FINAL
ENVIRONMENTAL BASELINE REPORT

Willamette River (Van Buren Street) Bridge

Key No. 12827

Benton County, Oregon
Township 11S, Section 35, Range 5W
7.5 Minute Quadrangle Series, Corvallis, Oregon 1969 (Photorevised 1986) and Riverside, Oregon 1969 (Photorevised 1975)

Oregon Department of Transportation, Region 2

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December 2005
Preparers

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Author: _______________  Reviewer: _______________
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Executive Summary

The purpose of this report is to identify and characterize resources in the area that may be impacted by the Willamette River (Van Buren Street) Bridge project. Below is a summary of findings from the baseline report that provides information to aid the project team in selecting project alternatives that avoid or minimize impacts to the environment, and to guide the preparation of required permits and approvals.

AIR

Because the project is located in an air quality attainment area, there are no air quality conformity requirements for the project. The project is located in an area where air quality is not a significant issue.

ARCHAEOLOGY

Ground exposures in the project area during the pedestrian survey in 2005 were extremely limited, but based on both limited exposures and the documented local history, there is a high potential for historic archaeological resources throughout the project area. Further exploration of the project area is recommended by subsurface exploratory probes and remote sensing techniques, such as a ground-penetrating radar, to determine the presence and nature of archaeological resources.

BIOLOGY

All of the alternatives have the potential to affect listed species in the Willamette River. Due to the high degree of disturbance to terrestrial habitats within the Area of Potential Effect (APE), it is very unlikely that any listed plant species would be affected by the project. A biological assessment should be prepared for the project that describes potential impacts and avoidance and minimization measures to conserve listed species in the APE.

HAZARDOUS MATERIALS

Based on the information obtained from Oregon Department of Environmental Quality (DEQ) lists, Oregon State Fire Marshall’s list, historic maps, and site reconnaissance, the potential for encountering hazardous materials during project construction activities is high. Additional hazardous materials investigation is recommended for the project site. Among the properties with the potential for hazardous materials in the APE, D&B Bear Auto Repair property could be impacted under Alternatives 3 and 3A, and access to M.E. Woodcock & Sons (Abbey’s Furniture Store) and Bell transmission properties could be impacted under Alternatives 3A and 5A.

HISTORIC/CULTURAL RESOURCES

Fourteen historic resources are located within the project APE. One of these resources, the Van Buren Bridge #02728, has been previously determined eligible for the National Register of Historic Places, individually. The APE also contains a portion of the Corvallis Downtown Historic District that has been determined potentially eligible for the National
Register. The contributing historic resources within the district that could be impacted by the project alternatives include the Van Buren Bridge, the riverfront park, the D&B Bear Service Auto Repair Building, the Abby’s Furniture Warehouse Building, and the Brands Chevrolet Building. The D&B Bear service Auto Repair Building could be impacted under Alternatives 3 and 3A. The Abbey’s Furniture Warehouse Building and the Brands Chevrolet Building could be impacted under Alternatives 3A and 5A.

The APE also includes two historic archaeological sites, Orleans Townsite and the Marysville Archaeological District, that may be eligible for the National Register as well. These sites have a greater likelihood of being impacted by the project (see Section 2.2).

HYDROLOGY

It is unlikely that the backwater produced by the existing bridge extends upstream to the point where the East Channel splits off from the Main Channel. Therefore, the backwater from the existing bridge would have no significant impact on the amount of flow that leaves the Willamette River Main Channel and enters the East Channel. It is the East Channel flooding that overtops OR 34 in the APE, not backwater flooding from the existing bridge. Although a hydraulic model has not yet been developed for this project, it is unlikely that the backwater produced by new bridge piers (with or without removing the existing bridge) would extend upstream to the East Channel, exacerbating OR 34 flooding.

LAND USE

Generally, the proposed conceptual alignment options are consistent with local land use and transportation plans. However, alternatives with greater impacts to the existing Van Buren Bridge, such as Alternative 1, would be less desirable than others with fewer impacts because the bridge is listed locally as historic and is eligible for the National Register of Historic Places.

Based on conversations with local land use planning staff and a review of relevant land use and transportation documents, constructing a new Van Buren bridge appears to be consistent with local development criteria. It also appears that impacts to the Willamette River Greenway will be addressed through the local land use permitting process and would not require a goal exception. Although removal of the existing structure is feasible from a permitting prospective, alternatives where the existing bridge remains would be recommended, considering the historic nature of the structure. When a preferred alternative is chosen, local Corvallis and Linn County land use planning staff will be contacted again to further define the land use permitting process.

NOISE

In terms of selecting a preferred alternative, the results of the noise screening analysis show that the magnitude of noise impacts is approximately the same under each alternative, although the exact locations of the impacts differs somewhat between
alternatives. Therefore, noise is unlikely to be a significant selection factor, as the differences in noise impacts under each alternative are negligible.

**RECREATION AND SECTION 4(f)**

Other than temporary construction related impacts, bicycle and pedestrian circulation for all alternatives would experience no long-term impacts.

Alternatives 3A and 5A propose lowering First Street under the western bridge approach.

For all alternatives except Alternative 1, the old bridge would remain open for bicycle and pedestrian use, providing a second connection across the river from Corvallis. Construction related impacts from the new bridge would temporarily limit park access to the north of the western bridge approach.

A 6(f) evaluation would not be required because no Land and Water Conservation Funds (LWCF) were used for parks potentially affected by the proposed alternatives, but further evaluation of the proposed build alternatives may be needed to determine if a 4(f) evaluation is required to address the potential impacts to local park resources.

A Section 4(f) evaluation is required if a “use” (as defined in the Federal Highway Administration (FHWA) Regulations at 23 C.F.R. 771.135(p)) occurs as a result of this project. A Section 4(f) evaluation would not be required for temporary construction easements as long as construction occupancy on the Section 4(f) resource is less than the full construction duration, ownership of the resource does not change, no adverse changes to the resource function occurs, and only a minor amount of land is involved. No further studies are required if the project is constructed entirely within the ODOT right-of-way.

**SOCIOECONOMIC AND ENVIRONMENTAL JUSTICE**

None of the proposed alternatives would require residential displacement or residential land acquisition, and would not have an adverse impact to any residential areas. Because no residential impacts are anticipated, no Environmental Justice impacts are likewise anticipated. All improvements would occur in commercial and agricultural areas, and typical Environmental Justice impacts, such as increased traffic, air quality or noise impacts, if they were to occur, would only occur within those areas. Alternatives 1, 3A, 5, and 5A would affect access to the Econo Lodge, while Alternative 3 would result in alteration or demolition of the structure.

**WETLANDS**

The ODOT Wetlands and Waters Scoping Report for the Van Buren Bridge identified the Willamette River as the only water of the state or U.S. in the project area. Wetlands in the project area include a sliver of riverine wetlands on either side of the Willamette River in between the two bridges, as identified by the location of debris/drift lines. Because the riverine wetlands on both banks of the Willamette River are continuous in the project area, all of the alternatives under consideration have the same potential for impact to these wetlands.
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PROJECT DESCRIPTION

INTRODUCTION

The purpose of this report is to identify and characterize resources in the area that may be impacted by the Willamette River (Van Buren Street) Bridge project. The Baseline Report describes the "context" of the project in order to facilitate context sensitive and sustainable solutions. This report provides information to aid the project team in selecting project alternatives that avoid or minimize impacts to the environment, and to guide the preparation of required permits and approvals.

PURPOSE AND NEED FOR THIS PROJECT

The purpose of the project is to increase capacity, improve traffic flow and safety, maintain connectivity, and meet multimodal transportation needs for the area served by the Willamette River (Van Buren Street) Bridge.

The project is needed because the existing bridge (constructed in 1913) is functionally and geometrically obsolete and cannot feasibly be repaired or widened to improve traffic flow and capacity or to meet multimodal needs for the projected demand 20 years into the future. The existing bridge was judged to be functionally obsolete in the 1970s and has been slated for replacement since that time. Corvallis, Benton County, and Linn County have each identified the need to replace the Van Buren Street Bridge in their respective transportation plans.

PROJECT DESCRIPTION

The Willamette River (Van Buren Street) Bridge is located on Oregon Highway 34 (OR 34), the Corvallis-Lebanon Highway (Figure 1). The west end approach of the Van Buren Bridge is located in the north portion of downtown Corvallis in Benton County, and the east end approach is located in unincorporated Linn County. The project would replace the existing bridge. There are five build alternatives currently under consideration (See appendix for Figure 2-Figure 13 showing the plan view for each build alternative). Besides Alternative 1, all of the other alternatives would leave the existing Van Buren Bridge in place and rehabilitate it as a bicycle and pedestrian facility.

- Alternative 1 would replace the existing bridge with a new bridge on the current alignment.
- Alternative 3 would add a new bridge immediately north of and parallel to the existing bridge, with the west-end grade match-in at First Street.
- Alternative 3A would be on the same alignment as Alternative 3, but would be set above First Street and have a grade match-in at Second Street. In this alternative First Street would need to be lowered.
- Alternative 5 would be positioned north of the existing alignment. Under this alternative, the new bridge would curve away from the existing Van Buren Bridge,
then back using standard reversing horizontal curves. The grade match-in would be at First Street.

- Alternative 5A would be on the same alignment as Alternative 5, but would be set above First Street and have a grade match-in at Second Street. With this alternative, First Street would need to be lowered.

**AREA OF POTENTIAL EFFECT**

The APE is defined as follows: on the east side of the Willamette River, the APE includes those areas both within and directly adjacent to the existing Corvallis-Lebanon Highway right-of-way from the Willamette River, east to the junction of the Corvallis-Lebanon Highway (Highway 210, OR 34) and the Corvallis-Newport Highway (Highway 33, US 20/OR 34); on the west side of the river, the APE is bound to the north by those tax lots directly adjacent to the north side of Van Buren Street, to the west by the centerline of NW Fourth Street, to the south by tax lots directly adjacent to the south side of Van Buren Street, and to the west by the Willamette River. The APE also includes that portion of the Willamette River between the east side APE and the west side APE.

**PERMITS**

The project will require a number of permits and approvals prior to initiating construction activities (Table 1). Each is discussed in the appropriate section of this report.

*Table 1. Permits, Approvals, and Coordination*

<table>
<thead>
<tr>
<th>Type of Permit/Approval/Coordination</th>
<th>Agency Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endangered Species Act Consultation (Biological Assessment/Biological Opinion)</td>
<td>USFWS, NOAA Fisheries</td>
</tr>
<tr>
<td>Clean Water Act Section 404 Permit</td>
<td>USACE</td>
</tr>
<tr>
<td>Removal/Fill Permit</td>
<td>DSL</td>
</tr>
<tr>
<td>Conditional Development Permit</td>
<td>City of Corvallis</td>
</tr>
<tr>
<td>Review by the Historic Preservation Advisory Board</td>
<td>City of Covallis</td>
</tr>
<tr>
<td>Conditional Use Permit for Bridge Construction</td>
<td>Linn County</td>
</tr>
<tr>
<td>Conditional Use Permit for Willamette Greenway Crossing</td>
<td>Linn County</td>
</tr>
<tr>
<td>Section 4(f) archaeological and historic resources</td>
<td>FHWA, SHPO</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL CONDITIONS BY TOPIC AREA

1 AIR

1.1 METHODS

The Western Region of the Oregon Department of Environmental Quality (DEQ) was contacted to determine whether the project is considered to be within an air quality attainment area. TW Environmental, Inc. (TWE) also prepared a Baseline Air Quality Memorandum summarizing air quality conditions in the project area.

1.2 EXISTING CONDITIONS

DEQ has designated Linn and Benton Counties as in attainment with the Clean Air Act standards, meaning that air quality in these counties meets national ambient air quality standards set by the US Environmental Protection Agency (EPA). DEQ has not identified any air pollution problems or potential future concerns in the project vicinity. There are no large industrial projects on the horizon that would significantly affect air quality in this area. DEQ has an extensive review process to ensure potential future projects would not significantly impact air quality (Andes, pers. comm. October 10, 2005).

State and federal ambient air quality standards are listed in Table 2.

DEQ maintained a PM$_{2.5}$ air pollution monitor at the Corvallis Intermediate School (CIS), located at 1310 NW Circle Boulevard, Corvallis, Oregon, from 1999 until the end of 2002. Table 3 summarizes the data collected during the operation of the Corvallis PM$_{2.5}$ monitor. The table shows that PM$_{2.5}$ air concentrations were approximately half of the level considered protective of human health and welfare during the monitoring period.

1.3 CONCLUSION

Because the project is located in an air quality attainment area, there are no air quality conformity requirements for the project. The project is located in an area where air quality is not a significant issue.
### Table 2. State and Federal Ambient Air Quality Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>Federal</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Monoxide</td>
<td>8-hour*</td>
<td>9 ppm</td>
<td>9 ppm</td>
</tr>
<tr>
<td></td>
<td>1-hour*</td>
<td>35 ppm</td>
<td>35 ppm</td>
</tr>
<tr>
<td>Lead</td>
<td>Calendar Quarter</td>
<td>1.5 µg/m³</td>
<td>1.5 µg/m³</td>
</tr>
<tr>
<td>Ozone</td>
<td>8-hour**</td>
<td>0.08 ppm</td>
<td>-</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Annual Arithmetic Mean</td>
<td>0.053 ppm</td>
<td>0.053 ppm</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>Annual Arithmetic Mean</td>
<td>0.03 ppm</td>
<td>0.02 ppm</td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>0.14 ppm</td>
<td>0.10 ppm</td>
</tr>
<tr>
<td></td>
<td>3-hour</td>
<td>0.5 ppm</td>
<td>0.50 ppm</td>
</tr>
<tr>
<td></td>
<td>1-hour Average (Annual)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1-hour Average (7 day period)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Suspended Particulate</td>
<td>Annual Geometric Mean</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>24-hour Average</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>3-year Average of Annual Arithmetic Mean</td>
<td>50 µg/m³</td>
<td>50 µg/m³</td>
</tr>
<tr>
<td></td>
<td>24-hour Average</td>
<td>150 µg/m³</td>
<td>150 µg/m³</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>3-year Average of Annual Arithmetic Mean</td>
<td>15 µg/m³</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3-year Average of 98th Percentile of 24-hour concentrations</td>
<td>65 µg/m³</td>
<td>-</td>
</tr>
</tbody>
</table>

**Sources:** EPA Office of Air Quality Planning and Standards (OAQPS); and the Oregon Department of Environmental Quality.

