

4.17. Summary of Cumulative Impacts

4.17.1. What guidance is available for cumulative impacts analysis?

This section is a new element of the environment that has been added as a result of comments received on the January 2006 EA (Jones & Stokes 2006). The County received four public comments regarding cumulative impacts (see Appendix 3, category 05.4).

WSDOT follows guidance from the Council on Environmental Quality (CEQ 1997) and FHWA to analyze and assess the cumulative effects of the Urban Connector Alignment. Pertinent guidance from the CEQ and FHWA is summarized below.

Council on Environmental Quality

CEQ is the federal agency charged with implementing NEPA and has developed guidance for cumulative impacts analyses under NEPA. The CEQ defines cumulative impacts as follows:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

As guidance, CEQ has identified 11 steps in cumulative effects analysis process, and recommends that an agency's analysis accomplish the following:

- During scoping, identify the significant cumulative effects issues (if any) associated with the proposed action.
- Establish the geographic scope for the analysis.
- Establish the time frame for the analysis.
- Identify other actions affecting the resources, ecosystems, and human communities.
- Characterize the resources, ecosystems, and human communities.
- Characterize the stresses affecting the resources, ecosystems, and human communities.
- Define baseline conditions for these resources, ecosystems, and human communities.

- Identify cause-and-effect relationships between human activities and resources.
- Determine the magnitude and significance of cumulative effects.
- Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.
- Monitor the cumulative effects of the proposed project and adapt management.

Cumulative effects can be positive as well as negative, depending on the environmental discipline (e.g., air quality, fisheries, etc.) being evaluated. It is possible that some environmental disciplines can be negatively and others positively affected by the same proposed project. Most cumulative effects analyses identify varying levels of beneficial and adverse effects depending on the environmental discipline and the specific actions.

Federal Highway Administration

Per FHWA guidance, a cumulative impact analysis is discipline-specific and generally performed for the disciplines directly or indirectly affected by the action under study. However, not all of the disciplines directly or indirectly affected by a project will require a cumulative impacts analysis. Disciplines to be addressed should be determined on a case-by-case basis in the NEPA process. Disciplines that are not directly or indirectly affected do not need to be studied for cumulative effects.

4.17.2. What is the scope of the cumulative impact analysis?

As previously noted, not all disciplines require cumulative impacts analysis. For the Urban Connector Alignment, cumulative impacts are not expected for Noise. The rationale for this conclusion is provided below.

Noise

The traffic noise analysis presented in Section 4.11 evaluated cumulative traffic increases because the peak-hour traffic volumes used for the noise predictions were derived from the regional transportation model that accounted for future regional land use changes and construction of reasonably foreseeable regional roadways. Therefore, additional evaluation of cumulative traffic noise impacts is not warranted.

Disciplines addressed in this cumulative impacts analysis include geology and soils, groundwater, floodplains, wetlands, streams, vegetation and wildlife, land use and displacement, transportation, air quality, and cultural resources.

4.17.3. What is the time period and geographic scope of this analysis?

Potential cumulative impacts of the proposed Urban Connector Alignment are examined in relation to a study area that includes Bigelow Gulch, Orchard, and

Pleasant Prairies, the Forker Road and Progress Road area within the City of Spokane Valley, and along the slopes south of Bigelow Gulch Road (Figures 1-1 and 1-2).

This cumulative impacts analysis addresses the major actions within the project area from the perspectives of historic patterns (from the 19th century to present day) and 2025, the end of the planning period of the proposed action.

4.17.4. What is the history of the study area?

Beginning in the late 1800s, land was cleared for farming and homes. Fruit orchards became a predominant agricultural crop. Homesteaders also planted cereal crops, potatoes, and vegetables. The agricultural uses of the land changed and evolved particularly with the introduction of irrigation and irrigation districts (Axon et al. 2001). The production of grasses was introduced during the 1940s; by the 1950s, much of the prairie was reportedly planted in grasses (Axon et al. 2001). In the Bigelow Gulch drainage, vegetables were important and productive crops (Highberg 1978).

Much of the landscape in the study area changed incrementally with the changes in agricultural practices. Forests were cleared and grasslands were converted to agricultural uses, particularly in the areas of productive loess silty loam soils. The steeper terrain and areas less suitable for farming on the western and eastern ends of the project area primarily maintained in natural vegetation. With the development of irrigation, outwash soils in the Forker Road and Progress Road area were farmed for a variety of vegetables, fruit trees, grains, and alfalfa (Donaldson and Giese 1968).

