4 ENVIRONMENTAL CONSEQUENCES

The primary resource effects from the four alternatives are summarized in Table 39. Summary of Resource Effects. Details are discussed in the respective sections below and in the applicable technical reports.

Table 39. Summary of Resource Effects

Resources	Alternatives			
	No Action	W-4	C-3	E-2
Length (miles)	6.34	6.69	5.94	5.85
Predicted Crash Rate per year	24.8	9.3	10.9	7.7
Approaches	66	36	47	22
Residential Displacements	0	3	7	5
Residences within 300ft of centerline	-	9	12	9
Business Displacements	0	0	8	0
Businesses within 300 ft of centerline	-	7	10	5
Environmental Justice	No disproportionate impact	No disproportionate impact	No disproportionate impact	No disproportionate impact
Right-of-Way new/existing/total (acres)	0	210 / 49 / 259	154 / 55 / 209	207 / 22 / 229
Prime Farmland (acres)	0	46.7	25	50.8
Cultural/Section 4(f) resource Use	0	1	0	0
Air Quality	Attainment Area	Attainment Area	Attainment Area	Attainment Area
Wetlands (acres)	0	5.45	0.99	3.61
Tributaries Number of Crossings/(Linear Feet)	0	9 /5,517	5/7,808	5 /2,592
New Impervious Surface (acres)	0	57	49	55
Floodplains (acres)	0	3.6	1.8	0
Pine Stand (acres)	0	0	0	3.9
Ungulate - (Deer, Elk & Moose) Population and Effects to Habitat Areas (acres)	No Population Effect / 0	No Population Effect / 0	No Population Effect / 0	No Population Effect / 4.4
Palouse remnants within 1 km (3280 ft)	0	12	14	24 including Paradise Ridge
Threatened and Endangered Species Effects	No Effect	Not Likely to Adversely Affect	Not Likely to Adversely Affect	Not Likely to Adversely Affect

Resources	Alternatives			
	No Action	W-4	C-3	E-2
Hazardous Material Sites	0	4	13 (1 Potential Hazardous Site Cleanup)	4
Noise Effects	9	0	1 (the impacted receptor is displaced)	7 (5 of the impacted receptors are displaced)
Visual Quality	No Impact	LOW = 11% MOD = 58% MOD HIGH = 23% HIGH = 8% MH + H = 31%	LOW = 9% MOD = 68% MOD HIGH = 15% HIGH = 8% MH + H = 23%	LOW = 3% MOD = 47% MOD HIGH = 25% HIGH = 25% MH + H = 50%
Construction/Total Cost-(million dollars)	minimal	52/62	43/58	46/55

4.1 Socio-economic and Environmental Justice Effects

4.1.1 Social Effects

Each of the alternative's effects including displacements, right-of-way needs, community cohesion, visual and noise effects were evaluated. Visual quality and noise effects are evaluated in Section 4.11 Visual Quality Effects and 4.12, Noise Effects. Community opinions regarding the effects of each alternative on the community, including noise and visual effects are detailed in the Community Impact Technical Reports. There were strong differing opinions regarding the effects of the W-4 and E-2 alternatives presented during the July 2006 interview period. The Citizens for a Safe Highway 95, claiming to represent people collectively owning 80 percent of the land along E-2, were in favor of E-2 due to the "spectacular view" of the Palouse and of the City of Moscow from US-95 as the route traverses the west base of Paradise Ridge. They believed that the beauty of Paradise Ridge could transform the highway into a gateway for Moscow, and that E-2 could promote and preserve the Palouse landscape to a scenic highway status.

The Paradise Ridge Defense Coalition, which opposed the E-2 Alternative, stated that the majority of the community would like to see the expansion of the roadway follow the existing route as much as possible to minimize the ecological footprint of new roadwork and the view towards US-95 from Paradise Ridge. The argument against E-2 centered on Paradise Ridge as a unique and valued feature in the community. To those opposed to E-2,

the ridge should remain untouched because it provides aesthetic value. Paradise Ridge serves as a reason both *for* and *against* the E-2 Alternative (HDR 2005a).

Displacements and Right-of-way

Table 40. Residential Displacements and Right-of-Way shows the numbers of residences displaced and right-of-way needs by alternative.

Table 40. Residential Displacements and Right-of-Way

Alternative	Residential Displacements	Residences 300 ft of Centerline	New Right-of-way (acres)	Existing Right-of-way (acres)	Total Right-of-way (acres)
No Action	0	-	0	0	0
W-4	3	9	210	49	259
C-3	7	12	154	55	209
E-2	5	9	207	22	229

Residential displacements may be due to direct impacts to homes, removal of access, or right-of-way acquisition that would substantially impair the property. Displacements would be compensated under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Relocation Act). The Uniform Relocation Act established minimum standards for federally funded projects that require the acquisition of real property or displace persons from their homes, businesses, or farms.

Some residences that would be within 300 feet of the alternatives' centerline may result in a substantial amount of the property or structures being acquired or otherwise impacted but may not result in a full displacement. Residential displacements and residences with 300 feet of centerline are shown in Table 40. Residential Displacements and Right-of-Way.

No Action Alternative

The No Action Alternative would result in no displacements or right-of-way acquisition.

W-4

W-4 would displace three residences. Two are houses and one is a mobile home. Nine additional residences would be within 300 ft of the centerline. These residences would have some of their land acquired for new right-of-way but access to their properties would be maintained. One of these residences would include the removal of a garage. W-4 would

require the greatest amount of right-of-way, but it would have the fewest residential displacements.

C-3

C-3 would displace seven residences. Six are houses and one is mobile home in the Hidden Village Mobile Home Park. Approximately two acres of the mobile home park property would be affected. Twelve residences would be within 300 ft of the centerline of C-3 which is more than the other alternatives.

E-2 (Preferred Alternative)

E-2 would displace five residences; all of which are mobile homes located in the Benson Mobile Home Park. Approximately 2.9 acres of the mobile home park would be acquired. The centerline of the E-2 alternative would also be within 300 ft of nine residences that would have substantial right-of-way acquisition, one of which would remove a garage; however this would not result in a full displacement.

Community Cohesion

Based on an assessment of the important community resources and interviews with community members during the Community Impact Assessment, none of the alternatives would cause a major disruption to community cohesion. See Exhibit 19. Points of Interest.

No community resources would be more difficult to reach or become over utilized. Regardless of the alternative chosen, the origins and destinations of most travelers would remain similar to existing conditions. Some backtracking may be necessary at the northern end of the project to reach businesses on existing US-95; however it would be offset by a reduction in waiting time to enter the highway. All of the Action Alternatives would provide sidewalks and shoulders that would improve community cohesion in the northern end of the project.

4.1.2 Economic Effects

The majority of the businesses located in the study area are in the northern project limits near Moscow. The existing commercial development south of Palouse River Drive is comprised of a mix of construction, transportation, fabrication, and specialty retail establishments (e.g., building supplier, hair salon). These are businesses that do not typically rely heavily on high traffic volumes and drive up customers.

The No Action, W-4 and E-2 alternatives would not displace businesses. Access to and from the businesses would be provided or maintained. However the C-3 Alternative would involve widening the existing roadway which has businesses located along it. C-3 would displace 8 businesses due to impacts to access and would require substantial right-of-way from 10 additional businesses. Visibility and access to some existing businesses could change as a result of the W-4 and E-2 Alternatives in the current US-95 corridor south of Moscow for regional traffic because the W-4 and E-2 Alternatives would realigned. This could adversely affect businesses, particularly the retail businesses that rely, at least in part, on traffic passing through the area. However, if the abandoned section of US-95 is turned over to the North Latah Highway District and used for local circulation, businesses could still be visible. See Table 41. Business Effects.

Table 41. Business Effects

Alternative	Business Displacement	Businesses within 300 feet of centerline
No Action	0	-
W-4	0	7
C-3	8	10
E-2	0	5

The indirect effects of the alternatives on businesses are discussed in Chapter 6, Indirect and Cumulative Effects.

The majority of the right-of-way required for each of the alternatives is agricultural land. The effects to farmland production are summarized in Section 4.3, Farmland Effects. The Uniform Relocation Act also provides compensation and equitable treatment for acquisition of agricultural land.

4.1.3 Environmental Justice Effects

Minority Populations

While there are minorities in the study area there are no distinguishable minority populations. Therefore, none of the alternatives would result in a disproportionately high or adverse effect to minority populations.

Low-Income Populations

There are three mobile home parks identified within the study area that may provide a source of low-cost housing; the Hidden Village Mobile Home Park, the Benson Mobile Home Park and the Woodland Heights Mobile Home Court. See Environmental Justice Technical Report (HDR 2005b) for details of the analysis.

No Action Alternative

The No Action Alternative would not adversely affect the mobile home parks through displacement or right-of-way acquisition; however as traffic increases by the 2037 design year, the safety and capacity issues would intensify and community safety and traffic noise would increase. See Section 4.12 Noise Effects.

W-4

W-4 would avoid all of the mobile home parks. One mobile home would be affected but it is not located within a mobile home park. It would benefit all park residents by improving the safety of US-95 and highway access issues. Construction of additional travel lanes would improve the roadway's LOS, reduce commute times and facilitate more efficient access to services. Ingress and egress of vehicles, including emergency response units, would have reduced response times and would be enhanced by the use of a turn bay. Based on the above discussion, W-4 would not cause disproportionately high and adverse effects to any low-income populations as per EO 12898.

C-3

C-3 would closely follow existing US-95 near the Hidden Village and Benson Mobile Home parks. It would displace two mobile homes located in the Hidden Village Mobile Home Park. Two acres of right-of-way would be required from the Hidden Village Mobile Home Park. C-3 would improve the safety of US-95 and improve the highway access for all users but to a lesser extent compared to the E-2 and W-4 alternatives. C-3 would not cause disproportionately high and adverse effects to any low-income populations per EO 12898.

E-2 (Preferred Alternative)

E-2 would result in the greatest number of displacements in the mobile home parks. It would affect the eastern edge of Benson Park, displacing five mobile homes. The mobile homes are configured linearly from east to west along Eid Road. The E-2 Alternative was aligned to the far east of the mobile home parks to minimize harm and maintain community cohesion for the remaining residences.

E-2 would require acquisition of 2.9 acres of the Benson Mobile Home Park. It would include constructing a bridge structure over Eid Road which would result in a substantial increase in noise effects to seven receptors; however five receptors would be displaced. The bridge structure and new elevated roadway would cause high visual effects. See Section 4.11 Visual Effects and Section 4.12, Noise Effects for additional detail.

E-2 would benefit park residents by improving the safety of US-95 and improving highway access and mobility. Construction of additional travel lanes would improve the roadway's level of service, reducing commute times and facilitating more efficient access to services. Ingress and egress of vehicles, including emergency response units, would be enhanced by the use of a turn bay. Hidden Village and Benson Park residents would still be able to access existing US-95 approximately one mile south of Eid Road.

Shifting the E-2 Alignment further west to minimize displacements in the Benson Mobile Home Park was evaluated in the E-1 Alternative but would result in different displacements and other resource effects. It would also adversely affect the community cohesion for the remaining residents. The E-1 Alternative that was evaluated early in the screening process was aligned across Eid Road and between Hidden Village and Benson Mobile Home parks formally differentiating the development into the two respective parks. This alignment would more directly affect Hidden Village, requiring the relocation of three residences and was not desirable to the business owner. E-1 was eliminated because it would displace four total residences and one business. One of the displacements was a NRHP listed historic site and a Section 4(f) resource. It would also have higher effects to two rare plant communities and wetlands. See Chapter 2, Alternatives for additional detail.

Based on interviews with the mobile home park owner and residents in 2004 and 2011, the residents of the mobile home parks do not have major concerns should it be necessary to relocate. A property management company representative with several rentals in the area stated that there are other opportunities available for displaced residents to find equitable living accommodations. All relocations will be completed in accordance with the Uniform Relocation Act which will ensure fair and equitable treatment and relocation into safe and secure housing.

Based on the above discussion, the details in the Environmental Justice Technical Report and its supplemental report, the E-2 Alternative would adversely affect the residents living in the

Benson Mobile Home Park, which is a source of low-cost housing; however, the residents are not considered a low-income population. The E-2 Alternative would improve the safety and capacity of US-95 for all users including residents of the mobile home park. In addition, with the standards of the Uniform Relocation Act, the willingness of the residents to relocate and the availability of replacement sites, the effects to the mobile home park are not considered to be disproportionately high and adverse as defined by EO 12898 (HDR 2005a).

4.2 Land Use and Recreation Effects

The alternatives would have differing effects to existing and proposed land uses. However, all Action Alternatives would be consistent with county land use plans and regulations. The county would enforce the current zoning and land use designations regardless of which alternative is chosen.

All of the Action Alternatives would involve coordination with the City of Moscow, Latah County and university officials to identify scenic turnout locations and potential signage for the University of Idaho and Paradise Ridge. All of the Action Alternatives would also include lane striping to accommodate bicycles and pedestrians along the roadway.

No Action Alternative

The No Action Alternative would not require property acquisition and there would be no changes to land use. However, the No Action would not address safety and capacity issues in the corridor. Accesses onto the highway would not be limited and would continue to grow. Therefore, the No Action would be inconsistent with the Latah County and City of Moscow Comprehensive Plans.

W-4

W-4 would be inconsistent with the City of Moscow's goals for constructing the planned Ring Road project. A western alternate route would respond to the higher development trends west of Moscow and would be closer to the universities in Moscow and Pullman. However, W-4 would bisect the proposed ball fields and could spur development in that area, diverting resources which would be in conflict with the City of Moscow's plans for the ball field, school and residential development.

W-4 would convert more highly productive farmland to other uses, which is inconsistent with Latah County's primary land use goal of preserving productive farmland. To promote

an efficient and safe transportation system, the Latah County Comprehensive Plan requires that limits be placed on the number of access points to the highway and encourages bicycle, pedestrian, and mass-transit options. All alternatives would maintain access to Paradise Ridge and other recreational resources. However, the accesses to different resources on existing US-95 would differ.

