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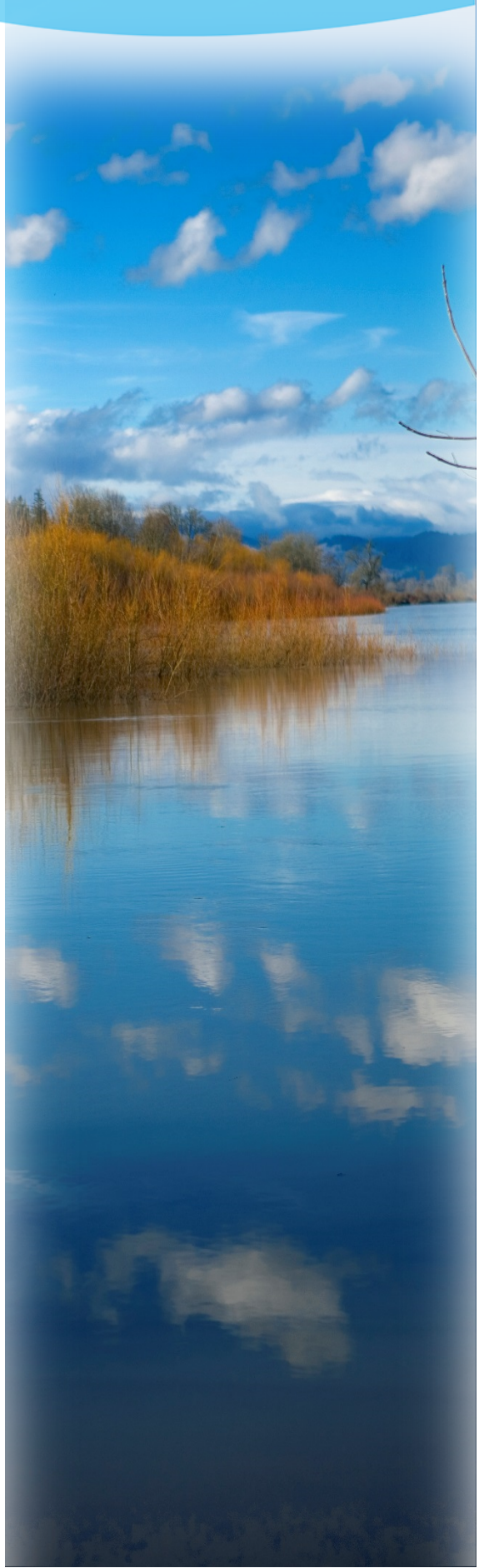

Willamette Water Supply Program

Wildlife Protection and Adaptive Management Plan for Orenco Woods Nature Park

February 26, 2021

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List of Abbreviations and Acronyms

APHIS	U.S. Department of Agriculture, Animal and Plant Health Inspection Services
Contractor	construction contractor
DEA	David Evans and Associates, Inc.
HDD	horizontal directional drilling
Hillsboro	City of Hillsboro
JWC	Joint Water Commission
ODFW	Oregon Department of Fish and Wildlife
OWNP	Orenco Woods Nature Park
Plan	Wildlife Protection and Adaptive Management Plan for Orenco Woods Nature Park
PLW_2.0	Cornelius Pass Road Pipeline Project
TVWD	Tualatin Valley Water District
USFWS	U.S. Fish and Wildlife Service
WWSP	Willamette Water Supply Program
WWSS	Willamette Water Supply System

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1 Introduction

The Willamette Water Supply System (WWSS) Commission is an Oregon intergovernmental entity formed by Tualatin Valley Water District (TVWD), the City of Hillsboro (Hillsboro), and the City of Beaverton. The WWSS Commission was formed to build the WWSS in response to planned growth in the service areas for the three jurisdictions. The WWSS will provide an additional, resilient water supply for Washington County. When complete, the WWSS will be one of Oregon's most seismically-resilient water systems – built to better withstand natural disasters, protect public health, and speed regional economic recovery through restoring critical services more quickly. TVWD has been designated the Managing Agency for the WWSS Commission, and TVWD operates the Willamette Water Supply Program (WWSP) to plan, design, and construct the WWSS.

The WWSS includes 3.3 miles of 48-inch pipeline generally following NE Cornelius Pass Road from SE Frances Street in the south to Highway 26 in the north. This portion of the pipeline is called the Cornelius Pass Pipeline Project, or PLW_2.0. Approximately 900 feet of PLW_2.0 will be located beneath Orenco Woods Nature Park (OWNP), a nature park located in Hillsboro, Oregon, and co-owned by Hillsboro and Metro, as shown in Figure 1.

This Wildlife Protection and Adaptive Management Plan for Orenco Woods Nature Park (Plan) describes the WWSP's commitments to further prioritize the protection of wildlife and wildlife habitat within OWNP during pipeline construction and post-construction restoration. This Plan was developed in response to concerns expressed by Hillsboro and citizen stakeholders about the potential for active construction in OWNP to impact wildlife. This Plan is built in part from commitments the WWSP has already made related to environmental resources, but it also documents new commitments tailored to the concerns to OWNP and lays out the processes for adaptively managing these commitments during construction to better achieve specific objectives related to wildlife protection in the park.

While this Plan focuses on OWNP, WWSP acknowledges that OWNP, and Rock Creek within OWNP, are part of a larger network of habitat within an urban context. Therefore, the measures and commitments described throughout this Plan include consideration of and will apply to other key habitat areas where PLW_2.0 will be constructed outside of the roadway, including approximately 475 feet beneath private property at Beaverton Creek, located south of OWNP, approximately 1,750 feet beneath a former railroad corridor north of OWNP, and a temporary construction staging area in the area just north of the park. These areas are shown in Figure 2 and Figure 3, respectively.

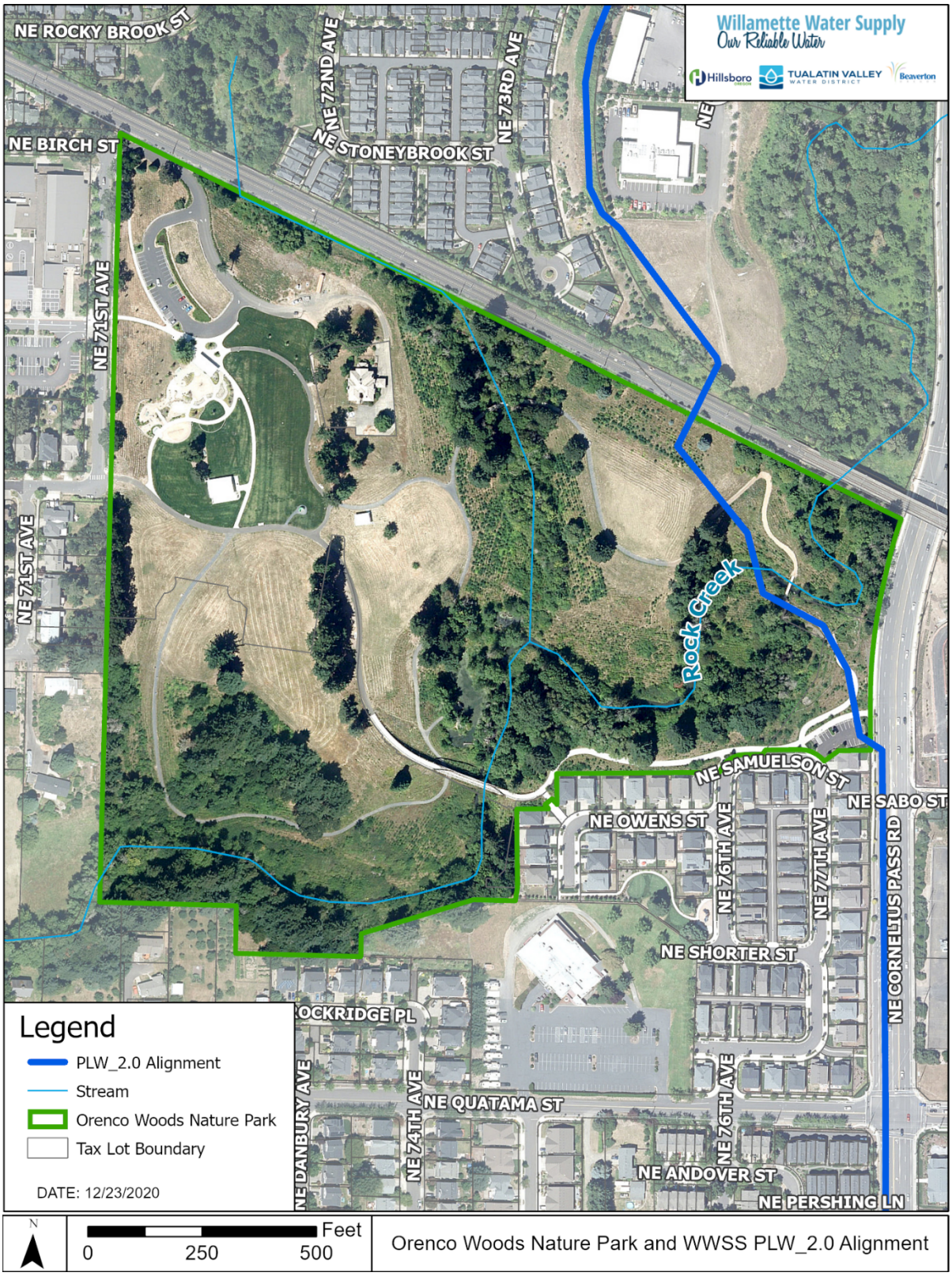

Figure 1 – Orenco Woods Nature Park Map Showing Alignment of the Future PLW_2.0 Pipeline

