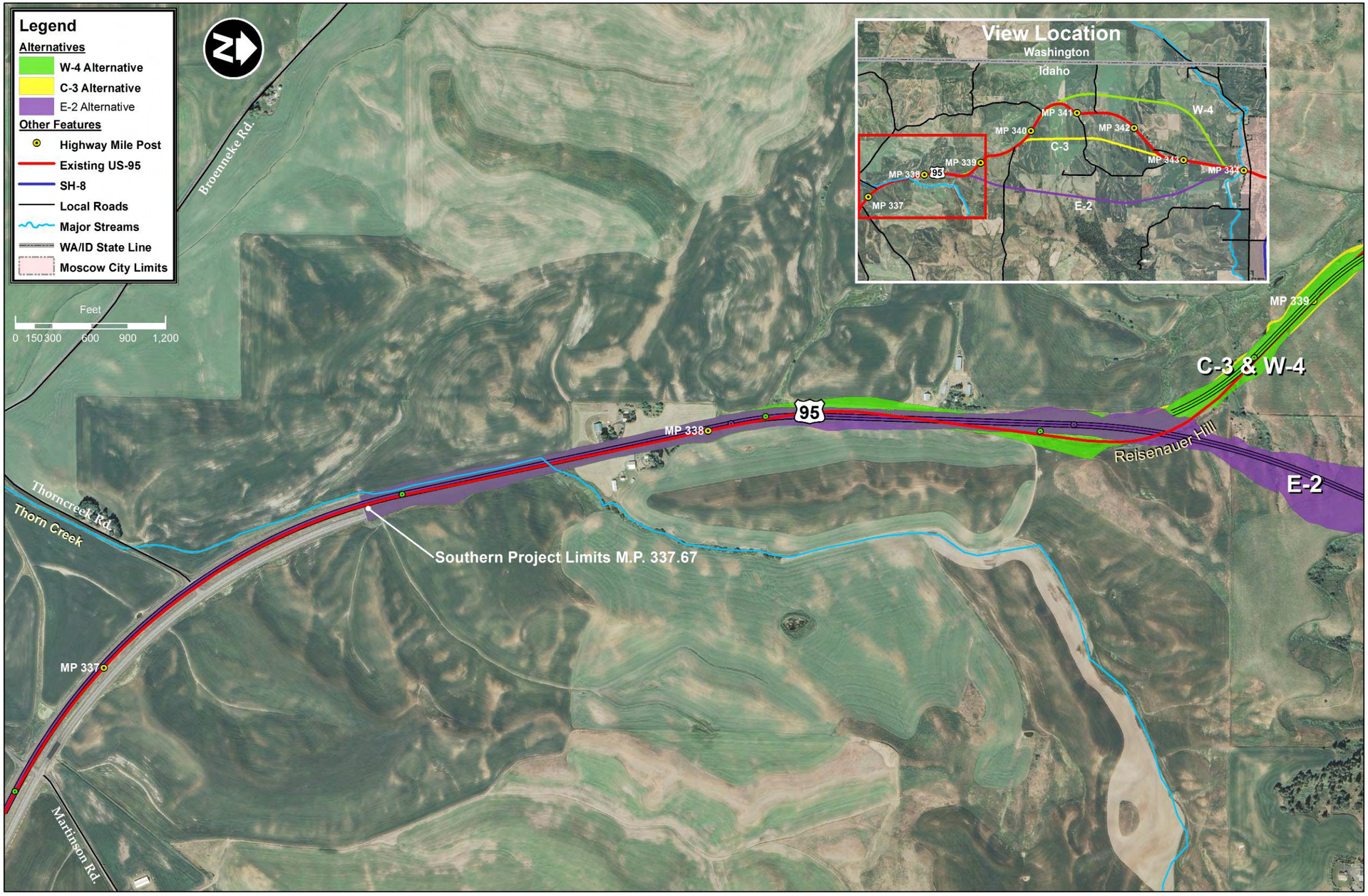


Exhibit 14. Alignment Alternatives

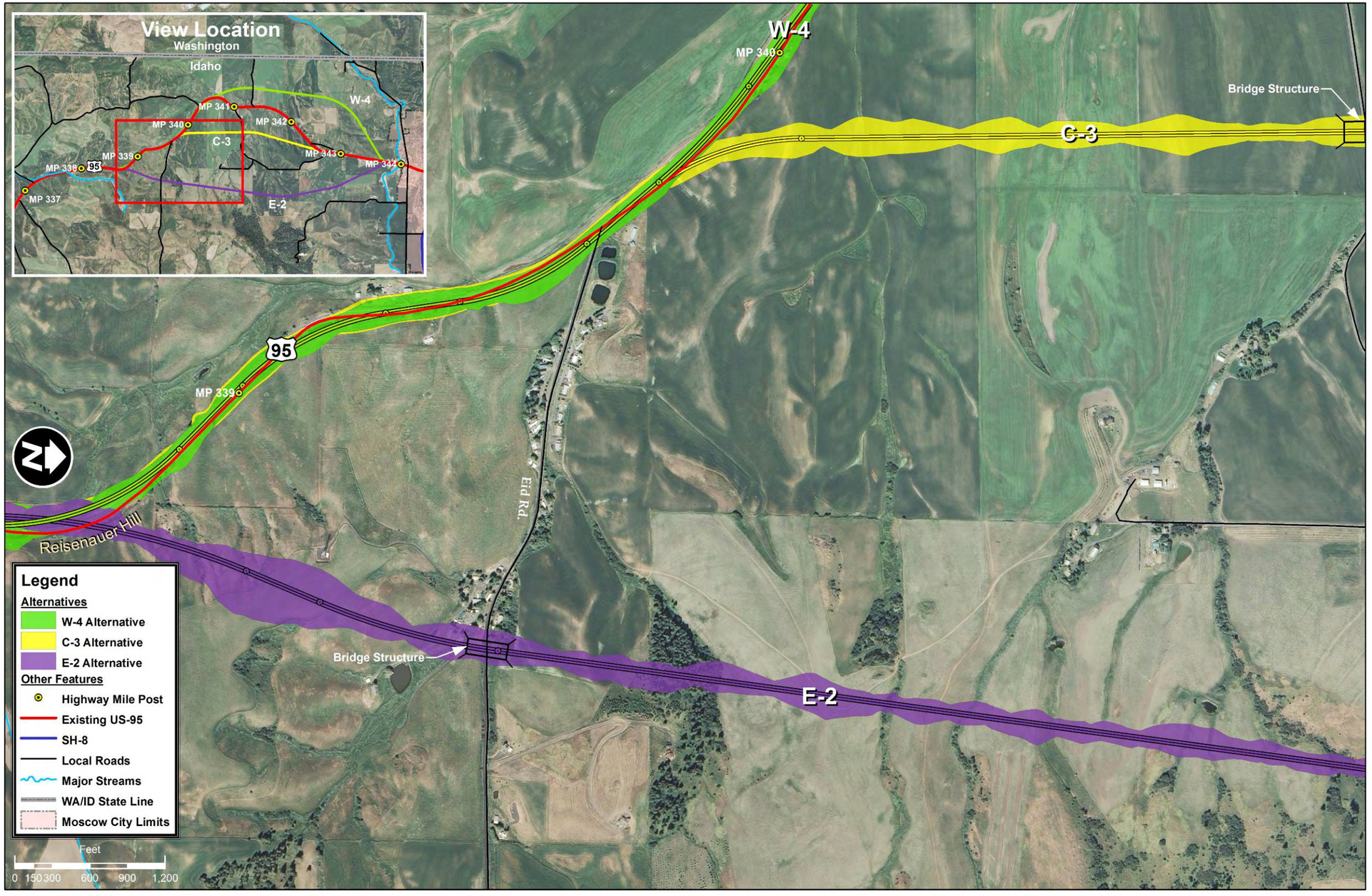


Exhibit 15. Alignment Alternatives

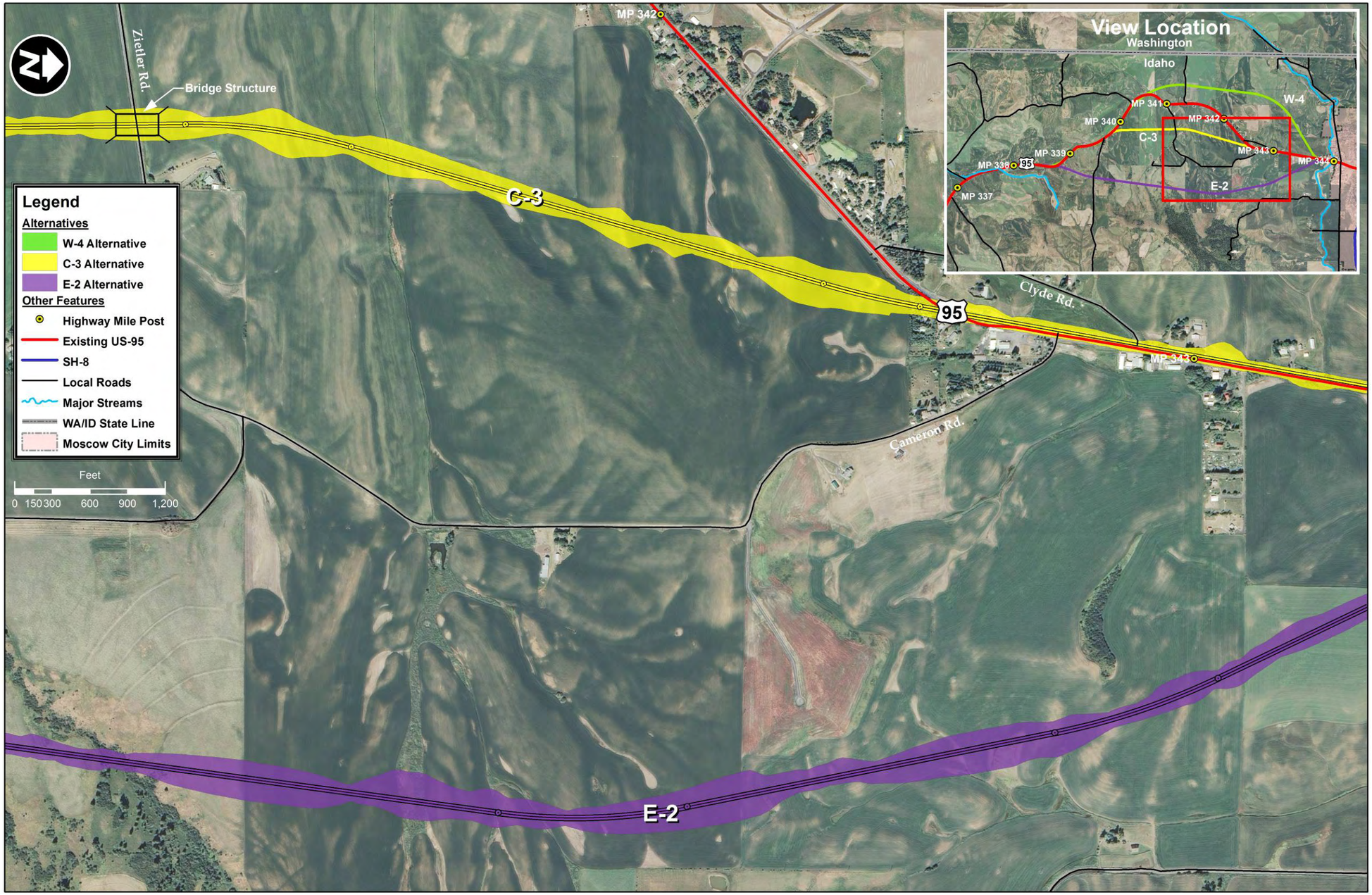


Exhibit 16. Alignment Alternatives

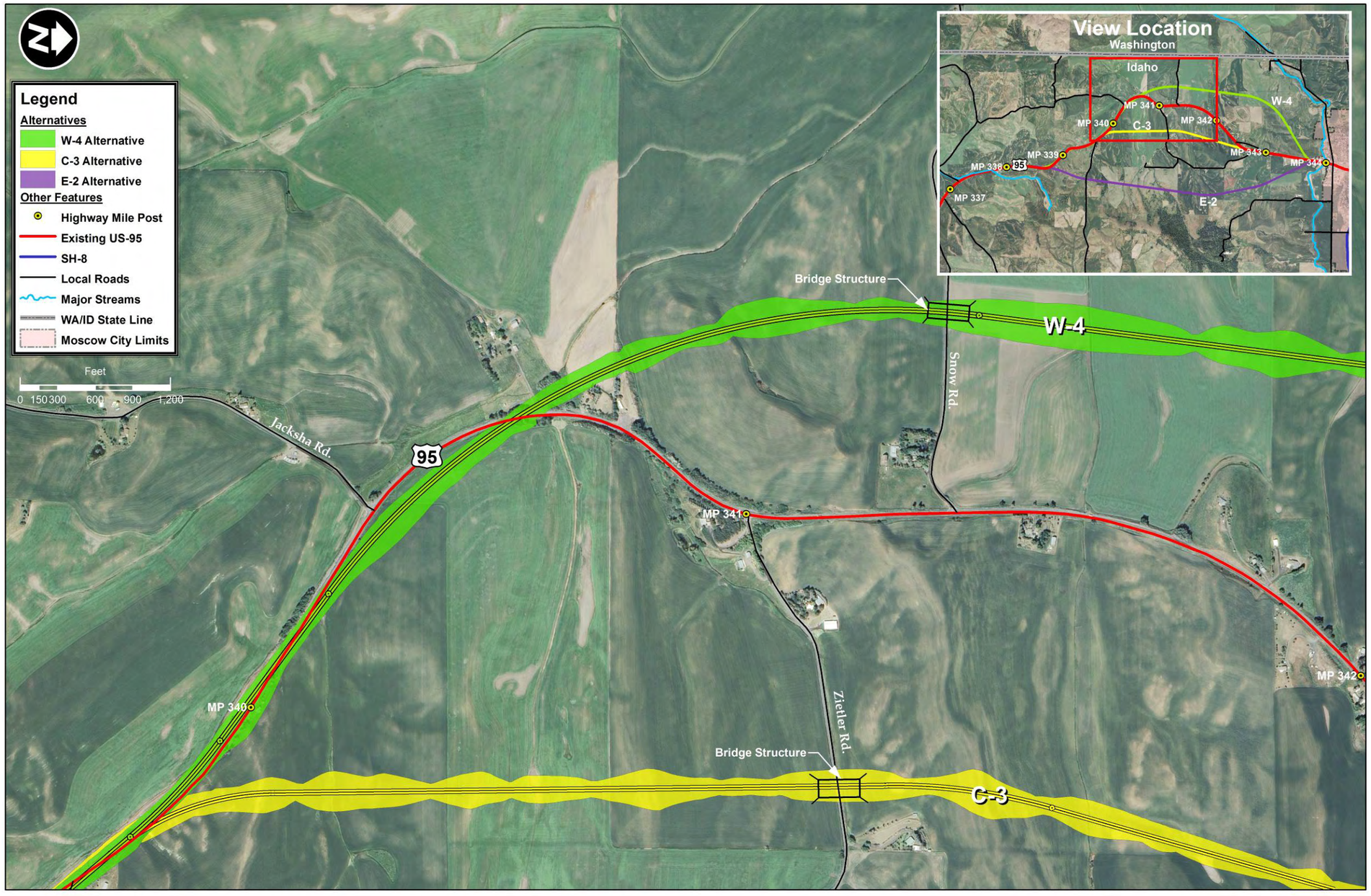
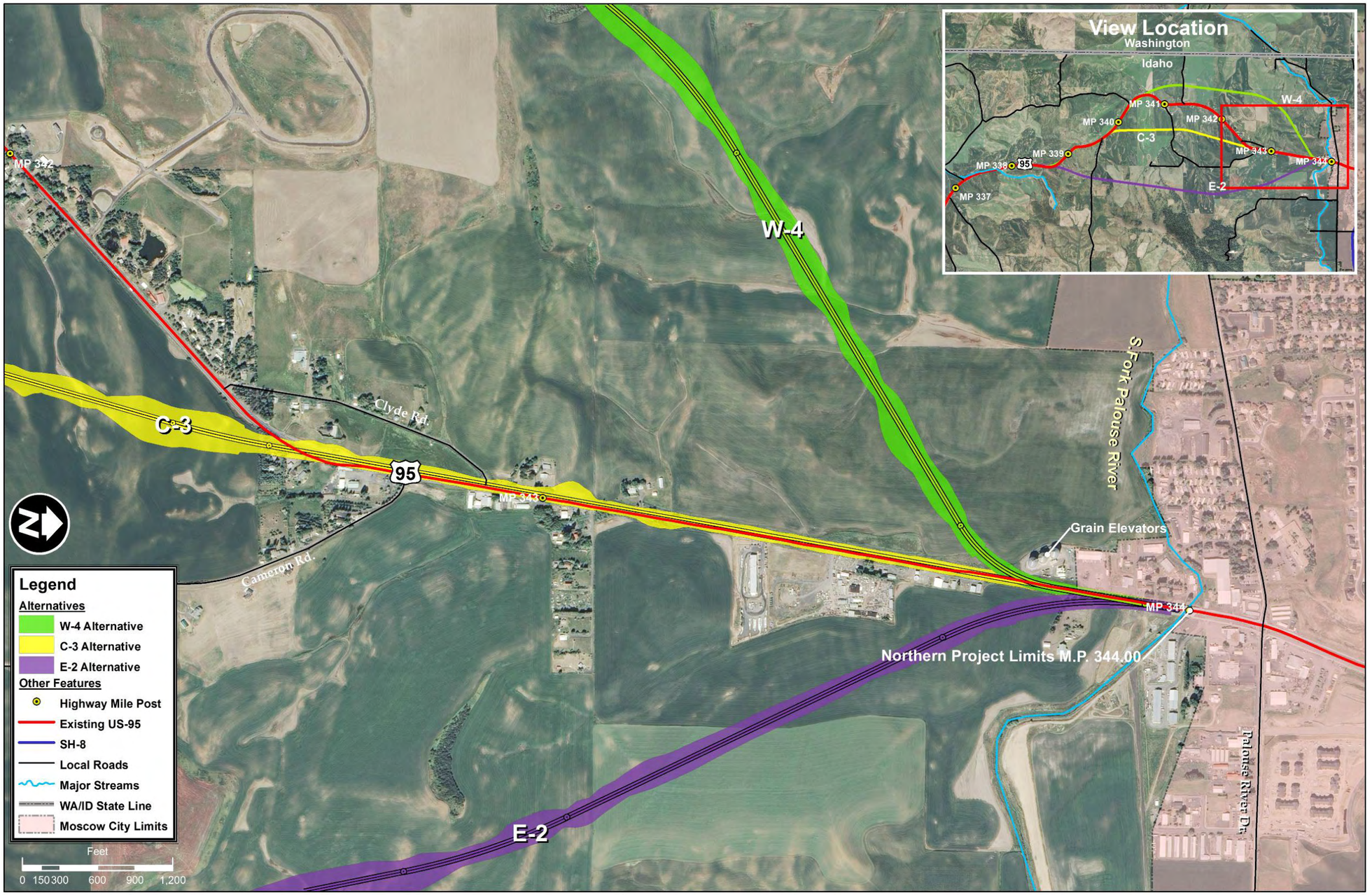


Exhibit 17. Alignment Alternatives

Exhibit 18. Alignment Alternatives



2.6 Comparison of Alternatives

Each of the four alternatives was analyzed for a full spectrum of environmental effects. The major differences between alternatives are described below and summarized in Table 8. Summary of Alternatives' Benefits and Effects. See the DEIS, Chapters 3, Affected Environment and Chapter 4, Environmental Consequences for details regarding specific resources and environmental effects by alternative. Additional detail may also be found in the resource technical reports.

Table 8. Summary of Alternatives' Benefits and Effects

Resources	Alternatives[6]			
	No Action	W-4	C-3	E-2
Predicted Crash Rate (crashes per year)	24.8	9.3	10.9	7.7
Access Points	66	36	47	22
Residential Displacements	0	3	7	5
Residences within 300 ft of centerline		9	12	9
Business Displacements	0	0	8	0
Businesses within 300 ft of centerline		7	10	5
New Right-of-Way (acres)	0	210	154	207
Prime Farmland (acres)	0	46.7	25.1	50.8
Cultural/Section 4(f) Resources	0	1 Adverse Effect/Use	0	0
Floodplains (acres)	0	3.6	1.8	0
Wetlands (acres)	0	5.45	0.99	3.61
Tributaries – Number of Crossings/Linear feet of affected tributary	0	9/5,517	5/7,808	5/2,592
Hazardous Material Sites	0	4	13(1 Potential Hazardous Material Cleanup)	4
Noise Effects	9	0	1 (this impacted receptor is displaced)	7 (5 impacted receptors are displaced)
Construction /Total Cost (mil $)	minimal	52/62	43/58	46/55

[6] The lengths of the W-4, C-3 and E-2 alternatives early in the screening process differ from the lengths analyzed in this DEIS due to a modification of the project limits following the level two screening. As a result the calculations presented during the screening process may differ from the calculations presented in this DEIS for the W-4, C-3 and E-2 alternatives.

After the Level Two Screening was completed, additional studies were completed and a more detailed level of analysis was used; therefore the project effects may differ slightly from those calculated during the initial screening of alternatives. However, the differences were not substantial and would not result in different screening results.

No Action

The No Action Alternative includes short-term minor restoration activities (safety and maintenance improvements, etc.) that maintain operation of the existing roadway. It would include projects such as turn lanes at public road approaches within the existing right-of-way. It would also include pavement overlays and seal coats to maintain the continuing operation of the existing roadway. The No Action Alternative would serve as a baseline and is required by FHWA NEPA regulations to be considered in the DEIS.

The No Action Alternative would not involve major construction or new right-of-way acquisition. It would continue to have stormwater and air quality effects, but would have the least overall environmental effect. However, the narrow roadway, roadway curvature and steep grades would still not meet AASHTO standards. With the projected increase in traffic volume the crash rate for the No Action Alternative is estimated to be 24.8 accidents per year by 2017. The No Action Alternative would have a LOS D by 2037 and would be substantially more congested than existing conditions. The No Action Alternative would have the worst safety and LOS compared to any of the alternatives and would not meet the project purpose and need.

W-4

W-4 would be aligned west of existing US-95. This alternative is 6.69 miles long transitioning to a four-lane with center turn lane, curb, gutter and sidewalk for the last 0.3 miles at the northern end of the project. W-4 would have the least effect to residences and similar effects as E-2 to hazardous materials. It would require the greatest amount of new right-of-way and would result in the greatest effects to floodplains, cultural/Section 4(f) resources, and the greatest number of tributary crossings. W-4 would not affect businesses or potential long-eared myotis, northern alligator lizard and pygmy nuthatch habitat associated with ponderosa pine stands near the base of Paradise Ridge.

C-3

The C-3 alignment would run closest to the current highway near the center of the corridor. This alternative is 5.94 miles long transitioning to a four-lane with center turn lane, curb,

gutter and sidewalk for the last 1.42 miles at the northern end of the project. It would have the highest crash rate of the Action Alternatives. It would require the least amount of new right-of-way compared to W-4 and E-2 because it would utilize some of the existing roadway. C-3 would have the greatest adverse effect to residences, businesses, and would encroach on the greatest number of hazardous material sites. It would have the longest urban section that would operate at a LOS B. However, C-3 would have the least wetland and wildlife species effects. Similar to E-2, C-3 would have the fewest tributary crossings but would affect three times more linear feet of tributary channel compared to the E-2 Alternative. Also, similar to E-2, C-3 would avoid cultural/Section 4(f) resource effects.

E-2 (Preferred Alternative)

E-2 would be aligned east of existing US-95 near the base of Paradise Ridge. This alternative is 5.85 miles long transitioning to a four-lane with center turn lane, curb, gutter and sidewalk for the last 0.24 miles at the northern end of the project. The evaluation of effects during the screening process and the detailed analyses presented in this DEIS resulted in the lead agencies, FHWA and ITD, identifying the E-2 Alternative as the Preferred Alternative for the following reasons:

- It would have the greatest safety improvement
- It would have the fewest access points
- It would have the shortest length with the shortest travel time
- It would the least effect to streams
- It would have better weather conditions for driving than W-4.
- It would avoid effects to cultural/Section 4(f) resources, floodplains and business displacements