C-3

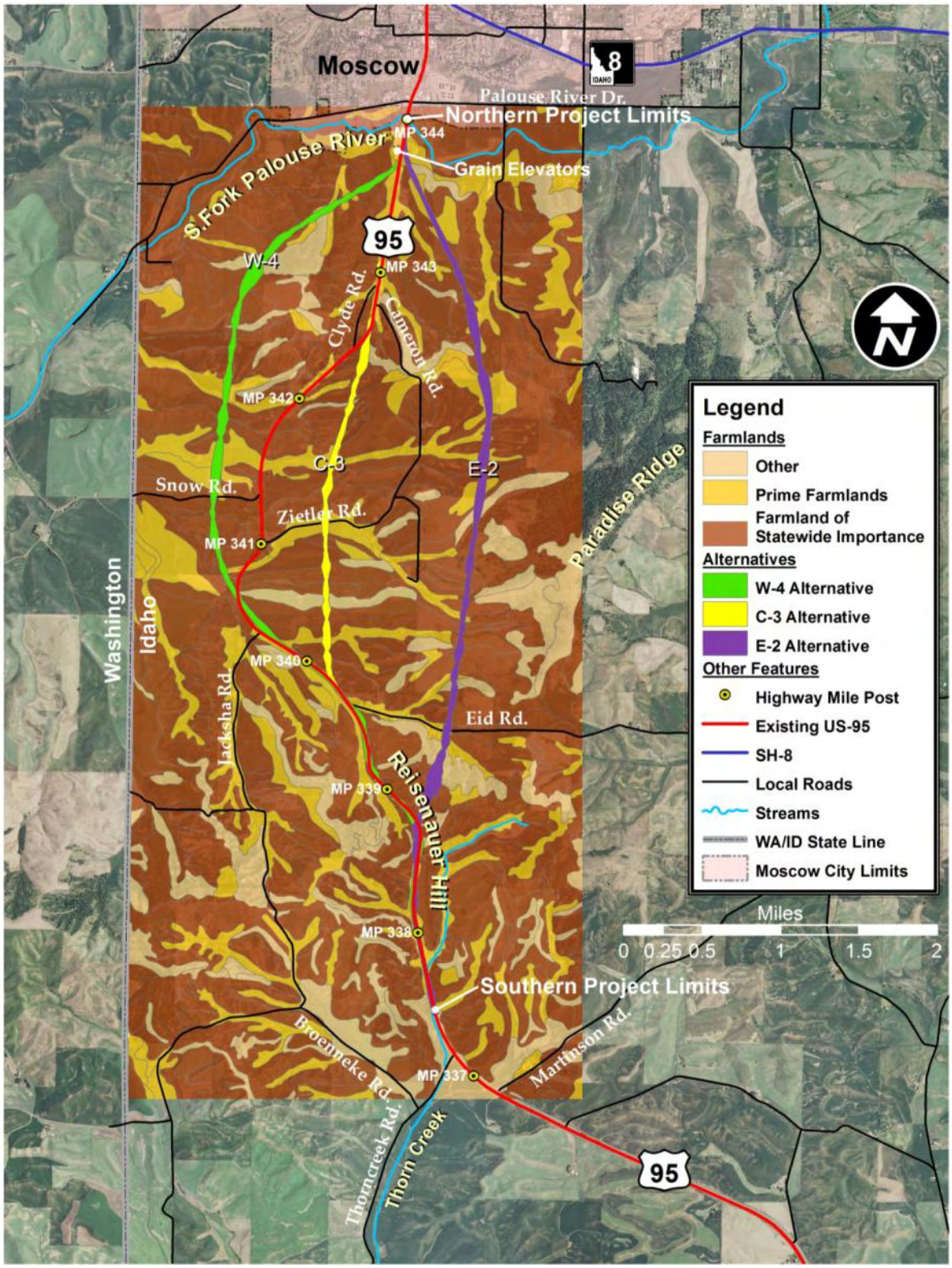
C-3 is viewed by the City of Moscow as the most consistent with land use goals because the areas along the existing US-95 are already established. C-3 could spur growth and increase property values along its alignment; however, it would be to a lesser degree than W-4. C-3 would present challenges for connectivity to the planned Ring Road Project.

E-2 (Preferred Alternative)

E-2 would affect the same types of land use categories as the other alternatives; but would affect more CRP land than other alternatives. E-2 would present challenges for future connectivity to the planned Ring Road Project. However, the project is conceptual and currently unfunded. The County considers an eastern route as the preferred alternative to a western route. E-2 could also increase property values and have growth along its alignment; however it would be less growth than W-4 and would have controlled access. E-2 would be consistent with the City of Moscow goals for development and would not affect the proposed ball fields and planned development west of US-95.

4.3 Farmlands Effects

Exhibit 23. Farmland Effects



All of the Action Alternatives would affect both prime farmlands and farmlands of statewide importance. See Exhibit 23. Farmland Effects and Table 42. Farmland Effects for the acreage effects to farmland classifications as a result of each alternative.

Table 42. Farmland Effects

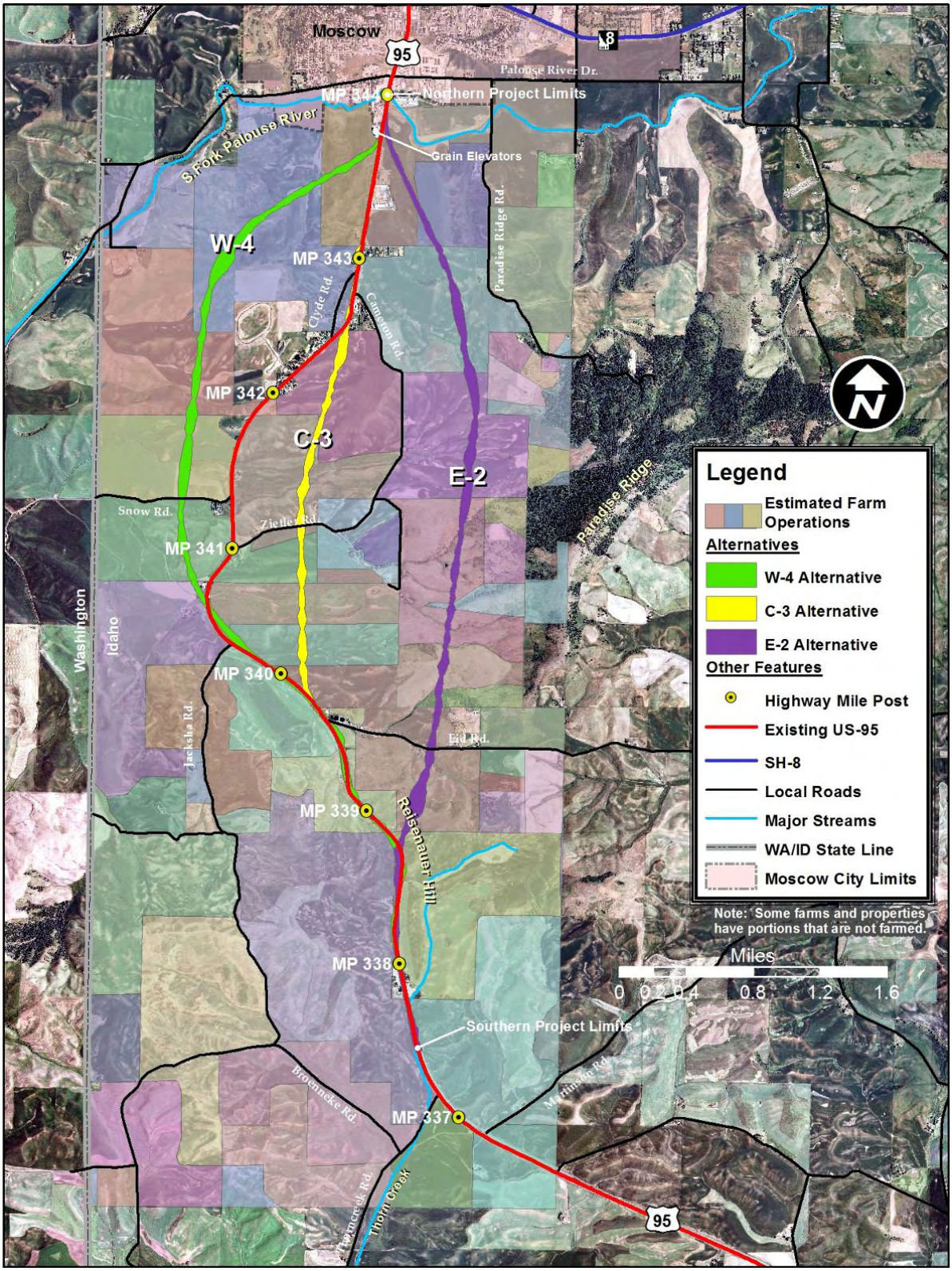
Alternatives	Farmland Conversion (acres) *	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	CRP Land (acres)	Other** (acres)	Segmented Farms (number of farms)	Farmland Conversion Impact Rating (points)
No Action	0	0	0	0	0	0	N/A-
W-4	159.0	46.7	105.3	9	7.0	4	189
C-3	101.7	25.1	69.7	9	6.9	4	188
E-2	158.2	50.8	94.8	43.5	12.6	4	190

* This acreage excludes the existing road right-of-ways
**Other=unclassified farmland

NRCS staff completed USDA Farmland Conversion Impact Rating Forms for the three Action Alternative corridors. All of the Action Alternatives were determined to have a Farmland Conversion Impact Rating of greater than 160 points, which is the threshold for requiring additional measures for protection from conversion of farmland to other uses. See Section 3.3.2 and the Farmland Technical Report for details regarding how the score was determined.

The most direct effects to farms would be the loss of farm production to transportation use for the area within each alternative's right-of-way. See Table 42. Farmland Effects. Direct effects would also include erosion and sedimentation from cut and fills. Construction of a highway alignment through farmland could result in farm segmentation. It could change access to fields and require farm equipment to cross the highway in order to access the segmented farms. It could also split farming operation into smaller, less economically feasible operations. Effects to farm operations are shown in Exhibit 24. Farm Operation Effects.

Exhibit 24. Farm Operation Effects



Measures that would minimize the conversion of farmland to other uses include controlling non agricultural access points along US-95 and working with farmers to construct farmable slopes. See Chapter 9, Environmental Commitments under Farmland. See Chapter 6, Indirect and Cumulative Effects for the descriptions of effects from farm segmentation and effects to farm service operations.

No Action

This alternative would involve only minor safety and maintenance of the existing roadway and would not result in farmland conversion, segmentation or right-of-way acquisition. As congestion increases on the roadway, access to fields and farm related transport may become more difficult.

W-4

The W-4 Alternative would affect the greatest number of acres of statewide important farmland and the greatest number of acres of farmed land. The average farming operation in the W-4 corridor is 882 acres. Approximately 5.6 percent of this assessment unit is CRP land. W-4 would cross 11 farms, splitting four farming operations; however, this would not result in any farming operations less than 20 acres.

C-3

The C-3 Corridor has the fewest acres of prime and statewide important farmland. Approximately 8.8 percent of the land in this assessment unit is in CRP and planted with grasses. The C-3 Alternative would convert the least acres of prime farmland and farmland of statewide importance to other uses. The average farming operation in the C-3 corridor is 699 acres. C-3 would cross 13 farming operations and would split four farms. This would create two farming operations under 20 acres. The C-3 Alternative would utilize more existing right-of-way and would convert the least amount of farmland to other uses.

E-2 (Preferred Alternative)

E-2 would affect slightly more prime farmland than the other Action Alternatives. 27.7 percent of the land in the assessment unit is CRP land, primarily in the southern end of the corridor. However, the E-2 Alternative would affect the greatest acres of actively farmed land even after the CRP land is subtracted. E-2 would affect approximately twice as much CRP land compared to the other alternatives.

The average farm size along the E-2 Alternative is 636 acres. E-2 would cross nine farming operations and would split four farms. This would result in four farming operations less than 20 acres.

4.4 Cultural Resource Effects

While there are three sites that are eligible for the National Register of Historic Places (NRHP) within the APE, only one, the Deesten/Davis Farmstead, would be adversely affected by any of the alternatives. The No Action, C-3 and E-2 alternatives would have no effect to cultural resources.

W-4 would adversely affect the Deesten/Davis Farmstead because the alignment would encroach on 1.83 acres of the historic site and would remove trees which were planted by the Civilian Conservation Corp in the 1930s. Removing the trees could affect the farmstead setting. These effects would also constitute a Section 4(f) use. See Chapter 5, Section 4(f) Evaluation.

4.5 Floodplain Effects

Exhibit 25. Floodplain Effects displays the location of each alternative in relation to the 100-year floodplain. None of the alternatives would be located in the regulatory floodway which is associated with the South Fork Palouse River. All Action Alternatives would be constructed with the roadbed greater than three feet above the level of a 100-year flood event. This will allow for a one foot rise to the 100 year floodplain. Table 43. Floodplain Effects lists the type and amount of effects to floodplains for each alternative. See the Floodplain Technical Report for more information.

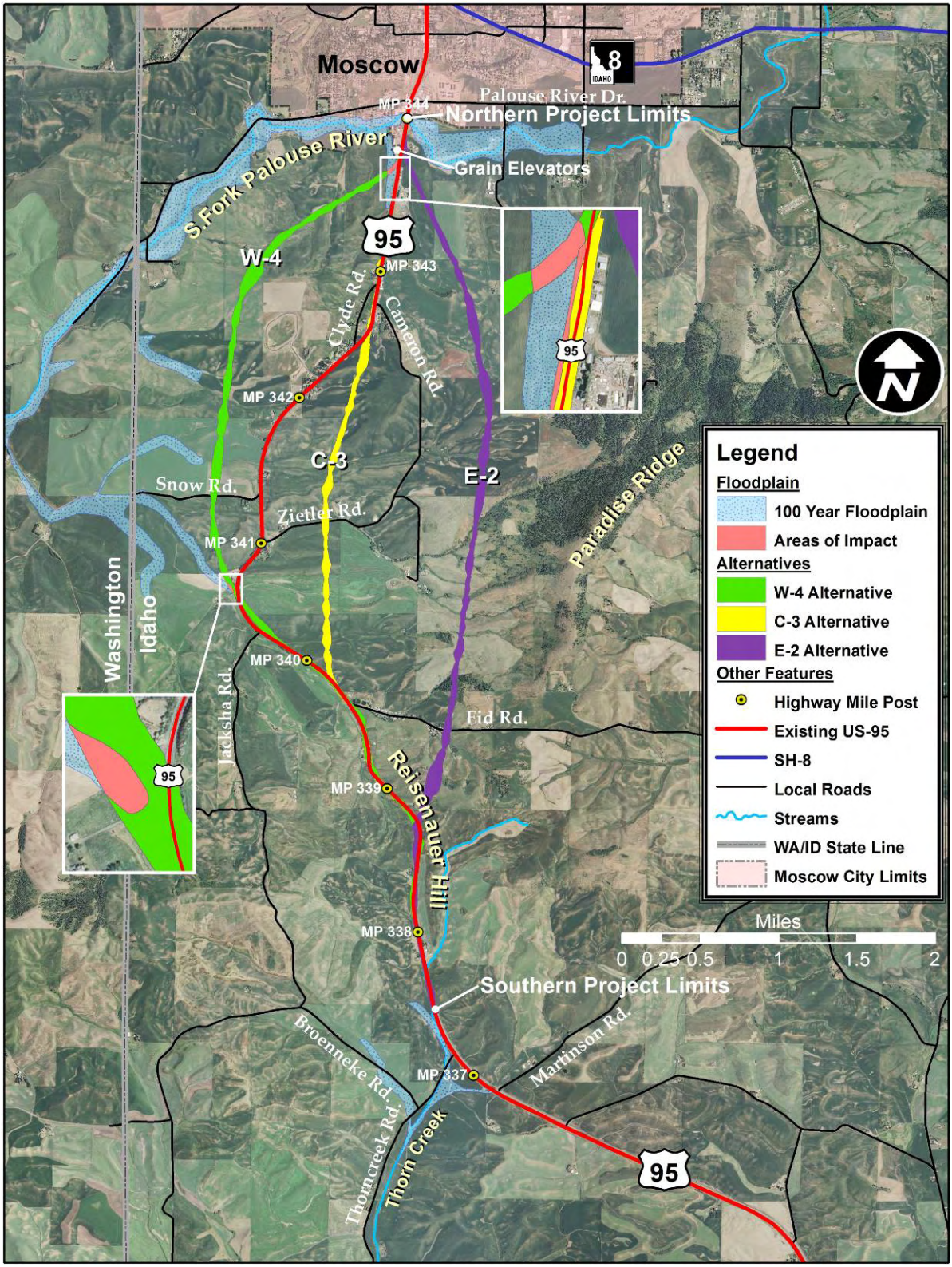
Table 43. Floodplain Effects

Alternative	100-year Floodplain Effects (acres)	Description of Effects (traverse or longitudinal)
No Action	0	None
W-4	3.6	Transverse and Longitudinal
C-3	1.8	Longitudinal
E-2	0	None

No Action

The No Action Alternative would not affect floodways or 100-year floodplains as no new roadway would be constructed.