**Note:** ppm = parts per million; µg/m³ = micrograms per cubic meter; PM₁₀ = particulates with an aerodynamic diameter of less than or equal to 10 micrometers; PM₂.₅ = particulate with an aerodynamic diameter of less than or equal to 2.5 micrometers.

* Not to be exceeded more than once per year.

** The 3-year average of the 4th-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm. The federal 1-hour ozone standard has been revoked.

### Table 3. Corvallis Ambient PM₂.₅ Concentrations (µg/m³)

<table>
<thead>
<tr>
<th>Year</th>
<th>3-year Average of Annual Arithmetic Mean</th>
<th>3-year Average of 98th Percentile of 24-hour Concentrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2001</td>
<td>7.4</td>
<td>30</td>
</tr>
<tr>
<td>2002</td>
<td>7.6</td>
<td>28</td>
</tr>
</tbody>
</table>
2 ARCHAEOLOGY

2.1 METHODS

Oregon State Museum of Anthropology (OSMA) conducted exploratory probes on March 29 and 30, 2004, for the Corvallis-Newport Highway-Peoria Road-OR 34, Linn County (OR 34) project on the east side of the Willamette River. A total of 55 probes were excavated in this project area.

OSMA conducted a pedestrian survey of the project area on October 18, 2005. Initially, a systematic survey with 20 meter transect spacing was attempted, but the effectiveness of this approach was limited by field conditions. The area on the east side of the Willamette River is park land; brushy thickets are intermittently present, and where they have been cleared the area is mostly lawn or field grass. These conditions severely limit ground surface visibility, so the survey was focused on small intermittent patches of disturbed ground resulting from rodent burrows, maintenance equipment, or erosion. West of the river, within the City of Corvallis, visibility was even more restricted (OSMA 2005).

2.2 EXISTING CONDITIONS

East of the Willamette River, the town of Orleans was platted and thrived throughout the 1850s until being destroyed by floodwaters in December 1861. No plat of the town has been located, so the layout and configuration of the town remains unknown. Portions of the former townsite, bordering the south side of OR 34 and within the project area, have been listed on the Linn County Register of Historic Resources. However, this area, and adjacent areas to the north have not been systematically examined by subsurface means for historic resources. Although the site has been severely impacted by subsequent developments, portions of the site, within the recognized historic boundary, are thought to have integrity. It is recommended that further archaeological investigations be conducted at this location if construction by ODOT will disturb deposits in this area.

West of the river, the project occupies a portion of the original Corvallis townsite known as Dixon’s Addition. Sanborn maps of this area show the presence of warehouses, a cannery, shops, dwellings, and the city park. It is likely that the modern landscaped surface is built on fill, but this could not be determined during the field investigation in October 2005. It is likely that archaeological deposits relating to the City’s nineteenth and early to mid-twentieth century history is preserved here. Surfaces west of First Street, within the project area, are paved and it is possible that historic archaeological resources are preserved in places below the pavement.
2.3 CONCLUSION

During the OR 34 study in 2004, no prehistoric artifacts were encountered. There were historic artifacts found in the area of the Orleans Townsite.

Ground exposures in the project area during the pedestrian survey in 2005 were extremely limited, but based on both limited exposures and the documented local history, there is a high potential for historic archaeological resources throughout the project area. Further exploration of the project area is recommended by subsurface exploratory probes and remote sensing techniques, such as a ground-penetrating radar, to determine the presence and nature of archaeological resources.
3 BIOLOGY

3.1 METHODS

The methods used to develop this section included document gathering and review of existing data and reports, a field visit conducted on October 10, 2005, and interviews with experts having local knowledge. The entire project area was inspected during the field visit. Evidence of wildlife usage, aquatic habitat conditions, and potential habitat for sensitive plant species were reviewed. The Oregon Natural Heritage Information Center (ORNHIC) database was queried for known occurrences of sensitive fish, wildlife, and plant species within a 2-mile radius of the project area. The project area was specifically surveyed for the potential occurrence or suitable habitat for federal and state listed threatened or endangered species that appeared in the ORNHIC database search results (ORNHIC 2005).

3.2 EXISTING CONDITIONS

3.2.1 Wildlife Resources

General wildlife habitat within the project corridor is largely degraded. Habitats consist of a narrow fringe of riparian forest located along the steep slopes leading down to the Willamette River and altered urban park spaces. The riparian forest is characterized by an overstory of Oregon ash (Fraxinus latifolia), bigleaf maple (Acer macrophyllum), cottonwood (Populus balsamifera), and Douglas fir (Pseudotsuga menziesii). Several of the cottonwoods are estimated at over 100 feet in height, while most other trees are in the 40 to 60 foot height range. The understory contains vine maple (Acer circinatum), Himalayan blackberry (Rubus armeniacus), Oregon ash saplings, and hazelnut (Corylus cornuta). A paved walking and bike trail, bordered by ornamental plantings, is situated along the top of the bank along the west side of the river. To the east of the river, the project area contains a paved path that runs underneath Van Buren Bridge and Harrison Street Bridge. The path is bordered by maintained (i.e. mowed) grasses, dominated by tall fescue (Festuca arundinacea), with tansy (Tanacetum vulgare), bentgrass (Agrostis sp.), Queen-Anne’s lace (Daucus carota), and thistle (Cirsium sp.) as subdominants. Scattered groupings of trees are also located in this area and include walnut (Juglans sp.), weeping willow (Salix babylonica), English hawthorn (Crataegus monogyna), and Oregon oak (Quercus garryanna). Road embankments are covered by Himalayan blackberry.

There is evidence of swallows nesting under the existing Van Buren Street Bridge. Swallows are migratory birds protected under the Migratory Bird Treaty Act of 1918, as amended. The Act established a Federal prohibition against harming migratory birds, including their nests and eggs. Should the existing Van Buren Street Bridge be rehabilitated or removed, measures should be taken to exclude migratory birds from nesting on the bridge during the year the rehabilitation or removals takes place.
Threatened and Endangered Wildlife Species

The query to Oregon Natural Heritage Information Center (ORNHIC) resulted in only one reported occurrence of a federal or state listed threatened or endangered wildlife species within 2 miles of the project corridor (ORNHIC 2005). This was the Aleutian Canada goose (Branta canadensis leucopareia), which is a state listed endangered species. The goose was removed from listing as a federal threatened species in March of 2001.

Aleutian Canada geese probably bred historically on islands south of the Alaska Peninsula west of Kodiak Island, throughout the Aleutian Islands, and on the Commander and Kuril islands in Russia. They most likely wintered from British Columbia to northern Mexico and in Japan (USFWS 1999). The goose population was decimated by the early 1930’s due to introduced foxes within their breeding range (USFWS 1991). Today, most of the population nests on Buldir Island, but remnant populations also persisted on Chagulak Island in the eastern Aleutians and on Kiliktagik Island in the Semidi Island group (USFWS 1999). During migration and on wintering grounds, the geese frequent agricultural lands such as pastures and grainfields, and roost at night on inland lakes and coastal islands (USFWS 1999). According to ORNHIC (2005), during the winter of 1993-94, a total of seven Aleutian Canada geese were observed in a mixed flock of Canada geese north of OR 34, between Corvallis and Albany, Oregon. Agricultural fields and a golf course located in close proximity to the project area may provide suitable wintering habitat for the Aleutian Canada goose; however, the APE does not contain suitable habitat.

According to the ORNHIC (2005) database search, there are no known bald eagle nests within 2-miles of the project area. Several of the large cottonwood trees located within the project vicinity may provide potential nest trees for bald eagles; however, due to the relatively high traffic volume over the two bridges and proximity to an urban area, it is unlikely that bald eagles would use these trees for such purposes.

A large raptor nest was noted atop a power pole located immediately to the north side of the Harrison Street Bridge on the east river bank. Consultation with Oregon Department of Fish and Wildlife confirmed that this is an osprey nest (Nancy Taylor, ODFW pers. comm. 2005).

3.2.2 Fisheries and Aquatic Resources

Aquatic habitat within the project area consists of the mainstem Willamette River channel. The riparian forest growing along the adjacent banks is an important component to this aquatic habitat. Although the remaining fringe of riparian forest is relatively narrow, it appears to provide some large downed wood to the river channel in addition to providing shading along the shallow river margins. Similar riparian habitat exists upstream and downstream of the project area. In-channel habitat conditions, as observed from the river banks, consist of shallow river margins containing areas of fine sediment,
in addition to areas with rip-rap also covered by fine sediments. Some large wood was noted along the shallow river margins, as were a few small patches of submerged aquatic vegetation (possibly water milfoil \textit{[Myriophyllum aquaticum]}). No cobble or gravel deposits were noted in areas where the river bottom was observable. However, the hydraulic report notes that riverbed material in deeper areas consists mainly of sand, gravel, and cobbles with an estimated median particle size (D\textsubscript{50}) of two inches.

The query to Oregon Natural Heritage Information Center (ORNHIC) resulted in two reported occurrences of a federal or state listed threatened or endangered wildlife species within 2 miles of the project corridor (ORNHIC 2005). These were Chinook salmon and Oregon chub. Table 4 provides a summary of the listing status of these two species.

\textbf{Table 4. Fish Species from ORNHIC Database Query}

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Potential Habitat Within Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinook salmon (Upper Willamette River ESU, Spring Run)</td>
<td>\textit{Onchorhynchus tshawytscha}</td>
<td>LT</td>
<td>-</td>
<td>Migratory corridor and potential rearing habitat.</td>
</tr>
<tr>
<td>Oregon chub</td>
<td>\textit{Oregonichthys crameri}</td>
<td>LE</td>
<td>SC</td>
<td>No potential habitat due to lack of suitable cover. Chub prefer off-channel habitat with notable aquatic vegetation.</td>
</tr>
</tbody>
</table>

\textit{LE} = federal listed endangered species; \textit{LT} = federal listed threatened species; \textit{SC} = State sensitive critical

**Chinook salmon**

Chinook salmon were listed as a threatened species on March 24, 1999 (50 CFR 223/224). The Upper Willamette River ESU includes all naturally spawned populations of spring-run chinook salmon in the Clackamas River and in the Willamette River, and its tributaries, above Willamette Falls. Chinook salmon are anadromous and semelparous. This means that as adults, they migrate from a marine environment into the fresh water streams and rivers of their birth (anadromous) where they spawn and die (semelparous). Adult female chinook will prepare a spawning bed, called a redd, in a stream area with suitable gravel composition, water depth, and velocity. Redds will vary widely in size and in location within the stream or river. The adult female chinook may deposit eggs in 4 to 5 “nesting pockets” within a single redd. Chinook salmon eggs will hatch, depending upon water temperatures, between 90 to 150 days after deposition. Stream flow, gravel quality, and silt load all significantly influence the survival of developing chinook salmon eggs. Juvenile Chinook may spend from 3 months to 2 years in freshwater after emergence and before migrating to estuarine areas as smolts, and then into the ocean to feed and mature.
Among chinook salmon, two distinct races have evolved. One race, described as a “stream-type” chinook, is found most commonly in headwater streams. Stream-type chinook salmon have a longer freshwater residency, and perform extensive offshore migrations before returning to their natal streams in the spring or summer months. The second race is called the “ocean-type” chinook, which is commonly found in coastal streams in North America. Ocean-type chinook typically migrate to sea within the first three months of emergence, but they may spend up to a year in freshwater prior to emigration. They also spend their ocean life in coastal waters.

Spring chinook populations in the Upper Willamette ESU exhibit a life history pattern that includes traits from both ocean- and stream-type life histories. Spring chinook from the Willamette River have the earliest return timing of Chinook stocks in the Columbia Basin with freshwater entry beginning in February. Adults return to the Willamette River primarily at ages 3 through 5 (King 2004 as cited in NOAA 2004). Historically, spawning occurred between mid-July and late October. However, the current spawn timing of hatchery and natural-origin chinook is September and early October (Schroeder et al. 2004 as cited in NOAA 2004). Spring run chinook salmon typically travel upstream slowly and remain in pools near spawning grounds (Hodges and Gharrett 1949 and Briggs 1953, both as cited in Beauchamp et. al. 1983.), with spawning occurring in the upper reaches of rivers. Spawning gravel size typically ranges between 2.4 inches to 5.5 inches (Beauchamp et. al. 1983). For additional life history information on the Upper Willamette River chinook, see the Federal Register published March 9, 1998 (63 FR 11482).

ODFW fish distribution maps for the Upper Willamette River ESU spring run Chinook (ODFW 2004) shows the project reach of the Willamette River utilized for rearing and migration. The site visit confirms this likely use. Appropriate spawning habitat was not observed in the project area, nor does it exist well upstream or downstream of the project area, according to ODFW mapping.

**Oregon Chub**

Oregon chub are endemic to the Willamette River drainage of western Oregon and historically have been distributed throughout the Willamette River Valley. Historical records show this species was found as far downstream as Oregon City and as far upstream as Oakridge. The current distribution is limited to 20 known, naturally occurring populations and four reintroduced populations. The naturally occurring populations are found in the Santiam River, Middle Fork Willamette River, Coast Fork Willamette River, and several tributaries to the Mainstem Willamette River – downstream of the Coast Fork/Middle Fork confluence (FWS 1998).

