

4.6. Vegetation and Wildlife

4.6.1. Introduction

Section 4.6 of this Revised EA presents a description of resources and analysis of impacts of the proposed action on vegetation and wildlife, including plant and animal species listed under the federal ESA.

This section of the Revised EA includes a summary of vegetation and wildlife resources as presented in the January 2006 EA (Jones & Stokes 2006), as well as clarification of impacts and mitigation measures for the proposed action. Additional discussion is presented on the scale of impacts from the proposed action relative to existing wildlife populations and habitat and proposed mitigation measures to compensate for impacts on vegetation and wildlife. This information is presented below to address public comments received on the proposed action as presented in the January 2006 EA.

Spokane County received 37 public comments regarding the extent or nature of impacts on vegetation and wildlife (Appendix 3 categories 40.0, 40.1, 40.2, and 40.5). Numerous public comments mentioned the diversity of wildlife regularly seen by local residents and expressed concern for impacts on wildlife in general (in addition to deer, elk, and moose) including cougar, Columbian ground squirrels, owls, ravens, bald eagles, downy woodpeckers, quail, ring-necked pheasants, wild turkey, house finches, towhees, crossbills, bluebirds, grosbeaks, varied thrushes, goldfinches, flickers, and meadowlarks.

More than half of the “wildlife” comments specifically mentioned concerns for deer, elk, and moose populations, potential effects on their foraging and wintering habitat, and potential road-related mortality from vehicle collisions.

4.6.2. What vegetation and wildlife resources are present in the project area?

Vegetation and General Wildlife

The western end of the existing alignment passes through steep hills and valleys associated with the Bigelow Gulch Creek ravine; the eastern end passes through similar though less steep hills along Forker Road and Streams 7, 8, 9, and 10. A mixture of Douglas-fir and remnants of open ponderosa pine forest characterize these areas. Approximately 4 square miles of such forests remain in the area surrounding the western end of the existing and proposed action alignments according to the WDFW (2007). These forests provide winter habitat for white-tailed deer and potentially support a variety of other forest-adapted species such as northern

saw-whet and pygmy owls, red-tailed hawks, pileated and downy woodpeckers, elk, moose, cougars, and a variety of native and migratory songbirds. More than 12 square miles of forested habitat fringe the eastern end of the alignments in the areas surrounding Antoine Peak (WDFW 2007). These areas also support wintering white-tailed deer, moose, elk, and a variety of native forest wildlife.

The middle section of the existing roadway and proposed Urban Connector Alignment is characterized by a mixture of agricultural lands interspersed with remnant patches of mixed forests. These areas provide foraging and cover habitat for deer and elk, raptors such as red-tailed hawks, great horned owls, turkeys, quail, pheasant, and a variety of small mammals (e.g., shrews, voles, mice) and songbirds.

The eastern section of the existing and proposed alignment along Progress and Sullivan roads and within the City of Spokane Valley is a mixture of agricultural and suburban lands. These areas provide deer foraging and cover, some habitat for raptors and songbirds, and habitat for more urban-adapted wildlife such as raccoons and opossums.

Remnant old-growth ponderosa pine forests are present approximately 1 to 2 miles north of Bigelow Gulch Road at Jensen Road (WDFW 2007). The WDFW priority habitats and species (PHS) data also indicates that approximately 10 to 20 tundra swans regularly forage during the winter in an area approximately 0.5 mile due west (but outside of the project area) of the Palmer/Bigelow Gulch Road intersection. Tundra swans forage in eastern Washington between the Spokane River Valley and Coeur d'Alene, Idaho, usually in wetlands and agricultural fields.

Elk, White-Tailed Deer, and Moose

According to the Spokane River Subbasin plan (WDFW 2000), data are limited for elk populations located north of the Spokane River. The management emphasis for elk is to maintain small herds with a wide distribution to reduce complaints of depredation (damage to trees, shrubs, and agricultural crops), which results from the concentration of large elk throughout their range (WDFW 2000).