Exhibit 25. Floodplain Effects



W-4

W-4 would encroach upon 100-year floodplain in two areas; near the South Fork Palouse River and near Jacksha Road. Both areas are highly modified floodplains on agricultural land with degraded floodplain functions. They are associated with the headwaters of the South Fork Palouse River.

The site near Jacksha Road would result in a longitudinal encroachment on two acres of 100-year floodplain. This site is considered to be a low risk because of the low cost of the property and the fact that there are no buildings in the vicinity (ITD 2012b). Effects to the natural and beneficial values of the floodplain would be minimal since the area is currently used for grazing.

Along the South Fork of the Palouse River, W-4 would result in a transverse encroachment of 1.6 acres. The roadway would be designed to hydraulically pass the 25-year storm event. This could potentially impair the hydraulic flow and floodplain functions on the east side of the roadway fill potentially resulting in an increase of flood elevations. Effects to this floodplain would involve a slightly higher risk than the floodplain near Jacksha Road as there are a few buildings located within the area. These risks could be minimized through the use of an oversized pipe, or pipes to accommodate flood backwater. Effects to the natural and beneficial values of the floodplain would be minimal since the area is currently used as farmland. The affected beneficial values of the floodplain are further described in Section 4.6, Wetland and Tributary Effects and in the Wetland Delineation Technical Report.

C-3

C-3 would encroach upon one 100-year floodplain on the north end of the project in a headwater associated with the South Fork Palouse River. It would be a longitudinal encroachment of 1.8 acres, on agricultural land resulting from roadway widening. There are a few buildings in the vicinity of the floodplain; however, it would still be considered a low risk to buildings or other structures (ITD 2012b). Effects to the natural and beneficial values of the floodplain would be minimal since the area is currently used as farmland. The beneficial floodplain values that would be affected are discussed in Section 4.6, Wetland and Tributary Effects.

E-2 (Preferred Alternative)

E-2 would not encroach upon any 100-year floodplain and would be a practicable alternative to avoid floodplain effects.

While W-4 and C-3 would encroach upon floodplains, all roadways for any of the alternatives would be designed to pass the 25-year storm event. The roadway would be designed to be three feet higher than the flood elevation to allow for a one foot rise in elevation. Therefore, the effects would be minimized per the requirements of EO 11988 and 23 CFR 650, Subpart A.

Measures to minimize floodplain effects have been incorporated into the project as have measures to restore and preserve the natural and beneficial floodplain values. E-2 would be the most practicable alternative under EO 11988 since it would not encroach on floodplains and would pose the least risk to the human and natural environment.

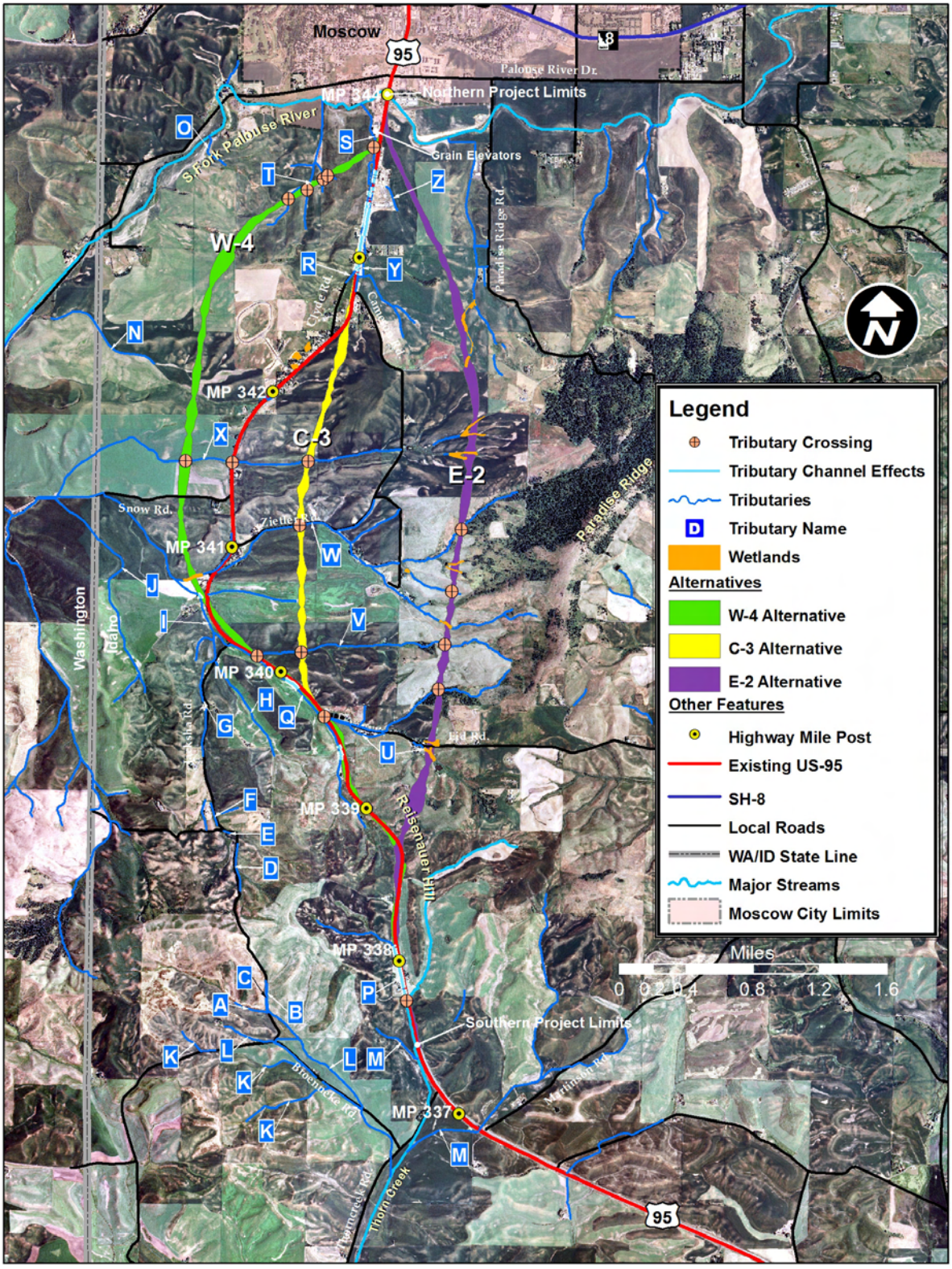
4.6 Wetland and Tributary Effects

4.6.1 Tributary Effects

All of the alternatives, including the No Action Alternative, could contribute transportation related pollutants to tributaries. Accumulated pollutants from operation and maintenance would build up on impervious surfaces such as the roadway then run off during rain events. The runoff may contain; gasoline, oil, hydraulic fluids, litter, dust, salt, sand, de-icing chemicals such as magnesium chloride, and tire and brake particulates such as zinc, copper, lead and other heavy metals. Stormwater could also contribute to increased erosion and sedimentation, increased peak flows, habitat alteration, and increased stream temperature. Stormwater is not commonly a source of bacterial pollutants or nutrients; therefore the alternatives should not contribute to increased bacteria or nutrient levels.

The degradation of water quality, effects to riparian habitat and soil disturbance could adversely affect the fish and other aquatic species that utilize the streams. Vegetation removal can increase stream temperatures and can lower the dissolved oxygen levels. Increased peak flows can increase erosion and sedimentation affecting spawning beds and fish migration. See Exhibit 26. Tributary Effects.

Exhibit 26. Tributary Effects



No Action

The No Action Alternative would not result in additional tributary crossings, new impervious surfaces, channel alteration, culvert removal, vegetation removal or other associated effects. However, the lack of formal stormwater collection and treatment along existing US-95 would continue to contribute to the degradation of water quality and could adversely affect fish and other aquatic species. There would continue to be temporary water quality effects due to maintenance activities.

Action Alternatives

The potential effects to tributaries common to all Action Alternatives include:

- Increased numbers of tributary crossings and lengthening of culverts
- Increased runoff due to new impervious surfaces such as roadways, parking lots or sidewalks.
- Increased erosion and sedimentation due to general construction activities near tributaries (i.e., road fill or culvert installation)
- Vegetation removal near tributary crossings and encroachments
- Utility relocations near waterways
- Placement of fill near waterways
- Improved hydraulic conveyance through culverts under reconstructed roadways

All Action Alternatives would involve construction of temporary and permanent BMPs to ensure compliance with the CGP, TMDLs and other regulatory requirements. All of the Action Alternatives would be designed to pass a 25-year storm event.

Increasing the area of impervious surface and removing vegetation has the potential to increase water temperatures and lower dissolved oxygen levels, which could affect aquatic species. The numbers of tributary crossings, channel effects and new impervious surface area for each alternative are shown in Table 44. Tributary Effects.

Table 44. Tributary Effects

Alternatives	Crossings (number)	Channel Effects (linear feet)	New Impervious Surface (acres)
No Action	0	0	0
W-4	9	5,517	57
C-3	5	7,808	49
E-2	5	2,592	55

W-4

W-4 would have the greatest number of tributary crossings and the greatest amount of new impervious surface which could result in increased scour, channelization, erosion and sedimentation, and vegetation disturbance. W-4 would result in greater water quality degradation compared to C-3 and E-2. There may also be a corresponding effect to the aquatic species that occur in the streams. See Section 4.8, Vegetation, Fish and Wildlife Effects.

C-3

C-3 would have the same number of tributary crossings as E-2 but would affect approximately three times more linear feet of tributary channel than E-2 primarily due to the encroachment of the roadway on the sides of stream channels. It would have the fewest acres of new impervious surface because it would follow existing US-95 for much of the alignment.

E-2 (Preferred Alternative)

E-2 would have the same number of tributary crossings as C-3 but would affect approximately one third of the length of tributary channel. Therefore, E-2 would result in less removal of riparian vegetation and less erosion and sedimentation due to channel realignments and scour. This would result in fewer effects to aquatic species and water quality in the tributaries. E-2 would affect some wetland areas that are the headwaters to the downhill tributaries or included within wetlands but are not individually classified as tributaries. The E-2 Alternative would increase the acres of impervious surface near the headwaters and tributaries which would result in increased stormwater discharge. This could result in increased scour, erosion, sedimentation and pollutant discharge into the receiving waters.

Avoidance, Minimization and Mitigation

All of the Action Alternatives would include impacts to tributaries. Culverts would be aligned to follow the natural channel of the stream or creek whenever possible. The E-2 Alternative would avoid effects to the greatest extent. Once all practicable measures for avoidance and minimization are in place, remaining impacts will be mitigated through a compensatory mitigation plan which will include replacing the affected flows and functions of the tributaries.

4.6.2 Wetland Effects

The FHWA requires consideration of all wetlands regardless of whether they are jurisdictional by the USACE. The wetland effects of each alternative are shown in Table 45. Wetland Effects. Only the wetlands affected by any of the alternatives are described in this section. See the Wetland Delineation Technical Report for information regarding all the wetlands.

No Action

The No Action Alternative would not directly affect wetlands.

Action Alternatives

The Action Alternatives would affect from 0.99 acres to 5.45 acres of 17 different wetlands. See Table 45. Wetland Effects and Exhibit 27. Wetland Effects. The majority of the wetlands in the project area are rated as Category III. These are typically small wetlands that have been disturbed and have low vegetative diversity compared to Category I and II wetlands. Most of the wetlands that are affected drain into either the South Fork of the Palouse River or Thorn Creek, both of which are on the 303(d) list and are waters of the US.

Table 45. Wetland Effects

	Alternative W-4 (acres)		Alternative C-3 (acres)		Alternative E-2 (acres)	
Wetland	PEM	PSS	PEM	PSS	PEM	PSS
W9	1.59					
W10	2.20					
W13						0.19
W20	0.36					
W23	0.31		0.30		0.20	
W24	0.15		0.16			
W25			0.02			
W26			0.23			
W27	0.78					
W28	0.04		0.04		0.04	
W29					1.32	
W31	0.02					
W32						0.73
W35					0.75	
W39			0.24			

	Alternative W-4 (acres)		Alternative C-3 (acres)		Alternative E-2 (acres)	
Wetland	PEM	PSS	PEM	PSS	PEM	PSS
W40					0.25	
W44					0.13	
	5.45	**0.00**	**0.99**	**0.00**	**2.69**	**0.92**
Totals	**5.45**		**0.99**		**3.61**	

PEM=Palustrine Emergent
PSS=Palustrine Scrub-shrub

W-4

The majority of the wetlands affected by the W-4 Alternative drain to the South Fork of the Palouse River. The remainder drain into Thorn Creek. Wetlands help to improve water quality of these two water bodies which are both listed on the 303(d) list. Filling wetlands could potentially cause an increase in the amount of pollutants and sediments that reach these waters.