- It would best meet the project purpose and need

The primary disadvantages of E-2 compared to the other alternatives are that it would be located closer to the base of Paradise Ridge which provides moderate ungulate habitat and E-2 would also affect pine stands that are potential long-eared myotis, northern alligator lizard and pygmy nuthatch habitat.

The final selection of an alternative will not be made until the alternatives' effects and comments on the DEIS from the public hearing have been fully evaluated.

3 AFFECTED ENVIRONMENT

This section describes the existing conditions of the natural and human environment in the study area that could be affected by any of the alternatives presented in the DEIS. Additional detail regarding the resources may be found in the respective technical reports. The data and level of detail are commensurate with the significance and degree of effects. The following environmental resources are evaluated in this chapter:

- Socio-economic and Environmental Justice
- Land Use and Recreation
- Farmland
- Cultural Resources
- Floodplains
- Wetlands and Tributaries
- Groundwater
- Vegetation, Fish and Wildlife
- Threatened and Endangered Species
- Transportation
- Visual Quality
- Noise
- Air Quality
- Hazardous Materials
- Energy

3.1 Socio-Economic Conditions and Environmental Justice

3.1.1 Regulatory Framework and Policies

Social and economic conditions and environmental justice are governed by the following:

- 23 CFR 771 FHWA Environmental Impact and Related Procedures
- 49 CFR 24; Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended
- Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- USDOT Order to Address Environmental Justice in Minority Populations and Low-Income Populations
- Title VI of the Civil Rights Act of 1964
- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)

3.1.2 Methodology

Three detailed technical reports were prepared to evaluate socio-economic conditions and effects, highway-induced growth and effects to environmental justice (low-income and minority) populations.

The *Community Impact Assessment* (HDR 2006) evaluated the demographic characteristics of Latah County as a whole as well as the project corridor. Population, including age, race and Hispanic origin, employment, and income were analyzed. General population trends, land use, displacements, community cohesion, visual and noise effects were also evaluated. Community members, local officials, and other stakeholders were interviewed to collect information regarding community resources and potential effects.

The *Community Profile-Induced Development* report (HDR 2005a) evaluated existing socio-economic conditions, land use and development trends in the project area. A Delphi process which utilized a panel of local experts was used to predict highway-related growth. The Delphi process relies on the opinions of a panel of experts to provide their assessment of likely future outcomes by responding to several rounds of questions anonymously. The process is done iteratively with controlled feedback. Anonymity allows participants to focus on the issues, not the personalities of the participants. The repeated rounds with feedback from the moderators allow participants to reconsider their responses in light of new information but prevent lobbying for any point of view. The statistical group response gives the range of opinion as well as the most common response. The local panelists in the Delphi process for this project included:

- Michelle Fuson, Latah County Planning Director
- Gundars Rudzitis, University of Idaho Professor
- Shelley Bennet, Realtor
- Walter Steed, City of Moscow Transportation Commission
- Tom LaPointe, Moscow Valley Transit Executive Director
- Travis Wambeke, Local Engineering Consultant
- Orland Arneberg, North Latah Highway District
- Jack Nelson, County Commissioner
- Andrew Ackermann, City of Moscow Assistant Community Development Director
- BJ Swanson, American West Bank
- Cinthya Barnhart, Latah Economic Development Council Executive Director
- Jeff Martin, CEO Gritman Medical Center

The *Environmental Justice Report* (HDR 2005b) identified minority and low-income populations in the project area and evaluated the effects of each alternative on Environmental Justice populations.

Updated information for each of the reports was prepared in 2011. The findings of the reports and updates are summarized in this section. See the Community Impact Technical Reports.

EO 12898 directs federal agencies to identify and prevent disproportionately high and adverse human health or environmental effects to minority and low income populations, as a result of federal activities, regardless of population size.

According to USDOT, minority and low-income populations are any identifiable group of minority or low-income persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons who will be similarly affected (FHWA 2009). Effects are determined to be disproportionately high if the adverse effect is predominantly borne by a minority and/or low-income population and is appreciably more severe than the adverse effect that will be suffered by the remainder of the community.

Minority populations are groups that are Black, Hispanic, Asian American, American Indian and Alaskan Native, Native Hawaiian or other Pacific Islander (FHWA 2009).

Low-income populations are a group of persons whose household income is at or below the Department of Health and Human Services (HHS) poverty guidelines (FHWA 2009). The HHS poverty guidelines were $22,050 for a family of four in both 2009 and 2010 (HHS 2010).

Adverse effects are the combination of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: injury or death, displacement, air quality, noise impacts, water pollution, soil contamination; diminution of aesthetic values; or disruption of community cohesion. It also includes the denial of, reduction in, or significant delay in the receipt of benefits of programs, policies, or activities (FHWA 1998).

The determination of whether there would be a disproportionately high and adverse human health or environmental effects as a result of the alternatives was based on evaluating two factors:

- The presence of minority or low-income populations that could be affected by the alternatives.

