largescale sucker (*Catostomus macrocheilus*), prickly sculpin (*Cottus asper*), Pacific staghorn sculpin (*Leptocottus armatus*), and starry flounder (*Platichthys stellatus*). Marine mammals (e.g., seals and sea lions) also forage on salmon in the lower reaches of the Puyallup River.

3.1.2.20 First Creek

First Creek is a small tributary that discharges to the left bank of the Puyallup River near the I-5 crossing. First Creek originates in Tacoma in the vicinity of E 46th Street and E 56th Street on the plateau above the Puyallup River and flows north for approximately 2.7 miles to its discharge point along the left bank of the Puyallup River north of I-5. The stream flows through primarily residential areas before dropping down to the Puyallup River valley floor where the land use changes to commercial and heavy industrial. There are no surface-flowing portions of First Creek within the study area. All flow through the study area is contained in a 72-inch-diameter pipe. Because no functional riparian vegetation or in-stream habitat is present in the study area, these habitat elements are not described in this report.

Biological Connectivity

One barrier has been identified within the study area (WDFW 2023c). Its current status is unknown, and it is unclear whether this is a complete or partial barrier. Table J4.3-11 summarizes the status of potential or known fish passage barriers in First Creek within or downstream of the study area.

Table J4.3-11 Fish Passage Barrier Assessment for First Creek in the Study Area

Approximate Road Crossing	Unique Site I.D.	Distance Downstream (miles)[1]	Barrier Status	Assessment Year	Ownership
Unnamed dirt levee access road on west side of Puyallup River	933187	0.00	Unknown	2015	Public

Source: WDFW Fish Passage and Diversion Screening Inventory Database (WDFW 2023c)

Water Quality and Quantity

First Creek is not identified on the most recent (2018) 303(d) list of impaired waters Ecology 2023. Refer to Attachment C, Figure C-3 for locations of all 303(d)-listed waterbodies in the study area. No flow data is available for First Creek.

Fish and Habitat Use

NWIFC (2023) indicates that First Creek is gradient-accessible to Chinook salmon, chum salmon, coho salmon, odd-year pink salmon, and winter steelhead; however, no documented use has been reported.

3.2 Vegetation, Wildlife, and Wildlife Habitat

3.2.1 Vegetation

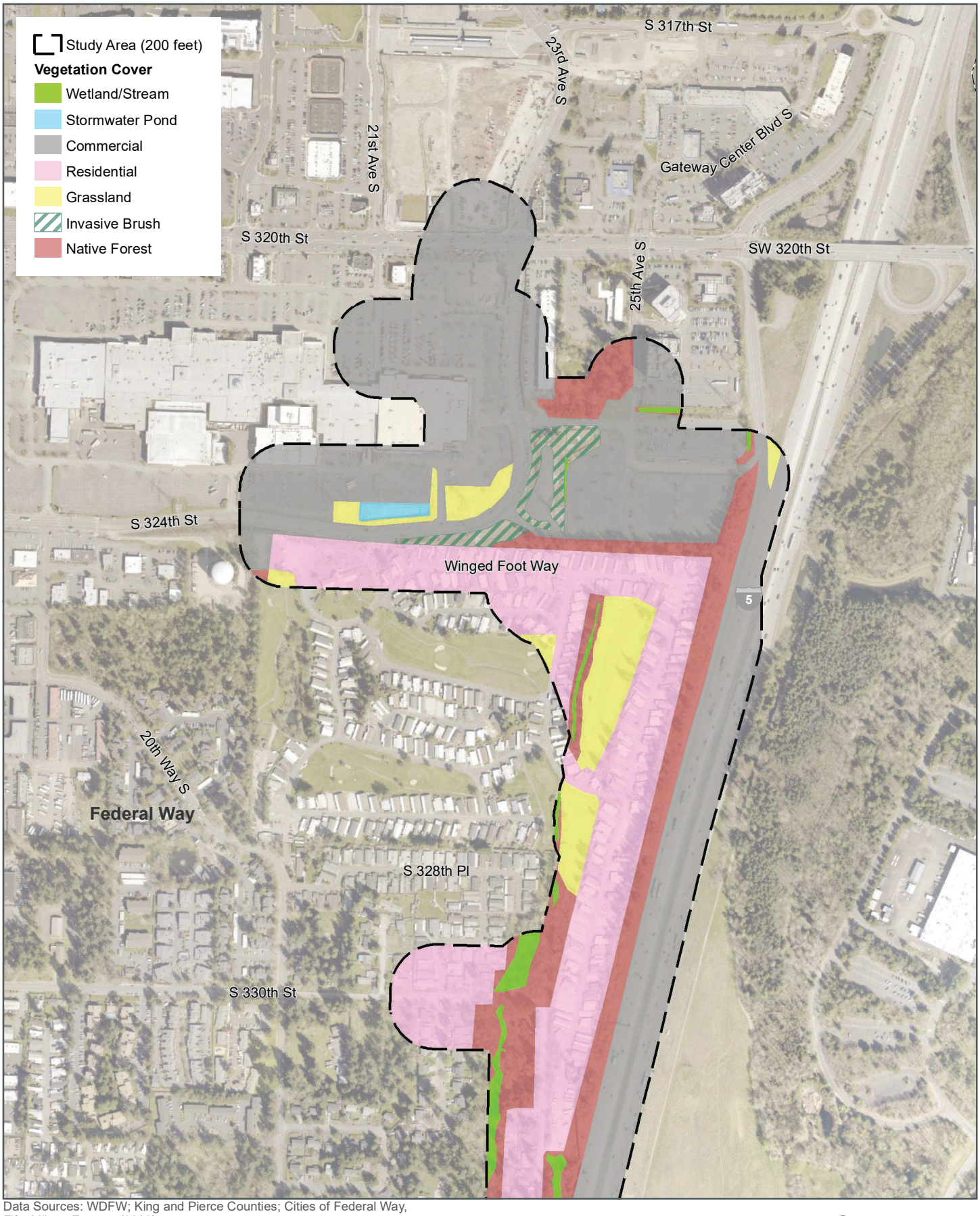
Vegetation in the study area was classified in land cover types and characterized according to the methods described in Section 2.2. Eleven cover types were identified in the study area.

Table J4.3-12 lists these cover types and summarizes the acreage of each. Figures J4.3-14 through J4.3-26 depict the distribution of the cover types in the study areas around the project alternatives. Representative photographs of each cover type are included in Attachment E.

Table J4.3-12 Land Cover Types in the TDLE Study Area, by Project Segment

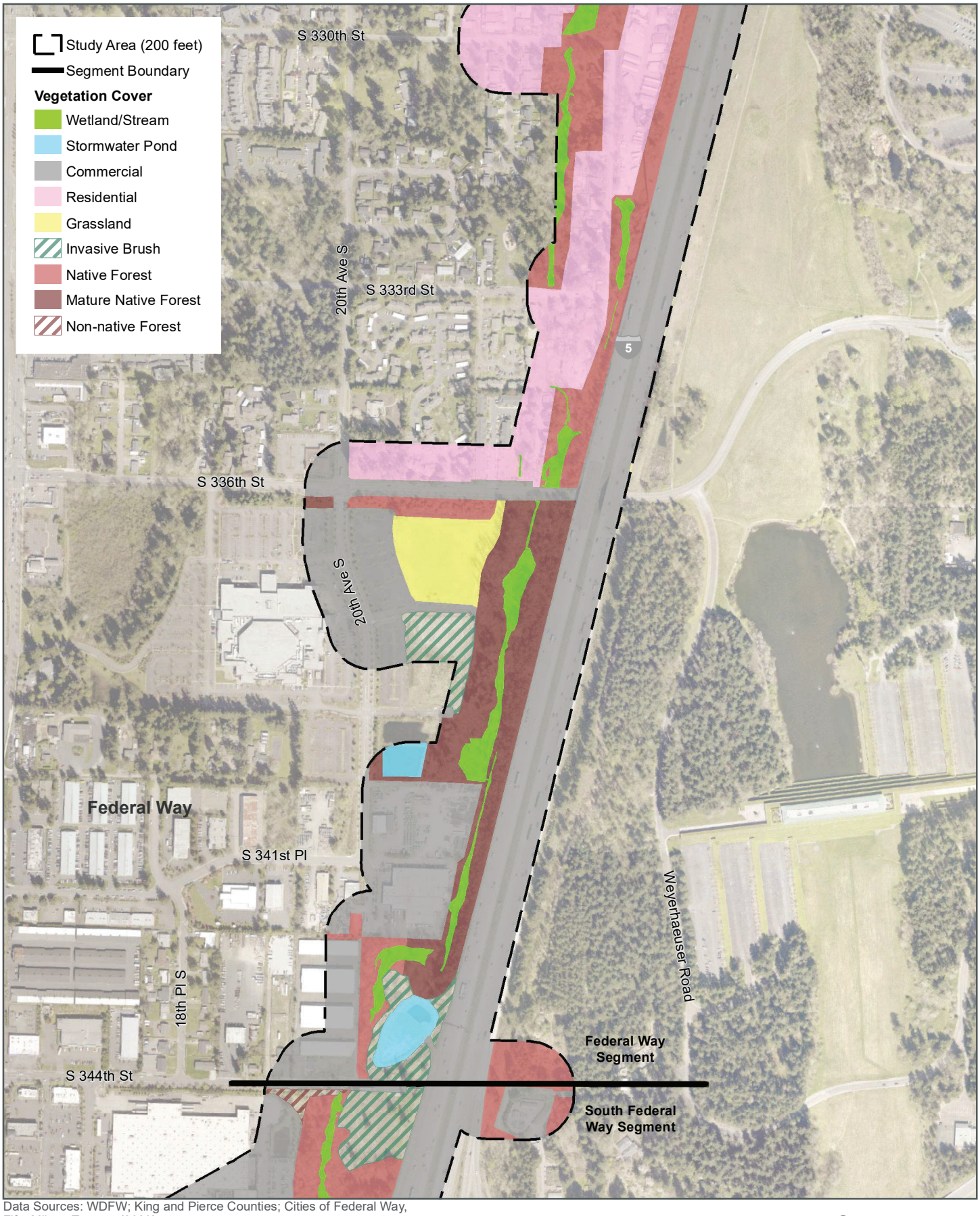
Land Cover Type	Federal Way[1]	South Federal Way[1]	Fife[1]	Tacoma[1]	Total[1]	Percent of Total
Commercial	81	379	302	212	974	63
Residential	42	83	10	9	144	9
Grassland	20	28	28	4	80	5
Invasive Brush	6	21	8	4	39	3
Native Brush	0	3	2	< 1	5	< 1
Non-Native Forest	0	2	1	0	3	< 1
Mature Native Forest	10	3	0	0	13	1
Other Native Forest	25	140	14	12	191	12
Wetland/Stream	5	64	19	< 1	88	6
River Channel[2]	0	0	3	6	9	1
Stormwater Pond	2	7	4	0	13	1
Total	**191**	**730**	**391**	**247**	**1,559**	**100**

Note:
(1) Acres in study area
(2) Refers to the Puyallup River.



Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

FIGURE J4.3-14
Vegetation Cover Existing Conditions
Federal Way Segment
Tacoma Dome Link Extension

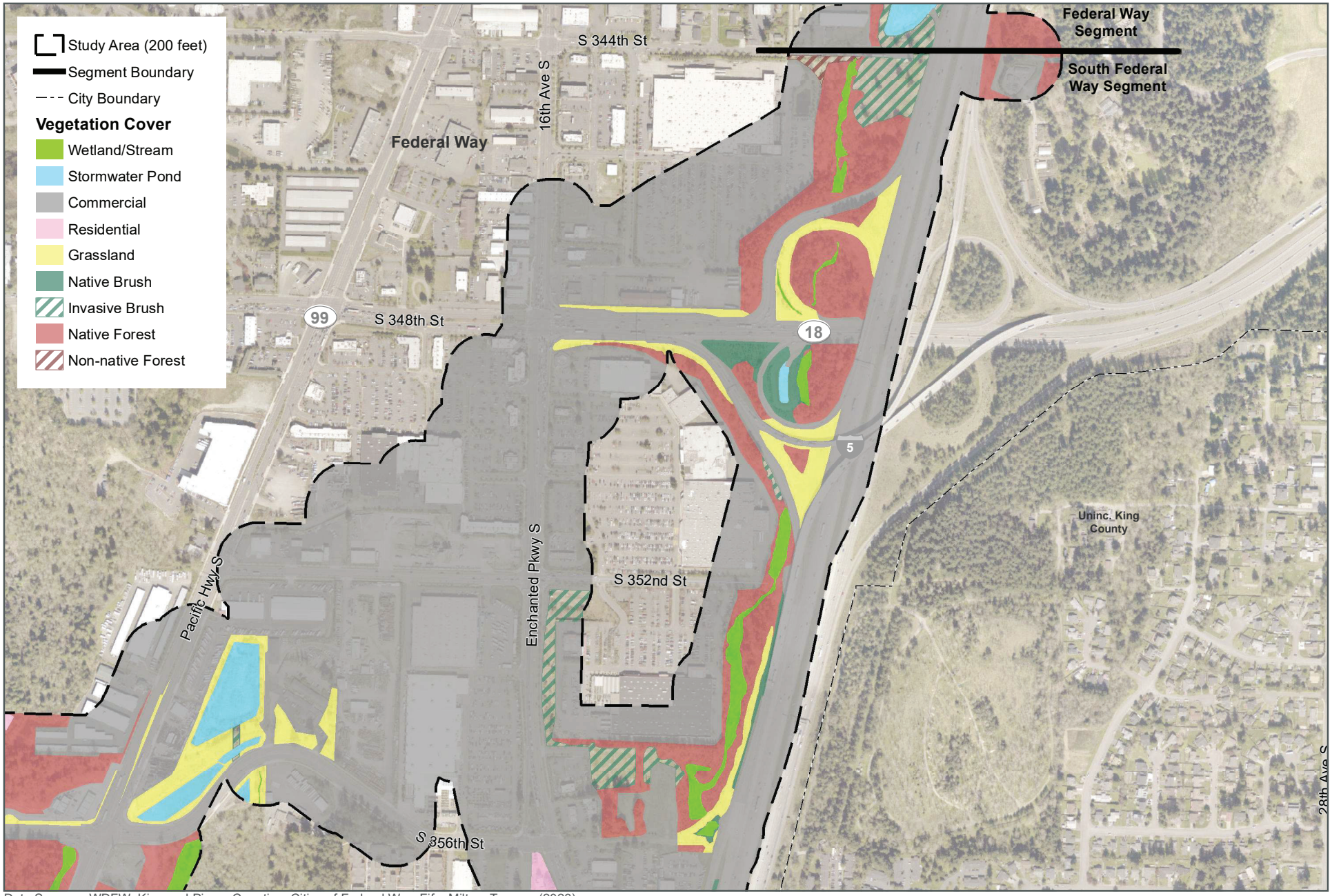


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-15
Vegetation Cover Existing Conditions
Federal Way Segment
Tacoma Dome Link Extension

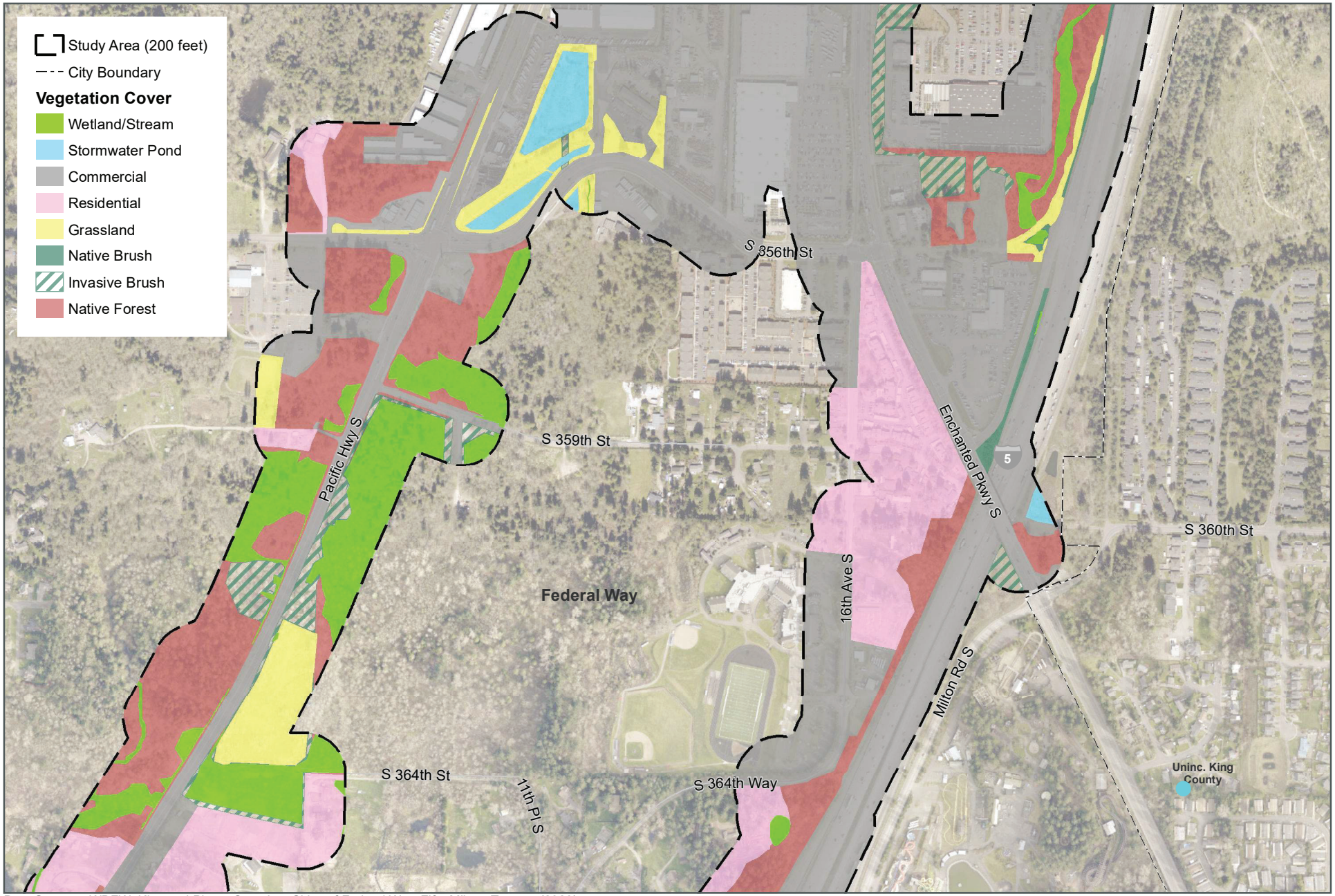


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-16
Vegetation Cover Existing Conditions
South Federal Way Segment
Tacoma Dome Link Extension