According to WDFW, the elk herd in the Orchard Prairie area ranges from 20 to 35 individuals, with elk most often observed in the vicinity of Bigelow Gulch and Palmer roads (Lawlor pers. comm., Ferguson pers. comm.). The herd size is relatively stable, but declines in mature bulls (male elk) may be occurring (Ferguson, WDFW, pers comm.). Individual elk have been observed and reported crossing the existing roadway in the vicinity of the Palmer Road and Bigelow Gulch Road intersection and at other random locations along the existing alignment (Lawlor pers. comm., Ferguson, pers. comm.). However, there are no known or documented elk migratory routes crossing the existing alignment or proposed alignment (WDFW 2007).

Populations of moose are believed to be increasing and expanding their range within the Spokane River subbasin, possibly due to favorable production of forage plants following past logging (WDFW 2000). Habitat disturbance, increasing road densities, and the interspersed and spacing of foraging and cover habitats are likely factors limiting moose populations; moose are also highly susceptible to poaching (WDFW 2000). Moose are most commonly associated with cover habitat in undisturbed forested areas and foraging habitat with a mixture of forested cover and aquatic vegetation associated with wetlands.

Mule deer populations north of the Spokane River appear to be declining due to increasing urbanization, fire suppression, and logging practices and consequent habitat fragmentation (WDFW 2000). High road densities contribute to habitat fragmentation and mortality. White-tailed deer populations are also affected by habitat fragmentation. They are also susceptible to Epizootic Hemorrhagic Disease outbreaks (WDFW 2000).

As shown on Figure 4.3-1 of this Revised EA, the area north and south of the western end of Bigelow Gulch Road and proposed Urban Connector Alignment passes through remnant ponderosa pine forests that have been designated by WDFW as urban natural open space. This area is designated as white-tailed deer winter range habitat. Similarly, the rural area approximately 0.5 to 1.5 miles due east and northeast of the eastern end of both the existing and proposed alignments is also designated by WDFW as white-tailed deer winter range; moose use this area periodically and during severe winters (WDFW 2007; Spokane County Critical Areas Map 2005). Moose also regularly inhabit the extensive forested area approximately 1 to 2 miles north of the central and eastern sections of both the existing and proposed alignments of Bigelow Gulch Road. This area is both a calving and concentrated winter use area for moose.

State- and Federally Listed Plant and Wildlife Species and Species of Concern

U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, DNR, and WDFW were contacted to determine if any federally or state-listed species have been documented within the project area or its immediate vicinity. No plant, fish, or wildlife species that are federally or state-listed as endangered, threatened, candidate, monitor, or species of concern are documented along or in the immediate vicinity of either the existing or proposed alignments of Bigelow Gulch Road (DNR 2006; WDFW PHS data, January 11, 2007).

Although local residents have observed bald eagles (*Haliaeetus leucocephalus*), a state threatened species, flying over or perched in trees within the project area, they are not known to regularly nest or roost within the project area (WDFW PHS data January 11, 2007). There are no documented bald eagle nests or regular occurrences

of wintering bald eagles within the project area, likely due to the distance from large water bodies (WDFW 2007). The nearest area with regular occurrences of wintering bald eagles is approximately 2 to 3 miles south of Bigelow Gulch Road along the Spokane River (WDFW 2007). Bald eagles are opportunistic feeders that may feed on small mammals and waterfowl found in open habitats such as meadows and fields, in addition to fish from large water bodies. They may also scavenge deer or elk carcasses. The bald eagle was officially de-listed as a federally threatened species on June 29, 2007.

Eastern Washington, and thus the greater project area, is within the historical range of one state- and federally listed threatened plant, water howellia (*Howellia aquatilis*) (Washington Department of Natural Resources 2000; USFWS 1996) Of the 70 colonies of water howellia known to remain within its historical range, 19 are found within the general vicinity of Spokane, Washington. Water howellia is a branched aquatic plant that grows in firm, consolidated clay and organic sediments in wetlands that formed in ephemeral glacial pothole ponds and former river oxbows (Shelly and Moseley 1988). All known colonies of this aquatic plant occur in wetlands located within the forested portions of the channeled scablands, and all recorded sites in Washington either have or historically have had forested components of quaking aspen (*Populus tremuloides*). Other associated plant species include: Pacific Northwest natives water parsnip (*Sium suave*), burreed (*Sparganium* spp.), bladderwort (*Utricularia* spp.), pondweed (*Potamogeton* spp.), and inflated sedge (*Carex versicaria*), as well as invasive reed canarygrass (*Phalaris arundinacea*).