Oregon chub are found in slack water, off-channel habitats such as beaver ponds, oxbows, side channels, backwater sloughs, low gradient tributaries, and flooded marshes. These habitats usually have little or no water flow, silty and organic substrate, and
considerable aquatic vegetation as cover for hiding and spawning. The average depth of habitat is typically less than 6 feet, and summer temperatures typically exceed 61 degrees Fahrenheit (°F). Oregon chub spawn from April to September. This species spawn in or near dense aquatic vegetation (FWS 1998). For general information on the life/habitat requirements and life history of the Oregon chub, see the Federal Register published November 19, 1991 (56 FR 58348).

The project area does not contain slack water off-channel habitats, flood marshes, and other habitat areas described above. Some submerged aquatic vegetation and abundant silty substrate is present along the shallow river margins within the project area. These features also suggest slow moving water conditions, which are favorable to Oregon chub. Despite the presence of these features, Oregon chub are unlikely to utilize the project area as overall cover is very low.

3.2.3 **In-Water Work Period**

The in-water work period for the project reach of the Willamette River (i.e. Willamette River between confluence with Yamhill River and McKenzie River) is June 1 through September 30 (ODFW 2000).

3.2.4 **Botanical Resources**

As described at the beginning of section 3.2.1, plant communities within the project area consist of a riparian forest plant community and altered urban park spaces. The riparian forest community is located along the steep slopes leading down to the Willamette River. Vegetation characteristics of this community is provided in Table 5. The altered urban park space community was noted along the top of banks on both sides of the river. However, the area on the west side of the river primarily consisted of new ornamental plantings and highly maintained lawn, whereas, the area on the east side contained more mature trees and was generally of a more rustic nature. This community is characterized in Table 6.

The query to Oregon Natural Heritage Information Center (ORNHIC) resulted in four reported occurrences of a federal or state listed threatened or endangered plant species within 2 miles of the project corridor (ORNHIC 2005). These are listed in Table 7 below. Species descriptions follow thereafter.
Table 5. Riparian Forest Community Characteristic Vegetation

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon ash</td>
<td><em>Fraxinus latifolia</em></td>
</tr>
<tr>
<td>Bigleaf maple</td>
<td><em>Acer macrophyllum</em></td>
</tr>
<tr>
<td>Cottonwood</td>
<td><em>Populus balsamifera</em></td>
</tr>
<tr>
<td>Douglas fir</td>
<td><em>Pseudotsuga menziesii</em></td>
</tr>
<tr>
<td>Vine maple</td>
<td><em>Acer circinatum</em></td>
</tr>
<tr>
<td>Himalayan blackberry</td>
<td><em>Rubus armeniacus</em></td>
</tr>
<tr>
<td>Hazelnut</td>
<td><em>Corylus cornuta</em></td>
</tr>
<tr>
<td>Orchard grass</td>
<td><em>Dactylus glomerata</em></td>
</tr>
</tbody>
</table>

Table 6. Altered Urban Park Community Characteristic Vegetation

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon oak</td>
<td><em>Quercus garryanna</em></td>
</tr>
<tr>
<td>English hawthorn</td>
<td><em>Crataegus monogyna</em></td>
</tr>
<tr>
<td>Walnut</td>
<td><em>Juglans</em> sp.</td>
</tr>
<tr>
<td>Weeping willow</td>
<td><em>Salix babylonica</em></td>
</tr>
<tr>
<td>Himalayan blackberry</td>
<td><em>Rubus armeniacus</em></td>
</tr>
<tr>
<td>Tall fescue</td>
<td><em>Festuca arundinacea</em></td>
</tr>
<tr>
<td>Tansy</td>
<td><em>Tanacetum vulgare</em></td>
</tr>
<tr>
<td>Bentgrass</td>
<td><em>Agrostis</em> sp.</td>
</tr>
<tr>
<td>Queen-Anne’s lace</td>
<td><em>Daucus carota</em></td>
</tr>
<tr>
<td>Thistle</td>
<td><em>Cirsium</em> sp.</td>
</tr>
<tr>
<td>Ornamental plantings</td>
<td>various</td>
</tr>
</tbody>
</table>

Table 7. Plant Species from ORNHIC Database Query

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Potential Habitat Within Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bradshaw’s lomatium</td>
<td><em>Lomatium bradshawii</em></td>
<td>LE</td>
<td>LE</td>
<td>None, seasonally wet prairie habitat not present in project area.</td>
</tr>
<tr>
<td>Kincaid’s lupine</td>
<td><em>Lupinus sulphureus</em> spp. <em>Kincaidii</em></td>
<td>LT</td>
<td>LT</td>
<td>None, upland native prairie habitat not present in project area. Disturbance level high in upland grassy areas.</td>
</tr>
<tr>
<td>Nelson’s checker-mallow</td>
<td><em>Sidalcea nelsoniana</em></td>
<td>LT</td>
<td>LT</td>
<td>Unlikely due to high disturbance levels.</td>
</tr>
<tr>
<td>Peacock larkspur</td>
<td><em>Delphinium pavonaceum</em></td>
<td>SOC</td>
<td>LE</td>
<td>None</td>
</tr>
</tbody>
</table>

*LE* = listed endangered; *LT* = listed threatened; *SOC* = federal species of concern
Bradshaw’s Lomatium

Bradshaw’s lomatium is listed as endangered under the ESA. Critical habitat has not been designated. This species is endemic to seasonally wet prairies within the central and southern portions of the Willamette Valley. The majority of Bradshaw’s lomatium populations occur on seasonally saturated or flooded prairies. It is usually found by creeks and small rivers in the southern Willamette Valley. The populations may also occur on vernally saturated seepage channels with shallow soil over bedrock. It is known to occur in Benton, Lane, Linn, Marion, and Douglas counties in Oregon. This species blooms during the early spring. No individuals, populations, or suitable habitat for Bradshaw’s lomatium were found during the on-site field inspections of the project area.

For general information on the life/habitat requirements and life history of this species, see the Federal Register determination of threatened status for Bradshaw’s lomatium (USFWS 1988).

Kincaid’s Lupine

Kincaid’s lupine is listed as threatened under the ESA. Critical habitat has not been designated. At the time it was proposed for listing, Kincaid’s lupine was known to occupy 51 sites throughout the Willamette Valley and one site within southern Washington. The northern limit of this subspecies is Lewis County, Washington, while it ranges south to Douglas County, Oregon. Kincaid’s lupine is generally found in the Willamette Valley native upland prairie sites that are characterized by heavier soils and mesic to slightly xeric soil moisture levels. This species blooming period is from May to June. No individuals, populations, or suitable habitat for Kincaid’s lupine were observed within the project vicinity during the on-site field inspections.

For general information on the life/habitat requirements and life history of this species, see the Federal Register determination of threatened status for Kincaid’s lupine (USFWS 2000b).

Nelson’s Checker-Mallow

Nelson’s checker-mallow is listed as threatened. Critical habitat has not been designated for Nelson’s checker-mallow. The USFWS has adopted an approved recovery plan for this species (USFWS 1998). Nelson’s checker-mallow occurs on moist, open ground in meadows and occasionally in wooded habitats. The soils range from poorly drained clay and clay loam to well-drained gravelly loam. This species blooms in June and July. Nelson’s checker-mallow is a federally listed threatened species that has been reduced to remnant populations in four Willamette Valley centers, one population within the Coast Range, and a separate population within Cowlitz County, Washington. Over half of the remaining Willamette Valley locales have fewer than 100 plants. No individuals, populations, or suitable habitat for Nelson’s checker-mallow were found in the project area during the on-site field inspections of the project area.
For additional information on the life/habitat requirements and life history of the Nelson’s checker-mallow, see the Federal Register determination of threatened status for Nelson’s checker-mallow (USFWS 1993a).

**Peacock Larkspur**

The peacock larkspur is found only in the Willamette Valley of Oregon. It prefers well drained areas of native prairie, especially roadsides that have escaped development (Meinke 1982, as cited by Center for Plant Conservation [CPC] 2005). In floodplains it can be found on high mounded areas that are better drained than surrounding prairie (Finley and Ingersoll 1994, as cited by CPC 2005). Due to extensive alteration of its native upland prairie habitat, the peacock larkspur is now found almost exclusively along fencerows and ditches in small remnant patches. Hybridization may be occurring with a purple-flowered delphinium, potentially diluting the peacock larkspur's genetics (Goodrich 1983, as cited by CPC 2005).

Plants may not flower until after their fifth year (CPC 2005). It is difficult to determine how long an individual plant may live, but they are believed to have a relatively long life span. Larger plants may emerge and flower one year and be completely absent the next. Like many other larkspurs, *D. pavonaceum* exhibits this dormancy in response to available moisture (Goodrich 1983, as cited by CPC 2005).

Associated species include graceful cinquefoil (*Potentilla gracilis*), tufted hairgrass (*Deschampsia cespitosa*), Kentucky bluegrass (*Poa pratensis*), Rose (*Rosa* spp.) (Meinke 1982, as cited by CPC 2005) and Douglas spirea (*Spiraea douglasii*) (Finley and Ingersoll 1994, as cited by CPC 2005). It is found along roadsides with blackberry (*Rubus* spp.), poison oak (*Rhus diversiloba*), and Oregon ash (Finley and Ingersoll 1994, as cited by CPC 2005).

No individuals or populations where observed within the project study area. Based on the above description, there is a slight potential for suitable habitat to be present within the project study area, particularly on the east side of the river. However, disturbance levels are high which would likely limit the presence of this species.

### 3.3 CONCLUSION

All of the alternatives have the potential to affect listed species in the Willamette River. Due to the high degree of disturbance to terrestrial habitats within the APE, it is very unlikely that any listed plant species would be affected by the project. A biological assessment should be prepared for the project that describes potential impacts and avoidance and minimization measures to conserve listed species in the APE.
4 HAZARDOUS MATERIALS

4.1 METHODS

A hazardous materials report was prepared by ODOT in October 1993, for the Willamette River (Van Buren) Bridge (Rivas 1993). Sites in the project vicinity that have the potential for hazardous materials were identified by reviewing agencies’ inventories, researching historical records, and visiting the project site.

Inventories are compiled by the U.S. EPA, the DEQ, Public Utility Commission (PUC), and State Fire Marshall (SFM) to identify hazardous materials at generator facilities, chemical use companies, underground storage tank installations, treatment facilities, and disposal sites. These agencies inventories were reviewed for the project area and those facilities located adjacent to or within the right-of-way of the project were listed in the hazardous materials report.

Sanborn insurance maps and tax assessor’s records were researched in the vicinity of the proposed study area. The Sanborn Insurance maps dated July 1927, covered the project area. Aerial photographs covering the project area were analyzed to determine sites which in the past were handling or could have handled hazardous materials, and that might be impacted by the project. The section of the project was flown in 1955, 1957, 1960, 1965, 1970, 1984, and 1992.

In August 1993, a reconnaissance level survey was performed to identify properties where hazardous materials may be encountered in the vicinity of the proposed project. Where access was permitted, an observation was made by driving or walking to the properties. All potentially affected commercial properties were surveyed in the project area, including all properties listed in the DEQ inventory of underground storage tanks.

A limited evaluation to identify potential sources of contamination that could impact the Van Buren Bridge Project was performed by the ODOT Hazardous Materials Group in January 2004 (Varty 2004). Research included a review of the DEQ Online Database (Facility Profiler), available Sanborn Maps, and the State of Oregon Fire Marshall’s Oregon Spill Database (CR2K).

4.2 EXISTING CONDITIONS

According to the 1993 hazardous materials report, there are 13 sites in the project vicinity that have been identified as having a potential to handle hazardous materials and as a result, may have hazardous material contamination (see Figure 14 and Table 8). Sites #1-8, listed in Table 8, have permitted underground storage tank (UST) facilities, but only #7, Truax Corporation, has active tanks, or had active tanks as of 1993. The others are either not using the tanks or have decommissioned them. In addition, four sites were identified during the site survey as having the potential of being associated with hazardous materials. Only one site would require further study (D&B Bear Service listed as site 10, in Table 8 below).
Table 8. Properties with potential for hazardous materials in the project area

<table>
<thead>
<tr>
<th>Site</th>
<th>Address</th>
<th>DEQ Id No.</th>
<th>Other Reference Info.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. G&amp;J Tire and Automotive</td>
<td>326 NW Second Street</td>
<td>8849</td>
<td>--</td>
</tr>
<tr>
<td>2. Held Pontiac Company</td>
<td>257 NW Van Buren Street</td>
<td>3167</td>
<td>--</td>
</tr>
<tr>
<td>3. Jerry’s Precision Muffler</td>
<td>415 NW Third Street</td>
<td>9502</td>
<td>--</td>
</tr>
<tr>
<td>4. Arco/Richard E. Lindsey’s Exxon</td>
<td>240 NW Fourth Street</td>
<td>76</td>
<td>1955 aerial photo</td>
</tr>
<tr>
<td>5. Phillips 66 Company (Edward’s property – Burger King parking lot)</td>
<td>240 NW Third Street</td>
<td>7046</td>
<td>1955 &amp; 1992 aerial photo</td>
</tr>
<tr>
<td>6. Battery Exchange</td>
<td>342 NW Fourth Street</td>
<td>8116</td>
<td>1956 aerial photo</td>
</tr>
<tr>
<td>7. Truax Corporation (Arco Station)</td>
<td>Third and Van Buren</td>
<td>6948</td>
<td>--</td>
</tr>
<tr>
<td>8. M.E. Woodcock &amp; Sons (Abby’s Furniture Store – formerly Wayne Buick Chevrolet garage)</td>
<td>Between First &amp; Second on Van Buren</td>
<td>10958</td>
<td>insurance and tax maps</td>
</tr>
<tr>
<td>9. Bell Transmission</td>
<td>Second Street &amp; Van Buren</td>
<td>n/a</td>
<td>1955 aerial photo</td>
</tr>
<tr>
<td>10. D&amp;B Bear Service</td>
<td>305 NW Second Street</td>
<td>n/a</td>
<td>1955 aerial photo</td>
</tr>
<tr>
<td>11. Parking area Ticor Title Insurance Building (former gas station)</td>
<td>Fourth Street and Harrison Street</td>
<td>n/a</td>
<td>1960 &amp; 1984 aerial photo</td>
</tr>
<tr>
<td>12. Goofy’s Muffler</td>
<td>355 NW Third Street</td>
<td>n/a</td>
<td>--</td>
</tr>
<tr>
<td>13. Willard Company Garage (formerly an automotive dealer)</td>
<td>244 NW Second Street</td>
<td>n/a</td>
<td>insurance and tax maps</td>
</tr>
</tbody>
</table>

The limited site reconnaissance and review of available sources conducted in 2004 identified several automotive sales and services facilities within close proximity of the project site. These facilities appear to be the same as those identified in Table 8. One additional facility, US West Communications, located at 401 Jackson Avenue, was identified as having an underground storage tank on the project vicinity. The DEQ identification number for this facility is 1253. This tank was identified as a leaking underground storage tank, which has since been closed.