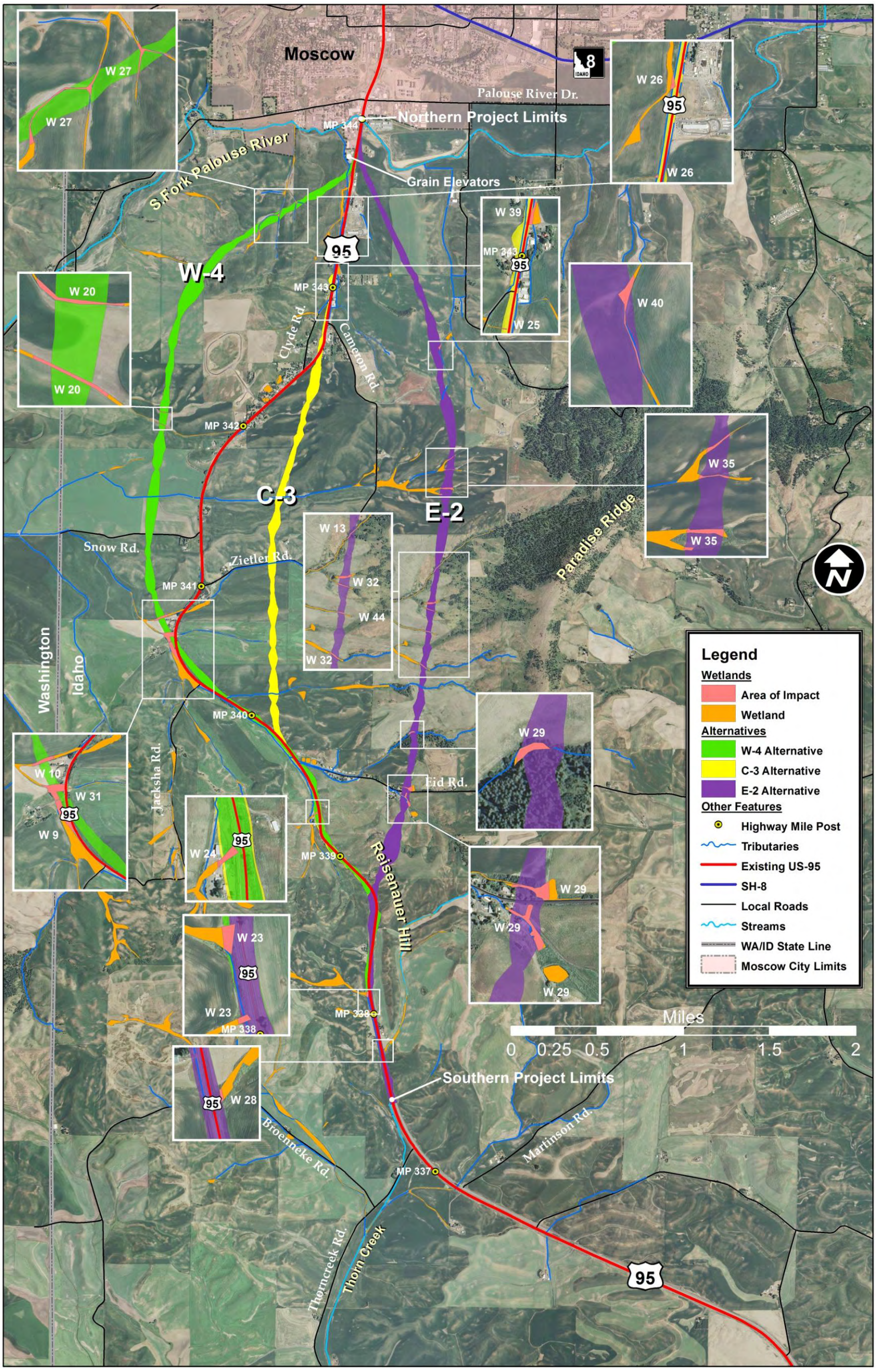
This alternative would affect PEM wetlands. All of the affected wetlands have been modified and are surrounded by active farming. W-4 would affect 5.43 acres of Category III wetlands and 0.02 acres of a Category IV wetland. 5.12 acres of affected wetlands scored 50 percent or higher for improving water quality. Wetland 28, of which 0.04 is affected, scored 50 percent for wildlife habitat. Wetland 23 and Wetland 31 did not score over 50 percent in any of the three categories for wetland functions (Gilmore 2006).

Most of the wetland effects are the result of the new alignment crossing wetlands. Wetland 23 would have 0.31 acres of fill from widening and straightening the road on its existing alignment. W-4 would affect the greatest acreage of wetlands.

C-3

The C-3 Alternative would have the least effects to wetlands out of the Action Alternatives. All six of the wetlands affected are Category III PEM wetlands and are either farmed or surrounded by farmland. Four of the affected wetlands (0.67 acres) scored a 50 percent or higher rating for improving water quality. There would be 0.04 acres of effects to Wetland 28 that scored 50 percent for wildlife habitat.

Exhibit 27. Wetland Effects



The wetlands affected by the C-3 Alternative are located near the existing highway and currently receive pollutants from road runoff. Four of the affected wetlands drain to the South Fork of the Palouse River. The remainder drains to Thorn Creek. The wetland effects would result from widening US-95 along its current alignment.

E-2 (Preferred Alternative)

Most of the wetlands affected by this alternative are Category III PEM wetlands. The remainder of the effects are to PSS wetlands surrounded by farming activities. Approximately half of the wetlands affected by E-2 are associated with man-made ponds. Five of the affected wetlands (3.03 acres of impact) scored 50 percent or higher for improving water quality functions. Only one of the affected wetlands (0.04 acres of impact) scored a 50 percent or higher for improving habitat functions.

Two of the wetlands affected drain to Thorn Creek and five drain to the South Fork of the Palouse River. One does not appear to have surface connection to other wetlands or tributaries. Most of the effects would be due to new sections of alignment. These wetlands are already disturbed and many of them have been altered or artificially created through the addition of ponds.

The C-3 and W-4 alternatives would have a greater effect to wetlands functioning high for improving water quality while the E-2 Alternative would affect more wetlands that are functioning higher for habitat. The C-3 Alternative would have the least effect to wetlands in terms of acreage, function and value.

Avoidance, Minimization and Mitigation

404(b)(1) Guidelines require all appropriate and practicable steps be taken to minimize adverse effects to the aquatic ecosystem, including compensatory mitigation. Wetland impacts that cannot be avoided or minimized further will be mitigated through a compensatory mitigation process. For the Action Alternatives there will be between 0.99 and 5.45 acres of unavoidable wetland impacts. During preliminary and final design, permitting will be completed in accordance with Section 404 of the CWA. Mitigation will be implemented according to 33 CFR 325 and 332 and will replace any lost functions and values.

Effects to wetlands and tributaries will be minimized by providing adequate temporary and permanent stormwater BMPs to comply with the CGP and TMDLs. Culverts will be placed under the roadway to allow continued hydrological connectivity under the roadway. FHWA requires replacement of lost functions and values for all wetland effects, including effects to wetlands non-jurisdictional by the USACE. Mitigation for wetland effects from any of the Action Alternatives is outlined in Chapter 9, Environmental Commitments.

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

Mitigation will be implemented in accordance with 33 CFR 332 Compensatory Mitigation for Losses of Aquatic Resources. A watershed approach will be used to identify mitigation sites for affected wetlands and tributaries. Potential sites in the subbasin will be evaluated as suitable mitigation to replace the affected functions and values. Compensatory mitigation can be carried out through four methods: the restoration of a previously-existing wetland or other aquatic site, the enhancement of an existing aquatic site's functions, the establishment (i.e., creation) of a new aquatic site, or the preservation of an existing aquatic site.

Within the project vicinity the Cow Creek Mitigation Site has already been constructed to compensate for effects from other projects. However, there may be remaining credit that could be applied to a portion of the required mitigation for this project. This will be determined during preliminary design should an Action Alternative be selected.

4.7 Groundwater Effects

Potential transportation related effects to groundwater could include:

- Increased impervious surface areas (such as roadways, parking lots or sidewalks)
- Hazardous material spills from the travelling public or construction equipment
- Accidental spills during utility relocation
- Discharge of untreated stormwater into underground injection wells
- Contamination during well decommissioning

The project is located over the Wanapam and Grand Ronde aquifers which are overlain by rich loess soils with high water holding capacity. The potential effects of the alternatives to groundwater due to hazardous material sites and hazardous material handling is discussed in Section 4.14 Hazardous Materials Effects.

The No Action Alternative would continue to use existing US-95 which has no formal stormwater treatment areas. It would not increase impervious surface but untreated stormwater would continue to flow to tributaries and groundwater.

All Action Alternatives would increase impervious surfaces that could contain highway related pollutants that could drain to groundwater. See Section 4.6.1, Tributary Effects for a description of transportation related effects. All Action Alternatives would be designed and constructed to comply with the CGP and TMDLs. A SWPPP will be prepared and implemented that will identify temporary and permanent BMPs such as grassy swales or check-dams. With the implementation of these BMPs, there would be a low risk of aquifer contamination from stormwater. Increased impervious surfaces over aquifers can lead to slower recharge rates.

4.7.1 Affected Wells

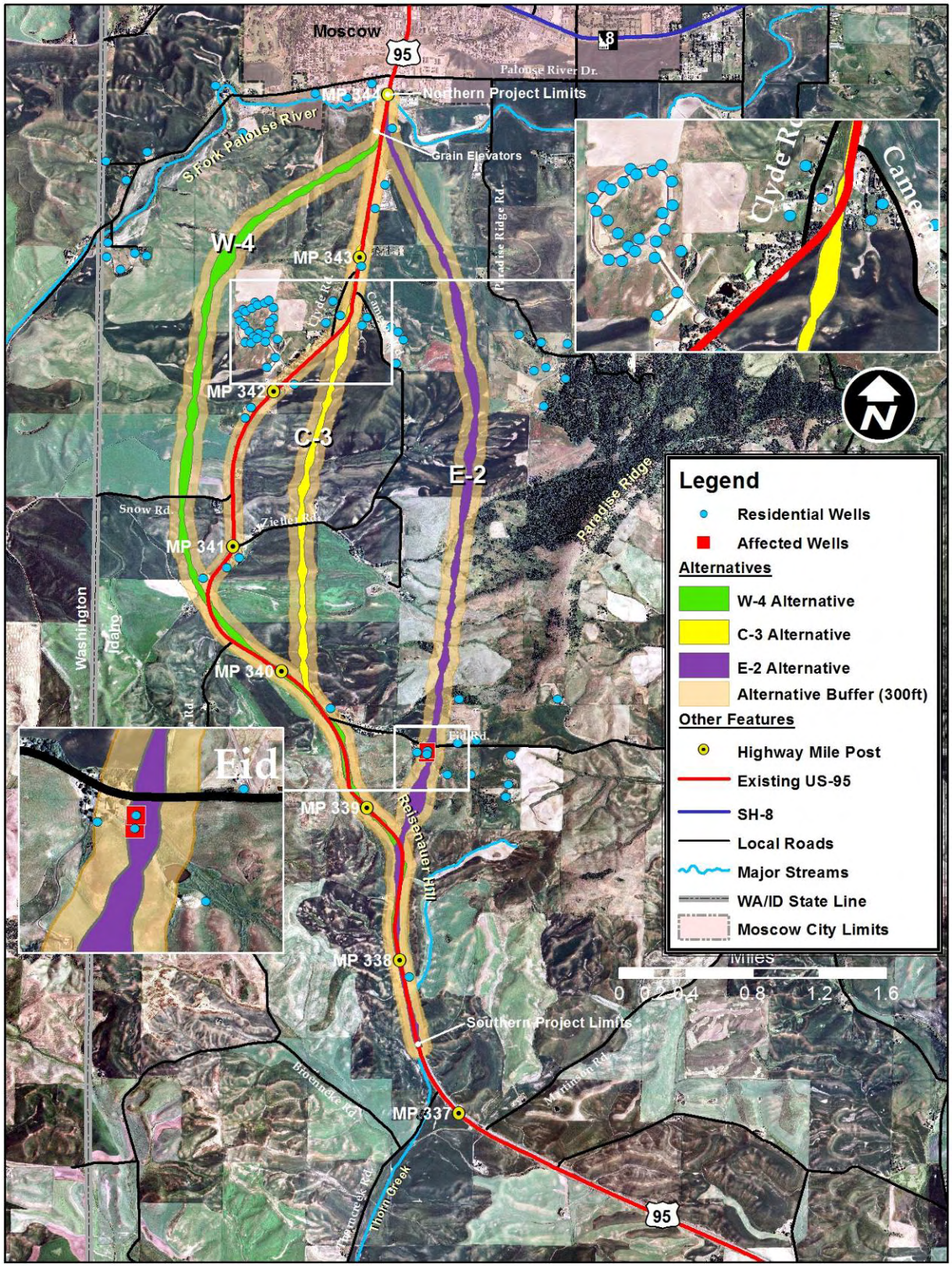
There are numerous domestic and irrigation wells within the project area.

The No Action Alternative would not require right-of-way acquisition or construction; therefore, it would not affect wells within the project area. The E-2 Alternative is the only alternative that would affect wells, all of which are domestic. See Exhibit 28. Affected Wells. Table 46. Affected Wells shows the number of known or registered wells that would be affected by each alternative. See Chapter 9, Environmental Commitments.

Table 46. Affected Wells

Alternatives	Affected Domestic Wells	Domestic Wells within 300 ft
No Action	0	10
W-4	0	4
C-3	0	6
E-2	2	5

Exhibit 28. Affected Wells



Well relocations may cause a short term interruption of water service during construction. Drinking water may be temporarily affected by suspended sediments caused by well drilling activity.

4.8 Vegetation, Fish and Wildlife Effects

4.8.1 General Wildlife Species Effects

To assess the relative effects of the alternatives to all vegetation, fish and wildlife species would be difficult. IDFG prepared an assessment of project effects to general wildlife species. They identified species that were determined to be representative of Species of Greatest Conservation Need (SGCN). For each of the representative species, project effects were based on occurrence of the species in the project area and the presence of suitable habitat in the area. If the species was not known to occur in the project area and no suitable habitat was present for the species, then it was determined the alternatives would not affect the species. However, if suitable habitat for the species was present, regardless of whether there were known or recorded occurrences, the project was assumed to affect the species (IDFG 2006). IDFG also assumed that all new right-of-way required by each alternative was suitable habitat for those species affected; therefore, the relative difference in right-of-way required for each alternative relates to the relative effects to the species. Based on this method, except for the pygmy nuthatch, long eared myotis, northern alligator lizard, and ungulates, the W-4 Alternative would have the greatest effects to general wildlife and the C-3 Alternative would have the least effect. See Table 47. Representative Wildlife Species Effects,

All of the Action Alternatives would pass through similar agricultural or rural residential lands which constitute low to marginal quality general wildlife habitat. The Action Alternatives also transect habitat types that support a greater diversity of vegetation, fish and wildlife species including wetlands, riparian areas, pine stands, Palouse remnants and areas with water sources. A pine stand that provides potential habitat for long-eared myotis and pygmy nuthatch would be affected by the E-2 Alternative. See Table 48. Habitat Type Effects.

Table 48. Habitat Type Effects

Alternative	Agricultural/ Grassland (acres)	Pine Stands (acres)	Ungulate Habitat (acres)	New Right-of-Way (acres)
No Action	0	0	0	0
W-4	159	0	0	210
C-3	101	0	0	154
E-2	158	3.9	4.4	207

Riparian and wetland habitat effects are discussed in detail in Section 4.6, Wetland and Tributary Effects.

Exhibit 29. Habitat Feature Effects. See the Wildlife Technical Reports for additional detail.