The nearest colony of water howellia to the project area was documented in 2002 within a protected natural area approximately 4 miles southwest of the center of the existing Bigelow Gulch Road (DNR 2006). Based on its habitat requirements and associated plant communities, water howellia is not expected to occur in artificial ponds, but it is known to occur in small (less than 1 acre) natural ponds in grazed lands and near highways (Gamon pers. comm.).

Of the nine currently identified wetlands located along the proposed action alignment, Wetlands 2, 5, 7, and 8 appear to be capable of supporting submersed aquatic vegetation based on hydroperiod (as evidenced by existing vegetation species); however, Wetlands 5, 7, and 8 are artificial ponds and are thus not likely to support water howellia. No information has been gathered regarding the nature of the sediments within these wetlands; plant community composition data is also limited. Upon further field examination in March 2007, Wetland 9 was determined to not be a wetland and is vegetated by common tansy (*Tanacetum vulgare*), a weedy plant associated with uplands. The other currently identified wetlands do not provide appropriate habitat for water howellia due to the disturbed, ditched nature; insufficient hydroperiod; and/or dominance by dense shrubs.

Eastern Washington is also within the historical range of one state- and federally listed candidate bird, the yellow-billed cuckoo (*Coccyzus americanus*) (USFWS 2001). Yellow-billed cuckoos nest within deciduous woodlands associated with wetlands and streams. However, there are only two confirmed records of yellow-billed cuckoos in eastern Washington; none is in Spokane County, and both occurred more than 29 years ago (Okanogan County in 1956 and Grant County in 1978) (Weber and Larrison 1977; Roberson 1980). Thus, it is extremely unlikely that yellow-billed cuckoos are present within the project vicinity.

One occurrence of a state candidate falcon, the merlin (*Falco columbarius*), was recorded approximately 4 miles southwest of the western end of the project area within the City of Spokane along the Spokane River. Merlins may perch and hunt small birds within the open fields and remnant ponderosa pine forests that surround the existing and proposed alignments.

Nesting osprey (*Pandion haliaetus*), a state monitor species, is documented 2 to 3 miles to the south of the project area along the Spokane River. The thicket hairstreak butterfly (*Mitoura spinetorum spinetorum*), also a state monitor species, has been recorded within the Dishman Hills Natural Area approximately 4.5 miles south of the project area (WDFW 2007). The range of the thicket hairstreak is from British Columbia south into New Mexico and Mexico. Habitat requirements are mixed woodlands and coniferous forests containing dwarf mistletoe (*Arceuthobium* sp.) (Opler et. al 2007).

4.6.3. What regulations apply to vegetation and wildlife?

Federal

Endangered Species Act

The federal ESA of 1973 and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems on which they depend. ESA Section 7 requires federal agencies, in consultation with the Secretary of the Interior, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of habitat critical for these species.

Regulations governing interagency cooperation under ESA Section 7 are found in 50 CFR 402.

Fish and Wildlife Coordination Act

ESA provides that whenever the waters or channel of a body of water are modified by a department or agency of the U.S., the department or agency first shall consult with USFWS and with the head of the agency exercising administration over the wildlife resources of the state where construction will occur, with a view to the

conservation of wildlife resources. ESA provides that land, water, and interests may be acquired by federal construction agencies for wildlife conservation and development. In addition, real property under jurisdiction or control of a federal agency that is no longer required by that agency can be used for wildlife conservation by the state agency exercising administration over wildlife resources upon that property.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits the taking of both bald and golden eagles or any parts, nests, or eggs. This act prohibits killing, collection, and disturbance of these species. Project activities that caused direct mortality of these species or removal or alteration of a nest site would likely not be in compliance with this act; however, such consequences are not expected to occur.

