Appendix K: Fish, Vegetation, and Wildlife Discipline Report

Point Defiance Bypass Project

Fish, Wildlife, and Vegetation Discipline Report

Washington State Department of Transportation

September 2012

Table of Contents

List of Exhibits

Summary

This report has been prepared in support of the Point Defiance Bypass Project (the Project) Environmental Assessment ,and in accordance with the National Environmental Policy Act (40 CFR 1500-1508), the State Environmental Policy Act (WAC 197-11), and the Federal Railroad Administration's Procedures for Considering Environmental Impacts (64 Fed. Reg. 28550).

The purpose of the Project is to provide more frequent high-speed intercity passenger rail service between Tacoma and Nisqually. By increasing rail capacity, the Project would support additional Amtrak service between Portland, Oregon, and Seattle, Washington.

The Project is located in Pierce County along an approximately 21-mile railroad existing corridor,[1] which passes through portions of the cities of Tacoma, Lakewood, and DuPont. The northern limit of the Project is near the crossing of Interstate 5 (I-5) over the Puyallup River in Tacoma, while the southern limit of the Project is near the crossing of Nisqually Road over the Nisqually River.

Due to the existing high disturbance baseline within this populated region, the study area is limited to those zones within a 200-foot radius of the railroad right-of-way, which incorporates both the construction footprint within the right-of-way and adjacent areas potentially exposed to visual disturbance and elevated noise during and after construction.

Seven streams occur within the right-of-way, one (Clover Creek) of which is documented as supporting winter steelhead (FT)[2] and coho salmon (FSC).[3] No in-water work is proposed, and Best Management Practices (BMPs) during construction would prevent effects to water quality. As a result, no effect to fish as a result of the Project is anticipated.

Due to existing baseline disturbance from surrounding urban development, automobile and train traffic, human activity, and vegetation management, suitable habitat for wildlife listed under the Endangered Species Act (ESA) is absent within the study area. Therefore, no effect to ESA-listed wildlife as a result of the Project is anticipated.

[1] *The three owners of the proposed Project corridor are Sound Transit, Tacoma Rail, and BNSF.*
[2] *Federally listed as Threatened.*
[3] *Federally listed as a Species of Concern.*

Vegetation disturbance would be limited to the railroad right-of-way where, due to railroad maintenance and operations, conditions are not suitable for plants listed under the ESA. Therefore, no effect to ESA-listed plants as a result of the Project is anticipated.

Chapter 1 – Project Description

Introduction

Under the High-Speed Intercity Passenger Rail (HSIPR) Program and pursuant to a programmatic Tier I Environmental Assessment (EA) the Federal Railroad Administration (FRA) has approved an application from the Washington State Department of Transportation (WSDOT) to improve the Pacific Northwest Rail Corridor (PNWRC), a federally designated high-speed rail corridor. One project included in the PNWRC application is the Point Defiance Bypass Project (the Project), which would respond to deficiencies in the existing rail operations around Point Defiance. This Discipline Report has been prepared in support of the project-specific EA for the Point Defiance Bypass project.

The Project is located in Pierce County along an existing approximately 20-mile rail corridor between Tacoma and Nisqually.4 The Project would provide for the re-routing of Amtrak passenger trains from the BNSF rail line that runs along the southern Puget Sound shoreline (Puget Sound route) to the Point Defiance Bypass route, an existing rail corridor that runs along the west side of I-5. The Project would consist of railroad track and support facility improvements, and relocation of the Tacoma Amtrak Station to Freighthouse Square in Tacoma.

Purpose and Need

As described above, the Point Defiance Bypass route is part of the larger PNWRC. Within Washington State, the vision for the PNWRC is to "…improve intercity passenger rail service by reducing travel times and achieving greater schedule reliability in order to accommodate growing intercity travel demand…"[5].

The purpose of the Project is to provide more frequent and reliable high-speed intercity passenger rail service along the PNWRC between Tacoma and Nisqually. In conformity with the decisions under the Tier 1 Programmatic EA, the PNWRC Improvement Program has reduced the overall environmental effects of providing improved passenger rail service with the use of an existing transportation corridor and associated infrastructure, rather than creating a new corridor.

[4] *The three owners of the project corridor are Sound Transit, Tacoma Rail, and BNSF.*
[5] *WSDOT 2009*

The Project is needed to address the deficiencies in the existing rail alignment around Point Defiance. The existing alignment (Puget Sound route), shared by freight and passenger rail traffic, is near capacity and is therefore unable to accommodate additional high-speed intercity passenger rail service without substantial improvements. In addition, the existing alignment has physical and operational constraints that adversely affect both passenger train scheduling and reliability.

Improving intercity passenger rail service in the project area and meeting the Project needs would be accomplished by:

- Enhanced Frequency: Increasing Amtrak Cascades round-trips from four to six by 2017 to meet projected service demands.
- Improved Reliability: Reducing scheduling conflicts with freight trains that often result in delays, and by minimizing or avoiding operational delays (e.g., drawbridge openings) and weather-related delays (e.g., mudslides), and improving on-time performance from 68 percent to 88 percent.
- Enhanced Efficiency: Enhancing the efficient movement of people by decreasing trip times by 10 minutes, and reducing the amount of time passenger trains spend yielding to freight movements.
- Improved Safety: Constructing at-grade crossings with upgraded safety features, including wayside horns, median barriers, advance warning signals, and traffic signal improvements.

What alternatives are being considered for the Point Defiance Bypass Project?

FRA and WSDOT conducted an evaluation of three build alternatives: the Point Defiance Bypass Alternative, the Shoreline Alternative, and the Greenfield Alternative. Two of the alternatives (the Shoreline Alternative, and the Greenfield Alternative) were eliminated from further study. Although both alternatives could meet the Project's purpose and need, they were determined to be impracticable and unfeasible due to technical constraints, high construction costs, and significant environmental effects. Grade separations were also evaluated for further consideration. FRA and WSDOT's preliminary analysis revealed that current and projected future traffic volumes do not warrant the construction of new grade-separated crossings.