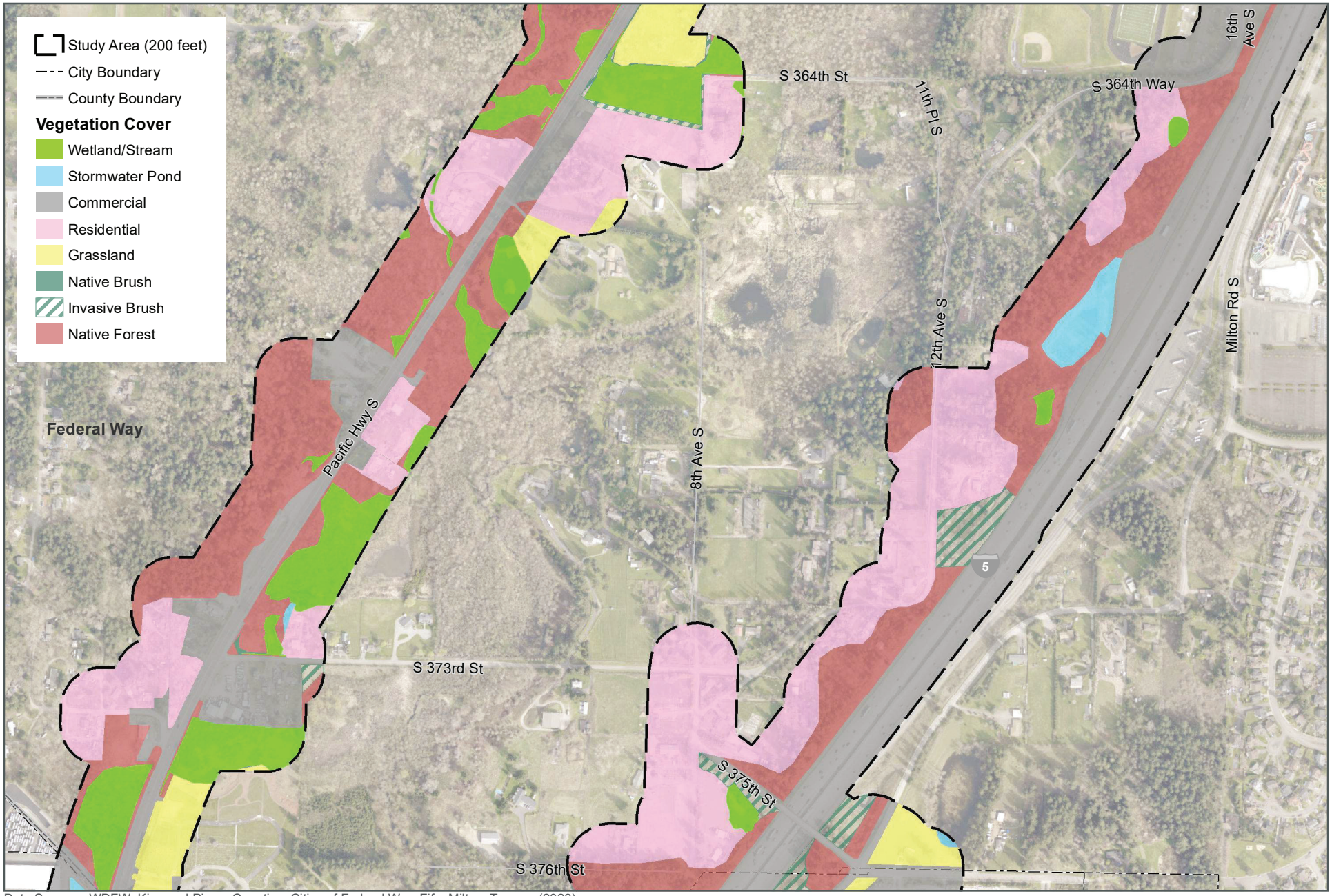


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

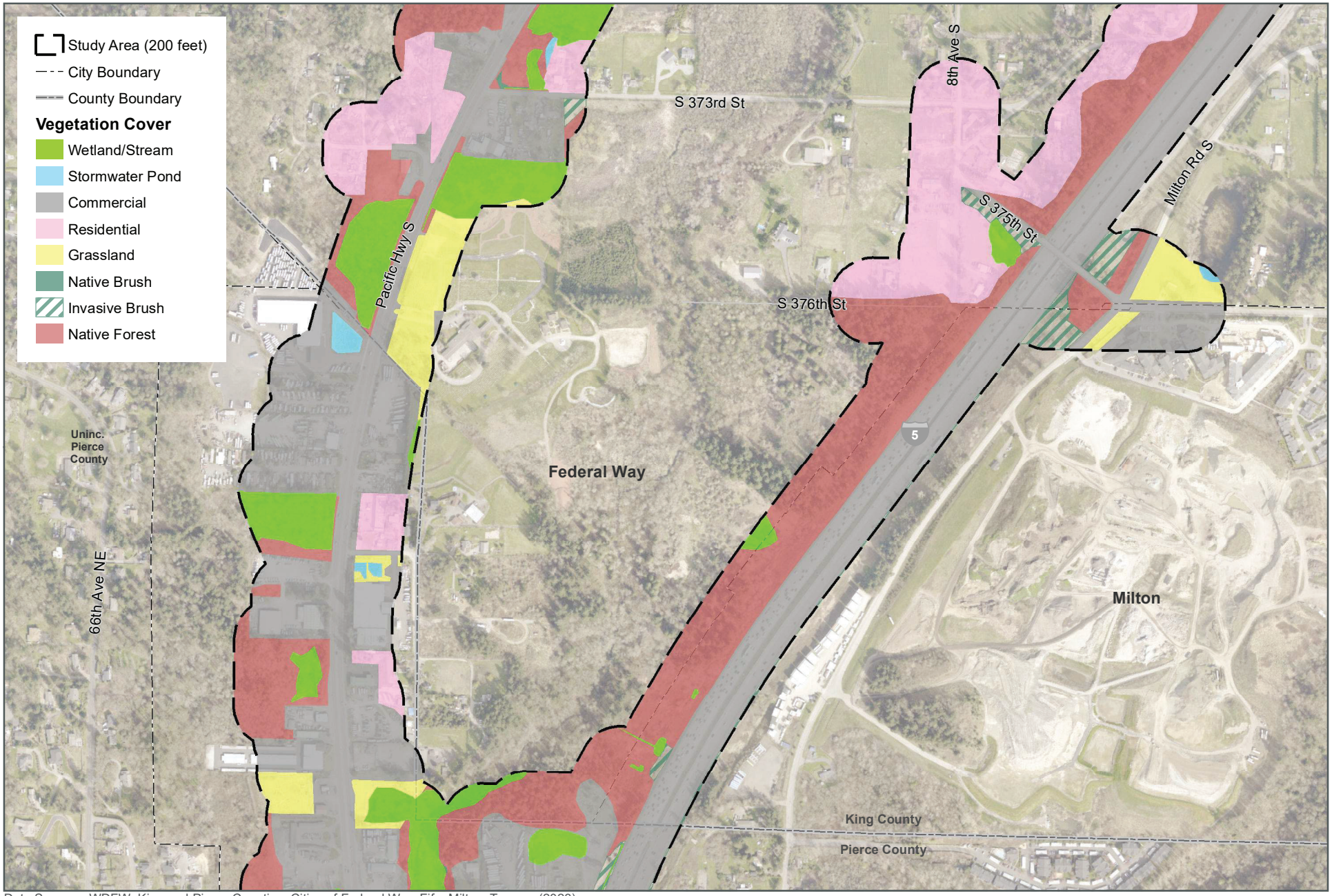
0 500 1,000 Feet

FIGURE J4.3-17
Vegetation Cover Existing Conditions
South Federal Way Segment
Tacoma Dome Link Extension



Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

FIGURE J4.3-18
Vegetation Cover Existing Conditions
South Federal Way Segment
Tacoma Dome Link Extension

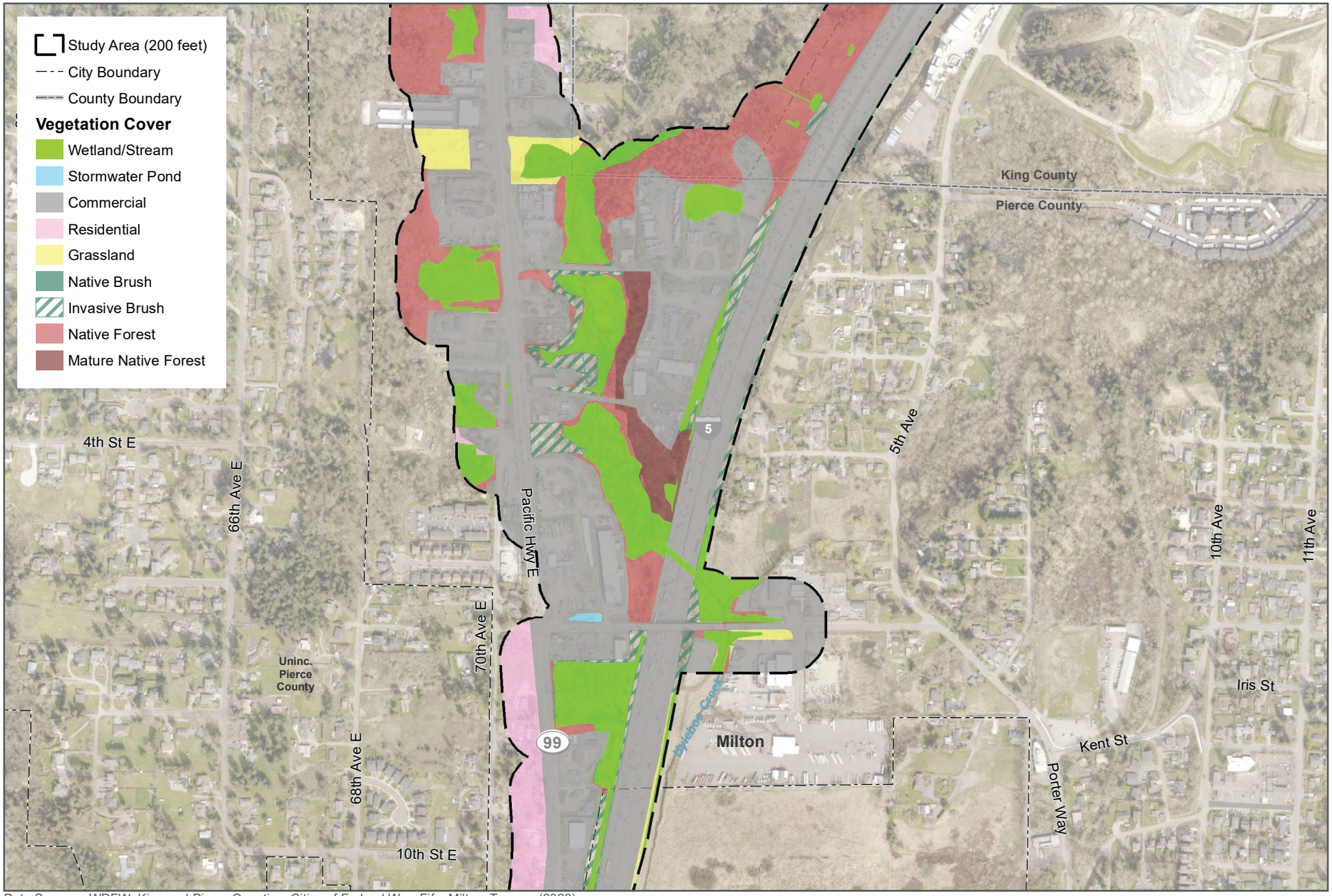


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-19
Vegetation Cover Existing Conditions
South Federal Way Segment
Tacoma Dome Link Extension

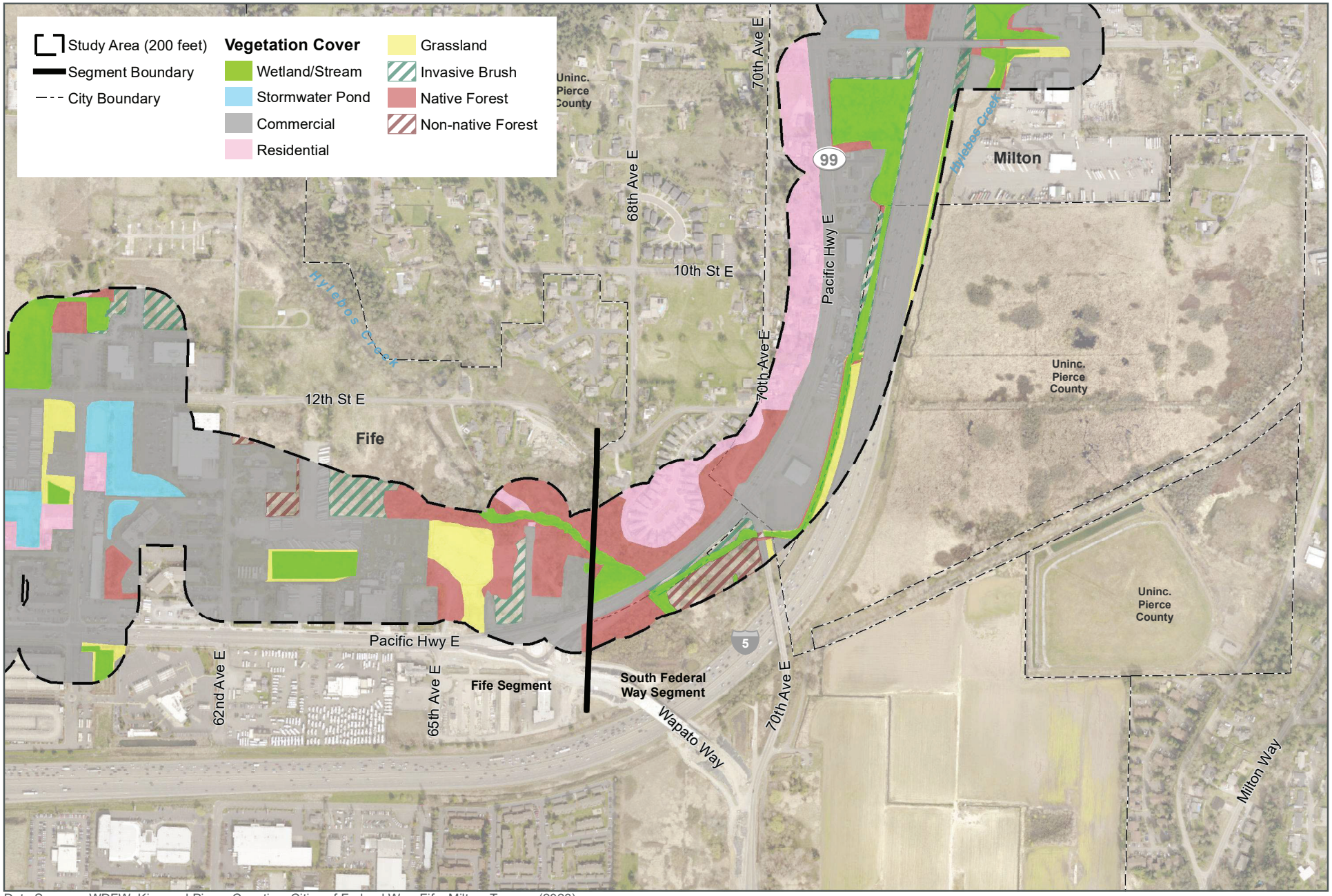


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

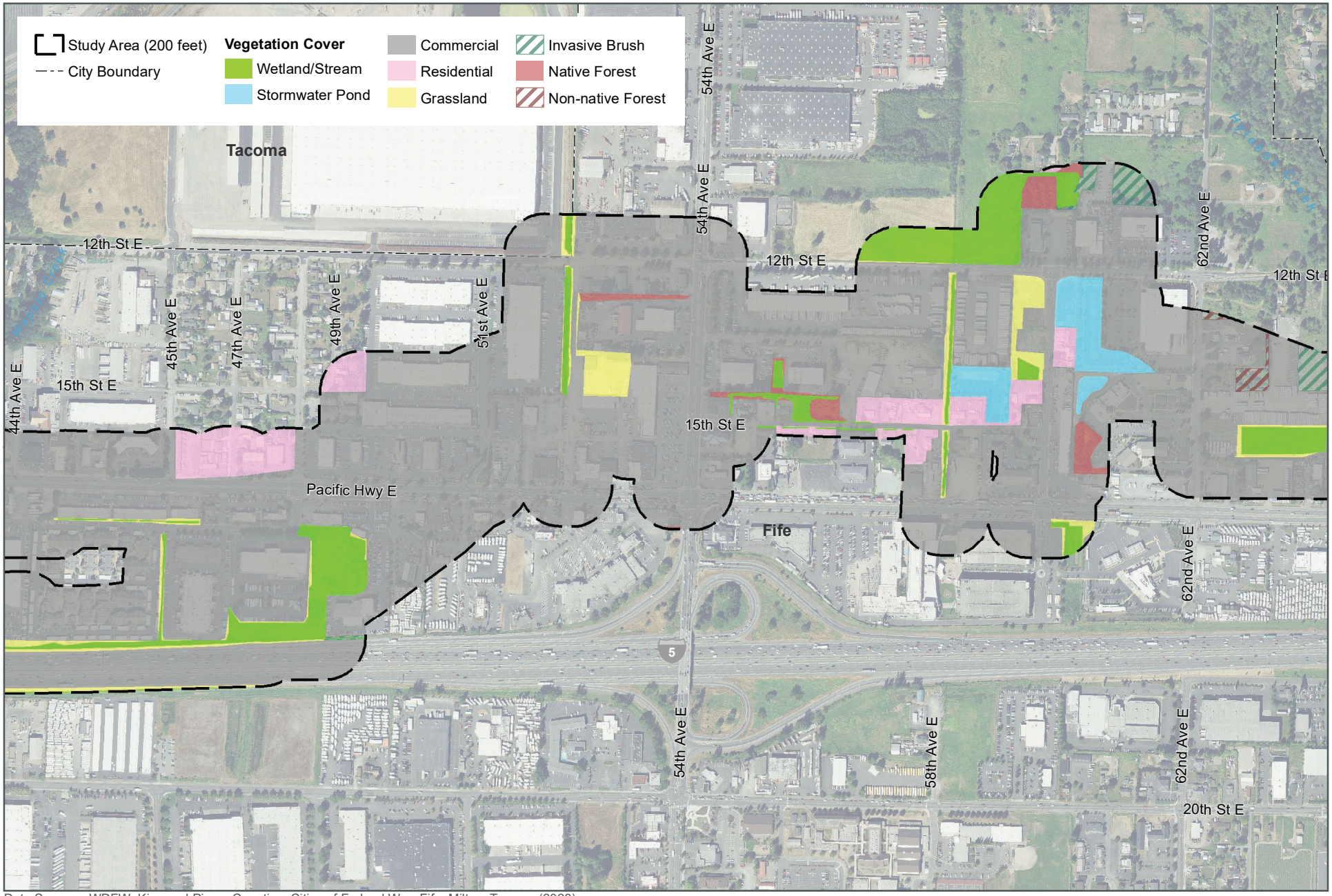
0 500 1,000 Feet

FIGURE J4.3-20
Vegetation Cover Existing Conditions
South Federal Way Segment
Tacoma Dome Link Extension



Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

FIGURE J4.3-21
Vegetation Cover Existing Conditions
South Federal Way and Fife Segments
Tacoma Dome Link Extension

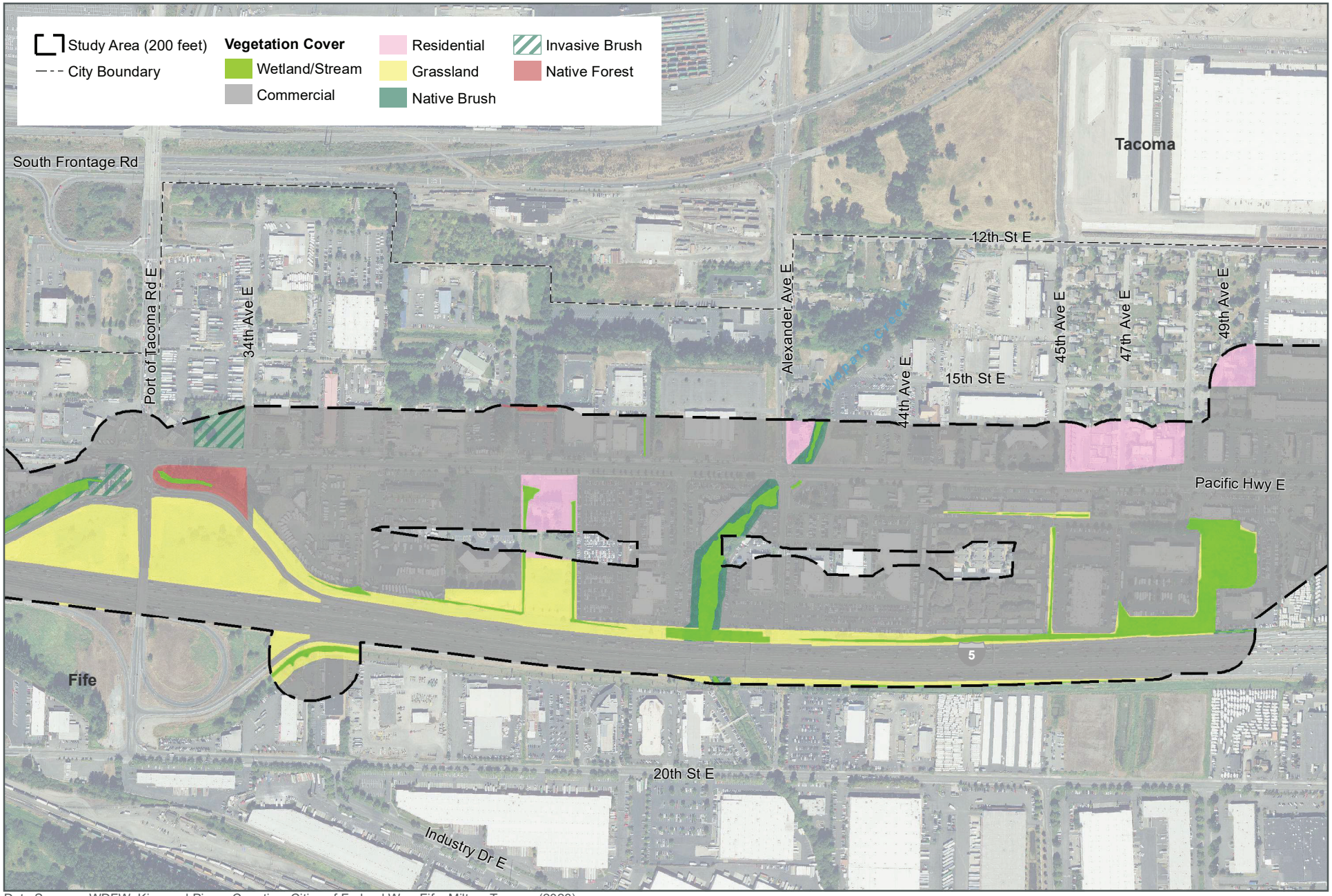


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-22
Vegetation Cover Existing Conditions
Fife Segment
Tacoma Dome Link Extension