Table 47. Representative Wildlife Species Effects

Species	Potential Species Effect
Woodhouse's toad	No Impact
Mountain quail	No Impact
Peregrine falcon	No Impact
Yellow-billed cuckoo	No Impact
Townsend's big-eared bat	No Impact
Nimapuna tigersnail	No Impact
Pale jumping-slug	No Impact
Fir pinwheel	No Impact
Salmon coil	No Impact
Lyre mantleslug	No Impact
Dry land forest snail	No Impact
Oregonian (2 species)	No Impact
Humped coin	No Impact
Palouse giant earthworm	No Impact
Northern alligator lizard	Potential Impact (E-2)
Ring-necked snake	Potential Impact
Swainson's hawk	Potential Impact
Long-billed curlew	Potential Impact
Short-eared owl	Potential Impact
Grasshopper sparrow	Potential Impact
Pygmy nuthatch	Potential Impact (E-2)
Long eared myotis	Potential Impact (E-2)
California myotis	Potential Impact
Stonefly (5 species)	Potential Impact
Mayfly (2 species)	Potential Impact
Spur-throated grasshopper (2 species)	Potential Impact

All of the Action Alternatives would pass through similar agricultural or rural residential lands which constitute low to marginal quality general wildlife habitat. The Action Alternatives also transect habitat types that support a greater diversity of vegetation, fish and wildlife species including wetlands, riparian areas, pine stands, Palouse remnants and areas

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E-2	158	3.9	4.4	207

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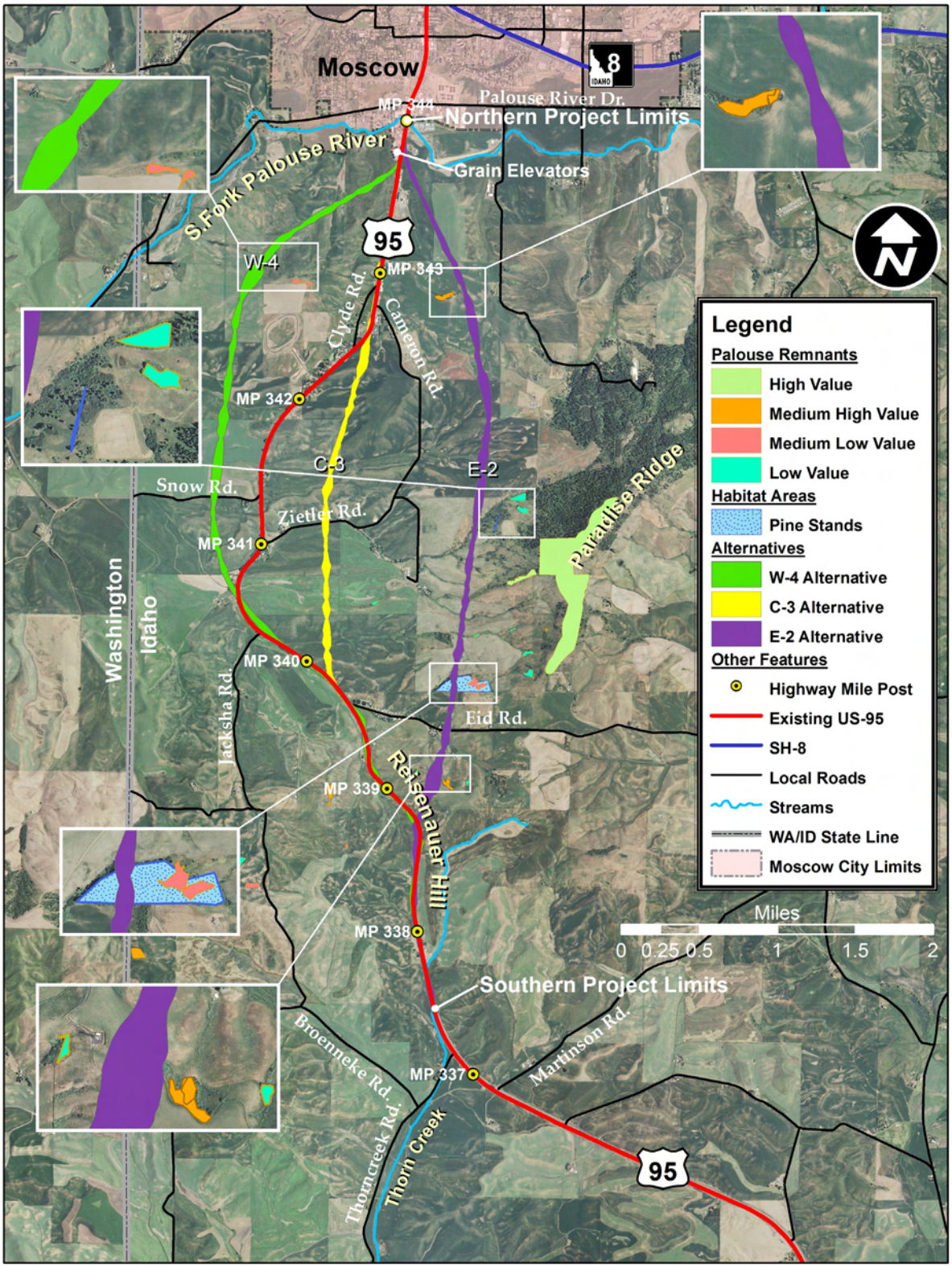
Exhibit 29. Habitat Feature Effects



All of the Action Alternatives would add two additional travel lanes and would have a wider typical section. The straighter alignment and wider roadway would improve the ability of the driver to spot wildlife crossing the roadway and would improve the ability of the driver to avoid and recover from potential wildlife collisions.

No Action

The No Action Alternative would have no direct effect to vegetation and general wildlife habitat. Wildlife collisions would continue to climb with increased traffic volumes.

W-4

W-4 would run primarily through agricultural land that functions as foraging and breeding habitat for many wildlife species. W-4 would cross nine tributaries that provide habitat for resident wildlife species.

C-3

The C-3 alternative would pass through some agricultural areas but would utilize much of the existing US-95 roadway. Wildlife in this corridor is already accustomed to traffic. C-3 would result in the fewest acres of conversion of farmland that currently functions as foraging and breeding habitat for many wildlife species. The C-3 Alternative would cross five tributaries that possess habitat for resident wildlife species.

E-2 (Preferred Alternative)

The E-2 Alternative would pass through agricultural lands, primarily plowed fields and CRP lands located west of Paradise Ridge. It would not disturb the forested habitat on Paradise Ridge but is closer to Paradise Ridge than the other alternatives. The E-2 Alternative would convert the greatest amount of farmland that functions as foraging and breeding habitat for many general wildlife species. The E-2 Alternative would affect a forested area that could provide suitable habitat for representative wildlife species including the northern alligator lizard, pygmy nuthatch and long-eared myotis (see Pine Stands below). The E-2 alternative would cross fewer tributaries compared to the W-4 Alternatives however, the tributaries that are affected possess greater habitat value for resident wildlife species than tributaries that are affected by either the W-4 or C-3 alternatives.

4.8.2 Palouse Remnant Effects

The No Action Alternative would not involve road realignment, major soil disturbing activities or removal of existing vegetation and therefore would not directly affect the Palouse remnants.

The W-4, C-3 and E-2 alternatives would not directly affect Palouse remnants. See Chapter 9, Environmental Commitments for mitigation measures. Indirect effects are discussed in Chapter 6, Indirect and Cumulative Effects.

4.8.3 Palouse Restoration Projects Effects

The No Action, W-4 and C-3 alternatives would not affect Planned and Existing Restoration Projects. The E-2 Alternative would directly affect a property with an *easement* for restoration activities under the USFWS Partners Program. However, the section of the property that would be affected is an actively producing wheat field and any on-going or planned restoration activities are approximately 200 feet from the alignment. Those activities include ecological weed control (hand-pulling weeds) and planting Spalding's catchfly. While the E-2 Alternative would not directly affect the areas where restoration activities are occurring or are planned; it would bring the roadway closer to the projects compared to the other alternatives. See Exhibit 30. Planned and Current Restoration . Indirect and cumulative effects to Palouse Restoration Projects are described in Chapter 6. Indirect and Cumulative Effects.

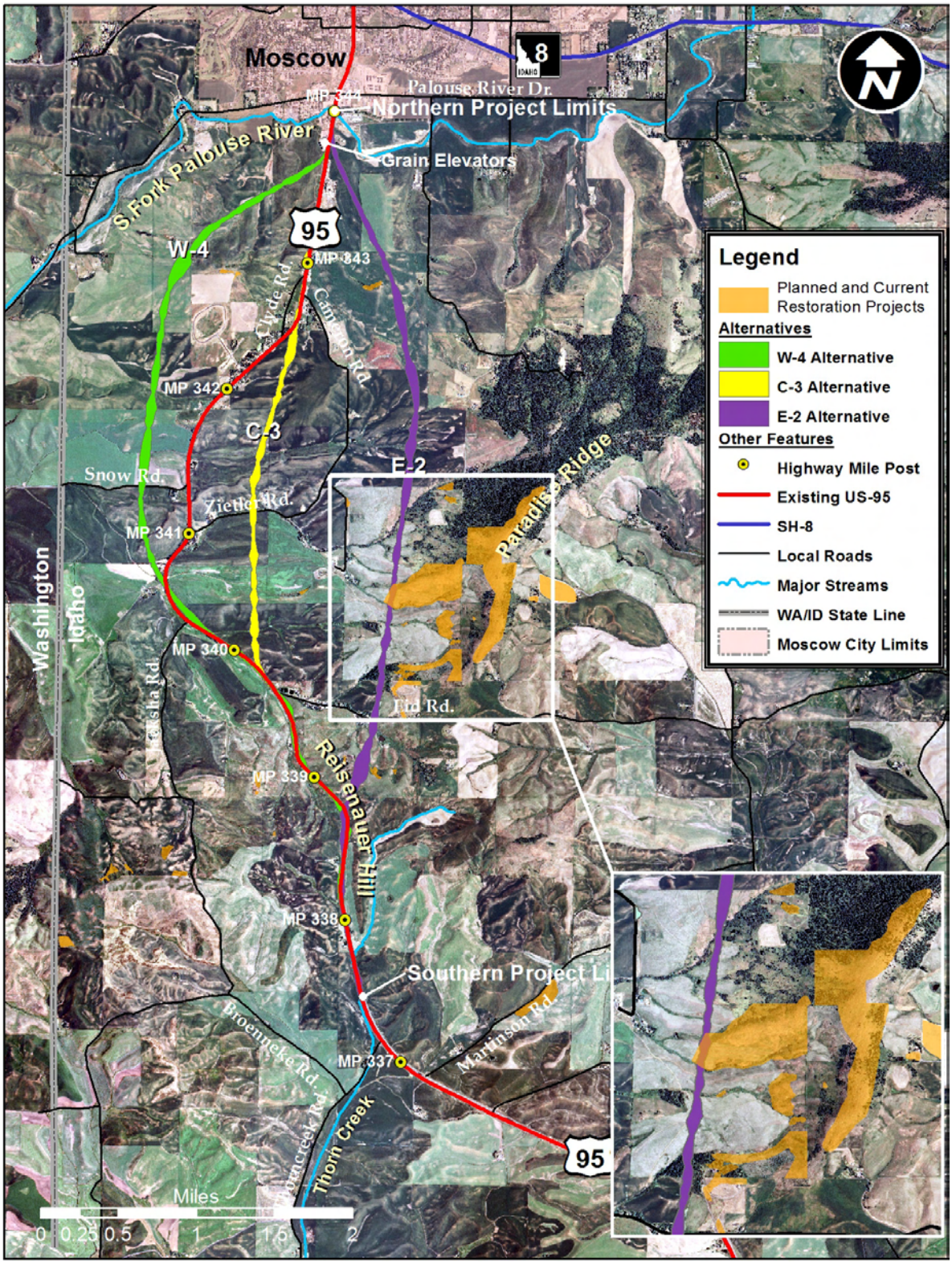
4.8.4 Rare Plant Effects

None of the alternatives would directly affect any known occurrences or populations of rare plants. Indirect and cumulative effects are discussed in Chapter 6. Indirect and Cumulative Effects.

4.8.5 Pine Stand Effects

The No Action, W-4 and C-3 alternatives would not affect pine stands that could provide potential nesting habitat for pygmy nuthatch, long-eared myotis, northern alligator lizard or other species.

Exhibit 30. Planned and Current Restoration Projects



The E-2 Alternative would affect 3.9 acres of a ponderosa pine stand that could offer potential nesting habitat for the long-eared myotis and pygmy nuthatch, and habitat for the northern alligator lizard. However, this pine stand is small with ten snags and only four mature pine trees suitable for pygmy nuthatch nesting habitat. The pygmy nuthatch is protected under the Migratory Bird Treaty Act and no active nest sites can be destroyed or removed. Tree removal would occur outside of the nesting season to avoid impacts to nesting birds. The loss of this habitat is considered minor and there is an abundance of suitable habitat nearby at Paradise Ridge.

4.8.6 Riparian Habitat Effects

All of the Action Alternatives would cross tributaries; however, crossings would be designed to allow for hydraulic flow to continue under the roadway. Crossings may include, bottomless box culverts, culverts placed at-grade or use of stream simulation designs. Where practicable, provisions for terrestrial species movement would be incorporated into the crossing design. See Chapter 9, Environmental Commitments. W-4 would affect the greatest length of tributaries, whereas the E-2 alternative would affect the least. See Section 4.6, Wetland and Tributary Effects for additional detail.

4.8.7 Ungulate Effects

A study titled *Assessment of Potential Big Game Impacts and Mitigation Associated with Highway Alternatives from Thorncreek Road to Moscow* (Sawyer 2010) evaluated the ungulate studies prepared for the project. The study summarized the conclusions regarding quality of ungulate habitat in the project area the potential effects of the alternatives to those habitats. It also made recommendations regarding mitigation. See Table 49. Ungulate Habitat Effects. The studies concluded that none of the Action Alternatives would bisect important ungulate habitat or known migration corridors and that population-level effects from highway construction were unlikely.

Table 49. Ungulate Habitat Effects

	Ungulate Habitat Quality*		
Alternative	**Moose**	**Elk**	**White-tail deer**
No Action	None	None	None
W-4	Poor	Poor	Marginal
C-3	Poor	Poor	Marginal
E-2	Marginal	Marginal	Moderate

Source: (Sawyer 2010)

*Ungulate habitat on scale of increasing value is: none, poor, marginal, moderate and high.

Ungulates utilize and move to all types of habitat but frequently utilize areas with shelter and cover, riparian areas, and areas with water sources. Ungulates have been sighted and utilize habitat in the project area; however, only poor to moderate quality ungulate habitat is present. The primary ungulate habitat affected by all three alternatives is plowed and cultivated fields, much of which is presently enrolled in the Conservation Reserve Program (CRP). See Section 4.10 Transportation and the Safety Technical Report for wildlife collision data factors.