Executive Order 13186: Migratory Bird Treaty Act

Executive Order 13186 was signed on January 10, 2001 and is intended to assist federal agencies in their efforts to comply with the Migratory Bird Treaty Act. It does not constitute any legal authorization to take migratory birds. Take, under the Migratory Bird Treaty Act, is defined as “the action of or attempt to pursue, hunt, shoot, capture, collect, or kill” (50 CFR 10.12) and includes intentional take (i.e., take that is the purpose of the activity in question) and unintentional take (i.e., take that results from, but is not the purpose of, the activity in question).

Executive Order 13186 directs each federal agency taking actions that could adversely affect migratory bird populations to work with USFWS to develop a memorandum of understanding that will promote the conservation of migratory bird populations. Protocols developed under the memorandum of understanding will include the following agency responsibilities:

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
- Restore and enhance habitat of migratory birds, as practicable.
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

State

State Environmental Policy Act

The Washington State Environmental Policy Act (SEPA) uses federal classifications to assist with agency management programs and decision-making. SEPA requires the analysis of affected resources and potential impacts with the requirement to mitigate or select a different alternative should such impacts occur. The state also defines priority habitats as those habitats having unique or significant value to

species because they contain a unique vegetation type or a specific habitat element that is key to wildlife and vegetation.

Local

Spokane County Code 11.20.060 Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservation areas defined in Section 11.20.060 of the SCC are based on species and habitat information adopted from the Washington State Priority Habitats and Species Program. Parts (b) and (c) of that section specify the regulated uses and activities within priority habitats, and the performance standards for the regulated uses and activities. Critical areas and applicable attributes are described in the code.

4.6.4. How were potential effects evaluated?

The analysis of impacts involved the compilation and review of vegetation information, review of aerial photographs, conduct of field investigations, and review of wildlife information from reports and WDFW resource information.

Of importance was the consideration of potential impacts on endangered or threatened plant or wildlife species or substantial loss of a sensitive native plant community as defined by Washington Natural Heritage Program (WNHP). Of additional importance were potential adverse effects to a special-status species resulting in a net adverse change to the habitat of the species, a change in the ability of any resident or migratory wildlife species to successfully migrate.

The following sources were used to determine the potential presence of special-status plant species in the affected area:

- DNR WNHP Database (DNR 2006) of known locations of special-status plant species; and
- USFWS lists of Listed and Proposed Endangered and Threatened Species and Critical Habitat, Candidate Species, and Species of Concern for Spokane County (revised December 20, 2005) (USFWS 2006).

Where specific data on plant occurrences were not available, a determination on the probability of each species occurrence was based on the known habitat associations of each, with sources cited in the text.

Impacts related to vegetation and wildlife were based on identification of vegetation types from aerial photographs and field checks and calculation of vegetation types/land uses using GIS. The proposed Urban Connector Alignment was superimposed on the vegetation types to determine the approximate acreage of

vegetation and wildlife habitats. Other information was drawn from a variety of sources including PHS data from WDFW (WDFW 2007), WNHP data, current field guides, and information collected during various site visits. Relevant scientific literature and reports were also reviewed for information on construction- and operation-related impacts on individual species or species groups.

4.6.5. What impacts would the Urban Connector Alignment have on vegetation and wildlife?

Proposed Action

How would construction affect vegetation and wildlife?

Impacts on Vegetation and General Wildlife

Construction of the Urban Connector Alignment would permanently convert a variety of existing vegetation along the proposed alignment to impervious surface and seeded and planted areas. The approximate acreages of impact are presented in Table 4.6-1.

