

OPPORTUNITIES AND CONSTRAINTS REPORT



April 5, 2017

Prepared for the City of Wilsonville



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Introduction

The City of Wilsonville is undertaking a project to develop preliminary designs for the French Prairie Bridge, a proposed bicycle/pedestrian/emergency vehicle crossing of the Willamette River between Interstate 5 (I-5) and the railroad bridge. The project addresses bridge alignment, bridge type selection, 30% design, and preliminary environmental documentation.

This report is a summary of many issues pertinent to the selection of the alignment of the French Prairie Bridge. The information below summarizes existing conditions within the immediate area of the proposed project. The discussion is focused on major issues that affect construction and use of the bridge (opportunities and constraints) with the intent of providing a basis for selection of a bridge alignment. Additional detail regarding opportunities and constraints described herein can be found in supporting reconnaissance reports prepared for this project. This document should not be considered exhaustive.

At the current level of project development, potential biological constraints and opportunities, including wildlife impacts, are expected to be substantially similar for all potential bridge alignments within the project study area and are not specifically discussed herein. Project permitting and Endangered Species Act compliance is anticipated to follow a programmatic process with best management practices implemented to minimize impacts. A discussion of wetlands and waters is included which can provide some insight into potential impacts to aquatic species. Subsequent analysis and investigations of the selected bridge alignment will address project impacts specific to the chosen alignment. These further investigations will build upon the work contained in this document and assist with selection of a bridge type. Once a bridge type is selected, the French Prairie Bridge project will be prepared to begin the 30% design phase.

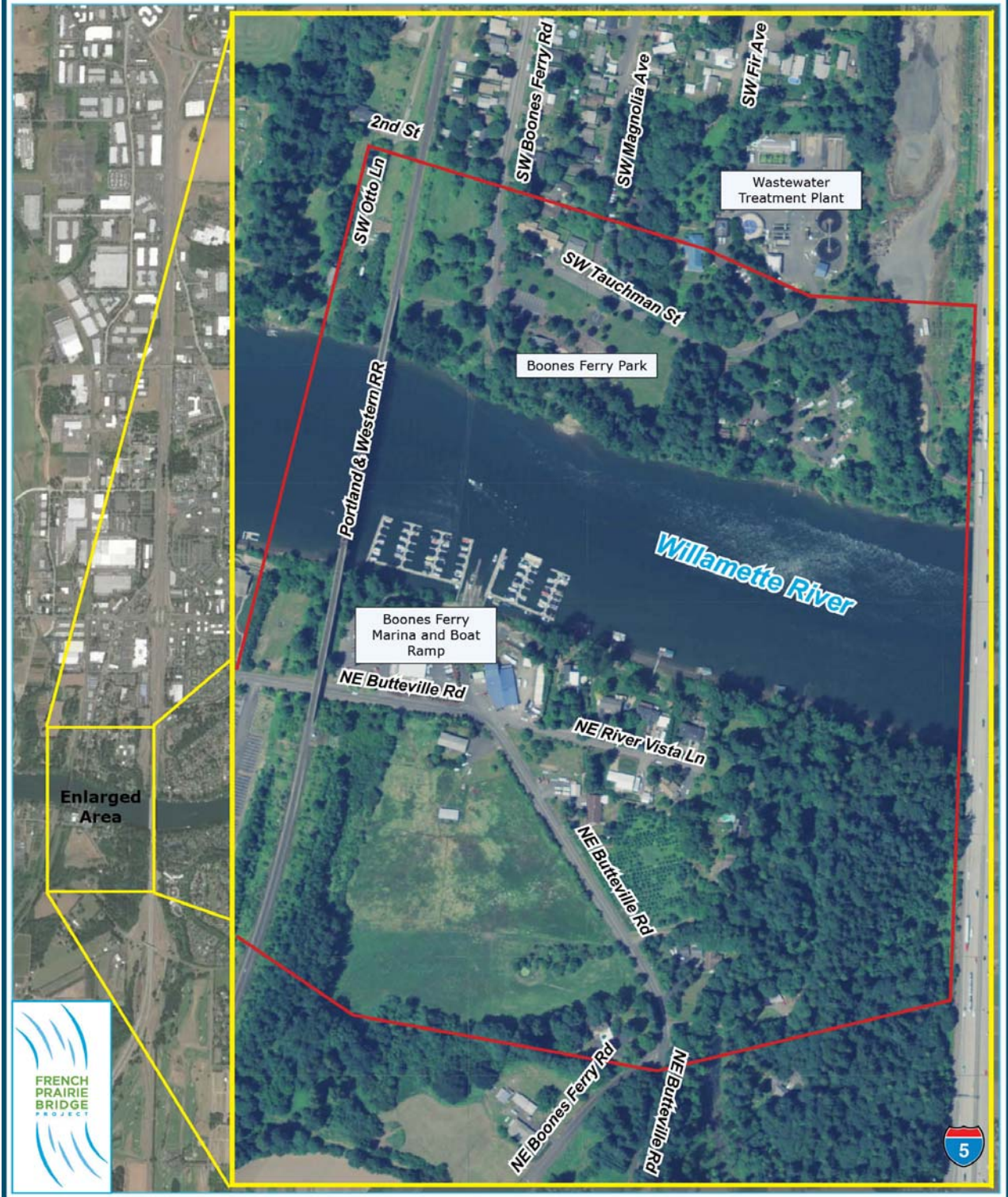
Project Setting and Constraints

Topography

The French Prairie Bridge project area lies at the south edge of the City of Wilsonville, west of I-5. The project setting is a broad river valley with the north bank of the river consisting of urban development and the south bank being rural. See Figure 1 on page 2 for a vicinity map.

The Willamette River runs east-west through the City. The water level of the Willamette River varies from a normal low water elevation of approximately 53 feet to a 100-year flood elevation of approximately 94 feet. The river channel is somewhat incised. The top of bank on the north side of the river is at an elevation of approximately 105 feet and the ground gradually rises away from the river over the next 1000 feet to an elevation of approximately 150 feet. Top of bank on the south side of the river is at an elevation of approximately 90 feet. Moving south from the top of bank, the ground is approximately level for 1000 feet before rising quickly up to another level area at an elevation of approximately 160 feet. The project area is bounded on the west and east by man-made embankments for a railroad and I-5. These embankments are at an elevation of approximately 135 feet.

FIGURE 1: VICINITY MAP



The east end of the project area has drainages discharging into the Willamette River. The drainage on the north bank of the river is approximately 300 feet west of I-5 and drains a relatively small area. The drainage on the south bank of the river is approximately 600 feet west of I-5 and drains a large area including a portion of Charbonneau and the Langdon Farms Golf Club. These drainages are incised and interrupt the river bank.

See Figure 2 on page 7 for a topographic map of the project area.

Transportation Network

Existing crossings of the Willamette River are limited. There are only two bridges and one active ferry service between the highway bridges at Oregon 219 near Newberg and Oregon 43 in Oregon City, a distance of approximately 22 river miles. Two bridge crossings are located in Wilsonville, approximately midway between the Newberg and Oregon City highway bridge crossings. One bridge, located on the west boundary of the project study area, serves rail traffic. The other bridge, located on the east boundary of the project study area is the Boone Bridge carrying I-5 traffic. The ferry, between the Boone Bridge and Oregon 43 bridge in Oregon City, serves vehicle, bicycle, and pedestrian traffic during scheduled hours of service.

Public Roads

The only existing fixed crossing of the Willamette River between Newberg and Oregon City is the Boone Bridge which carries I-5. Bicycles and pedestrians can legally use the shoulders of I-5, though no specific facilities have been provided.

The Boone Bridge is routinely congested with freight traffic and heavy commuter traffic in mornings (northbound) and evenings (southbound) with substantial delays possible between Wilsonville Road and Miley Road/Butteville Road. The congestion and associated delays inhibit commerce and hinder emergency response across the Willamette River.

The Canby Ferry, a toll service operated by Clackamas County, is located approximately four miles downstream of the project location. The ferry can carry up to six vehicles at a time. It is open from 6:45am to 9:15pm every day (7:30am to 4:30pm in December and January) except select holidays and times when the river level is above 70 feet (on an assumed datum).

The project study area is located at the site of the former Boones Ferry service, which ceased operation in the 1950s. Boones Ferry Road extends north and south of the project location to Wilsonville (north) and towards Donald (south). Wilsonville Road is the first east-west collector north of the project site. Butteville Road is the first east-west collector south of the project site. These roads can be used to access the project location.