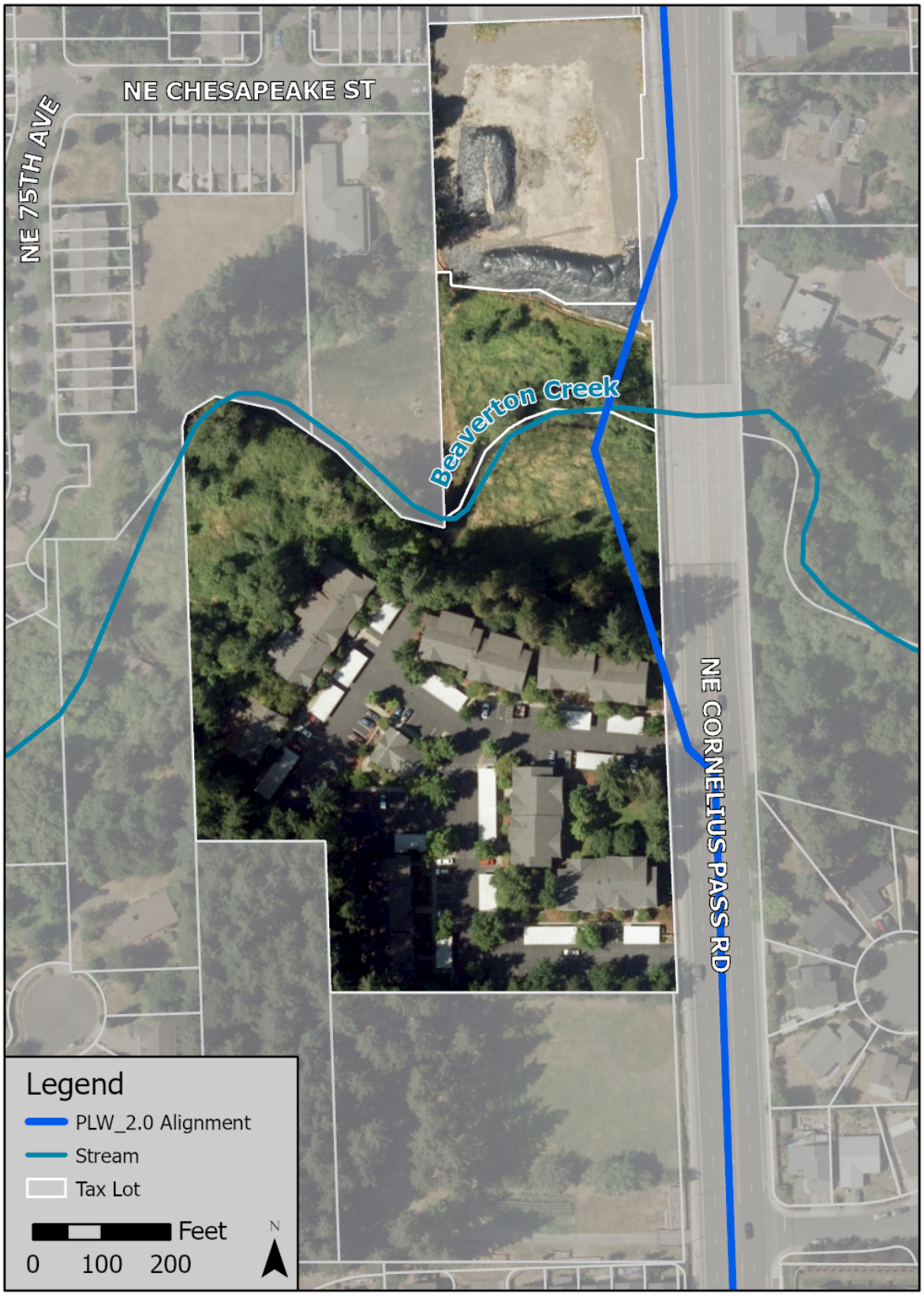

Figure 2 - Alignment of Future PLW_2.0 Pipeline at Beaverton Creek

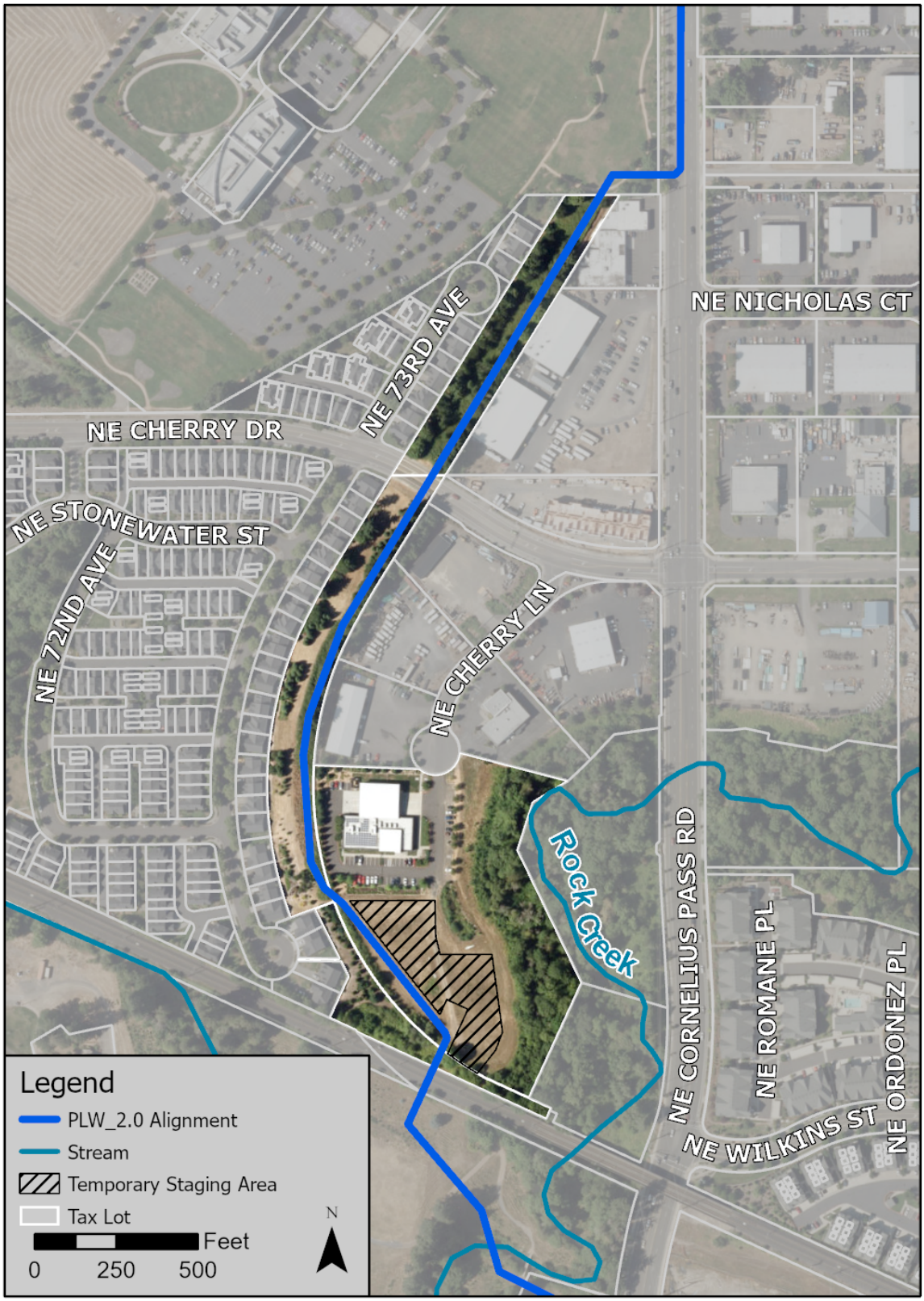

Figure 3 - Temporary Staging Area and Alignment of Future PLW_2.0 Pipeline North of Orenco Woods Nature Park

This Plan complements and is consistent with the goals and values of the WWSS Commission and its member agencies[1]; broadly, these goals and values include environmental stewardship and a commitment to avoiding impacts to natural wildlife and wildlife habitats. Where impacts cannot be avoided, the WWSP endeavors to minimize and mitigate impacts. In addition to avoiding, minimizing, and mitigating impacts associated with constructing and operating the WWSS, the WWSP has committed to supporting two voluntary habitat restoration projects intended to: (1) demonstrate the WWSS Commission's commitment to environmental stewardship within the watersheds and communities in which it operates, and (2) promote lasting partnerships with area stakeholders[2].