What's happening in the bypass corridor today?

The rail line between TR Junction and East "D" Street in Tacoma hosts both freight and commuter trains, including freight operators Tacoma Rail and BNSF, and Sound Transit's *Sounder* commuter rail service. Freight

train traffic between TR Junction and East "D" Street averages under two trains per day, while Sound Transit currently operates 18 trains per day between Freighthouse Square and Seattle each weekday, and also offers occasional special event trains, usually on weekends, to serve sporting and other events in Seattle. *Sounder* service to Lakewood begins in late 2012.

What would happen if the Project were not built?

If the Project were not built (the No Build Alternative), Amtrak's Cascades and Coast Starlight passenger train service would continue to use the existing Puget Sound route. The No Build Alternative includes only the minor maintenance and repair activities necessary to keep the existing Puget Sound route operational. With the No Build Alternative, it would be expected that as freight traffic increases, congestion would adversely affect Amtrak service reliability, and the travel time for Amtrak trains between Seattle and Portland would increase.

Along the Point Defiance Bypass route, the Tacoma Rail and BNSF freight services would continue. The at-grade crossings at Clover Creek Drive Southwest, North Thorne Lane Southwest, Berkeley Street Southwest, 41st Division Drive, and Barksdale Avenue Southwest would not be upgraded.

Sound Transit's *Sounder* commuter passenger trains will become operational in late 2012 between the Tacoma Dome Station at Freighthouse Square in Tacoma and Sound Transit's Lakewood Station (on the Point Defiance Bypass route) with as many as 18 *Sounder* trains per day.

What are the proposed improvements and related activities of the Point Defiance Bypass Project?

The Project consists of railroad track and support facility improvements, and the relocation of Amtrak's Tacoma Station. Exhibit 1 shows the components of the Build Alternative. The following details specific components of the Build Alternative.

- **Construct New Track Adjacent to the Existing Main Line** – A new 3.5-mile track adjacent to the existing main line would be constructed from South 66th Street (Rail MP 6.9) in Tacoma to between Bridgeport Way SW (Rail MP 10.4) and Clover Creek Drive SW (Rail MP 10.9) in Lakewood.
- **Reconstruct and Rehabilitate the Existing Main Line** – Starting just southwest of Bridgeport Way Southwest (Rail MP 10.4) in Lakewood, the existing track would be reconstructed to a location southeast of the I-

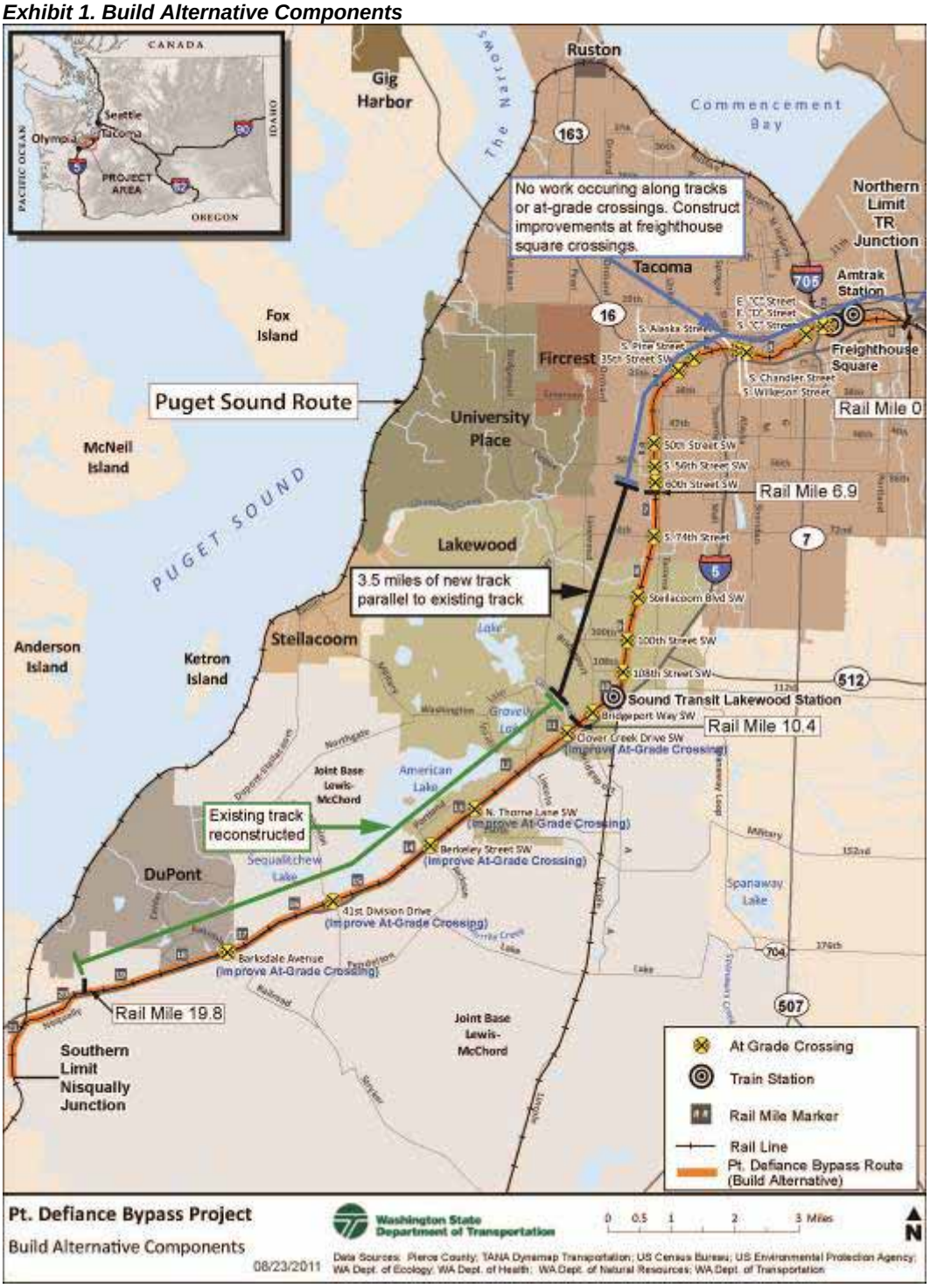
5/Mounts Road Southwest interchange (Rail MP 19.8) at Nisqually Junction.