These actions resulted in loss of large areas of various native cover types, conversion of native cover types to monocultures and fragmentation of large expanses of cover types. All of these activities likely reduced biodiversity of plants and animals. The historical impacts on forest, wetlands, streams, and wildlife are typical for the Spokane County area. Clearing of forestland through logging and agricultural activities occurred throughout the area, and the development of agriculture in the region routinely included modification of wetlands, soil drainage and stream channel conditions to improve land for crop production.

Currently, dominant uses in the study area continue to be agriculture and low-density rural residential areas, with some areas of suburban and urban development. In recent years, urban development has occurred in the Forker Road and Progress Road area, adjacent to Argonne Road and Walnut Road, and along much of north side of the Spokane River.

4.17.5. What other projects were considered in the cumulative impacts analysis?

To be considered in this cumulative impact analysis, other development projects must be located adjacent or close to the Urban Connector Alignment project area. The projects must also be reasonably foreseeable, typically meaning that the project is planned, approved, and funded. Specific projects considered in this cumulative effects analysis are described below:

- Development of the North Spokane Corridor. Lane configuration would vary by segment. The assumption is for four-lanes each direction from I-90 to the Freya Interchange, three-lanes each direction from the Freya Interchange to U.S. 2 Interchange, and two-lanes each direction from U.S. 2 Interchange to U.S. 395.
- Widening of I-90 to six lanes from North Sullivan Road to the Idaho State line. The project will involve adding one additional lane (general purpose) in each direction.

Environmental documentation in the form of a NEPA Final Environmental Impact Statement (EIS) (WSDOT 1997) and the Final Supplemental EIS (WSDOT 2002b) and associated Records of Decisions, was prepared for the North Spokane Corridor. Portions of the project have been constructed or are currently under construction. Impacts and mitigation measures for the project were defined in those documents.

Environmental documentation for the I-90 widening project is based on the I-90/Four Lakes to Idaho State Line NEPA EIS (WSDOT 1989). A re-evaluation of the environmental impacts of each of the remaining phases of the project will be performed as a part of the design process. Construction of the Sprague Avenue to Argonne Road widening phase was completed in 2001 and Argonne Road to Sullivan Road phase completed in 2005 (WSDOT 2007c).

Other Cumulative Changes

In addition to the projects identified above, it is anticipated that development of properties within the project areas and east of Spokane will continue to occur on an incremental basis consistent with adopted local policies, regulations, and allowable uses. While no specific projects have been identified, it can be assumed that new residential, industrial, and commercial development will occur at locations and at densities allowed under existing zoning and land use regulations. To accommodate this development, municipal and private water purveyors may expand water distribution systems within currently designated water district boundaries. Cumulatively, this future private development would result in changes in land use patterns and likely contribute to impacts on the natural and built environment.

As part of the environmental review associated with the ongoing comprehensive plan update, Spokane County will be analyzing the cumulative impacts of land use

designations and zoning, including municipal UGAs. As a standard practice, the County annually considers potential changes to land use designations as part of its GMA Comprehensive Plan amendment process.

As with all development, there would be changes to the natural environment including removal of vegetation, changes in local topography and soils, increases in impermeable surface area and stormwater runoff, and incremental changes to surface water drainage systems and wetlands. Land use changes may also result in changes to existing development patterns, housing, community cohesion, and other aspects.

The future development would be subject to requirements for environmental protection, including the need to treat and properly dispose of stormwater consistent with the regional stormwater management regulations, and compliance with the CAO.

4.17.6. What cumulative impacts are anticipated?

Geology and Soils

Over time, development of this proposal and other projects in the study area will change local soil profiles and modify local topography through cut and fill activities associated with construction. Portions of the Bigelow Gulch and North Spokane Corridor project areas contain erodible soils as identified by the County's CAO. Cumulative development activity could increase the potential for erosion as groundcover is cleared, soils are stockpiled, and filling/grading occurs.

Development practices consistent with the mitigation measures described in Section 4.1, *Geology and Soils*, would mitigate the potential impacts for this project. BMPs for slope stabilization were specified as mitigation for the North Spokane Corridor and I-90 widening projects. With these mitigation measures, the proposal is not expected to contribute to the potential for cumulative geology and soils impacts.