Bicycle and Pedestrian Paths

The existing path network is intermittent on both sides of the Willamette River. Where dedicated bicycle and pedestrian connections do not exist, public streets

(with or without sidewalks or shoulders) are used to make the connections. As such, the existing transportation network is a blend of roadways and paths.

Existing paths north of the Willamette River include the Ice Age Tonquin Trail and Wilsonville Waterfront Trail. The Ice Age Tonquin Trail is located north west of the project area. Plans exist to extend this trail to the vicinity of Boones Ferry Park. The Wilsonville Waterfront Trail is located primarily between Boones Ferry Park and Memorial Park, crossing under the Boone Bridge and connecting to neighborhoods to the east. Planned improvements of the Wilsonville Waterfront Trail include upgrading the facility to comply with ADA requirements.

The only existing path south of the Willamette River is the Willamette River Greenway Trail. This trail currently extends through the Charbonneau neighborhood east of I-5 as a separated sidewalk parallel to SW French Prairie Road. Metro's regional trails and greenways program shows a future extension of this trail under the Boone Bridge extending along Butteville Road to the west. Clackamas County's Transportation System Plan (TSP) plans for widened shoulders along Butteville Road to extend an active transportation connection to Champoeg State Park.

No current north-south connections exist across the Willamette River.

Railways

The Portland & Western Railroad, a Class III railroad, operates on the railroad track and bridge at the west end of the project study area. Construction of the bridge was completed in 1975. Portland & Western Railroad owns the railroad tracks. The State of Oregon owns the bridge and the land underlying the tracks on either side of the river. This bridge carries freight traffic on a single track.

Boating

The Willamette River is the primary navigable waterway through the central and lower Willamette Valley. This reach of the Willamette River is part of the Willamette River Water Trail, part of the National Water Trails System and managed by Willamette Riverkeeper. The approximate location of the navigational channel is represented on Figure 2 on page 7.

A permit from the United States Coast Guard (USCG) is required to construct a bridge over the Willamette River in accordance with Section 10 of the Rivers and Harbors Act. Bridges are located immediately upstream and downstream from the project location. The I-5 Boone Bridge is located immediately downstream and was constructed in the 1950s and widened in the 1960s. The railroad bridge is located immediately upstream and was constructed in 1975. Each bridge provides approximately 240 feet of clear width between piers and a vertical clearance of approximately 75 feet over low water. A restriction of navigable clearances to less than that which is currently available will require a navigational study and coordination with the USCG.

The Boones Ferry Marina and public boat ramp are located on the south bank of the river within the project study area. The marina is privately operated under a lease from Clackamas County. This facility provides access and moorages for recreational boaters with small craft as well as a parking lot for users. An overflow parking lot is located south of Butteville Road and west of the project area. The facility also

supports commercial business. Additional private moorages are located along the south bank of the river in the project study area.

Aviation

The project location is approximately 13,000 feet north of the Aurora State Airport (KUAO). This facility primarily serves general aviation users with an average volume of 260 flights per day, including instrument operations. The longest runway is 5000 feet in length with a surface elevation of 200 feet. The Aurora State Airport is owned and managed by the Oregon Department of Aviation.

Due to the proximity of the project to the Aurora State Airport, the Federal Aviation Administration (FAA) must be notified if the project proposes to construct any features more than 200 feet above ground level or above elevation 330 feet. The FAA may require an aeronautical study to determine whether the proposed structure is a hazard to air navigation.

Hydraulics, Floodplain, and Floodway

The Willamette River in the vicinity of the project is within a Federal Emergency Management Agency (FEMA) defined floodplain and floodway. According to the FEMA Flood Insurance Rate Maps the 100-year floodplain in the vicinity of project is at an elevation of approximately 94 feet. The floodplain and floodway boundaries can be seen on Figure 2 on page 7.

The construction of piers within the defined floodway will require a no-rise analysis to determine what mitigation is necessary to avoid increasing the 100-year flood elevation. Mitigation measures within the floodway will be required to compensate for hydraulic impacts of piers. These mitigation measures will likely include excavation along or between the river banks within the floodway.

Potential for scour at the new bridge site is an important hydraulic design consideration. Scour around the piers will best be addressed through extending the piers adequately below the scour depth, although scour countermeasures could be used if necessary. Potential scour at the abutments, if applicable, will be addressed through a deepened foundation or the placement of revetment depending upon the selected bridge geometry and layout.

Utilities

The project area has many public and private utilities. These vary from domestic utility services (not individually identified) to regional facilities transmitting electricity and natural gas. The utilities which have been identified are shown on Figure 2 on page 7 and are discussed below.

Northwest Natural (NWN) Gas Line

A NWN gas facility is located on the west side of Boones Ferry Road. Based on visual markers, the line appears to cross the Willamette River in a subterranean bore on a line that is an extension of Boones Ferry Road to a point on Butteville Road just east of the northern boat ramp parking lot. From that point, it extends to the east along Butteville Road before continuing south along Boones Ferry Road.

Existing distribution lines serving adjacent properties are anticipated to exist along Butteville Road and River Vista Lane.

Bonneville Power Administration (BPA) Transmission Lines

BPA operates high voltage power transmission lines located west of the railroad bridge. These lines extend north and south of the project area west of the Portland and Western Railroad facility.

Power and Communications

Local power transmission, distribution, and communication are present in the project area. Overhead utilities are located on both sides of Boones Ferry Road and the north side of Tauchman Street. A local transmission line extends from the west side of Boones Ferry Road across the Willamette River to the west side of the Boones Ferry Park boat ramp. Overhead lines are present in the immediate vicinity of the boat ramp, extending both directions along Butteville Road and along River Vista Lane.

Municipal Sanitary Sewer and Water Facilities

The City of Wilsonville operates a wastewater treatment plant north of Tauchman Street. Generally speaking, this facility receives flows from north of the project area and, after treating the water, discharges through the east end of the project area into the Willamette River. An upcoming project will improve and realign the existing outfall into the Willamette River.

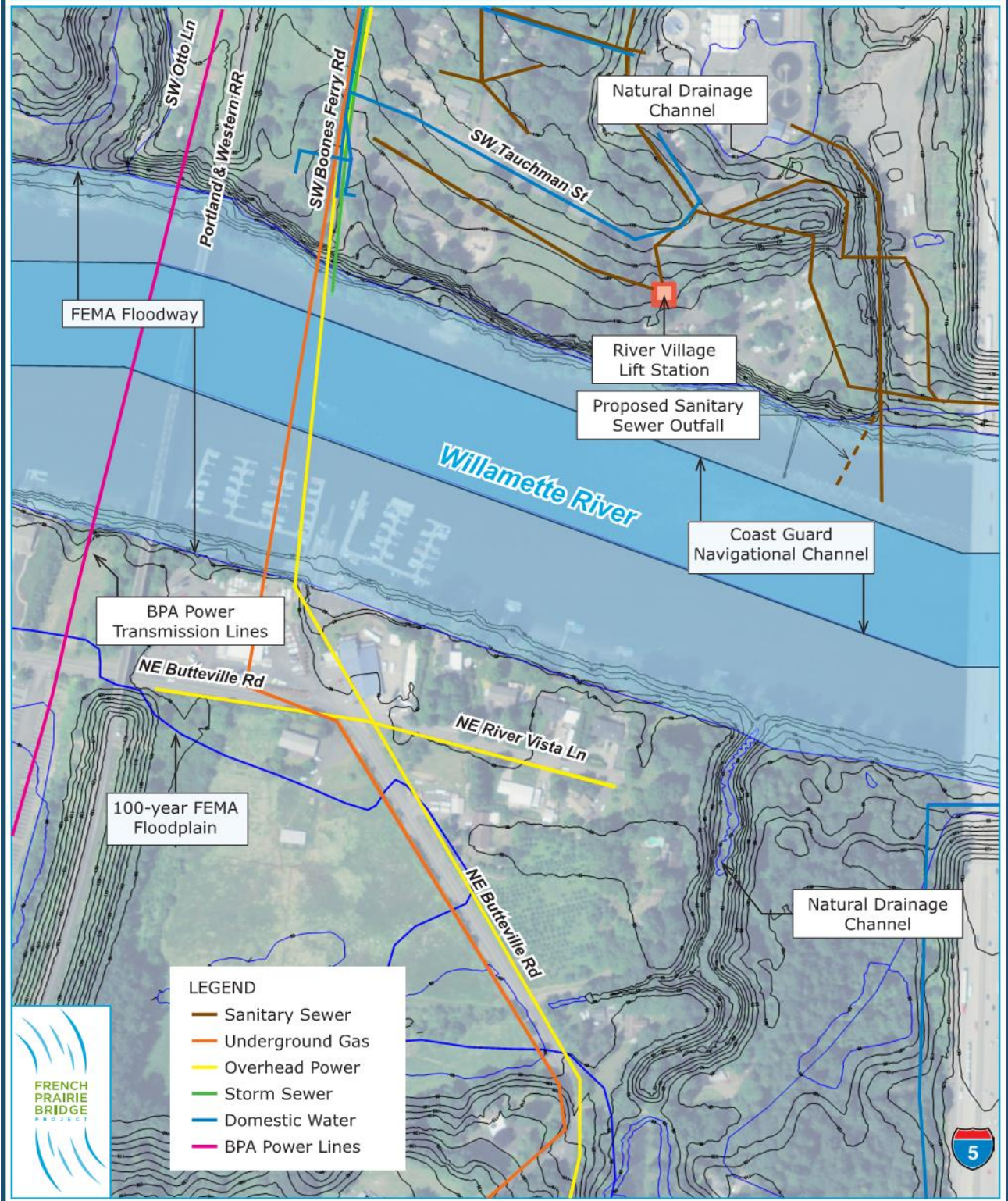
Boones Ferry Park is served by the River Village Lift Station located within the project area.