- **Improvements at at-Grade Crossings** – Several grade crossings would be improved with wayside horns, gates, traffic signals and signage, sidewalks, median separators, and warning devices. These crossings include Clover Creek Drive Southwest, North Thorne Lane Southwest, Berkeley Street Southwest, 41st Division Drive and Barksdale Avenue.
- **Tacoma Amtrak Station Relocation** – The existing Tacoma Amtrak Station would be relocated from its Puyallup Avenue location to the Tacoma Dome Station at Freighthouse Square, at 430 E. 25th Street in Tacoma.

What are the proposed operational changes that would result from the Point Defiance Bypass Project?

Amtrak's existing Cascades and Coast Starlight passenger train service would be rerouted from the Puget Sound route along the Puget Sound shoreline to the Point Defiance Bypass route. The Project would also provide for additional Amtrak Cascades service by increasing the number of round trips provided from 4 to 6, or a total of 12 Cascades service train trips. Amtrak Coast Starlight would also travel on the Point Defiance Bypass route for a total of two Coast Starlight service train trips. The speed of these passenger trains would be up to 79 mph.

Exhibit 1. Build Alternative Components



Chapter 2 –Methodology

This section presents the methods used to analyze potential effects to fish, wildlife, and vegetation resulting from the construction of the Project.

What is the study area for the Project?

The northern limit of the Project is the TR Junction near the I-5 overcrossing of the Puyallup River and East Bay Street in Tacoma (Exhibit 1).[6] The southern limit of the Project is at Nisqually, a junction that is also on the Point Defiance Bypass Route, about one-third of a mile due north of where Nisqually Road crosses the Nisqually River (Exhibit 1).[7]

The Project passes through portions of the cities of Tacoma, Lakewood, and DuPont, federal military (Army) installations at Camp Murray and Joint Base Lewis McChord (JBLM), and portions of unincorporated Pierce County. I-5, local roads, and commercial zones lie adjacent to the railroad right-of-way along most of the Project's length. Existing baseline disturbance of vegetation and habitat is correspondingly high, including automobile and train traffic, human activity, artificial light, commercial and residential development, stream encroachment, culverting and bridging of streams, and fragmentation of vegetation communities. Due to the high baseline disturbance level, the effects of construction and future increase in rail traffic (noise, visual disturbance) are expected to be discountable.

Accordingly, the study area for the Project is limited to those areas within a 200-foot radius of the existing railroad right-of-way, a zone which incorporates both the construction footprint within the right-of-way as well as all areas within 200 feet that may be exposed to increased visual disturbance and noise during and after construction.

How was information about fish, wildlife, and vegetation collected?

In August 2007, a Fish, Wildlife, and Vegetation Technical Memorandum was prepared by HDR Engineering, Inc. (HDR 2007) for the Project that

[6] *The north end of the proposed Project is in Township 20N, Range 30E, Section 10.*
[7] *The south end of the proposed Project is in Township 18N Range, 10E, Section 39.*

evaluated fish, wildlife, and vegetation resources within the railroad right-of-way, the limits of which spanned from approximately South 66th Street in Tacoma to the BNSF Main Line south of DuPont.

HDR's methodology to collect information on fish, wildlife, and vegetation included background research and site visits in November and December 2006, and in January 2007. Field investigations were limited to the railroad right-of-way, where accessible. Field surveys consisted of walking the right-of-way and documenting wildlife species and plant communities observed. For fisheries, documentation included visual inspection of potential habitat for threatened and endangered species and identification of fish passage barriers.

Since 2007, the Project has been expanded to include additional rail within the city limits of Tacoma from approximately South 66th Street north to the crossing of I-5 over the Puyallup River. To incorporate this expansion, the current study area includes the right-of-way limits evaluated by HDR in 2007 as well as the new right-of-way segment added within the developed city limits of Tacoma and adjacent areas within 200 feet of the right-of-way.

In order to verify data presented by HDR in its 2007 Technical Memorandum for incorporation into this report, two field visits were conducted by qualified professionals on March 10, 2011, and April 14, 2011. In March, the Project right-of-way and adjacent areas were observed by automobile in order to evaluate the Project within the context of surrounding development and disturbance. In April, a Hi-rail vehicle was driven upon the existing rail in order to observe all areas within the railroad right-of-way and adjacent areas. Where a closer inspection was warranted for verification purposes, the right-of-way was walked. Weather conditions during both visits were typical for the time of year and favorable for conducting field surveys.

Based on the field information collected, it was determined that data presented by HDR in its 2007 Fish, Wildlife, and Vegetation Technical Memorandum are still accurate in describing applicable fish, wildlife, and vegetation resources within the right-of-way and that no new fish, wildlife, and vegetation resources are present within the current (expanded) study area.

Therefore, the information presented in this report is, in large part, derived from HDR (2007), with updates incorporated where relevant.