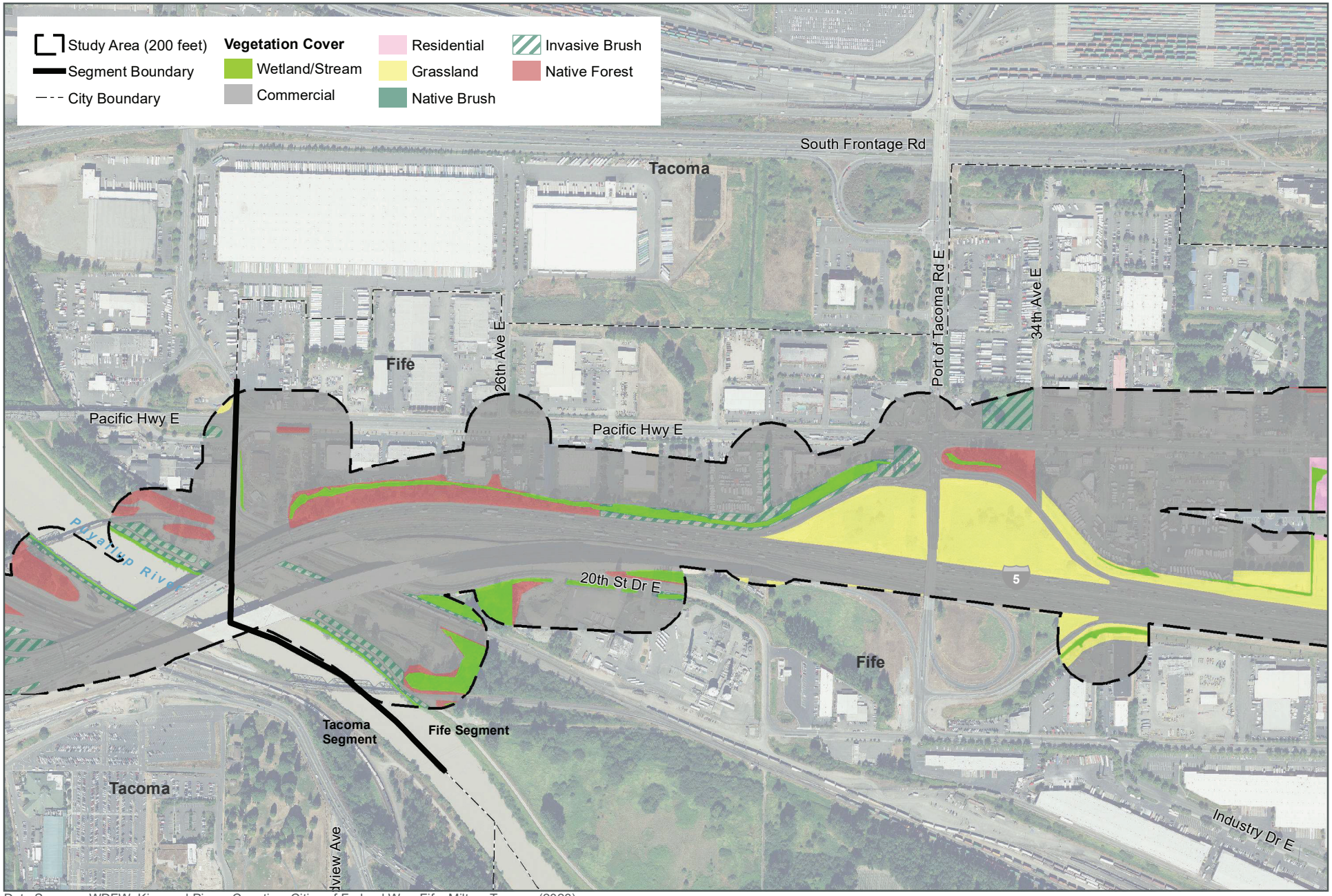


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-23
Vegetation Cover Existing Conditions
Fife Segment
Tacoma Dome Link Extension

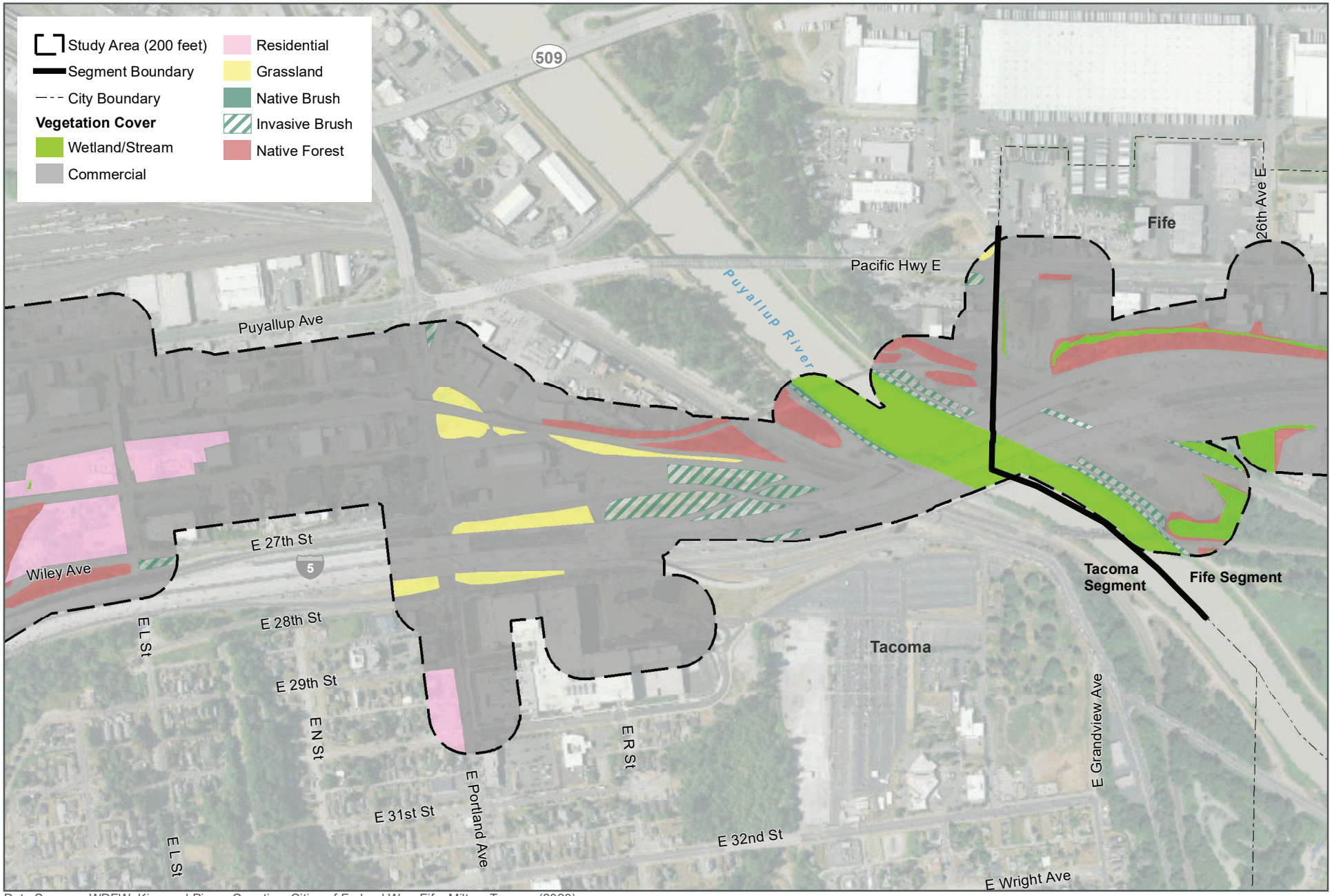


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-24
Vegetation Cover Existing Conditions
Fife Segment
Tacoma Dome Link Extension

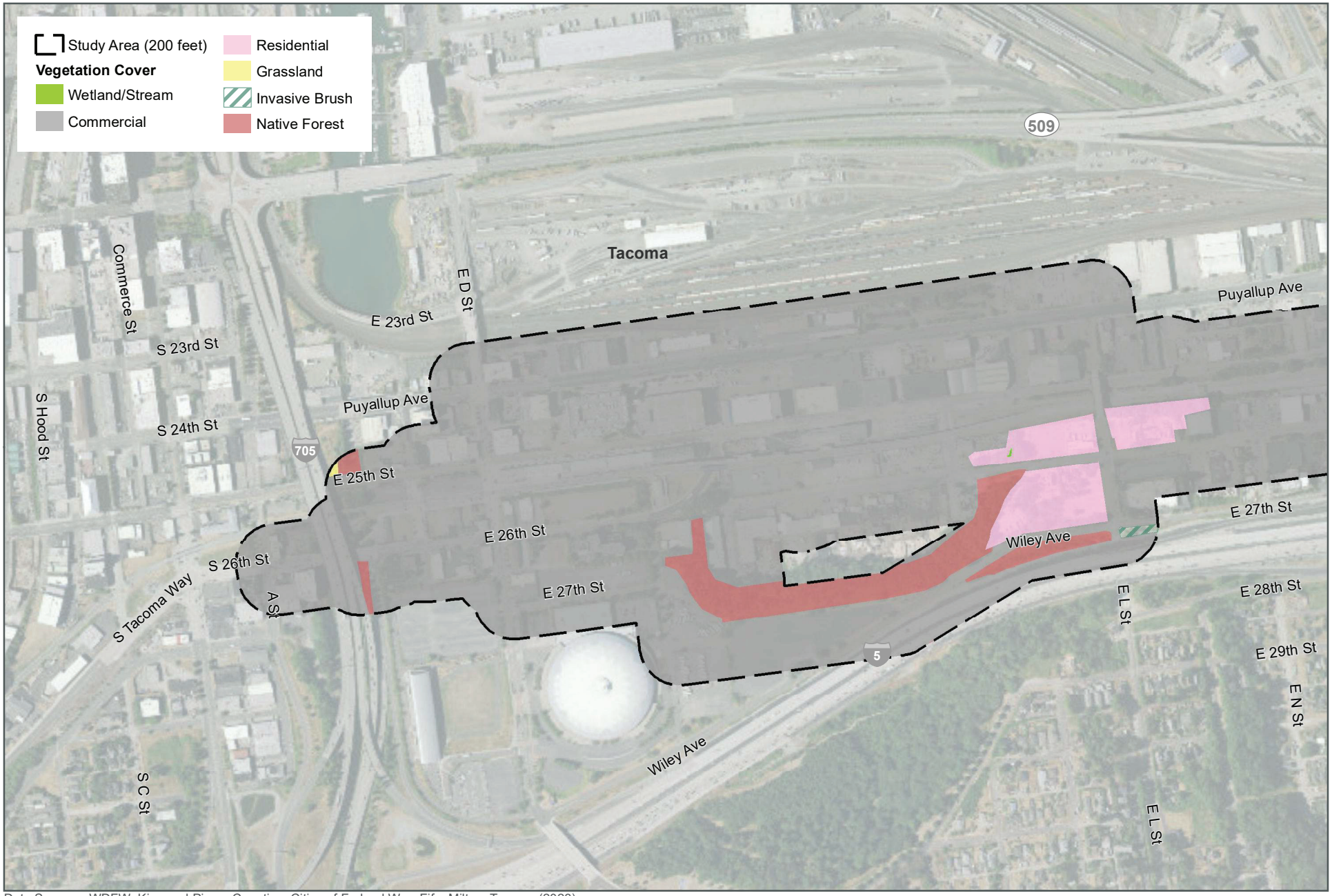


Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-25
Vegetation Cover Existing Conditions
Tacoma Segment
Tacoma Dome Link Extension



Data Sources: WDFW; King and Pierce Counties; Cities of Federal Way, Fife, Milton, Tacoma (2023).

N

0 500 1,000 Feet

FIGURE J4.3-26
Vegetation Cover Existing Conditions
Tacoma Segment
Tacoma Dome Link Extension

The following subsections describe and summarize the relative habitat value of the land cover types in the study area. Relative habitat value is based on habitat structure, scarcity in the study area, disturbance types and frequency, and time required for ecosystem functions to recover following clearing and site restoration.

3.2.1.1 Commercial

The commercial cover type is the most common and widely distributed cover type in the study area, making up almost two-thirds of the total land area (Table J4.3-12). This cover type consists of heavily developed areas, including large buildings and parking lots, most of which support commercial or industrial uses, as well as freeways and major roads. These areas provide minimal habitat value for wildlife because invasive species are prevalent and structural diversity is found only in scattered non-native trees and other landscaping. Vegetation in these areas may provide habitat for species adapted to disturbed and developed conditions (e.g., house sparrows [*Passer domesticus*], American robins [*Turdus migratorius*], European starlings [*Sturnus vulgaris*], American crows [*Corvus brachyrhynchos*]*).* Dominant plant species within commercial areas in the study area are non-native trees and shrubs, including horticultural species and invasive species such as Himalayan blackberry and reed canarygrass.

This cover type has relatively low habitat value for wildlife. If disturbed during construction, there would be minimal effects on existing vegetation or wildlife habitat. The minimal habitat present could be easily replaced following construction. The built portions of the proposed project would have similar vegetation condition and habitat value compared to current conditions.

3.2.1.2 Residential

The residential cover type represents approximately 9 percent of the total cover and includes developed areas with houses, driveways, yards, and associated landscaping. Vegetation incudes mown lawns, horticultural species, and native species in some areas. Regular disturbances from humans and domestic animals limit habitat value for some wildlife species. However, the higher cover and diversity of vegetation provides some habitat value, compared to fully developed and built commercial areas. Relative habitat value is low.

If disturbed during construction, there would be effects on existing vegetation and wildlife habitat. The habitat present could be replaced following construction as landscaped elements of the project. However, the configuration of the habitat and overall cover may change compared to current conditions, based on the design.

3.2.1.3 Grassland

The grassland cover type represents areas dominated by upland grasses and other herbaceous species. They are maintained in the study area through mowing and brush control. Dominant plant species observed during field surveys include species of bentgrass (*Agrostis* sp.), bluegrass (*Poa* sp.), and fescues, as well as dandelions, lawn daisies, filaree, and other non-native grass and herbaceous species. Wildlife species associated with grassland habitats in the study area include Savannah sparrows (*Passerculus sandwichensis*), barn swallows (*Hirundo rustica*), swallowtail butterflies (*Papilio* spp.), meadow voles (*Microtus pennsylvanicus*), and Townsend's moles (*Scapanus townsendii*). Red-tailed hawks (*Buteo jamaicensis*) and other raptors prey on voles (*Microtus* spp.) and other small mammals that are found in abundance in grassy habitats. Relative habitat value is moderate.

If disturbed during construction, the habitat present could easily be replaced following construction, as the establishment of grasses could occur within weeks following construction.

3.2.1.4 Native Brush

The native brush cover type represents areas dominated by native species that include shrub species and/or sapling-sized tree species. Typical species observed in the study area include Nootka rose (*Rosa nutkana*), Douglas spiraea, salmonberry, black cottonwood, and red alder. This habitat provides nesting, foraging, and refuge habitat for birds and small mammals, as well as native species resources for the wildlife food web, including pollinators. Overall habitat value is moderate: it provides good habitat for native species and is able to reestablish quickly following disturbances.

3.2.1.5 Invasive Brush

The invasive brush cover type represents areas dominated by non-native brush species such as Himalayan blackberry, Scotch broom (*Cytisus scoparius*), and butterfly bush (*Buddleja davidii*). Although non-native, this habitat type does provide nesting, foraging, and refuge habitat for several species of birds and small mammals. Relative habitat value is low.

The ecological functions of invasive brush areas disturbed during construction could be easily replaced or improved through the planting of native shrubs or non-invasive landscaping species. Disturbed sites that are not planted and maintained as other cover types would likely be dominated by invasive brush in the future.

3.2.1.6 Non-Native Forest

Forests composed primarily of non-native species occur in the study area. Although most of these non-native forests represent plantings of horticultural species as part of residential or commercial development, some less-disturbed areas have been colonized by non-native species. The planted areas are dominated by Austrian pine (*Pinus nigra*) and other non-native pines, non-native maples and ash trees, and Lombardy poplar. The shrub layers in areas colonized by non-native trees are dominated by European hawthorn (*Crataegus monogyna*), European mountain ash (*Sorbus aucuparia*), and bird cherry (*Prunus avium*).

Although dominated by non-native species, this cover type does provide some habitat value for local wildlife, as well as stormwater moderation and other ecosystem functions. Relative habitat value is moderate.

In areas cleared for project construction, these functions would be lost for years or decades (i.e., the time required for new trees to become established and mature). Given the vigorous nature of these species, however, it would not be difficult to reestablish these plant communities.

3.2.1.7 Mature Native Forest

Some of the forested areas in the study area meet WDFW's criteria for the Mature Forest priority habitat type and were classified for this analysis as a separate cover type, distinct from other native forest. These stands are generally over 80 years old, with trees exceeding 21 inches in diameter at breast height, on average (WDFW 2008). These forests are dominated by Douglas-fir, western redcedar, western hemlock, and black cottonwood. The understory in many areas is dominated by native shrubs and groundcovers, although English ivy and other weeds have encroached on some areas. In addition to the areas identified as mature native forest, two Category I forested wetlands near the Puyallup River in the Fife Segment meet the criteria for this habitat type (see Section 3.3.2).

Compared to other cover types, structurally complex habitats, such as native forested areas and wetlands, have more biological diversity and higher value as wildlife habitat. With habitat features such as large trees, snags, decaying logs, and a diverse understory, areas classified as mature native forest typically support diverse communities of forest-associated wildlife. Because of the long time period (decades to centuries) needed to reestablish native forested conditions, disturbance or removal of this habitat type would have a substantial effect on habitat throughout the time period needed to reestablish the forests.

3.2.1.8 Other Native Forest

The other native forest cover type represents approximately 12 percent of the total study area and includes forests dominated by native tree and shrub species but lacking the defining features of mature forest (see below). A range of native forest types was observed in the study area, differing in composition of the canopy as well as the relative extent of native versus invasive species in the understory. Relative habitat value is high.

Areas classified as other native forest in the study area are dominated by primarily Douglas-fir, western redcedar, black cottonwood, red alder, and bigleaf maple. The understory contains native species (sword fern, salal, osoberry, beaked hazelnut, red elderberry) and invasive species (Himalayan blackberry, cutleaf blackberry [*Rubus laciniatus*], butterfly bush, English ivy, and others).

All areas classified as other native forest provide relatively high habitat value for native wildlife, based on the diversity and structural complexity provided by overstory trees and understory shrubs. Many areas classified as other native forest are several decades old and would require several decades to recover following disturbance. For these reasons, the other native forest cover type is considered to have a high habitat value.

3.2.1.9 Wetland/Stream

The wetland/stream cover type represents areas with high water tables and/or inundation. In the study area, streams and wetlands are interwoven into complexes of vegetated wetlands, scoured channels, and vegetated areas within the OHWM of streams. Streams in the study area (as compared with large river channels, described below) are generally low-velocity systems that flow through heavily vegetated wetland areas described below. Streams and wetlands are combined in the vegetation analysis because their cover and structure (heavily vegetated aquatic areas) are similar.

Areas classified as wetland/stream provide habitat functions similar to those described above for forests, brush areas, and grasslands (i.e., nesting, perching, hiding and foraging habitats for many species), but with added habitat value due to the presence of water and unique habitats for water-dependent species (such as fish and amphibians). Based on these features, relative habitat value is generally high. The degree of habitat value is also a function of the dominant vegetation cover type, as summarized below. The existing condition and habitat of individual streams and wetlands in the study area are described in more detail in Sections 3.1 and 3.3.

Forested wetlands in the study area are dominated by Pacific willow, red alder, and black cottonwood, with an understory of Douglas' spiraea, Himalayan blackberry, slough sedge, and reed canarygrass. Based on their structural complexity and availability of water, forested wetlands provide high-value habitat. Similar to the upland forests described above, forested wetlands would require years to decades to recover habitat functions temporarily lost due to disturbance or removal.

Scrub-shrub wetlands in the study area are dominated by Scouler's willow, red-twig dogwood, and Douglas' spiraea. Similar to the native brush cover type, scrub-shrub wetlands provide moderate-value habitat, but the presence of water enhances the value of these areas. Reestablishment of scrub-shrub vegetation can be rapid after disturbances (within a few years), but often slower than emergent systems (within a year).

Emergent wetlands in the study area are dominated by reed canarygrass, bluegrass, and cattails. The habitat value of emergent wetlands is similar to that of grasslands, although that value is enhanced by the presence of water. Reestablishment of emergent vegetation can be rapid after disturbances.