In further support of the goals and values of the WWSS Commission and member agencies, WWSP has contracted with national experts – David Evans and Associates, Inc. (DEA) – to provide environmental consulting services across the WWSP. DEA has been the environmental consultant for the WWSS since the inception of the WWSP, working closely with WWSP staff and local, state and federal agencies to develop strategies for avoiding and minimizing impacts to natural resources, and to design and implement restoration, mitigation, and other management strategies where impacts cannot be avoided. DEA is a recognized leader for environmental protection and management solutions nationwide, and has extensive local experience working with agencies in Washington County and the Portland Metro area on permitting, restoration, wildlife monitoring and management, and public use projects.

Impacts to resource require approvals from various agencies, some of which WWSP has already received. Agencies and the resources over which they have regulatory authority include U.S. Army Corps of Engineers (wetlands and waterways), U.S. Fish and Wildlife Service (USFWS) (non-anadromous fish and wildlife and their habitats), National Marine Fisheries Service (anadromous fish species and their habitat), Oregon Department of Environmental Quality (water quality), Oregon Department of State Lands (wetlands and waterways), Oregon Department of Fish and Wildlife (ODFW) (native fish and wildlife and their habitats), Clean Water Services (vegetated corridors), and Hillsboro (Significant Natural Resource Overlay and Regulatory Floodplain Overlay zones). As property owners, Hillsboro and Metro have additional authority over work within OWNP. WWSP has incorporated the comments, suggestions, and requirements of these agencies into the design drawings and construction specifications for PLW_2.0; many of these are reflected in Section 2. While many measures to protect wildlife were previously identified and incorporated into the WWSP design and construction

[1] While not a complete list of relevant documentation of the goals and values of the WWSS Commission and member agencies, salient examples include the *Willamette Water Supply Program Preliminary Design: Environmental, Land Use and Cultural Resources Review* (DEA 2016); *WWSP Program Management Plan* (a living document first prepared by WWSP in 2016); and materials available online such as the *Willamette Water Supply Fact Sheet* (WWSP 2019a).

[2] More information about the WWSP's habitat restoration projects is available online at http://www.ourreliablewater.org/wordpress/wp-content/uploads/2019/12/Willamette-Supply_Fact-Sheet-Habitat-Restoration-12-17-19.pdf (WWSP 2019b).

considerations, stakeholder concern for the species and habitats in the area has driven changes in the construction considerations for the key habitat areas as described in Section 2 and the development of this Plan.

This introductory section provides important contextual information about the WWSP, OWNP, and other key habitat areas where PLW_2.0 will be constructed outside of the roadway. Section 2 documents a series of objectives, measures, and plans for protecting wildlife and wildlife habitat during construction, as well as a plan for monitoring and adaptively managing protections during construction to respond to changing conditions or unforeseen challenges. Section 3 summarizes related commitments for restoration, monitoring, and management after construction. Section 4 documents the subject matter experts and environmental protection advocates who contributed to the preparation of this document, either directly or through their reviews, and Section 5 provides a list of the references cited throughout the document.

1.1 Willamette Water Supply System Context

Hillsboro currently has only one water source and obtains all of its water supply from the Joint Water Commission (JWC), which is composed of TVWD and the cities of Hillsboro, Forest Grove, and Beaverton. The JWC manages many of the surface water rights held by its member agencies to create a shared source of supply Through the JWC, Hillsboro expects to be able to meet water supply demands until 2026. TVWD currently obtains its water from two primary sources: through a wholesale water supply lease agreement with the City of Portland and from the JWC's shared water supply. For many years, Hillsboro and TVWD were seeking an additional, resilient, long-term water supply to meet their future water supply needs.

In 2013, after independent evaluations of potential water supply alternatives, TVWD and Hillsboro formed the WWSP to develop a Willamette River water supply source. The City of Beaverton joined later, in 2019, and the WWSS Commission was formed the same year to represent all three entities. The raw water intake for the WWSS is located at the Willamette River Water Treatment Plant in Wilsonville, as shown in Figure 4. From there, raw water will be pumped to the WWSS Water Treatment Plant, a new state-of-the-art water filtration plant in Sherwood where multiple treatment processes will produce high quality drinking water. Drinking water will be pumped to reservoir facilities on Cooper Mountain, then will be gravity-fed to additional storage and customers in the TVWD, Hillsboro, and Beaverton service areas. The new system will be completed by 2026.

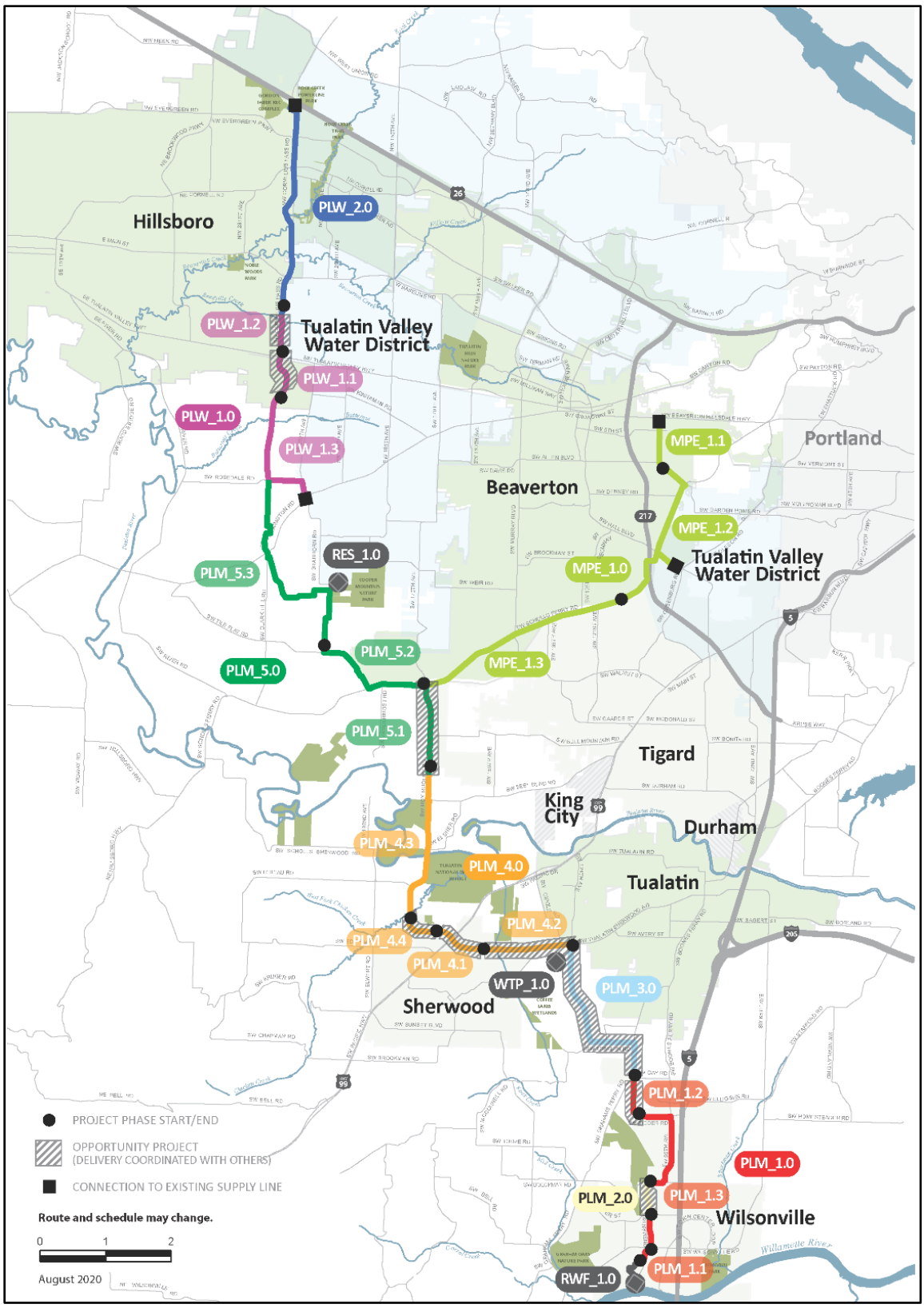

Figure 4 – Willamette Water Supply System Map

Preliminary design for the WWSS included an extensive evaluation of potential pipeline routes to deliver water from the Willamette River to the project participants (at that time, Hillsboro and TVWD; the City of Beaverton joined later in 2019). Through surveys, desktop research, field verification, and coordination with relevant federal and state agencies and local organizations, including USFWS, National Marine Fisheries Service, ODFW, Clean Water Services, Tualatin RiverKeepers, WWSP was able to document existing environmental conditions along potential pipeline routes and consider these conditions throughout the route selection and design process. This process included categorization of general habitat types and identification of plant and animal species of concern found in or near the proposed pipeline routes, as shown in Table 1. Many of the general habitat types and plant and animal species overlap those identified in OWNP planning documents as summarized in Section 1.2. As design progressed, WWSP collected additional information on resources specifically within OWNP; this information is also summarized in Section 1.2.