Background Research

The following data sources were reviewed to determine the potential for fish, wildlife, and vegetation resources to occur in the study area:

- US Fish and Wildlife Service (USFWS) – Endangered Species Act-listed (ESA-listed) species database for Pierce County
- Washington State Department of Wildlife (WDFW) Species of Concern List
- WDFW Priority Habitats and Species (PHS) geospatial database
- JBLM military installation – digital GIS data on natural resources
- Washington State Department of Natural Resources (WDNR) Natural Heritage Program (NHP) – data on rare plant species
- National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) – ESA status of West Coast salmon and steelhead
- Salmon and Steelhead Stock Inventory – occurrence of threatened, endangered, and sensitive fish species
- SalmonScape database – digital GIS data on fish presence
- StreamNet – resident fish presence
- National Bald Eagle Management Guidelines
- WDFW Bald Eagle Territory History
- Pierce County Noxious Weed List
- Literature on fish life history and distribution
- Aerial photography.

Chapter 3 – Affected Environment

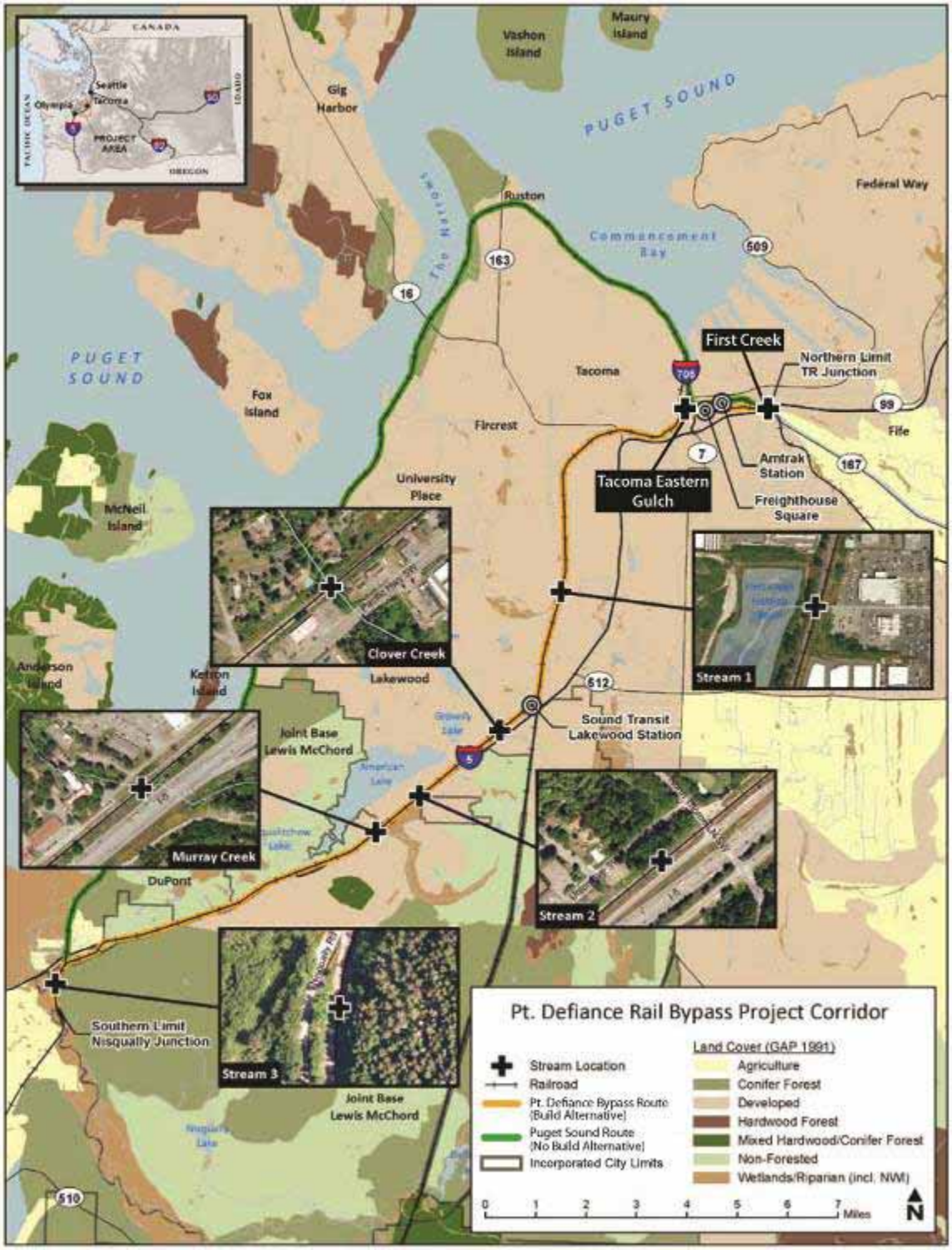
This section describes the existing habitat conditions within the study area and evaluates the potential for fish, wildlife, and vegetation to be present.

Fish Habitat in the Study Area

The Project is located in three Water Resources Inventory Areas (WRIAs): Puyallup-White (WRIA 10); Chambers-Clover (WRIA 12); and Nisqually (WRIA 11). The Project also occurs within three 6th-field Hydrologic Unit Codes (HUCs): Chambers Creek (171100190303); Sequalitchew Creek-Frontal Cormorant Passage (171100190304); and Nisqually River-Frontal Puget Sound (171100150307).

Seven streams were identified in the study area (see Exhibit 2). From north to south, they are: First Creek; Tacoma Eastern Gulch; Stream 1 (Unnamed Tributary to Flett Creek); Clover Creek; Stream 2 (Unnamed Tributary to American Lake); Murray Creek; and Stream 3 (Unnamed Tributary to the Nisqually River). These streams are described in detail below.

Exhibit 2. Streams in the Study Area



First Creek

The Project would cross First Creek near Rail MP 0.85. The First Creek Watershed collects runoff from approximately 2,680 acres and conveys it through two tributary channels and a main stream channel, which are each located in 20- to 30-foot deep ravines. This stream network is managed by the City of Tacoma as a stormwater conveyance system and utility corridor. It has undergone historical maintenance for erosion, including the placement of rip rap into the channels. South of the Project boundary at E. 34th Street, First Creek enters a 6-foot-diameter pipe that conveys the stream under I-5 and the existing rail corridor, and then discharges to the Puyallup River approximately 630 feet downstream of I-5.[8] First Creek supports fish, although anadromous salmonids are not known to use this stream.