3.2.1.10 River Channel

The river channel cover type represents primarily the unvegetated and scoured bed of the Puyallup River. The channels of smaller streams are mapped as line features. This land cover type represents the core of aquatic habitats because it is key habitat for multiple life stages for many aquatic species, including salmon and marine mammals, and is discussed in more detail in Section 3.1. Relative habitat value is high for aquatic species. Based on the high levels of noise and human activity along the Puyallup River in the study area, the habitat value for terrestrial species is relatively low.

3.2.1.11 Stormwater Pond

The stormwater pond cover type supports native and non-native wetland species adapted to fluctuating water tables and disturbances related to maintenance. Common species in areas classified as this cover type are reed canarygrass, cattails, bulrushes, and willows. Due to extreme water level fluctuations and regular disturbance for maintenance, the relative habitat value of this cover type is low. Stormwater ponds are designed to rapidly fill with water and hold water only for a short period following precipitation events (as a way of maximizing groundwater recharge or minimizing mosquito populations). This can attract amphibians and other aquatic species and then compromise embryonic and larval survival when the pond dries or water elevation rapidly increases. Regular maintenance, including removal of vegetation and accumulated sediments, further reduces habitat value by altering habitat structure, soils, and in-water conditions.

3.2.2 Terrestrial Wildlife

Wildlife use of habitats in urban landscapes depends on the general location of the habitat, the size and type of undisturbed habitats, the degree of connectivity and extent of travel corridors between and among these habitats, and the types and levels of human activity. Much of the study area falls within commercial, industrial, and residential areas that provide habitat only for adaptable species such as house sparrows, European starlings, rats, mice, raccoons (*Procyon lotor*), Virginia opossums (*Didelphis virginiana*), and eastern gray squirrels (*Sciurus carolinensis*). Birds such as rock pigeons (*Columba livia*) and cliff swallows (*Petrochelidon pyrrhonota*) commonly build nests on bridges and road overpasses, and many bat species use such structures as temporary roosting sites. Animals that use habitats in the study area are also exposed to high levels and disturbance generated by human activity in commercial and industrial areas and traffic on I-5 and major arterial roadways.

Larger habitat patches and those connected to other natural areas or heavily vegetated residential neighborhoods support a greater variety of species, such as songbirds, raptors, small mammals, coyotes (*Canis latrans*), and black-tailed deer (*Odocoileus hemionus columbianus*). Songbird species commonly found in habitats similar to those in the study area include

American robin, song sparrow (*Melospiza melodia*), Steller's jay (*Cyanocitta stelleri*), American crow, spotted towhee (*Pipilo maculatus*), black-capped chickadee (*Poecile atricapillus*), white-crowned sparrow (*Zonotrichia leucophrys*), northern flicker (*Colaptes auratus*), Bewick's wren (*Thryomanes bewickii*), and red-breasted nuthatch (*Sitta canadensis*). Raptors include American kestrel (*Falco sparverius*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), red-tailed hawk, and great horned owl (*Bubo virginianus*). Red-tailed hawks and other raptors prey on voles and other small mammals that are found in abundance in grassy vegetation, such as in the I-5 right-of-way. Peregrine falcons have been observed in the study area and are known to nest on nearby bridges. Open-water habitats, such as wetlands and stormwater detention ponds, provide resting and foraging areas for waterfowl.

Most patches of forest cover in the study area are fragmented and separated from surrounding habitat areas by commercial and residential developments and roads. Despite their isolation, these areas still provide habitat for forest-associated resident and migratory songbirds, as well as for hawks, owls, woodpeckers, and small mammals. The largest patches of forested habitat are in the South Federal Way Segment. One patch, approximately 15 acres in size, parallels I-5 near S 336th Street. As indicated by the detection of an ensatina (*Ensatina eschscholtzii*) (a terrestrial salamander whose eggs develop directly into adults without an aquatic larval stage — a reproductive strategy that depends on cool and humid conditions) during a site visit in October 2019, this patch supports many ecosystem functions, despite its isolation from other, less-disturbed areas of forest habitat. Additional patches are present near S 364th Way and around the lower reaches of West Fork Hylebos Creek, south of S 376th Street (Figures J4.3-14 through J4.3-26).

Streams, rivers, and riparian areas are used as travel corridors by many wildlife species. Despite the urbanization of the study area, riparian areas along streams may serve as connective corridors between pockets of wildlife habitat. In general, however, patches of forest and other native habitat types in the study area are isolated from other areas of similar habitat and do not serve as connective corridors to other areas of habitat outside of the study area. In most areas, I-5 and SR 99 impede the movement of wildlife between the Green River and Puyallup River valleys in the east and the Puget Sound shoreline to the west. In the South Federal Way Segment, I-5 crosses West Fork Hylebos Creek on a low (less than 10 feet above ground) bridge. This bridge may facilitate the movement of small- to medium-sized mammals and amphibians along the stream corridor. The culvert that conveys West Fork Hylebos Creek under SR 99 likely provides a similar degree of connectivity for small- to medium-sized mammals and amphibians.

3.3 Wetlands

Analysis of existing wetland and soils mapping shows a concentration of predicted wetland conditions associated with the tributaries of Hylebos Creek and the floodplains of that stream, Fife and Wapato Creeks, and the Puyallup River in areas that are not otherwise developed (See Figures C-1 and C-2).

A total of 106 wetlands were identified in the study area as summarized in Table J4.3-13. These are described in detail in the following subsections. The wetland descriptions are grouped by project segment from north to south and organized consecutively by local jurisdiction and wetland identifier within each group, as wetlands were identified based on rights of entry and not geographically. In the figures, wetlands and streams extents are depicted only within the study area.

Table J4.3-13 Wetlands in the Study Area

Wetland Name	HGM Classification[1]	USFWS Classification[2]	Approx. Acreage in Study Area (Acres)[3]	Wetland Rating (Ecology)[4]	Wetland Rating Habitat Score[5]	Jurisdiction[6]	Wetland Buffer Width (ft)[4,7]	Boundaries in Study Area[8]
Federal Way Segment								
WFW-01	Depressional Riverine	PFO	1.46	II	6	Federal Way	150	Delineated (surveyed)
WFW-03	Riverine	PFO	0.31	II	6	Federal Way	150	Delineated (surveyed)
WFW-04	Depressional	PFO	0.53	II	5	Federal Way	100	Delineated (surveyed)
WFW-05	Riverine	PFO	0.14	II	6	Federal Way	150	Delineated (surveyed)
WFW-06	Slope	PSS	0.02	III	5	Federal Way	80	Delineated (surveyed)
WFW-07	Riverine	PEM, PSS	0.19	III	4	Federal Way	80	Delineated (surveyed)
WFW-08	Riverine	PEM, PSS	0.13	III	4	Federal Way	80	Delineated (surveyed)
WFW-09	Riverine	PSS	0.10	III	4	Federal Way	80	Delineated (surveyed)
WFW-10 (a, b)	Riverine	PFO	0.94	III	5	Federal Way	80	Delineated (surveyed), Estimated (remote)
WFW-11	Depressional	PEM, PFO	0.34	III	5	Federal Way	80	Delineated (surveyed)
WFW-12	Riverine	PEM, PSS, PFO	0.63	III	5	Federal Way	80	Delineated (surveyed), Estimated (remote)
WFW-13	Slope	PSS	0.02	IV	3	Federal Way	50	Delineated (surveyed)
WFW-14	Depressional	PEM	0.02	III	4	Federal Way	80	Delineated (surveyed)
WFW-15	Riverine	PSS, PFO	0.38	II	6	Federal Way	150	Delineated (surveyed), Estimated (remote)
WFW-16	Depressional	PEM, PSS	0.33	III	3	Federal Way	80	Delineated (GPS)
WFW-32	Depressional	PEM, PSS	0.03	III	3	Federal Way	80	Delineated (surveyed)
South Federal Way Segment								
WFW-17	Riverine	PFO	0.02	III	5	Federal Way	80	Delineated (GPS), Estimated (remote)
WFW-18	Riverine	PSS	0.00	III	5	Federal Way	80	Delineated (GPS)
WFW-19	Depressional	PEM, PSS	0.55	III	3	Federal Way	80	Estimated (remote)
WFW-20	Riverine	PSS, PFO	0.44	III	5	Federal Way	80	Estimated (remote)
WFW-21	Riverine	PSS	0.27	II	6	Federal Way	150	Delineated (GPS)
WFW-22	Depressional	PSS	0.05	III	3	Federal Way	80	Delineated (GPS)
WFW-23	Depressional	PEM	0.02	III	3	Federal Way	80	Estimated (remote)
WFW-24	Depressional	PEM, PFO	0.26	III	3	Federal Way	80	Delineated (GPS), Estimated (remote)
WFW-25	Depressional	PFO	0.29	III	4	Federal Way	80	Delineated (GPS)

Table J4.3-13 Wetlands in the Study Area (continued)

Wetland Name	HGM Classification[1]	USFWS Classification[2]	Approx. Acreage in Study Area (Acres)[3]	Wetland Rating (Ecology)[4]	Wetland Rating Habitat Score[5]	Jurisdiction[6]	Wetland Buffer Width (ft)[4,7]	Boundaries in Study Area[8]
WFW-26	Slope, Riverine	PFO	1.54	III	5	Federal Way	80	Delineated (GPS), Estimated (remote)
WFW-27	Slope	PFO	0.10	III	4	Federal Way	80	Delineated (GPS)
WFW-34	Depressional, Riverine	PFO	5.90	I	7	Federal Way	150	Delineated (surveyed), Delineated (GPS), Estimated (remote)
WFW-36	Slope	PEM, PFO	0.33	III	7	Federal Way	150	Delineated (surveyed)
WFW-37	Depressional, Slope, Riverine	PAB, PEM, PSS, PFO	9.83	I	8	Federal Way	300	Delineated (surveyed), Delineated (GPS), Estimated (remote)
WFW-38	Depressional, Slope, Riverine	PFO	4.17	I	8	Federal Way	300	Delineated (surveyed), Delineated (GPS), Estimated (remote)
WFW-39	Depressional, Slope, Riverine	PFO	14.89	II	6	Federal Way	150	Delineated (surveyed), Estimated (remote)
WFW-42	Depressional	PEM	0.02	II	6	Federal Way	150	Delineated (surveyed)
WFW-43	Depressional, Slope, Riverine	PAB, PEM, PFO	2.62	I	8	Federal Way	300	Delineated (surveyed), Estimated (remote)
WFW-44	Depressional	PEM	0.18	II	6	Federal Way	150	Delineated (surveyed), Estimated (remote)
WFW-45	Depressional	PSS	0.31	II	5	Federal Way	100	Delineated (surveyed), Estimated (remote)
WFW-46	Depressional	PSS	0.11	II	6	Federal Way	150	Delineated (surveyed), Estimated (remote)
WFW-47	Depressional	PFO	2.86	II	5	Federal Way	100	Estimated (remote)
WFW-48	Depressional	PSS, PFO	0.33	III	4	Federal Way	80	Estimated (remote)
WFW-49	Depressional, Slope, Riverine	PAB, PEM, PSS, PFO	1.24	I	8	Federal Way	300	Estimated (remote)
WMI-01	Depressional	PEM	0.91	III	5	Milton	105	Estimated (remote)
WMI-02	Slope	PEM	0.08	III	6	Milton	165	Estimated (remote)
WMI-03	Depressional	PEM	0.02	III	5	Milton	105	Delineated (surveyed)

Table J4.3-13 Wetlands in the Study Area (continued)

Wetland Name	HGM Classification[1]	USFWS Classification[2]	Approx. Acreage in Study Area (Acres)[3]	Wetland Rating (Ecology)[4]	Wetland Rating Habitat Score[5]	Jurisdiction[6]	Wetland Buffer Width (ft)[4,7]	Boundaries in Study Area[8]
WMI-04	Depressional	PSS	0.03	III	5	Milton	105	Estimated (remote)
WMI-06	Slope	PEM	0.03	IV	3	Milton	40	Delineated (GPS)
WMI-07	Slope	PEM, PSS	0.70	III	3	Milton	60	Delineated (GPS)
WMI-08	Slope	PEM, PSS	0.11	III	5	Milton	105	Delineated (GPS)
WMI-09a	Depressional, Riverine	PEM, PSS, PFO	3.65	I	7	Milton	165	Delineated (surveyed), Estimated (remote)
WMI-09b	Depressional, Riverine	PEM, PSS	2.50	II	6	Milton	165	Delineated (surveyed)
WMI-09c	Riverine	PEM, PFO	2.58	I	7	Milton (S)	165 110 (S)	Estimated (remote)
WMI-09d	Riverine	PEM, PSS, PFO	4.43	II	6	Milton (S)	165 110 (S)	Estimated (remote)
WMI-10	Slope	PSS	0.03	IV	3	Milton	40	Delineated (surveyed)
WMI-11	Depressional	PFO	2.06	II	4	Milton	75	Delineated (surveyed), Estimated (remote)
WMI-12	Depressional	PFO	0.62	II	5	Milton	105	Delineated (surveyed), Estimated (remote)
WMI-13	Depressional	PFO	2.98	II	5	Milton	105	Estimated (remote)
WMI-14	Depressional	PFO	2.47	II	4	Milton	75	Estimated (remote)
WMIFW-01	Depressional, Slope, Riverine	PEM, PSS, PFO	11.59	I	8	Federal Way, Milton	225 (Milton) 300 (Federal Way)	Delineated (surveyed), Delineated (GPS), Estimated (remote)
WPCFI-01	Riverine	PEM, PSS	0.74	II	5	Fife, Pierce County	100 (Pierce Co.) 105 (Fife)	Estimated (remote)
WPCMIFI-01	Slope, Riverine	PEM, PSS, PFO	4.71	II	6	Fife (S), Milton (S), Pierce County (S)	100 (Pierce Co.) 165 (Milton) 165 (Fife)	Estimated (remote)

Table J4.3-13 Wetlands in the Study Area (continued)

Wetland Name	HGM Classification[1]	USFWS Classification[2]	Approx. Acreage in Study Area (Acres)[3]	Wetland Rating (Ecology)[4]	Wetland Rating Habitat Score[5]	Jurisdiction[6]	Wetland Buffer Width (ft)[4,7]	Boundaries in Study Area[8]
Fife Segment								
WFI-01	Slope	PEM	0.09	III	3	Fife	60	Delineated (GPS)
WFI-02	Depressional	PEM	4.27	III	3	Fife	60	Delineated (GPS), Estimated (remote)
WFI-03	Depressional	PEM, PSS	1.99	III	3	Fife	60	Delineated (GPS), Estimated (remote)
WFI-04	Riverine	PEM, PSS	0.12	III	5	Fife	105	Estimated (remote)
WFI-05	Depressional	PEM	0.10	III	3	Fife	60	Estimated (remote)
WFI-06	Depressional	PEM	0.39	III	3	Fife	60	Delineated (GPS), Estimated (remote)
WFI-07	Depressional	PEM	0.25	III	3	Fife	60	Delineated (GPS), Estimated (remote)
WFI-08a	Riverine	PSS, PFO	1.99	II	6	Fife	165	Estimated (remote)
WFI-08b	Riverine	PSS, PFO	0.26	II	6	Fife	165	Estimated (remote)
WFI-08c	Riverine	PSS	0.08	III	4	Fife	60	Estimated (remote)
WFI-08d	Riverine	PEM	0.02	III	4	Fife	60	Estimated (remote)
WFI-09	Riverine	PSS	0.22	II	5	Fife (S)	105	Delineated (GPS)
WFI-10	Depressional	PFO	1.56	I (mature forest)	5	Fife (S)	105	Estimated (remote)
WFI-11	Depressional	PEM, PSS	0.15	III	3	Fife	60	Delineated (GPS)
WFI-12	Depressional	PEM	0.21	III	3	Fife	60	Delineated (GPS)
WFI-13	Depressional	PSS, PFO	0.20	III	4	Fife	60	Estimated (remote)
WFI-14a	Depressional	PEM	0.46	III	3	Fife	60	Estimated (remote)
WFI-14b	Depressional	PEM, PSS	0.15	III	3	Fife	60	Estimated (remote)
WFI-15	Depressional	PEM	0.46	III	3	Fife	60	Estimated (remote)
WFI-16	Depressional, Riverine	PEM	0.11	III	3	Fife	60	Estimated (remote)
WFI-17	Depressional, Riverine	PEM	0.29	III	3	Fife	60	Estimated (remote)
WFI-18	Depressional	PEM	7.33	III	3	Fife	60	Estimated (remote)
WFI-19	Depressional	PEM, PFO	0.83	III	4	Fife	60	Estimated (remote)
WFI-20	Depressional	PEM	0.11	III	3	Fife	60	Estimated (remote)
WFI-21	Depressional	PEM	0.03	III	3	Fife	60	Estimated (remote)
WFI-22	Depressional	PEM	0.11	III	3	Fife	60	Estimated (remote)
WFI-23	Depressional	PFO	0.15	I (mature forest)	5	Fife (S)	105	Estimated (remote)
WFI-24	Depressional	PSS, PFO	1.51	III	4	Fife	60	Estimated (remote)
WFI-25	Depressional	PEM, PSS	0.03	II	5	Fife (S)	105	Estimated (remote)

Table J4.3-13 Wetlands in the Study Area (continued)

Wetland Name	HGM Classification[1]	USFWS Classification[2]	Approx. Acreage in Study Area (Acres)[3]	Wetland Rating (Ecology)[4]	Wetland Rating Habitat Score[5]	Jurisdiction[6]	Wetland Buffer Width (ft)[4,7]	Boundaries in Study Area[8]
WFI-26	Depressional	PEM	0.53	III	3	Fife	60	Estimated (remote)
WFI-27	Depressional	PEM	2.13	III	3	Fife	60	Estimated (remote)
WFI-28	Depressional	PEM	1.26	IV	3	Fife	40	Estimated (remote)
WFI-30	Depressional	PEM, PSS	0.07	III	3	Fife	60	Estimated (remote)
WFI-32	Depressional	PEM	0.03	III	3	Fife	60	Estimated (remote)
WFI-33	Depressional	PFO	0.54	III	4	Fife	60	Estimated (remote)
WFI-34	Depressional	PEM	0.02	III	4	Fife	60	Estimated (remote)
WFI-35a	Depressional	PEM	0.02	III	4	Fife	60	Estimated (remote)
WFI-35b	Depressional	PEM	0.02	III	4	Fife	60	Estimated (remote)
WFI-35c	Depressional	PEM	0.06	III	4	Fife	60	Estimated (remote)
WFI-35d	Depressional	PEM	0.01	III	4	Fife	60	Estimated (remote)
WFI-35e	Depressional	PEM	0.01	III	4	Fife	60	Estimated (remote)
WFI-36	Depressional	PEM	0.13	III	5	Fife	105	Estimated (remote)
WPCFI-02	Riverine	PEM, PSS, PFO	1.57	II	6	Fife (S), Pierce County (S)	100 (Pierce Co.) 165 (Fife)	Delineated (GPS), Estimated (remote)
Tacoma Segment								
WTA-01	Riverine	PSS	0.22	III	4	Tacoma (S)	75	Delineated (GPS)
WTA-02	Depressional	PFO	0.01	IV	3	Tacoma	50	Estimated (remote)
WTA-03	Riverine	PSS	0.00	III	4	Tacoma (S)	75	Estimated (remote)
WTA-04	Riverine	PSS	0.10	III	4	Tacoma (S)	75	Estimated (remote)

Notes:

(1) HGM = Hydrogeomorphic classification (Brinson 1993).

(2) PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub, PAB = palustrine aquatic bed (Cowardin et al. 1979; FGDC 2013).

(3) Wetland area includes the active, unvegetated stream channel.

(4) Wetland ratings categorize wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the functions they provide (Hruby and Yahnke 2023). Category I wetlands have a very high level of function; Category IV wetlands have a low level of function. Ratings and associated regulatory buffer widths in this table are preliminary and subject to change.

(5) Habitat points represent the score that is generated from the habitat analysis section of the wetland rating (Hruby and Yahnke 2023),). Habitat scores range from 3 (low) to 9 (high). Many local jurisdictions use habitat points to determine wetland buffer widths.

(6) (S) indicates wetlands that lie within the shoreline jurisdiction in each city or county.

(7) FWRC 19.145.420, Table 1; MMC 18.16.320, Table 1; TMC 13.11.320, Table 3; FMC 17.17.230, Table 1, PCC 18E.30.060, Table 1. Where buffers within the shoreline jurisdiction differ from those established in the applicable local critical areas code, shoreline jurisdiction buffers are denoted by "S."

(8) Delineated (Surveyed) = wetland boundaries delineated in the field and were professionally surveyed; Delineated (GPS) = wetland boundaries were delineated in the field and were located using a handheld global positioning system (GPS) unit; Estimated (remote) = boundaries not delineated in the field, but were based on existing information and aerial imagery

Of the 106 wetlands identified and described in this report, 54 were fully or partially accessed during field delineation surveys to assess wetland hydrology, soils, and vegetation. The boundaries of 52 wetlands were fully estimated using remote sensing and best professional judgment where access was limited.