Charbonneau is served by the Charbonneau Pump Station. This pump station conveys wastewater northerly over the Boone Bridge in a force main. The force main discharges into the Charbonneau Interceptor lower branch, near the end of Tauchman Street, and then to the wastewater treatment plant.

Municipal water facilities are located along the east side of Boones Ferry Road and the north side of Tauchman Street. Water service lines are located within Boones Ferry Park. Water transmission lines to Charbonneau cross the Willamette River on the Boone Bridge. A six-inch-diameter City waterline serving the French Prairie Rest Area is located west of I-5 south of the Willamette River.

Existing municipal stormwater facilities are discussed in the Water Quality and Stormwater section on page 21.

FIGURE 2: TOPOGRAPHY, RIVER, AND UTILITIES



Land Use and Zoning

The project is located partially within the City of Wilsonville and partially in unincorporated Clackamas County. Land use is generally urban within Wilsonville and rural in unincorporated Clackamas County. Figure 3 on page 9 shows each jurisdiction's zoning. The project crosses the Willamette River Greenway established by Statewide Planning Goal 15.

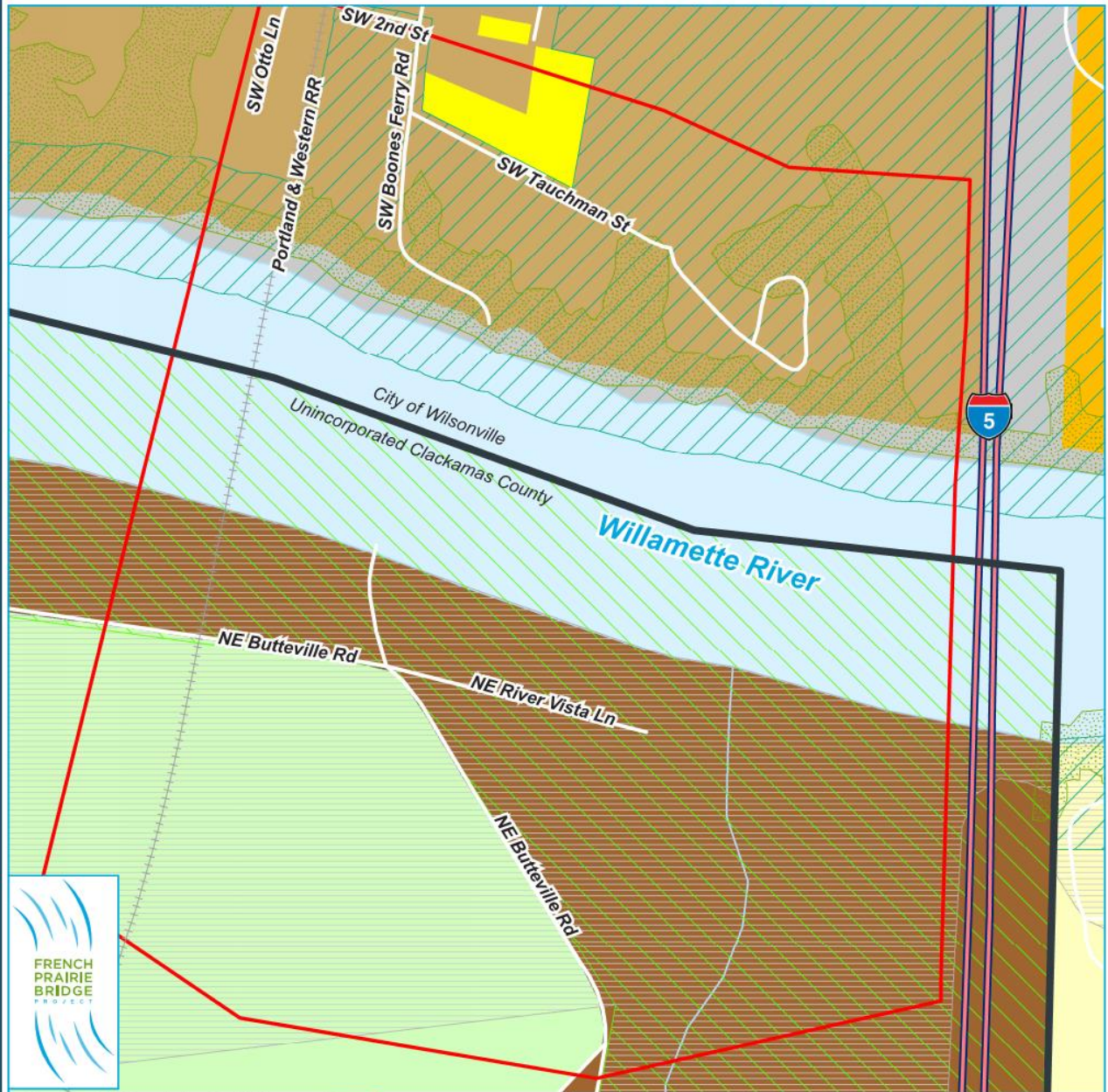
City of Wilsonville

The bridge project may require City approval under the Willamette River Greenway provisions of the City's Planning and Land Development Ordinance. Bridge improvements, such as a pier, located within the Greenway overlay zone, as shown on Figure 3, will trigger the requirement. Ancillary improvements located within the zone, such as new access to the water or an intensification of an existing access could also trigger the requirement.

Clackamas County

The proposed bridge is expected to require a conditional use permit from Clackamas County under the Willamette River Greenway provision of the County's Zoning and Development Ordinance. The bridge will also require a floodplain development permit. The bridge or connecting ramp and path that extend south or west of NE Butteville Road into land zoned Exclusive Farm Use (EFU) also will likely require a conditional use permit under the EFU District provisions of the Ordinance. Depending on the extent of expected use of the bridge by emergency vehicles, the County could determine that project improvements on EFU land make them subject to state statutory standards that would preclude land use approval, if there is a reasonable alternative that does not impact EFU land.

FIGURE 3: ZONING



French Prairie Bridge

Area of Potential Impact

Wilsonville Zones

- PDR3: Planned Development Residential - 3
- PDR4: Planned Development Residential - 4
- PDR5: Planned Development Residential - 5
- R: Residential
- Significant Resource Overlay Zone (SROZ)
- Willamette River Greenway

RAH: Residential Agricultural Holding

Clackamas County Zones

- RRF5: Rural Residential Farm Forest - 5 Acre
- EFU: Exclusive Farm Use
- Willamette River Greenway
- Floodplain Management District
- Undesignated

0 250 500 Feet



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Parks and Recreational Uses

The City will have to obtain FHWA approval of the bridge under Section 4(f) of the United States Department of Transportation Act, but the approval can be as a *de minimis* use. Figure 4 on page 11 shows the parks in the project area that are subject to Section 4(f) on the north and south sides of the Willamette River. Section 4(f) restricts the conversion of parkland to transportation use. Bridge improvements, including connecting ramps and paths, located within Boones Ferry Park, as well as land planned for park expansion, will require such approval. Similarly, the placement of piers in the Boones Ferry Boat Launch will require Section 4(f) approval. In addition, effects on recreational trails outside the parks, including the trail under the Boone Bridge on the north side of the Willamette River, will require Section 4(f) approval. Impacts of bridge improvements are likely to qualify as *de minimis*, as long as the improvements are compatible with existing park and recreational uses and do not preclude planned park development. The approvals will require documentation. FHWA will likely assign substantial weight to the views of Wilsonville officials regarding Boones Ferry Park and the trail under the Boone Bridge and of Clackamas County officials regarding the Boones Ferry Boat Launch when deciding whether the impacts qualify as *de minimis*.