No Action

The No Action Alternative would not directly affect ungulate habitat. It could however, result in more wildlife collisions due to an increase in projected traffic volumes on US-95 by the 2037 design year. The substandard curves, steep grades and narrow typical section would not be improved making it difficult to spot and avoid wildlife. The projected increase in traffic and the density of traffic flow could result in greater numbers of wildlife collisions on this segment of US-95. The No Action Alternative would not meet the project purpose and need.

For the Action Alternatives, realigning a highway to an area where no road currently exists would change the general setting of the area and may displace some wildlife less accustomed to human disturbance such as elk and moose. Noise and increased human presence could temporarily displace ungulates in the area during construction. The Action Alternatives could result in effects to poor, marginal, moderate or high quality habitat. See the Wildlife Technical Reports for additional detail regarding the degrees of effects and the differing quality of the affected habitat.

A straighter roadway alignment, additional lanes and a wider typical section would improve the visibility of wildlife crossing the roadway and would improve the ability of the driver to avoid and recover from potential wildlife collisions.

W-4

W-4 would pass through primarily agricultural land without suitable cover near foraging areas. Therefore, it is considered poor habitat for elk and moose. This alternative would also pass through marginal white-tail deer habitat.

C-3

C-3 would pass through poor habitat for elk and moose. It would pass through marginal white-tail deer habitat. C-3 would not correct the curves and grade to the extent of E-2 or W-4. Therefore, it may be more difficult to spot wildlife and recover from potential wildlife collisions in some locations of C-3 compared to the other Action Alternatives.

E-2 (Preferred Alternative)

E-2 would pass through marginal habitat for elk and moose located in the southern half of the study area, primarily on CRP land and farmed fields. Moderate white-tail deer habitat would also be affected. E-2 would be aligned between an existing man-made farm pond that may be used by wildlife, and Paradise Ridge. E-2 could affect the movement of moose and elk that currently travel between the pond and Paradise Ridge.

Elk tend to stay closer to security and escape cover than deer. A pine stand located in the southern half of the project may be used for cover by ungulates as they forage in the nearby agricultural fields. The E-2 alternative would affect 3.9 acres of the pine stand as well as agricultural land that is used for foraging which would affect elk. A total of 4.4 acres of areas suitable ungulate habitat would be affected by the E-2 Alternative. The E-2 Alternative posed the largest concern for ungulates due to its proximity to small patches of native habitats not yet converted to agriculture (i.e., pine stands and Palouse remnants) (Sawyer 2010). More suitable habitat for ungulates is available in the surrounding areas east of Paradise Ridge and in the gullies further west in Washington State (Ruediger 2007). Regionally and statewide, the area is considered to have low wildlife populations and low to moderate quality habitat. See Table 49. Ungulate Habitat Effects for a summary of the alternatives' effects to ungulates. See the Wildlife Technical Reports for additional detail.

In the summer of 2012 ITD and IDFG began developing a Memorandum of Understanding (MOU) outlining mitigation measures for vegetation, fish and wildlife effects. See Chapter 9. Environmental Commitments.

4.9 Threatened and Endangered Species Effects

This section summarizes the effects of the alternatives on federally listed threatened and endangered species and critical habitat. A discussion of federal candidate and proposed species is included in 3.8, Vegetation, Fish and Wildlife and 4.8, Vegetation, Fish and Wildlife Effects.

No Action. The No Action Alternative would not involve right-of-way acquisitions, major construction or a large amount of soil disturbance; therefore, it would have no effect to threatened or endangered species and designated critical habitat. The higher projected traffic volumes and the density of traffic flow could result in greater numbers of wildlife collisions on this segment of US-95.

W-4, C-3 and E-2 (Preferred Alternative). The Action Alternatives would result in no effect to Canada lynx, water howellia, steelhead trout and its designated critical habitat. W-4, C-3 and E-2 may affect but are not likely to adversely affect Spalding's catchfly due to indirect effects. See Table 50. Threatened and Endangered Species Effects and 6.1 Indirect Effects. See the Biological Assessment Technical Report (ITD 2007a) for details.

Table 50. Threatened and Endangered Species Effects

Common Name	*Scientific Name*	Federal Status	Action Alternatives' Effects Determination
Canada lynx	*Lynx Canadensis*	Listed Threatened	No Effect
Spalding's catchfly	*Silene spaldingii*	Listed Threatened	Not Likely to Adversely Affect (NLAA)
Water howellia	*Howellia Aquatilis*	Listed Threatened	No Effect
Steelhead trout	*Oncorhynchus mykiss*	Listed Threatened	No Effect
Steelhead trout Critical Habitat	*Oncorhynchus mykiss*	Designated Critical Habitat	No Effect

Canada Lynx

The Action Area is located on agricultural land less than 3,000 feet in elevation and is located greater than 20 miles from the nearest potential Lynx Analysis Unit (LAU) (i.e., the Umatilla or Saint Joseph National Forests). Haul roads, staging areas, waste sites, material sources and stockpile sites would not be located within an LAU. The project would have no effect on Canada lynx.

Spalding's catchfly

A population of Spalding's Catchfly was discovered within the project area between Alternatives W-4 and C-3 near Clyde Hill; however, no plants are in the footprint of the alternatives. All of the alternatives have Palouse remnants that occur within a mile of the proposed alignment which could be indirectly affected. This resulted in a determination that all of the Action Alternatives may affect but are not likely to adversely affect Spalding's

Catchfly as a result of indirect effects. See Chapter 6, Indirect and Cumulative Effects. See the Biological Assessment Technical Report for additional details.

Water howellia

Water howellia occurs in seasonal ponds, often associated with potholes. The only potentially suitable habitat for water howellia in the action area would be the floodplain of the South Fork Palouse River. However, a field survey revealed that the floodplain is under cultivation, channelized and dominated by reed canarygrass, a non-native invasive weed. Therefore the site is not suitable for water howellia. The project would have no effect to water howellia.

Steelhead Trout and Designated Critical Habitat

No steelhead trout or designated or proposed critical habitat for steelhead trout is within the action area. Therefore, this project would have no effect to steelhead trout or their designated critical habitat.

4.10 Transportation Effects

4.10.1 Public Safety

A safety analysis was completed using the First Edition of the AASHTO Highway Safety Manual. The results show that all three Action Alternatives will be safer than the existing alignment and the No Action Alternative. The results also show that the E-2 Alternative would be the safest proposed alignment for total crashes, as well as total injury related crashes and fatalities. Table 51. Projected Crash Rates for 2017 shows the fatalities, injury and total crashes by 2017 for each alternative. See the Safety Technical Report for additional information.

Table 51. Projected Crash Rates for 2017

Alternative	Fatal and Injury Crashes per year	Crashes per year
No Action	10.5	24.8
W-4	4.5	9.3
C-3	4.7	10.9
E-2	3.8	7.7

All of the Action Alternatives would be designed to meet AASHTO standards. The No Action Alternative would still not meet AASHTO standards.

The two typical sections presented in Exhibit 2. Typical Section: Four-Lane Divided Highway and Exhibit 3. Typical Section: Four-lane Highway with Center Turn Lane and Curb, Gutter and Sidewalk are common to all Action Alternatives. See Section 2.4.2. Design Elements and Typical Section for All Action Alternatives.

The four-lane divided highway sections would have lower predicted crash rates than the four-lane highway with center turn lane, curb, gutter and sidewalk. The center turn lane would allow for two-way left turns which have a higher predicted numbers of crashes than the highway section with the 34-foot median. The speed limit in the four-lane section with center turn lane, curb, gutter and sidewalk would be reduced to 45 mph for each Action Alternative which would mitigate some of the safety factors associated with turning movements.

Table 52. Length of Typical Sections, compares the lengths of the two different typical sections by alternative. The four-lane with center turn lane would have a higher crash rate and lower LOS (LOS B) compared to the four-lane divided highway section which would have a LOS A.

Table 52. Length of Typical Sections

Alternative	Length of Four-lane Divided (miles)	Length of Four-lane with center turn lane, curb, gutter and sidewalk (miles)	Total Length of Alignment (miles)
No Action	0	0	6.34
W-4	6.39	0.30	6.69
C-3	4.52	1.42	5.94
E-2	5.61	0.24	5.85

Weather Conditions

As a result of public concern expressed during the public involvement process, a report titled *Final Report for Weather Analysis of Proposed Realignments of US Highway 95 Thorncreek Road to Moscow* (Qualls 2005) was prepared. The study concluded that while there may be minor variations in climatic conditions in the three corridors evaluated, they were unpredictable and not considered substantial. Unpredicted weather occurrences are included in the historical base crash rate data obtained from the safety evaluation manual and are also included as safety factors in the safety analyses. See Weather Technical Report.

Wildlife-related Safety

The frequency of wild animal crashes in the project area is much less than many other sections of US-95 and many other highways in Idaho (Ruediger 2007). In addition, wildlife crashes are not typically severe. Based on the low frequency, randomness and low severity for drivers due to wildlife crashes, they are not considered to be a major contributor to the crash rates. The improvements to the roadway curvature and grade as well as the wider typical section, would improve the ability for drivers to spot wildlife and maneuver if wildlife enter the roadway (Couch 2010).

4.10.2 Highway Capacity

This segment of US-95 currently has an ADT of 5,364 and operates at a Level of Service (LOS) C. It would reach an average of 8,524 ADTs by 2037 and would operate at a LOS D, which has restricted movements and delays during peaks.

All of the Action Alternatives would add a travel lane in each direction, widen shoulders, clear zones and upgrade the roadway to meet the ITD Design Manual and AASHTO standards. All the Action Alternatives are projected to have a LOS A in the rural area and a LOS B in the urban areas just south of Moscow by the 2037 design year.

Access and Mobility Effects

Access control on the State Highway System is based on the type of facility, its functional classification, highway safety, vehicle operations, preservation of highway utilities, zoning, and route consistency. The functional classification would determine the type of access control type applied to the highway.

With the Action Alternatives US-95 would be a multi-lane principal arterial with a rural functional class. US-95 would be a Type IV limited access control facility with fewer accesses onto US-95 compared to existing conditions. Existing approaches would be allowed to remain at locations where construction of joint access is not economically justified. See Table 53. Access Types for the types and numbers of access points per alternative.

Table 53. Access Types

Alternative	Field	Residential	County Road	Commercial	Total Access Points
No Action	14	28	7	17	66
W-4	17	10	4	5	36
C-3	11	14	5	17	47
E-2	9	6	2	5	22

The alternatives would have differing effects to access and mobility due to alignments locations.

The No Action Alternative would maintain the existing accesses and would have the highest number of access points of all the alternatives. It would not meet the ITD Design Manual, AASHTO Standards, or ITD's Spacing Policy. The No Action Alternative would have the highest number of traffic conflicts which would contribute to it having the highest crash rate of all the alternatives.

The Action Alternatives would reduce the crash rates primarily by reducing the numbers of accesses onto US-95 and by designing to meet the ITD Design Manual and AASHTO standards. Access points present opportunities for traffic conflicts and contribute to crash rates.

All Action Alternatives would have overpass structures that would reduce the number of access points onto the new highway. All Action Alternatives would shorten the projected travel times through this section of US-95 compared to the No Action Alternative; however, E-2 would result in the greatest travel time reduction. Shortened travel times could improve the economic vitality of the area and could benefit freight transport, emergency service response, school access, bicyclists/pedestrians, and mail delivery. See Table 54. Overpass Structures and Total Travel Times.

Table 54. Overpass Structures and Total Travel Times

Alignment	Overpass Locations	Total Travel Time by 2037 (minutes:seconds)
No Action	None	6:36
W4	Snow Road	6:17
C3	Zeitler Road	6:02
E2	Eid Road	5:30

Community concerns included loss of access and visibility for businesses along the existing highway and conflicts between traffic and expanded medical facilities. See the Community Impact Technical Reports.

4.10.3 Bicyclists and Pedestrians

Currently the roadway has substandard shoulders and is not striped for bicycles and pedestrian use. All Action Alternatives would improve safety and access for bicyclists and pedestrians by constructing wider shoulders and improving sight distance. The four-lane highway with center turn lane, curb, gutter and sidewalk sections would provide sidewalks that would be designed to meet the Americans with Disabilities Act (ADA) requirements. The C-3 Alternative would have the greatest length of the four-lane with center turn lane, curb, gutter and sidewalks.

4.10.4 Emergency Response Time

No need was identified for additional emergency service facilities as a result of construction of any of the alternatives. The ability for emergency service providers to turn around within the project limits to access the on-coming lanes is critical. All of the alternatives would improve the ability to patrol the highway (HDR 2006).

The C-3 Alternative would provide the most convenient access and best emergency response times to the population on the existing US-95, while the E-2 and W-4 alternatives would provide improved access and quicker response times to some of the more outlying areas and cities. The C-3 Alternative would have a longer four-lane with center turn lane section that would allow for easier access and more frequent opportunities to turn around in the urban areas. The E-2 Alternative would have the greatest improvement on mobility (10 percent) (Arnzen pers. comm. 2012). The segments of existing US-95 that may be turned over to the North Latah Highway District would be utilized for local circulation and emergency service access.

No Action

The No Action Alternative would have the highest crash rates of the alternatives. It would include maintenance and minor safety improvements along existing US-95; however, it would not correct the substandard curves and grades, reduce access points or widen shoulders or clear zones. The roadway would still not meet the current AASHTO standards. As ADT's between Thorncreek and Moscow grow and the two-lane highway approaches its

capacity, passing opportunities will decrease and crashes on US-95 are expected to increase. Travel times and access for freight, emergency services, postal delivery, schools, and commuting would be longer than current conditions. The No Action Alternative would worsen safety for all users and would not meet the project purpose and need.

W-4

W-4 would be the longest alignment of the alternatives with four proposed public road intersections; Eid Road, Jacksha Road, North Old US-95 and South Old US-95. Overall it is predicted to reduce fatal and injury crashes by more than half of the No Action Alternative predictions.

C-3

The C-3 Alternative would have the highest predicted fatal, injury and total crashes of all the Action Alternatives. The C-3 Alternative would be the least safe because the extra intersections, approaches, and suburban section would create turning traffic across US-95. This would still reduce the predicted crashes by half compared to the No Action Alternative. C-3 would have the longest five lane suburban section of the Action Alternatives. Crashes are predicted at a rate of 3.4 crashes per mile for the five lane suburban section while the rural four-lane divided section has a predicted rate of 1.1 crashes per mile.

C-3 would have the greatest number of approaches; five public road intersections, the most residential and commercial approaches, and the longest suburban section. The five intersections; Eid Road, Clyde Road, Cameron Road, North Old US-95, and South Old US-95, would be constructed to accommodate local traffic.

The C-3 Alternative would have the highest cost to both human life and societal monetary costs associated with crashes.

E-2 (Preferred Alternative)

The E-2 Alternative would have the shortest alignment, the fewest public road intersections, the fewest commercial and residential approaches and would have better weather conditions for roadway safety compared to W-4. E-2 would also have the greatest length of the four-lane divided highway. These factors all contribute to E-2 having the lowest predicted crash rate compared to the other alternatives. The E-2 Alternative is predicted to reduce the crash rate of the existing alignment by about 69 percent.