Where possible, field observations were collected for remotely identified wetlands from public rights-of-way (primarily those wetlands well away from the project footprint, whose functional buffers do not overlap with the project footprint, or on private parcels for which rights of entry had not yet been obtained).

Wetland determination forms and rating forms for the wetlands accessed during the field surveys are provided in Attachments D and E, respectively. Photographs of wetlands accessed during the field surveys and from public rights-of-way are included in Attachment F. Wetland boundaries are shown on Figures J4.3-1 through J4.3-13.

3.3.1 Federal Way Segment

The Federal Way Segment extends from the Federal Way Downtown Station and ends at S 344th Street. Most of the alignment is adjacent to I-5. The Preferred FW Enchanted Parkway Alternative is the only build alternative within this segment, and there is one design option, the FW Design Option. The alternative would begin at the terminus of the Federal Way Link Extension, curve east at S 324th Street to I-5, and parallel I-5 to S 344th Street. Surrounding land uses include the Belmor Mobile Home Park (Belmor) (a manufactured home community with a golf course), single-family housing, developed commercial areas, and undeveloped forested areas. Substantial development of the area has altered natural wetlands and watercourses considerably. Many of the wetlands in this portion of the study area are associated with the East Fork Hylebos Creek Tributary 0016A. See Section 3.1.2 for more information about the stream network in this area.

In general, vegetated buffers of wetlands are often limited by roads and other impervious surfaces, such as parking lots and commercial development and are particularly constrained between development and I-5. Due to substantial residential development, buffers also include landscaped lawns. Wetland buffers often overlap with stream buffers of the East Fork Hylebos Creek Tributary 0016A. As such many of the buffers consist of common riparian vegetation, including mixed deciduous/coniferous forests. Due to their proximity to development, many buffers contain non-native and invasive vegetation and are further degraded by human influences.

Wetland WFW-01

Wetland WFW-01 is located west of I-5 and south of S 336th Street, along the eastern boundary of the Christian Faith Center property. The wetland is associated with East Fork Hylebos Creek Tributary 0016A and includes both riverine and depressional elements.

This wetland primarily consists of palustrine deciduous forest communities dominated by Oregon ash, red alder, and black cottonwood. Salmonberry, red-twig dogwood, and vine maple are common understory plants. Slough sedge is common in wetter portions of the wetland, including areas that appear seasonally ponded. Reed canarygrass and Himalayan blackberry are present throughout the wetland. Primary hydrology for the wetland is overbank flooding from East Fork Hylebos Creek Tributary 0016A, as well as high groundwater and stormwater runoff from nearby impervious surfaces. Soils in Wetland WFW-01 are silt or sandy loams that meet

hydric soil indicators redox dark surface (F6) and thick dark surface (A12). The wetland boundary is defined by a lack of wetland hydrology in upland areas and a gradual change in wetland to upland soils and vegetation.

Wetland WFW-01 was described in the 2003 Christian Faith Center Environmental Impact Statement (where it was referred to as “Wetland B”) and includes approximately 5,400 square feet of created wetland and an additional 3,500 square feet of wetland enhancement as part of on-site mitigation from the site’s previous development (City of Federal Way 2003).

Wetland WFW-03

Wetland WFW-03 is a riverine wetland located along both sides of East Fork Hylebos Creek Tributary 0016A in the WSDOT right-of-way west of I-5. Hydrology for Wetland WFW-03 appears to be derived primarily from overbank flooding, as well as groundwater discharge. Wetland WFW-03 receives stormwater discharge from nearby commercial development, as well as surface runoff from I-5.

This wetland primarily consists of a palustrine deciduous forested community. Dominant species include Oregon ash, black cottonwood, and Pacific willow. Dominant understory species include salmonberry, with small pockets of slough sedge. Soils in Wetland WFW-03 meet hydric soil indicator redox dark surface (F6). The wetland boundary is defined by a gradual increase in elevation with a transition to upland conditions.

Wetland WFW-04

Wetland WFW-04 is a depressional wetland located at the edge of the WSDOT right-of-way near a stormwater facility west of I-5, between S 341st Place and S 344th Street. Vegetation in the wetland is dominated by Oregon ash, Pacific willow, and black cottonwood, with an understory consisting primarily of hardhack. Hydric soils in Wetland WFW-04 are a silt loam with high organic content that meet hydric soil indicators, redox dark surface (F6). Hydrology inputs to Wetland WFW-04 include overflow from the adjacent stormwater facility, as well as stormwater inputs from surrounding commercial properties and a high groundwater table. Wetland WFW-04 is a closed depression with no outlet. The wetland boundary is defined by a gradual change in soils and vegetation and a lack of wetland hydrology.

Wetland WFW-06

Wetland WFW-06 is a small slope wetland located in the WSDOT right-of-way west of I-5, between S 336th Street and S 344th Street. This wetland is located in an apparently excavated swale feature that drains stormwater from I-5 to East Fork Hylebos Creek Tributary 0016A. Although the majority of the swale does not meet the definition of wetland, the far southern end has sufficient hydrology to produce hydric soils meeting indicator redox dark surface (F6) and to support hydrophytic vegetation. The wetland is dominated by scrub-shrub vegetation, primarily salmonberry. Only the far southern end of the swale has sufficient hydrology to support hydrophytic vegetation and produce hydric soils; therefore, the wetland boundary was determined by presence of wetland hydrology.

Wetland WFW-07

Wetland WFW-07 is a small riverine wetland located in the northeast section of Belmor adjacent to golf course greens. Within the Belmor golf course, East Fork Hylebos Creek Tributary 0016A has been channelized, and a build-up of sediment has resulted in several wetland benches that are below the OHWM. The palustrine scrub-shrub and emergent wetland is dominated by

Himalayan blackberry, hardhack, Sitka willow, reed canarygrass, and giant horsetail. Hydric soils met two indicators: depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by lack of wetland hydrology.

Wetland WFW-08

Wetland WFW-08 is a small, riverine wetland located in the northeast section of Belmor adjacent to golf course greens. Wetland WFW-08 is south (downstream) of Wetland WFW-07, separated by a 48-inch concrete culvert. Wetland WFW-08 consists of several bench wetlands located below the OHWM, in which the primary source of hydrology is provided by East Fork Hylebos Creek Tributary 0016A. The stream has been channelized in this section.

The palustrine scrub-shrub and emergent wetland is dominated by Himalayan blackberry, Sitka willow, cattail, reed canarygrass, and slough sedge. Soils were dark and underlain by a restrictive layer composed of quarry spalls. Hydric soils in the scrub-shrub and emergent vegetation classes were dark, but indicators were problematic, likely due to widespread land surface modifications and site development. However, the presence of strongly hydrophytic plants, the primary indicators of wetland hydrology, and the wetland's landscape position within the active floodplain support the assumption that the soils were hydric and therefore the presence of wetland conditions. The wetland boundary was determined by lack of wetland hydrology and hydric soil indicators.

Wetland WFW-09

Wetland WFW-09 is a small, riverine wetland located in the southeastern section of Belmor. Wetland WFW-09 is south (downstream) of Wetland WFW-08, separated by twin 18-inch culverts. Wetland WFW-09 consists of several bench wetlands located below the OHWM, in which the primary source of hydrology is provided by East Fork Hylebos Creek Tributary 0016A, which has been channelized in this section.

The palustrine scrub-shrub wetland is dominated by Himalayan blackberry, hardhack, and Sitka willow. Hydric soils were dark and/or had a depleted matrix in lower layers and met the hydric soil indicators depleted matrix (F3) and depleted below dark surface (A11) within the scrub-shrub vegetation class. The wetland boundary was determined by lack of wetland hydrology and hydric soil indicators.

Wetland WFW-10

Wetland WFW-10 is a riverine wetland with two wetland segments (northern and southern) located between S 330th Street and S 333rd Street on multiple parcels. Wetland WFW-10 is south (downstream) of Wetland WFW-12 and is separated from Wetland WFW-15 by twin 18-inch culverts. The primary source of hydrology was provided by East Fork Hylebos Creek Tributary 0016A and a high groundwater table.

The palustrine forested wetland is dominated by western redcedar, black cottonwood, red alder, Oregon ash with Himalayan blackberry, salmonberry, lady fern, slough sedge, and Kentucky bluegrass (*Poa pratensis*) in the understory. Hydric soils were dark and/or had a depleted matrix in lower layers. Within Unit A, hydric soils met the hydric soil indicators hydrogen sulfide (A4) and thick dark surface (A12). Hydric soils in Unit B met the hydric soil indicator redox dark surface (F6). Within Unit C, hydric soils met the indicator depleted below dark surface (A11). The wetland boundary was determined by the gradual transition to higher elevation and lack of wetland hydrology and hydric soil indicators.

The two units are rated together because they lack hydrologic constrictions or gaps in vegetation exceeding 50 feet that would divide them into separate rating units.

Wetland WFW-11

Wetland WFW-11 is a depressional wetland located between 24th Avenue S and I-5 in Federal Way both on private land and in the WSDOT I-5 right-of-way. Wetland hydrology was supported by a high groundwater table and precipitation.

The wetland is dominated by black cottonwood, red alder, Oregon ash, Sitka willow, hardhack, and Himalayan blackberry in the palustrine forested class, and reed canarygrass in the emergent vegetation class. Hydric soils were depleted below a dark upper layer and met the indicators depleted matrix (F3) and depleted below dark surface (A11) within the forested vegetation class and the indicators redox dark surface (F6) in the emergent vegetation class. The wetland boundary was determined by a transition to upland soils and vegetation with a lack in hydrology.

Wetland WFW-12

Wetland WFW-12 is a small, riverine wetland located at the south end of Belmor and extending into two adjacent parcels. The primary sources of hydrology are flooding from East Fork Hylebos Creek Tributary 0016A and a high groundwater table. Wetland WFW-12 is south (downstream) of Wetland WFW-09, separated by a 41-inch pre-cast concrete culvert. Wetland WFW-12 consists of several bench wetlands located below the OHWM.

The palustrine emergent, scrub-shrub, and forested wetland is dominated by red alder, salmonberry, Himalayan blackberry, reed canarygrass, and creeping buttercup. Hydric soils observed in this wetland were largely depleted, but indicators were problematic, likely due to widespread land surface modifications and site development. However, the presence of hydrophytic plants and several primary indicators of wetland hydrology, combined with its landscape position within the active floodplain, support the assumption that hydric soils are present. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFW-13

Wetland WFW-13 is a small, slope wetland located within a ditch in the WSDOT right-of-way east of I-5 and south of S 333rd Street. The ditch continues south where eventually it transitions to a riprap-lined ditch, and then ends. Wetland WFW-13's primary sources of hydrology are a high groundwater table and precipitation.

The palustrine scrub-shrub wetland has sparse vegetation, which is dominated by Himalayan blackberry and reed canarygrass. Hydric soils consisted of a depleted matrix overlain by dark soils, which had a restrictive layer of clay and gravel starting at 17 inches below ground level. Hydric soils met the indicators depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by the transition to riprap material and lack of wetland hydrology.

Wetland WFW-14

Wetland WFW-14 is a depressional wetland located in a stormwater pond with wetland characteristics just north of S 336th Street. Its primary source of hydrology is precipitation and

stormwater from the nearby apartment complex. Water from the stormwater pond flows south through a culvert and empties into East Fork Hylebos Creek Tributary 0016A at S 336th Street. This palustrine emergent wetland is dominated by Kentucky bluegrass and creeping buttercup. Hydric soils included a depleted matrix (F3). The wetland boundary was determined by a gradual slope and abrupt transition to upland vegetation.

According to King County assessor data and historic aerial imagery, the stormwater pond appears to have been created between 1998 and 1999 during construction of the associated apartment complex. It is unknown whether the stormwater pond was excavated from wetland or upland. Wetlands are not mapped at this site by NWI, Federal Way, or King County iMap, nor do historic aerial photos indicate the presence of a wetland. However, the stormwater pond's proximity to East Fork Hylebos Creek Tributary 0016A, historic topographic maps, and the abundance of nearby wetlands associated with the stream suggest the possibility that a wetland could have been present in this area historically.

Wetland WFW-15

Wetland WFW-15 is a riverine wetland associated with East Fork Hylebos Creek Tributary 0016A located north of S 336th Street. The palustrine scrub-shrub and forested wetland is dominated by salmonberry and red alder. Its primary source of hydrology includes overbank flooding from stream and a high groundwater table. Hydric soils in Wetland WFW-15 are clay loam with gravel in upper layers. They meet hydric soil indicator depleted below dark surface (A11). The eastern wetland boundary was determined by topography breaks, the transition to upland soils, and lack in hydrology.

Wetland WFW-16

Wetland WFW-16 is a depressional wetland located at the north end of the Federal Way/S 320th Street park-and-ride. Its primary source of hydrology includes stormwater inputs, a high groundwater table, and precipitation. The palustrine emergent and scrub-shrub wetland is dominated by Himalayan blackberry, hardhack, reed canarygrass, cattail, and slough sedge. Hydric soils were depleted and met the indicators for depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by the edge of concrete and the transition to upland vegetation and absence of hydrology.

Wetland WFW-32

Wetland WFW-32 is classified as a depressional wetland with palustrine scrub-shrub and emergent wetland plant communities. It is located at the west side of the Federal Way/S 320th Street Park and Ride and east of 23rd Avenue S. The wetland is a linear depression that receives water from a high groundwater table and from the parking lot and intermittently outflows into a stormwater pond to the north. From the stormwater pond, water flows through pipes to the East Fork Hylebos Creek Tributary 0016A and daylights in Belmor. Soils sampled meet hydric soil indicator depleted matrix (F3) and depleted below dark surface (A11). Dominant vegetation includes Himalayan blackberry, hardhack, reed canarygrass, creeping buttercup, and soft rush. The wetland boundary was determined by the edge of concrete and absence of hydrology.

3.3.2 South Federal Way Segment

The South Federal Way Segment begins at S 344th Street on the west side of I-5 and continues to the Fife city limits. There are four build alternatives and one design option:

- South Federal Way (SF) Enchanted Parkway Alternative, which includes the SF Enchanted Parkway Station and the SF 352nd Span Station Option.
- SF I-5 Alternative, which includes the SF I-5 Station.
- SF 99-West, which includes the SF 99-Enchanted Station.
- SF 99-East, which includes the SF 99-352nd Station.
- Porter Way Design Option, which could be paired with either the SF 99-West or the SF 99-East alternative.

Surrounding land uses include residential housing, developed commercial and industrial areas, a high school, mobile home parks, and undeveloped forested areas that contain a considerable amount of wetlands. Many of the wetlands in this portion of the study area are associated with tributaries of Hylebos Creek. Wetlands occur along both sides of SR 99; their hydrologic connection was historically disrupted with the construction of the road. See Section 3.1.2 for more information about the stream network in this area.

In general, wetlands buffers are often limited by roads and other impervious surfaces such as parking lots in the South Federal Way Segment. Buffers also include landscaped lawns. Wetland buffers often overlap with stream buffers in this segment. As such many of the buffers consist of common riparian vegetation, including mixed deciduous/coniferous forests. Most buffers near development and in the riparian corridor contain non-native and invasive vegetation and are further degraded by development and human influences.

Wetland WFW-05

Wetland WFW-05 is a riverine wetland located along East Fork Hylebos Creek Tributary 0016A between S 344th Street and the offramp from southbound I-5 to Highway 18. This wetland supports both coniferous and deciduous forested communities and is dominated by western redcedar, Oregon ash, and black cottonwood, with an understory of hardhack, Sitka willow, and twinberry. Soils within the wetland are silt loam and meet hydric soil indicator thick dark surface (A12). Primary hydrology inputs for the wetland appear to be from overbank flooding of East Fork Hylebos Creek Tributary 0016A, although depressions within the wetland appear to hold water outside of flood events. The wetland boundary was determined by the transition to upland soils and vegetation and lack of hydrology indicators.

Wetland WFW-17

Wetland WFW-17 is a riverine wetland located west of I-5 and south of S 344th Street with a palustrine forested vegetation community. The wetland is adjacent to East Fork Hylebos Creek Tributary 0016A. Vegetation in the wetland is dominated by black cottonwood, with an understory of twinberry and salmonberry. Hydric soils in Wetland WFW-17 are silt loams that meet hydric soil indicator depleted below dark surface (A11). Wetland hydrology is supported by overbank flooding from East Fork Hylebos Creek Tributary 0016A and a high groundwater table. The wetland boundary was determined by the transition to upland soils due to the lack of wetland soil indicators.

Wetland WFW-18

Wetland WFW-18 is a riverine wetland located west of I-5 and south of S 344th Street and is located north of Wetland WFW-17 on the same property. Wetland WFW-18 is adjacent to East Fork Hylebos Creek Tributary 0016A. The wetland is dominated by scrub-shrub vegetation, including primarily Scouler's willow, with reed canarygrass present in emergent areas. Soils within the wetland are silt loam and meet hydric soil indicator redox dark surface (F6). Wetland hydrology is supported by a local high groundwater table. Wetland WFW-18 contains areas that occasionally flood as well as an intermittently flowing outlet to East Fork Hylebos Creek Tributary 0016A. The wetland boundary was determined by the transition to upland soils.

Wetland WFW-19

Wetland WFW-19 is a small, depressional wetland located between 8th Avenue S and southbound I-5. This wetland was mapped using observations from roads and aerial imagery, and its boundary was approximated based on saturation visible on aerial imagery and site contours. The wetland appeared to include areas of seasonal or occasional ponding within emergent and scrub-shrub wetland communities.

Wetland WFW-20

Wetland WFW-20 is a riverine wetland located in the WSDOT right-of-way west of I-5 and south of S 348th Street. Wetland WFW-20 is associated with East Fork Hylebos Creek Tributary 0016A and receives its primary source of hydrology from the stream, along with stormwater runoff from nearby impervious surfaces. Wetland WFW-20 outlets into East Fork Hylebos Creek Tributary 0016A, flowing south. Wetland WFW-20 contains palustrine scrub-shrub and forested vegetation communities. The scrub-shrub community consists of Himalayan blackberry, red alder, and black cottonwood. The forested community includes western redcedar, red alder, Himalayan blackberry, and reed canarygrass. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFW-21

Wetland WFW-21 is a small, riverine wetland located off I-5 in a highway cloverleaf. Wetland WFW-21 is associated with East Fork Hylebos Creek Tributary0016A. A culvert is the outlet from Wetland WFW-21 to East Fork Hylebos Creek Tributary 0016A downstream. The primary sources of hydrology for the wetland are flooding and a high groundwater table from the stream. Wetland WFW-21 contains a palustrine scrub-shrub vegetation community consisting of Pacific ninebark, Himalayan blackberry, Scouler's willow, red alder, and salmonberry. Soils found throughout Wetland WFW-21 meet hydric soil indicator redox dark surface (F6). The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFW-22

Wetland WFW-22 is a small, depressional wetland located on the far western side of an I-5 cloverleaf, north of Wetland WFW-21. Wetland WFW-22 is not associated with a stream. The wetland is a localized depression that receives its primary source of hydrology from stormwater and precipitation. Wetland WFW-22 contains a palustrine scrub-shrub community, consisting of red-twig dogwood, black cottonwood, and Himalayan blackberry. Soils sampled in Wetland WFW-22 meet the criteria for the hydric soil indicator depleted matrix (F3). The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WFW-23

Wetland WFW-23 is a narrow, small depressional wetland located in a ditch in the WSDOT right-of-way median between the on-ramp for southbound I-5 and the exit ramp for SR 18. Its primary source of hydrology is from stormwater and precipitation. Wetland WFW-23 outlets south along I-5 during high precipitation events, but typically, water levels are contained to a very small depression alongside I-5. Wetland WFW-23 contains a palustrine emergent community dominated by colonial bentgrass (*Agrostis capillaris*). Soils found at Wetland WFW-23 met the criteria for hydric soil indicators depleted below dark surface (A11) and depleted matrix (F3). The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WFW-24

Wetland WFW-24 is a depressional wetland located in the WSDOT right-of-way west of I-5 and along the eastern boundary of a commercial plant nursery south of S 364th Way. Wetland WFW-24 receives its primary source of hydrology from a high groundwater table, runoff from nearby impervious surfaces, and precipitation. Wetland WFW-24 does not have an outlet; rather, it is confined to a localized depression. Wetland WFW-24 contains palustrine emergent and forested communities. The emergent vegetation community is dominated by creeping buttercup, while the forested community is dominated by red alder. Soils found in Wetland WFW-24 meet the criteria for hydric soil indicator depleted matrix (F3). The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFW-25

Wetland WFW-25 is a depressional wetland located in the WSDOT right-of-way west of I-5 and south of the former WSDOT Weigh Station along I-5 south. Wetland WFW-25 receives its primary source of hydrology from a high groundwater table, and it receives stormwater runoff from nearby impervious surfaces and precipitation. Wetland WFW-25 has an undefined outlet toward the southern end of the wetland. Wetland WFW-25 contains palustrine forested communities dominated by black cottonwood, with reed canarygrass, spiraea and Himalayan blackberry in the understory. Soils found in Wetland WFW-25 meet the criteria for hydric soil indicator depleted matrix (F3). The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFW-26

Wetland WFW-26 is a slope and riverine wetland located west of I-5 associated with East Fork Hylebos Creek Tributary 0016A. Only the portions of this wetland in WSDOT-owned properties and right-of-way were accessed during field visits. Wetland hydrology is supported by overbank flooding, stormwater runoff from I-5 and groundwater expression.