Tacoma Eastern Gulch

The Project would cross a constructed watercourse called the Tacoma Eastern Gulch, also referred to as the "A" Street gully, at Rail MP 2.15. This watercourse flows under the Project corridor through a 6-foot-diameter culvert before discharging into the Thea Foss Waterway.[9] No natural or critical area habitat is associated with the Tacoma Eastern Gulch. Fish are not known to occur in this stream.

The Thea Foss Waterway sub-basin covers approximately 5,780 acres in south-central Tacoma. This sub-basin is mostly residential, with some commercial and industrial land use.[10]

The Thea Foss Waterway is a current Superfund sediment cleanup site and is identified on Ecology's 303(d) list for exceedance of polychlorinated biphenyls (PCBs) in tissue samples.[11]

Stream 1 (Unnamed Tributary to Flett Creek)

Stream 1 drains an urban area to the southeast of South Tacoma Way and South 74th Street in which residential and commercial development is interspersed with vegetated open space. The stream is confined to a narrow, densely vegetated ditch that runs between large, paved parking lots before it is directed through long culverts under South Tacoma Way and the railroad embankment. The stream enters the Flett Creek Holding Basin west of the railroad. No fish are documented in Stream 1.

[8] *Tacoma 2011a.*
[9] *Federal Transit Administration 2002.*
[10] *Tacoma 2011b.*
[11] *Ecology 2009.*

Clover Creek

The contributing basin for Clover Creek largely occurs east of JBLM, a region interspersed with residential development, commercial zones, and golf courses. Water flows toward the west as it is culverted 2,500 feet under the AFB runway, I-5, and railroad before it enters Steilacoom Lake. The creek leaves Steilacoom Lake as Chambers Creek, which flows 2.5 miles to Puget Sound.

At the railroad crossing, Clover Creek varies from a low of 15 feet wide to about 40 feet wide at the ordinary high water mark (OHWM) (Photos 1 and 2). The stream substrate is composed of gravels (1-3 inches in diameter, moderately imbedded) with a few cobbles (6-12 inches in diameter). Habitat in the creek within the study area is largely riffle type. Vegetative cover on the creek banks is approximately 50 percent. The tree canopy includes black cottonwood, red alder, and cherry (*Prunus* sp.), with an understory dominated by Himalayan blackberry, Indian plum (*Oemleria cerasiformis*), and bittersweet nightshade (*Solanum dulcamara*). In the study area, steelhead, coho salmon, Pacific lamprey, cutthroat trout, and rainbow trout are documented in Clover Creek.

Photo 1. Clover Creek facing west (HDR 2007)

Photo 2. Clover Creek facing north (2011)

Stream 2 (Unnamed Tributary to American Lake)

Stream 2 begins in a series of wetlands located on JBLM east of I-5. It is culverted under both I-5 and the railroad fill prism just south of North Thorne Lane Southwest where the stream daylights between fill prisms on all four sides, in which depression the stream inundates the lowermost portions, forming Wetland A (Photos 3 and 4). The stream exits Wetland A through a culvert toward the west under Union Avenue Southwest. West of Union Avenue Southwest, the stream travels approximately 1,000 feet before entering another long culvert that conveys flow into American Lake.

Within Wetland A, Stream 2 is shallow and up to 150 feet wide. The channel is poorly defined, and substrate is largely sands with some areas of gravels (1-3 inches in size, 70 percent embedded) and spalls that have fallen from the railroad embankment. Habitat is largely run type, but backwater areas are present on either side of the stream.

Photo 3. Stream 2 and Wetland A, facing west from railroad line (HDR 2007)

Photo 4. Stream 2 and Wetland A, facing southeast from Union Avenue Southwest (2011)

Fine organic debris is common in the water, and the channel is well shaded by vegetation. Species present include black cottonwood (*Populus balsamifera*) and Pacific willow (*Salix lucida* var. *lasiandra*) in the canopy and Himalayan blackberry (*Rubus armeniacus*) and red-osier dogwood (*Cornus sericea*) in the understory. No fish are documented in Stream 2.

Murray Creek

The contributing basin of Murray Creek largely occurs within vegetated open space east of I-5 within the boundary of JBLM.

The creek flows toward the west and is culverted under both I-5 and the railroad (Photos 5 and 6). Between I-5 and the railroad, the creek flows through a channel dominated by emergent vegetation.

Photo 5. Murray Creek facing west (HDR 2007)

Photo 6. Murray Creek facing northeast (2011)

The channel is approximately 25 feet wide and an estimated three feet deep. Habitat in this area is entirely pool type. Vegetative cover on the banks is dominated by common cattail (*Typha latifolia*) and reed canarygrass (*Phalaris arundinacea*). West of the railroad, Murray Creek flows about 3,000 feet before entering American Lake. Cutthroat trout are documented as occurring in the creek.

Stream 3 (Unnamed Tributary to the Nisqually River)

Stream 3 is located at the southern end of the Project, just south of the intersection of the rail line and Nisqually Road Southwest. Stream 3 originates in a series of seeps on a steep slope east of the railroad right-of-way. The stream coalesces into a defined channel, approximately 5-15 feet in width at the OHWM, and about six inches deep (Photos 7 and 8). The channel runs about 200 feet along the toe of the railroad ballast slope where a debris dam creates a broad backwater area, approximately 20 feet wide, 50 feet long, and three feet deep (Wetland AB), before water exits through a five-foot diameter concrete culvert. The creek continues westward where it enters the Nisqually River floodplain, approximately 100 feet below the railroad.

The substrate of Stream 3 is largely silt, with some small areas of gravel (1-3 inches in size and highly embedded). Organic debris (twigs and leaves) are common in the stream. The habitat is mostly runs type, with a few smaller pools and a single large pool just upstream of the culvert.