Groundwater

The Bigelow Gulch project area as well as the North Spokane Corridor and I-90 are located above the Spokane Valley Rathdrum Prairie Aquifer, a designated sole-source aquifer. Over the past two decades, sanitary wastewater and stormwater recharge have reduced the quality of water within the aquifer. Development of the proposal and the other projects will result in increased impervious surface area and stormwater runoff. Without proper stormwater controls, the projects could exacerbate existing groundwater quality concerns. Potential impacts could include discharge of pollutants to groundwater typically associated with highway runoff.

Development is regulated by Spokane County Critical Aquifer Recharge standards and Guidelines for Stormwater Management (Spokane County et al. 2005). The

guidelines address drainage problems and implement best management practices on a countywide and project level to avoid or reduce effects on water quantity and quality. Use of these measures will minimize the future risk to groundwater.

Stormwater generated from the North Spokane Corridor and I-90 widening projects will be directed to water quality and quantity treatment facilities prior to discharge. For both projects, WSDOT will coordinate with Spokane County to ensure that the proposed stormwater facilities meet requirements for discharge in a Critical Aquifer Recharge Area. The I-90 widening project would involve retrofitting existing stormwater systems (i.e., drywells) and installing pretreatment swales prior to infiltration to meet stormwater treatment requirements. Please refer to Section 4.2, *Groundwater*, for additional discussion of measures to mitigate potential groundwater impacts associated with the Bigelow Gulch project.

Floodplains

The proposed Bigelow Gulch project and the North Spokane Corridor project would involve construction within designated floodplains. Spokane County development regulations are intended to prevent alterations to the size of floodplains, control the duration of flooding, and protect floodplain functions such as water conveyance and storage. These projects would be subject to the County regulations, which ensure that construction would not decrease channel carrying capacity or increase the 100-year flood elevations by more than is allowed, thereby mitigating potential cumulative impacts. Please refer to Section 4.3, *Floodplains*, for an additional description of floodplain mitigation measures associated with the Bigelow Gulch project.

Wetlands

The Bigelow Gulch project area contains 16 wetlands, of which six could be impacted by construction of the proposed action. Neither the North Spokane Corridor nor the I-90 widening projects would require filling wetlands. At a cumulative level, impacts on wetlands could include loss of wetland area through wetland fill or changes to hydrology, loss of wetland vegetation, and decrease in habitat diversity.

The County's CAO will limit future cumulative impacts on wetlands. Where effects are unavoidable, mitigation as stipulated under federal, state, and local critical areas/wetlands regulations will compensate and replace for impacted wetlands. Please refer to Section 4.4, *Wetlands*, for discussion of wetland mitigation measures associated with the proposed Bigelow Gulch project.

Streams

The Bigelow Gulch project area contains streams, including 11 streams that could be impacted by construction of the proposed action. Construction of the North Spokane Corridor would require spanning the Spokane River while no stream crossings would be associated with the I-90 widening project. At a cumulative level, impacts on streams could include modification of stream channels, increased turbidity, increased risk of hazardous materials spills, and decreased water quality due to stormwater runoff. No anadromous fish occur in any of the streams or in the Spokane River.

In any future development, stream water quality would be protected by existing regulations and plans, including the draft Guidelines for Stormwater Management (Spokane County et al. 2005), Spokane County Code (SCC) Chapter 11.20 – Critical Areas, and SCC Chapter 9.14.185 – Erosion and Sediment Control. In addition, the stormwater detention and water quality treatment of runoff from the proposed Urban Connector Alignment will result in localized improvement to water quality; under current conditions, runoff directly enters streams without detention or treatment. Applying and maintaining similar treatment standards for other projects considered in this analysis should also prevent any negative cumulative effects to surface water including streams. Resident fish species would be protected using best management practices and timing of work in accordance with Hydraulic Project Approvals administered by WDFW. Please refer to Section 4.5, *Streams*, for additional discussion of stream mitigation measures associated with the proposed Bigelow Gulch project.

Vegetation and Wildlife

The Bigelow Gulch project area as well as the North Spokane Corridor project area support a variety of plant communities and associated wildlife. Vegetation in the Bigelow Gulch project area include farmland and associated disturbed and grass areas associated with residential uses, and mixed forest (ponderosa pine) and shrub cover, and streams and associated wetlands occur within and adjacent to the Bigelow Gulch project area. Vegetation of the North Spokane Corridor includes disturbed urban, industrial, and commercial areas, riparian vegetation associated with the Spokane River, ponderosa pine forest, and farmland and grasslands and associated wildlife (WSDOT 1997). The I-90 widening project would occur within the existing right of way and not affect native vegetation and wildlife.