The southern portion of the wetland appears to be a mitigation site constructed by WSDOT a few years ago, based on the uniform spacing of native plantings and extensive mulch. Many plantings now provide tree canopy cover and contribute to a forested class and include primarily red alder and black cottonwood. Understory shrub species include Nootka rose, red-twig dogwood, osoberry, and western redcedar. The northern portion includes red alder, western redcedar, and Himalayan blackberry. Soils met indicators depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WFW-27

Wetland WFW-27 is a slope wetland associated with the East Fork Hylebos Creek Tributary 0016A located on WSDOT-owned parcels west of I-5 near the corner of S 356th Street and Enchanted Parkway S. Wetland WFW-27 is downstream and separated from Wetland WFW-26 by a large box culvert under a gravel road. Like Wetland WFW-26, WFW-27 appears to be a mitigation site constructed by WSDOT a few years ago, based on the uniform spacing of native plantings and extensive mulch. Wetland hydrology is supported by overbank flooding, stormwater runoff from I-5 and groundwater expression. Many plantings now provide tree canopy cover and contribute to a palustrine forested class and include primarily red alder and black cottonwood. Understory shrub species include red-twig dogwood, osoberry, and western redcedar. Soils were depleted with redoximorphic features, which met soil indicators depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WFW-34

Wetland WFW-34 is a riverine and depressional wetland located east of SR 99 between S 356th Street and S 359th Street. Wetland WFW-34 is associated with North Fork Hylebos Creek and receives its primary source of hydrology from the stream, a highwater table, and some stormwater runoff from nearby impervious surfaces at its southern boundary.

Wetland WFW-34 contains a palustrine forested vegetation community dominated by Pacific willow, red alder, black cottonwood, and western redcedar. Soils in the wetland have a dark surface layer with redox concentrations in the dark layer that meet the requirements of hydric soil indicator redox dark surface (F6).

Wetland WFW-36

Wetland WFW-36 is a slope wetland located west of and alongside SR 99 on two undeveloped parcels. Wetland WFW-36 receives its primary source of hydrology from hillslope seeps and precipitation. Hydrology exits the wetland through a storm drain under a private residence driveway on the southern corner of the wetland. The storm drain is piped under SR 99 and water flows into Wetland WFW-39 which flows into West Fork Hylebos approximately 0.80 mile south.

Wetland WFW-36 contains palustrine emergent and forested vegetation communities. The emergent community consists of reed canarygrass, slough sedge, and lady fern. The forested community includes western redcedar and red alder with an understory of Himalayan blackberry and salmonberry. Soils within the wetland were a sandy silt and clay loams with redoximorphic features within the matrix and along pore linings, which met hydric soil indicators redox dark surface (F6) and depleted matrix (F3). The wetland boundary was determined by the presence of upland vegetation and lack of redoximorphic features within the examined soils.

Wetland WFW-37

Wetland WFW-37 is a depressional, riverine, and slope wetland that is associated with West Fork Hylebos Creek. It is located east of SR 99, across from the Montessori Academy at Spring Valley and extending south to S 373rd Street. A large portion of this wetland includes a WSDOT mitigation site. Wetland WFW-37 receives its primary source of hydrology from a high groundwater table, overbank flooding, and stormwater runoff from nearby impervious surfaces. Water leaves the wetland via West Fork Hylebos Creek at a small concrete bridge at S 373rd Street and enters Wetland WMIFW-01.

Wetland WFW-37 contains palustrine aquatic bed, emergent, scrub-shrub, and forested vegetation communities. The emergent community consists of reed canarygrass, pale-yellow iris, common rush, and broadleaf cattail. The scrub-shrub community consists of Himalayan blackberry, spiraea, Nootka rose, and pacific willow. The forested community includes western redcedar, red alder, and black cottonwood. Soils within the wetland contain depleted matrices with strong redoximorphic features in the matrix and along pore linings, which meet hydric soil indicators depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by the presence of redoximorphic concentrations along pore linings and presence of hydrology.

Wetland WFW-38

Wetland WFW-38 is a depressional, riverine and slope wetland. It is located west of SR 99. Wetland WFW-38 receives its primary hydrology source from a high groundwater table and hillslope seeps. Water from the wetland flows to a ditch along SR 99. A portion of the ditch is included within the boundaries of the wetland. Water leaves the wetland through several culverts under SR 99 and enters Wetland WFW-39.

Wetland WFW-38 contains a palustrine forested vegetation communities with a sub-canopy of shrub and herbaceous vegetation. Dominant vegetation includes western redcedar and red alder with an understory of Himalayan blackberry, salmonberry, red-twig dogwood, giant horsetail, skunk cabbage, lady fern, and two-leaf false Solomon's seal (*Maianthemum racemosum*). Soils observed within the wetland contain a mucky organic layer extending to at least 18-inches below the surface, which meet hydric soil indicator histosol (A1). Additionally, the presence of a hydrogen sulfide odor met hydrology indicator hydrogen sulfide (A4). The wetland boundary was determined by the presence of surface saturation and hydrophytic vegetation.

Wetland WFW-39

Wetland WFW-39 is a depressional, riverine and slope wetland. It is located east of SR 99 across from Wetland WFW-38. Wetland WFW-39 receives its primary source of hydrology from upslope wetland (Wetland WFW-38), a high groundwater table, North Fork Hylebos Creek, and likely stormwater discharges from Todd Beamer High School.

Wetland WFW-39 contains a palustrine forested vegetation community with a complex sub-canopy of shrubs and herbaceous vegetation. Dominant vegetation includes Oregon ash, black cottonwood, and red alder with an understory of Himalayan blackberry, salmonberry, twinberry, vine maple, and giant horsetail. Soils observed within the wetland include clay loams, loams, and muck. They meet hydric soil indicator histosol (A1), depleted below dark surface (A11), and depleted matrix (F3). The wetland boundary was determined by the presence/absence of hydrology.

Wetland WFW-42

Wetland WFW-42 is a small depressional wetland located at the toe of the SR 99 fill slope. It is isolated within a localized depression and derives its hydrology from runoff and a high groundwater table.

Wetland WFW-42 contains a palustrine emergent vegetation community. Dominant emergent vegetation includes reed canarygrass. Soils observed within the wetland contain sandy loams with depleted matrices with redoximorphic features along pore linings and as concentrations with the matrix. These characteristics met for hydric soil indicator depleted below dark surface

(A11). The wetland boundary was determined by the change in topography and absence wetland hydrology and hydric soils.

Wetland WFW-43

Wetland WFW-43 is a depressional, riverine, and slope wetland, located on the west side of SR 99. Wetland WFW-43 receives its primary source of hydrology from hillslope seeps, a high groundwater table, and West Fork Hylebos Creek.

Wetland WFW-43 contains palustrine aquatic bed, emergent, and forested vegetation communities. The emergent vegetation community consists of reed canarygrass. The forested vegetation community includes black cottonwood and red alder with an understory of Himalayan blackberry, salmonberry, lady fern, stinging nettle and Nootka rose. Soils within the wetland were a dark clay loam with redoximorphic features within the matrix, which meet hydric soil indicator redox dark surface (F6) and thick dark surface (A12). The wetland boundary was determined by the transition to upland vegetation and lack of wetland hydrology and hydric soil indicators.

Wetland WFW-44

Wetland WFW-44 is a depressional wetland located along the west side of SR 99. WFW-44 receives its primary hydrology from a high groundwater table and runoff from SR 99. The wetland drains southeast under a driveway through a culvert into a ditch.

Wetland WFW-44 contains an emergent vegetation community dominated by reed canarygrass and giant horsetail. Soils in the wetland have a dark surface layer with redox concentrations in the dark layer that meet the requirements of hydric soil indicator redox dark surface (F6) with hydrogen sulfide odor (A4). The wetland boundary was determined by the extent of road fill along the SR 99 edge, a shift to a dominance of upland vegetation, and a lack of saturation within soils.

Wetland WFW-45

Wetland WFW-45 is a depressional wetland located along the north side of 373rd Street east of SR 99. WFW-45 receives hydrology primarily from road runoff coming off of SR 99. The wetland has an outlet in the form of a ditch along S 373rd street.

Wetland WFW-45 contains a scrub-shrub vegetation community dominated by twinberry and Nootka rose. Soils in the wetland have a dark surface layer with redox concentrations in the dark layer that meet the requirements of hydric soil indicator redox dark surface (F6). The wetland boundary was determined by the shift to a dominance in upland vegetation.

Wetland WFW-46

Wetland WFW-46 is a depressional wetland located just west of SR 99 and north of a Washington State Patrol weigh station. WFW-46 receives its hydrology primarily from groundwater seeps. The outlet of the wetland is a culvert that directs flows east under SR 99 and into Wetland WFW-37. Wetland WFW-45 contains a scrub-shrub vegetation community consisting of Himalayan blackberry, Oregon ash saplings, Douglas spiraea, and salmonberry. Soils in the wetland have a mucky loam texture and meet the requirements of hydric soil indicator loamy mucky mineral (F1). The wetland boundary was determined by the extent of road fill along the delineated edge, and aerial imagery and topography.

Wetland WFW-47

Wetland WFW-47 is a depressional wetland located west of SR 99, south of SW 374th Street. Wetland WFW-47 boundaries were remotely estimated using aerial imagery, topography, and observations from the right-of-way. Wetland WFW-47 presumably receives its primary hydrology source from a high groundwater table and hillslope seeps. Water exits the wetland via a culvert at the south corner of the wetland and flows into a pipe system parallel to SR 99. Wetland WFW-47 contains a palustrine forested vegetation community with red alder and black cottonwood.

Wetland WFW-48

Wetland WFW-48 is a depressional wetland located in the forested patch at the intersection of S 356th Street and SR 99. Wetland WFW-48 boundaries were remotely estimated using aerial imagery, topography, and observations from the right-of-way. The wetland presumably receives its primary hydrology source from a high groundwater table.

Wetland WFW-48 contains a palustrine scrub-shrub and forested vegetation community with black cottonwood and Douglas spiraea.

Wetland WFW-49

Wetland WFW-49 is a depressional, slope, and riverine wetland. A portion of the northern side of the wetland is a WSDOT mitigation site. It is located south of S 364th Street and east of 8th Avenue S. Wetland WFW-49 boundaries were remotely estimated using aerial imagery and topography, and observations from the right-of-way. The wetland receives its primary hydrology source from a high groundwater table and West Fork Hylebos Creek. Wetland WFW-49 outlets to Wetland WFW-37 through a culvert under 8th Avenue S.

Wetland WFW-49 contains palustrine aquatic bed, emergent, scrub-shrub, and forested vegetation communities.

Wetland WMI-01

Wetland WMI-01 is a depressional wetland located west of southbound I-5 and north of Birch Street. This wetland was mapped using observations from adjacent parcels and aerial imagery. The wetland appeared to include areas of seasonal or occasional ponding within an emergent wetland community. The wetland was mapped based on changes in topography, observations from the right-of-way, and aerial imagery.

Wetland WMI-02

WMI-02 is a slope wetland located in the WSDOT right-of-way west of I-5 north of Birch Street. Wetland WMI-02 receives its primary source of hydrology from a high groundwater table and stormwater runoff from nearby impervious surfaces. Wetland WMI-02 has an undefined outlet that drains SFW-01 that drains into West Fork Hylebos Creek. Wetland WMI-02 contains a palustrine emergent community dominated by reed canarygrass. Soils found in Wetland WMI-02 meet the criteria for hydric soil indicator depleted matrix (F3). The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WMI-03

Wetland WMI-03 is a small depressional wetland located within the WSDOT right-of-way on the west side of I-5. Wetland hydrology is supported by a high groundwater table and precipitation. The palustrine emergent wetland is dominated by reed canarygrass, with hardhack and Himalayan blackberry on the fringes. Hydric soils were depleted and met the indicator depleted matrix (F3). The wetland boundary was determined by the changes in topography and the absence of wetland hydrology.

Wetland WMI-04

Wetland WMI-04 is a depressional wetland located within the WSDOT right-of-way west of I-5. Wetland hydrology is supported by a high groundwater table and precipitation. The palustrine scrub-shrub wetland is dominated by spiraea hardhack, Himalayan blackberry, and Pacific crabapple, with patches of reed canarygrass. Hydric soils were depleted and met the indicator depleted matrix (F3) and/or depleted below dark surface (A11). The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WMI-06

Wetland WMI-06 is a linear slope wetland located within the WSDOT right-of-way west of I-5. Wetland WMI-06 is a palustrine emergent wetland dominated by reed canarygrass and common facultative roadside grasses. Hydric soils met the indicator depleted matrix (F3). Wetland hydrology is supported by stormwater runoff from I-5 and groundwater expression off the hillslope to the west. The wetland drains downslope into a stormwater catch basin within the WSDOT right-of-way. The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WMI-07

Wetland WMI-07 is a slope wetland located within the WSDOT right-of-way west of I-5. The wetland extends from the boundary of the WSDOT right-of-way down to a swale feature paralleling I-5. Wetland hydrology is supported by stormwater runoff from I-5 and groundwater. The wetland drains to the south into a culvert within the WSDOT right-of-way, and surface water is piped for approximately 250 feet before daylighting at the northern extent of Wetland WMI-08. Wetland WMI-07 is a palustrine emergent and scrub-shrub wetland dominated by reed canarygrass, common facultative roadside grasses, Himalayan blackberry, and Oregon ash saplings. Hydric soils met the indicators depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by the absence of wetland hydrology.

Wetland WMI-08

Wetland WMI-08 is a slope wetland located within the WSDOT right-of-way west of I-5. Hydrology is supported by groundwater expression and surface water flowing through a culvert draining from Wetland WMI-07. This surface water flows through Wetland WMI-08 and drains into West Fork Hylebos Creek. Wetland WMI-08 is a palustrine emergent and scrub-shrub wetland dominated by reed canarygrass, red-twig dogwood, Himalayan blackberry, red alder, and willow species. Soils within Wetland WMI-08 met the indicators for depleted matrix (F3), loamy gleyed matrix (F2), and depleted below dark surface (A11). The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WMI-09a

Wetland WMI-09a is a depressional and riverine wetland associated with West Fork Hylebos Creek, downstream of Wetland WMI-09b, separated by road fill and culverts. Wetland WMI-09a is located immediately west of I-5, and water from the wetland, including the stream, discharges into culverts under I-5. Wetland hydrology is supported by groundwater seeps and overbank flooding from West Fork Hylebos Creek. Wetland WMI-09a is a palustrine forested, scrub-shrub, and emergent wetland dominated by Pacific willow, red alder, black cottonwood, Sitka willow, and reed canarygrass. Soils in Wetland WMI-09a are depleted with redoximorphic features that meet hydric soil indicator for depleted matrix (F3). The wetland boundary was determined by a change in topography, extent of fill, and evidence of frequent inundation.

Wetland WMI-09b

Wetland WMI-09b is a depressional and riverine wetland associated with West Fork Hylebos Creek, located downstream of Wetland WMIFW-01 and separated by Birch Street. It is located east of SR 99, behind commercial development. Wetland WMI-09b receives its primary source of hydrology from a high ground water table and overbank flooding from West Fork Hylebos Creek. Water from the wetland discharges through a culvert under a private access road at the southern boundary of the wetland, flowing into Wetland WMI-09a.

Wetland WMI0-09b is a palustrine emergent and scrub-shrub wetland dominated by Himalayan blackberry, salmonberry, red-twig dogwood, and reed canarygrass. Soils within Wetland WMI-09b are a dark muck and meet hydric soil indicators histosol (A1) and hydrogen sulfide (A4). The wetland boundary was determined by the abrupt change in topography to upland conditions, road fill edge, and lack in hydric soils.

Wetlands WMI-09c and d

Wetland WMI-09c is an emergent and forested riverine wetland associated with West and East Forks of Hylebos Creek, at their confluence. Wetland WMI-09c is located east of I-5. Wetland WMI-09d is an emergent, scrub-shrub and forested riverine wetland and occurs downstream of this confluence and culvert crossing under Porter Way. Its outlet is a culvert under I-5 that connects to WPCMIFI-01. Boundaries of these wetlands were estimated. These wetlands are within shoreline jurisdiction.

Wetland WMI-10

Wetland WMI-10 is a small slope wetland located between 70th Avenue E and SR 99. WMI-10 receives hydrology primarily from groundwater seeps.

Wetland WMI-10 contains a scrub-shrub vegetation community dominated by Douglas spiraea, Himalayan blackberry, and European hawthorn. Soils in the wetland have depleted matrices that meet the requirements of hydric soil indicator depleted matrix (F3). The wetland boundary was determined by the lack of hydrology and change in topography around the wetland edge.

Wetland WMI-11

Wetland WMI-11 is a depressional wetland located west of SR 99, opposite of Birch Street, and south of Daffodil Motel. Wetland WMI-11 receives hydrology primarily from a high water table and hillslope seeps. The wetland's outlet is a culvert located in its northeast corner.

Wetland WMI-11 contains a forested vegetation community dominated by black cottonwood and Oregon ash. Soils in the wetland have depleted matrices that meet the requirements of hydric soil indicator depleted matrix (F3). The wetland boundary was determined by the shift to a dominance in upland vegetation and lack of sediment deposits and oxidized rhizospheres along living roots.

Wetland WMI-12

Wetland WMI-12 is a depressional wetland located west of SR 99, north of the Glacier West Self Storage. Wetland WMI-12 receives its primary source of hydrology from a high groundwater table and hillslope seeps. Water from the wetland exits the wetland through a culvert under SR 99 and enters a pipe network, then presumably flows to Wetland WMIFW-01, approximately 700 feet south.

Wetland WMI-12 contains a palustrine forested vegetation community with a complex sub-canopy of shrubs and herbaceous vegetation. Dominant vegetation includes black cottonwood and red alder with an understory of Himalayan blackberry, salmonberry, Oregon ash, and giant horsetail. Soils observed within the wetland were observed as a depleted loam with redoximorphic features, which meet hydric soil indicator depleted matrix (F3). The wetland boundary was determined by a shift to upland vegetation and non-hydric soils.

Wetland WMI-13

Wetland WMI-13 is a depressional wetland located west of SR 99, south of the residential community along 5th Street Court NE. Wetland WMI-13 boundaries were remotely estimated using aerial imagery, topography, and observations from the right-of-way. Wetland WMI-13 presumably receives its primary hydrology source from a high groundwater table and hillslope seeps. Water from the wetland likely exits the wetland through a culvert under SR 99 at the northeast corner of the wetland and enters a pipe network, presumably flows to Wetland WMIFW-01, approximately 0.3-mile south. A small stream, SMI-03, flows east along the north boundary of the wetland.

The wetland rating was estimated to provide regulatory buffers. Wetland WMI-13 contains a palustrine forested vegetation community with red alder and willow.

Wetland WMI-14

Wetland WMI-14 is a depressional wetland located west of 70th Avenue E, north of 5th Street E. Wetland WMI-14 boundaries were remotely estimated using aerial imagery, topography, and observations from the right-of-way. Wetland WMI-14 presumably receives its primary hydrology source from a high groundwater table and hillslope seeps. Wetland WMI-14 contains a palustrine forested vegetation community with red alder and willow species.

Wetland WMIFW-01

Wetland WMIFW-01 is a large depressional, riverine, and slope wetland associated with West Fork Hylebos Creek. The wetland is located between SR 99 and I-5 and extends from S 373rd Street to Birch Street, but only a portion of the wetland is within the study area. A portion of this wetland near S 373rd Street is a WSDOT mitigation site. Wetland WMIFW-01 receives its primary source of hydrology from a high groundwater table, from West Fork Hylebos Creek and precipitation. Wetland WMIFW-01 contains palustrine, emergent scrub-shrub and forested vegetation communities. The emergent community is dominated by reed canarygrass. The scrub-shrub wetland consists of salmonberry, osoberry, vine maple, coastal black gooseberry

(*Ribes divaricatum*), red alder, red-twig dogwood and Himalayan blackberry. The forested areas consist mainly of red alder, vine maple and red-twig dogwood. Emergent plants in both communities include lady fern, skunk cabbage, reed canarygrass, and stinging nettle. Soils found throughout Wetland WMIFW-01 met hydric soil indicator hydrogen sulfide (A4), redox dark surface (F6), depleted below dark surface (A11), and depleted matrix (F3). The wetland boundary was determined by a change in topography and evidence of frequent inundation.