There were two Oregon State Fire Marshall’s hazardous materials incident reports listed as adjacent to the project site. One was a hydraulic oil release in 1989 in the 100 block of NW Van Buren Street. The other was a diesel fuel spill in 1988 at 1st Street, north of Van Buren.

4.3 CONCLUSION

Based on the information obtained from DEQ lists, Oregon State Fire Marshall’s list, historic maps, and site reconnaissance, the potential for encountering hazardous materials during project construction activities is high. Additional hazardous materials investigation is recommended for the project site.
An updated database search should be conducted prior to initiation of final design for the project. If the D&B Bear Service property is to be acquired and the structure is demolished to proceed with the project, a preliminary assessment, including sampling and testing of soils and groundwater, is warranted. According to DEQ regulations, the current owners of proposed right-of-way properties should have any significant hazardous contamination contained or removed before the state acquires the properties.

Materials contaminated with hazardous substances may be encountered during the project construction. Therefore, in case hazardous materials are discovered during project construction, both a health and safety plan, and a contingency plan for emergency response are recommended for inclusion in the special provisions of the contract. The discovery of improper handling or disposal of hazardous materials would warrant an assessment of the suspected site.

Under Alternatives 3A and 5A First Street will be lowered and construction will affect Second Street while the new bridge is connected at this street. This will impact access to M.E. Woodcock & Sons (Abby’s Furniture Store) and Bell Transmission. D&B Bear Service may be impacted by Alternatives 3 and 3A.
5 HISTORIC/CULTURAL

5.1 METHODS

ODOT Prepared an Historic Resources Baseline Report for the Van Buren Street Bridge Replacement project in September 2004 (McMurray 2004). Methods used to identify historic resources within the APE included a reconnaissance level survey of the APE, a review of the Linn and Benton County Cultural and Historic Resources Inventories, a review of State Historic Preservation Office (SHPO) files for Linn and Benton Counties, a review of ODOT files, and a review of the ODOT Bridge Log for the Corvallis-Lebanon Highway. Resources that appeared to be 45 years of age or older were photographed and inventoried during the reconnaissance survey, and are the subject of this section.

5.2 EXISTING CONDITIONS

Fourteen historic resources are located within the project APE. One of these resources, the Van Buren Bridge #02728, has been previously determined eligible for the National Register of Historic Places, individually. The APE also contains a portion of the Corvallis Downtown Historic District that has been determined potentially eligible for the National Register. The historic contributing resources in the District within the APE are the Van Buren Bridge, the riverfront park, the Abby’s Furniture Warehouse Building, the D&B Bear Service Auto Repair Building, and the Brands Chevrolet Building. There is one historic non-contributing resource in the APE, which is considered non-contributing due to alterations (McMurry, pers. comm., 2006). With the exception of one historic barn, the remaining built resources do not appear to be eligible for the National Register. The John Beach Barn is a significant Linn County barn – a rare example of a bank barn in the county. Covered by a gambrel roof, the barn was built in 1932 as a balloon frame building with a Shawver truss roof. The barn features a boxed hay hood on the north end and ramps up to the entries at the north and south ends of the structure. Three entries provide access to the lower floor of the barn on the east elevation. The barn retains a good level of integrity, and originally housed cows in the north end and horses in the south end. The barn is currently used as a storage and training facility for the Oregon State University crew team. The barn area also includes other sheds and outbuildings.

Project effects to historic and cultural resources will be assessed using the criteria set forth in Section 106 of the National Historic Preservation Act (36 CFR 800). Section 4(f) of the Department of Transportation Act (49 U.S.C. 303) also applies to these historic resources, which stipulates that there must be no prudent or feasible alternative to the constructive use of historic resources. Project effects to historic resources should be avoided or minimized if prudent and feasible.
5.3 CONCLUSION

The D&B Bear service Auto Repair Building could be impacted under Alternatives 3 and 3A. The Abbey’s Furniture Warehouse Building and the Brands Chevrolet Building could be impacted under Alternatives 3A and 5A.

Further research and documentation is necessary to make a definitive Determination of Eligibility for the National Register of Historic Places for the barn referenced above. However, it is not likely that any of the alternatives would impact the barn.

The APE also includes two historic archaeological sites, Orleans Townsite and the Marysville Archaeological District, that may be eligible for the National Register as well. These sites have a greater likelihood of being impacted by the project (see Section 2.2).
6 HYDROLOGY

6.1 METHODS

WEST Consultants Inc. (WEST) summarized existing hydrologic conditions within the project vicinity based upon an initial site investigation on January 15, 2004, and a review of existing hydraulic analyses performed by ODOT. A summary of the hydraulic characteristics for the Willamette River in the vicinity of the project, including water surface elevations derived from the effective Federal Emergency Management Agency (FEMA) Flood Insurance Study and general recommendations for the design of the replacement structure, were prepared as part of the report.

No specific recommendations for bridge design, with regard to channel hydraulic conditions, can be provided without developing a hydraulic model of the reach in the project vicinity. However, general recommendations were made with regard to pier placement and hydraulic opening.

6.2 EXISTING CONDITIONS

Observations made during the site investigation are summarized below as follows:

- Lateral channel stability – No signs of channel instability were observed. However, the west bank of the channel in the vicinity of the bridge is protected by riprap revetment. The east bank of the channel is not protected by a revetment, but has extensive vegetation along the banks that help reduce the potential for bank erosion.
- Aggradation/degradation – No signs of aggradation or degradation were observed.
- Manning’s $n$ – Manning’s $n$ is the hydraulic surface roughness coefficient used in calculating hydraulic velocities and surface elevations. The main channel of the Willamette River near the bridge site consists of a fairly uniform section comprising of sand, gravel, and cobble sized material. The Manning’s $n$ for this condition was estimated to be 0.035. The left and right overbank area were estimated to have an $n$ value of 0.06 and 0.08, respectively. The $n$ values were selected based upon the investigator’s judgment and experience.
- Riprap – Riprap was observed along the west bank both upstream and downstream of the bridge. The riprap had an estimated median diameter of 24-inches.
- Bed material – High water conditions did not allow for the observation of bed material. However, the investigator has observed the bed material near the site on other occasions, when it was observed to be mainly sand, gravel, and cobbles, with an estimated $D_{50}$ of two inches. Overbank sediments consisted of mainly silt and sand sized material.
- Evidence of scour – Minor pier scour was observed at Pier #1 and #4, which are located in the overbank areas above the main flow channel. ODOT Bridge Inspections Reports indicate that significant scour has occurred at the central pier (Pier #2) and is now being protected by a riprap blanket.
• Pier alignment – The piers are aligned with the flow.
• Hydraulic controls – The westbound OR 34 – Harrison Street Bridge is located downstream of the bridge.
• High water marks – No high water marks were observed. A stream gage is mounted on the downstream side of Pier #1.
• Debris – There is a high potential for woody debris at the site.
• Bed forms – The bed could not be observed due to high water conditions. Gravel bars likely exist along the bed of the channel.

Water surface elevations referenced to National Geodetic Vertical Datum (NGVD) 29 at the Van Buren Street Bridge, provided in FEMA Flood Insurance Study for the City of Corvallis, dated July 2, 1984, are as follows:

- 10-year = 215.2 feet
- 50-year = 219.4 feet
- 100-year = 220.9 feet
- 500-year = 224.0 feet

The FEMA 100-year and 500-year floodplains are shown on Figure 15. FEMA has not calculated a floodway for this area.

### 6.3 CONCLUSION

It is unlikely that the backwater produced by the existing bridge extends upstream to the point where the East Channel splits off from the Main Channel. Therefore, the backwater from the existing bridge would have no significant impact on the amount of flow that leaves the Willamette River Main Channel and enters the East Channel. It is the East Channel flooding that overtops OR 34 in the APE, not backwater flooding from the existing bridge. Although a hydraulic model has not yet been developed for this project, it is unlikely that the backwater produced by new bridge piers (with or without removing the existing bridge) would extend upstream to the East Channel exacerbating OR 34 flooding.

General recommendations for any of the alternatives include:

- New bridge should have an equivalent or greater hydraulic opening compared to the existing bridge;
- If the existing bridge is to remain in place, the new piers should be aligned with the existing piers;
- If the existing bridge is to be removed, the new piers should be aligned approximately with those of the Harrison Street Bridge.

A hydraulic analysis and report should be completed in order to assist with the design of the new bridge.
7 LAND USE

7.1 METHODS

State and local transportation and land use documents were reviewed to identify the level of plan consistency of the proposed conceptual alignment options. Telephone conversations were conducted in September 2005, with the City of Corvallis and Linn County planners to confirm applicable local land use policies and designations, and to identify any concerns or potential conflicts with existing or planned uses within the project area.

7.2 EXISTING CONDITIONS

7.2.1 Permits and Approvals

The Corvallis Area Metropolitan Planning Organization (CAMPO), the City of Corvallis and Linn County planning departments were contacted to determine what potential local land use permits may be required. The jurisdictions identified the following permit requirements:

The CAMPO would not require any permits or approvals because replacing the Van Buren Street Bridge is already a part of the Draft Regional Transportation Plan as a high priority project. The CAMPO has requested that a presentation be made to the CAMPO Policy Board about the project and are periodically informed about the project’s progress.

The City of Corvallis would require a conditional development application, which requires a public hearing, for any of the initial conceptual alignment options under consideration. Impacts to the existing Van Buren Bridge would require review by the Historic Preservation Advisory Board, with the Planning Director making the final decision.

Linn County would require two conditional use applications, one for construction of the new bridge and one for crossing the Willamette River Greenway. Both conditional use permits are administrative decisions and would not require a public hearing.

Prior to beginning the local and county land use permitting process, pre-application meetings should be held with local jurisdictions to confirm requirements for addressing all relevant code criteria.

7.3 STATEWIDE LAND USE GOALS AND TRANSPORTATION PLANS

7.3.1 Statewide Land Use Goals

Six statewide planning goals are applicable to the proposed project. These include Goal 2 (Land Use Planning), Goal 3 (Agricultural Lands), Goal 11 (Public Facilities Planning), Goal 12 (Transportation), Goal 14 (Urbanization), and Goal 15 (Willamette River Greenway).
Goal 2

Goal 2 requires planning coordination between those local governments and state agencies "which have programs, land ownerships, or responsibilities within the area included in the plan." Goal 2 requires that ODOT coordinate with Linn County and the City of Corvallis. Both have planning authority over portions of the project area.

Goal 3

Statewide Planning Goal 3, Agricultural Lands, would apply to the proposed project because land on the east side of the Willamette River is zoned for agricultural uses. Goal 3 requires that (with some exceptions) agricultural lands be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest, and open space, and with the state's agricultural land use policy. According to Linn County planning staff, the project would have to address conversion of agricultural land to right-of-way under any of the alternatives, but would not require a goal exception. Any applicable land use compliance would be covered by County standards in the local development code and comprehensive plan.

Goal 11

Statewide Planning Goal 11, Public Facilities Planning, requires cities and counties to plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. The goal requires that urban and rural development be "guided and supported by types and levels of urban and rural public facilities and services appropriate for, but limited to, the needs and requirements of the urban, urbanizable, and rural areas to be served." This would apply to the project because of the impact roadway improvements could have on any existing and planned infrastructure within the project area.

Goal 12

Goal 12, Transportation, requires cities, counties, metropolitan planning organizations (MPOs), and ODOT to provide and encourage a safe, convenient, and economic transportation system. This is accomplished through development of Transportation System Plans (TSPs) based on inventories of local, regional, and state transportation needs. This would apply to the proposed project because eventually local TSPs will need to be amended to include the new facility. As described under the Corvallis and Linn County TSPs, the project has already been identified as a needed improvement, but the project has not yet been programmed into the TSP capital improvement plans.

Goal 14

Goal 14, Urbanization, requires an orderly and efficient transition from rural to urban land use. This is accomplished through the establishment of urban growth boundaries (UGBs) and unincorporated communities. UGBs and unincorporated community boundaries separate urbanizable land from rural land. Land uses permitted within the
urban areas are more urban in nature and higher intensity than in rural areas, which primarily include farm and forest uses. The proposed project would affect land in both Corvallis and unincorporated Linn County. The proposed project could have an impact on development in both city and county jurisdictions.

**Goal 15**

Goal 15, Willamette River Greenway (WRG), requires local jurisdictions to protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway through its comprehensive plan and development code. Any of the proposed alternatives would affect WRG areas, which the City of Corvallis and Linn County regulate. Local jurisdictions would ensure compliance with Goal 15 through local land use codes and comprehensive plans, and would not require a goal exception.