- If low income or minority populations are present, are the effects to those populations disproportionately high or adverse.

3.1.3 Existing Conditions

This section discusses the demographic characteristics of Latah County and the Thorncreek to Moscow corridor. Characteristics of the population including age, race, Hispanic origin, employment, and income are presented in this section. See the Community Profile - Induced Development Technical Report and update for details.

The corridor consists of two areas called census block groups: census tract 54, block group 2[7], and census tract 57, block group 3. Those block groups were larger than the actual corridor boundaries, so the data presented in the profile is more inclusive than the actual demographics found in the corridor. The City of Genesee population is excluded from the data for the corridor because the city is classified by the Census as its own unit of geography. By excluding this population center, the analysis area is more representative of the corridor study area as a whole.

Population

The Thorncreek Road to Moscow project consists of primarily undeveloped land dominated by dryland farming. Public land borders a portion of the eastern edge of the project area. The main population center associated with the project area is the City of Moscow with a population of approximately 24,338. The population of the project corridor has experienced a six percent decrease in population between 2000 and 2010 whereas Latah County experienced an increase of nine percent. See Table 9. Population.

Table 9. Population

Year	Latah County	Corridor
2000	34,935	1,307
2004	35,619	1,217
2010	37,244	1,231
Percent Change	+9%	-6%

Population and household forecasts to 2021 for Latah County were available from the Idaho Department of Labor. Latah County's population is forecast to continue increasing

[7] Census Tract 54, Block Group 2 was listed as Census Tract 54, Block Group 6 in the original Community Profile report. The Block Group boundary did not change.

moderately reaching 38,797 by 2021. This is an approximately four percent increase. See Table 10. Latah County Population Forecast.

Table 10. Latah County Population Forecast

Year	Population	Estimated Households[8]
2010	37,244	14,708
2016	38,162	15,025
2021	38,797	15,349

Source: Idaho Department of Labor

Population and household forecasts were not available at the corridor level. Yet, based on historic trends, low to moderate increases can be anticipated.

Age

In 2010, the largest concentration of Latah County's population was in the 15 to 24 and 25 to 44 year old age groups. These two age groups totaled more than one-half of the county's entire population. The 45 to 59 year old age group was the next largest. The median age for Latah County was 28 years old. The population distribution, especially with a concentration of persons in the 15 to 24 year old age bracket, is consistent with that of a university town population.

In the project corridor, the 25 to 44 year old and 45 to 59 year old age groups comprised approximately 49 percent of the population. The next largest age group was the under 15 age group. In 2010 the median age in the corridor study area was 40 years old. The study area's population is more similar to an area with families and children.

Race and Hispanic Origin

In 2010 approximately 92.8 percent of Latah County's total population was white. Hispanic origin and other races each comprised 3.7 percent of the populations. The racial minority and Hispanic origin of Latah County in 2010 was nearly 11 percent of the county's total population. See Table 11. Race and Hispanic Origin and Table 12. Percentage Race and Hispanic Origin.

[8] A household includes all the people who occupy a housing unit as their usual place of residence.

Table 11. Race and Hispanic Origin

Race or Origin	Latah County 2010	Corridor 2010
White	34,557	1,188
Black	293	5
American Indian	237	16
Asian	781	14
Other Races	1,376	8
Total Populations	37,244	1,231
Hispanic	824	20

Table 12. Percentage Race and Hispanic Origin

Race or Origin	Latah County 2010 (percent)	Corridor 2010 (percent)
White	92.8	96.5
Black	0.8	0.4
American Indian	0.6	1.3
Asian	2.1	1.1
Other Races	3.7	0.6
Hispanic origin[9]	3.7	1.6

In the project corridor, 96.5 percent of the total population was white. The racial minority and Hispanic origin population was five percent.

Housing Units

Housing units refer to the structures in which people live, while households refer to the people living in them. In 2010, Latah County had 15,988 housing units. See Table 13. Housing Characteristics. This is a 15 percent increase in housing since 2000.

In the project corridor, there was no change in the numbers of housing units between 2000 and 2010. The project corridor has approximately 20 percent more owner occupied homes than Latah County, and has three percent more vacant units compared to the county. See the Community Profile - Induced Development Technical Report and update for more detail.

[9] Hispanic origin is not considered a race and is therefore not included in the totals for race.

Table 13. Housing Characteristics

Housing Variable	Latah County 2010	Corridor 2010
Total Housing Units	15,988	604
Occupied Units	14,708	538
Owner-Occupied	*8,265*	*407*
Renter Occupied	*6,443*	*131*
Vacant Units	1,280	66

Source: U.S. Census Bureau, 2010

Community Resources

Exhibit 19. Points of Interest displays the locations of local businesses, landmarks, community resources, environmentally important locations and recreation sites.

Employment

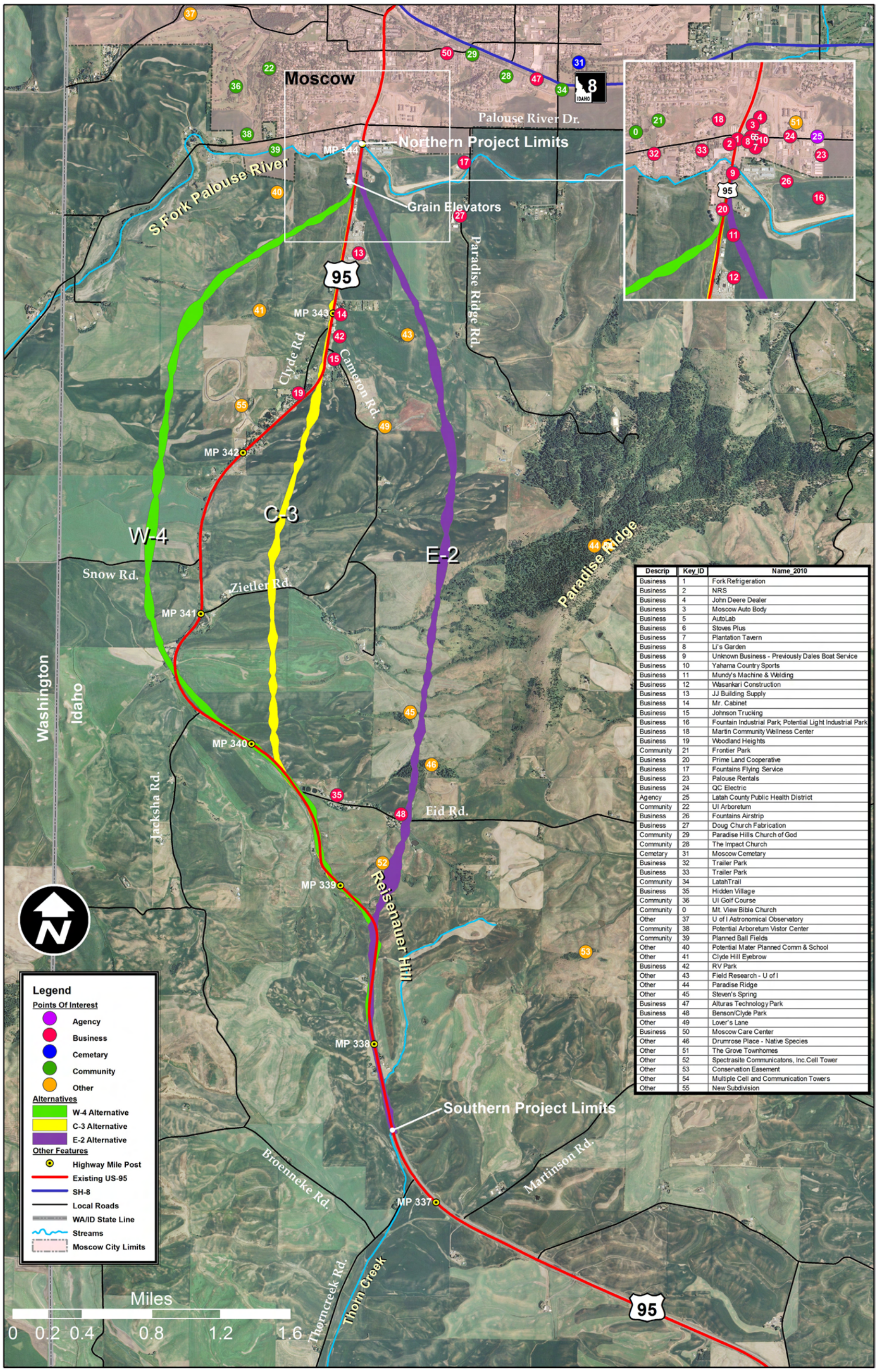
Table 14. 2009 Latah County Employment presents the numbers and percentages of the major employment sectors in Latah County. Latah County's unemployment rate was six percent in 2009, compared to eight percent for the State of Idaho.

Table 14. 2009 Latah County Employment

Employment Sector	Employees	Percentage
Farming	1,077	5.
Forestry, Fishing	C	-
Mining	C	-
Utilities	20	0.1
Construction	845	4
Manufacturing	437	2
Wholesale Trade	245	1
Retail Trade	2,457	11
Transportation	184	0.01
Information	350	2
Finance and Insurance	460	2
Real Estate	649	3
Services	7,074	33
Government	7,090	33
Other		3.89
Total	21,431	100

Source: (U.S. Bureau of Economic Analysis 2009)
C=Confidential information; - No data available

Exhibit 19. Points of Interest



Descrip	Key_ID	Name_2010
Business	1	Fork Refrigeration
Business	2	NRS
Business	4	John Deere Dealer
Business	3	Moscow Auto Body
Business	5	AutoLab
Business	6	Stoves Plus
Business	7	Plantation Tavern
Business	8	Li's Garden
Business	9	Unknown Business - Previously Dales Boat Service
Business	10	Yahama Country Sports
Business	11	Mundy's Machine & Welding
Business	12	Wasankari Construction
Business	13	JJ Building Supply
Business	14	Mr. Cabinet
Business	15	Johnson Trucking
Business	16	Fountain Industrial Park; Potential Light Industrial Park
Business	18	Martin Community Wellness Center
Business	19	Woodland Heights
Community	21	Frontier Park
Business	20	Prime Land Cooperative
Business	17	Fountains Flying Service
Business	23	Palouse Rentals
Business	24	QC Electric
Agency	25	Latah County Public Health District
Community	22	UI Arboretum
Business	26	Fountains Airstrip
Business	27	Doug Church Fabrication
Community	29	Paradise Hills Church of God
Community	28	The Impact Church
Cemetary	31	Moscow Cemetary
Business	32	Trailer Park
Business	33	Trailer Park
Community	34	LatahTrail
Business	35	Hidden Village
Community	36	UI Golf Course
Community	0	Mt. View Bible Church
Other	37	U of I Astronomical Observatory
Community	38	Potential Arboretum Vistor Center
Community	39	Planned Ball Fields
Other	40	Potential Mater Planned Comm & School
Other	41	Clyde Hill Eyebrow
Business	42	RV Park
Other	43	Field Research - U of I
Other	44	Paradise Ridge
Other	45	Steven's Spring
Business	47	Alturas Technology Park
Business	48	Benson/Clyde Park
Other	49	Lover's Lane
Business	50	Moscow Care Center
Other	46	Drumrose Place - Native Species
Other	51	The Grove Townhomes
Other	52	Spectrasite Communicatons, Inc.Cell Tower
Other	53	Conservation Easement
Other	54	Multiple Cell and Communication Towers
Other	55	New Subdivision

Latah County's full and part-time employment was 21,431 in 2009. The services and government sectors contained the largest number of employees each accounting for about one-third of the county's total employment. Retail trade employment was the third largest employment sector in the county.

The largest employers in Latah County are the University of Idaho and Gritman Medical. Combined, they employ more than 40 percent of the workers in the county (Tacke pers. comm. 2011). Other major government employers include Latah County, the City of Moscow, and School District # 281. The major employers in the service sector are Gritman Medical Center and the Good Samaritan Nursing Home. The primary employers in retail trade are Wal-Mart, Winco, and Rosauers Super Markets. Employment data was not available for the forestry, fishing and mining employment sectors. See Table 15. Major Employers in Latah County.

Table 15. Major Employers in Latah County

Employer	Average Number of Employees
University of Idaho	4,000-5,000
Gritman Medical	4,000-5,000
Moscow School District	400-500
City Moscow	200-300
University Inn	100-200
Latah County	100-200
Bennett Lumber Products	100-200
Good Samaritan Nursing Home	100-200
Disability Action Center NW	100-200

Source: pers. Comm. Tacke, 2011

Detailed employment data or forecasts were not readily available for the project corridor. However, based on an inventory of the land use, farming, agricultural related services, and general service providers appear to be the primary sources of employment in the corridor.

Latah County's employment projections are based on forecasts prepared for each sector of the county's economy. Latah County's full and part-time employment is forecast to increase by approximately ten percent by 2021. See Table 16. Latah County Employment Forecast. Detailed predictions showed the strongest employment gains are expected in the retail trade, government, and health care trade sectors.

Table 16. Latah County Employment Forecast

Year	Employed Persons
2010	21,012
2016	22,582
2021	23,215

Source: Idaho Department of Labor, 2010

Income

The largest concentration of households in Latah County had incomes below $15,000 in 2009. That income distribution is consistent with an area with a large concentration of university students. The next largest concentration of households in Latah County was in the $50,000 to $75,000 income range. See Table 17. Latah County Households by Income Range.

Table 17. Latah County Households by Income Range

Income Range	Latah County (# of Households)	Corridor (# of Households)
Under $15,000	2,874	147
$15,000 to $25,000	2,405	137
$25,000 to $35,000	1,638	57
$35,000 to $50,000	1,889	118
$50,000 to $75,000	2,705	186
$75,000 to $100,000	1,245	132
$100,000 to $150,00	998	63
$150,000 and More	446	35
Total	14,200	875

The per capita income in the corridor remained higher ($24,370) than for Latah County ($19,921) in 2010 (HDR 2011). The higher per capita income in the corridor area compared to the county, generally indicates that the area does not have a higher than average percentage of low-income residents.

3.1.4 Environmental Justice Populations

An Environmental Justice population may include low-income or minority populations. This section provides information regarding the presence of these populations within the study area.

Minority Populations

While minorities are present in the study area, there do not appear to be distinguishable minority populations. Based on the block level analysis, the largest percentage of minorities, 10.6 percent, occurs near the Hidden Village and Benson Mobile Home parks. 6.6 percent of the population residing near the Woodland Heights Mobile Home Court are minorities (HDR 2011).

