Final Biological Resources

Impact Assessment Methodology Memorandum

October 2009

Prepared for: Oregon Department of Transportation
Region 4

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1. Introduction

This technical memorandum fulfills a requirement of the Federal Highway Administration (FHWA) 2005 legislation titled Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (23 U.S. Code §139). Section 6002 of the legislation, titled Efficient Environmental Reviews for Project Decision making, requires regulatory agencies to collaborate in establishing the research methodologies used to evaluate transportation project alternatives.

The purpose of this Biological Resources Impact Assessment Methodology memorandum is to describe the methods that will be used to collect data and evaluate the project's impacts to biological resources. This memorandum, for the US 97 Bend North Corridor Project, will also document consultation with the Oregon Department of Transportation (ODOT) and the participating agencies on the approach taken to research each environmental discipline before conducting the research.

1.1 Project Description

US 97 is a strategic north-south state facility that runs through the central portion of the state and is a complement to the I-5 corridor. It is classified as a statewide facility and freight route along its entire length, and as an expressway through the study area. US 97 is a critical link in moving goods and people through Central Oregon. US 20 is similarly designated as a statewide freight route and expressway through the study area.

Through the study area, US 97 also serves as a way for people to get to and from home and work, and it is a connection to area shopping and dining. In addition, the tremendous population growth in Bend and Central Oregon has placed many demands on US 97: an increase in congestion, disruptions in traffic flow, an increase in traffic delays and an increase in the number of crashes. The purpose of the US 97 Bend North Corridor Project (the project) is to reduce traffic congestion, improve traffic flow and improve public safety on the segment of US 97 between the Deschutes Market Road / Tumalo Junction interchange and the Bend Parkway / Empire Avenue interchange.

By Summer 2009, four Build Alternatives were identified for detailed environmental study: three distinct east corridor alternatives (East 1, East 2, and East 3) and one west corridor alternative (West 1). These alternatives are described below. As of Fall 2009, the project team is investigating down-scaled versions of these alternatives to determine if lower cost solutions address the project purpose and need. If any down-scaled versions are forwarded for detailed environmental study, subsequent project documentation will be provided. All methodology included in this memorandum is expected to apply to any transportation alternative developed for the US 97 Bend North Corridor project.

1.1.1 *East Corridor Alternatives*

With the east corridor alternatives US 97 would be realigned east of the existing highway adjacent to the Burlington Northern Santa Fe Railroad. The following is a summary of the key features of all of the east corridor alternatives:

- Slip ramp provided to access Robal Road from northbound US 97.

- Existing US 97 becomes a local route, 3rd Street.
- US 97 and US 20 are connected just north of Empire Avenue. Direct connections from northbound US 97 to westbound US 20 and eastbound US 20 to southbound US 97.
- US 97 / Empire Avenue interchange uses a single point interchange to handle traffic more efficiently.

The east corridor alternatives differ in the location of the project's northern interchange and the type of interchange.

- **East 1:** Partial northern US 97 interchange located just north of Fort Thompson Lane. Exit for southbound US 97 traffic to 3rd Street and an entrance for traffic on northbound 3rd Street on US 97.
- **East 2:** Partial northern US 97 interchange located near Bowery Lane. Exit for southbound US 97 traffic to 3rd Street and an entrance for traffic on northbound 3rd Street on US 97.
- **East 3:** Partial northern US 97 interchange located in the Clausen/Grandview area. Exit for southbound US 97 traffic to 3rd Street and an entrance for traffic on northbound 3rd Street on US 97.

1.1.2 *West Corridor Alternative*

With the west corridor alternative US 97 would be realigned to the west of the existing highway. The following is a summary of the key features of West 1:

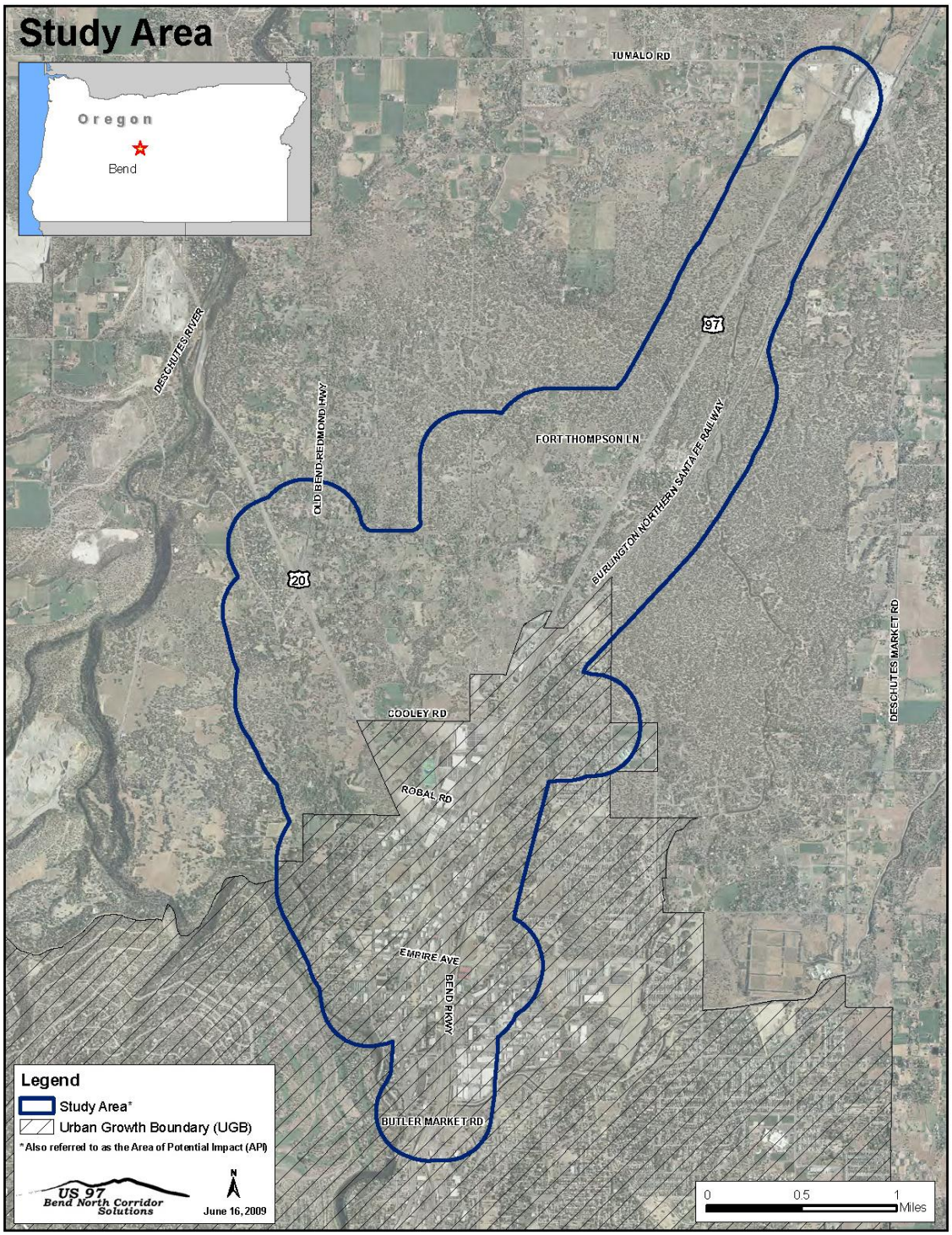
- US 97 and US 20 traffic are combined into a common roadway corridor between Empire Avenue and Cooley Road.
- US 97 and US 20 interchange is located near Cooley Road.
- Collector / distributor roads provide access at Robal Road, 3rd Street and Empire Avenue from the highways.
- Partial northern US 97 interchange is located near Bowery Lane. Exit for southbound US 97 traffic to 3rd Street and entrance for traffic on northbound 3rd Street on US 97.
- Existing US 97 becomes a local route, 3rd Street.
- Empire Avenue interchange is reconfigured in a split diamond interchange design, which will function as collector / distributor roads from 3rd Street / US 20 and which will include signals on the ramps at Empire Avenue and 3rd Street.

1.2 Area of Potential Impact

The project's study area is the area within which potential environmental, social and economic impacts from the project may directly occur. It is also called the Area of Potential Impact (API). The study area extends along US 97 from the Deschutes Market Road / Tumalo Junction interchange to approximately Butler Market Road, and along US 20 from approximately Old Bend-Redmond Highway to Butler Market Road. It also encompasses the area between US 97 and US 20 south of Fort Thompson Road. The study area extends about one-quarter mile on

either side of the combined preliminary project footprint for the project alternatives. The preliminary project footprint is the estimated maximum extent of potential ground disturbing activities. The API is shown in Exhibit 1, which also shows the location of the City of Bend's Urban Growth Boundary (UGB).

Exhibit 1. US 97 Bend North Corridor Project Area of Potential Impact



2. Relevant Laws and Regulations

All environmental analysis and reporting for the project will comply with the National Environmental Policy Act (NEPA) and the FHWA's Technical Advisory T6640.8A (October 30, 1987). Relevant laws and regulations also include federal requirements, state plans and laws, and local adopted plans and policies. Exhibit 2 identifies the federal, state and local plans and regulations relevant to biological resources.