Wetland WPCFI-01

Wetland WPCFI-01 is a riverine wetland located west of I-5 and associated with Hylebos Creek and Surprise Lake Creek at their confluence. Wetland WPCFI-01 is downstream of Wetland WPCMIFI-01 and separated by a culvert. It discharges into a culvert under I-5. The palustrine scrub-shrub and emergent vegetation type contains dominant species that are primarily willows, Himalayan blackberry, and reed canarygrass. Soils were not sampled due to lack of access. Hydrology observed from the road right-of-way includes seasonal flooding and soils saturation supported by high water tables. The wetland boundary was estimated by a change in topography and evidence of frequent inundation. The wetland is within shoreline jurisdiction.

Wetland WPCMIFI-01

Wetland WPCMIFI-01 is a riverine and slope wetland located west of I-5 and associated with Hylebos Creek. Wetland WPCMIFI-01 is downstream of Wetland WMI-09d and separated by I-5 and a culvert. The palustrine emergent, scrub-shrub, and forested vegetation type contains dominant species that are primarily black cottonwood, willows, Himalayan blackberry, and reed canarygrass. Soils were not sampled due to lack of access. Hydrology observed from the road right-of-way includes seasonal flooding and soils saturation supported by high water tables. The wetland boundary was estimated by a change in topography and evidence of frequent inundation. The wetland is within shoreline jurisdiction.

Wetland WFI-36

Wetland WFI-36 is a depressional wetland with a palustrine emergent vegetation class. This wetland occurs in the study area, but well outside of the project footprint, and is not expected to be affected by the project. Wetland WFI-36 was mapped based on aerial imagery, contours, and existing wetland mapping.

3.3.3 Fife Segment

The Fife Segment starts at the Fife city limit near Wapato Way E and continues west to the Fife city limit near the Puyallup River. There are three build alternatives in the Fife Segment: Fife Pacific Highway, Fife Median, and Fife I-5. The sections from Wapato Way E to 54th Avenue E, including the preferred Fife Station, and from Port of Tacoma Road to near the Puyallup River are identified as part of the Preferred Alternative. The Fife Station would be an elevated station with a platform located north of 15th Street E. Two design options, 54th Avenue Design Option and the 54th Avenue Span Design Option, could be paired with any of the alternatives and include the following station locations:

- Fife 54th Avenue Station Option would be located on the west side of 54th Avenue E, south of 12th Street E.
- Fife 54th Span Station Option would span 54th Avenue E between 12th Street E and 15th Street E.

Surrounding land uses in the Fife Segment include single-family housing and developed commercial areas. Many of the wetlands in this portion of the study area are associated with the tributaries of Hylebos Creek and Wapato Creek. See Section 3.1.2 for more information about the stream network in this area. The WSDOT SR 167 Completion Project's footprint, which includes both construction and the riparian restoration program, overlaps with the TDLE study area. The wetland areas identified by the SR 167 Completion Project were used to advise wetland assessments within the areas shared by these projects. Within the Fife Segment, vegetated buffers of wetlands are often limited by roads and other impervious surfaces. Most buffers within this segment area degraded due to development, human disturbance, and an abundance of non-native and invasive vegetation.

Wetland WPCFI-02

Wetland WPCFI-02 is a riverine wetland located north of SR 99 and associated with Hylebos Creek. It is within shoreline jurisdiction. The wetland boundary was estimated by a change in topography and extent of frequent inundation. It contains palustrine forested, scrub-shrub, and emergent vegetation types. The dominant species are red alder, willows, Himalayan blackberry, and reed canarygrass. Hydric soils were dark and/or had a depleted matrix in lower layers and met the hydric soil indicators hydrogen sulfide (A4), depleted below dark surface (A11), depleted matrix (F3), and redox dark surface (F6). Hydrology observed includes seasonal flooding and soil saturation supported by high water tables. Wetland hydrology is also supported by overbank flooding from Hylebos Creek.

Wetland WFI-01

Wetland WFI-01 is a slope wetland located in a stormwater ditch with wetland characteristics on the north side of 16th Street E. Wetland WFI-01 is an approximately 10-foot-wide and 700-foot-long linear feature, divided into two subunits (A and B), based on breaks in vegetation, fill and or culverts. Its primary sources of hydrology are high groundwater tables and stormwater from nearby developed areas. It drains into Fife Ditch. See Section 3.1.2 for more details on Fife Ditch.

Wetland WFI-01 is dominated by reed canarygrass. Soils were problematic. However, the presence of primary indicators of wetland hydrology, and the wetland's landscape position that is likely to collect or concentrate water, support the assumption that soils were hydric. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-02

Wetland WFI-02 is a depressional wetland located along the north side of I-5 and east of Wapato Creek. The wetland has an emergent wetland vegetation type. Emergent vegetation is dominated by reed canarygrass, field meadow foxtail (*Alopecurus pratensis*), velvet grass, and creeping buttercup. Soils within the wetland met hydric soil indicators redox dark surface (F6) and depleted matrix (F3). Wetland WFI-02 has a permanently flooded area in its deepest portion. Water exits Wetland WFI-02 through a narrow outlet into Wetland WFI-01. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-03

Wetland WFI-03 is a long and narrow depressional wetland located along at the toe of the I-5 road prism between 20th Street E and Port of Tacoma Road. The western portion of wetland

has a channel that was flooded at time of wetland delineation; the bed of the channel appeared to be vegetated.

The palustrine scrub-shrub and emergent wetland is dominated by Himalayan blackberry and reed canarygrass. Soils within the wetland met hydric soil indicator depleted matrix (F3). The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-04

Wetland WFI-04 is a riverine wetland located on a vegetated bench of Erdahl Ditch Tributary 1, located southeast of the intersection of Pacific Highway E and Port of Tacoma Road. Wetland hydrology is provided by Erdahl Ditch Tributary 1, which originated on site via the discharge of a construction site stream bypass. Water discharged from Wetland WFI-04 exited under Port of Tacoma Road through a culvert. The wetland is palustrine scrub-shrub and emergent, dominated by Himalayan blackberry and reed canarygrass. Hydric soils within Wetland WFI-04 met the redox dark surface (F6) hydric soil indicator. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-05

Wetland WFI-05 is a depressional wetland located between the toe of slope of the I-5 road prism within the WSDOT right-of-way and a fill pad. This area is part of ongoing construction to improve the westbound I-5 off-ramp onto Port of Tacoma Road and has resulted in extensive disturbance to Wetland WFI-05 and its immediate surroundings. Soils were not inspected. Determinations were based on the extent of flooded conditions. The palustrine emergent vegetation community is dominated by Kentucky bluegrass and creeping buttercup. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-06

Wetland WFI-06 is a depressional wetland located along the western edge of a private parcel from Pacific Highway E to the WSDOT right-of-way along I-5. Wetland hydrology is supported by stormwater inputs, a high groundwater table, and precipitation. Continuing south, the wetland narrows along a swale feature, which continues along the length of the parcel where it joins a swale that parallels I-5. it continues south to the WSDOT right-of-way and terminates at a culvert leading under I-5. The portion of wetland within the WSDOT right-of-way extending from the west also drains into this culvert. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-06 contains a palustrine emergent community dominated by reed canarygrass, soft rush, Kentucky bluegrass, and creeping buttercup. Hydric soils met the indicators for depleted matrix (F3), depleted below dark surface (A11), and redox dark surface (F6).

Wetland WFI-07

Wetland WFI-07 is similar to Wetland WFI-06. It is a parallel feature that occurs on the opposite side of the parcel. It is a depressional wetland located along the eastern edge of a private parcel from Pacific Highway E to the WSDOT right-of-way along I-5. Wetland hydrology is supported by stormwater inputs, a high groundwater table, and precipitation, discharging into a culvert leading under I-5. The portion of wetland within the WSDOT right-of-way extending from the east also drains into this culvert. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-07 contains a palustrine emergent community that is dominated by reed canarygrass, Kentucky bluegrass, and creeping buttercup. Hydric soils met the indicators for redox dark surface (F6).

Wetland WFI-08a through d

Wetland WFI-08 is a series of riverine wetlands along the right and left banks of Wapato Creek as it flows south to north through the study area. WFI-08 is divided into four separate wetland units — a, b, c, and d — due to breakages in vegetation cover resulting from road crossings. Each of the Wetland WFI-08 units was observed from off site and its wetland boundary approximated. The wetland boundary was estimated by the extent of fill material and evidence of frequent inundation.

Wetland WFI-08a is the least confined wetland unit. It begins as a relatively narrow riparian fringe wetland along both banks of Wapato Creek near its I-5 crossing. As Wapato Creek flows downstream to the north, the riparian fringe scrub-shrub wetland becomes a broader flood bench, with patches of forested vegetation before Wapato Creek travels through a box culvert under the Alexander Avenue E and Pacific Highway E intersection.

Wetland WFI-08b is the northernmost unit within the study area. This wetland unit is a riverine system along both banks of the confined Wapato Creek channel as it emerges from the box culvert under Pacific Highway E. Wetland WFI-08b has both scrub-shrub and forest vegetation classes, and wetland hydrology appears to be driven by Wapato Creek and overland flow.

Wetland WFI-08c is the southernmost unit within the study area, located along Wapato Creek south of I-5. It is a riverine wetland dominated by an emergent vegetative community that abuts a narrow upland riparian corridor. Wetland hydrology is driven by flooding from Wapato Creek and overland flow.

Wetland WFI-08d is a riverine wetland located along a short reach of daylighted Wapato Creek between the box culverts under Alexander Avenue E and Pacific Highway E between Wetland WFI-08a and Wetland WFI-08b. Vegetation within Wetland WFI-08d is dominated by mowed grasses, which appear to be dominated by reed canarygrass, bentgrass, and red fescue (*Festuca rubra*). Wetland hydrology is driven by flooding from Wapato Creek and overland flow.

Wetland WFI-09

Wetland WFI-09 is a riverine fringe wetland located upon a vegetated flood bench along the right (east) bank of the Puyallup River, south of the I-5 bridge crossing at River Mile 2.3, within shoreline jurisdiction. The wetland is dominated by a scrub-shrub vegetation stratum composed of Himalayan blackberry, which extends beyond the wetland along the upland areas of the river's levee, with patches of Douglas' spiraea present as well. Soils within the wetland met the hydric indicator depleted matrix (F3). As the wetland occurs on a lower flood bench along the lower Puyallup River, which is tidally influenced, the wetland is assumed to satisfy the requirements for wetland hydrology daily, reinforced by other primary indicators of wetland hydrology, including recent water marks, sediment deposits, and drift deposits. The wetland boundary was determined by the extent of fill material (toe of levee) and evidence of frequent inundation.

Wetland WFI-10

Wetland WFI-10 is a depressional wetland located east of the Puyallup River levee, within shoreline jurisdiction. It occurs north and west of the BNSF railroad embankment and south of a

temporary fill pad associated with the new I-5 bridge crossing. The wetland is dominated by a mature palustrine forested community with a canopy of black cottonwood and both scrub-shrub and herbaceous strata present below. Seasonal ponding was observed throughout the wetland, and hydric soils were assumed present as a result. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Important habitat features present both within and adjacent to the wetland, including the presence of a mature forest (which meets WDFW's criteria for the Mature Forest priority habitat type), result in Wetland WFI-10 rating as a Category I wetland for special characteristics.

Wetland WFI-11

Wetland WFI-11 is a highly confined depressional and riverine wetland near 54th Avenue E. The wetland is fenced off on three sides and surrounded by asphalt impervious surfaces. A culvert in the south end of the wetland provides surface water flow into Wetland WFI-11. Water was ponded to approximately 2 feet during the February 2020 field visit. The northern outlet culvert is likely blocked up with fine sediments and woody debris. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Wetland WFI-11 contains palustrine emergent and palustrine scrub-shrub vegetation communities. The emergent vegetation community is dominated by reed canarygrass and cattail. The scrub-shrub community is dominated by willows and red-twig dogwood. Soils were not sampled within the wetland due to unsafe conditions accessing the site.

Wetland WFI-12

Wetland WFI-12 is a depressional wetland located in a ditch that runs along the western boundary of vacant land on 59th Avenue Court E. Wetland hydrology for the wetland is supported by a high groundwater table, precipitation, and stormwater. Soils met the hydric soil indicators depleted matrix (F3) and depleted below dark surface (A11). The wetland boundary was determined by a change in topography and evidence of frequent inundation. Wetland WFI-12 contains a palustrine emergent community that is dominated by facultative grasses, including tall fescue (*Schedonorus arundinaceus*), Kentucky bluegrass, and velvetgrass.

Wetland WFI-13

Wetland WFI-13 is a depressional wetland located behind the Fife Municipal Court on Pacific Highway E. This wetland was observed from off site, and its limits were approximated based on breaks in vegetation determined by aerial photographs and site contours. The wetland appeared to include areas of seasonal ponding within scrub-shrub and forested wetland communities.

Wetland WFI-14a and b

Wetland WFI-14a and WFI-14b are long and narrow depressional wetlands located along Fife Ditch. The wetlands were flooded during observations from the right-of-way. Mapping is based on aerial photo assessments. The palustrine emergent and scrub-shrub wetlands are dominated by reed canarygrass, knotweed, and Himalayan blackberry. The wetland boundaries were determined by the extent of fill material and aerial photo features.

Wetlands WFI-16 and WFI-17

Wetlands WFI-16 and WFI-17 are long and narrow depressional wetlands located along Fife Ditch Tributary 1. The wetland was flooded during observations from the right-of-way. Mapping

is based on aerial photo assessments. The palustrine emergent wetland is dominated by reed canarygrass. The wetland boundary was determined by the extent of fill material and aerial photo features.

Wetland WFI-18Wetland WFI-18 is a depressional wetland located north of 12th Street E. Fife Ditch Tributary 1 bisects the wetland. The wetland appeared to include saturated soils and seasonal and permanent ponding within scrub-shrub and emergent wetland communities. Its boundaries were approximated based on topography and aerial photo assessments.

Wetland WFI-23

Wetland WFI-23 is a depressional wetland located east of the Puyallup River levee, south of the I-5 bridge crossing. The wetland is dominated by a mature forest canopy of black cottonwood, with both scrub-shrub and herbaceous strata present below. Seasonal ponding was observed throughout the wetland, and hydric soils were assumed present as a result. The wetland boundary was determined by the extent of fill material and evidence of frequent inundation.

Important habitat features present both within and adjacent to the wetland, including the presence of a mature forest (which meets WDFW's criteria for the Mature Forest priority habitat type), result in Wetland WFI-23 rating as a Category I wetland for special characteristics. The wetland occurs within the shoreline and is associated with the Puyallup River.

Wetland WFI-25

Wetland WFI-25 is a depressional wetland north of Pacific Highway E. This wetland was mapped using on-site observations and aerial photos, and its limits were approximated based on site contours. The wetland appeared to include some areas of seasonal ponding within scrub-shrub and emergent wetland communities. Soils were not sampled. The wetland is within the shoreline jurisdiction associated with Hylebos Creek.

Wetland WFI-28

Wetland WFI-28 is a depressional wetland north of Pacific Highway E. This wetland was mapped using aerial photos, and its limits were approximated based on breaks in vegetation determined by aerial photographs and site contours. The wetland appeared to include areas of seasonal ponding within emergent wetland communities.

Wetlands WFI-19, WFI-20, WFI-21 WFI-22, WFI-30

These wetlands are depressional wetlands occurring within roadside ditches near I-5, the Union Pacific Railway, and the Puyallup River. Wetlands WFI-19 and WFI-20 occur within the study area but do not occur within the footprint, while Wetlands WFI-21, WFI-22 and WFI-31 partially or fully fall within the footprint. Mapping and wetland ratings are based on aerial photo assessments. The palustrine emergent and scrub-shrub wetlands appear to be dominated by reed canarygrass, cattail, *Douglas spiraea* and Himalayan blackberry. The wetland boundaries were approximated based on breaks in vegetation determined by aerial photographs and site contours.

Wetland WFI-24

Wetland WFI-24 is a depressional wetland located adjacent to the Union Pacific Railway tracks. This wetland was mapped using aerial photos and observations from the road right-of-way, and

its limits were approximated based on breaks in vegetation determined by aerial photography. The wetland has palustrine emergent scrub-shrub wetland communities.

Wetland WFI-26

Wetland WFI-26 is a long and narrow depressional wetland located between I-5 and the development to the south. This wetland was mapped using aerial photos, and its limits were approximated based on breaks in vegetation determined by aerial photography and lidar topography. The wetland has a palustrine emergent wetland community.

Wetland WFI-33

Wetland WFI-33 is a depressional wetland located north of 15th Street E. This wetland was mapped using aerial photos and observations from the right-of-way. Its boundaries were approximated based on aerial photography and lidar topography. The wetland appears to have occasional ponding and saturated soil conditions within palustrine emergent, scrub-shrub, and forested wetland communities.

Wetlands WFI-15, WFI-23, WFI-27, WFI-32, WFI-34, WFI-35 (a–e), WFI-36

These wetlands occur in the study area, but well outside of the project footprint, and are not expected to be affected by the project. These wetlands are mapped based on aerial imagery, contours, and existing wetland mapping. Wetland ratings were estimated to provide regulatory buffers. In actuality, these wetlands are nearly completely surrounded by development and lack functional buffers. They are included in the project mapping to show context and overall wetland coverage in the study area. They are not described individually. Information regarding these wetlands can be found in Table J4.3-13.

3.3.4 Tacoma Segment

The Tacoma Segment begins at the north bank of the Puyallup River and ends at the Tacoma Dome. Affected areas consist of developed industrial commercial areas. The proposed project would cross the Puyallup River adjacent to I-5 and then continue west adjacent to existing railroad tracks into downtown Tacoma. This segment also includes two bridge options, a long-span bridge or a pier-supported bridge, as well as a pedestrian bridge that cross the river.

Due to substantial historical industrial development, few wetlands are within the Tacoma Segment and most identified are association with the Puyallup River. Buffers are degraded due to development, human disturbance, and an abundance of non-native and invasive vegetation.

Wetland WTA-01

Wetland WTA-01 is a riverine fringe wetland located on a vegetated stream bench along the right (east) bank of the Puyallup River, north of the I-5 bridge crossing at River Mile 2.3 and within shoreline jurisdiction. The wetland is a scrub-shrub vegetation community, dominated by Himalayan blackberry willow, and Douglas' spiraea. Observed soils within the wetland met the depleted matrix (F3) hydric soil indicator. As the wetland occurs on a lower flood bench along the lower Puyallup River, which is tidally influenced, the wetland is assumed to satisfy the requirements for wetland hydrology daily, reinforced by observation of water marks and oxidized rhizospheres. The wetland boundary was determined by the extent of fill material (toe of levee) and evidence of frequent inundation.

Wetland WTA-02

Wetland WTA-02 is a depressional wetland located between the toe of a slope and a vegetated berm northwest of the intersection of E 26th Street and East K Street. Its boundary was estimated using breaks in vegetation communities present on aerial photographs as well as topographic contours.

Wetland WTA-02 has a forested vegetation community dominated by red alder above an understory of reed canarygrass and Himalayan blackberry. Seasonal ponding also appears present, and no outlet could be observed. Given the extent of ponding within the wetland, it was assumed that hydric soils would also be present.

Wetland WTA-03

Wetland WTA-03 is a riverine fringe wetland with a palustrine scrub-shrub vegetation community located upon a vegetated flood bench along the left (west) bank of the Puyallup River, north of the I-5 bridge crossing at River Mile 2.3, within shoreline jurisdiction. This wetland was apparent from across the river, and its boundary was estimated using breaks in vegetation communities present on aerial photographs.

Wetland WTA-04

Wetland WTA-04 is a riverine fringe wetland with a palustrine scrub-shrub vegetation community located upon a vegetated flood bench along the left (west) bank of the Puyallup River, south of the I-5 bridge crossing at River Mile 2.3, within shoreline jurisdiction. This wetland was apparent from across the river and its boundary was estimated using breaks in vegetation communities present on aerial photographs.

3.4 Special-Status Species and Habitats

Discussions in this subsection address species and habitats that have special status under statutes, regulations, plans, and policies that have been established to protect ecosystem resources. These include species listed or proposed for listing under the ESA, as well as critical habitat that has been designated or proposed for designation for ESA-listed species; marine mammals that are protected under the MMPA; and natural resource areas protected under local critical areas ordinances, shoreline master programs, and/or Tribal resource regulations. Many of these regulations require approval procedures, such as the issuance of environmental permits before project implementation; others require agency consultation.