Low-income Populations

A low-income population for the purpose of environmental justice is based on poverty levels established by Human and Health Services. The poverty level standard in 2009 and 2010 was $22,050 for a family of four (HHS, 2010). See Table 17. Latah County Households by Income Range and Table 18. Families Living Below Poverty Level. Rental housing can also be used as an indicator of income. Currently, there are no recipients of rental assistance within the corridor (IDHF 2011).

Table 18. Families Living Below Poverty Level

Location	Families (2010)	Families Below Poverty Level (2009)
Latah County	8,268	871 (9.4%)
Census Tract 54, Block Group 2 (previously Block Group 6)	179	5 (3%)
Census Tract 57, Block Group 3	389	6 (2%)

Source: IDHF 2011

Subpopulations of Concern

A windshield survey of the project corridor identified subpopulations that could have low income populations and a potential source of low-cost housing. These were located at the Woodland Heights Mobile Home Court (previously Valhalla Mobile Home Park), Hidden Village Mobile Home Park and Benson Mobile Home Park. Income data was not available for the residents and the mobile home park. However, records of need based rental assistance showed that there were no residents in the project area that obtained assistance. Many of the rentals in the corridor study area are located in the general vicinity of mobile home parks.

The Woodland Heights Mobile Home Court is located in the northern portion of the study area on the west side of US-95 approximately two miles south of Moscow (MP 342.5). The park contains 27 spaces for housing units plus two spaces for recreational vehicles (RVs). 24

of the units are rentals. The homes were built between 1959 and 1987. Persons living in the park include elderly, singles, singles with children, and families.

The Hidden Village Mobile Home Park is located on Eid Road on the east side of US-95 approximately five miles south of Moscow (MP 339.6). The park contains 32 housing units, only one of which is a rental. The manufactured homes were built in 1989 or 1990. The trailers at the park appear to be constructed in the 1950's to 1970's. Park residents include retirees, graduate students, empty nesters and families. The majority of the residents commute to work in the Moscow and Pullman areas. There is little tenancy turnover at the park, with the majority of the residents having stayed at the park for over 10 years.

The Benson Mobile Home Park is located on Eid Road just east of the Hidden Village Mobile Home Park. It contains ten rental units; seven mobile home spaces, one stick-built home, and two RV spaces. The stick-built home was built in 1910 and the mobile homes were constructed before 1973. Park residents include elderly, students, a hospital worker, an auto body repairman, and a scientist. The majority of the residents commute to Moscow and Pullman areas to work or travel frequently around the country. There is little tenancy turnover at the park, except for the students.

3.2 Land Use and Recreation

3.2.1 Regulatory and Policy Framework

Land use and recreation are governed by the following:

- 23 CFR 774-Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f))
- 1975 Land Use Planning Act of the State of Idaho, Title 67, Chapter 65
- Moscow Comprehensive Plan (City of Moscow 2009)
- Moscow Zoning Ordinance
- Latah County Comprehensive Plan (Latah County 2010)
- Latah County Zoning Map
- Latah County Land Use Ordinance (Latah County 2006)
- Section 6(f) of the Land and Water Conservation Fund (LWCFA)
- 23 USC 138: Preservation of Parklands

NEPA requires that the project action be assessed to determine if it is compatible with existing land use plans. The land use in the project area is regulated through city impact agreements, zoning ordinances and zoning classifications with incorporated areas falling within municipal jurisdiction and un-incorporated areas falling under county jurisdiction.

3.2.2 Methodology

A technical report titled *Community Profile - Induced Development* (HDR 2005a) was prepared and is summarized in this section. The report evaluated existing socio-economic conditions, land use planning documents and development data in the project area. A Delphi process, involving interviews with a panel of local experts, was used to predict development trends and highway-related growth. It was also used in the evaluation of the alternatives' consistency with land use plans. Reports were prepared in 2011 to provide updated information. See the Community Impact Technical Reports.

Planning documents that govern the land uses in the project area were evaluated to determine if the alternatives would be consistent with city, county and regional land use policies. Existing land uses were verified by comparing geographic information system (GIS) data with the results of field visits in the study area. City and county staff were interviewed and completed questionnaires regarding existing conditions and planned development in 2004 and 2011. A regional analysis and local trends analysis were performed to describe effects related to projected growth within the study area.

3.2.3 Existing Conditions

Land Use

The majority of the corridor is surrounded by agricultural land with associated farmhouses and agricultural buildings. There are clusters of residential development along certain portions of the corridor (Zeitler Road, Cameron Road, and Clyde Road) and two areas (Woodland Heights Mobile Home Court and Hidden Village /Benson Park) that have a concentration of mobile homes. The northern portion of the corridor is more highly developed with a mix of uses and an emphasis on auto-oriented businesses such as RV parts and service, automotive repair facilities, and trucking services.

Approximately 58 percent of all property in Latah County is privately owned. Nearly 16 percent of the county's land is owned by the federal government, with most of that land in the Nez Perce National Forest. State held land accounts for five percent of the county and

includes the US-95 right-of-way. Most of the state property is endowment land for education. See Table 19. Latah County General Land Ownership.

Table 19. Latah County General Land Ownership

Land Ownership	Acreage	Percentage
Private	404,682	58.7
Forest Industry	126,701	18.4
US Government	108,285	15.7
State	35,577	5.2
University	9,856	1.4
Highway	2,100	0.3
City Owned	1,990	0.3
Railroad	665	0.1
Latah County	493	0.1
School District	296	Less than 0.1

Nearly 96 percent of Latah County is in low intensity land use such as forest land and agriculture. The county contains 3,400 acres of land designated as urban which accounts for about a half percent of the county's total land. See Community Impact Technical Reports; Community Profile and Induced Development (HDR 2005a)

Low-density residential development is the only type of residential development allowed in unincorporated Latah County. Commercial developments are expected along US-95 at the southern edge of the city limits.

City of Moscow Comprehensive Plan

The City of Moscow adopted a new Comprehensive Plan in 2009. While most of the project area is located outside the City limits, Latah County has adopted the City of Moscow's zoning ordinance and zoning classifications for the area of impact located in the northern end of the project. The land outside the city limits is zoned by Latah County as suburban residential.

The City of Moscow Comprehensive Plan promotes a system of transportation and circulation within and around the city that will make it possible for all people utilizing various modes of transportation to reach their destination as safely and as easily as possible, with the least disturbance possible occurring upon adjacent uses. The plan also states that roads and intersections are to be designed to restrict and control vehicular access along state

and federal highways in the Area of City Impact. The area east of US-95 at the southern edge of the city is designated as light industrial use.

The City of Moscow Comprehensive Plan update did not address any of the proposed US-95 alignments but does consider the following potential developments (City of Moscow 2009):

- The City of Moscow plans to develop the Ring Road concept which is a long range, unfunded improvement. The project is a planned loop around the City of Moscow that would permit through traffic on both US-95 and SH-8 to travel around the perimeter of the City. It has no definitive alignment although it was proposed generally west of existing US-95. The alternative to a western route would be an eastern route; however, several factors make the western route a more logical choice. These reasons include the deterrents to city growth to the west, proximity to the university, the central business district and shopping areas, proximity of Pullman, and the potential for city growth.
- A proposed ball park (parks and open space) was rezoned and annexed into the City. Build out of the park isn't anticipated for several years.
- Future auto-urban commercial land uses are planned along the US-95 corridor entering Moscow.
- Auto-urban residential growth areas have been extended further south of the City.
- The City of Moscow recently worked on a new Master Plan for an Industrial Park that is located north of the South Fork of the Palouse River.

Latah County Comprehensive Plan

Latah County adopted a new Comprehensive Plan and Land Use Zoning (Resolution 2010-32) in December, 2010. However, the plan remains relatively unchanged from the previous plan with the same goals to maintain the largely rural nature of the county. The comprehensive plan goals are stated below:

- Preservation of the rural character of Latah County to ensure the protection of the cultural, scenic and natural amenities presently found in the county.
- Preservation of agricultural and forest land uses to ensure the continued viability of an agricultural and forest based economy in rural Latah County.
- Fostering of other land uses which will help achieve a solid broad based and sustainable economic foundation.

- Clustering of commercial and higher density residential uses in and around areas with adequate public services.
- Ensure that land use policies do not unconstitutionally violate private property rights.

The key policies related to transportation and the project in the new Comprehensive Plan include:

- Limit the number of access points to state and federal highways.
- Ensure that buildings are set back a safe distance from public roads (Latah County 2010).

The plans reflect the goals of protecting productive agricultural and forested areas and to identify suitable areas for future residential, commercial, or industrial development.

North Latah County Highway District Transportation Plan

The North Latah County Highway District (NLCHD) Transportation Plan was completed in November 2006. This was an update to a previous transportation plan. The plan discusses the potential re-alignment of US-95. It verifies that three alignments are being considered and that once a final alignment is selected, approved, and constructed, the current US-95 roadway will be placed under the jurisdiction of the NLCHD (Carscallen pers. comm. 2011).

Other Plans

The City of Moscow is planning to prepare a Moscow School District Long-Range Facilities Plan. The City of Moscow will also be conducting a transportation plan that is anticipated to begin in 2012 with possible completion in 2014.

Recreation

Primary recreational facilities in the project area are shown in Exhibit 19. Points of Interest and include the following:

- Frontier Park
- Paradise Ridge Road (bicycling and hiking)
- University of Idaho Golf Course
- University of Idaho Arboretum
- Planned recreational areas including multi-use ball fields, Latah Trail and an arboretum.

The Latah County Comprehensive Plan goals for recreation are to encourage a variety of recreational opportunities in Latah County by implementing policies that:

- Encourage the development of suitable land for recreational uses.
- Ensure the compatibility of recreational areas with adjoining land uses.
- Encourage the dedication of land within new developments for recreational use.

3.3 Farmland

3.3.1 Regulatory Framework and Policies

Farmland is governed by the following:

- The Farmland Protection Policy Act (FPPA) of 1981
- Guidelines for Implementing the Final Rule of the Farmland Protection Policy Act for Highway Projects
- State of Idaho Local Land Use Planning Act

The FPPA of 1981 requires that federal projects minimize the conversion of farmland to nonagricultural uses, and that projects consider state and local farmland protection policies to the extent that is practical. Farmland subject to FPPA includes prime and unique farmland and farmland of statewide importance. Farmland considered under FPPA does not have to be currently used for agriculture but cannot be water, urban or developed land (FHWA 1989).

3.3.2 Methodology

A technical report titled *Farmland Protection Policy Act* (Haagan 2006) was prepared to assess the farmlands in the project area and to determine the relative effects of the alternatives to farmland. The study area was evaluated for prime, unique, and farmland of statewide importance by reviewing farmland soil lists, U.S. Department of Agriculture (USDA) maps and through consultation with Natural Resource Conservation Service (NRCS). A Land Evaluation and Site Assessment was completed in order to rate and rank sites for agricultural importance (Haagen 2006). The information for each alternative was recorded by NRCS staff in the NRCS Form NRCS-CPA-106 in December 3, 2006. See Appendix 1, Key Agency Correspondence and Forms; Farmland Conversion Impact Rating for Corridor Type Projects. The 2006 report was reviewed by the author, Ed Haagen in 2011 and he determined that the crop rotations, farming operations, and leasing arrangements had changed slightly

since the original analysis and will continue to change. However, the existing conditions in 2011 do not differ substantially from those in 2006. Site assessment criteria that were considered in the farmland conversion impact rating score for each alternative included:

- Area in non urban use
- Perimeter in non urban use
- Percent of corridor being farmed
- Protection provided by state or local government
- Size of farm unit compared to average
- Creation of non farmable units
- Availability of farm support
- On-farm investments
- Effects of conversion on farm support services
- Compatibility with existing agricultural use

The USDA recommends that alternatives with farmland impact rating scores totaling 160 points or greater be given increasingly high levels of consideration for protection from conversion. See the Farmland Technical Report for more information.

Agricultural lands not considered prime farmlands or prime farmland soils under the USDA definition are also considered under NEPA. The farmland classification system identifies map units as prime farmland, unique farmland, farmland of statewide importance, and farmland of local importance. Further clarification of farmland classifications may be found in the National Soils Survey Handbook (USDA 2007).

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Examples of these crops include grain, forage, fiber, oilseed, sugar beets, sugarcane, vegetables, tobacco, orchard, vineyard, and bush fruit crops. The land must have the soil quality, growing season and moisture supply needed to economically produce sustained high yields of crops when treated and managed according to acceptable farming methods (USDA 1991). Prime farmland soils currently located in or committed to urban development are not subject to the FPPA.

Unique farmland is land other than prime farmland used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods. Examples of such crops include citrus, tree nuts, olives and cranberries.

Farmland of statewide importance is classified by the NRCS as farmland of lesser quality than prime farmland by having the soil, water supply and other characteristics that, with good management, yield productive crops.

Farmland of local importance. In some local areas, there is concern for certain additional farmlands for the production of food, feed, fiber, forage, and oilseed crops even though these lands are not identified as having national or statewide importance.

3.3.3 Existing Conditions

This section discusses general farmland trends, crops and farmland within the study area classified as prime, unique and farmland of statewide importance (Environmental Analysis Bureau 1997).

There are approximately 265,000 acres of cropland in Latah County. Farming operations are generally privately owned family farms but in many cases include leased land. The average farm size in Latah County is 494 acres; however, considering rental property, many producers are farming more than 1,000 acres. The principal crop is winter wheat with an average yield of about 80 bushels per acre. Other primary crops grown in the area include barley, field peas, garbanzo beans and lentils. See Table 20. Latah County Crop Production.

These crops are usually grown in a rotation with winter wheat to prevent disease and control erosion. Spring barley or lentils followed by two or three years of winter wheat would be a normal rotation for the area. Rotations vary depending on the producer's farming operation and the conservation programs in which the farm is enrolled. Table 20. Latah County Crop Production shows the acreages and percentages of crops in Latah County.

Table 20. Latah County Crop Production

Crop	Estimated Acres of Production (2005)	Estimated Percent of Total Production
Wheat	97,068	43
Barley	10,550	5
Peas	21,011	9
Lentils	31,976	14
Garbanzo	10,406	5
Canola	228	Less than 1
Rapeseed	452	Less than 1
Conservation Reserve Program (CRP)	46,410	21
Hay	5,027	2
Pasture	131	Less than 1
Total	223,259	100

There are an estimated 11,000 acres of land designated as crop fields in the project area of which approximately 98 percent is privately owned. Table 21. Farmland Classifications in Project Corridor shows the farmland types within the project corridor. Farmland classified as Prime and Farmland of Statewide Importance are present in the study area. No farmland classified as Unique occurs in the project area or in Latah County.