Table 1 – General Habitat Types and Species of Concern Considered During Willamette Water Supply Program Planning Process

General Habitat Types	Terrestrial Species of Concern	Aquatic Species of Concern
• Agriculture, Pasture, and Mixed Environs • Waterways • Shrub Habitats • Wetland and Riparian Habitats • Willamette Oak • Forested Habitats • Urban and Mixed Environs	Wildlife: • Northern red-legged frog • Painted turtle • Western pond turtle • Bald eagle • Streaked horned lark • Fender's blue butterfly • Oregon giant earthworm • Townsend's big-eared bat Plants and fungi: • Nelson's checker-mallow • Kincaid's lupine • Thin-leaved peavine • Water howellia • White rock larkspur • Willamette daisy • Amanita (novinupta) mushroom	• Chinook salmon • Steelhead • California floater • Olympia pebblesnail • Western ridged mussel • Pacific lamprey

Note: Coho salmon were also identified within the region, including at Rock Creek, but not known to be a species native to the Willamette River basin but are instead an artifact of hatchery releases.
Source: DEA 2016.

The pipeline route was chosen after extensive review of alternatives and consideration of environmental impacts, public health and safety, and feasibility, among other criteria. Within OWNP, key considerations for the PLW_2.0 pipeline alignment included avoiding or minimizing impacts to Rock Creek, wetlands, and trees; achieving seismic resiliency; and limiting constructability challenges associated with the sloping topography and the TriMet light rail tracks which border the northern edge of the park. Evaluations of these considerations and discussions with Metro and the City of Hillsboro Parks staff ultimately led to the selection of the proposed alignment, which avoids impacts to large, mature trees (those with a diameter at

breast height of 8 inches or more), minimizes impacts to wetlands, and avoids conflicts with the footings of the TriMet light rail bridge. This Plan further minimizes the potential for impacts to wildlife in OWNP.

PLW_2.0 pipeline construction will primarily use open-trench construction. In open-trench construction, a trench approximately 8 feet to 12 feet wide (and of variable depth) is opened, the pipe is installed in sections, the trench is backfilled, and the surface restored. The trench work area width varies according to numerous factors, and must include room not only for the trench but for equipment, machinery and personnel.

In OWNP, the work area width ranges from approximately 50 feet at the Rock Creek crossing[1] to approximately 150 feet north of the creek to accommodate the trenchless crossing shaft and associated equipment. Crossing the TriMet light rail tracks at the northern edge of OWNP will require a trenchless pipeline crossing. The trenchless crossing consists of a tunnel between two shafts; one shaft be located on the south side of the tracks in OWNP and another on the north side of the tracks. The total work area in OWNP is approximately 2.3 acres.

At Beaverton Creek, construction will include open-trench installation across Beaverton Creek, and two trenchless installations to install the pipeline from the roadway to the floodplain on each side of the creek. The work area ranges from approximately 60 feet at the Beaverton Creek crossing[1] to approximately 100 feet on the south side of the creek to accommodate a shaft and equipment for the trenchless sections.

The work area in the former railroad corridor north of OWNP is approximately 75 feet wide for the length of the corridor. The temporary staging area is approximately 1.7 acres. The staging area will include the following temporary features: a chain link security fence around the staging area, materials and soil storage areas, employee and equipment parking, construction trailers (one for temporary work offices and one for equipment and portable restrooms), temporary electricity, and exterior lighting for security. These features will be removed following construction. Construction access will be through the southeast corner of the fire station site parking area at the end of NE Cherry Lane.

After the pipeline is installed, disturbed areas will be regraded to mimic preconstruction contours and revegetated, as described in Section 3. As previously mentioned, resource impacts require approvals from various agencies with jurisdiction over environmental resources. As property owners, Hillsboro and Metro have additional authority over work within OWNP. WWSP has incorporated the comments, suggestions, and requirements of these agencies into the design drawings and construction specifications for PLW_2.0; many of these are reflected in Section 2.

[1] Open-trench construction through Rock Creek and Beaverton Creek will be conducted during the ODFW-recommended in-water work window (July 15 to September 30) when water flows are low and impacts to coho and steelhead can be minimized.

1.2 Orenco Woods Nature Park Context

OWNP is a 42-acre nature park located at 7100 NE Birch Street in Hillsboro, Oregon. It was designed and constructed to provide recreational opportunities for the public and natural resource conservation. The wildlife and habitats in OWNP have been studied and documented as part of park planning and management. OWNP wildlife and habitats are similar to those found at Beaverton Creek, and at the staging area and former railroad corridor to the north. Therefore, this section focuses on OWNP as context for understanding other areas to which this Plan applies.

Photograph 1 – Rock Creek in Orenco Woods Nature Park Looking Southeast Toward Cornelius Pass Road - September 1, 2020

OWNP is jointly owned by Hillsboro and Metro and is managed by the Hillsboro Parks and Recreation Department. Formerly a golf course, Hillsboro and Metro purchased the property in 2011, approved a Master Plan (Hillsboro Parks and Recreation and Metro) and Site Conservation Plan (Metro) in 2013, and then initiated restoration and development.

The *Orenco Woods Nature Park Site Conservation Plan* (Metro 2013) identifies four conservation targets, which "represent the most regionally rare and threatened major habitat types present at the site." The conservation targets, or habitats, include riparian forest, oak savanna, upland forest, and native fish habitat. While the *Orenco Woods Nature Park Site Conservation Plan* does not specify which species are known to use these habitats in OWNP specifically, it does identify the plants and animals typically associated with these habitat types in Oregon. According to the plan, the extent (in 2013), attributes, and key species of each habitat are as follows:

- **Native Fish Habitat** – Approximately 3,000 linear feet of Rock Creek. Key fish species: steelhead, Pacific lamprey and brook, cutthroat, and rainbow trout.
- **Riparian Forest Habitat** – Approximately 14 acres, fragmented by past land uses. Key plants may include various forbs, sedges, rushes, shrubs, and trees. Key wildlife species include mammals such as black-tailed deer, coyote, and fox, and various birds (including focal species such as yellow warbler, Swainson's thrush, and downy woodpecker, and less likely, willow flycatcher and red-eyed vireo). Key wildlife species may also include

Pacific tree frog, northern red-legged frog, western pond turtle, western painted turtle, various salamanders, and common garter snake.

- **Oak Savanna Habitat** – Although no oak savanna was present in the park at the time the conservation plan was written in 2013, the plan notes that this habitat type was likely present historically and identifies restoration of oak savanna as a priority; the subsequently published *Orenco Woods Savannah Restoration Plan* (Institute for Applied Ecology 2015) details the effort to restore oak savanna habitat in approximately 12 acres within the park. Key plants in this habitat type may include various forbs, grasses, shrubs, and (in wet areas) sedges, rushes, and wapato. Key wildlife species may include various birds (including focal species such as western meadowlark, streaked horned lark, common nighthawk, American kestrel, northern harrier, white-breasted nuthatch, acorn and downy woodpecker, western wood-peewee, bushtit, chipping sparrow, Bewick's wren, and house wren), Pacific tree and red-legged frogs, garter snake, rubber boa, butterflies, black-tailed deer, coyote, fox and various native rodents.
- **Upland Forest Habitat** – Approximately 12 acres. Key plants may include various forbs, shrubs, and trees. Key wildlife species may include migrating and nesting birds (including focal species such as Vaux's swift, brown creeper, red crossbill, pileated woodpecker, varied thrush, hermit warbler, Pacific-slope flycatcher, Hammond's flycatcher, winter wren, black-throated gray warbler, Hutton's vireo, olive-sided flycatcher, western bluebird, orange-crowned warbler and rufous hummingbird). Other wildlife may include Douglas' squirrel, common garter snake, rubber boa, elk, black-tailed deer, mountain lion, bobcat, coyote, fox, weasel and a variety of small mammals, salamanders, frogs, and turtles.