3.4.1 Threatened and Endangered Species

Three ESA-listed fish species — Puget Sound Chinook salmon, Puget Sound steelhead, and bull trout, all of which are listed as Threatened — may be present in streams in the study area. The discussions in Section 3.1 describe the accessibility, habitat quality, and expected use of streams in the study area by each of these species. Table J4.3-14 (ESA-Listed Fish Species and Critical Habitat in the TDLE study area) summarizes the known or expected presence of these species and specifies whether critical habitat has been designated in each stream.

Table J4.3-14 ESA-Listed Fish Species and Critical Habitat in the TDLE Study Area

Stream	Known or Expected Presence in Study Area			Critical Habitat in Study Area
	Puget Sound Chinook Salmon	Puget Sound Steelhead	Bull Trout	
East Fork Hylebos Creek Tributary 0016A	No	No	No	None
West Fork Hylebos Creek Tributary 0014C	No	No	No	None
West Fork Hylebos Creek	Yes	Yes	Yes	Chinook and steelhead only
North Fork Hylebos Creek	No	Yes	Yes	Steelhead only
Federal Way Stream 1 (SFW-01)	No	No	No	None
Federal Way Stream 2 (SFW-02)	No	No	No	None
Federal Way Stream 3 (SFW-03)[1]	No	Yes	Yes	None
Federal Way Stream 4 (SFW-04)[1]	No	Yes	Yes	None
Milton Stream 1 (SMI-01)[1]	Yes	Yes	Yes	None
Milton Stream 2 (SMI-02)[1]	Yes	Yes	Yes	None
Milton Stream 3 (SMI-03)	TBD[2]	TBD[2]	TBD[2]	None
Hylebos Creek	Yes	Yes	Yes	Chinook and steelhead only
Surprise Lake Creek	No	No	No	None
Fife Ditch Tributary 1	No	No	No	None
Fife Ditch	No	No	No	Steelhead only[4]
Wapato Creek	No	Yes	No	Steelhead only
Erdahl Ditch Tributary 1	No	No	No	None
Erdahl Ditch Tributary 2	No	No	No	None
Puyallup River	Yes	Yes	Yes	None[3]
First Creek	No	No	No	None

Sources: WDFW 2023a, NWIFC 2023, NOAA 2023b

Notes:

(1) There is no documented fish use of these streams, but no physical barriers preclude access from fish-bearing streams downstream. See text for details.

(2) As of November 2023, access restrictions have prevented a field review and evaluation of this stream.

(3) The Puyallup Tribe of Indians has jurisdiction of the bed and banks of the Puyallup River; therefore, no critical habitat has been designated within that portion of the river within the jurisdictional boundaries of the Puyallup Tribe.

(4) Based on a probable mapping error

In addition, Southern Resident killer whales (listed as Endangered) are documented to use habitats in Puget Sound, including Commencement Bay. Although the study area for aquatic species and habitat does not extend into Puget Sound, analyses in this report address the potential for Southern Resident killer whales to be indirectly affected by project-related impacts on their prey species.

The USFWS Information, Planning, and Conservation planning tool identified four ESA-listed wildlife species, and one species proposed for listing, as potentially occurring in areas that might be affected by the project. None of these species is expected to occur in the study area, however, for the following reasons:

- Marbled murrelets (*Brachyramphus marmoratus),* listed as threatened, require old growth forest for nesting and marine habitat for foraging. No breeding or foraging habitat is present in the study area and no observations have been documented within 10 miles (WDFW 2023a). The nearest location where critical habitat has been designated for the marbled murrelet is more than 25 miles from the study area.
- Yellow-billed cuckoos (*Coccyzus americanus*), listed as threatened, require large blocks of riparian forest habitat for breeding and foraging. Yellow-billed cuckoos nest almost exclusively in low- to mid-elevation riparian woodlands that cover 50 acres or more within arid to semiarid landscapes (Hughes 1999). No such habitat is present in or near the study area. Currently, the species no longer breeds in western Canada and the northwestern continental United States (Washington, Oregon, and Montana) (79 FR 59992, October 3, 2014). No observations of this species have been documented within 10 miles of the study area (WDFW 2023a). No critical habitat for the yellow-billed cuckoo has been proposed in Washington.
- Streaked horned larks (*Eremophila alpestris strigata*), listed as threatened, are known to occur in Washington only in portions of southern Puget Sound, along the Washington coast, and at lower Columbia River islands (78 FR 61452, October 3, 2013). Breeding habitat for streaked horned larks in Washington consists of grasslands and sparsely vegetated areas at airports, sandy islands, and coastal spits. The subspecies is largely absent from the Puget Trough during the nonbreeding season; individuals observed in this area outside of the breeding season have been seen using habitats similar to those used for breeding. The nearest known population is more than 20 miles from the project area (WDFW 2023a). The nearest location where critical habitat has been designated for the streaked horned lark is more than 80 miles from the project area.
- North American wolverines (*Gulo gulo*), listed as threatened, avoid people and developed areas and prefer cold and remote mountainous areas with persistent spring snow cover. No such habitat is present in the lowland, urban setting of the study area.
- Northwestern pond turtles (*Actinemys marmorata*), proposed for listing as threatened, were essentially extirpated from the Puget Sound region during the 20th century (WDFW 2024). Through a captive-breeding program in the early 2000s, a population was reestablished in Pierce County, approximately 7 miles from the study area. Northwestern pond turtles in this region are associated with open upland habitats that receive extensive sun exposure, such as prairies and pasturelands (Hallock et al. 2017). No such habitat is present in the study area. In addition, given the numerous dispersal barriers (e.g., distance, freeways, railways, urbanized areas) between the study area and the nearest extant population, there is no potential for northwestern pond turtles to move into the study area.

In addition, the USFWS Information, Planning, and Conservation planning tool identified one ESA-listed plant species (marsh sandwort [*Arenaria paludicola*]) as potentially occurring in areas that might be affected by the project. Marsh sandwort, listed as endangered, has been extirpated from Washington (USFWS 2008). The closest known occurrence is near Tacoma; marsh sandwort has not been observed at that site in more than 100 years (WDNR 2023b). Suitable habitat (coastal freshwater marshes, wetlands with organic bog soils, and sandy substrates with high organic content) is not found in the study area. For these reasons, marsh sandwort is not expected to occur in the study area.

3.4.2 Marine Mammals

Harbor seals, California sea lions, and Steller sea lions often congregate in Commencement Bay. Seals and sea lions have been observed foraging on fish in the Puyallup River in the study area at all times of year. These species were observed in the Puyallup River during WSDOT's construction of the southbound HOV lanes for I-5 (pers. comm., Dave Molenaar, WSDOT, May 2020). Marine mammals are not expected to be present in any other portions of the study area. Seals and sea lions are protected from harassment and harm under the MMPA. Compliance with the MMPA for in-water work may require coordination with and possibly the issuance of an incidental take permit or incidental harassment authorization by NMFS.

3.4.3 Areas Protected Under Local Critical Areas Ordinances

As discussed in Section 2.4.2, wetlands and FWHCAs are the two ecosystem components that receive protection under local critical areas ordinances. The existing condition of wetlands in the study area is described in Section 3.3. Discussions in this section focus on species and habitats for which FWHCAs are established in one or more of the jurisdictions that encompass the study area.

3.4.3.1 Special-Status Species

FWHCAs in Federal Way, Milton, Fife, Tacoma, and Pierce County all include areas where federally listed endangered or threatened species have a primary association. The potential use of habitats in the study area by ESA-listed species is discussed in Section 3.4.

As explained in Section 2.4.2, the other designations that confer status to certain species under local critical areas ordinances are:

- Designation as a candidate for listing under the Endangered Species Act (Fife and Pierce County only).
- State listing as endangered, threatened, or sensitive species (all jurisdictions).
- State listing as candidate or monitor species (Fife and Pierce County only).
- Classification as priority species by WDFW (all jurisdictions except Milton and Pierce County).
- Identification as species of local importance (specified in Pierce County only).

All salmonids (Chinook salmon, chum salmon, coho salmon, cutthroat trout, pink salmon, sockeye salmon, steelhead, and bull trout) described Section 3.1 are WDFW priority species, and bull trout are also candidates for state listing. In addition, Pierce County classifies salmonids as species of local importance. See Section 3.1 for discussions of these species' presence and habitat use in the study area. WDFW also identifies seals and sea lions as priority species but considers them a management priority only at haul-outs (WDFW 2008). WDFW (2023a) does not identify any seal or sea lion haul-outs in the study area. No other aquatic species for which FWHCAs may be established are known or expected to be present in the study area.

The remainder of this subsection addresses terrestrial wildlife species for which FWHCAs are established. For this discussion, such species are called special-status species.

Based on field observations, literature review, and sightings databases (e.g., eBird 2023; Opperman et al. 2006; Seattle Audubon Society 2023; WDFW 2023a), biologists identified special-status species that may use habitats in the study area (i.e., non-marine habitats in lowland residential, commercial, and light industrial settings, excluding unique habitats that are not found in the study area, such as old-growth forest or sphagnum bogs). Table J4.3-15 (Special-status Wildlife Species in the Study Area) lists these species and summarizes each species' known or expected use of habitats in the study area. Table J4.3-15 also identifies the priority areas that have been identified by WDFW for each of these species. In many cases, WDFW considers species to be a priority only within known limiting habitats (e.g., breeding areas) or within areas that support a relatively high number of individuals (e.g., regular concentrations). For example, great blue herons (*Ardea herodias*) are often seen feeding along shorelines, but they are considered a management priority only in areas used for breeding (WDFW 2008).

Table J4.3-15 Special-status Wildlife Species in the Study Area

Species	Status[1]	Priority area(s)	Known or Expected Habitat Use in the Study Area
Invertebrates			
Monarch butterfly	FC	Breeding areas	Monarch butterflies (*Danaus plexippus*) require milkweed (*Asclepias* spp., the sole food source for larvae) for reproduction. No milkweed species are native to western Washington, and no milkweed populations have been identified in the study area.
Amphibians			
Western toad	SC, PS	Any occurrence	No recent records of western toads (*Anaxyrus boreas*) near the study area. May breed in permanent wetlands, ponds, lakes, and off-channel habitats or rivers; adults may move through uplands for several miles.
Birds			
Band-tailed pigeon	PS	Regular concentrations, occupied mineral sites	Band-tailed pigeons (*Patagioenas fasciata*) have been observed in suitable habitat near the study area year-round, but no regular concentrations or mineral springs have been recorded. May nest in trees, commonly in tall conifers near open sites.
Barrow's goldeneye	PS	Breeding areas	No known observations in the study area. Barrow's goldeneyes (*Bucephala islandica*) are occasionally seen on larger waterbodies nearby (e.g., Lake Killarney), primarily during winter. Not expected to breed in or near the study area.
Brant	PS	Regular concentrations in foraging and resting areas, migratory stopovers	No known observations of brants (*Branta bernicla*) in the study area. The study area is not expected to provide migratory stopover sites or foraging or resting areas.
Common goldeneye	PS	Breeding areas	Common goldeneyes (*Bucephala clangula*) are occasionally seen on waterbodies in and near the study area, primarily during winter. Not expected to breed in or near the study area.
Common loon	SS, PS	Breeding sites, migratory stopovers, regular concentrations	No known observations of common loons (*Gavia immer*) in the study area. No suitable breeding sites (large lakes with low disturbance levels) in or near the study area. The study area is not expected to provide migratory stopover sites.
Great blue heron	PS	Breeding areas	Observed in suitable habitats near the study area year-round. Nests in mature forests, forages in shallow, slow-moving, or still water. No known breeding sites within 1 mile of any site alternatives.
Hooded merganser	PS, SLI	Breeding areas	Hooded mergansers (*Lophodytes cucullatus*) have been observed in suitable habitats near the study area year-round. May nest in tree cavities near small, forested, freshwater wetlands with emergent vegetation.

Table J4.3-15 Special-status Wildlife Species in the Study Area (continued)

Species	Status[1]	Priority area(s)	Known or Expected Habitat Use in the Study Area
Oregon vesper sparrow	SC, PS	Any occurrence	Oregon vesper sparrows (*Pooecetes gramineus affinis*) are associated with open habitats. Breeding population in Washington are largely limited to remnant prairies and grasslands in Pierce, Thurston, and Skagit counties. Rarely observed in study area vicinity during migration periods.
Osprey	SLI	Breeding areas	May nest in prominent trees or other structures near large fish-bearing waterbodies. No observations of nests have been reported in the study area.
Pileated woodpecker	SC, PS	Breeding areas	Pileated woodpeckers (*Dryocopus pileatus*) are occasionally seen, year-round; breeding possible. Requires forested habitats with large trees and snags. No evidence of nesting in study area.
Trumpeter swan	PS	Regular concentrations	No known observations in the study area. Trumpeter swans (*Cygnus buccinator*) are occasionally seen on larger waterbodies nearby, primarily during winter. The study area is not expected to support concentrations.
Tundra swan	PS	Regular concentrations	No known observations in the study area. Tundra swans (*Cygnus columbianus*) are occasionally seen on larger waterbodies nearby, primarily during winter. The study area is not expected to support concentrations.
Vaux's swift	SC, PS	Breeding areas, communal roosts	Observed in suitable habitat near the study area, primarily during the breeding season. Vaux's swifts (*Chaetura vauxi*) nest and roost in natural cavities with vertical entranceways, such as hollow trees and snags, in areas of coniferous or mixed forest.
Western grebe	SC, PS	Breeding areas, regular concentrations, migratory stopovers, regular occurrences in winter	Western grebes (*Aechmophorus occidentalis*) are occasionally seen near open water, generally outside of the breeding season. Not expected to breed in or near the study area. The study area is not expected to provide migratory stopover sites or support concentrations.
Wood duck	PS, SLI	Breeding areas	Wood ducks (*Aix sponsa*) have been observed in suitable habitats near the study area year-round. May nest in tree cavities near wooded wetlands.
Mammals			
Big brown bat, *Myotis* bats	PS	Regular concentrations in naturally occurring breeding areas and other communal roosts	No known maternity or hibernation colonies or other concentrations in the study area. In 2001, a maternity colony of big brown bats (*Eptesicus fuscus*) was found under a bridge approximately 0.3 mile from the proposed alignment (WDFW 2023a). Summer roosts generally are in buildings, bridges, hollow trees, spaces behind exfoliating bark, rock crevices, or tunnels. Caves, mines, and buildings are used for hibernation.
Keen's myotis	SC, PS	Any occurrence	No known maternity or hibernation colonies or other concentrations of Keen's myotis (*Myotis keenii)* in or near the study area. Summer roosts generally are in buildings, bridges, hollow trees, spaces behind exfoliating bark, rock crevices, or tunnels. Maternity colonies may form in attics, barns, rock crevices, or tree cavities. Caves, mines, and buildings are used for hibernation.
Townsend's big-eared bat	SC, PS	Any occurrence	No known maternity or hibernation colonies or other concentrations of Townsend's big-eared bats (*Corynorhinus townsendii*) in or near the study area. Maternity and hibernation colonies typically are in caves, mine tunnels, and old buildings. Caves, tunnels, buildings, and tree cavities are used as night roosts.

Sources: eBird 2023; Opperman et al. 2006; Seattle Audubon Society 2023; WDFW 2008, 2023a, 2023b.

Notes:

(1) FC = Candidate for federal listing; PS = WDFW priority species; SC = State candidate; SS = State sensitive; SLI = Species of local importance (Pierce County). No wildlife species that are listed or proposed for listing under the ESA are known or expected to use habitats in the study area.

None of the special-status species in Table J4.3-15 were observed in the study area during field surveys conducted for this project. WDFW (2023a) does not identify any occurrences of priority wildlife species within 0.25 mile of any of the project alternatives. Priority species may nevertheless use habitats in the study area. Forested areas in the study area could provide suitable habitat for the following priority species: band-tailed pigeon, pileated woodpecker, Vaux's swift, big brown bat, Myotis bats (*Myotis spp.*), and Townsend's big-eared bat. Hooded mergansers and wood ducks may nest in forested wetlands. Big brown bats may use bridge structures as roosts or maternity colonies.

The Migratory Bird Treaty Act of 1918, administered by USFWS, makes it unlawful to take any migratory bird, or the parts, nests, or eggs of any such bird, except under the terms of a valid permit. In the context of this Act, 'take' is defined as, "pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill" (16 U.S. Code § 715n). Nearly all bird species that may occur in the study area are protected under the Migratory Bird Treaty Act. Birds or bird nests protected under the Act may be present in any of the cover types described in Section 3.2.1.

3.4.3.2 Protected Habitats

In addition to areas associated with the species identified above, FWHCAs include specific habitat types and areas. All five jurisdictions identify streams, lakes, and other waters of the state as FWHCAs; these aquatic resources are described in Section 3.1. Other habitat types and areas identified as FWHCAs under local critical areas ordinances are:

- Priority habitats, as classified by WDFW (Fife and Tacoma).
- State natural area preserves and natural resource conservation areas (Tacoma).
- Areas critical for habitat connectivity, including Open Space Corridors designated in the City's comprehensive plan (Tacoma).
- Areas designated as biodiversity areas and corridors (Tacoma).
- Areas established by the Puyallup Tribe of Indians Tribal government as habitat areas of Tribal importance for economic, social, cultural, and ceremonial reasons (Fife).
- Special habitat areas, including oak woodlands, prairies, aspen stands, and meadows (Fife).
- Old growth/mature forests and areas with abundant and well-distributed snags and logs (Pierce County).

The only mapped priority habitats in the study area are wetland areas (WDFW 2023a). Wetlands are discussed in Section 3.3. Riparian areas, another WDFW priority habitat type, are present along surface-flowing streams in the study area but are not mapped by WDFW. The condition of riparian habitats in the study area is described in Section 3.1. Some of the forested areas in the study area meet WDFW's criteria for the Mature Forest priority habitat type[5] and are shown in Figures J4.3-13 through J4.3-26.

The Pierce County PublicGIS mapping tool identifies the area of unincorporated Pierce County in the Fife Segment as a potential FWHCA, based on its proximity to Hylebos Creek.

[5] Stands, generally between 80 and 200 years old, with average diameters exceeding 21 inches at breast height (WDFW 2008).

There are no state-designated natural area preserves or natural resource conservation areas in the study area. A small portion of an Open Space Corridor designated in the City of Tacoma's comprehensive plan falls within the study area, but it is not crossed by any of the alternatives. No oak woodlands, prairies, aspen stands, meadows, or designated biodiversity areas or corridors have been identified in the study area.

3.4.4 Areas Within the Shoreline Jurisdiction

Two streams in the ecosystems study area fall under the jurisdiction of the Shoreline Management Act. These are Hylebos Creek and the Puyallup River. Portions of the study area near Hylebos Creek fall within the shoreline jurisdictions of Milton, Fife, and Pierce County. Portions of the study area near the Puyallup River fall within the shoreline jurisdictions of Fife and Tacoma. The shoreline master programs of all these governments include provisions to ensure no net loss of ecological function in shoreline areas. These shoreline master programs also include provisions for the protection of critical areas, including wetlands. In Fife and Tacoma, the standard buffer widths for wetlands in the shoreline jurisdiction are the same as those established in those cities' critical areas regulations; the same is true for Pierce County. The City of Milton approved use of the final draft of the city's shoreline master program, dated September 21, 2020, which includes updated buffer widths for wetlands. Milton's critical areas ordinance was approved in 2006. As a result, wetland buffer widths in Milton's shoreline master program differ from those in the critical areas regulations.

3.4.5 Areas Protected by Tribal Regulations

The Puyallup Tribal Code (Section 15.12 et seq.) establishes district classifications, in substantial compliance with the Puyallup Tribe of Indians Comprehensive Land Use Plan, for all lands within the boundaries of the Puyallup Reservation. The locations and boundaries of the zoning districts are shown on the Tribe's official zoning map, which is kept on file in the Tribe's Land Use Office and is available for inspection by Tribal members.

Certain activities on Tribal trust lands may be undertaken only after development permits and construction permits have been issued by the Tribe. These activities include the construction of buildings or structures within 200 feet of shorelines or wetlands and dredging or filling of watercourses or wetlands (including pile driving). The Puyallup Tribe of Indians has authority over any work proposed within the OHWM of the Puyallup River. Project work proposed in waters with Tribal jurisdiction may fall within the Puyallup Tribe of Indians' authority under the Section 401 Water Quality Certification provisions of the CWA, or it may be authorized directly by the U.S. Environmental Protection Agency (EPA).

In addition, judicial decisions have affirmed that federally recognized Tribes have treaty rights, including the rights to harvest fish free of state interference (subject to conservation principles) and to co-manage the fishery resource. The Puyallup River, Hylebos Creek, and other fish-bearing streams in the study area are within the treaty-protected Usual and Accustomed fishing areas of the Puyallup Tribe of Indians. Project-related impacts on these streams could affect the productivity of Tribal fisheries, thereby harming Tribal treaty rights. Sound Transit is therefore addressing potential effects on fish and fish habitat in this report and is coordinating with affected Tribes regarding these potential effects.