Table 21. Farmland Classifications in Project Corridor

Farmland Type	Estimated Land Currently in Production (acres)
Cultivated Crops	9,000
Hay or Pasture	500
Shrub Vegetation	550
Farms, rural residences, commercial areas, forest land, highway right of way and water	400
Conservation Reserve Program	1,500

3.4 Cultural Resources

3.4.1 Regulatory Framework and Policies

Cultural resources are governed by the following:

- 16 USC 470-National Historic Preservation Act (NHPA), Section 106 and Implementing Regulations

- 36 CFR 800-Protection of Historic Properties
- 23 CFR 774-Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f))
- 49 USC 303-Policy on Lands, Wildlife and waterfowl refuges, and historic sites
- 42 USC 1996 and 1996a-American Indian Religious Freedom Act (AIRFA)
- 16 USC 431-433-Antiquities Act
- 25 USC 3001-Native American Graves Protection and Repatriation Act (NAGPRA)
- Idaho Graves Protection Act: Title 27, Idaho Statutes, Cemeteries, and Crematoriums

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in 36 CFR Part 800.

The NHPA defines the National Register of Historic Places (NRHP) criteria for eligibility (A through D), explains the need for properties to retain enough elements of integrity (location, design, setting, workmanship, materials, feeling and association) to be eligible for the NRHP, and defines the meaning of the different effect determinations.

3.4.2 Methodology

The area of potential effect (APE) established for the project was initially based on approximately 250 feet from the centerlines of the alignments and areas immediately adjacent to this area for each of the Action Alternatives. In 2011, the cultural resource survey technical report was updated and the evaluation area was expanded to approximately 500 feet from the centerlines of the alternatives. The Idaho State Historic Preservation Officer (SHPO) and the Nez Perce Tribe were consulted regarding the APE and to identify any culturally important sites that should be considered during the survey and EIS development. ITD District 2 has been meeting quarterly with the Nez Perce Tribe to consult on planned projects since 2002. This project is included in that consultation. The dates of Tribal consultation are listed in Chapter 7, Public Involvement and Agency Coordination. The most recent Tribal consultation letters and the ITD Memorandum of Understanding with the Nez Perce Tribe are included in Appendix 1, Key Agency Correspondence and Forms.

Pre-field research including literature reviews, known historical sites, and ethnographic/ historic background were completed. Field studies were completed in 2004, 2005, 2006 and 2011 to determine cultural resource probability, identify cultural resources, document and record historic building and structures, and complete archaeological survey. In addition to visual survey, subsurface shovel testing was completed in selected locations.

The following cultural resource survey technical reports were prepared to evaluate if archaeological and historic resources are present and would be affected by the alternatives. The information from the reports is summarized in this section.

- *Historic Resources Survey update to An Historic Buildings/Structures Survey for the Idaho Transportation Department's Proposed US 95, Thorn Creek Road to Moscow, Stage 1 Project, Latah County, Idaho (November 2011)* (Cardno-Entrix 2011)
- *Cultural Resources Surveys of Idaho Transportation Department Proposed US-95, Thorn Creek Road to Moscow, Phase 1, Project Latah County Idaho* (AHS 2006)
- *Historic Buildings/ Structures Survey: US-95, Thorn Creek Road to Moscow, Stage 1* (Sharley 2005)

The technical report titled *Cultural Resources Surveys of Idaho Transportation Department Proposed US-95, Thorn Creek Road to Moscow, Phase 1; Project Latah County Idaho* (AHS 2006) was submitted to the Idaho SHPO. SHPO concurred with the suggested NRHP eligibility and determination of effects for the alternatives in January 2, 2007.

An update to the 2006 Cultural Resources Survey Technical Report was prepared in November 2011 and was submitted to SHPO for review. In their responses of January 23, 2012 and March 8, 2012, SHPO determined that one additional resource, the Mountain Mart/Goodman Oil Convenience Store, is eligible for listing on the NRHP. See Appendix 1, Key Agency Correspondence and Forms for associated documentation.

3.4.3 Existing Conditions

Cultural Resources in the APE

Of the potentially historic sites identified within the project APE, three are eligible for listing in the NRHP; the Arthur Snow Farm (house and garage), the Deesten/Davis Farmstead and the Mountain Mart/Goodman Oil Convenience Store. See the Cultural

Resources Technical Report for additional detail. Only one site, the Deesten/Davis Farm, would be affected by any of the alternatives and is further discussed in Section 4.4 Cultural Resource Effects and Chapter 5. Section 4(f) Evaluation.

Arthur Snow Farm House and Garage (IHSI #57-13692)

This residence is situated in a low density residential area in the rolling Palouse hills two miles south of Moscow. The residence was built in 1919 for Arthur Snow, an Idaho State Legislator. It is a large, well preserved craftsman style house with a matching detached garage that was constructed in 1921. The buildings were once part of a large farm complex; however, the other structures burned down in 2003. The house and garage are the only remaining structures. Removal of the primary features, including the barn, and the absence of important physical information, renders the historic farm complex as a whole ineligible for listing in the NRHP. However, the house and garage are individually eligible for listing in the NRHP under Criteria B for their association with Arthur Snow and Harold Snow, both Idaho State Legislators and influential community leaders. They are both also eligible for listing under Criteria C as excellent, intact examples of craftsman residential architecture and for their artistic merits.

Deesten/Davis Farmstead, Farmstead (Field #US-95-22)

This farmstead is located immediately west of US-95 and approximately four miles south of Moscow. It consists of eight primary buildings; a farmhouse, garage, barn, granary, chicken house, smoke house, shop, and equipment shed. The property is surrounded by actively cultivated Palouse farmland. See Exhibit 20. Deesten/Davis Farmstead as viewed from US-95.

The property also includes two groves of trees planted in the 1930s by the Civilian Conservation Corps, an orchard, cottonwoods, a conifer windbreak and a black walnut tree from Germany. The farm was originally patented to William Plummer in 1882 as a cash entry land claim (BLM 2005) and is remarkably intact. The house, barn and other primary buildings are in good condition with no intrusive modern elements. The property is eligible for NRHP listing under Criterion A, for its association with regional agricultural development. The property is also eligible under Criterion C as an excellent example of early 20th century farmstead architecture and layout.

Exhibit 20. Deesten/Davis Farmstead as viewed from US-95

Mountain Mart/Goodman Oil Convenience Store (HS-02)

The Mountain Mart site which is also known as Goodman Oil is located immediately south of the South Fork Palouse River Bridge on the east side of US-95 and is currently abandoned. The property has several buildings located on the site, including fuel pumps, garages and utility buildings. The Mountain Mart office/shop was built in 1963 and will be 50 years old by 2013. Only the office/convenience store was determined to be eligible for the NRHP. The building is octagonal construction, prefabricated materials, and a modernist vernacular design which is unusual and unique for a rural community in Idaho. The building has a circular, flat roof. Five of the sides are almost entirely glazed in metal units. Three of these sides are vertical, three are light windows, and the north and west faces have metal entrance doors at their center. The central door has a louvered ventilation window. The building is eligible under Criteria C as an excellent example of mid-century modern architectural design. The octagonal/round form, the large glass exposure, flat roof, metal components and cinderblock walls are all distinctive characteristics of the type, period and method of construction of the genre. Although a comprehensive survey of gas stations has not yet been conducted in Idaho, this example appears to be a rare survivor of the property type. See Exhibit 21. Mountain Mart/Goodman Oil Convenience Store.

Exhibit 21. Mountain Mart/Goodman Oil Convenience Store

3.5 Floodplains

3.5.1 Regulatory Framework and Policies

Floodplains are governed by the following:

- EO 11988 – Floodplain Management
- 23 CFR 650 Subpart A- Location and Hydraulic Design of Encroachments on Flood Plains
- Latah County Land Use Ordinance #269-Flood Zone Overlay

Presidential EO 11988, Floodplain Management, directs federal agencies to avoid to the extent possible adverse effects associated with floodplains and to avoid support of floodplain development.

3.5.2 Methodology

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) maps dated August 15, 1980 were reviewed. Two separate meetings with the Michelle Fusion, the Director of Latah County Planning and Zoning and Bill Belknap, the Community Development Director of the City of Moscow were conducted to discuss floodplain requirements, effects of the alternatives and potential risk.

Project-related activities are required to demonstrate that they would not cause more than a one-foot cumulative rise in the base flood elevations and that they would be compliant with the National Flood Insurance Program.

A technical report titled *Hydraulic Study for Affected Floodplains on Alternatives Carried Forward* (ITD 2012b) was completed in compliance with 23 CFR 650 part A (ITD 2012b). This report discusses the following:

- Flooding risks
- Impacts on natural and beneficial floodplain values
- Support of probable incompatible floodplain development
- Measures to minimize floodplain impacts
- Measures to restore and preserve the natural and beneficial values

3.5.3 Existing Conditions

The FEMA FIRM Maps show 100-year floodplain (Zone A) associated with the South Fork Palouse River and Thorn Creek. The South Fork Palouse River has a designated floodway in addition to the 100-year floodplain. Four floodplain areas associated with tributaries of the South Fork of the Palouse River are located on the western edge of the study area. See Exhibit 25. Floodplain Effects.

3.6 Wetlands and Tributaries

3.6.1 Regulatory Framework and Policies

Wetlands and tributaries are governed by the following:

- 23 CFR 777 – Mitigation of Impacts to Wetlands and Natural Habitat
- USDOT Order 5660.1A - Preservation of the Nation's Wetlands
- 33 CFR 325 –Processing of Department of Army Permits
- 33 CFR 328 – Definition of Waters of United States
- 33 CFR 332 -Compensatory Mitigation for Losses of Aquatic Resources; Final Rule
- 33 USC –Section 401 and Section 404; Clean Water Act
- 33 USC 403-Rivers and Harbors Act of 1899
- 33 USC 1251 -Clean Water Act (CWA)
- 33 USC 1313(d) Section 303-Water Quality Standards and Implementation Plans

- 40 CFR 230-Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged for Fill Material
- IDAPA 37.03.07-Idaho Department of Water Resources (IDWR) Idaho Stream Channel Protection Act and the Stream Channel Alteration Rules
- U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)

Waters of the US as defined by the USACE includes "waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce" [33 CFR 328.3(a)]. This includes all interstate waters, waters from which fish or shellfish could be taken and sold in interstate or foreign commerce, and all tributaries of the waters described above.

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)].

The Clean Water Act (CWA) establishes national goals and policies to restore and maintain chemical, physical and biological integrity of the Waters of the US. Section 401 of the CWA regulates water quality of Waters of the US. Section 402 of the CWA regulates the discharge of pollutants from point and non-point sources (National Pollution Discharge Elimination System (NPDES)). Section 404 of the CWA regulates the discharge of fill or dredged material into Waters of the US and is implemented by the USACE and EPA.

Waters of the US, including wetlands, that are jurisdictional by the USACE and would be affected, would require a permit through the USACE. Lands meeting the definition of wetland, but which are not considered jurisdictional by the USACE are still considered under 23 CFR 777 Mitigation for Wetlands and Aquatic Habitats which requires a no net loss of wetland function and value.

IDEQ is the state agency responsible for implementing the 401 certification process. IDEQ develops and enforces water quality standards that are intended to protect beneficial uses of a water body. EPA is responsible for ensuring that the standards which IDEQ adopts are aligned with the requirements of the CWA.

IDEQ water quality standards consist of three components: 1) an anti-degradation policy to maintain existing water quality independent of designated uses; 2) beneficial uses designated for a specific water body based on plants and animals present and activities taking place in the waterway; and 3) criteria to protect water quality necessary to support the designated beneficial uses (for example, limits on temperature, dissolved oxygen, pH, turbidity, and ammonia). IDEQ considers physical, chemical, and biological characteristics, geographic setting, scenic qualities and economic and public values when designating a water body's beneficial uses.

The IDEQ releases a report listing and describing impaired segments of water bodies. All impaired waterways are required to have a Total Maximum Daily Load (TMDL) prepared for each pollutant listed as impaired. TMDLs are calculations of the maximum amount of a pollutant that a water body can assimilate while still complying with water quality standards.

3.6.2 Methodology

The following wetland technical reports were prepared to evaluate wetlands and tributaries that could be affected by the alternatives:

- *Thorncreek Road to Moscow Determination of Jurisdictional Waters of the United States* (Gilmore 2005)
- *Thorncreek Road to Moscow - Wetland Functions and Evaluation* (Gilmore 2006)
- *Thorncreek Road to Moscow, Wetland Delineation Report* (Gilmore 2012).

In 2012, the earlier wetland delineations were reviewed, considering new guidance and the revised methodology (*Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008)). In addition, ITD worked with the USACE to identify tributaries and wetlands that occur in the project area. In 2012, additional function and value ratings were completed for affected wetlands. The results of the wetland delineation and the function and value assessments for the affected wetlands, were updated and compiled into one comprehensive report titled *Thorncreek Road to*

Moscow, Wetland Delineation Report (Gilmore 2012) which also contains detailed maps of the tributaries and wetlands in the study area.

Over 150 acres were evaluated for wetlands. One hundred fifteen test sites were evaluated during the 2004 through 2005 field investigations. The findings were displayed on field data sheets in Appendix C of the 2012 report. The project area was revisited on September 15 and 16, October 3, and December 5, 2011 to determine if substantial land use changes had occurred at or near the resource. The original field data sheets were reviewed based on the changes between the USACE delineation manual (Environmental Laboratory 1987) and the 2008 supplement (USACE 2008) and in light of the most recent wetland regulations and guidance.

The functions and values of the affected wetlands were assessed in accordance with the *Washington State Wetland Rating System for Eastern Washington* (Hruby 2004). This rating system assigns wetlands a category between I and IV based on how well they provide water quality, hydrologic, and habitat functions. Each function is scored on how well the wetland is providing that function and its potential to increase that function within a given area. The maximum score for water quality, hydrologic, and habitat functions are 24, 32, and 32 respectively. The higher the score and percentage of the total, the higher that wetland is functioning for the parameter. The total of the scores for the three functions determines the functional category. Category I is considered the highest quality and is the most difficult to replace. Category IV wetlands are typically disturbed and are considered the most easily replaced.

- *Category I* wetlands are those that 1) represent a unique or rare wetland type; or 2) are more sensitive to disturbance than most wetlands; or 3) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or 4) provide a high level of functions.
- *Category II* wetlands are difficult, though not impossible, to replace, and provide high levels of some functions. These wetlands occur more commonly than Category I wetlands, but still need a relatively high level of protection.
- *Category III* wetlands are 1) vernal pools that are isolated, and 2) wetlands with a moderate level of functions. These wetlands generally have been disturbed in some ways, and are often smaller, less diverse than Category II wetlands.