Today, the park has been developed with walking trails, bridges, and other recreational amenities; and habitat restoration efforts have improved habitat conditions along Rock Creek, which runs through the park. Trails in OWNP connect with other trails comprising the Rock Creek Regional Trail, and habitat conditions in the park have generally improved from what was documented in early planning documents. WWSP has collected more recent information on wildlife and wildlife habitats in OWNP as the pipeline design has progressed: consultants to WWSP delineated Rock Creek and the wetlands within the proposed pipeline alignment, determined the extents and conditions of vegetated corridors, and documented the presence of habitats for species of concern (DEA 2017a, DEA 2018, DEA 2020). Ongoing communications with Hillsboro and Metro staff and other stakeholders further informed WWSP's understanding of species and habitats in OWNP (Trunk 2020, Christensen 2020). The wildlife most frequently noted as being present and of concern to stakeholders include:

- Deer
- Coyote
- Fox
- Western gray squirrel

- Rabbits
- Birds
- Amphibians, including northern red-legged frogs, Pacific treefrogs, long toed salamander, and rough skinned newt
- Reptiles, including painted turtles
- Fish, including coho, steelhead, and Pacific lamprey
- Freshwater mussels

While there is some overlap between the wildlife species of concern to stakeholders, listed above, and the wildlife species identified by WWSP during the planning process (see Section 1.1), there are notable differences, particularly in the identification of mammals (deer, coyote, fox, Western gray squirrel) included in the stakeholder list. While many measures to protect the species identified early in WWSP's planning process have been incorporated into the WWSP design and construction considerations, the concern for these additional species has driven changes in the construction considerations (as described in Section 2) and the development of this Plan. While the list of wildlife species above is not an exhaustive list of all wildlife that may be present in OWNP and nearby areas, it is anticipated that providing protections for these species will provide benefit to other native wildlife species utilizing the areas.

Photograph 2 – Meadow in Orenco Woods Nature Park Looking Northwest Toward TriMet Tracks – September 1, 2020

2 Wildlife and Habitat Protections in Orenco Woods Nature Park

This section documents a series of objectives for protecting wildlife and wildlife habitat while constructing PLW_2.0. For each objective, a specific measure is identified. Each measure is accompanied by a plan for implementation, which consists of actionable items to enact the measure and achieve the objective.

Because conditions change and unforeseen challenges can arise during construction, this document also includes a plan for monitoring conditions and adapting activities during construction to achieve the objectives and protect wildlife and habitat.

In addition to providing environmental consulting services across the WWSP, DEA's contract to the WWSP includes services to implement the adaptive management process described in Section 2.2 and support achieving the objectives described in this section. Under this contract, DEA provides an Environmental Compliance Lead (a biologist or ecologist) with primary responsibility for monitoring compliance with the WWSP's goals and commitments related to environmental resources and with regulatory requirements during construction. The Environmental Compliance Lead is supported by a broader team of specialists including wildlife and fisheries biologists, archaeologists, arborists, hydrologists, hydrogeologists, and others, also through the DEA contract. The DEA contract is separate from the design, construction, and program management contracts to provide independent services directly to the WWSP.

2.1 Objectives, Measures, and Plans for Implementation

The following objectives, measures, and implementation plans were developed in coordination with Hillsboro Parks Department staff, Metro staff, and DEA. The content also reflects input from ODFW, Portland Audubon, and Urban Greenspaces Institute (see Section 4). The objectives and their associated measures apply to all phases of construction – pre-construction, active construction, and post-construction, as shown in Figure 5.

WWSP construction contractors (Contractors) construct WWSS infrastructure within the bounds of several contract documents, including but not limited to:

- Contract and general contract conditions
- Drawings and specifications
- Invitation to bid documents and all addenda
- Contractor's qualifications, bid, and other documentation submitted for consideration in the contract award process
- Federal, state, and local permits for WWSS broadly and PLW_2.0 specifically
- Bond sureties, insurance certificates, American Iron & Steel provision certification form, applicable federal, state, and local laws, and limited and full notices to proceed

- Documents issued after the effective date of the contract, such as change orders, work change directives and other documents amending, modifying, or supplementing the contract documents pursuant to the general conditions

The drawings and specifications are the main documents governing the specific work and generally hold precedence over the other documents in the event of any inconsistencies or conflicts. Many of the measures described below are to be implemented through the drawings and specifications; in particular, Specification Section 01 57 00 Environmental Controls.

The measures and implementation plans described below represent a starting point to be adapted, as necessary, during construction to achieve the stated objectives and provide wildlife and habitat protection (see Section 2.2). These measures and implementation plans may also be tailored to ensure WWSP is meeting specific permitting requirements.

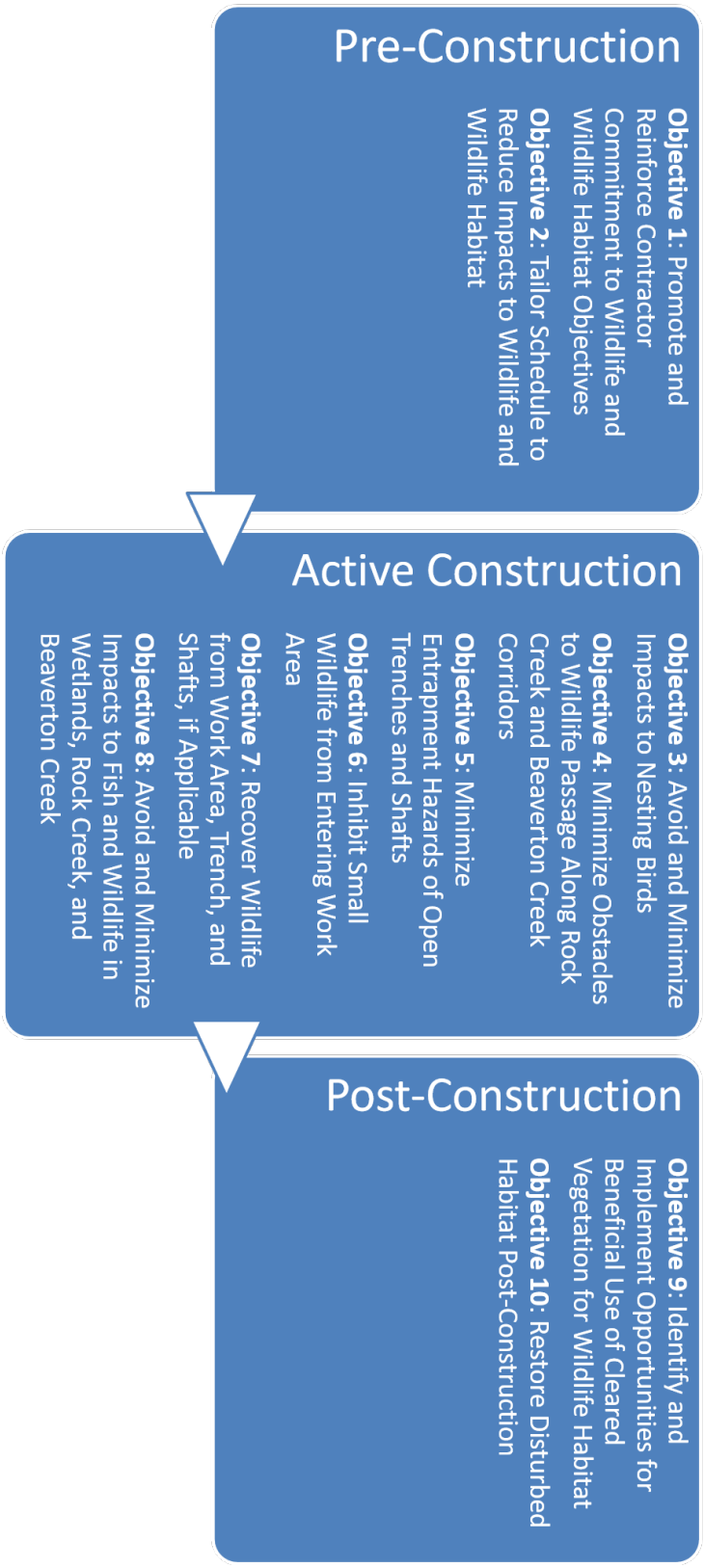

Figure 5 – Objectives for Wildlife and Habitat Protection by Construction Phase

Objective 1: Promote and Reinforce Contractor Commitment to Wildlife and Wildlife Habitat Objectives

- **Measure 1**: Leverage Contractor engagement in achievement of wildlife-related objectives.
    - **Plan for implementation**:
        - WWSP to include this Plan in the Contractor bid documents and require adherence to it.
        - WWSP to emphasize wildlife protection-related objectives in the Request for Proposal for procurement of a construction contractor, request that Request for Proposal respondents include their approach to meeting those objectives in their technical proposals, and consider the relative efficacy of each respondent's proposal during the contractor selection process.
        - WWSP, DEA Environmental Compliance Lead, and the selected Contractor to review wildlife protection-related objectives shortly after a contract is executed to clarify those objectives, reinforce WWSP's commitment to those objectives, highlight corresponding contractual requirements, and explore supplemental Contractor ideas for achieving the objectives.
        - Environmental Compliance Lead to provide site-specific training to Contractor staff before construction starts in OWNP or other key habitat areas covered in this Plan (including training described in Objective 7).
- **Measure 2**: Provide the Environmental Compliance Lead with adequate authority to support wildlife and wildlife habitat protection.
    - **Plan for implementation:**
        - Enhance Specification 01 31 30 to provide the Environmental Compliance Lead with the authority to stop construction activity when an immediate threat to wildlife or wildlife habitat is perceived to exist.
        - Provide the Environmental Compliance Lead the opportunity to review and make recommendations for change to, as appropriate, the following Contractor submittals:
            - Construction Management Plan
            - Project Permitting Plan
            - Erosion and Sediment Control Plan
            - Dewatering Plan
            - Work Area Isolation Plan
            - Pollution Control Plan
            - Others as identified by the Environmental Compliance Lead, Contractor, or WWSP

Objective 2: Tailor Schedule to Reduce Impacts to Wildlife and Wildlife Habitat

- **Measure 1**: Minimize the amount of time there is active construction within OWNP and other key habitat areas covered in this Plan.
    - **Plan for implementation**:
        - WWSP anticipates issuing a Limited Notice to Proceed to the Contractor on or about August 13, 2021, at which time the Contractor will begin developing a detailed schedule for construction. During schedule development, Contractor and WWSP to meet with Hillsboro Parks and Recreation Department and Metro staff and review schedule considerations for work in OWNP in order to shorten the work window in this area as much as practicable. Include a note in design drawings indicating the requirement for this meeting.
        - Enhance Specification 01 31 30, Schedule and Construction Constraints, to require Contractor's baseline schedule to include information specific to OWNP and other key habitat areas covered in this Plan, including completing pipeline construction and site restoration activities within OWNP within not more than 12 months.
        - No active construction within OWNP or other key habitat areas covered in this Plan shall be allowed under the Limited Notice to Proceed.