Exhibit 2. Relevant Laws and Regulations for Biological Resources

Regulatory Source	Title	Lead Agency(s)	Statement of Requirement
ESA, 16 U.S.C. §1536 Oregon State Endangered Species Act, ORS chapter 496	Endangered Species Act (ESA) Consultation	United States Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW)	Any project impacts to listed species will require coordination with USFWS and ODFW. No listed species under the jurisdiction of NMFS are documented in the API.
MBTA, 16 U.S.C 703-712	Migratory Bird Treaty Act	USFWS	Vegetation removal that occurs during the breeding season (April to August 31) may result in the destruction of bird nests and young, which is prohibited under the MBTA.
NEPA, 42 U.S.C. §4332	NEPA Environmental Impact Statement (EIS)	FHWA	Project impacts to habitat may require mitigation to off-set adverse effects to biological resources.

3. Coordination with ODOT and Other Agencies

Kevin Halesworth, ODOT Biologist, was consulted for input on the methodology in this report (Personal communication with ESA Adolfson, 2009). Coordination with ODOT Biologists will continue to occur.

4. Data Sources

The following data sources will be used:

- Csuti, B., A.J. Kimerling, T.A. O-Neil, M.M. Shaughnessy, E.P. Gaines, and M.M.P. Huso. 1997. *Distribution, Habitat, and Natural History: Atlas of Oregon Wildlife*. Oregon State University Press.
- ESA Adolfson. 2008. US 97 Bend North Corridor Solutions Biological Resources Memorandum. Prepared for: Parsons Brinckerhoff.
- ESA Adolfson. 2008. US 97 Bend North Corridor Solutions Botanical Survey and Memorandum. Prepared for: Parsons Brinckerhoff.
- Oregon Department of Fish and Wildlife. 2009. Unpublished data. Oregon Department of Fish and Wildlife, Salem, Oregon.
- Oregon Department of Fish and Wildlife. 2009. Vehicle Collision Data.

- Oregon Department of Fish and Wildlife – Deschutes Watershed District Office. 2009. Unpublished data. Oregon Department of Fish and Wildlife, Bend, Oregon.
- Oregon Natural Heritage Information Center. 2009. Database search for rare, threatened, and endangered plant and animal species within the US 97 Bend North Corridor vicinity. Oregon Natural Heritage Information Center, Corvallis, Oregon.
- Parsons Brinckerhoff. 2008. US 97 Bend North Corridor Solutions Revised Environmental Reconnaissance Report. Prepared for: ODOT Region 4.
- US Fish and Wildlife Service (USFWS). 2009. Species List for Deschutes County.
- Animal hotspot data and animal strike data from ODFW and ODOT. 2009
- Results from current research being conducted in the area, and any other relevant sources of data.

Where appropriate, data collection and use will be coordinated with other relevant disciplines.

5. Data Collection Methods

5.1 General Methods

Information will be collected from the sources listed in Section 4, Data Sources, to describe the existing conditions for biological resources in the API. Field visits were conducted by ESA Adolfson to survey for rare plants, noxious weeds, habitat types and quality, and wildlife, including potential bat roosts. The results and methods of these surveys are documented in the US 97 Bend North Corridor Solutions Biological Resources and Botanical Survey Memoranda (ESA Adolfson, 2008) and a follow up memorandum reporting the methods and survey results for the additional areas of the API, conducted in 2009. Additional surveys for Peck's milkvetch, a state threatened species, may occur for parcels with potential suitable habitat that were not accessed during the baseline field work.

6. Analysis Methods

The following is a summary of the methods that will be used to assess the project's adverse and beneficial direct, indirect and cumulative impacts to biological resources. The general approach for mitigation is also documented.

6.1 Direct Impact Analysis Approach

Direct impacts are temporary construction impacts and long-term impacts that directly affect the resource. These impacts include displacement during construction, temporary vegetation clearing for staging areas, direct removal of habitat and direct removal of organisms.

6.1.1 *Temporary Construction Impacts*

Analysis methods for temporary construction impacts are as follows:

- Estimate the area of potential wildlife habitat that would be disrupted during construction due to staging, increased noise and human activity.

- Estimate the area of alternative habitat that would support wildlife species during construction.

6.1.2 *Long-Term Impacts*

Analysis methods for long-term impacts are as follows:

- Evaluate quality and quantity of habitat directly affected. Habitat would be qualitatively assessed based on size, connectivity to other habitat areas, habitat complexity (i.e. ability to support multiple species), and presence of native vegetation.
- Evaluate significance of direct impacts by comparison to existing habitat quality and quantity in the area.