- *Category IV* wetlands have the lowest levels of functions and are often heavily disturbed. These are wetlands that should be replaceable, and in some cases may be improved.

3.6.3 Existing Conditions

Tributaries

The project area is in the Palouse River Watershed, Water Resource Inventory Area (WRIA) 34. The Palouse River Watershed includes the South Fork Palouse River Subbasin and the Cow Creek Subbasin. The upper three quarters of the project area is in the South Fork Palouse River Subbasin. The lower one-quarter of the project area is in the Cow Creek Subbasin.

There are two primary tributaries in the project area; the South Fork Palouse River and Thorn Creek. All other tributaries in the project area are unnamed and drain to one of these tributaries. Most of the tributaries are intermittent or ephemeral. None of the waterways are part of a National Wild and Scenic Rivers System or a river under study for designation to the National Wild and Scenic Rivers System. See Exhibit 26. Tributary Effects for locations of tributary crossings. Maps and additional detail regarding the tributaries are included in the Wetland Delineation Technical Report (Gilmore 2012).

South Fork Palouse River. The South Fork Palouse River is a perennial stream and a primary tributary to the Palouse River. The Palouse River drains to the Snake River which flows to the Columbia River. The South Fork Palouse River, the Palouse River, the Snake River and the Columbia River are considered by the USACE to be jurisdictional waters of the US.

The South Fork Palouse River has high flows in the spring and early summer and low flows during the late summer and early fall. Most of the wetlands and floodplains in the Palouse have been drained, straightened, cleared of vegetation or otherwise affected by agriculture, urbanization and associated infrastructure. These areas once retained water during high flows and released water during the low flow periods; however, farming and other developments have affected the streams, wetlands and floodplains, resulting in diminished water storage and attenuation capacity. Therefore, peak flows are intensified resulting in channel erosion, deeply incised channels and flooding (IDEQ 2007).

The IDEQ 2002 Integrated Report lists the South Fork Palouse River as a 303(d) listed [33 USC 1313(d) Section 303], impaired waterbody for sediment, nutrients, stream temperature and bacteria (IDEQ 2005b). The Watershed Assessment and TMDL for the South Fork Palouse River Watershed describes the designated beneficial uses for the South Fork Palouse River Subbasin as cold water aquatic life[10], salmonid spawning, and secondary contact recreation[11] (IDEQ 2007).

Thorn Creek. Thorn Creek is an interstate intermittent tributary to Cow Creek which is a primary tributary of the Palouse River. Thorn Creek is considered by the USACE to be a jurisdictional water of the US.

Thorn Creek is typically dry in the summer and has high peak flows following storm events. It has also been affected by agriculture, urbanization and associated infrastructure with similar intensified peak flows, high erosion, incised banks and sedimentation (IDEQ 2005a).

The IDEQ 2002 Integrated Report listed Cow Creek as an impaired water body for nutrients, habitat alteration and stream temperature (IDEQ 2005a). The Watershed Assessment and TMDL for the Cow Creek Subbasin (IDEQ 2005a) described Cow Creek's beneficial uses as secondary contact recreation and cold water aquatic life.

Wetlands

Forty-six wetlands were identified and delineated in the project area. The seventeen affected wetlands are shown on Exhibit 27. Wetland Effects. No determination regarding jurisdiction has been made by the USACE at this time; however, all of the wetlands are considered by the FHWA under 23 CFR 777, Mitigation of Impacts to Wetlands and Natural Habitat.

Wetlands may be classified by the dominant vegetation types. Two primary wetland vegetation classifications in the project area are: emergent and scrub-shrub wetlands. Emergent wetlands are characterized by low growing, non-woody vegetation such as grasses, sedges and forbs. In the project area, these wetlands are typically used agriculturally. Scrub-shrub wetlands are characterized by shrubs such as roses, hardhack or red osier dogwood.

[10]Cold water aquatic life is water quality appropriate for the protection and maintenance of a viable aquatic life community for coldwater species

[11]Secondary contact recreation may include fishing, boating, wading, infrequent swimming, and other activities where ingestion of raw water is not likely to occur

The majority of the wetlands in the project area are Category III Palustrine Emergent (PEM) wetlands associated with agricultural lands and have been altered by human disturbance. The wetlands are either being farmed or farmed to their boundaries reducing the wetland buffer and hydrologic improving capabilities. The wetlands in the northern half of the project primarily drain to the South Fork Palouse River while the wetlands in the southern half of the project primarily drain into Thorn Creek. Both of these water bodies are listed as impaired waters under Section 303(d) of the Clean Water Act [33 USC 1313(d)]. While these wetlands provide some basic functions they have all been impaired and thus their functions degraded. All but a few of these wetlands have only one vegetation class, emergent, which generally consists of crop or introduced species.

Generally, wetlands in the project area scored higher in water quality functions. This is due to the potential for the wetland to improve degraded water quality, as the two main surface waters are both 303(d) listed and surrounded by farming activities. A few wetlands have two predominant vegetation classes, emergent and scrub-shrub. These wetlands, while still impaired, offer higher functions and values to wildlife and greater diversity. These wetlands are still generally surrounded by agriculture.

The wetlands and tributaries in the project area were delineated and are described in detail in the Wetland Delineation Technical Report (Gilmore 2012). Wetlands that would be affected by any of the Action Alternatives are shown in Exhibit 27. Wetland Effects and are described below. Details regarding the other wetlands and tributaries in the project area may be found in the Wetland Delineation Report (Gilmore 2012).

Wetland 9 is a Category III, PEM, drainage way. The southern end of this wetland is being grazed while the western fringe is being farmed. This wetland is dominated by jungle-rice *(Echinochloa colona)* and reed canarygrass (*Phalaris arundinacea*). Wetland 9 scored over 50 percent for water quality functions using the Eastern Washington Wetland Rating System.

The hydrology from Wetland 9 originates near the intersection of Jacksha Road and US-95 and flows in a northerly direction. It continues toward the South Fork Palouse River through a series of wetlands, tributaries and road culverts. Wetland 9 abuts Tributary I, which drains to the South Fork of the Palouse River. The South Fork Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 10 is a Category III, PEM, grassed drainage in a gently sloped valley. It receives runoff from the east and west sides of US-95. Wetland 10 is dominated by jungle-rice grass and field horsetail *(Equisetum arvense)* and is surrounded by annual cropland. The lower portion is classified as farmed wetland. This wetland scored over 50 percent for water quality functions.

Wetland 10 borders Tributary I, which drains northwest to the South Fork of the Palouse River. The South Fork Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 13 is a Category III, palustrine scrub-shrub (PSS) wetland. It is confined by a steep slope on the north and an area with predominantly higher elevation on the south side. CRP lands are to the north and south of the wetland. There is cropland along the wetland edges with farming activities up to the grassy borders in the lower reaches. Wetland 13 is dominated by hawthorn *(Crataegus douglasii),* red-osier dogwood (*Cornus sericea)*, cow parsnip (*Heracleum maximum)*, and reed canarygrass. There are also scattered cottonwood trees in the upper portions of the drainage. This wetland scored over 50 percent for water quality functions.

Wetland 13 is contiguous with Tributary W which flows westerly toward US- 95 through a farmstead and along Zeitler Road. Tributary W continues through Wetland 34 and drains to the South Fork Palouse River through a series of open tributaries and wetlands. The South Fork Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 20 is a Category III, PEM wetland in a large drainage way. Farming activities are occurring through the wetland along most of the reach. Vegetation in the wetland is dominated by reed canarygrass and cultivated spring grain. This wetland scored over 50 percent for water quality functions.

The wetland is contiguous with Tributary N which flows in a westerly direction to the South Fork Palouse River. The South Fork Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 23 is a Category IV, PEM wetland consisting of two grassed waterways that drain in an easterly direction toward US-95. The predominant vegetation includes meadow foxtail *(Alopecurus pratensis)* and bromes (*Bromus* sp.). The northern and larger portion of the wetland is being farmed up to its border. The southern portion of the wetland is also being farmed. This wetland did not score over 25 percent for any of the functions.

Wetland 23 does not appear to have a surface connection to other waters and does not appear to be adjacent to Tributary P.

Wetland 24 is a Category III, PEM wetland that includes two north-sloping drainage ways. The western portion drains a relatively steep bowl of pastureland. The predominant vegetation includes reed canarygrass, jungle-rice grass, and grazed pasture grasses. The eastern-most portion includes a small pond and has a more gradual gradient. Both drainage patterns converge near the west side of US-95 into a relatively wide grassy area. This wetland scored over 50 percent for water quality functions.

The wetland is contiguous with Tributary Q, which flows in a northerly direction along the west side of US-95 toward Wetland 9. It then flows through a series of wetlands and open roadside ditches to the South Fork Palouse River. The South Fork Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 25 is a Category III, PEM, grassed drainage which is surrounded by cropland. This wetland is currently mowed. The predominant vegetation includes meadow foxtail and cultivated grasses for hay. This wetland scored over 50 percent for water quality functions.

The wetland drains in a northerly direction along the west side of US-95 from the toe of the slope to the east toward Clyde Road. The wetland is adjacent to Tributary R which is conveyed through a series of wetlands, open roadside ditches and culverts and to the South Fork Palouse River. The South Fork Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 26 is a Category IV, PEM, drainage surrounded by annual cropland. Farming activities are occurring through most of the wetland. A combination of hillside seeps and slow soil permeability within the cropland contribute to prolonged soil saturation into the spring. Predominant vegetation includes quackgrass (*Elymus repens)*, jungle-rice grass,

spring grain, prickly lettuce (*Lactuca serriola)*, mayweed *(Anthemis cotula)*, Canada thistle *(Circium arvense)*, and field horsetail. This wetland did not score over 25 percent for any of the functions.

The wetland drains in a northerly direction along the west side of US-95 by Tributary R, to Tributary S which is conveyed through a series of wetlands, open roadside ditches and culverts and to the South Fork Palouse River. The South Fork Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 27 is a Category III, PEM, forked grassy drainage way that drains the toe slope of annual cropland across a flat area. Predominant vegetation includes wild oats *(Avena fatua)* and jungle ricegrass. A combination of upland runoff and the flat topography of the drainage way contribute to prolonged soil saturation in the spring. This wetland scored 50 percent for water quality functions.

The wetland, adjacent to Tributary T, is drained in a northerly direction along the west side of US- 95 toward the South Fork Palouse River. The runoff is conveyed through a recently created wetland along the South Fork Palouse River banks. The South Fork Palouse River is a tributary of the Palouse River. The Palouse River is a major tributary to the Snake River.

Wetland 28 is a Category III, PEM, grassy forked drainage. This wetland is contained within the lower third of a forked drainage way on the east side of US-95. The upper two-thirds of the drainage way possess wetland and tributary characteristics previously defined as PC (Prior Converted). This wetland is predominantly reed canarygrass bordered by wheat and brome species. This wetland scored 50 percent for both water quality and habitat functions.

The drainage way conveys overland flow from upper croplands in a southerly direction toward US-95. The runoff is conveyed under the highway by a culvert, connecting the surface flow to Tributary P, on to Wetland 19 and Thorn Creek. Thorn Creek flows to Union Flat Creek, a tributary of the Palouse River. The Palouse River is a major tributary to the Snake River.

Wetland 29 is a large Category III, PEM, multi-forked drainage way that carries overland flow in a westerly direction along Eid Road. The wetland consists mostly of wide grassy ditches that flow into defined narrow channels. Predominant vegetation is reed canarygrass.

A relatively large man-made pond exists near the upper portion of the tributary of the most southern fork, identified as AW (Artificial Wetland). This wetland scored over 50 percent for water quality functions.

Surface water is conveyed from the wetland through Tributary U toward US-95, traveling under the highway through a culvert toward Tributary Q, to Wetland 9 and 10, and on down Tributary I to the South Fork Palouse River. The South Fork Palouse River is a tributary of the Palouse River. The Palouse River is a major tributary to the Snake River.

Wetland 31 is a Category IV, PEM, long grassy waterway in the middle of annual cropland. Predominant vegetation includes reed canarygrass and dagger-leaf rush (*Eleocharis lanceolata)*. Hydrology for Wetland 31 originates from overland flow in a westerly direction toward US-95. The grassy drainage way is relatively flat and extends into the draw beyond the wetland boundary. This wetland did not score over 50 percent for any of the functions.

Water draining from Wetland 31 is conveyed under the highway, and continues through Wetland 10 and Tributary I toward the South Fork Palouse River. The South Fork Palouse River is a tributary of the Palouse River. The Palouse River is a major tributary to the Snake River.

Wetland 32 is a Category III, PSS wetland with an emergent component and grassed waterway. Predominant vegetation includes reed canarygrass, hawthorn and aspen (*Populus tremuloides)*. This wetland originates in the foothills of the west facing slope of Paradise Ridge. This area was defined by aerial photos as a farmed wetland (FW) and wetland (W) (USDA FSA 1979). A man-made pond is found in the upper most portion of Tributary W and is identified as an AW (Artificial Wetland). This wetland scored over 50 percent for water quality functions.

The wetland has both a brushy draw and a wide grassed waterway that conveys overland flow and hillside seeps in a westerly direction through a channelized tributary that travels through a farmstead and along Zeitler Road toward the highway through Tributary W. Tributary W drains Wetlands 13 and 32 in a westerly direction toward US- 95. It continuing through Wetland 34, flows under the highway through a culvert and to the South Fork Palouse River through a series of open tributaries (Tributary I) and wetlands (Wetland 10).

The South Fork of the Palouse River is a tributary of the Palouse River; the Palouse River is a major tributary to the Snake River.

Wetland 35 is a Category III, PEM wetland area above a man-made pond in a drainage way that comes off Paradise Ridge. Predominant vegetation includes reed canarygrass. The wetland hydrology appears to come from a hillside seep and overland flow. This wetland scored over 50 percent for water quality functions.

Wetland 35 drains to a pond, which overflows to a roadside wetland and under Cameron Road toward Tributary X. Tributary X also carries overland flow from Wetland 14 and 33. The hydrology continues to flow toward US-95 through annually cropped land, through a culvert under the highway, and through a series of open tributaries until it flows into the South Fork Palouse River. The South Fork of the Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 39 is a Category IV, PEM wetland on the edge of an annually cropped field. Predominant vegetation includes reed canarygrass and mayweed. Water appears to pond at this edge near US-95. Hydrology is from a combination of upland and roadside runoff and possibly a high water table. This wetland did not score over 50 percent for any of the functions.

The wetland is adjacent to Tributary Y, which flows along the toe of the highway slope until it crosses under the highway in a westerly direction through a culvert. It then flows through a series of tributaries and wetlands until it drains to the South Fork Palouse River. The South Fork of the Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 40 is a Category III, PEM wetland in grassed drainage surrounded by tilled agricultural land. This wetland follows a swale along the east corridor. Predominant vegetation consists of reed canarygrass and mayweed. This wetland scored over 50 percent for water quality functions.