Objective 3: Avoid and Minimize Impacts to Nesting Birds

- **Measure 1**: For any shrubs or trees that are to be removed as part of the construction project, perform such removal within the non-nesting season (August 1 through January 31) to avoid impacting nesting birds if possible.
    - **Plan for Implementation:**
        - Implement all items identified under Objective 2.
        - Enhance Specification 01 31 30, Schedule and Construction Constraints, to require Contractor's baseline schedule to reflect reasonable efforts to minimize vegetation removal during the nesting season (February 1 through July 31), with particular focus on the primary nesting season (April 15 through July 31) as applicable.
- **Measure 2**: Use nesting deterrence if vegetation removal must occur during the nesting season to minimize impacts.
        - Where vegetation removal must occur during the nesting season (February 1 through July 31), implement Specification Section 01 57 00 Environmental Controls, subsection 3.10(B) Migratory Birds, which includes direction for vegetation removal during the nesting season when necessary. Where applicable, the Contractor's schedule for vegetation removal shall consider specific recommendations in the City of Portland document *Avoiding Impacts on Nesting Birds: Best Management Practices for Vegetation and Construction Projects* (2016). These recommendations include specifics for removing non-native vegetation, live trees, snags, shrubs, and grassland, among others.

- Implement Specification Section 31 10 00 Site Clearing and Section 01 57 00 Environmental Controls, which require the Contractor to consider and describe how the Contractor will work with WWSP to coordinate vegetation removal. WWSP holds a Cooperative Services Agreement with U.S. Department of Agriculture, Animal and Plant Health Inspection Services (APHIS), to provide bird nesting deterrence ahead of vegetation removal when that removal must occur within the nesting season (February 1 through July 31). By deterring nesting in areas slated for vegetation removal, the risk of inadvertent harm to nesting birds is reduced.
- Enhance Specification Section 01 57 00 Environmental Controls, subsection 3.10(B) Migratory Birds to include coordination with APHIS regarding the potential need for nesting deterrence ahead of the nesting season to provide further protections for birds that may nest particularly early.
- Environmental Compliance Lead will coordinate with APHIS to survey for active nests ahead of vegetation removal January 1 through July 31 (surveying to begin a month ahead of the nesting season to account for extreme early nesters, such as owls). If active nests are located during these surveys, the Environmental Compliance Lead will work with the Project Manager and Contractor to determine whether avoidance or relocation is feasible. If scheduling, nesting deterrence, relocation, and avoidance are collectively insufficient to avoid impacting nesting birds, WWSP will rely on impact authorizations under the applicable authorities (take permit obtained from USFWS ahead of PLW_2.0 construction) only as a last resort. APHIS will survey for active nests and provide bird nest removal or other technical assistance and/or direct wildlife protection as needed during PLW_2.0 construction, consistent with the Migratory Bird Special Purpose Permit #MB40451D-0, which will be submitted to USFWS for review and approval prior to construction.

Objective 4: Minimize Obstacles to Wildlife Passage Along Rock Creek and Beaverton Creek Corridors

- **Measure 1**: Limit wildlife disturbance.
  - **Plan for Implementation:**
    - Implement measures in Objective 5, which require fencing around open trenches and shafts and limit the length of open trench to be fenced to 150 feet or less. Maintain access to habitat along the Rock Creek and Beaverton Creek riparian corridors outside of the fenced work area.
    - Designate the area around the TriMet light rail bridge over the Rock Creek riparian corridor as a “no-work” zone on relevant design drawings. The Rock Creek riparian corridor under the bridge is likely the area used most by wildlife moving into or out of OWNP along the Rock Creek

riparian corridor; keeping construction activities out of this area will minimize disturbance to wildlife passage.
    - Designate storage areas for construction equipment on relevant drawings to minimize visual disturbance to wildlife passage, to the extent practicable.
    - Enhance Specification Section 01 57 00 Environmental Controls to require the Contractor to not use nighttime lighting outside of the staging area or perform work in OWNP or other key habitat areas covered in this Plan at night.
    - Work with Hillsboro and Metro to limit or prohibit public access in OWNP in the vicinity of construction to minimize the number of potential disturbances to wildlife.

Photograph 3 - Deer in Orenco Woods Nature Park

- **Measure 2**: Prevent or deter wildlife from entering NE Cornelius Pass Road or NE Cherry Lane.
    - **Plan for Implementation**:
        - Install and maintain a 6-ft chain link fence (with top rail or similar) along the NE Cornelius Pass Road frontage from the southern edge of the Rock Creek Trailhead parking lot, north to the bridge rails on the western side of NE Cornelius Pass Road, to discourage wildlife from entering the roadway to avoid construction and redirect them toward the Rock Creek riparian corridor.
        - Install and maintain a minimum 8-ft chain link fence extending from the staging area along the length of the Cherry Lane Fire Station Driveway frontage and extending slightly east to discourage wildlife from entering the roadway from the Rock Creek riparian corridor.
        - Install and maintain a 6-ft chain link fence (with top rail or similar) along the NE Cornelius Pass Road frontage at the northern and southern bridge rails on the western side of NE Cornelius Pass Road, to discourage wildlife

from entering the roadway to avoid construction and redirect them toward the Beaverton Creek riparian corridor.

Objective 5: Minimize Entrapment Hazards of Open Trenches and Shafts

- **Measure 1**: Construct and backfill pipeline trenches in controlled sections so that no more than 150 ft of trench is open at the end of each workday.
    - **Plan for Implementation**:
        - Enhance Specification Section 01 57 00 Environmental Controls, subsection 3.10(C) Protection of Wildlife and Wildlife Habitat to include limitations on the length of open trench (150 feet or less) at the end of each workday; include references throughout specifications as appropriate (e.g., Section 31 21 33 Trenching, Backfilling and Compacting for Utilities).
- **Measure 2**: Fence open trenches and shafts when construction is not active and provide crossing areas around construction zones.
    - **Plan for implementation**:
        - At the end of each workday, open trenches and shafts will be fenced and crossings over the trench will be provided as follows: A minimum 8-ft chain link fence will be erected around open trenches and shaft when construction is not happening. The maximum length of open trench (150 feet or less) minimizes the likelihood of wildlife jumping over the fence, but if wildlife do get past the fencing and attempt to cross open trenches, additional measures will be implemented such as using taller fencing or placing plates (non-slip steel plates of a number, width, and spacing subject to approval by the Environmental Compliance Lead) across open trenches to provide crossing areas.
        - Require Contractor to meet with Environmental Compliance Lead on site during the pre-construction phase to tailor crossings to site conditions. The intent is to provide a crossing as wide as practicable in a natural path for wildlife and reduce perceived visual threats to enable crossing by prey species such as deer. Maintaining conditions similar to existing conditions to the extent possible, and avoiding construction near the TriMet light rail bridge, will further reduce disturbance to wildlife movements.
        - Enhance Specification Section 01 57 00 Environmental Controls, subsection 3.10(C) Protection of Wildlife and Wildlife Habitat to include fencing as described above; include references throughout specifications as appropriate (e.g., Section 31 21 33 Trenching, Backfilling and Compacting for Utilities).