4.11 Visual Quality Effects

Construction of the US-95 project may have direct effects to visual quality. Effects are likely to occur in locations where construction of the proposed project would affect undisturbed landscapes, in close proximity to sensitive viewers (e.g. residences), and along areas where additional development is proposed. These effects are directly related to new cut and fill slopes, bridges and a new linear features created by the road itself (Visual Genesis 2005). Visual quality effects as perceived by the community are discussed in the Community Impact Technical Reports.

4.11.1 Visual Quality Assessment Findings

The degree of visual effects were categorized as low, moderate, moderate high and high as defined below:

Low. These conditions occur where viewers are less sensitive to change or the project follows existing portions of transportation routes or other heavily altered landscapes. Effects may cause no change or minimal change to existing visual resources. These effect levels were established to create a context for evaluating potential effects of alternative alignments to visual resources.

Moderate. These conditions occur where viewers would be sensitive to changes to the landscape, where changes are visible, but the project does not dominate the viewshed. Effects may cause some adverse change to visual resources.

Moderate High. These conditions occur where viewers are sensitive to change to the landscape, changes are moderately visible and they may dominate the viewshed. Effects may be adverse but not substantial.

High. These conditions occur where viewers are sensitive to changes to the landscape, changes may be highly visible, and they may dominate the viewshed. Because these conditions may result in a substantial or substantial change to visual resources, they may warrant mitigation.

Table 55. Visual Quality Effects shows the estimated percentages of visual effects to different visually sensitive areas. See Visual Resources Technical Report for more information.

Table 55. Visual Quality Effects

Alternative	Degree of Visual Effect	Percent of Alignment
No Action	0	0
W-4	Low	11
	Moderate	58
	Moderate High	23
	High	8
C-3	Low	9
	Moderate	68
	Moderate High	15
	High	8
E-2	Low	3
	Moderate	47
	Moderate High	25
	High	25

No Action

The No Action Alternative would only involve minor improvements and would not involve major soil disturbing activities, large structures, and realignments in new areas. Therefore, the No Action Alternative would have no effect to visual quality.

W-4

W-4 would traverse a relatively undisturbed pastoral landscape. Direct effects would occur where residences are within the foreground or middle ground views of other residences and are not screened by terrain. This would occur near the City of Moscow, Snow Road, Jacksha Road, and Thorncreek Road. A new bridge at Snow Road would create a long-term visual effect. During interviews with community representatives during the Delphi Panelist interviews, concern was expressed regarding the W-4 Alternative's light pollution effects on the University of Idaho Observatory and general visual effects to the University of Idaho Arboretum, surrounding neighborhoods, and planned recreational and residential facilities.

C-3

C-3 would follow existing US-95 along some of its alignment. It traverses both disturbed and relatively undisturbed pastoral landscapes. Effects are anticipated to occur where US-95 leaves the existing US-95 corridor and is within the foreground and middle ground views of residences and not screened by terrain. This would occur near South Clyde Road, Zeitler

Road and near Eid Road. This would affect the residential and recreation viewpoints located near the alignment, particularly the residences along Eid Road and the residential developments from near MP 342 to Cameron Road along the northern end of the alignment.

E-2 (Preferred Alternative)

E-2 would traverse both disturbed and relatively undisturbed pastoral landscapes. It would also traverse landscapes near the foothills of Paradise Ridge and could affect recreational viewpoints from Paradise Ridge and views from the University of Idaho Golf Course. Direct effects are anticipated to occur where US-95 leaves the existing US-95 corridor and is within the foreground and middle ground views of residences and not screened by terrain. This would occur at the residential viewpoints near the City of Moscow, Cameron Road, and Eid Road. A new bridge at Eid Road would create a long-term visual effect to residences. See Exhibit 31. View from E-2 Alignment near Eid Road (facing north). See the Visual Resources Technical Report for additional detail.

Exhibit 31. View from E-2 Alignment near Eid Road (facing north)

4.11.2 Community Perceptions

There are strong differing opinions regarding the visual effects of the W-4 and E-2 alternatives. The Citizens for a Safe Highway 95, claiming to represent people collectively owning 80 percent of the land along E-2, were in favor of the E-2 Alternative due to the "spectacular view" of the Palouse and of the City of Moscow for travelers as the route traverses just west of Paradise Ridge. They believe that the beauty of Paradise Ridge could

transform the highway into a gateway for Moscow, and that E-2 could promote and preserve the Palouse landscape through scenic highway status. The group opposed the W-4 Alternative stating that it would disrupt westerly views and promote farmland conversion disrupting the agricultural setting (HDR 2005a).

The Paradise Ridge Defense Coalition, who opposed the E-2 Alternative, felt the expansion of the roadway should follow the existing route as much as possible in order to minimize the ecological footprint of the road. The argument against the E-2 Alternative centered on Paradise Ridge as a unique and valued feature in the community. In the view of those opposed to an E-2 alignment, the ridge should remain untouched because it provides both aesthetic and environmental value as the last remaining natural prairie in the area. As a focal point for community pride, Paradise Ridge serves as a reason both for and against the E-2 Alternative (HDR 2006).

4.12 Noise Effects

4.12.1 Noise Impacts

The FHWA has established NAC standards for several categories of land use activities. See Table 34. FHWA Noise Abatement Criteria (NAC). A traffic noise impact occurs when the existing or future noise levels approach (1 dBA below the FHWA NAC) or exceed the FHWA Noise Abatement Criteria (NAC) or when the predicted future traffic noise levels substantially exceed the existing noise levels, even if the predicted noise levels may not approach or exceed the FHWA NAC. The ITD Noise Policy for a substantial increase is 15 dBA over existing conditions which would be considered over twice as loud to the human ear. See Exhibit 22. Noise Receptor Locations. A $L_{eq,}$ A-weighted, one-hour, (L_{eqah}) noise measurement is used as the basis to assess the impacts that a roadway has on the sensitive receptors that are located along the proposed road.

The results of the noise modeling indicate that by 2037 the No Action Alternative would have the greatest number of impacted receptors and the W-4 Alternative would have no noise impacts. See Table 56. Summary of Noise Effects. The details regarding predicted noise levels at receptors are shown in Table 57. Predicted Noise Effects.

Table 56. Summary of Noise Effects

Alternative	Noise Impacts in 2037 (number or receptors)
No Action	9
W-4	0
C-3	1*
E-2	7**

*This receptor exceeds FHWA NACs but is displaced.
** Five of these impacted receptors are displaced.

Table 57. Predicted Noise Effects

No.	Address	Category	Existing L_{eq} dBA	No Action L_{eq} dBA	2037 W-4 L_{eq} dBA	2037 C-3 L_{eq} dBA	2037 E-2 L_{eq} dBA
1	3336 US 95	B	59.3	61.2	62.6	62.5	62.2
2	3335 US 95	B	55.6	57.4	59.0	58.5	59.4
3	3379 US 95	B	58.9	60.8	62.1	62.0	61.8
4	3455 US 95	B	57.9	59.8	58.0*	57.1*	41.6
5	3460 US 95	B	55.2	57.1	57.9	57.6	42.3
6	1010 Eid Rd	B	58.9	60.8	62.6*	62.4*	39.5
7	1971 Eid Rd	B	37.2	39.1	39.4	39.5	**56.9**
8	1071 Eid Rd, #5	B	37.3	39.1	39.4	39.6	**57.9***
9	1071 Eid Rd, #7	B	37.2	39.1	39.3	39.4	**58.9***
10	1071 Eid Rd, #9	B	37.1	39.0	39.2	39.3	**62.3***
11	1071 Eid Rd, #8	B	36.9	38.8	39.0	39.1	**60.9***
12	1071 Eid Rd, #2	B	36.9	38.8	39.1	39.2	**59.2***
13	1084 Eid Rd	B	36.8	38.7	39.0	39.1	**57.9**
14	3621 US 95	B	58.2	60.0	63.9*	38.5	32.9
15	3625 US 95	B	55.4	57.3	59.7	38.5	32.9
16	1005 Zeitler Rd	B	58.4	60.3	43.5	41.2	33.7
17	Undeveloped	G	34.5	36.3	35.2	38.5	42.7
18	Undeveloped	G	38.9	40.8	55.3	36.2	32.2
19	3672 US 95	B	60.1	62.0	43.6	40.7	33.7
20	3693 US 95	B	61.8	63.7	41.8	40.3	34.0
21	3125 US 95	B	54.5	56.4	41.8	40.2	34.0
22	3096 US 95	B	61.5	63.4	39.5	44.3	35.0
23	3094 US 95	B	63.7	65.6	39.5	44.4	35.0
24	3098 US 95	B	**67.1**	**69.0**	39.7	44.0	34.9
25	3082 US 95	B	60.7	62.6	39.4	44.8	35.1

No.	Address	Category	Existing L_{eq} dBA	No Action L_{eq} dBA	2037 W-4 L_{eq} dBA	2037 C-3 L_{eq} dBA	2037 E-2 L_{eq} dBA
26	3080 US 95	B	62.5	64.4	39.4	44.8	35.1
27	3060 US 95	B	62.6	64.5	39.1	45.7	35.4
28	3055 US 95	B	58.7	60.6	39.5	44.4	35.3
29	3045 US 95	B	59.4	61.3	39.0	44.8	35.9
30	3015 US 95	E	65.8	67.7	38.6	47.3	36.6
31	2979 US 95, #22	B	**66.7**	**68.6**	38.3	49.2	36.9
32	2979 US 95, #23	B	63.7	65.6	38.3	49.6	37.0
33	2979 US 95, #20	B	59.1	61.0	38.4	48.4	36.8
34	2979 US 95, #21	B	57.1	59.0	38.4	48.3	36.9
35	2979 US 95, #24	B	57.3	59.2	38.3	48.6	37.0
36	2979 US 95, #26	B	60.2	62.0	38.3	49.7	37.1
37	2979 US 95, #25	B	**67.0**	**68.9**	38.2	50.7	37.1
38	2979 US 95, #03	B	63.8	65.7	38.2	50.6	37.2
39	2979 US 95, #05	B	59.8	61.7	38.2	50.5	37.3
40	2979 US 95, #02	B	62.8	64.7	38.1	52.2	37.4
41	2979 US 95, #01	B	63.2	65.1	38.1	52.7	37.5
42	2949 Clyde Rd	B	58.5	60.4	38.1	52.5	37.6
43	2946 US 95	B	62.3	64.2	37.7	**69.0***	38.7
44	2936 US 95	B	59.6	61.5	37.7	60.1	39.2
45	2940 US 95	B	59.2	61.1	38.1	59.4	38.6
46	2922 US 95	B	**67.7**	**69.6**	38.0	64.8*	39.4
47	2921 Cameron Rd**	C	**67.1**	**69.0**	38.3	64.1*	39.7
48	2921 Cameron Rd**	C	**67.2**	**69.1**	38.3	64.1*	39.7
49	2921 Cameron Rd**	C	**67.4**	**69.3**	38.4	64.2*	39.7
50	2921 Cameron Rd**	C	59.2	61.1	38.2	58.1*	39.9
51	2921 Cameron Rd**	C	59.2	61.1	38.2	58.0*	40.0
52	2921 Cameron Rd**	C	59.0	60.9	38.1	57.9*	39.9
53	2880 US 95	B	65.5	**67.4**	39.0	62.9*	40.5
54	2880 US 95	F	65.4	67.3	39.0	62.8*	40.5
55	2860 US 95	F	64.4	66.3	39.0	62.3*	40.7
56	2850 US 95	F	65.9	67.8	39.2	63.3*	40.8
57	2848 US 95	B	65.8	**67.7**	39.4	63.6*	41.1
58	2845 US 95	B	59.8	61.7	39.8	60.3*	40.3
59	2820 US 95	F	65.3	67.2	39.8	63.4*	41.6
60	2822 US 95	B	55.7	57.6	39.7	55.7	42.4
61	2805 US 95	B	60.4	62.3	41.0	60.7	41.7
62	2740 US 95	F	59.0	60.9	43.0	58.6	45.8

No.	Address	Category	Existing L_{eq} dBA	No Action L_{eq} dBA	2037 W-4 L_{eq} dBA	2037 C-3 L_{eq} dBA	2037 E-2 L_{eq} dBA
63	2726 US 95	F	58.5	60.4	46.2	57.3	49.0
64	2720 US 95	F	64.0	65.9	52.0	62.4	52.2
65	2710 US 95	F	61.6	63.5	49.5	60.1	51.0
66	2670 US 95	F	64.4	66.3	54.6	62.8*	54.0
67	2650 US 95	F	64.8	66.7	56.3	63.2*	54.9
68	2650 US 95	F	66.1	68.0	59.2	64.5*	56.8
69	2551 US 95	F	62.2	64.1	62.4	60.8	54.9
70	2555 US 95	F	54.8	56.7	54.3	54.0	53.1
71	2500 US 95	B	54.5	56.4	54.3	53.8	57.8
72	2305 US 95	F	63.2	65.1	61.6	61.6	60.4
73	2205 US 95	F	62.8	64.7	61.4	61.4	60.7
74	2205 US 95	B	61.4	63.3	60.5	60.4	60.3
75	2113 US 95	F	59.6	61.5	59.7	59.3	59.7
76	2113 US 95	B	56.2	58.1	57.6	56.6	57.8

Bolded numbers indicate a noise impact

*-receptor will be displaced (receptors 47-52 are Green Acres RV Park and considered one displacement)

The seven impacts for the E-2 alignment would result from substantial increases from the existing noise levels of 15 dBA or more. Five of these impacted receptors are displaced. The remaining two receptors (Receptors 7 and 13) would be considered a noise impact.

Receptor 18 shows a substantial increase with the W-4 alignment, however it is a Category G receptor, undeveloped and unplatted lands, therefore it has no NAC threshold and is not considered an impact. See the Noise Technical Report for details.

4.12.2 Noise Abatement

23 CFR 772 requires that if a noise impact is identified then noise abatement must be considered. Measures which are determined to be both reasonable and feasible should be incorporated into the project. ITD worksheets for feasibility and reasonability are included in the Noise Technical Report.

The required considerations for abatement include:

- Acquisition of property rights for construction of noise barriers
- Construction of noise barriers
- Noise insulation of public use or non-profit institutional structures

Optional considerations for abatement include:

- Traffic management measures
- Alteration of horizontal and vertical alignments
- Acquisition of real property or interests therein for buffer zones

The required and optional abatement measures were not considered feasible and reasonable for the impacted receptors which were not displaced. However, any future receptors should be required to adhere to setback regulations deemed appropriate by the local jurisdiction. The two impacted receptors (Receptors 7 and 13) that are not displaced by the E-2 Alternative are located along Eid Road. The E-2 Alignment would be on an elevated bridge structure near the receptors. Construction of a noise wall on the bridge structure would be feasible but would not be reasonable based on the cost benefit calculations. See Noise Technical Report for details.