The wetland is contiguous with Tributary AA, a farm field ditch that flows in a northerly direction eventually draining to the South Fork Palouse River. The South Fork of the Palouse River is a tributary of the Palouse River which is a major tributary to the Snake River.

Wetland 44 is a Category III, PEM, man-made pond and drainage way located just east of Zeitler Road. Predominant vegetation is reed canarygrass. This wetland scored 50 percent or higher for water quality and habitat functions.

While the pond and surrounding area is wetland, no surface water connection to other tributaries or associated wetlands could be determined.

3.7 Groundwater

3.7.1 Regulatory Framework and Policies

Groundwater is governed by the following regulations and policies:

- 33 USC 1251 Clean Water Act (CWA)
- 42 USC 300-Safe Drinking Water Act

3.7.2 Methodology

Wells were identified within the project area by utilizing data obtained from the IDEQ and IDWR. Wells within 300 feet and within the footprint of each Action Alternative were identified.

3.7.3 Existing Conditions

Aquifers

The project area includes two basalt aquifer systems that supply groundwater in the project area; the Grande Ronde and the Wanapum (Priest Rapids) aquifers. The Wanapum Aquifer overlies the Grande Ronde Aquifer. Neither of these aquifers are sole source aquifers.

Municipal drinking water is generally drawn from the deeper Grande Ronde aquifer. As groundwater withdrawals have increased to meet demands, the Grande Ronde aquifer levels have been declining at a rate of one to two feet per year in some areas indicating little recharge (Hashmi 1995).

The shallow Wanapum aquifer is a primary water source for rural residents, particularly in the eastern portion of the basin. The Wanapum aquifer responds to changes in precipitation and pumping and appears to be recharged from the surface (Palouse Water Conservation Network 2005).

Wells

The wells in the project area are domestic wells which are used as a source of potable water for households. No municipal wells that would provide public water supplies or irrigation wells are located in the study area. See Table 22. Wells in the Study Area.

Table 22. Wells in the Study Area

Corridor	Domestic
Western	30
Central	23
Eastern	31

3.8 Vegetation, Fish and Wildlife

3.8.1 Regulatory Framework and Policies

Vegetation, fish and wildlife are governed by the following:

- Technical Advisory (TA) 6640.8A - Guidance for Preparing and Processing Environmental and Section 4(f) Documents
- 16 USC 1531-1544 – Endangered Species Act (ESA)
- 16 USC Sections 1600-1614-National Forest Management Act
- 16 USC Sections 661-667e- Fish and Wildlife Coordination Act
- 16 USC Sections 668-668d -Bald Eagle Protection Act
- 16 USC Sections 703-712-Migratory Bird Treaty Act
- 16 USC Sections 1801-1882-Fishery Conservation and Management Act (1976)
- EO 13186-Responsibilities of Federal Agencies to Protect Migratory Birds
- Federal Noxious Weed Act of 1974
- Magnuson-Stevens Fishery Conservation and Management Act (P.L. 104-297)
- 49 USC 303-Policy on Lands, Wildlife and waterfowl refuges, and historic sites
- IDAPA 20.02.01-Idaho 1974 Forest Practices Act
- Idaho Code, Title 22, Chapter 24, Noxious Weeds

3.8.2 Methodology

Several technical reports were conducted by technical experts to identify vegetation, wildlife and habitat in the study area and to assess the potential effects of the alternatives. The technical reports are listed below:

Vegetation Studies

A Scientific Evaluation for Noxious and Invasive Weeds of the Highway 95 Construction Project between the Uniontown Cutoff and Moscow (January 2007). This report describes the potential weeds in the study area. It also describes the potential for the proposed project to spread weeds and discusses mitigation for the potential effects (Lass and Prather 2007).

Biological Evaluation of Plant Species and Communities of Conservation Concern in the US Highway 95 Thorncreek Road to Moscow Project Area (December 2005). This report discusses the potential occurrence and extent of Palouse remnants and rare plants in the project area. It analyzes the potential effects for the proposed project on plant species of conservation concern and remnant native plant communities that potentially provide habitat for these species (Lichthardt 2005).

Wildlife Studies

Biological Assessment, Thorncreek Road to Moscow Highway Construction Project (December 2007). This study describes the project effects to federally listed and proposed species and designated critical habitat (ITD 2007a). This report was reviewed in November 2011. USFWS provided concurrence that the findings are still valid in December 2011. USFWS provided a clarification to the Spalding's catchfly mitigation in April 2012. See Appendix 1, Key Agency Correspondence and Forms.

General Wildlife Assessment, Thorncreek to Moscow (December 2006). This report describes the effects of the alternatives to key indicator species and representative species of greatest conservation need. It also discusses potential mitigation measures (IDFG 2006).

Biological Evaluation on the Potential Impacts of Corridor Alternatives from Thorncreek Road to Moscow on Large Ungulates (December 2005). This report evaluates the potential effects of alignments through different corridors (west, central and east) on the habitat and survival of white-tailed deer (*Odocoileus virginianus*), elk (*Cervus elaphus*), and moose (*Alces alces*) in the project area (Melquist 2005a).

Biological Evaluation on the Long-eared myotis and Pygmy nuthatch (December 2005). This report describes the potential effects of the proposed project on the long-eared myotis (*Myotis evotis*) and Pygmy nuthatch (*Sitta pygmaea*) which were classified as Species of Special Concern (SSC) by the IDFG (Melquist 2005b).

Final Review of Wildlife Mitigation for the Thorncreek Road to Moscow Highway Development Project (US-95) (September 2007). This report reviews and summarizes the information in the General Wildlife Assessment (IDFG 2006) and Biological Evaluation on Potential Impacts of Corridor Alternatives (Melquist 2005a). It evaluates the effects of the alternatives to deer, elk and moose and makes mitigation recommendations (Ruediger 2007).

Assessment of Potential Big Game Effects and Mitigation Associated with Highway Alternatives from Thorncreek Road to Moscow (December 2010). This report summarizes the various wildlife reports prepared for the project and provides ITD with an independent assessment of the project's effects to potential big game. It also discusses mitigation (Sawyer 2010).

3.8.3 Existing Conditions

The project area has an elevation of between 2,600 and 3,000 feet above sea level. The primary habitat in the project area is plowed and cultivated agricultural or Conservation Reserve Program (CRP) fields. Small patches of conifers, brush, and riparian habitat are retained on the edges of fields, in gullies and on rock knobs. These patches are too small and fragmented to provide useable habitat for most large terrestrial species (Ruediger 2007).

The Palouse Bioregion

The project area is at the eastern edge of the Palouse Bioregion. The Palouse Bioregion is an area of the Columbia Plateau characterized by rolling hills of moderate to high relief, with deep soils formed from loess. Historically the land was an Idaho fescue - wheatgrass vegetation zone which is land dominated by Idaho fescue *(Festuca idahoensis)*, bluebunch wheatgrass (*Pseudoroegneria spicata)* with patches of ponderosa pine (*Pinus ponderosa*), snowberry (*Symphoricarpos albus*), hawthorn, aspen and other associated plant species (Lichthardt 2005). This vegetation zone is also classified by the Idaho Natural Heritage Program as Palouse Grasslands.

Approximately 89 percent of the ponderosa pine communities have been lost in Latah County and approximately 99 percent of the Palouse Grasslands have been converted to cultivated agricultural lands (Noss et al. 1995). Loss of Palouse Grasslands has contributed to a number of plant species associated with the Palouse Bioregion being classified as species of conservation concern (Lichthardt and Moseley 1997). The Palouse Grasslands are considered

by the Idaho Natural Heritage Program to be one of the most endangered ecosystems in the US (Noss et. al. 1995).

Palouse Grassland Remnants

Thirty-two areas with remnant Palouse Bioregion vegetation were identified in the project corridor as a result of a study in 2005 (Litchtardt 2005). These Palouse remnants are referred to differently in different reports and may also be referred to as Palouse Grassland remnants or Palouse Prairie remnants. Palouse remnants may contain both grasslands as well as combinations of shrubs and trees. The identified Palouse remnants were categorized by quality. About 18.3 acres are A-ranked (highest quality) remnants and 17 acres are B or C-ranked (medium high to medium low quality). About 20 acres of grassland are too dominated by annual grasses to be considered a remnant.

There are many areas of remnant patches of grassland that do not constitute part of the Palouse Grasslands ecosystem and were not considered Palouse remnants. This was because they are actively cultivated agricultural land or they have been converted to Conservation Reserve Program (CRP) lands. These lands contain limited grass species including; bluebunch wheatgrass, big basin blue rye (*Elymus glauca*) and other planted grass species. If the remnants were infested by weeds they were also not considered Palouse remnants.

The southern end of Paradise Ridge was designated the "South End Paradise Ridge" Conservation Site by the Idaho Conservation Data Center (ICDC) in 1996. It encompasses 106 acres, a little more than half of which is grassland and is the largest of the grassland remnants in the project area. The site also has areas of open pine woodland, pine forest, hawthorn, and ninebark (*Physocarpus* (sp)).

The primary threat to the persistence of Palouse remnants in their present state is colonization by weeds. All remnants identified in the project area are bordered completely or partially by weedy vegetation. Annual grasses tend to dominate moderately moist upper slopes, and smooth brome or tall oatgrass occupy the margins of those areas. Among the perennial weedy grasses, tall oatgrass appears to be the most aggressive. The perennial grasses have most likely moved into the remnants, either by rhizomes or seed, from nearby CRP plantings. See the *Biological Evaluation of Plant Species and Communities of Conservation Concern in the US Highway 95 Thorncreek Road to Moscow Project Area* for additional information. (Lichthardt 2005).

The project area lies near a priority area for Spalding's catchfly restoration as identified in the Recovery Plan for Spalding's catchfly (Hill 2012). In 2008 USFWS with IDFG began implementing a four phased pilot project in Latah County that included 1) delineation of areas with high potential to support Palouse Grassland remnant plant species, 2) landowner contact and education, 3) field surveys and assessment of potential remnant restoration areas, and 4) development of a comprehensive conservation strategy.

As part of the pilot project, two additional studies of Palouse remnants were completed in 2011. The studies surveyed for Spalding's catchfly and identified potential sites for re-establishment of Spalding's catchfly and identified potential restoration sites. The potential restoration sites that were identified were selected based their potential to connect the Paradise Ridge with other potential remnant areas. The sites were also selected based on soils, topography, and landowner willingness. Landowner easements and agreements have been obtained to implement a variety of practices through several government programs including; Environmental Quality Incentives Program (EQIP)[12], Landowner Incentive Program (LIP)[13], Grassland Reserve Program (GRP)[14], and Partners for Fish and Wildlife (PFW)[15]. The planned and current restoration practices include farming practices to reduce erosion and sedimentation, native plant establishment, conversion of fields from non native to native seedings, planting Spalding's catchfly, ecological weed control (such as hand pulling weeds) and other activities. These activities were implemented or are planned to be implemented on portions of the sites which have landowner agreements or easements. See Exhibit 30. Planned and Current Restoration Projects. The actual restoration activities may occur on only a portion of the land that is under a landowner agreement or easement.

One site with landowner agreements for ecological weed control and Spalding's catchfly establishment is approximately 200 feet from the E-2 alignment footprint. See Exhibit 30. Planned and Current Restoration Projects.

[12] The Environmental Quality Incentives Program (EQIP) is a voluntary program administered through the NRCS, that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length. The program plans and implements practices to assist with natural resource and farm production issues.
[13] The Landowner Incentive Program (LIP) is administered by USFWS and provides grant funds to protect and restore habitats on private lands, to benefit federally listed, proposed or candidate species or other at-risk species.
[14] The Grassland Reserve Program (GRP) is a voluntary program administered by USDA for landowners and operators to protect grazing uses and related conservation values by conserving grassland, including rangeland, pastureland, shrubland, and certain other lands. The program emphasizes support for working grazing operations; enhancement of plant and animal biodiversity; and protection of grassland and land containing shrubs and forbs under threat of conversion.
[15] The Partners for Fish and Wildlife (PFW) Program is administered by USFWS and procures short-term easements for restoration activities.

ITD, FHWA and USFWS met on July 25, 2012 and again on September 6, 2012 to discuss current and planned conservation efforts, potential project effects and to collaborate on possible mitigation strategies.

Rare Plants

Nine plant species listed by ICDC as Species of Greatest Conservation Need, are associated with the Palouse Bioregion and known to occur in Latah County (Lichthardt 2005). See Table 23. Palouse Bioregion Rare Plant Species. IDFG surveyed the project area for these species in 2005. Four of the nine target species were found in the study area; Palouse milkvetch, broad-fruit mariposa lily, Palouse thistle, and Palouse goldenweed. The area was resurveyed near the project area between 2008 and 2010 as part of the IDFG 2011 study (Hill 2011). The rare plants found in the study area are described below.

Table 23. Palouse Bioregion Rare Plant Species

Common name	Scientific Name	ICDC rank*
Jessica's aster	*Aster jessicae*	G2/S2
Palouse milkvetch	*Astragalus arrectus*	G2/G4 Review
Green-band mariposa lily	*Calochortus macrocarpus var. maculosus*	G5T2/S2
Broad-fruit mariposa lily	*Calochortus nitidus*	G3/S3
Palouse thistle	*Cirsium brevifolium*	G3/S2
Idaho hawksbeard	*Crepis bakeri ssp. idahoensis*	G4T2/S2
Palouse goldenweed	*Haplopappus liatriformis*	G2/S2
Ample monkey-flower	*Mimulus ampliatus*	G1/S1
Spalding's catchfly	*Silene spaldingii*	G2/S1 (Federally listed as threatened)

* These ranks reflect the condition of the species rangewide. G-ranks are rangewide ranks that are assigned by Nature Serve and S-ranks are statewide ranks that are assigned by the ICDC. Rankings are explained in detail in Appendix 4.

Palouse milkvetch. Palouse milkvetch is rated between imperiled and secure globally (G2/G4). Palouse milkvetch was found in two places in the study area; in a grassland remnant and on a road cut (Lichthardt 2005).

Broad fruit mariposa lily. Broad-fruit mariposa lily is considered vulnerable both globally and in Idaho State (G3/S3). Five very small populations were found in the study area, ranging from 1 to 20 individuals. This perennial occurs almost exclusively in Idaho in open habitats (Lichthardt 2005).