Photo 7. Stream 3 and Wetland AB east of railroad, facing south (HDR 2007)

Photo 8. Stream 3 and Wetland AB east of railroad, facing east from existing railroad (2011)

Vegetative cover is approximately 100 percent. The canopy is dominated by red alder (*Alnus rubra*), although Douglas fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) are present upslope to the east. The understory is predominantly salmonberry (*Rubus spectabilis*) and vine maple (*Acer circinatum*). Sword fern (*Polystichum munitum*), licorice fern (*Polypodium glycyrrhiza*), bracken fern (*Pteridium aquilinum*), stinging nettle (*Urtica dioica*), youth-on-age (*Tolmiea menziesii*), and scouring rush (*Equisetum hyemale*) are common in the herbaceous layer. No fish are documented in Stream 3.

Fish Presence in the Study Area

This section outlines the potential for fish species tracked by NOAA Fisheries (Chinook, steelhead, coho, chum, and sockeye) to occur within the study area. A discussion on bull trout, regulated under the ESA by the USFWS, is also included.

Exhibit 3 presents the fish species listed under the ESA in the Puget Sound region.

Exhibit 3. Federally Listed Fish Species of the Puget Sound Region

Species	ESU * or DPS *	Federal Status *	Critical Habitat in the Study Area
bull trout	Coastal-Puget Sound	FT	No
Chinook salmon	Puget Sound	FT	No
chum salmon	Puget Sound/Strait of Georgia	NW	No
coho salmon	Puget Sound/Strait of Georgia	FSC	No
steelhead	Puget Sound	FT	No

** (ESU) Evolutionarily Significant Unit; (DPS) Distinct Population Segment; (FT) Federal Threatened; (FSC) Federal Species of Concern; (NW) Not Warranted*

Exhibit 4 lists those fish species that may occur in streams that cross the study area.

Exhibit 4. Fish Presence within the Study Area

Stream Name	Salmon and Steelhead Presence (Listing Status*)	Critical Habitat Present	Other Resident Fishes
Stream 1	**none**	**No**	**none**
Clover Creek	**steelhead (FT) coho (FSC)**	**No**	**cutthroat trout, rainbow trout, Pacific lamprey (FSC, SM)**
Stream 2	**none**	**No**	**none**
Murray Creek	**none**	**No**	**cutthroat trout**
Stream 3	**none**	**No**	**none**

** (FT) Federal Threatened; (FSC) Federal Species of Concern, (SM) State Monitor*

No **bull trout** populations or residents are known to be present in any of the creeks that cross the study area (Nauer, 2000). Extensive studies in American Lake and Sequalitchew Lake have included gill netting and electroshocking, none of which have found bull trout (Sound Transit, 2002).

Stream 1, Stream 2, and Stream 3

Stream 1 occurs entirely below grade at the Project crossing and does not provide fish habitat. No fish are documented in the stream and none were observed during field surveys.

Stream 2, a tributary to American Lake, is inaccessible to anadramous fish (Sound Transit, 2002; D. Johnston, Personal Communications, 2006). No fish are documented in the stream and none were observed during field surveys.

Stream 3 leaves the study area in an approximately 100-foot, smooth concrete culvert that does not appear to provide fish passage. No fish are documented in the stream and none were observed during field surveys.

Murray Creek

Murray Creek is not accessible to anadramous fish (Sound Transit, 2002; D. Johnston, Personal Communications, 2006). Although steelhead have been reported in American Lake downstream of the Project (D. Johnston, Personal Communications, 2006), none are known to utilize Murray Creek at the railroad crossing. The only species documented in the creek is cutthroat trout.

Clover Creek

Clover Creek is the only waterway in the study area that is passable to anadramous fish.

Although Clover Creek is passable to **Chinook salmon**, none are known to utilize the creek reach in the study area. **Steelhead** are documented in Clover Creek, and habitat is present in the study area (Nauer, 2000; Sound Transit, 2002). Spawning habitat for **coho salmon** is present in Clover Creek, and the stream reach within the study area appears to provide habitat suitable for foraging and rearing as well. Habitat for **chum salmon** is present in Clover Creek in the study area (Nauer, 2000; Sound Transit, 2002), but chum presence is not documented. Habitat for **sockeye salmon** may be present in Clover Creek, but no sockeye are known to be present.

Conclusion

Steelhead (FT), coho salmon (FSC), and the Pacific lamprey (FSC) are the only listed species that may occur within the study area, all of which are documented in Clover Creek.

Wildlife Habitat in the Study Area

The study area is confined to a highly developed region surrounded by commercial and residential properties, military bases, and roadways. As a result, most of the habitat in the Project vicinity is fragmented. Vegetation in the study area generally occurs at or near the edge of the railroad right-of-way, which is managed (sprayed, mowed) for railroad operations. As a result, the study area provides poor habitat for most wildlife species, except those that have adapted to urban areas. Wildlife likely to be observed in the study area includes, but is not limited to, birds, rodents, raccoons, and feral cats and dogs.

Wildlife Presence in the Study Area

The following wildlife species and critical habitats are listed by the USFWS (2011) as occurring within Pierce County (see Exhibit 5).