Table 4.6-1. Existing Vegetation/Land Use within the Cut-and-Fill Footprint of the Urban Corridor Alignment

Vegetation/Land Use Type	Acres	Percent
Forest	21.10	14.7
Grass/scattered trees/shrubs	16.70	11.6
Agriculture	50.00	34.7
Grass/recreation (school)	3.40	2.4
Existing impervious	33.90	23.5
Other (developed, access roads, ruderal)	18.20	13.1
Wetlands	0.71	<0.01
Total	144.00¹	100.0

¹ Total acreage is a calculation of total area of disturbance within the proposed Urban Corridor (i.e., cut and fill line).

Source: Jones & Stokes GIS analysis

Of the 144 acres of impact, approximately 90.7 acres (63%) would be impervious surface (i.e., roadway, paved shoulders, and stormwater control), with the remaining 53.5 acres (37%) to be seeded and/or planted with shrubs. The 53.5 acres would include cut slopes and clear zones on each side of the roadway.

Of the combined 37.8 acres of Douglas-fir and ponderosa pine forest and grass/scattered trees and shrubs, approximately 55% of impact (20.6 acres) would occur at the western end of the proposed alignment as the roadway is widened; the

remaining 17.2 acres (45%) of impact on forested and grass/scattered trees and shrub vegetation would occur along Forker Road at the eastern end of the proposed alignment.

The incremental loss of forested and grass/scattered trees and shrub vegetation at the western end of the alignment represents approximately 0.8% of a contiguous forested and grass/scattered trees and shrubs habitat that stretches across approximately 4 square miles from the Mt. St. Michael area to the north, south to the Little Baldy and Beacon Hill area, and east of Thierman Road.

The loss of 17.2 acres of forested and grass/scattered trees and shrub vegetation along the eastern end of the proposed alignment represents approximately 0.2% of a more than 12-square-mile area of forested and grass/scattered trees and shrubs habitat stretching east through the Antoine Peak area.

These losses would incrementally reduce the habitat available for wintering white-tailed deer and a variety of other forest-adapted species such as northern saw-whet and pygmy owls, red-tailed hawks, pileated and downy woodpeckers, elk, moose, cougars, and a variety of native and migratory songbirds.

Approximately 71.6 acres of non-forested, largely agricultural fields, grass recreation fields, and developed areas and 0.71 acre of wetland would be impacted by the proposed Urban Connector Alignment. These losses would incrementally reduce the habitat available for foraging by deer and elk, raptors such as red-tailed hawks, great horned owls, turkeys, quail, pheasant, and a variety of small mammals (e.g., shrews, voles, mice) and songbirds. The 53.5 acres to be seeded and/or planted to shrubs would provide increased browse for some species.

Construction of the proposed Urban Connector Alignment would result in habitat fragmentation through the widening of the existing roadway. Additionally, the roadway may result in decreased use of adjacent habitat by wildlife, particularly elk and deer. Rowland et al. (2004), found a decline in use of habitat by elk in the vicinity of roads.

Impacts on State- and Federally Listed Plant and Wildlife Species and Species of Concern

Because it is extremely unlikely that yellow-billed cuckoos still occur within Spokane County, the proposed action would not impact this species.

Wetlands that have aquatic characteristics potentially suitable for water howellia would be impacted by the proposed action. Approximately 0.71 acre of wetland impacts and approximately 7.6 acres of buffer impacts are proposed to four currently identified wetlands that may be suitable for water howellia. However, given the rarity of water howellia and the disturbed nature of the wetlands, the likelihood of this species occurring in any of the wetlands within the project area is low.

This conclusion is supported by USFWS concurrence on the Biological Assessment for the proposed action. On September 5, 2003, USFWS completed ESA consultation for the proposed action and concluded that the proposed action is “not likely to adversely affect” water howellia (see Appendix F to 2006 EA for USFWS 2003 letter) based on the general lack of appropriate habitat within the project area and the rarity of this species.

Bald eagles are not likely to be impacted by construction or operation of the proposed action because they 1) do not nest in or near the project area; 2) do not regularly concentrate during the winter within the project area; and 3) opportunistically forage over a variety of habitats.

Merlins are not likely to be impacted by construction or operation of the proposed action because they range over a large area and hunt small birds that inhabit a variety of habitats that are prevalent in the surrounding area.