Palouse thistle. Palouse thistle is considered globally vulnerable and imperiled in Idaho State (G3/S2). More than 20 populations were found in occasional stands of snowberry or ponderosa pine. Palouse thistle spreads by creeping roots; therefore, it is difficult to determine what constitutes an individual. This plant occurs in grasslands and scablands[16] (Lichthardt 2005) ranging from northeast Oregon, Eastern Washington and east to Idaho.

Palouse goldenweed. Palouse goldenweed is considered both globally and state imperiled (G2/S2). It was found in all but two grassland remnants as well as many patches too small or too weedy to qualify as remnants. Moscow is near the center of the global range of this species. This perennial occurs primarily on the Palouse in rocky soils (Lichthardt 2005).

Invasive Plants

Latah County has about 260 listed non-native, invasive plant species that affect agricultural, rangeland, pastures, and forests. Sixty-four noxious weeds are listed in Latah County. Of those, five species of noxious weeds were found in the project area (Lass and Prather 2007). See Table 24. Noxious Weeds in Project Corridor.

Table 24. Noxious Weeds in Project Corridor

Common Name	*Scientific Name*	Category*
Common crupina	*Crupina vulgaris*	Control
Jointed goatgrass	*Aegilops cylindrical*	Containment
Field bindweed	*Convolvulus arvensis*	Containment
Canada thistle	*Cirsium arvense*	Containment
Yellow starthistle	*Centaurea solstitialis*	Containment

*Control =to prevent plants from seeding. Containment =to limit the area that the weeds spread.

General Wildlife Species

The study area is highly modified through agriculture, rural residences and commercial development, and nearly all of the native pine stands and grasslands have been converted to other land uses. The remaining habitat supports both indigenous and non-native wildlife species. Many species are habitat generalists which, while important locally, are mainly species already adaptable to habitat modifications, fragmentation and high levels of human use (Sawyer 2010).

[16] Terrain consisting of bare rock surfaces, with little or no soil cover and scanty vegetation, that have been deeply channeled by glacial flood waters

The *Idaho Comprehensive Wildlife Conservation Strategy (WCS)* is the State of Idaho's guiding document for managing and conserving at-risk species. It provides a framework for conserving the 229 Species of Greatest Conservation Need (SGCN) and the habitats upon which they depend. The WCS divides the state into Ecological Sections based on habitat. The US-95 Thorncreek to Moscow project area lies entirely within the Palouse Prairie Ecological Section. The WCS maps the majority of the study area as farmable land and non-native herbaceous. It lists wildlife species expected to reside in or migrate through the Palouse Prairie Ecological Section for each habitat type.

IDFG prepared a report *General Wildlife Assessment; Thorncreek Road to Moscow Project* (IDFG 2006), which evaluated the general wildlife species that could be affected by the alternatives. Of the 229 SGCN, IDFG identified species that could reasonably be expected to be present in the project area. These were used to represent the SGCN and general wildlife species. Of these, various species were expected to be present in the corridor near all, some or none of the proposed alternatives. See Table 25. Representative Wildlife Species.

Table 25. Representative Wildlife Species

Common Name	*Scientific Name*
Woodhouse's toad	*Bufo woodhousii*
Mountain quail	*Oreortyx pictus*
Peregrine falcon	*Falco peregrines*
Townsend's big-eared bat	*Corynorhinus townsendii*
Nimapuna tigersnail	*Anguispira nimapuna*
Pale jumping-slug	*Hemphilla camelus*
Fir pinwheel	*Radiodiscus abietum*
Salmon coil	*Helicodiscus salmonaceus*
Lyre mantleslug	*Udosarx lyrata*
Oregonian	*Cryptomastix mullani tuckeri*
An Oregonian (Hells Canyon)	*Cryptomastix populi*
Humped coin	*Polygyrella polygyrella*
Palouse earthworm	*Drioleirus amercanus*
Northern alligator lizard	*Elgaria coerulea*
Ring-necked snake	*Diadophis punctatus*
Swainson's hawk	*Buteo swainsoni*
Long-billed curlew	*Numenius americanus*
Short-eared owl	*Asio flammeus*
Grasshopper sparrow	*Ammodramus savannarum*
California myotis	*Myotis californicus*

Common Name	*Scientific Name*
A stonefly	*Capnia zukeli*
A stonefly	*Soyedina potteri*
A stonefly	*Capnia lineate*
A stonefly	*Perlomyia collaris*
A stonefly	*Taenionema umatilla*
A mayfly	*Paraleptophlebia traverae*
A mayfly	*Parameletus columbiae*
A spur-throat grasshopper	*Melanoplus digitifer*
A spur-throat grasshopper	*Melanoplus payettei*

Potential effects were considered for white-tail deer, elk and moose because of their high social and economic importance to the state and the region. Listed threatened and endangered species and critical habitat are described in Section 3.9 Threatened and Endangered Species. Federal candidate species are also included in the descriptions below. Federal candidate species are species for which USFWS or National Oceanic and Atmospheric Administration (NOAA) have sufficient information on biological vulnerability and threats to support a proposal to list it as threatened or endangered. However, candidate species are not yet listed, do not have protection under ESA and are precluded due to higher priorities. Details regarding the wildlife species considered are described in detail in the Wildlife Technical Reports.

Two species were found to be of particular interest and could potentially occur in the project area based on agency and public comment; the long-eared myotis (*Myotis evotis*) and pygmy nuthatch (*Sitta pygmaea*).

Long-eared myotis is a small commonly occurring forest bat that ranges from British Columbia to Baja. In Idaho it is found in a wide range of habitats including grasslands, shrub-steppe habitat, forestland, forested riparian and wetland areas, and barren land with exposed rock (Gillies 2004). A bat survey conducted on portions of the Palouse Ranger District by the USFS and IDFG suggest that the long-eared myotis is likely to occur in the study area and may utilize pine stands for roosting (Melquist 2005b).

Pygmy nuthatch is a tiny bird that ranges from British Columbia to Central Mexico. In Idaho, the pygmy nuthatch is generally limited in its distribution to the southern slope of mountains at elevations up to approximately 3,500 feet. Pygmy nuthatches require mature

pine stands. In 2005, pygmy nuthatches were observed in pine stands at the southern end of the study area (Melquist 2005b).

Northern alligator lizard is a reptile that occurs from central California to southern British Columbia and east to Montana. Idaho populations occur in the Panhandle region from Boundary County south to northern Clearwater County; however, it is rarely encountered and poorly documented. It occurs in coniferous forests, often in clearings or along forest edges. Sites typically have a prominent understory with leaf litter, bark, rotting logs or talus. They are thought to consume a variety of arthropods and perhaps mollusks and earthworms. There are no known occurrences of northern alligator lizard in the project area; however the pine stand in the southern end of the study area may be considered suitable habitat (IDFG 2006).

Wolverine. Wolverine was listed as a federal candidate species under the Endangered Species Act in December of 2010. They occur within a wide variety of habitats, primarily boreal forests, tundra, and western mountains throughout Alaska and Canada. However, the southern portion of the range extends into Washington and the northern Rocky Mountains in Idaho, Montana, and Wyoming. Wolverines tend to live in remote and inhospitable places away from human populations. They naturally occur at low densities and are rarely and unpredictably encountered. Female wolverines use birthing dens excavated in deep snow. Persistent, stable snow greater than five feet deep appears to be a requirement for birthing dens, because it provides security for offspring and buffers cold winter temperatures.

Wolverines travel long distances over rough terrain and deep snow. The availability and distribution of food is likely the primary factor in determining wolverine movements and home range size; however, gender, age, and differences in habitat are also factors (USFWS 2010).

There are no documented occurrences of wolverine near the project area. The project area is primarily highly disturbed, cultivated, farmland without a persistent, deep snow pack. Therefore wolverine and its habitat have a low likelihood to be present in the project area.

Yellow billed cuckoo. The Yellow billed cuckoo is a federal candidate species and a State of Idaho Species of Special Concern. It prefers treed, riparian corridors with a heavy understory (Anderson 1989). Dense understory is important for nest site selection.

Cottonwood trees are important for foraging habitat. Nesting pairs require a minimum of five acres of prime riparian habitat. There is riparian habitat with shrubs in the study area that could offer potential habitat for the species. However there have been no documented occurrences near the project area.

Ungulates

Independent studies of big game or ungulate (i.e., moose, elk, and white-tail deer) effects were conducted by Dr. Wayne Melquist (Melquist 2005a) and Dr. Bill Ruediger (Ruediger 2007). Both studies concluded that the project area does not include critical big game habitat or known migration corridors.

White-tail deer. Compared to elk and moose, white-tail deer are less affected by human disturbances. They thrive in agricultural and forested areas that contain adequate amounts of woody cover and herbaceous forage (Demarais et al. 2000). White-tail deer need some structural cover adjacent to them in order to take full advantage of their foraging opportunities (Compton et al. 1988, Dusek et al. 1989, Vercauteren and Hygnstrom 1998). Because whitetails tend to occupy the lower elevations, unlike elk, they are not often forced to migrate in winter. Instead, they will concentrate in timber where snow is less deep (Melquist 2005a).

Moose. Moose prefer shrubby forests with nearby lakes, wetlands, and bogs. Moose diets consist primarily of woody regrowth (e.g., willow, aspen or fir) that follow disturbances such as fire, floods, and logging (Franzmann 2000). Moose commonly use open areas to feed on grasses, sedges, and forbs, then will retreat to the security of tall shrubs and forests to rest. They migrate primarily along or between riparian areas and wetlands (Crenshaw pers. comm. 2005). While random movements and dispersal by moose likely occur, the timing and direction of such movements are unpredictable (Melquist 2005a).

Elk. Elk rely heavily on forest cover and rugged terrain for avoiding human disturbances (Skovlin et al. 2002) and predators (Creel et al. 2005 and Kauffman et al. 2007). Elk movements in and around the project area are often dictated, in large part, by the location and distribution of agricultural crops. Although elk can thrive in non-forested regions, they rely on mature shrub communities and topography to provide adequate security cover (McCorquodale et al.1986, Sawyer et al. 2007).

Available Ungulate Habitat

Deer, elk and moose habitat should include four basic components; food, cover, water and space. The arrangement of these components in the project area can influence foraging behavior and movement. The categories that were used to rank the quality of habitat for target big game species are described below:

- *Poor* – does not provide basic habitat components and does not support big game in large numbers or on a year round basis
- *Marginal* – provides some basic habitat requirements but is limited in quantity and quality. Area is unable to support measureable numbers year-round or seasonally
- *Moderate* – provides reasonable habitat and has the potential to support big game on year-around or seasonal basis
- *Excellent* – provides an abundance of high-quality habitat and supports big game on a year-round or seasonal basis. (Sawyer 2010)

Table 26. Quality of Available Ungulate Habitat indicates the overall quality of habitat for each ungulate species in the western, central and eastern corridors. The topography and general habitat components utilized by ungulates are summarized below:

Table 26. Quality of Available Ungulate Habitat

Corridor	Habitat Quality		
	Moose	Elk	White-tail deer
Western	Poor	Poor	Marginal
Central	Poor	Poor	Marginal
Eastern	Marginal	Marginal	Moderate

Western Corridor

The western corridor is characterized by gentle to rolling topography. It is primarily cropped agricultural fields with sparse rural residences. It is used for seasonable foraging by ungulates. Small patches of suitable ungulate habitat are located in Washington State outside the project area (Melquist 2005a).

IDFG personnel have occasionally observed moose and elk in the general vicinity but there is no evidence that they utilize the western corridor on a regular basis. White-tail deer are believed to utilize the western corridor on a year-round basis (Sawyer 2010).

Central Corridor

The central corridor is characterized by rolling topography. It is also primarily agricultural fields with sparse rural residences. It has more development as it is closer to the existing US-95 corridor.

IDFG personnel have observed moose and elk in the general vicinity, but there is no evidence that they utilize the central corridor on a regular basis. White-tail deer are believed to utilize the central corridor on a year-round basis (Sawyer 2010).

Eastern Corridor

The eastern corridor is characterized by rolling topography. It is also primarily agricultural fields but has more CRP enrolled land that may be utilized by ungulates compared to the western and central corridors. It also has several wooded draws and small ponds. Further from the project, habitat exists near Tomer Butte north of Highway 8 and east of Paradise Ridge.

IDFG personnel have observed moose and elk on Paradise Ridge, but the extent to which they use the area is unknown. Most big game abundance estimates are derived from aerial surveys, typically flown during the winter months while animals are congregated and more visible.

The project area has not been included in moose or deer surveys conducted by IDFG. The area is part of a larger elk unit that is stratified into high, medium, and low-density strata and flown each year. However, survey emphasis is placed on the high and medium-density strata. Since the eastern corridor and Paradise Ridge are part of a low-density stratum (Crenshaw pers. comm. 2005) there is no elk abundance data specific to the eastern corridor.

The number of moose and elk that utilize Paradise Ridge is so low, and use is so unpredictable, that capturing an adequate sample of animals is not feasible. Nonetheless, moose and elk use is more likely to occur in the eastern corridor compared to the western and central corridors. White-tail deer utilize the eastern corridor on a year-round basis (Sawyer 2010).

Ungulate Movement

Varieties of habitat components are utilized by ungulates and may affect their movement in the project area. Paradise Ridge contains a mixture of tree stands, shrubs, grasslands and

agricultural fields. Man-made ponds, patches of suitable habitat and forested draws are also located on the eastern side of the project area near Paradise Ridge. Although big game likely travel along the wooded draws that extend west from Paradise Ridge, the draws do not connect Paradise Ridge with other patches of higher quality habitat to the west.

Based on the distribution of suitable cover and habitat, elk and moose could travel between Paradise Ridge, northeast towards Tomer Butte or southwest to the small patches of suitable habitat in Washington State. The closest cover in the Paradise Ridge area to the complex of habitat in Washington is a small pine stand located just north of Eid Road. Ungulates would likely utilize the small patches of trees or shrub habitat for cover while grazing in the agricultural fields nearby. Moose are expected to only have occasional random movement through these areas. Deer move in all directions to and from Paradise Ridge and the patches of Washington habitat during all times of the year (Melquist 2005a).

The project area is located in a low priority wildlife linkage area of US-95 identified by IDFG. The number of wildlife collisions in this linkage area was much less than other segments of US-95 or similar type highways. See Section 3.10 Transportation for additional information regarding wildlife collision data and the Safety Technical Report for details.

Aquatic Species

Table 27. Fish Species Occurring in the South Fork Palouse River lists the fish species known to occur in the South Fork Palouse River. The only salmonid native to the Palouse River is an isolated population of Yellowstone cutthroat trout; however, it does not occur in the South Fork Palouse River. Idaho State Water Quality Standards do not distinguish between native and introduced salmonids for the designation and protection of salmonid spawning.