Objective 6: Inhibit Small Wildlife from Entering Work Area

- **Measure 1**: Install silt fencing along work area limits ahead of vegetation clearing or ground-disturbing activities.
    - **Plan for implementation**:
        - Enhance Specification Section 01 57 00 Environmental Controls, subsection 3.10(C) Protection of Wildlife and Wildlife Habitat, and Section 01 56 26 Fencing and Site Security to include silt fencing along the work area limits within OWNP and other key habitat areas covered in this Plan to inhibit small wildlife from entering the work area. Silt fencing minimizes the likelihood that smaller wildlife such as amphibians or snakes will enter the work area, however if small wildlife enter the trenches or shafts, additional measures will be implemented such as providing ramps (of a number, type, and size acceptable to the Environmental Compliance Lead) for egress.
        - Silt fencing is typically included on erosion and sediment control drawing sheets; include note on drawing referencing enhanced Specification Section 01 57 00 Environmental Controls and/or specific language describing the specific need for silt fencing to run the work area limits to inhibit entry by small wildlife.
        - Enhance Specification 01 31 30, Schedule and Construction Constraints, to prohibit active construction in or adjacent to Rock Creek or Beaverton Creek during the breeding season for red-legged frogs (December 1 through March 31, Corkran and Thoms 1996), and to require Contractor's baseline schedule to reflect reasonable efforts to minimize work in or adjacent to Rock Creek or Beaverton Creek during the general peak breeding season of other amphibians known to occur within OWNP (December 1 through May 30, Corkran and Thoms 1996)(see Section 1.2).
- **Measure 2**: Reduce or avoid impacts to rabbit colonies within the work area, if they are found to be present.
    - **Plan for Implementation:**
        - Because the locations of rabbit colonies may change over time, the Environmental Compliance Lead (or designee) will survey the proposed work area prior to construction to determine presence.
        - If rabbits are present, implement humane deterrence measures (such as vegetation removal, scent, and/or sonic deterrents) ahead of construction to encourage rabbit colonies to leave the work area on their own.
        - If deterrence measures are not effective and rabbit colonies remain within the work area prior to construction, the colony will be relocated by a qualified individual using humane practices.

Objective 7: Recover Wildlife from Work Area, Trench, and Shafts, if Applicable

- **Measure 1**: Perform visual surveys of the fenced work area, open trenches, and shafts for wildlife prior to starting active construction each workday and recover any incidentally entrapped wildlife.
    - **Plan for implementation**:
        - Enhance Specification Section 01 57 00 Environmental Controls, subsection 3.10(C) Protection of Wildlife and Wildlife Habitat to include work area and trench/shaft inspection and wildlife recovery.
        - Implement wildlife recovery measures as outlined in the ODFW Wildlife Capture, Holding, Transport and Relocation Permit # CFO-2019-03, which will be approved by ODFW prior to construction.
        - Enhance Section 01 57 00 Environmental Controls, subsection 3.10(C) Protection of Wildlife and Wildlife Habitat to include training of select Contractor staff by a qualified biologist to perform visual inspection and recovery, prior to starting construction in sensitive areas. Training should include clear limits on which species of wildlife trained Contractor staff can recover, and wildlife species that require a biologist to perform recovery. Contractor will coordinate with the WWSP's biologist (see Section 2.2) to document which species are salvaged, if any. The biologist will coordinate with the Environmental Compliance Lead (if they are not the same individual).

Objective 8: Avoid and Minimize Impacts to Fish and Wildlife in Wetlands, Rock Creek, and Beaverton Creek

- **Measure 1**: Implement best management practices to protect fish and wildlife[1] in wetlands, Rock Creek, and Beaverton Creek.
    - **Plan for Implementation:**
        - Implement and enhance Specification Section 01 57 00 Environmental Controls, which includes best management practices to avoid impacts to the natural environment and incorporates conditions of the Incidental Take Statement issued for the WWSS; this includes but is not limited to:
            - Implement Subsection 3.08, which includes best management practices to prevent and control oil spills;
            - Implement Subsection 3.10(A), which includes best management practices to protect fish and fish habitat during construction;
            - Enhance Subsection 3.10(A) to include freshwater mussels and lamprey species, which are both known to occur in Rock Creek and are presumed to occur in Beaverton Creek; and
            - Implement Subsection 3.10(C), which includes best management practices to protect wildlife including salvage of wildlife in

[1] Federal and State take rules protecting fish and wildlife do not extend protections to non-native species such as starlings or nutria.

wetlands and waterways ahead of vegetation clearing or ground-disturbing activities.
        - Implement items identified under Objective 7 as applicable.
- **Measure 2**: Limit work zones in the vicinity of Rock Creek, Beaverton Creek, and associated wetlands.
    - **Plan for Implementation:**
        - Add a note to relevant design drawings to restrict the work zone to a total width of 50 feet, excluding fish passage methods, when working in Rock Creek, and a total width of 60 feet, excluding fish passage methods, when working in Beaverton Creek. Outside of Rock Creek and Beaverton Creek but within 75 feet of the top of the stream banks, add a note to relevant design drawings to designate a construction corridor (no more than 50 feet wide at Rock Creek, and no more than 60 feet wide at Beaverton Creek). For the work area beyond the construction corridor, minimize riparian vegetation removal and heavy equipment operation to avoid soil compaction. Require the Contractor to designate the full extent of the work zone within the temporary construction easement prior to start of work within this area, subject to review and approval by the Environmental Compliance Lead.
        - Implement all items identified under Objective 6.

Objective 9: Identify and Implement Opportunities for Beneficial Use of Cleared Vegetation for Wildlife Habitat

- **Measure 1**: Coordinate with public agencies or non-profit groups to identify and implement opportunities to re-use removed vegetation on other habitat improvement/restoration projects.
    - **Plan for Implementation:**
        - In coordination with Hillsboro Parks and Recreation Department, develop a process for donating select vegetation removed within OWNP in support of habitat improvements on site.
        - Enhance Specification Section 31 10 00 Site Clearing to add a process for donating select vegetation removed within OWNP to Hillsboro Parks and Recreation Department in support of habitat improvements on site. The process will clarify timing, responsibilities, and other details for vegetation removal, and will be prepared in response to vegetation needs identified by Hillsboro and Metro staff.

Objective 10: Restore Disturbed Habitat Post-Construction

- **Measure 1**: Regrade and replant Rock Creek, Beaverton Creek, wetlands, and upland habitat post-construction, and monitor and maintain plantings.
    - **Plan for Implementation**:
        - Coordinate with Hillsboro and Metro staff in designing OWNP site restoration, subject to the terms of an Intergovernmental Agreement between WWSS, Hillsboro, and Metro.

- Restore Rock Creek and Beaverton Creek aquatic habitat to meet permit conditions, including reshaping floodplains and streambanks to match upstream and downstream conditions and utilizing bio-engineered stabilization techniques such as live woody plantings and live stakes, brush layering or brush mattresses, quickly establishing herbaceous cover, erosion control fabric, and coir lift.
- Implement Specification Sections 32 91 13 Soil Preparation, 32 92 13 Seeded Areas, and 32 93 00 Landscape Plantings, which describe the process for handling topsoil and for seeding and planting after construction and include measures to eliminate noxious weeds and invasive plant species.
- Monitor and maintain plantings after construction consistent with the terms of applicable permits, final design, and the *Conceptual Post-Construction Site Restoration Plan* (DEA 2017b) (see also Section 3).

2.2 Plan for Monitoring Construction and Adaptively Managing Measures for Wildlife and Habitat Protection

Despite incorporating measures to protect wildlife and wildlife habitat during construction into the project design and construction documents, WWSP recognizes that environmental conditions change and unforeseen challenges can arise during construction. It may therefore be necessary to adapt activities during construction to achieve the objectives stated above in order to better protect wildlife and wildlife habitat. This section describes the plan for monitoring construction activities and the protocol for adapting measures as needed to better protect wildlife and wildlife habitat.

The general process of monitoring and adaptively managing wildlife protection during construction includes the following steps:

- **Charactize Existing Conditions –** Identify areas where wildlife could be at higher risk of disruption or harm stemming from construction activity
- **Plan For Monitoring –** Catalogue procedures to monitor and document environmental conditions during construction, including identified deficiencies
- **Plan for Adapting** – Establish a protocol for identifying and implementing corrective or proactive actions where deficiencies are identified
- **Monitor and Adapt** – Monitor effectiveness of measures taken and evaluate need for additional actions
- **Document** – Document actions and results

These steps are illustrated in Figure 6 and described in more detail in the following sections, including relevant responsibilities of WWSP staff, the Contractor, and the Environmental Compliance Lead.