A portion of Boones Ferry Park is subject to the requirements of Section 6(f) of the Land and Water Conservation Fund Act (LWCFA), because the City used LWCFA grant funds to purchase and improve the park. See Figure 5 on page 12. The National Park Service and Oregon Parks and Recreation Department will review any project improvements located in the portion of Boones Ferry Park subject to Section 6(f) and judge whether they qualify as recreational enhancements. If they don't, the land used for the improvements will have to be replaced with lands of equivalent appraised value, recreational value, and size. Approval is expected, but will have to be applied for.

FIGURE 4: SECTION 4(f) LAND

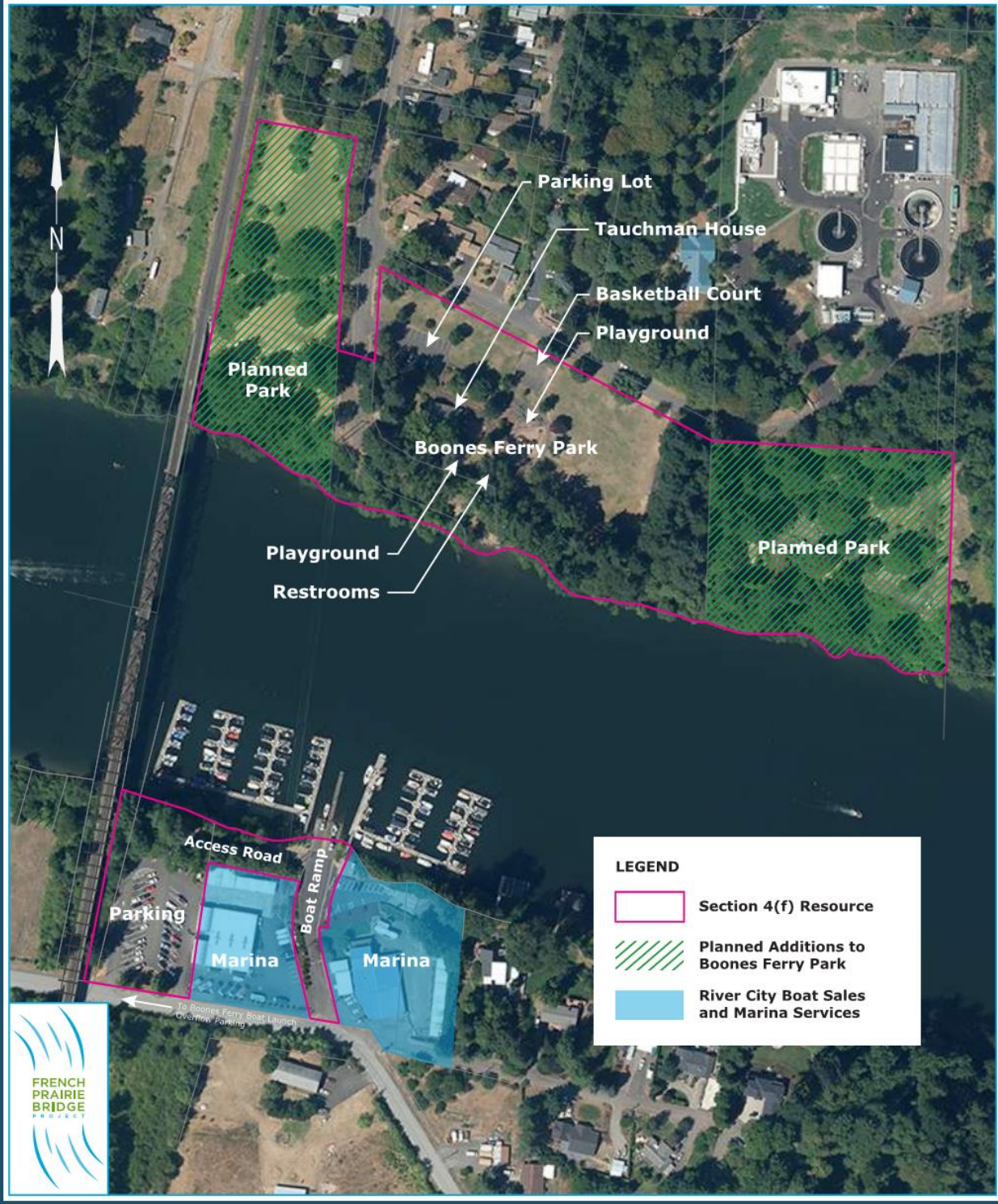


FIGURE 5: LAND SUBJECT TO SECTION 6(f)



Design Criteria and Standards

It is anticipated that the project will need to comply with applicable standards for federally funded projects. The AASHTO *Guide for the Development of Bicycle Facilities*, AASHTO *Guide Specifications for the Design of Pedestrian Bridges*, AASHTO *LRFD Bridge Design Specifications*, AASHTO *A Policy on Geometric Design of Highways and Streets*, the Americans with Disabilities Act, and City of Wilsonville and Clackamas County standards as applicable.

Seismic design of the bridge can be performed in accordance with ODOT's latest criteria. The application of the AASHTO *Guide Specifications for LRFD Seismic Bridge Design* using ground motions from a full rupture of the Cascadia Subduction Zone would be required in accordance with ODOT's *Bridge Design and Drafting Manual*. Application of these criteria would result in a bridge that is anticipated to be used almost immediately after a Cascadia Subduction Zone earthquake.

Table 1 on Page 13 summarizes the project's design standards.

Table 1. Geometric Design Standards

Design Criteria	Standard
Design Speed	18 mph
Path Width	10 feet
Bridge Width	14 feet
Maximum Grade	5 percent
Stopping Sight Distance	200 feet
Cross Slope	2 percent
Vertical Clearance on Bridge	TBD (from project TAC)
Vertical Clearance over Roadways	17 feet
Vertical Clearance over River	TBD (from USCG)