6.2 Indirect Impact Analysis Approach

For purposes of this discussion, indirect impacts are those which are caused by the action that are later in time or farther removed in distance, but are still reasonably foreseeable. Potential indirect impacts on wildlife resources related to the project include physical alteration of terrestrial habitat resulting in fragmentation of habitats or wildlife corridors. Analysis methods for indirect impacts are as follows:

- Evaluate project impacts on habitat quality, quantity, and use based on comparison to net difference in available habitat quality, quantity, and use before and after construction.
- Evaluate project impacts on wildlife movement in and through the project area and potential mitigation to ensure wildlife movement.

The indirect impacts analysis will use a boundary no larger than the geographic boundary for cumulative impacts (below).

6.3 Cumulative Impact Analysis Approach

Coordination with ODOT will occur to determine if the project would have a cumulative impact on biological resources when combined with past, present and reasonably foreseeable future actions. If it is determined that cumulative impacts would occur the following approach would be followed.

First, a cumulative impacts geographic boundary will be identified for each resource. The determination of geographic boundary will consider the geographic extent of direct and indirect project impacts as well as corresponding natural boundaries of the resource. Justification for the geographic boundary will be provided for each resource.

Next, a temporal boundary will be identified for the resource. This temporal boundary defines the historic timeframe for the resource, and will be the beginning point for the historic context discussion. The historic context discussion will be a qualitative discussion of how the resource came to be in its current condition. A general discussion of past and present actions that have influenced the current condition of the resource will be included. Specific past and present projects will not be identified, but general actions (e.g. expansion of urban areas, development of national highway system, conversion of agricultural lands, etc) will be discussed.

Third, a list of reasonably foreseeable future projects (both public and private) will be developed for the cumulative impacts geographic boundary for all resources combined. This list will include projects currently identified in city, county and regional adopted plans, and therefore "reasonably foreseeable", that could potentially combine with direct or indirect impacts of the US 97 Bend North Corridor project to produce cumulative impacts. An end date for the list of projects will be identified (e.g. extent of timeframe for adopted plans), and will not extend past the design horizon for the project. Private development projects will be identified through coordination with planners at the city and county (e.g. review of pre-application materials). Additionally, the Juniper Ridge development will be included in the list of projects. Rationale for projects included in the list will be provided.

Lastly, a methodology for identifying and analyzing cumulative impacts for each resource will be presented. The cumulative impacts analysis will be done qualitatively, but, when possible, quantitative information will supplement the discussion. Technical report authors will coordinate with ODOT on the proposed methodology.

6.4 Mitigation Approach

The mitigation approach is to avoid and minimize impacts, or off-set adverse project impacts to biological resources through compensatory mitigation (CM). Coordination with resource agency personnel (USFWS, ODFW) is recommended to determine if project effects are considered adverse. Habitat CM would be commensurate with the degree of impacts, and may include conserving habitat off-site through a conservation easement, enhancing existing habitat by removing non-native plants and establishing native species, or erecting nesting boxes for birds and roosting boxes for bats.

7. References

Csuti, B., A.J. Kimerling, T.A. O-Neil, M.M. Shaughnessy, E.P. Gaines, and M.M.P. Huso. 1997. *Distribution, Habitat, and Natural History: Atlas of Oregon Wildlife*. Oregon State University Press.

ESA Adolfson. 2008. US 97 Bend North Corridor Solutions Biological Resources Memorandum. Prepared for: Parsons Brinckerhoff.

ESA Adolfson. 2008. US 97 Bend North Corridor Solutions Botanical Survey and Memorandum. Prepared for: Parsons Brinckerhoff.

Halesworth, K. ODOT Biologist, Bend, Oregon. Personal communication with Sarah Hartung, ESA Adolfson on June 18, 2009.

Oregon Department of Fish and Wildlife. 2009. Vehicle Collision Data.

Parsons Brinckerhoff. 2008. US 97 Bend North Corridor Solutions Revised Environmental Reconnaissance Report. Prepared for: ODOT Region 4.

US Fish and Wildlife Service (USFWS). 2009. Species List for Deschutes County.

Appendix A Correspondence with ODOT Discipline Reviewer

Kevin Halesworth, ODOT biological resources specialist, has reviewed this document and provided no changes to the methodology presented.

Appendix B Coordination with Participating Agencies

ODOT distributed the Draft Final Impact Assessment Methodology Memoranda to participating agencies for review on August 25, 2009. The 30-day review period ended on September 23, 2009. ODOT received no substantive comments that required changes to this memorandum from the participating agencies.