Appropriate habitat for osprey (large water bodies with fish) is not present along the existing or proposed alignment and thus these species are not likely to inhabit or use the project area. This species would thus not be affected by the construction or operation of the proposed action.

Thicket hairstreak butterflies occupy mixed woodlands and coniferous forests with dwarf mistletoe (*Arceuthobium* sp.) Approximately 21.1 acres of mixed forest, including areas of mature ponderosa pine, would be removed by the proposed action at both the west and east ends of the project area. No thicket hairstreak butterflies have been reported; however, information regarding the occurrence of this species in Spokane County is limited. Given the presence of ponderosa pine, there is potential for the species to occur in the area. As required by SCC, all development would be subject to the regulations set forth in the CAO Chapter 11.20 and the requirements associated with permits such as Section 404 approval from the U.S. Army Corps of Engineers. Assuming that all requirements for such use would be fulfilled, the indirect impacts would not be considered significant.

How would operation of the project affect vegetation and wildlife?

Wildlife Mortality Associated with Vehicle Collisions

Road-related wildlife mortality does currently occur on Bigelow Gulch Road and would continue and is likely to increase both without the project and under the proposed action due to expected increases in traffic volumes.

Along the western end of the alignment, the roadway passes through steeper, more forested terrain associated with the Bigelow Gulch Creek (Stream 1). This section of roadway currently has signs warning motorists of deer.

The proposed wider roadway and wider clear zone on each side of the roadway would improve the field of view for drivers along this section of roadway. The wider field of view would allow drivers greater time to react to wildlife visible in the roadway or within the clear zone. Deer may be attracted to the grass-covered shoulders and less brushy cover immediately adjacent to the roadway, but there would also be increased visibility between wildlife and motorists and increased reaction time to avoid collisions.

According to Spokane County Public Works, records of reported accidents involving deer and moose have included 12 collisions with deer and one collision with a moose between 1993 and 2005; there have been no reported accidents involving elk. Eleven of the deer collisions occurred along the western end of Bigelow Gulch Road, primarily west of Argonne Road. One deer collision occurred in 1996 along Forker Road near its intersection with Progress Road, and the moose collision also occurred along Forker Road just before Jacobs Road in 2002. These numbers represents unknown percentages of vehicle-related mortality, since it is likely that some animal collisions are not reported to Spokane County. These data also indicate that, while deer collisions do occur, the numbers are relatively low, with the risk of collisions highest at the west end of Bigelow Gulch Road and along Forker Road. Some level of road-related mortality would likely occur with white-tailed deer; however, it is unlikely that the mortality would ever represent a significant impact to the local deer population.

WSDOT has developed a statewide deer kill database for state highways based on the number of animals removed from state highway right-of-ways (Carey 2001). From 2,400 to 3,000 deer and elk are recovered each year from state highways. These numbers do not include animals hit on county or city roads or animals removed by non-WSDOT personnel. The data indicate that white-tailed deer mortality is high to moderate in Okanogan, Pend Oreille, and Stevens Counties, with several pockets of high mortality along State Route (SR) 291 and SR 395 in Spokane County. Peak collision periods occur during the fall rut, during migration, and during the winter (Carey 2001). During a 10-year period from 1996 to 2005, WSDOT reported mortality of 1,392 white-tailed deer on state highways in Spokane County, or an average of approximately 139 per year (Fursman pers. comm.).

Road mortality data for elk from the 2001 WSDOT study indicated low elk mortality on state highways in Spokane County (Carey 2001). Few detailed studies of highway mortality for elk have been conducted in Washington State. One study, undertaken on SR 410 in Pierce County by the Muckleshoot Indian Tribe, calculated road mortality from radio-collared cow elk. Preliminary results of that study estimated 1.25% of the winter mortality of the elk herd (herd size of 600 animals) attributable to road mortality (Muckleshoot Indian Tribe in U.S. Forest Service 2004). As with white-tailed deer, some level of road-related mortality would likely occur with elk;

however, it is unlikely that the mortality would ever reach a high enough level to represent a significant impact to the local elk population (estimated at 35 elk).