4.13 Air Quality Effects

4.13.1 Air Quality

The project is located in an attainment area for PM_{10}, $PM_{2.5}$ and CO so no quantitative air quality conformity analysis was conducted. This project would not affect any roadways for which forecast traffic numbers would exceed the screening volumes as determined by ITD Project Level Air Quality Screening Procedure. The project is also considered in the regional transportation planning documents which consider the cumulative effects of transportation projects on regional air quality. No project-level air quality concerns were raised during the DEIS development that would require evaluation. It can therefore be concluded that the project would have no significant adverse effect on air quality or and CO, PM_{10} or $PM_{2.5}$ concentrations. There are currently no EPA models or methodologies available to analyze individual projects for their potential to cause or contribute to PM_{10} or $PM_{2.5}$ concentrations.

4.13.2 Mobile Source Air Toxins (MSAT)

The realigned and additional travel lanes resulting from the Action Alternatives would move some traffic closer to nearby homes, schools, and businesses. Therefore, each alternative may have localized areas where ambient concentrations of MSAT could be higher than the No Action Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the realigned roadway sections that would be built as part of alternatives W-4 and E-2. The magnitude and the duration of these potential increases resulting from the Action Alternatives compared to the No Action Alternative cannot be reliably quantified

due to incomplete or unavailable information in forecasting project-specific MSAT health effects.

Effects could be offset with increased speeds and reduced congestion that is associated with lower MSAT emissions for the Action Alternatives. Also, MSAT would be lower in other locations such as near the existing US-95 alignment when the majority of the traffic shifts away from most of the sensitive receptors in the area.

On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, would over time, in almost all cases, cause regionwide MSAT levels to be significantly lower than today.

4.13.3 Greenhouse Gas Emissions (GHG)

While there are no accurate methods for predicting project effects to climate change, climate change is believed to be associated with the emissions of greenhouse gases (GHG) such as CO_2. GHG emissions, including CO_2, are directly related to energy consumed. Surface transportation-related emissions can be related to VMT. Table 58. Estimated Vehicle Miles Traveled (VMT) shows the calculated and projected VMTs for the No Action and Action Alternatives. Fuel consumption by alternative is in Section 4.15 Energy Effects.

Table 58. Estimated Vehicle Miles Traveled (VMT)

Alternative	Existing 2010 VMT	Projected 2037 VMT
No Action	34,008	54,042
W-4	35,885	57,026
C-3	31,862	50,633
E-2	31,433	49,951

E-2 is expected to have the lowest projected VMT and to generate the least amount of GHGs by 2037. E-2 would result in a 7.6 percent decrease in VMTs compared to the No Action Alternative.

Examples of strategies being implemented to reduce GHG levels include providing alternatives to driving alone (such as carpooling, vanpooling, and transit); developing transportation facilities that encourage transit, high-occupancy vehicle (HOV), bike, and pedestrian modes; supporting land use planning and development that encourage such travel

modes (such as concentrating growth within urban growth areas); and optimizing system efficiency. While the project would not preclude implementation of these strategies, due to the rural nature of the project area they are not included as part of the project alternatives.

4.14 Hazardous Materials Effects

The Hazardous Materials Scan prepared for the project identified sites with Underground Storage Tanks (USTs), Aboveground Storage Tanks (ASTs), and other sites containing hazardous materials and requiring cleanup. Table 59. Hazardous Material Sites Effects summarizes the effects by alternative. Exhibit 32. Hazardous Material Site Effects shows the location of the hazardous material sites relative to the Action Alternatives. See the Hazardous Materials Technical Report for more detail. Mitigation measures are discussed in Chapter 9, Environmental Commitments.

No Action

The No Action Alternative would not require right-of-way acquisition or major construction. Therefore, there would be no effects to hazardous material sites.

W-4

This alternative would affect four sites, primarily ASTs associated with farms and residences such as propane tanks and petroleum tanks of 500 gallons or less. These would be properly handled and disposed of during right-of-way acquisition and would pose a low risk.

C-3

C-3 would affect 13 sites, one of which is Goodman Oil, a listed site with a contaminated plume. This would need to be remediated if acquired. The remaining sites are low risk because there are no records of leakage and they are easily visible.

E-2 (Preferred Alternative)

E-2 would affect four sites, primarily ASTs that contain primarily propane or petroleum in tanks of 500 gallons or less. These would pose a low risk to the project because they are not leaking and are easily visible. The vast majority of homes built before 1950 contained substantial amounts of lead-based paint. Due to the age of many of the existing structures there is the potential risk of lead-based paint and asbestos contained in the structures that would be demolished by each alternative.

Exhibit 32. Hazardous Material Site Effects

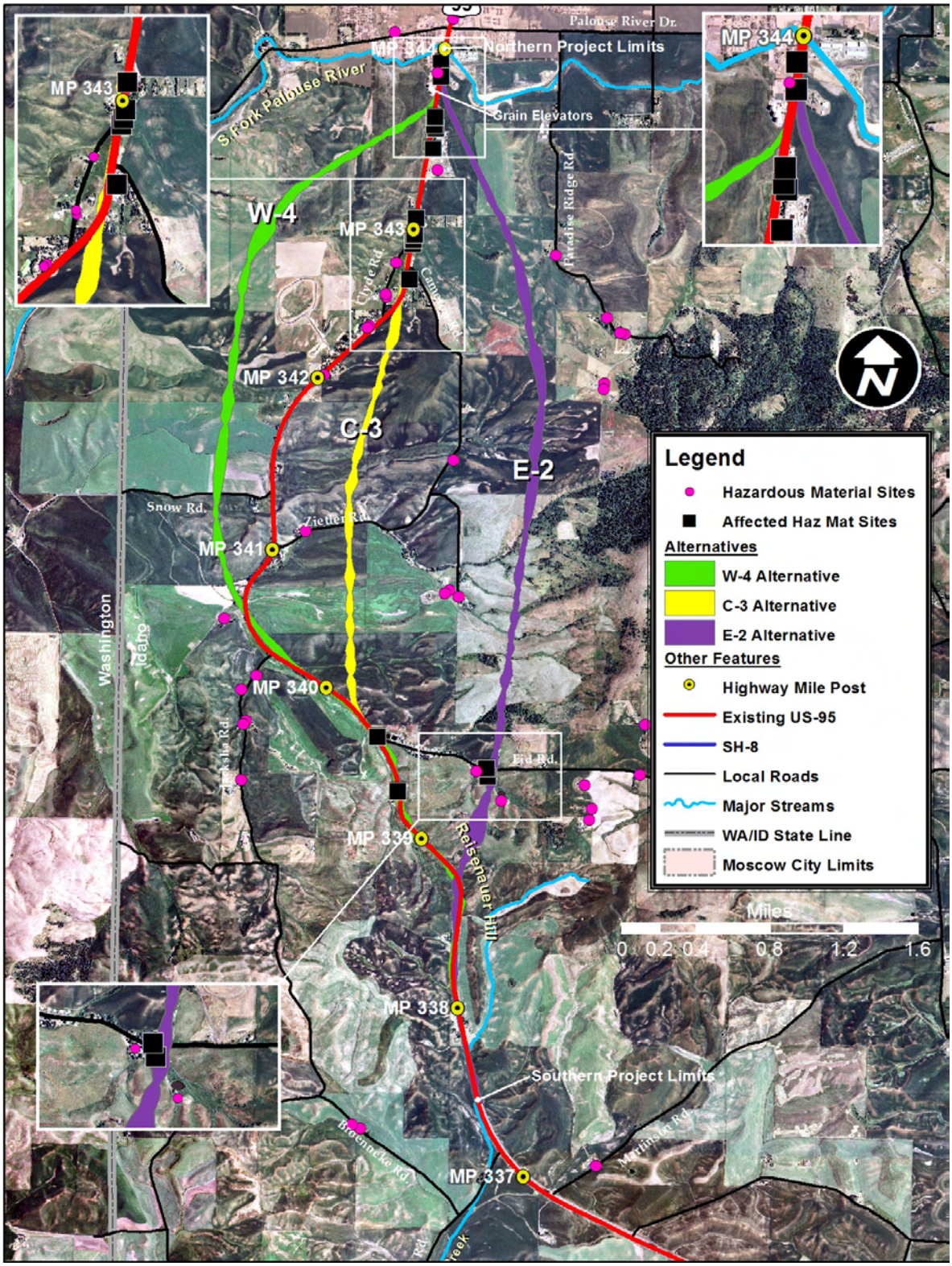


Table 59. Hazardous Material Sites Effects

Alternative	Number of Affected Sites	Location and Description of Affected Sites
No Action	0	None
W-4	4	Four 200 to 500 gallon tanks with propane or petroleum
		3460 Hwy 95 (Private-propane)
		2500 Hwy 95 (Private-AST*)
		2211 Hwy 95 (Boat shop-removed UST**)
		1010 Eid Rd (Private-propane)
C-3	13	Thirteen properties with 200-500 gallon tanks with propane, petroleum or oil tanks. The Goodman Oil property also has 3 bulk storage ASTs and a subsurface plume could be affected if acquired.
		3460 Hwy 95(Private-propane)
		2500 Hwy 95 (Private-AST)
		2211 Hwy 95 (Boat shop-removed UST)
		2710 Hwy 95 (Gary's Heating & Oil-petroleum)
		2710 Hwy 95 (Goodman's Oil-Petroleum pumps & AST)
		2922 Hwy 95 (Johnson's Trucking-UST & AST)
		2880 Hwy 95 (Mr. Cabinet Mfg.-propane)
		2850 Hwy 95 (Private-propane)
		2848 Hwy 95 (Upholstery shop-propane)
		2820 Hwy 95 (Private-propane)
		2650 Hwy 95 (Business-propane)
		Hwy 95 (Mundy's Machine and Welding-propane)
		1010 Eid Rd. (Private-propane)
E-2	4	Four 200-500 gallon tanks with propane or petroleum
		2500 Hwy 95 (Private-AST)
		2211 Hwy 95 (Boat shop-removed UST)
		1071 #7 Eid Rd. (Private-propane)
		1084 Eid Rd. (Private-propane)

* AST=Aboveground Storage Tank

** UST=Underground Storage Tank

4.15 Energy Effects

The alternatives are expected to result in slightly different operational energy usage. The alignments presented in this DEIS have been designed utilizing the same criteria. All have a posted speed of 65 mph in the rural section and 45 mph at the north end, in the urban area. All alternatives would traverse the rolling terrain of the Palouse and have similar maximum grades and curvature.

Operational energy usage by alternative was estimated by projecting the alternatives' ADTs for the 2037 design year then calculating the projected VMTs. The fuel usage per alternative was based on vehicle type (heavy truck or passenger vehicle) consumption rates and the highway length for each alternative. Table 60. Estimated Operational Energy Use summarizes the results per alternative.

Table 60. Estimated Operational Energy Use

Alternative	Alternative Length	Projected 2037 VMT	Projected 2037 Fuel Use (gal/day)
No Action	6.34	54,042	2,939
W-4	6.69	57,026	3,101
C-3	5.94	50,633	2,753
E-2	5.86	49,951	2,716

Total fuel consumption for this segment of US-95 is currently estimated to be 1,773 gallons per day. The No Action Alternative is estimated to utilize 2,939 gallons of fuel per day by the 2037 design year. Based on the results, E-2, which is the shortest alignment, would result in the least fuel usage through the project corridor.

4.16 Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Council for Environmental Quality (CEQ) NEPA Regulations [40 CFR 1502.16] requires discussion of the "relationship between short term uses of the environment and the maintenance and enhancement of long-term productivity" as part of an EIS. The proposed action was evaluated to determine whether long-term benefits are worth the short-term effects. Short-term effects are anticipated with the construction of any Action Alternative. These include, but are not limited to, travel delays, traffic congestion, restricted access to residences and the commercial establishments in the project area, visual intrusions to residents and motorists, noise to residents and other effects. The need for short-term and

long-term transportation improvements is analyzed in an iterative, on-going planning effort at all levels of government.

The maintenance and enhancement of long-term productivity of the environmental resources of an area is based on a number of different factors, including transportation systems. The need for present and future transportation improvements is programmed and analyzed as part of the compilation of the Idaho Transportation Investment Program (ITIP). These plans take into account the requirements for long-term productivity of the transportation system.

The improvement of the aging transportation infrastructure contributes to the maintenance and enhancement of long-term productivity of the communities in the project area and would outweigh the short-term effects. Additionally, US-95 is identified as a NAFTA route, which connects Canada to Mexico through Idaho and other western states, and contributes beyond the local and regional long-term productivity of this community.

ITD is committed to mitigating both short- and long-term effects to the environment.

4.17 Irreversible and Irretrievable Commitment of Resources

CEQ's NEPA regulations require discussion of any irreversible or irretrievable commitment of resources in implementing a federally funded project [40 CFR 1502.16]. This applies primarily to use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods of time. The irretrievability of those resources applies to the loss of production, harvest, or use of natural resources. The implementation of any of the Action Alternatives would require a commitment of a range of natural, physical, human, and fiscal resources. The conversion of private land from existing residential, agricultural, commercial, and native habitat uses to public highway is considered an irreversible commitment of resources. Despite that, if at some future time a greater need arises for use of the land or if the proposed public highway is no longer needed, the land could be converted to another use. To the greatest extent possible, the Action Alternatives would use existing right-of-way (ROW). See Table 61. Right-of-Way Effects.

Table 61. Right-of-Way Effects

Alternative	New ROW	Existing ROW	Total ROW
No Action	0	0	0
W-4	210	49	259
C-3	154	55	209
E-2	207	22	229

Regarding fiscal resources, the Action Alternatives would require the commitment of funds for constructing, operating, and maintaining the proposed roadway. Funds would be required for right-of-way acquisition, construction, mitigation, and long-term maintenance of the new facilities. The use of public funds for the proposed action would be irreversible and irretrievable. Considerable amounts of labor, fossil fuels, and highway construction materials would be expended and would not be retrievable. Concrete, aggregate materials used in concrete and asphalt production such as sand and gravel, along with steel, water, and bituminous material, would all be used for the proposed action. Additionally, large amounts of labor and natural resources would be used in the fabrication, preparation, and transportation of construction materials. Such expenditures generally are not retrievable. The proposed action has the potential to change land use patterns in the project area by increasing visibility of, and accessibility to, developable land. Such change in land use patterns could result in different effects on the social, built, and natural environment, than otherwise would occur with existing development patterns.

Where historic resources are adversely affected such use would be irretrievable but would be minimized and mitigated. The proposed action also would replace land currently functioning as wildlife habitat, riparian areas, and wetlands with highway lanes and approaches. Where wetlands or floodplains cannot be avoided or effects cannot be further minimized, the proposed action would compensate for lost functions and values through compensatory mitigation. While wetland and floodplain mitigation are intended to create additional wetlands or floodplains that restore functions, the loss of the actual habitat affected is considered irreversible. The commitment of the aforementioned resources is based on the concept that residents in the immediate area, region and state would benefit from the improved facility, as would NAFTA related travel. These benefits would consist of improved safety, and increased capacity to accommodate current and future traffic demand.