**7.3.2 1999 Oregon Highway Plan**

The 1999 Oregon Highway Plan (OHP) establishes policies and investment strategies for Oregon's state highway system over a 20-year period and refines the goals and policies found in the Oregon Transportation Plan. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems. The policies applicable to the proposed project are:

**Goal 1**

System Definition, the following policies are applicable to the project:

- Policy 1B (Land Use and Transportation), which recognizes the need for coordination between state and local jurisdictions;
- Policy 1F (Highway Mobility Standards), which sets mobility standards for ensuring a reliable and acceptable level of mobility on the highway system by identifying necessary improvements that would allow intersections within the project area to function in a manner consistent with OHP mobility standards; and
- Policy 1G (Major Improvements), which requires maintaining performance and improving safety by improving efficiency and management before adding capacity.

**Goal 2**

System Management, the following policies are applicable:

- Policy 2A (Partnerships), which establishes partnerships between ODOT and local agencies;
• Policy 2D (Public Involvement), which ensures that public and private parties have the opportunity to provide input on improvement projects on the state highway system; and

• Policy 2F (Traffic Safety), which improves the safety of the highway system.

**Goal 3**

Access Management, the following policies are applicable:

• Policy 3A (Classification and Spacing Standards), which sets access spacing standards for driveways on, and approaches to, the state highway system.

**Goal 5**

Environmental and Scenic Resources, the following policies are applicable:

• Policy 5A (Environmental Resources), which addresses the need to maintain or improve the natural and built environments during the design, construction, operation, and maintenance of the built environment.

### 7.4 CORVALLIS METROPOLITAN PLANNING ORGANIZATION

In 2002, the US Bureau of Census declared that the population of the Corvallis Urbanized Area had surpassed 50,000 residents and was eligible to form a Metropolitan Planning Organization for its transportation planning and programming activities. The Corvallis Urbanized Area includes the cities of Corvallis, Philomath and Adair Village, as well as densely populated portions of Benton County. In December 2002, Governor Kulongowski designated the Corvallis Area Metropolitan Planning Organization (CAMPO) as a newly formed MPO in Oregon. CAMPO is governed by a five-member Policy Board consisting of representatives of the cities of Corvallis, Philomath and Adair Village, Benton County and ODOT.

As a condition for receiving federal transportation dollars, MPOs must have a cooperative and comprehensive transportation planning process with the state and local jurisdictions. To meet federal requirements, the CAMPO is in the process of developing a long range regional transportation plan, which incorporates projects from local transportation system plans (TSP) as a part of plan. Replacing the Van Buren bridge will be included in the regional plan as a high priority project. The MPO plans to adopt the regional transportation plan in September 2006.

### 7.5 CITY OF CORVALLIS

#### 7.5.1 Corvallis Transportation System Plan

The City of Corvallis TSP, adopted in August 1996, identifies the existing transportation conditions and short and long-term transportation related needs for various travel modes within the city. Constructing a new eastbound bridge crossing within 10 years (since plan adoption) was identified within the plan as needed to improve intersection operations
along Van Buren Street. The TSP notes that cars back up for several blocks, up to Fifth Street, prior to crossing the one-lane Van Buren Street Bridge, and often require vehicles to idle while waiting through several signal cycles prior to crossing the bridge, particularly during events where spectators leave a short time after the event is over.

As a part of the TSP, several alternatives for a new OR 34 Willamette River crossing were evaluated to determine how best to alleviate the existing transportation deficiencies identified in the TSP. All of the alternatives assumed a new two-lane structure with some type of bypass on the eastside of the Willamette River.

Specific text referring to the project is found in Section 4.40 of the TSP, Future Bikeway Facility Needs:

Those routes identified in the Corvallis Trails plan for bicycles (Figure A-4 of the Trails Master Plan in Appendix A) are also adopted by reference here to meet future needs of bicyclists. Two particularly significant routes identified by the Parks and Recreation Department are:

A separated path on the east side of Willamette River that will travel through Alan Berg Park and will connect with the new Van Buren Street bridge and with the possible relocation of the existing Van Buren Street bridge. The City is currently working to have the existing Van Buren Street bridge preserved for as use as a pedestrian and bicycle bridge when it is replaced with a new bridge.

The project is also discussed in Section 4.50.60 State Highway Projects:

“[Within 10 Years] the Van Buren Street bridge over the Willamette River will be replaced with a new two-lane bridge. With the new bridge, aesthetic bicycle/pedestrian crossing of the Willamette River should be provided. This could be accomplished through provision of such facilities on the new bridge, or the existing bridge could be preserved by the State to serve as a pedestrian and bicycle bridge.”

All of the proposed build alternatives would be consistent with the City’s TSP.

### 7.5.2 City of Corvallis Comprehensive Plan

The City of Corvallis Comprehensive Plan (1998) identifies goals and policies that help guide development within Corvallis. Policies within Article 4, Natural Features, Land and Water Resources, Article 5, Urban Amenities, Article 6, Willamette River Greenway, and Article 11, Transportation are applicable. The Central Business (CB) District and WRG zone are described in greater detail under the Corvallis Development Code. While many of the policies adopted in the Comprehensive Plan apply to the proposed project, the following would be most directly applicable:
Policy 4.8.3
Prohibits development in the floodplain except bridges, public utilities, and seasonal and other temporary water-related uses that do not significantly alter the patterns of flood water flows.

Policies 4.10.7 and 4.10.8
Requires projects to minimize the negative impacts of stormwater runoff and restrictions on grading and filling in drainageways shall be regulated to prevent negative impact on the channel, floodway and flood plain, riparian habitat, wetlands, and other properties.

Policy 5.6.12
Identifies the Willamette riverfront as an important community asset and should be developed to protect its significant environmental features, allow for public access, park amenities, and places for recreational activities and events.

Policies 6.2.1 and 6.2.4
Require the City and County to work cooperatively to balance the diverse and potentially conflicting uses of the Greenway by protecting, enhancing, and maintaining the natural, hydrological, scenic, historical, archeological, agricultural, economic, and recreational qualities of lands along the river.

Policies 11.2.1 and 11.2.2
Require that the transportation system be planned, developed, and managed in a manner which contributes to community livability, recognizes and respects the characteristics of natural features, minimizes the negative effects on abutting land, and reduces existing traffic congestion and facilitates the safe, efficient movement of people and commodities within the community.

Policies 11.2.8 and 11.2.9
Give special attention to OR 34 between Corvallis and Tangent as a major entryway or gateway into Corvallis to ensure that it reflects and contributes to a positive and desirable image of the community.

Policies 11.2.11 and 11.2.14
Ensures coordination between Corvallis and the Oregon Department of Transportation (ODOT) in implementing its highway improvement program by funding, maintaining, and improving OR 34 to meet level-of-service standards contained in the Oregon Highway Plan.

The proposed project would be consistent with the Comprehensive Plan policies described above.
7.5.3 City of Corvallis Development Code

Corvallis zoning is shown in Figure 16. The City of Corvallis has planning jurisdiction over the project within the Corvallis city limits on the west side of the Willamette River. All of the proposed alternatives would be with the Central Business (CB) zoning district, which covers the entire downtown area, and within the Willamette River Greenway (WRG) District Overlay.

The CB District implements the Commercial Use Comprehensive Plan designation. It is intended to provide an area for commercial uses, as well as civic and residential uses, and to provide all basic services and amenities required to keep downtown the vital center of our community. All of the proposed alternatives would affect parcels within the CB District.

The WRG Overlay is an overlay district that coincides with the adopted Greenway boundary and applies to all development permitted by the underlying districts. It is intended to:

a. Protect, conserve, enhance, and maintain the natural, scenic, historical, economic, and recreational qualities of lands along the Willamette River;

b. Maintain or improve air and water quality within the Greenway;

c. Implement goals and policies of the State of Oregon's Willamette River Greenway Program as required by the Oregon Revised Statutes;

d. Implement policies of the City of Corvallis Comprehensive Plan;

e. Establish standards and requirements for the use of lands within the Willamette River Greenway in the City of Corvallis;

f. Provide for review of any intensification of use, change of use, or development within the Willamette River Greenway of the City of Corvallis;

g. Increase and maintain public access to and along the Willamette River to create urban recreational opportunities, provide linkages to other transportation corridors, and provide for multiple uses of urban land; and

h. Assure development is consistent with floodwater flow mitigation and management of a natural resources.

Any development within the overlay district, regardless of its classification in the underlying district (in this case CB), would require conditional development approval, a public hearing, and a notice of disposition mailed to the Oregon Department of Parks and Recreation. All of the proposed alternatives would cross the WRG Overlay and would need to comply with Corvallis development standards, as applicable. Conversations with Corvallis Land Use Planning Staff indicated that a goal exception to Goal 3, Willamette River Greenway, would not be required because the City’s development allows certain
public facilities within the WRG and, as described under (f), above, provides review standards for the proposed project within the WRG.

Portions of the project would occur within the 100-year floodplain and would be required to meet the City floodplain standards. These provisions, described in Development Code Section 4.5.10, are intended to reduce flood damage and loss of life in areas subject to periodic flooding and to protect open, natural streams, drainageways, and wetlands as integral parts of the City environment. Response to Floodplain criteria would likely be a part of the land use application to the City, with supporting hydraulic documentation showing the project’s degree of impact, if any, to the floodplain.

The Van Buren Bridge is identified on the City of Corvallis local historic register. Any alteration or modification to the existing bridge would require land use approval. Alteration of a historic resource, as defined Development Code Section 2.9.40, Alteration of a Historic Resource or 2.9.70, Demolition or Moving a Historic Resource, is an administrative procedure with a decision by the Planning Director. If the bridge were to be demolished, the Historic Preservation Advisory Board would review the application and hold a public hearing prior to the Planning Director’s decision, which is appealable to the Land Development Hearings Board and City Council. Alternative 1 would require the project meet Section 2.9.70. All other alternatives could be required to meet 2.9.40 due to the close proximity of the new bridge or alteration of the approaches.

Prior to beginning the land use permitting process, a pre-application meeting should be held with Corvallis Planning staff to identify all relevant criteria that would need to be addressed.

7.6 LINN COUNTY

7.6.1 Linn County Transportation System Plan

The east side of the project is located within unincorporated Linn County. The Linn County TSP (1999) was adopted as a part of the Linn County Comprehensive Plan Chapter 907, which identifies policies that guide the implementation of the transportation system within the County. The most applicable policies relating to bridges are addressed in 907.360(B):

1. To maintain a safe and efficient network of bridges through its continuing program of inspection, maintenance, repair, and replacement.
2. To explore replacement of bridges when necessary.
3. To support improvement of bridge capacity and access across the Willamette River between Linn and Benton Counties.
The TSP also describes the Van Buren Street Bridge as in need of improvement, but has not programmed the project or identified funding in the TSP. The TSP states that further study will be required.

### 7.6.2 Linn County Comprehensive Plan

The Linn County Comprehensive Plan (1999) includes goals and policies that guide development in the county. The Linn County TSP is adopted as a part of the Comprehensive Plan; relevant transportation goals and policies are addressed under the TSP. Other goals and polices that would apply to the proposed project refer to Historic Resources (Chapter 903.430), which require County approval for any alteration or demolition of any historic structures; and Fish and Wildlife Areas and Habitats (903.510), which require coordination with state and federal agencies when addressing potential impacts within sensitive habitat areas.

Habitat areas also receive protection through Comprehensive Plan land use designations. Within the project area, Agricultural Resource Lands (Chapter 905.120) policies address the need to “protect and maintain the farm orientation of Agricultural Resource areas (905.120(B)),” and “use the land use planning process to minimize conflicts because agricultural uses and other non-resource land (905.120(C)).” Applicable policies that address the Willamette River Greenway are identified in Chapter 905.720(B). Applicable policies address the need to preserve and protect existing farming activities in the greenway and the natural, cultural, and historic resources (Policies 1, 4, 11 and 12) within the WRG.

All of the proposed alternatives would have to meet the intent of the policies described above because all would cross agricultural land (EFU land) and the WRG. Addressing these policies would occur during the land use permitting process, described in Section 7.2.1.

### 7.6.3 Linn County Development Ordinance

Linn County zoning is shown in Figure 16. The majority of the east side of the project area is zoned for Exclusive Farm Use (EFU). The purpose of the EFU zoning district is to preserve land suitable for agricultural production, to provide for farm taxation, to allow only those uses consistent with agricultural practices, and to provide for the protection of open space, fish and wildlife habitat, watersheds, scenic resources, and air, water, and land resource quality. All of the proposed build alternatives would affect EFU zoned land.

Some transportation related uses are permitted outright within the EFU zone that could apply to any of the proposed alternatives. Non-dwelling, non-soil-dependent uses, described in Linn County Development Code Section 928.310(B)(9) identify transportation related improvements that are allowed outright including:
(b) Reconstruction or modification of public roads, including the placement of utility facilities overhead and in the subsurface of public roads along the public right-of-way, but not including the addition of travel lanes, where no removal or displacement of buildings would occur, or no new unit of land would result.

(c) Temporary public road detours that will be abandoned and restored to original condition or use at such time as no longer needed.

(g) Bikeways and footpaths

All of the proposed alternatives would need to comply with EFU code requirements.

There are Light Industrial (LI) zoned parcels located south of OR 34 at its intersection with the Corvallis Bypass. All proposed improvements would occur within existing right-of-way near LI zoned areas and would have no impact to those properties. The project would not have to address the LI district.

The Willamette River Greenway (WRG) is a zoning overlay that regulates land uses adjacent to the Willamette River. The purpose of the WRG overlay is to protect the natural, agricultural, recreational, cultural/historic, and economic qualities of lands along the Willamette River in Linn County through site-specific review of any intensification of use, change of use or development on properties located within the Willamette River Greenway in Linn County. The south side of the greenway is a narrow band that is approximately 400 feet wide, in close proximity of the river. The north side extends east about 1,600 feet towards a golf course that is owned by Oregon State Higher Education.

The WRG Overlay establishes standards and requirements for the use of lands within the Willamette River Greenway in Linn County and implements the goals and policies of the Linn County Comprehensive Plan and the State Planning Goal 3. All of the proposed alternatives would need to comply with Linn County WRG development criteria.