Right of Way and Land Ownership

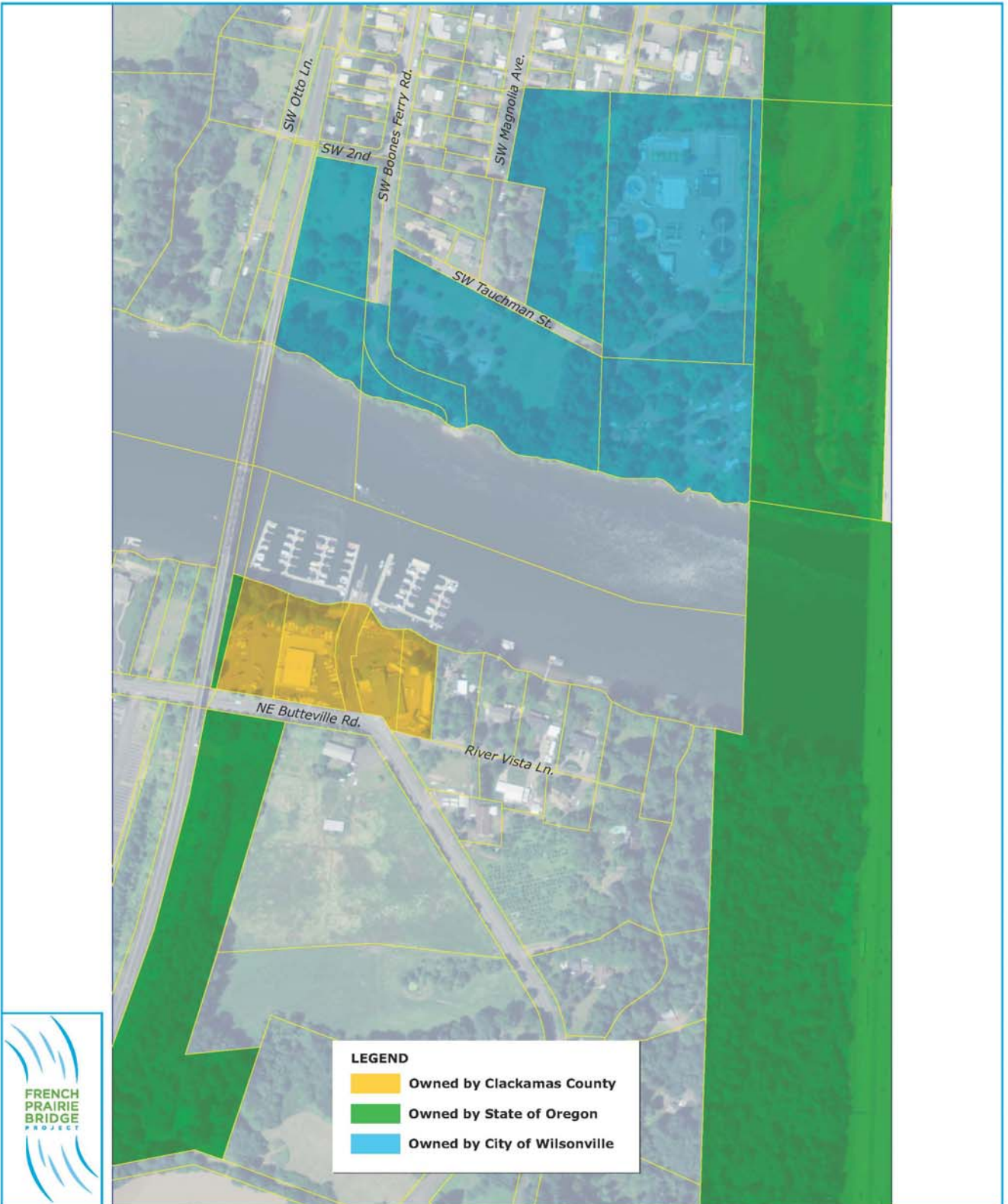
Property ownership in the project area is mixed. Figure 6 on page 14 illustrates public ownership of property within the project study area. Public rights of way of various jurisdictions exist throughout. The west edge of the project area is railroad right of way owned by the State of Oregon. The east edge of the project area is Oregon Department of Transportation (ODOT) right of way for I-5. The remaining rights of way are owned by either the City of Wilsonville (north of the Willamette River) or Clackamas County (south of the Willamette River).

North of the Willamette River, the City of Wilsonville owns the properties between 2nd and Tauchman Streets and the river. North of Tauchman Street, the City owns the wastewater treatment plant property. Property north of Tauchman Street and west of the wastewater treatment plant is privately held, while property east of the wastewater treatment plant is owned by ODOT. Property north of Second Street is privately held.

South of the Willamette River, the river frontage is split between Clackamas County (along Butteville Road) and private parties (along River Vista Lane). Property south of Butteville Road and River Vista Lane is privately held.

Use of private land will require acquisition of the land in accordance with the Uniform Relocation Act and State Law. Use of public land or right of way is likely to require an intergovernmental agreement with the owning government agency.

FIGURE 6: PUBLICLY HELD PROPERTY



Geology, Soils, and Seismicity

A preliminary desktop study that included assessment of available subsurface data such as site geology, soils, and seismicity has been performed. The site geology is generally well understood. This section of the Willamette Valley is underlain by Troutdale Formation clays, likely to a depth of 100 or more feet. The upper layers of soil are predominantly silts and sands with some pockets of gravels. Based on this information, it is expected that the river bottom consists of a thin layer of silt or sand over Troutdale Formation clays. The river banks are expected to be layers of silts, sands, and gravels. Geotechnical explorations from the construction of the railroad bridge immediately upstream (1972) are included in the Preliminary Geotechnical Assessment.

The water table elevation varies seasonally and is generally located above the water surface elevation of the Willamette River. The layers of sand located below the water table are susceptible to liquefaction during a seismic event. Seismic motions may cause local slope failures in the areas underlain with these liquefiable soils, particularly where the river banks are steepest. Geotechnical exploration of the river banks to assess the risk of slope failure is recommended once a bridge alignment corridor has been selected.

Construction of embankment fills may result in settlement of the underlying soil layers. In addition to potential settlement, consideration should be given to the risks of potential slope failures before embankment or bridge piers are constructed on the sloping banks of the Willamette River. Based on the expected site geology, it is anticipated that deep foundations (driven piles or drilled shafts) will be necessary to support a bridge at this location.

Seismic design parameters for the bridge include a 1000-year return period bedrock peak ground acceleration of 0.25g and a Site Class E for this location. These parameters are preliminary pending further geotechnical investigation.

Wetlands and Other Waters¹

The project area contains wetlands and waters that are or may be under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and/or Oregon Department of State Lands (DSL) (referred to here as “jurisdictional”). Project improvements involving cumulative fill or excavation of 50 cubic yards or more of material in jurisdictional locations will require an Oregon Removal-Fill Permit from the DSL. The USACE requires permits for most work in jurisdictional waters under the Clean Water Act, regardless of a cubic yard threshold. The following locations of wetland and waters are shown on Figure 7 on page 17 and are either jurisdictional or potentially jurisdictional:

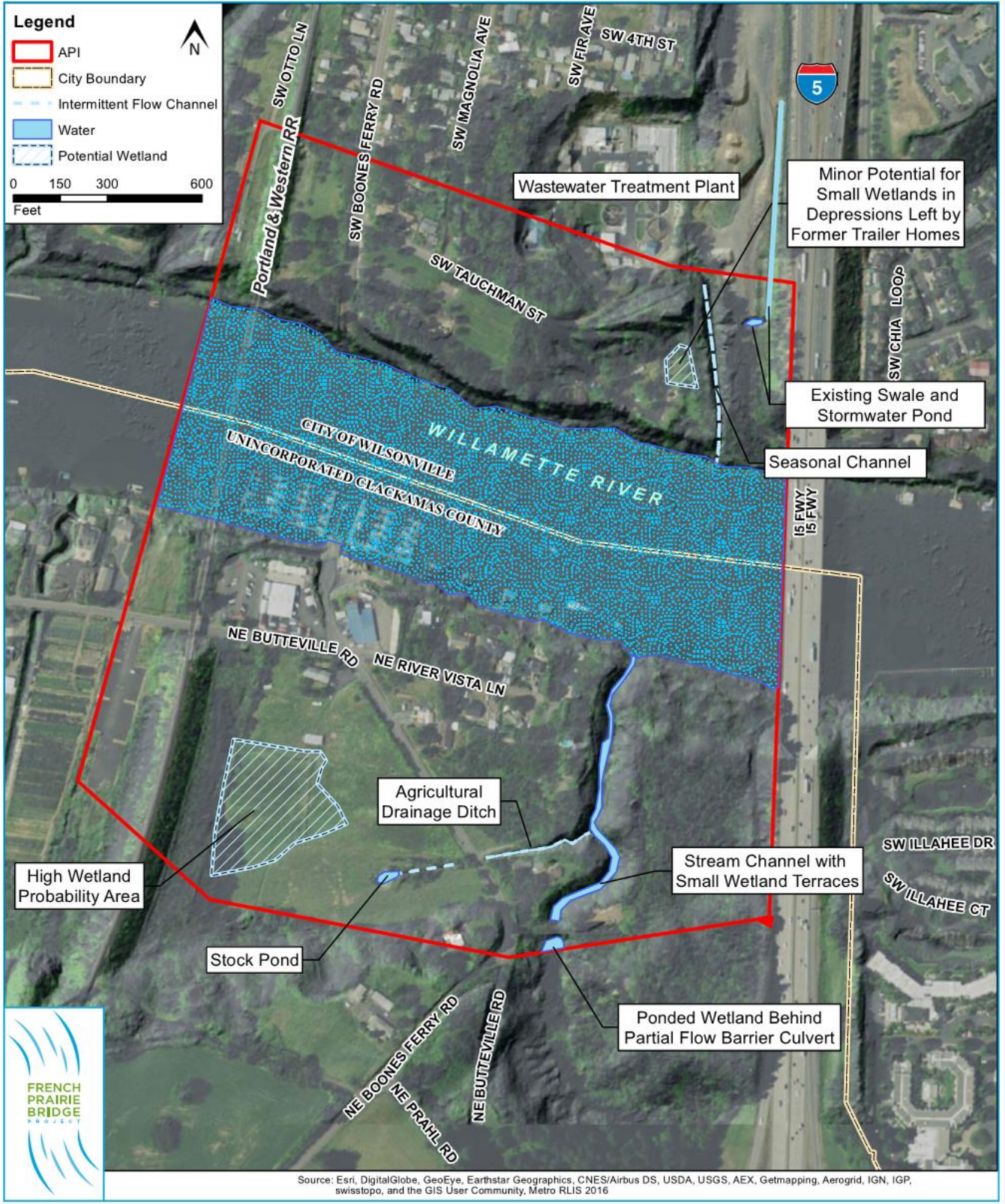
- The Willamette River

¹ The information here is based on a review of wetlands information available online and a site reconnaissance that was limited to publicly accessible lands. A more detailed analysis will be prepared for the selected alignment.