Cumulative impacts on vegetation communities and wildlife would include a removal of native and non-native vegetation in linear patterns, and the conversion of these vegetation communities to impervious surfaces, stormwater facilities, and vegetated areas within right of ways. Wildlife populations using these habitats would decline or wildlife use would be modified by the changes. Other cumulative impacts on wildlife could include modification to patterns of movement and travel, increased wildlife- vehicle collisions, light and glare impacts, and noise disturbance.

Land Use

The Bigelow Gulch project area and the North Spokane Corridor and I-90 widening project areas include a variety of land use patterns and land use and zoning designations. Based on current land use and zoning plans, residential development will be limited along the Bigelow Gulch corridor. Spokane County has designated this area as a rural residential zone and development is constrained by the County's policies and land use designations. The cumulative effect on land use patterns is likely to be minor unless the County changes land use designations to allow for more urban development in the area. There is, however, a potential of increased industrial and commercial development focused west of the Havana and Bigelow Gulch roads intersection (the western starting point of the corridor) and East of the North Spokane Corridor and Francis interchange. Land uses adjacent to the North Spokane Corridor include a variety of industrial, commercial, and urban and semi-rural residential uses that, over time, will transition or change with development of the North Spokane Corridor project. The construction of interchanges will improve access to industrial, commercial areas, thereby enhancing access and operational capability of business relying on truck transport. Improved access may also result in increased residential development. Improved accessibility would also increase the demand for public services (including schools), and the extension of public utilities.

I-90 is recognized as a Strategic Freight Corridor and a major commute and travel route for eastern Spokane County and North Idaho. The proposed widening project will accommodate the transport of freight and passenger traffic and will enhance operational capability of the industrial and commercial sector in the area.

At a cumulative level, future development projects may gradually and incrementally change the area to a more developed land use pattern in the rural areas which in turn could result in changed community character and changes in rural lifestyle, increased commercial development, increased population, and impacts on schools. Areas designated for urban uses will continue to transition and develop with improvements to access and operational efficiency.

The proposed Bigelow Gulch Road and North Spokane Corridor projects will result in housing relocations. Depending on the housing market at the time of property acquisition, this displacement could have a cumulative effect on supply of moderate and low-income housing in the Spokane area. Stage construction and right of way purchase will help offset the effect by spreading the relocation need over several years. The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended will be implemented to ensure a fair and equitable process for the residents of the housing units that are to be purchased.

Farmlands are protected by Spokane County land use designations and zoning regulations. Cumulative effects of development on farmland are likely to be minor unless the County changes land use designations from agriculture to other uses in the

study area. The County considers potential changes to land use designations annually as part of its GMA Comprehensive Plan amendment process.

Environmental Justice

The Bigelow Gulch project and the North Spokane Corridor project included an environmental justice analysis to determine if minority or low-income populations were disproportionately impacted by the projects. The I-90 widening project would occur within the existing I-90 right of way. Based on the environmental justice analyses, on a cumulative basis, the projects would not result in disproportionately high or adverse impacts on minority or low-income populations because the impacts would not be predominately borne by minority or low-income persons, and would not be appreciably more severe or greater in magnitude than the effect to non-minority and non-low-income populations.

Relocations would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as Amended.

Social and Economic Elements

The Bigelow Gulch, North Spokane Corridor, and I-90 widening projects would result in varying degrees of social and economic cumulative impacts. The effects of the projects on community cohesion may include splitting communities, isolating or separating portions of a neighborhood or separating residents from community facilities or services. The construction of roadways would result in the physical separation of some residences or changes in patterns of travel and access within neighborhoods.

Construction of the projects may also result in greater demand for public services (schools, parks, public utilities, and social services) in response to residential development.

The acquisition of land for right-of-way would displace businesses (North Spokane Corridor) and residences, resulting in a loss of property tax revenue, with relocation of displaced land uses to other sites within the Spokane area. Where permitted by City and County Comprehensive Land Use Plans, increases in intensity of land uses in the vicinity of North Spokane Corridor interchanges would increase property value and the tax base in those areas. Over the long term, the projects are not expected to have a significant impact on overall property tax base.