7.7 COMPLIANCE WITH LOCAL DEVELOPMENT ORDINANCES

Telephone conversations with Corvallis and Linn County planning occurred in September 2005, to identify any potential planning and consistency issues with adopted land use and transportation plans. City and County staff felt that the proposed conceptual alignment options would generally be consistent with local plans, but identified the following concerns:

The City of Corvallis is in the process of updating it development code, which may alter some of the requirements described above. Some of the proposed changes include greater responsibility for the Historic Preservation Advisory Board and increased riparian area protections. However, the application process, likely a conditional development review with a public hearing would still be required regardless of any proposed changes to the City’s development Code.
7.8 CONCLUSION

Generally, the proposed conceptual alignment options are consistent with local land use and transportation plans, although conceptual alignment options with greater impacts to the existing Van Buren Bridge, such as Alternative 1, would be less desirable than others with fewer impacts, because the bridge is listed locally as historic and eligible for the National Register of Historic Places.

Based on conversations with local land use planning staff and a review of relevant land use and transportation documents, constructing a new Van Buren bridge appears to be consistent with local development criteria. It also appears that impacts to the Willamette River Greenway will be addressed through the local land use permitting process and would not require a goal exception. Although removal of the existing structure is feasible from a permitting prospective, alternatives where the existing bridge remains would be recommended considering the historic nature of the structure. When a preferred alternative is chosen, local Corvallis and Linn County land use planning staff will be contacted again to further defined the land use permitting process.
8 NOISE

8.1 METHODS

TW Environmental, Inc. prepared a Screening Noise Memorandum. In this memorandum, the methods and existing conditions for noise in the project area were provided and have been summarized here. Sound is a fluctuating pressure wave emanating from a source. Noise is generally defined as unwanted sound. Noise is measured in terms of sound pressure level expressed in decibels (dB). The number of fluctuation cycles or pressure waves per second of a particular sound is the frequency of the sound. The human ear is less sensitive to higher and lower frequencies than to mid-range frequencies. Therefore, sound level meters used to measure environmental noise generally incorporate a filtering system that discriminates against higher and lower frequencies, in a manner similar to the human ear, to produce noise measurements that approximate the normal human perception of noise. Measurements made using this filtering system are termed "A-weighted decibels," abbreviated as dBA. Noise levels referred to in this report are stated as hourly-equivalent sound pressure levels (Leq) in terms of dBA.

Noise levels decrease with distance from a noise source. The Leq noise level from a line source, such as a roadway, will decrease by 3 dBA for every doubling of distance. Subjectively, a 10-dBA change in noise level is perceived by most people to be approximately a two-fold change in loudness (e.g., an increase from 50 dBA to 60 dBA causes the perceived loudness to double).

The analysis of alternatives was performed using the FHWA Traffic Noise Model (TNM, Version 2.5). A simplified screening level noise modeling methodology was used to compare the five alternatives included in the analysis. The screening level analysis uses a two-dimensional modeling technique that assumes the project area has no significant topographical features, and assumes a uniform noise level at a certain distance from the roadway. Inputs to the model include vehicle volumes within defined vehicle classes, and vehicle speeds. The traffic data used were future design year (2030) peak hour volumes. Traffic data were supplied by David Evans and Associates, Inc. to TW Environmental, Inc. for use in the noise analysis. The screening level analysis is designed to aid in the understanding of project area noise levels and to provide a method of determining the potential for noise impacts. This method allows for a direct comparison of the total number of potentially noise-impacted properties by calculating the distance from the roadway centerline to the Oregon Department of Transportation (ODOT) absolute noise impact contours, and counting the number of properties that fall within the contours for each design option. The ODOT noise impact criteria for residential properties, hotels, motels, and parks is 65 dBA, and the ODOT noise impact criteria for commercial properties is 70 dBA. The screening level analysis is not intended to provide accurate noise level predictions at discrete receptor locations. No mitigation analysis or recommendations were included in the analysis.
8.2 EXISTING CONDITIONS

The land use in the project vicinity is predominantly commercial, with one hotel (Econo Lodge) on the corner of Van Buren Street and First Street, and parks (open space) located on both banks of the Willamette River. The City of Corvallis Comprehensive Plan shows that the area west of First Street is zoned as Central Business District (CBD), and the area between First Street and the Willamette River is zoned as Open Space – Conservation. The east side of the Willamette River falls under the jurisdiction of Linn County. Linn County’s zoning map shows that the land on the east side of the Willamette River is zoned as Exclusive Farm Use (EFU).

The hotel and the parks are both subject to ODOT’s residential noise impact criteria of 65 dBA. The remaining land uses adjacent to the project area are subject to ODOT’s commercial noise impact criteria of 70 dBA.

8.3 RESULTS

The most noise-sensitive land uses identified in the vicinity of the project are the Econo Lodge hotel and the parks located on both banks of the Willamette River. There are no known noise-sensitive commercial land uses in the project vicinity. The rooms closest to Van Buren Street in the Econo Lodge fall within the residential noise impact contour under each alternative. In addition, part of the park areas on both sides of the Willamette River that lie directly beneath the potential new bridge alignment, are likely to be impacted. The exact section of these park areas that would be noise-impacted varies slightly from alternative to alternative.

8.4 CONCLUSION

In terms of selecting a preferred alternative, the results of the noise screening analysis show that the magnitude of noise impacts is approximately the same under each alternative, although the exact locations of the impacts differs somewhat between alternatives. Therefore, noise is unlikely to be a significant selection factor, as the differences in noise impacts under each alternative are negligible.
9 RECREATION AND SECTION 4(f)

9.1 METHODS

Local recreation and land use documents were reviewed to identify the level of plan consistency of the proposed conceptual alignment options. Telephone conversations were conducted in September 2005, with the City of Corvallis and Linn County planners and the Oregon Parks and Recreation Department staffs to identify existing and future recreational amenities and potential Section 4(f) of the Department of Transportation Act and 6(f) of the Soil and Water Conservation Fund Act resources within the project area.

9.2 EXISTING CONDITIONS

9.2.1 City of Corvallis

Three city parks are located within the vicinity of the Van Buren bridge replacement project. Riverfront Commemorative Park is a new 11.7 acre linear park that extends along First Street, crossing under both the Harrison Street and Van Buren Street Bridge. Park features include three plazas, three seating areas, a multi-use path, lawn areas, a fountain, multiple benches, interpretive signs, a stage area, a viewpoint, two restrooms, and extensive native landscaping. Parking is located in the area between Tyler Street to the north and Van Buren Street to the south. The multi-use path and greenspace to the east connects this parking lot area with open-space to the south of Van Buren Street.

The 1996, Corvallis Transportation Plan identified a number of future improvements for the Riverfront Park multi-use path. The plan identifies widening the Riverfront Commemorative Park path as a high priority with respect to safety and enhancement criteria. Connecting Riverfront Commemorative Park to the Van Buren Street Bridge was also identified as a necessary link of existing bikeways with future paths.

Martin Luther King Jr. Park is a 36.0-acre natural park located east of the Willamette River and just south of OR 34. When the By-Pass was constructed in 1991, remnant parcels not needed for the project were transferred from ODOT to the City of Corvallis Parks and Recreation Department. As a result, the Corvallis Parks and Recreation Department owns and manages land outside of the existing city limits and urban growth boundary. Because the park is outside of Corvallis jurisdiction, any land use permitting issues are handled through the County. The park is currently undergoing a name change. The Willamette River, a tree grove, and open space are dominant park features. Additionally, the existing park is the site of the former town of Orleans, settled by German immigrants and destroyed by an 1861 flood event. The park is used mainly for fishing and hiking. The City of Corvallis and Oregon State University own portions of the pedestrian pathway located to the north, which travels in a circular pattern under the Harrison and Van Buren Street bridge heads. Oregon Department of Transportation may own the right-of-way that travels through the path.
Alan B. Berg Park is a 73.4-acre natural park property located south of OR 34 on the west side of the Corvallis bypass. The Corvallis Bypass separates Berg Park from Martin Luther King Jr. Park. The expansive natural area and a hiking/nature trail are key park amenities.

9.2.2 Linn County

According to county staff, other than the Willamette River Greenway, there are no county owned park facilities located within the project area. The south side of the greenway is a narrow band that is approximately 400 feet wide in close proximity of the river. The north side extends east about 1,600 feet towards a golf course that is owned by Oregon State Higher Education. County planners are not aware if any funds were used from the LWCF for acquisition, improvements, or rehabilitation of county owned park property within the project area.

9.3 RECREATION

On the west bank of the river, all alternative alignments would maintain bicycle and pedestrian access from the Van Buren Bridge approach that leads to the Riverfront Commemorative Park linear path. A 10-foot wide trail linkage is proposed to connect to the linear path for all alternatives with the exception of Alternative 1, which proposes a 14-foot wide trail linkage. On the east bank of the river, the proposed roadway alignments for all alternatives would have some effect on the existing bicycle and pedestrian path located underneath the existing Van Buren bridge approach.

Recreation related impacts by alternative would include:

- Alternatives 1, 3, and 5 would continue to connect at First Street. Other than temporary construction related impacts, bicycle and pedestrian circulation for these three alternatives would experience no long-term impacts.

  Alternative 1 would replace the existing bridge and with a temporary detour bridge to the north, temporarily limiting park access to the north of the western bridge approach. The new bridge will include four and eight-foot-wide shoulders with a barrier separating the bicycle/pedestrian lane, which should improve access across the new span with opportunities for additional improvements at the street/park interface. Alternatives 3 and 5 would use the existing Van Buren Bridge as a detour structure. When construction is complete, the structure would be preserved as a pedestrian and bicycle facility.

- Alternatives 3A and 5A propose lowering First Street under the western bridge approach. Bicycle and pedestrian circulation would benefit by having the bridge connect at Second Street, where bicyclist and pedestrians would have two options for crossing the Willamette River. The old bridge would remain open for bicycle and pedestrian use, providing a connection across the river from First Street. Construction
related impacts from the new bridge would temporarily limit park access to the north of the western bridge approach.

Bicyclists and pedestrians wishing to travel between First Street and Van Buren Avenue would experience some minor inconvenience with Alternatives 3A and 5A. Rather than making a direct connection, they would have to travel by Second Street and Jackson Street or Second Street and Tyler Street.

Bicycle and pedestrian circulation would be improved for those that currently cross Van Buren Avenue at First Street. Bicyclists and pedestrian movements would have increased safety as First Street passes under the bridge and would reduce the amount of time spent waiting to cross Van Buren Avenue.

### 9.4 SECTION 4(F) AND SECTION 6(F) RESOURCES

Further evaluation of all proposed build alternatives may be required to assess what resources are applicable to Section 4(f) and Section 6(f) regulations. A Section 4(f) evaluation would be required for the use of any publicly owned park sites as a result of the proposed project. Past improvements to Riverfront Commemorative Park were financed through ODOT grants and a local bond measure. Martin Luther King Jr. Park was purchased with bond issue funds and transferred to the city in 1991 during the OR 34/20 Bypass project. According to City of Corvallis and Oregon Parks and Recreation Department staff, LWCF were not used to finance any past park improvements or acquisition within the project area.

Riverfront Commemorative Park, Martin Luther King Jr. Park, Alan B. Berg Park, and the Willamette River Greenway do not appear subject to Section 6(f) regulations, since discussions with local and regional staff confirm that funds from the LWCF were not used to establish or improve park property within the project vicinity. If the proposed alternatives would be constructed entirely within existing ODOT right-of-way, no Section 4(f) evaluations would be required.

### 9.5 CONCLUSION

It appears that a 6(f) evaluation would not be required because no LWCF funds were used for parks potentially affected by the proposed alternatives, but further evaluation of the proposed build alternatives may be needed to determine if a 4(f) evaluation is required to address the potential impacts to local park resources.

A Section 4(f) evaluation is required if a “use” (as defined in the FHWA Regulations at 23 C.F.R. 771.135(p)) occurs as a result of this project. A Section 4(f) evaluation would not be required for temporary construction easements as long as construction occupancy on the Section 4(f) resource is less than the full construction duration, ownership of the resource does not change, no adverse changes to the resource function occurs, and only a minor amount of land is involved. No further studies are required if the project is constructed entirely within the ODOT right-of-way.
10 SOCIOECONOMICS ENVIRONMENTAL JUSTICE

10.1 METHODS

This analysis is based primarily on U.S. Census Bureau information from the 1990 and 2000 Decennial Censuses. Data from state and local agencies and observations from a site visit conducted in March 2005 were also considered to support this analysis. The project area is located in unincorporated Linn County and Corvallis. Census tracts (CT) and census block groups (BG) are the primary geographic units used for determining the effects to the socioeconomic characteristics of the project area.

Census tract and block group boundaries are shown in Figure 17. Two census tracts, CT 7 and CT 307, contain the project area. CT 7 contains the portion of the project area in Corvallis on the west side of the Willamette River. CT 7 is bounded on the east by the Willamette River, OR 99 to the west, US 20 to the south, and an unnamed creek to the north. Within CT 7, BG 1 includes an area north of Van Buren, while BG 2 includes the area south of Van Buren. CT 307 covers the portion of the project area to the east of the Willamette River. It covers a rather large area due to its relatively sparse population. It is generally bounded by the Willamette River to the west and south, US 20 to the north, and I-5 to the east. There are two block groups within CT 307. CT 307, BG 2 includes all land north of OR 34 while BG 3 covers land south of OR 34. Both block groups include substantial land outside of the project area.

Demographic information from the 2000 Decennial Census also was used to identify potential Environmental Justice issues within and near the project area where potential impacts (e.g. air quality, noise, and traffic) could occur. Census data for Linn and Benton County was used as a comparison to identify any potential disproportionate impacts to minority groups and persons living in poverty in the project area.