- On the north side of the Willamette River:
 - A seasonal drainage channel located between the wastewater treatment plant and I-5 as shown on Figure 7 on page 17.
 - Small depressional areas at the east end of the former mobile home park that was vacated in 2015. They are considered to have low potential to be jurisdictional due to their artificial creation and upland location.
 - A stormwater treatment swale serving stormwater runoff from I-5.
- On the south side of the river:
 - An unnamed stream channel and associated wetlands east of NE Butteville Road. The drainage and associated wetlands meet state and federal jurisdiction criteria.
 - The locations labeled High Wetland Probability Area, (based on database information such as the presence of hydric soils), Stock Pond, and Agricultural Drainage Ditch on Figure 7 on page 17.

Temporary or permanent structures in or over the river will require easements from DSL.

FIGURE 7: WATERS AND POTENTIAL WETLANDS



Historic and Archaeological Resources

Historic Resources

Project improvements that adversely impact one of the historic resources listed below will require compliance with Section 106 of the National Historic Preservation Act (Section 106) and possibly Section 4(f) of the Department of Transportation Act, because they are potentially eligible for the National Register of Historic Places (NRHP).² An adverse impact can be physical destruction, substantial alteration, movement, change in property use, and/or introduction of incompatible visual elements. Any potential impact requires compliance with procedures to protect historic resources, which include assessment of eligibility for the National Register, evaluation of impacts, and analysis of alternatives to avoid adverse impacts (if any). If adverse effects are unavoidable, mitigation would be required.

Figure 8 on page 20 shows the potentially eligible historic resources the project could impact. They are:

- The Oregon Electric Railway, presently known as Portland & Western Railroad (location 3)
- The Tauchman House at 31240 SW Boones Ferry Road in Boones Ferry Park (location 6)
- An apple orchard in Boones Ferry Park (location 4)
- A Portland General Electric power line (location 8)
- A BPA transmission line (location 10).

The structures at the locations shown in blue could be eligible based on their age, but are likely outside the limits of the bridge alignment based on preliminary alignment layouts. Should it be determined that the selected bridge alignment will impact any of the structures shown in blue, further evaluation of the structures as eligible historic resources will be performed.

Archaeological Resources

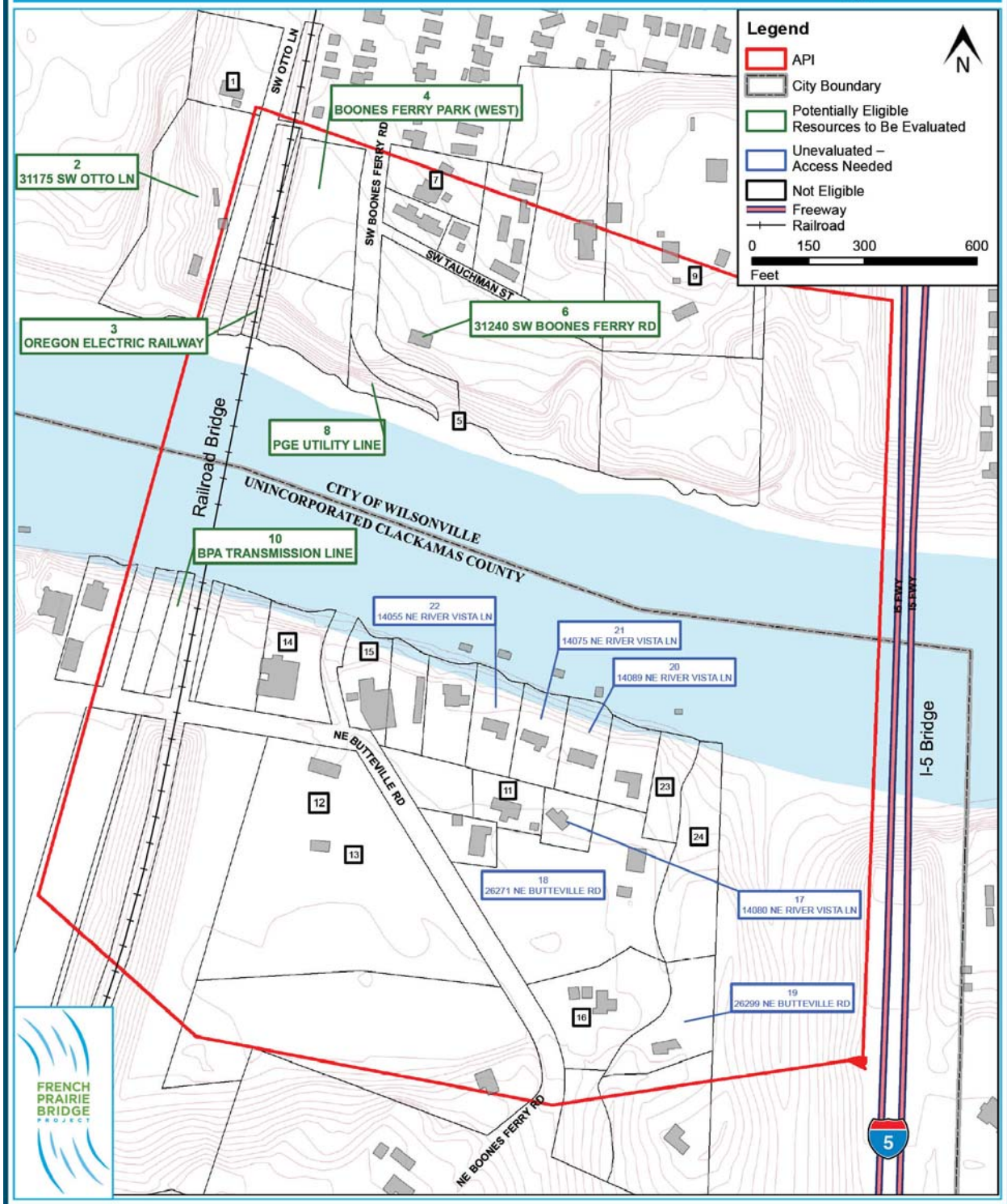
Similar to Historic Resources, project improvements that adversely impact an archaeological resource will require compliance with Section 106. The potential for encountering archaeological material during construction is moderate to high due to the intensive historic and pre-contact use of the area.³ The north and south terraced banks of the Willamette River were an important source of subsistence for Native American Kalapuyans. Archaeological materials related to subsistence activities or occupation may be present along both banks of the Willamette River. In addition, the site of the Boones Ferry Crossing, which was established in 1847, is located in the project area. Archaeological resources associated with the small

² AECOM. 2016. Draft Historic Resources Baseline Report, French Prairie Bridge Project. Prepared for the City of Wilsonville. October 10.

³ A. Becker and S. Butler. 2016. Draft Phase I Archaeological Investigation, French Prairie Bridge Project. Prepared for the City of Wilsonville. October 7.

Boones Ferry community and ferry crossing may be situated on the north bluff of the river. Related archaeological resources are more likely near the alignment of Boones Ferry Road than further east. There is ongoing coordination with the Confederated Tribes of Grand Ronde.

FIGURE 8: HISTORIC RESOURCES SURVEY LOCATIONS



Water Quality and Stormwater

Existing stormwater collection and treatment facilities within the project area are sparse.

Boones Ferry Road has inlets on both sides of the street at or north of Tauchman Street and a 30-inch-diameter stormwater pipe which conveys stormwater from approximately the west half of Old Town to an outfall on the Willamette River. No water treatment facilities appear to exist along Boones Ferry Road within the project study area, likely due to this area being developed prior to water quality standards being required.