A variety of methods have been developed and used in an attempt to reduce accidents involving deer and elk. According to Hedlund et al. (2004), overpasses are the most effective method, but only where there are established migration routes. Despite the proximity of winter concentration areas of deer in the project area, no known migration corridors cross the project area (WDFW 2007). Instead, more dispersed populations of deer, elk, and moose occur throughout the area, making the use and application of wildlife bridges/crossing less feasible and beneficial.

The Deer-Vehicle Crash Information and Research Center (2006) has identified a variety of measures designed to reduce deer/vehicle collisions, including the use of overpasses previously mentioned. Most of the methods are experimental and lack sufficient long-term study results as to their effectiveness. One common method is the use of warning signs. Danielson and Hubbard (1998) indicated that signs to warn motorists are the most common approach to reducing deer-vehicle collisions and would be more effective if drivers reduced their vehicle speed.

What are the indirect effects on vegetation and wildlife?

Indirect effects are those caused by the proposed action that are later in time or farther removed in distance but are still reasonably foreseeable.

The permanent loss or the conversion of wildlife habitat in the project area may cause the displacement of wildlife into neighboring habitats. Depending on the ability of the neighboring habitat to support additional wildlife, this displacement may lead to crowding of wildlife in the habitat, which could in turn cause a decrease in habitat quality. In the long term, the proposed action may result in a decrease in the amount of wildlife in the immediate area.

The Urban Connector Alignment could also cause impacts on vegetation and wildlife from development that would remove or otherwise modify vegetation and associated wildlife habitat. As required by SCC, all development would be subject to the regulations set forth in the CAO Chapter 11.20.

What measures are proposed to minimize effects to vegetation and wildlife?

- Spokane County will decommission and remove impervious surface and unsuitable subgrade material on 7.8 acres of old roadway. These areas will be regraded and seeded and/or planted with shrubs and trees as representative of the adjoining natural habitat. These restored areas will provide an incremental benefit as additional wildlife habitat.

- Spokane County will also designate approximately 6.6 acres of ponderosa pine/Douglas-fir forest east and north of Palmer Road as open space and wildlife habitat.
- Spokane County will plant native, drought-tolerant grasses in disturbed areas and road shoulders to provide habitat.
- Spokane County will evaluate the feasibility and benefits of installing a wildlife undercrossing associated with the Bigelow Gulch Creek culvert crossing at Palmer Road. The focus of the study will be on white-tailed deer and smaller mammals. The evaluation will use research conducted as a part of a study titled *Interaction between roadways and wildlife ecology* (Transportation Research Board 2002).
- Signs warning motorists of the presence of deer and elk will be installed at the west (Bigelow Gulch Road) and east (Forker Road) portions the alignment.
- Line-of-sight improvements with shallow sloped road shoulders and limited vegetation will improve drivers' ability to see wildlife and avoid collisions.

State- and Federally Listed Plant and Wildlife Species

- All appropriate wetlands within the project area will be surveyed for the presence of water howellia during the spring/summer prior to construction. If water howellia were documented within any wetlands within the project area, ESA consultation would be reopened with the USFWS.

Analysis of the effects of the proposed action on vegetation and wildlife in the project vicinity indicates that none would rise to a level of significance. Concurrence from the USFWS (September 5, 2003) that ESA species water howellia is "Not Likely to be Adversely Affected" was presented in Appendix F of the January 2006 EA appendices. Concurrence will be reconfirmed with the USFWS prior to construction. Measures listed in this section were considered in combination with proposed mitigation listed in Section 4.6.3 of the Bigelow Gulch Road EA dated January 2006 in reaching this conclusion.

No Action

How will construction affect vegetation and wildlife?

Under No Action, existing vegetation and wildlife habitat would remain intact and, as with the proposed action, there would be no impact to any listed species.

How will operation affect vegetation and wildlife?

Vehicular collisions with white-tailed deer and elk could increase with the increase in traffic volumes and the limits of sight distance that currently occur along the alignment.