10.2 EXISTING CONDITIONS

10.2.1 Population

Population trends since 1990 are shown in Table 9. Linn County grew approximately by 13 percent and Corvallis grew by 10 percent, compared to the state that grew by over 20 percent between 1990 and 2000, although since 2000, Corvallis has experienced a higher growth rate than either Linn County or the state, increasing its population by more than seven percent between 2000 and 2003. This growth occurred at twice the rate as the state (1.2 percent annually) and more than four times the annual growth rate for Linn County (0.6 percent).

Within the vicinity of the project, there are few residents. The east side of the Willamette River is designated for agricultural and industrial uses and the Corvallis portion of the project area is commercial use and auto oriented. Although census data show a residential population within local block groups covering the project area, those residents live...
outside of the vicinity of the project and only appear because the block groups are larger than where the project would occur.


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>2,842,321</td>
<td>3,421,399</td>
<td>20.4%</td>
<td>1.9%</td>
<td>3,541,500</td>
<td>3.5%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Linn County</td>
<td>91,227</td>
<td>103,069</td>
<td>13.0%</td>
<td>1.2%</td>
<td>104,900</td>
<td>1.8%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Corvallis</td>
<td>44,757</td>
<td>49,322</td>
<td>10.2%</td>
<td>1.0%</td>
<td>52,950</td>
<td>7.4%</td>
<td>2.4%</td>
</tr>
<tr>
<td>CT 7</td>
<td>1,268</td>
<td>1,172</td>
<td>-7.6%</td>
<td>-0.8%</td>
<td>Not Available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG 1</td>
<td>568</td>
<td>523</td>
<td>-7.9%</td>
<td>-0.8%</td>
<td>Not Available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG 2</td>
<td>700</td>
<td>649</td>
<td>-7.3%</td>
<td>-0.8%</td>
<td>Not Available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 307</td>
<td>3,463</td>
<td>3,732</td>
<td>7.8%</td>
<td>0.8%</td>
<td>Not Available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG 2</td>
<td>769</td>
<td>765</td>
<td>-0.5%</td>
<td>-0.1%</td>
<td>Not Available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BG 3</td>
<td>693</td>
<td>776</td>
<td>12.0%</td>
<td>1.1%</td>
<td>Not Available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: U.S. Bureau of the Census. 1990 Summary Tape File 3(STF-1A); Census 2000 Summary File (SF-1); Portland State University Population Research Center, 2005 (2003 population data not available at the census tract or block group level).*

### 10.2.2 Employment

The Corvallis area has several large regional employers; the largest by far is Oregon State University with over 8,100 employees. Other employers include Good Samaritan Regional Medical Center and Samaritan Health Services, which employs 1,300 people and The Corvallis Clinic with 550 employees. Both locations provide health care services to the region, which ranges from the Oregon Coast to the Cascades. Other major employers in the Corvallis area include the Corvallis School District 509J (745 employees), and the City of Corvallis (500 employees).

Table 10 shows 2004 employment by industry in Linn County and within the Corvallis Metropolitan Statistical Area (MSA). Private employers account for about 68 percent of employment opportunities in Corvallis, with the remaining 32 percent provided in government and other public sectors jobs, which in Corvallis is dominated by Oregon State University, accounting for about 22 percent of all jobs (non-farm), and approximately 68 percent of all public sector jobs. Considering the existing development pattern within the Corvallis portion of the project area, which is developed for commercial uses such as retail space, office buildings, and services, including motels and restaurants, jobs within that area are likely service oriented or professional positions. Existing businesses in the project area, based on general observation, appear to be small or mid-sized establishments that serve the local community, as opposed to regional
facilities that would draw business from a larger area. However, other downtown employers outside of the project area and Oregon State University likely draw employees from the region that may use the existing bridge as their primary access route.

Linn County is more concentrated in private sector employment than the Corvallis MSA, with approximately 83 percent of jobs in the private sector. Approximately 25 percent of Linn County’s private sector employment is in manufacturing and approximately 26 percent is in trade, transportation, and utilities. Like Corvallis, government also accounts for a high percentage of jobs, but is less focused on state education and more related to local and county government. The Linn County portion of the project area is generally undeveloped with few businesses.

Table 10. Employment by Industry, Corvallis MSA, Linn County (2004)

<table>
<thead>
<tr>
<th>Employment by Industry, Coos County</th>
<th>Corvallis MSA</th>
<th>Linn County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total non-farm employment</td>
<td>37,500</td>
<td>38,650</td>
</tr>
<tr>
<td>Total private</td>
<td>25,520</td>
<td>32,060</td>
</tr>
<tr>
<td>Natural Resources, Mining, and Construction</td>
<td>1,290</td>
<td>510</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>5,750</td>
<td>8,110</td>
</tr>
<tr>
<td>Durable goods</td>
<td>5,440</td>
<td>5,620</td>
</tr>
<tr>
<td>Nondurable goods</td>
<td>N/A</td>
<td>2,490</td>
</tr>
<tr>
<td>Trade, transportation, and utilities</td>
<td>3,950</td>
<td>8,340</td>
</tr>
<tr>
<td>Information</td>
<td>860</td>
<td>470</td>
</tr>
<tr>
<td>Financial activities</td>
<td>1,420</td>
<td>1,520</td>
</tr>
<tr>
<td>Professional and business services</td>
<td>2,800</td>
<td>3,240</td>
</tr>
<tr>
<td>Educational and health services</td>
<td>4,940</td>
<td>3,800</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>4,670</td>
<td>3,570</td>
</tr>
<tr>
<td>Leisure and hospitality</td>
<td>3,340</td>
<td>2,800</td>
</tr>
<tr>
<td>Other services</td>
<td>1,170</td>
<td>1,350</td>
</tr>
<tr>
<td>Government</td>
<td>11,980</td>
<td>6,590</td>
</tr>
<tr>
<td>Federal government</td>
<td>660</td>
<td>420</td>
</tr>
<tr>
<td>State government</td>
<td>8,450</td>
<td>450</td>
</tr>
<tr>
<td>State education</td>
<td>8,170</td>
<td></td>
</tr>
<tr>
<td>Local government</td>
<td>2,870</td>
<td>5,730</td>
</tr>
<tr>
<td>Local education</td>
<td>1,480</td>
<td>3,850</td>
</tr>
</tbody>
</table>

Source: Oregon Employment Department, 2005.

10.2.3 Unemployment (County)

Current and historic unemployment is shown in Figure 18. Unemployment within the Corvallis Metropolitan Statistical Area has remained lower than the state or other parts of the project area since 1992. Linn County has had a two to three percent higher
unemployment rate than either the state or nation in the 1990s, with unemployment in Linn County peaking in 2003 at nearly 11 percent. Unemployment has dropped considerably since then to 9.4 percent in 2004.

According the Oregon Employment Department, Benton County has had a lower unemployment rate than the state because of Oregon State University, and a less seasonally dependent economy than other parts of the region. OSU alone provides approximately 8,100 jobs, or about one-quarter of those in Benton County. In addition, Benton County has a relatively tight housing market region and a lack of housing, forcing many unemployed residents to move elsewhere. Linn County, on the other hand, has been more susceptible to the decline in manufacturing employment. From 1997 to 2003, Linn County lost more than 3,300 manufacturing jobs, most in lumber and wood products, primary metals, and other durable goods (OED 2005).

10.2.4 Income

Median household income (MHI) is shown in Table 11. Linn County and Corvallis had a 2000 MHI that was approximately 10 to 15 percent lower than the state. The 2000 Census data shows that the project area has a mix of incomes. The Corvallis portion of the project area is significantly less than block groups in Linn County or all of Corvallis. CT 7 BG 2 has the lowest MHI of any block group in the project area with a 2000 MHI of $20,938, compared to the CT 307 BG 3, which had that highest MHI of $50,288.

<table>
<thead>
<tr>
<th>Geography</th>
<th>1990</th>
<th>2000</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>27,250</td>
<td>40,916</td>
<td>50.2%</td>
</tr>
<tr>
<td>Linn County</td>
<td>25,209</td>
<td>37,518</td>
<td>48.8%</td>
</tr>
<tr>
<td>Corvallis</td>
<td>23,212</td>
<td>35,236</td>
<td>51.8%</td>
</tr>
<tr>
<td>CT 7</td>
<td>12,138</td>
<td>16,761</td>
<td>38.1%</td>
</tr>
<tr>
<td>BG 1</td>
<td>15,125</td>
<td>20,938</td>
<td>38.4%</td>
</tr>
<tr>
<td>BG 2</td>
<td>9,342</td>
<td>14,559</td>
<td>55.8%</td>
</tr>
<tr>
<td>CT 307</td>
<td>29,494</td>
<td>42,886</td>
<td>45.4%</td>
</tr>
<tr>
<td>BG 2</td>
<td>39,688</td>
<td>35,093</td>
<td>-11.6%</td>
</tr>
<tr>
<td>BG 3</td>
<td>28,810</td>
<td>50,288</td>
<td>74.6%</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of the Census. 1990 Summary File 3(STF-3); Census 2000 Summary File (SF-3).

10.2.5 Race and Ethnicity

Race and ethnicity is shown in Table 12. Census data used for this analysis cover the project area, as well as other areas that may be directly or indirectly affected by the proposed project. Linn County and Corvallis serve as the point of comparison for the
population within or near the project area. The state of Oregon is also included for reference.

Corvallis is similar to the state in its diversity of races, with approximately 86 percent of its population characterized as white, compared to 86.6 percent white within the entire state. Compared to Oregon, Corvallis has a somewhat higher percentage of Asian residents than the state with slightly lower percentages of African American or Some Other Race. The percentage of Hispanic or Latinos in Corvallis is 2.3 percent lower than the state. Linn County is less diverse than either Corvallis or Oregon, with over 93 percent of the population being white. Linn County percentage of all other races is lower than either Corvallis or Oregon, with one exception—Linn County has a higher percentage of American Indian and Alaskan Native than does Corvallis, accounting for 1.3 percent of the total population in Linn County. This is compared to 0.8 percent in Corvallis. The percentage of white residents in CT 7, covering the Corvallis portion of the project area, is higher than the city as a whole. CT 307 has the least diverse population in the project area with over 95 percent of the population identifying themselves as white.

At the block group level, most races are similar to the larger census tracts. The only noticeable exception is in CT 7 BG 1, where 2.3 percent of the population is Black/African American, compared to 1.5 percent in the census tract. Hispanic or Latino residents living in the project area block groups of CT 307 are similar or lower than Linn County and in the CT 7 area, similar to Corvallis.

Table 12. Race and Ethnicity

<table>
<thead>
<tr>
<th>Geography</th>
<th>White</th>
<th>Black or African American</th>
<th>American Indian and Alaska Native</th>
<th>Asian</th>
<th>Native Hawaiian and Other Pacific Islander</th>
<th>Some Other Race</th>
<th>Two or more races</th>
<th>Not Hispanic or Latino</th>
<th>Hispanic or Latino</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>86.6%</td>
<td>1.6%</td>
<td>1.3%</td>
<td>3.0%</td>
<td>0.2%</td>
<td>4.2%</td>
<td>3.1%</td>
<td>92.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Linn County</td>
<td>93.2%</td>
<td>0.3%</td>
<td>1.3%</td>
<td>3.0%</td>
<td>0.2%</td>
<td>4.2%</td>
<td>3.1%</td>
<td>95.6%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Corvallis</td>
<td>86.0%</td>
<td>1.2%</td>
<td>0.8%</td>
<td>6.4%</td>
<td>0.3%</td>
<td>2.5%</td>
<td>2.8%</td>
<td>94.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>CT 7</td>
<td>89.0%</td>
<td>1.5%</td>
<td>0.6%</td>
<td>3.4%</td>
<td>0.2%</td>
<td>2.1%</td>
<td>3.2%</td>
<td>94.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>BG 1</td>
<td>84.9%</td>
<td>2.3%</td>
<td>0.8%</td>
<td>3.8%</td>
<td>0.2%</td>
<td>3.4%</td>
<td>4.6%</td>
<td>92.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>BG 2</td>
<td>92.3%</td>
<td>0.9%</td>
<td>0.5%</td>
<td>3.1%</td>
<td>0.2%</td>
<td>1.1%</td>
<td>2.0%</td>
<td>95.7%</td>
<td>4.3%</td>
</tr>
<tr>
<td>CT 307</td>
<td>95.6%</td>
<td>0.1%</td>
<td>0.6%</td>
<td>0.6%</td>
<td>0.2%</td>
<td>0.9%</td>
<td>1.9%</td>
<td>97.7%</td>
<td>2.3%</td>
</tr>
<tr>
<td>BG 2</td>
<td>96.3%</td>
<td>0.3%</td>
<td>0.7%</td>
<td>1.4%</td>
<td>0.3%</td>
<td>0.1%</td>
<td>0.9%</td>
<td>99.2%</td>
<td>0.8%</td>
</tr>
<tr>
<td>BG 3</td>
<td>95.9%</td>
<td>0.4%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.9%</td>
<td>2.3%</td>
<td></td>
<td>96.9%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

10.2.6 Poverty

The Census Bureau determines poverty status by evaluating several indicators, including income earned in the previous 12 months (in this instance, 1999 income reported in the 2000 Census), income threshold and family size, presence and number of children, and age. The percentage of the population with an income below the federal poverty level in 2000 is shown in Table 13. According to the 2000 Census, the percentage of individuals and families living in poverty in Oregon was 11.6 percent and 7.9 percent, respectively. This was lower than Corvallis where the percentage of individuals and families in poverty was 20.6 percent and 17.8 percent, respectively. Linn County had a similar percentage of individuals and a slightly higher percentage of families in poverty than the state. CT 7 BG 1 and CT 7 BG 2, which includes the Corvallis portion of the project area, had a significantly higher percentage of individuals and families in poverty than the city as a whole, with 35 percent of individuals and nearly 25 percent of families living in poverty. CT 307 BG 2 and CT 307 BG 3, which include the Linn County portion of the project area, had the lowest percentage of individuals and families in poverty, with between 5.4 percent and 9.5 percent individuals and between 6.6 percent and 9.7 percent of families living in poverty. In all block groups, residents between 18 and 64 years old accounted for the highest percentage of individuals in poverty, particularly in Corvallis, where nearly 82 percent of individuals in poverty are between 18 and 64.