Exhibit 5. Listed Wildlife Species and Critical Habitats in Pierce County

Species	Regulatory Status
Canada lynx (*Lynx canadensis*)	FT, ST
gray wolf (*Canis lupus*)	FE, SE
grizzly bear (*Ursus arctos = U. a. horribilis*)	FT, SE
marbled murrelet (*Brachyramphus marmoratus*)	FT, ST
northern spotted owl (*Strix occidentalis caurina*)	FT, SE
fisher (*Martes pennant*)	FC, SE
Mardon skipper (*Polites mardon*)	FC, SE
Roy Prairie and Tacoma Mazama pocket gopher, (*Thomomys mazama* ssp. *glacialis* and *tacomensis*) [historic]	FC, ST
North American wolverine (*Gulo gulo luteus*) Contiguous US DPS	FC, SC
Oregon spotted frog (*Rana pretiosa*)	FC, SE
streaked horned lark (*Eremophila alpestris strigata*)	FC, SE
Taylor's checkerspot (*Euphydryas editha taylori*)	FC, SE
yellow-billed cuckoo (*Coccyzus americanus*)	FC, SC
bald eagle (*Haliaeetus leucocephalus*)	FSC, SS
Cascades frog (*Rana cascadae*)	FSC
Fender's soliperlan stonefly (*Soliperla fender*)	FSC
Larch Mountain salamander (*Plethodon larselli*)	FSC, SS
long-eared myotis (*Myotis evotis*)	FSC
long-legged myotis (*Myotis volans*)	FSC
northern goshawk (*Accipiter gentilis*)	FSC, SC
northern sea otter (*Enhydra lutris kenyoni*)	FSC, SE
northwestern pond turtle (*Clemmys marmorata* ssp. *marmorata*)	FSC
olive-sided flycatcher (*Contopus cooperi*)	FSC
Oregon vesper sparrow (*Pooectetes gramineus affinis*)	FSC, SC
Pacific lamprey (*Lampetra tridentata*)	FSC
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)	FSC, SC
peregrine falcon (*Falco peregrines*)	FSC, SS
river lamprey (*Lampetra ayresi*)	FSC, SC
slender-billed white-breasted nuthatch (*Sitta carolinensis aculeate*)	FSC, SC
tailed frog (*Ascaphus truei*)	FSC
valley silverspot butterfly (*Speyeria zerene bremeri*)	FSC, SC
western gray squirrel (*Scirius griseus griseus*)	FSC, ST
Van Dyke's salamander (*Plethodon vandykei*)	FSC, SC

Critical Habitat (Species)	*Present in Study Area*
bull trout	No
marbled murrelet	No
northern spotted owl	No

(FE) Federal Endangered; (FT) Federal Threatened; (FC) Federal Candidate; (FSC) Federal Species of Concern; (SE) State Endangered; (ST) State Threatened; (SC) State Candidate; (SS) State Sensitive

According to field survey data and background research, no Federally-listed species are documented within the study area. Bald eagles (FSC) nest outside the study area on the southeast shore of American Lake, over 600 feet from the right-of-way. The nests are not visible from the railroad due to screening by trees and large buildings. Thus, the Project is not likely to disturb nesting eagles per thresholds outlined in the *National Bald Eagle Management Guidelines* (USFWS 2007).

Vegetation in the Study Area

The study area is located in the northern portion of the Puget Trough physiographic province of western Washington. The Puget Trough extends from the US/Canada border to the Willamette Valley between the Olympic Peninsula and the Cascade Mountain range. Puget Sound is the primary feature in the northern portion, and the Cowlitz River valley and part of the Chehalis River basin occupy the southern portion of the trough. The northern portion of the Puget Trough is a glaciated depression formed primarily by the extension of Cordilleran and continental glaciers during the Pleistocene Era. The trough is flat with moderate relief and is dominated by glacial deposits.

Most of the study area is developed. The developed areas include commercial and residential properties, military bases (JBLM and Camp Murray), and roads. Thus, most of the study area has little to no vegetation, and provides little habitat for wildlife. Vegetation generally occurs at or near the edge of the railroad right-of-way.

Vegetation types located in the study area include maintained vegetation, disturbed mixed forest, scattered trees, and wetland vegetation. Vegetation was identified and mapped based on aerial photo interpretation, supplemented with reconnaissance-level surveys within the railroad right-of-way. Each vegetation type is described below.

Maintained Vegetation

Maintained vegetation consists of vegetation managed (mowed, trimmed or treated with herbicide) along roadways and railroads for safety purposes (Photo 9). Maintained vegetation is the dominant vegetation type in the study area and is most dense past the toe of the railroad embankment. Dominant species include Scotch broom (*Cytisus scoparius*) (a noxious weed in Pierce County), Himalayan blackberry (*Rubus armeniancus*), and mixed grasses.

Disturbed Mixed Forests

Disturbed mixed forests are tree stands that have been altered by development, including thinning, trimming, and/or fragmentation. Such disturbed forests are scattered throughout the study area. In the northern portion of the study area, dominant trees are Douglas fir (*Pseudotsuga menziesii*), Pacific madrone (*Arbutus menziesii*), Lombardi poplar (*Populus nigra*) and Oregon white oak (*Quercus garryiana*). Scotch broom and Himalayan blackberry comprise the understory in some forested areas.

Tree composition changes toward the southern end of the study area (Photo 10) where dominant trees include Douglas fir, red alder (*Alnus rubra*), and big-leaf maple (*Acer macrophyllum*), with an understory of salmonberry (*Rubus spectabilis*), red elderberry (*Sambucus racemosa*), snowberry (*Symphoricarpos albus*), and sword fern (*Polystichum munitum*).

Photo 9. Maintained vegetation and scattered trees within the right-of-way near Clover Creek (2011)

Photo 10. Disturbed mixed forest in the right-of-way near Nisqually Road (2007)

Scattered Trees

Scattered trees consist of small stands of trees comprised of a single species (Photo 9). Common species include Douglas fir, Pacific madrone, and Oregon white oak.

Wetland Vegetation

Four wetlands were identified in the study area (see Exhibit 6), collectively supporting a variety of trees, shrubs, and emergent plants. No effects are expected to occur in these wetlands or their buffers because they lie outside the Project footprint. Refer to the *Wetlands Discipline Report* for more details.