Runoff from Tauchman Street sheet flows to the south and disperses into Boones Ferry Park. Runoff from Butteville Road is collected in shallow ditches or sheet flows to adjoining properties. Runoff from River Vista Lane appears to sheet flow to adjoining properties. Parking lots in the project area do not appear to have any existing stormwater collection or treatment systems.

The project will likely create more than one acre of new impervious area with the resulting runoff split between the two sides of the Willamette River. Additional impervious area created by the project will require treatment for water quality based on required Endangered Species Act (ESA) and consultation with National Marine Fisheries Services (NMFS). It is anticipated that the project will be eligible for a programmatic biological opinion. As a result, the project will be exempt from water quantity management if the Willamette River will receive the flows directly. However, should an individual biological opinion be necessary, water quantity management requirements will be determined as part of the biological opinion review.

The preferred methods of providing water quality treatment are vegetated treatment systems such as water quality swales, bioretention ponds, and vegetated filter strips.

Hazardous Materials

The project team reviewed Oregon Department of Environmental Quality (DEQ) databases for hazardous materials sites within the API. Records of hazardous materials at two sites were identified. The DEQ Leaking Underground Storage Tank (LUST) database includes a 2001 record of the cleanup of a release at the location of the building on the east side of the boat ramp at the Boones Ferry Marina. Similarly, the database includes a 1999 record of the cleanup of a release at the residence at 26291 NE Butteville Road. At both locations, some contaminated soil may remain, but present a low risk to the project. There are no records of significant contamination within the project area. Additional hazardous material assessment will be conducted for the selected alignment. Regardless of bridge alignment, any hazardous materials encountered during construction will be abated.

Opportunities

Transportation Network

The project provides an opportunity to improve bicycle and pedestrian connectivity across the Willamette River. The proposed project would improve the user experience and safety for bicyclists and pedestrians desiring to cross the Willamette River by providing an alternative to I-5. Figure 9 on page 24 shows existing and planned trails, bike lanes, and sidewalks in the area around the project area. The project also promotes and supports Wilsonville's endeavors as a Healthy and Active Lifestyle (HEAL) City which improves the health of its residents.

The project can also provide improved emergency vehicle access across the Willamette River. Tualatin Valley Fire and Rescue (TVF&R) provides emergency services for all residents within the City of Wilsonville, including the Charbonneau District on the south side of the river. TVF&R currently uses the Boone Bridge to reach calls in the Charbonneau District. Response times crossing a shared use bridge will ordinarily be longer than using I-5 due to the need to remove bollards and share the path with bicyclists and pedestrians. However, such a facility will reduce response times when the Boone Bridge cannot practically be crossed due to congestion. Emergency vehicle access would be from Boones Ferry Road or Tauchman Street in Wilsonville to Butteville Road and ultimately the Charbonneau District.

Additionally, when there is an incident on I-5, second responders such as tow trucks and clean up vehicles cannot access the incident because of severe traffic congestion. With this bridge in place, second responders would be able to reach the incident faster, therefore cleaning it up and restoring normal traffic patterns more quickly.

The bridge also provides the opportunity to construct a bridge that is anticipated to be serviceable following a large earthquake. Based on current Oregon and AASHTO seismic design criteria, there is uncertainty regarding the ability of the adjacent Boone Bridge to carry emergency traffic following a Cascadia Subduction Zone earthquake. The existing retrofit measures were intended to assure life safety rather than operational use. Construction of the bridge to the current Oregon standard for State highways would result in a bridge that is anticipated to be operational shortly after an earthquake as large as a full rupture of the Cascadia Subduction Zone.

All bridge alignments currently under consideration provide comparable connections. All alignments connect Boones Ferry Park to Butteville Road. The relative merits of each alignment vary by the user's origin and destination as these determine the length of out of direction travel required by a given user.

Utilities

Municipal services to Charbonneau rely upon only a single crossing of the Willamette River. The project presents an opportunity to provide additional redundancy for water and sanitary sewer systems serving Charbonneau. It also provides an opportunity for other utilities to be accommodated on the bridge.

Parks and Recreational Uses

A new bridge and connection across the river is an amenity that would likely increase usage of Boones Ferry Park as well as the trail connection to Memorial Park. The regional recreational aspect could draw cyclists and outdoor enthusiasts from outside areas. Beyond the recreational benefits, the local businesses would experience economic gains as well.

While not directly connected to this project, residents could be more likely to access the river area and enjoy the natural setting as a result of coming to use the bridge.

Historic and Archaeological Resources

The proposed project is consistent with the historic transportation uses of the project area given the presence of the Portland & Western Railroad bridge, the I-5 Boone Bridge, and the former site of the Boones Ferry. Additional visitation to the project area by bicycle riders, particularly to Boones Ferry Park, would raise public awareness of the historic and archaeological resources in the Project vicinity and create additional interpretative opportunities.

FIGURE 9: BICYCLE AND PEDESTRIAN TRANSPORTATION NETWORK



BICYCLE AND PEDESTRIAN ACCESS

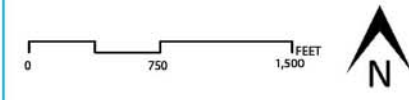
FRENCH PRAIRIE BRIDGE

Legend

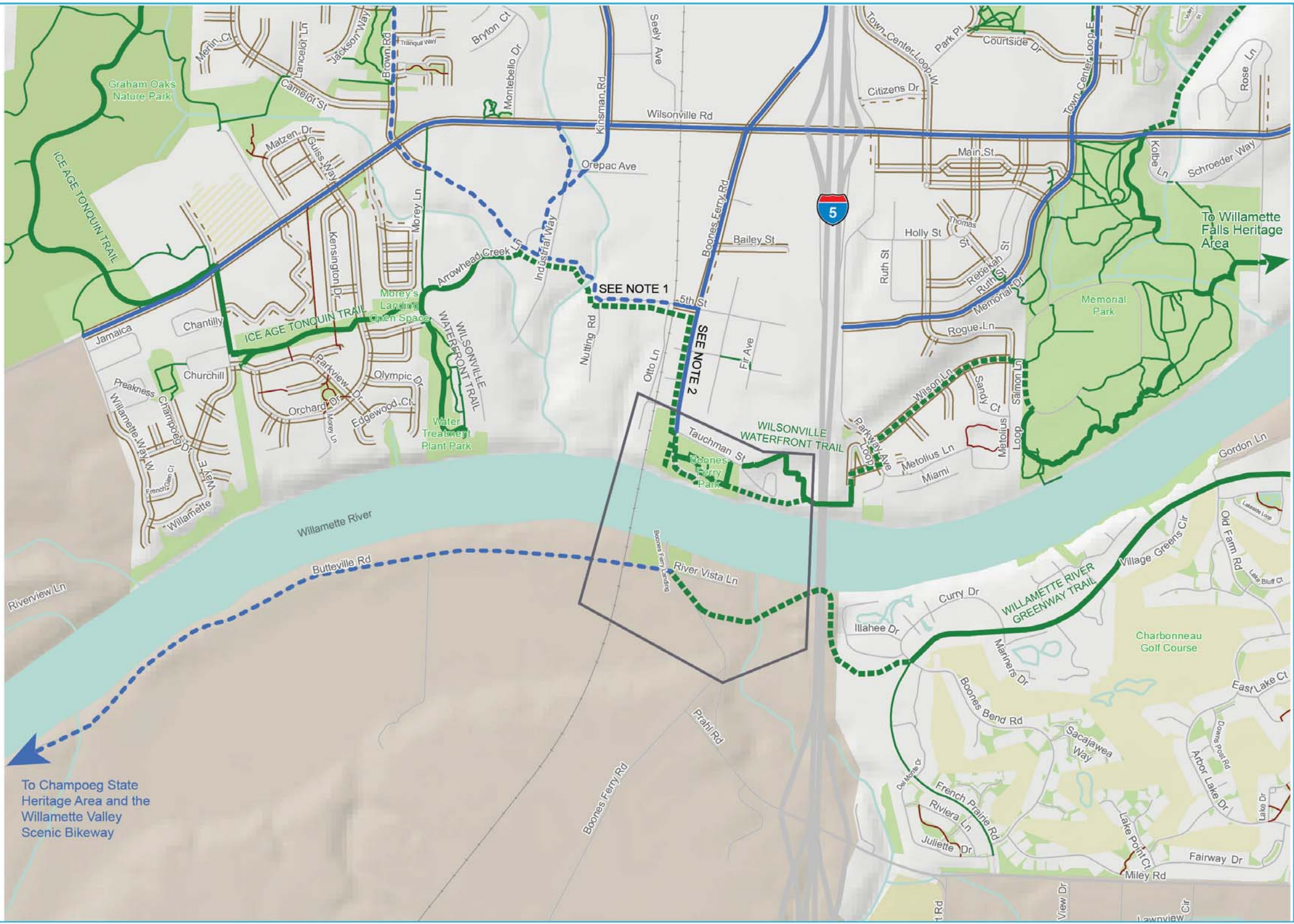
- Existing Regional Trail
- Existing Local Trail
- Existing Private Trail
- - - Planned Trail
- + Railroad
- Existing Bike Lane
- - - Planned Bike Lane/Shoulder
- Existing Full Sidewalk
- - - Existing Partial Sidewalk
- Area of Potential Impact
- Park/Open Space
- Outside of UGB
- Golf Course
- School
- Rivers/Streams

Notes:

- 1) The Boones Ferry Road to Brown Road Connector will connect to 5th St.
- 2) Boones Ferry Rd only has bike lanes on the west side of the street south of Bailey St.