Table 13. Poverty Rate for Individuals and Families

<table>
<thead>
<tr>
<th>Geography</th>
<th>Percentage of Individuals in Poverty (Total)</th>
<th>Under 18</th>
<th>18-64</th>
<th>64 and older</th>
<th>Percent of Families below poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>11.6%</td>
<td>31.2%</td>
<td>60.5%</td>
<td>8.3%</td>
<td>7.9%</td>
</tr>
<tr>
<td>Linn County</td>
<td>11.4%</td>
<td>35.2%</td>
<td>55.9%</td>
<td>8.9%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Corvallis</td>
<td>20.6%</td>
<td>15.2%</td>
<td>81.8%</td>
<td>3.0%</td>
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10.2.7 Tax Revenue

Property tax revenue is not expected to be significantly reduced because the majority of construction would occur within existing right-of-way. Alternatives 3 and 3A may have a slightly greater impact to property taxes, due to the larger amount of new right-of-way required and potential impacts to the Econo Lodge Motel. Alternatives 1, 3A, 5, and 5A
would affect access to the Econo Lodge, while Alternative 3 would result in alternation or demolition of the structure.

10.3 COMMUNITY FACILITIES AND SERVICES

10.3.1 Sanitary Sewer and Stormwater

The City of Corvallis provides wastewater collection within the city limits. The system consists of approximately 200 miles of pipe ranging in size from four to 72 inches in diameter making up the collection system. In the older sections of Corvallis (about 30% of the entire collection system), the sanitary and storm systems are combined and go to the wastewater plant for treatment. The rest of the City's system and all new development are two separate piping systems. The combined sewer overflow remediation was undertaken to mitigate the situation where the collection system reaches capacity from excess storm water during heavy rainfall events, causing diluted, untreated sanitary sewage to overflow into the Willamette River. This construction project was substantially completed and placed in operation in 2001.

The City of Corvallis operates one wastewater treatment plant that treats approximately four billion gallons of wastewater a year. The sanitary sewer system is a gravity system, which uses eight pump stations to move the wastewater from lower elevation portions of the system to the treatment plant located at NE Second Street, which is outside of the project area.

Private septic systems and wells provide sewer and water service on the east side of the Willamette River. No stormwater collection is provided in the eastern portion of the project area.

10.3.2 Water

The City of Corvallis operates two water treatment plants, 11 booster pumping stations, nine finished water reservoirs, and one raw water reservoir. There is also a water system intertie with the City of Philomath that has been used to provide water to Philomath in the past. The intertie has not been activated since Philomath upgraded their water treatment system in the mid 1980s.

The Corvallis water system receives its water supply from two sources: the Taylor Treatment Plant in southeast Corvallis draws water from the Willamette River, and the Rock Creek Treatment Plant takes water from the Rock Creek Watershed on the east side of Mary's Peak. Approximately 40 percent of the city’s water comes from the Rock Creek Plant, with the remaining water coming from the Taylor Plant.

Private wells provide water service to unincorporated areas of Linn County.
10.3.3 Schools

The Corvallis School District 509J covers the project area and enrolls approximately 7,200 students. The district has 11 elementary schools, three middle schools, two high schools and one resident farm home. The project area is within the Corvallis High School service area located north of Harrison Boulevard at 836 NE 11th Street. The high school serves students from several elementary and middle schools. Residents living near the project area likely attend Franklin School, which offers kindergarten through 8th grade. Franklin School is located north of Harrison Boulevard, at 750 NW 18th Street.

Although OSU is outside of the project area, it is the largest educational facility in the region and a significant contributor to traffic within the project area. Oregon State University has annual enrollment of close to 18,000 students. The university’s main campus is located southwest of the project area.

10.3.4 Parks

Three city parks are located within the vicinity of the project area. Riverfront Commemorative Park is a new 11.7 acre linear park that extends along First Street, crossing under the Harrison Street Bridge and intersecting at the Van Buren Street Bridge. Martin Luther King Jr. Park is a 36.0-acre natural park, located east of the Willamette River and just south of OR 34. The Willamette River, a tree grove, and open space are unique park features within the park. Additionally, the existing park is the site of the former town of Orleans, settled by German immigrants and destroyed by an 1861 flood event. The park is used mainly for fishing and hiking. Alan B. Berg Park is a 73.4-acre natural park property located south of OR 34 on the west side of the Corvallis bypass. The Corvallis Bypass separates Berg Park from Martin Luther King Jr. Park. The natural area and a hiking/nature trail are key park amenities.

See also Section 9.2 for a description of parks and recreation facilities within the project area.

10.3.5 Churches

There are no churches within the immediate vicinity of the proposed project.

10.3.6 Emergency Services

The City of Corvallis provides police service for the city. The Community Services Division includes all uniformed police officers usually seen driving marked police vehicles. The division includes a Captain, three lieutenants, six sergeants, and 34 police officers. These men and women are responsible for serving as first responders to over 52,000 people spanning approximately 14 square miles. Currently, the Corvallis Police Department operates at a ratio of 1.02 officers per one thousand community members.
The Corvallis Fire Department provides fire prevention and suppression services to the City of Corvallis, Oregon State University, and the surrounding Corvallis Rural Fire Protection District. The department also provides ambulance service for nearly all of Benton County and augments emergency medical services provided by the other fire/rescue agencies located around the county. The department also partners with the City of Albany Fire Department, the Lebanon Fire Protection District, and the Oregon State Fire Marshall's Office to provide a regional Hazardous Materials Response team that serves Benton, Linn, Lincoln, Polk, and Marion counties with spill and hazard control services. The Corvallis Fire Department operates five stations; the nearest station is located at 400 NW Harrison Boulevard.

The Linn County Sheriff's Office provides patrol services for the portion of the project area on the east side of the Willamette River in unincorporated Linn County. The department has detectives, corrections services, civil services, 9-1-1 emergency services, and emergency management for the citizens of Linn County. The Sheriff's Office employs a staff of 193 full-time employees who serve in seven different operational divisions.

10.3.7 Health Care

Good Samaritan Regional Medical Center is located in Corvallis, and is a full service regional health facility that serves Benton and Linn Counties. The Corvallis Clinic is also located in Corvallis and has been providing health care services since 1947. Specialists at the Corvallis Clinic are available to provide care for all members of the family with departments ranging from immediate care to oncology, from obstetrics to gerontology.

10.3.8 Environmental Justice

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations of February 11, 1994, requires agencies undertaking federal projects to identify low-income and minority populations, assess whether adverse human health or environmental impacts would result from each of the alternatives, and address the projects public outreach program in relation to environmental justice issues.

The Council of Environmental Quality (CEQ) issued Environmental Justice: Guidance Under the National Environmental Policy Act to comply with EO 12898 and Title IV of the Civil Rights Act of 1964 (42 USC 2000d-1). The Guidance states that agencies should determine the composition of minority populations, low-income populations, and Indian tribes present in the area affected by a proposed action.

The FHWA issued an order to address environmental justice in minority populations and low-income populations on December 2, 1998 (Order 6640.23). The three basic principles of environmental justice are:
• To ensure public involvement of low-income and minority groups in decision-making;
• To prevent "disproportionately high and adverse" impacts of decisions on low-income and minority groups; and
• To assure low-income and minority groups receive their proportionate share of benefits.

Order 6640.23 defines "low-income" as "household income at or below the Department of Health and Human Services poverty guidelines." "Population" relative to environmental justice issues means "any readily identifiable groups of minority/low-income persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed activity."

Information from the 2000 Census was used to identify any potential environmental justice impacts. No residential displacements are anticipated as a result of the proposed project. Construction would occur with the Corvallis central business district and in unincorporated Linn County, which have few residents.

10.4 CONCLUSION

None of the proposed alternatives would require residential displacement or residential land acquisition, and would not have an adverse impact to any residential areas. Because no residential impacts are anticipated, no Environmental Justice impacts are anticipated either because all improvements would occur in commercial and agricultural areas and typical Environmental Justice impacts, such as increased traffic, air quality or noise impacts, if they were to occur, would only occur within those areas. Alternatives 1, 3A, 5, and 5A would affect access to the Econo Lodge, while Alternative 3 would result in alternation or demolition of the structure.
11 WETLANDS

11.1 METHODS

Previous studies conducted for wetlands in the project vicinity were reviewed such as the Oregon 34 Expressway Management Plan – Segment 2: Natural Environment Constraints Analysis prepared for ODOT by CH2M Hill, dated April 12, 2005. In these studies, the National Wetland Inventory (NWI) map was consulted and it was determined that there is no local inventory available from Linn County.

NWI wetlands are mapped from the air and often do not reflect an accurate account of the wetlands present in the field. Clean Water Act (CWA), Section 404 regulations stipulate that permits can only be granted for development with the least environmentally damaging practicable alternative. A wetland delineation and functional assessment need to be performed to determine the type and full extent of the potential wetland impacts.

ODOT biologist, Irene Ulm, prepared a Wetlands/Waters Scoping Report for the Van Buren Bridge. The project area investigated includes the Willamette Riverbank and the Willamette River, between Harrison and Van Buren Street Bridges.

11.2 EXISTING CONDITIONS

National Wetland Inventory wetland areas were identified as present in the study area of the OR 34 Natural Environment Constraints Analysis. But these areas are not within the area of interest for the Van Buren Bridge project.

Previous studies conducted for wetlands in the project vicinity suggest that there are no wetlands in the area of interest on the Benton County side, and on the Linn County side there are no wetlands that would be affected by the project at First Street, between the Willamette River and the first intersection. However, there would be riparian vegetation on the riverbank that would be within the area of potential impact for all of the alternatives.

The ODOT Wetlands and Waters Scoping Report for the Van Buren Bridge identified the Willamette River as the only water of the state or U.S. in the project area. Wetlands in the project area include a sliver of riverine wetlands on either side of the Willamette River in between the two bridges, as identified by the location of debris/drift lines.

On the Linn County side, ash, willow, and few cottonwood trees are growing at the rivers edge. There is a small patch of slough sedge and reed canarygrass with an ash sapling adjacent to the rivers edge in between the rock and debris onshore. A drift line indicative of Ordinary High Water (OHW) was located approximately 5-10 feet above the observed water level. Some tree roots are visible/exposed at 5 feet above the observed water level. In one area, there are a few willow branches overhanging the river.
On the Benton County side, ash trees are growing at the river’s edge. There is a small patch of reed canarygrass located within the riprap on the shore. Tree roots are exposed at 5 feet above the water’s edge. A drift line is visible in the tree branches approximately 8 to 10 feet above the existing water level.

11.2.1 Federal Wild and Scenic Rivers

The Willamette River in the study area of the OR 34 project is not a designated Federal Wild and Scenic River.

11.2.2 Oregon Scenic Waterways

Waterways in the study area of the OR 34 project, which include Willamette River and Muddy Creek, are not included on the Oregon Department of State Lands list of Designated Scenic Waterways (ORS 390.826).

11.2.3 Groundwater Resources

The study area of the OR 34 project is not within any of the Critical Groundwater Areas or Groundwater Limited Areas designated by Oregon Water Resources Commission. Therefore, it is assumed this is also true for the Van Buren Street Bridge project area.

11.2.4 Regulation

The Willamette River is considered to be a waters of the U.S. and of the state of Oregon. It is also a navigable waterway. The Willamette River contains fish species of concern and there is also an osprey nest located north of the Harrison Bridge. Any other species of concern, including migratory birds and bats, would need clearance during the state and federal permitting process. The project would be subject to an in-water period in order to reduce impacts to wildlife species.

Recent DSL/Corps/EPA delineation guidance pioneered the inclusion of “incidental wetlands” located below OHW. The vegetation along the river below OHW would be considered riverine wetlands. OHW data should be reviewed/confirmed to determine the location of OHW at the project site. The OHW during this evaluation was determined to be 5-10 feet above the existing water level due to location of drift/debris lines.

11.3 CONCLUSION

Because the riverine wetlands on both banks of the Willamette River are continuous in the project area, all of the alternatives under consideration have the same potential for impact to these wetlands.
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12 SOURCES CITED

Andes, Gary. Department of Environmental Quality, Air Quality Western Region. Personal communication. October 10, 2005.


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FIGURES
Figure 1
Vicinity


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ALTERNATIVE 3A
VAN BUREN STREET BRIDGE

DECEMBER 2005

FIGURE 6

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Figure 14

Potential Hazardous Material Sites

LEGEND
Potential Hazardous Material Locations
1. G & J Tire Automotive
2. Held Pontiac Company
3. Jerry’s Precision Muffler
4. Arco/Richard E. Lindsey’s Exxon
5. Former Phillips 66 Gas Station
   (presently parking lot for Burger King)
6. Battery Exchange
7. Turax Corporation (Arco Station)
8. M.E. Woodcock & Suns (Abby’s Furniture)
9. Bell Transmission
10. D&B Bear Service
11. Parking area Ticor Title Insurance Building
    (former gas station)
12. Goofy’s Muffler
13. Willard Company Garage

ODOT 1993

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Figure 15
Floodplains

LEGEND

Zone A (100-year floodplain)
Zone B (500-year floodplain)

Aerial Photograph: ODOT 1993
Floodplain Overlay: Flood Insurance Rate Maps (FIRM):
City of Corvallis, Oregon, Benton County Panel 4 of 6, January 3, 1985 and
Linn County, Oregon (unincorporated areas) Panel 350 of 825 September 29, 1986

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City of Corvallis, Community Development Department, Planning Division (Revised January 2005)

Figure 16
Zoning in Project Vicinity
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Figure 18. Unemployment

Source: Oregon Employment Department (2005)