Exhibit 6. Wetlands in the Study Area

Wetland ID	Cowardin Classification[1] and HGM Class[2]	Estimated Size (Acres)[3]	Rating	Dominant Vegetation
A	Palustrine Scrub-shrub, Depressional	0.27	III	Pacific willow, Himalayan blackberry, purple loosestrife, softstem bulrush, common cattail, and reed canarygrass
E	Palustrine Emergent, Riverine	0.3	III	common cattail, reed canarygrass
C	Palustrine Forested, Slope	1.7	IV	red alder, Himalayan blackberry, and scouring rush
AB	Palustrine Forested, Slope	1.2	III	red alder, salmonberry, and youth-on-age

[1] *Cowardin et al. (1979).*
[2] *Hydrogeomorphic (HGM) Class (Brinson 1993).*
[3] *Wetland sizes are based on GIS estimates.*

ESA-Listed Plants

Nine plant species are listed by the USFWS and WDNR for Pierce County (see Exhibit 7). Based on vegetation communities and habitats observed during site visits, it is unlikely that any listed plant occurs in the study area.

Exhibit 7. Federal and State-Listed Plants in Pierce County

Common Name	Scientific Name	Regulatory Status
clustered lady's slipper	*Cypripedium fasiculatum*	FSC/SS
golden paintbrush	*Castilleja levisecta*	FT/SE
marsh sandwort	*Arenaria paludicola*	FE/X
obscure paintbrush	*Castilleja cryptantha*	FSC/SS
tall bugbane	*Cimicifuga elata*	FSC/SS
Torrey's peavine	*Lathyrus torreyi*	FSC/ST
triangular-lobed moonwort	*Botrychium ascendens*	FSC/SS
water howellia	*Howellia aquatilis*	FT/ST
white-top aster	*Aster curtus*	FSC/SS

(FE) Federal Endangered; (FT) Federal Threatened; (FSC) Federal Species of Concern; (SE) State Endangered; (ST) State Threatened; (SS) State Sensitive; (X) possibly extinct or extirpated from Washington

Chapter 4 – Potential Project Effects

This section summarizes the effects incurred by construction of the Build Alternative (the Project) or the No Build Alternative, based on review of the Project design in the context of existing baseline disturbance, available background information, and field data.

Would fish, wildlife, or vegetation resources be impacted or affected?

No Build Alternative

No direct, indirect, or cumulative effects to fish, wildlife, or vegetation would result. Amtrak service would continue to operate on the Puget Sound route within a landscape disturbed by development and urban activity. No additional construction or maintenance activities would result from the No Build Alternative.

Build Alternative

Direct Effects

Direct effects resulting from the Build Alternative include permanent vegetation clearing within the railroad right-of-way and elevated construction noise and visual disturbance.

Approximately 24 acres of maintained vegetation, 2.5 acres of disturbed mixed forest, and one acre of scattered trees would be cleared within the railroad right-of-way. However, existing vegetation is fragmented, disturbed by rail operations and vegetation management, and does not provide habitat suitable for ESA-listed species.

During construction, visual disturbance and elevated noise are expected to be marginally higher than baseline levels along the project corridor. As such, the Project could disturb terrestrial wildlife that may be present within the right-of-way, but, in the context of urban development, vehicular traffic on I-5 and local roads, and pedestrian activity, the effects of the Build Alternative on fish, wildlife, and vegetation, including ESA-listed species, is expected to be discountable.

Indirect Effects

The Project is located within an existing rail corridor and urbanized area. The only potential indirect effect tied to the Project is that it may indirectly influence redevelopment near the relocated Amtrak Station at Freighthouse Square (see Land Use Discipline Report[12]). Such redevelopment would be consistent with local zoning and approved by state and local agencies and would take place in previously disturbed areas where fish, wildlife, and vegetation are not present. Thus, no indirect effects to these resources are expected.

Cumulative Effects

The Project would have no direct or indirect effect on fish or wildlife. The Project would have a minor, short-term construction effect on the vegetation along the rail right of way which will not lead to long-term impacts. FRA and WSDOT considered the Project's minimization measures for effects to vegetation in combination with other current and future projects that provide habitat improvements such as the Nisqually National Wildlife Refuge, environmental projects on JBLM, and local agencies' critical area ordinances. FRA and WSDOT found that the Project's vegetation measures are adequate to ensure no contribution to an adverse cumulative effect.

[12] *WSDOT 2012*

Chapter 5 – Recommended Minimization Measures

As noted previously, no significant effects to fish, wildlife, or vegetative resources are anticipated. This chapter provides Best Management Practices (BMPs) that could be applied during construction to minimize the Project's effects.

What minimization is required for the No Build Alternative?

No minimization is proposed under the No Build Alternative since there would be no effects to fish, wildlife, or vegetative resources.

What minimization is required for the Build Alternative?

The following BMPs for the Build Alternative focus on minimization of potential construction effects:

- Construction effects will be confined to the minimum area necessary to complete the Project and clearing limits will be clearly marked by staking done by the contractor's surveyor. Areas of landscape or vegetative preservation will be protected with construction fencing.
- Removal of native vegetation will be minimized to the greatest extent possible.
- A Temporary Sediment and Erosion Control (TESC) Plan and Stormwater Site Plan will be developed and implemented for all projects requiring clearing, vegetation removal, grading, ditching, filling, embankment compaction or excavation. The BMPs in the plans will be used to control sediments from all vegetation or ground disturbing activities.
- BMPs will be implemented for construction activities that occur within 200 feet of surface water or wetland habitat as identified by the Project biologist, to ensure that no foreign material, such as railroad ballast or other material is sidecast, and to control and prevent sediments from entering aquatic systems.
- No contractor staging areas will be allowed within 300 feet of any jurisdictional wetland, stream, river, or drainage, as identified by the Project biologist, unless site-specific review completed by the Project biologist indicates that no effects to the sensitive resource areas will occur due to topography or other factors.

- Application of chemicals such as fertilizers and pesticides will be conducted in a manner and at application rates that will not result in loss of chemicals to stormwater runoff.
- Highly turbid or contaminated dewatering water will be handled separately from stormwater and not allowed to enter local drainage systems.

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