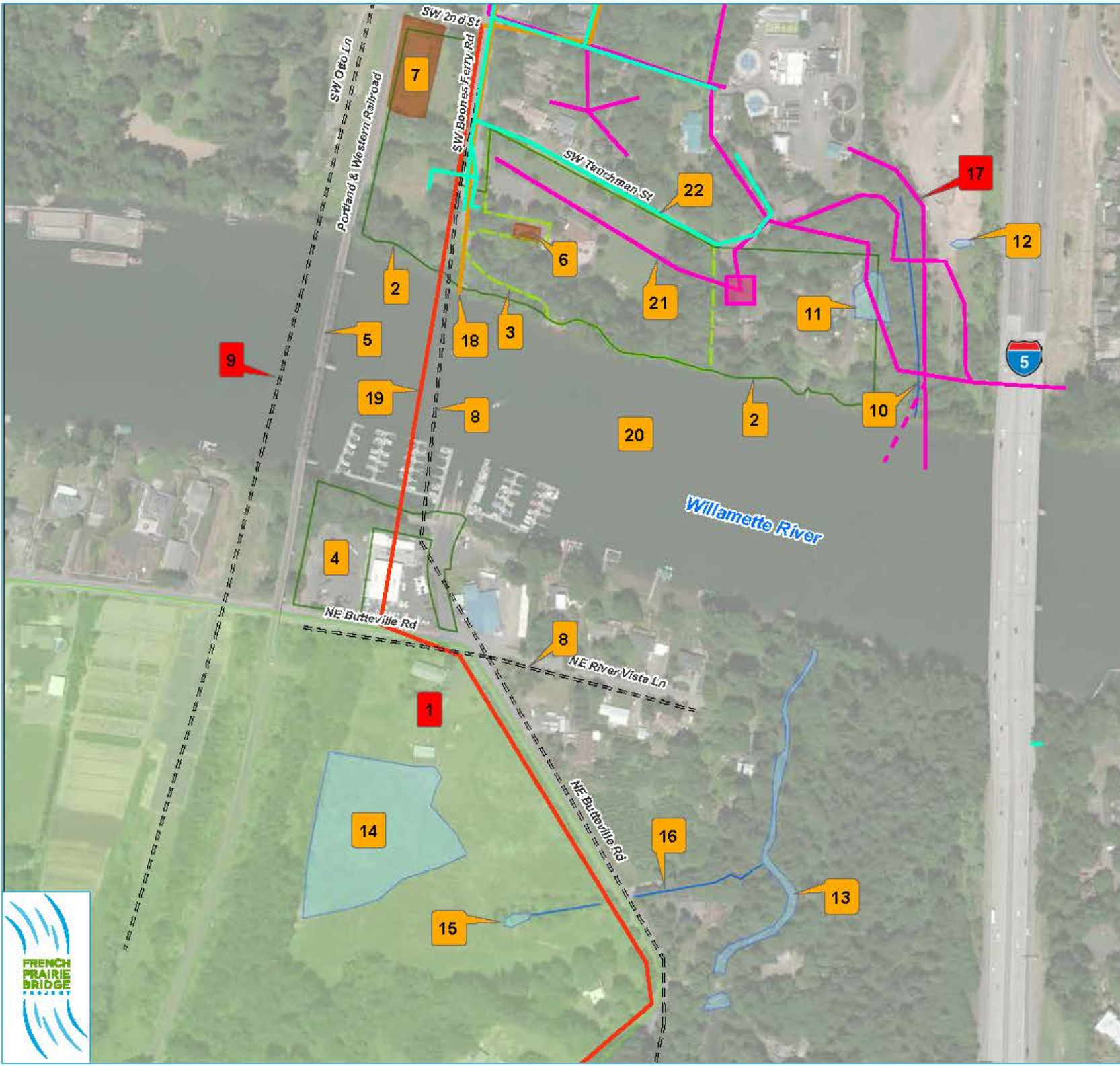
Data provided by RLIS.
Map produced October 2016.



Summary

Unless otherwise noted, the constraints identified herein are anticipated to be low risk items that are normally encountered during development of a project of this type. The moderate and high risk constraints on the proposed bridge and path construction identified within the project area are identified on Figure 10 on page 26. Moderate risk constraints are expected to shape project development through effects to schedule and budget but appear to be resolvable with reasonable impacts. High risk constraints are expected to substantially affect project schedule and budget and may result in “fatal flaw” issues being realized during project development.

FIGURE 10: CONSTRAINTS



Legend

- # Moderate risk constraint
- # High risk constraint
- == Overhead power line
- Underground water line
- Underground storm sewer
- Underground sanitary sewer
- Underground gas line

- Stream
- Water (in addition to Willamette River) and potential wetland observable from streets and public land
- Section 4(f) resource
- Section 6(f) resource
- Historic resource
- Exclusive Farm Use zone

Key

- 1. Land zoned Exclusive Farm Use
- 2. Boone's Ferry Park subject to Section 4(f)
- 3. Boone's Ferry Park subject to Section 6(f)
- 4. Boone's Ferry Boat Launch & Marina
- 5. Portland & Western Railroad
- 6. Tauchman House
- 7. Apple orchard in Boone's Ferry Park
- 8. PGE overhead power lines
- 9. BPA overhead transmission lines
- 10. Ephemeral drainage channel
- 11. Depression left by former mobile homes
- 12. Construction stormwater pond
- 13. Stream channel and associated wetlands
- 14. Possible wetland
- 15. Stock pond
- 16. Agricultural drainage ditch
- 17. Wastewater treatment plant discharge pipe
- 18. Main Old Town storm sewer outfall
- 19. Underground gas transmission lines
- 20. USCG Navigational Channel
- 21. Sanitary sewer lines and River Village Lift Stat
- 22. Domestic water mains

Constraints

- 1. State farmland protection laws could exclude bridge, depending on amount of emergency vehicle use.
- 2 and 4. The Federal Highway Administration will have to agree that any use is de minimis pursuant to Section 4(f).
- 3. The National Park Service and Oregon Parks and Recreation Department will have to approve the improvements as recreational enhancements, pursuant to Section 6(f).
- 5 through 7. Impact will require evaluation for eligibility for the NRHP and compliance with Section 106.
- 8. Impact will require evaluation for eligibility for the NRHP and compliance with Section 106 and relocation. PGE will bear relocation cost.
- 9. Impact will require evaluation for eligibility for the NRHP and compliance with Section 106 and relocation. Relocation cost will be high and project will have to pay it.
- 10 through 12, 14 through 16. Impact may require approval of the USACE and/or DSL.
- 13. Impact will require approval of the USACE and DSL.

- 17. Impacts will require replacement of main outfall of City sanitary sewer system.
- 18. Impacts will require replacement. Cost will be high and project will have to pay it.
- 19. Impacts will require relocation of line under river.
- 20. Impacts will require analysis and USACE approval.
- 21 and 22. Impacts will require relocation. Project will bear cost.

Abbreviations

- BPA Bonneville Power Administration
- DSL Oregon Department of State Lands
- NRHP National Register of Historic Places
- PGE Portland General Electric
- USACE U.S. Army Corps of Engineers
- USCG U.S. Coast Guard