Transportation

All transportation analyses conducted for the proposed Bigelow Gulch project, North Spokane Corridor, and I-90 widening project reflect cumulative conditions. This means that future conditions analyzed under projected 2025 conditions take into account traffic expected to occur from regional growth, regardless of whether or not

the proposed action is implemented. This provides for a more realistic projection of traffic under future conditions. If traffic were analyzed without taking into account the cumulative effect of future development and regional traffic growth, the overall traffic projected under future conditions would be underestimated.

Air Quality

The air quality analyses conducted for the proposed Bigelow Gulch project, North Spokane Corridor, and I-90 widening project reflect cumulative conditions. Data used in the analyses are based on air quality information from SRTC and based on cumulative air quality conformity assessment conducted by the SRTC on its regional transportation plan, a plan that accounts for public transportation improvement projects as well as future private development and growth.

The proposed Bigelow Gulch project and the North Spokane Corridor and I-90 widening projects will add roadway capacity and, as a result, decrease congestion and improve traffic flow. It is likely that the cumulative impact of these improvements would incrementally improve air quality in the study area. At a cumulative level, no mitigation measures are necessary. Please refer to Section 4.10, *Air Quality*, for project specific mitigation measures associated with the proposed Bigelow Gulch project.

Visual Quality

The Bigelow Gulch project area as well as the North Spokane Corridor and I-90 project areas would be subject to changes in the visual landscape from construction of the proposed actions. These projects would introduce or increase the presence of “built” features into the local landscapes. The cumulative impact of these changes would be to incrementally add to the urbanizing trend in the Spokane area. The visual impacts would be partially mitigated through the use of design techniques such as contour grading, planting native trees, shrubs, and grasses, and structural treatments to harmonize with the transportation corridors.

Parks and Recreation

No state or county park or recreation facility is found in the Bigelow Gulch project area; however the project would remove portions of recreation fields at the East Valley Middle School. The proposed action would improve safety for bicyclists using the proposed roadway. The North Spokane Corridor project would take 5,663 square feet of Your Place Park (City of Spokane) for the right of way. No parks would be involved in the I-90 widening project.

As mitigation for the North Spokane Corridor project impacts, WSDOT would extend the Your Place Park to the west and provide 10,163 square feet of park area as replacement, while the Bigelow Gulch project would provide replacement fields and

other improvements. The cumulative effect of these projects would be to enhance rather than reduce or adversely affect parks or recreation activities in the future.

Cultural Resources

The Bigelow Gulch project area and as well as the North Spokane Corridor and I-90 are known to contain historic properties eligible for listing in the National Register and known and unrecorded archaeological resources. The potential cumulative impact on cultural resources of the projects would be associated with increased risk of disturbance of archaeological resources as a result of ground disturbance and potential damage historic resources.

The mitigation measures developed to avoid cultural resource effects by the proposed action would minimize the risk of cumulative impacts on cultural resources. Please refer to Section 4.14, *Cultural and Historic Resources*, for additional discussion of mitigation measures to protect cultural resources associated with the proposed Bigelow Gulch project.

Hazardous Materials

The Bigelow Gulch project area and the North Spokane Corridor are known to contain hazardous materials sites, none of which would require remediation as part of the Bigelow Gulch project and may or may not be required for the North Spokane Corridor or I-90 projects. Both the Bigelow Gulch and North Spokane Corridor projects would include asbestos and lead paint surveys, removal, or proper disposal. Cumulatively, cleanup associated with the projects would result in an incremental reduction of pollutants or potential health risks in the project areas.

Construction of the projects would include the use of materials that, if spilled, could result in localized degradation of surface and groundwater or soils. Long-term degradation would be avoided if cleanup occurred immediately. Such risk would be reduced by the use of required Spill Prevention, Containment, and Countermeasures Plans during project construction.

4.17.7. Proposed Mitigation

As previously mentioned, proposed mitigation measures identified for each of the disciplines would minimize the potential for cumulative as well as site-specific impacts. Please refer to the mitigation measures described in each discipline section of this Revised EA. No additional mitigation measures are necessary to address potential cumulative impacts.

Analysis of the effects of the proposed action on cumulative impacts indicates that no additional mitigation measures are necessary to address potential cumulative impacts. The mitigation measures listed in this section were considered in combination with the information listed in Sections 4.17 and 4.18, Bigelow Gulch Road EA dated January 2006 in reaching this conclusion.