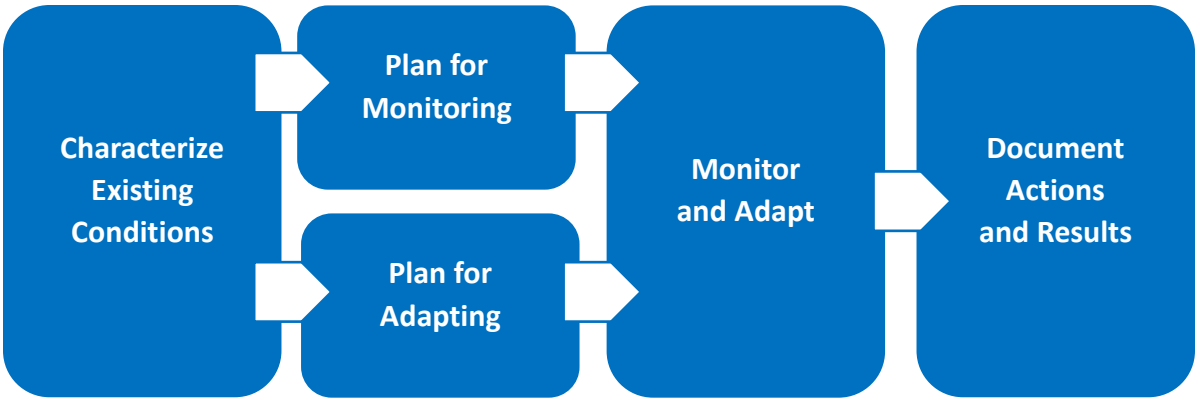

Figure 6 – Steps in the Adaptive Management Process

2.2.1 Characterize Existing Conditions

DEA has conducted surveys of the conditions across the PLW_2.0 alignment, and WWSP has collected additional information from various other sources as described in Section 1.2. This information has been used to develop the measures described in Section 2.1. Before construction begins, WWSP's understanding of existing conditions will be further updated through the following actions:

- WWSP and DEA will work with Hillsboro and Metro to collect additional baseline information on wildlife movement in OWNP prior to construction, to include surveying the work area and vicinity for existing wildlife travel corridors and game trails. This may also include site visits with other experts, as practicable.
- If more than 1 year has passed between the time of the most recent wildlife survey and the start of construction, DEA staff shall re-survey and document existing conditions such as tree canopy cover, wildlife habitat structures (e.g., snags, rockpiles or downed wood piles) and forage, and percent cover by native and non-native plant species.
- WWSP and DEA to conduct a site visit at OWNP with Hillsboro and/or Metro staff before the start of construction (within 6 months of the anticipated start of construction in OWNP)
- The Contractor will take photos and/or video to record preconstruction conditions; WWSP will also hire a third party to record preconstruction conditions in OWNP with video, using on-the-ground footage and/or aerial drones as appropriate.

2.2.2 Plan for Monitoring

Monitoring on WWSP construction projects includes monitoring by WWSP staff, the Contractor, and by WWSP's independent environmental consultant, DEA. The plan for monitoring by each entity is summarized here.

For all WWSP construction projects, WWSP appoints a Project Construction Manager to administer and enforce the contract documents. The Project Construction Manager also

coordinates with WWSP inspection staff and outside testing and inspection resources. WWSP Inspectors spend most of their time on the construction site observing the work and are responsible for preparing a daily report of construction activities and taking photographs of the work. The Inspector monitors the work for compliance with the contract documents and elevates contract interpretation issues to the Project Construction Manager.

The Environmental Compliance Lead (a biologist or ecologist contracted independently from the Contractor) has primary responsibility for monitoring the Contractor's compliance with the WWSP's goals and commitments related to environmental resources. The obligations of the Environmental Compliance Lead are defined in DEA's contract to the WWSP. The following are the key responsibilities of the Environmental Compliance Lead or qualified support staff for monitoring construction:

- Develop a brief memorandum to describe methods for monitoring wildlife and wildlife protection measures during construction. Methods shall reflect the Contractor's specific plans for executing the work as documented in pre-construction submittals.
- Perform site visits weekly (or more often as needed to achieve objectives) to assess the following:
    - Whether the Contractor has correctly demarcated protected areas, buffers, and resources;
    - Whether the Contractor is conforming with project contract plans, documents, and permits, including measures described in Specification Section 01 57 00 Environmental Controls; and
    - If other conditions are present which may pose unacceptable risk of harm to wildlife or wildlife habitat.
- Document field activities and findings in a Site Visit Form (see Attachment 1) within one (1) business day.
- Participate in weekly construction coordination meetings to understand upcoming construction activities and adjust monitoring activities accordingly.
- Conduct fish and wildlife salvage, as needed.
- Perform on-site monitoring and inspection of tree protection by a certified arborist.
- Coordinate with APHIS to conduct nesting bird surveys and monitoring.

The Contractor also has responsibility for monitoring its own work. This includes the obligation to designate a "qualified person" to monitor all environmental controls on the work site. This qualified person shall have the authority to modify the Contractor's operations to comply with Specification Section 01 57 00 Environmental Controls.

2.2.3 Plan for Adapting

If deficiencies in achieving the objectives described in Section 2.1 are identified, whether by WWSP staff, the Contractor, the Environmental Compliance Lead, or a regulatory agency, the process for implementing corrective or proactive measures will follow the WWSP change management procedures as described in the WWSP Program Management Plan[1].

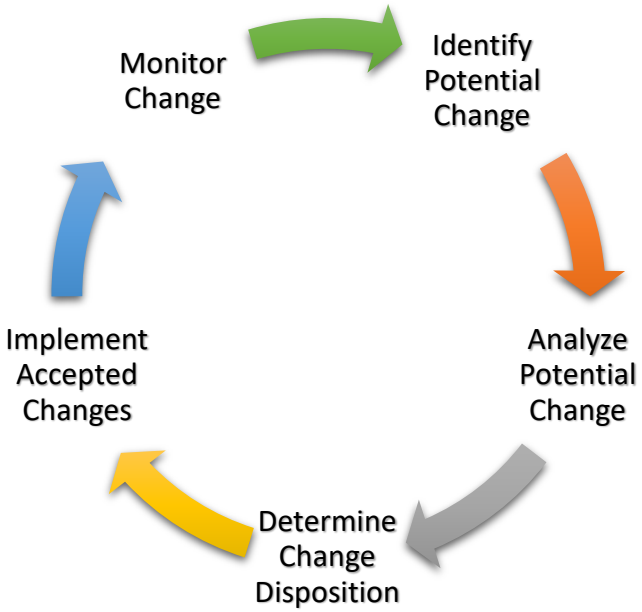

Figure 7 – WWSP Integrated Change Management Process

WWSP utilizes an integrated change control process for managing change, as shown in Figure 7. Minor changes which do not affect the Contractor's scope, budget, or construction schedule may be implemented informally with minimal review. Many minor changes and particularly corrective actions, such as repairing a fallen fence section, can be implemented immediately with, at most, approval by the Project Construction Manager.

Changes which impact the Contractor's scope, budget, or schedule, however, will go through a more formalized process, as shown in Figure 8. The level of authority required to approve a change (whether a change can be approved by the Functional Manager, the Change Committee, or the WWSS Management Committee) depends on the magnitude of the change, as defined in the WWSS Management Authority Matrix. The Project Manager is responsible for logging, tracking, and progressing the change.

[1] The Program Management Plan, first prepared by WWSP in 2016, is a living document that establishes the program and project management framework for planning and executing the design, construction, and system integration components of the WWSS.

Figure 8 – WWSP Formal Change Control Process Overview

Changes can be initiated by a variety of sources, however with respect to wildlife protection measures, the need to adapt is most likely to be identified by the Environmental Compliance Lead. If the Environmental Compliance Lead identifies conditions that may pose a risk of harm to wildlife or wildlife habitat, they will prepare recommendations and coordinate with the Project Manager (or designee) to define appropriate corrective measures before exiting the construction site. The Project Manager and Environmental Compliance Lead will then work together with the Contractor according to the change management process described above to implement corrective actions and make adaptations accordingly.

The Environmental Compliance Lead has the authority to stop construction activity when an immediate threat to wildlife or wildlife habitat is perceived to exist. Construction activity will not resume until the issue is addressed in a manner acceptable to the Environmental Compliance Lead and Project Manager.

2.2.4 Monitor and Adapt

WWSP, through contracts with DEA and the Contractor, will implement the plans for monitoring and adapting wildlife protection activities during construction, as described in Section 2.2.2 and Section 2.2.3.

In the event that substantive issues arise pertaining to the objectives, measures, or implementation plans described in Section 2.1, such that the hazards to wildlife or habitat posed by PLW_2.0 construction increases beyond the hazards considered in this Plan, WWSP shall notify Metro and City of Hillsboro within two business days of discovery. Such notice will be submitted via email to Dan Moeller (Conservation Program Director, Metro) and Jeroen Kok (Planning & Development Manager, Parks and Recreation Department, Hillsboro). WWSP will take prompt action to implement corrective measures on-site, which may be further modified based on input provided by Metro and/or Hillsboro.

2.2.5 Document Actions and Results

Documentation of corrective and proactive measures to adapt activities in the field, and their results, are necessary in order to determine whether deficiencies have been adequately resolved, or whether further action is needed. There are many forms of documentation that will be used to document actions and their results, depending on the nature of the action. Minor actions (those which are resolved without affecting Contractor scope, schedule, or budget) will typically be documented in the Environmental Compliance Lead's Site Visit Form (Attachment 1), the WWSP Inspector's Daily Report, or weekly Construction Meeting minutes. Other changes will be documented in a change log, and the outcomes noted by the Environmental Compliance Lead either in the weekly site visit form or supplemental documentation (such as memoranda) as appropriate.

In addition to the above documentation, which is largely internal to the WWSP, WWSP is required to provide documentation of various actions to regulatory agencies under federal, state, and local laws. Changes to wildlife and habitat protection measures as part of this adaptive management approach may require documentation to one or more agencies.

WWSP will also provide documentation to stakeholders, including Hillsboro and Metro as property co-owners, and to the public, in the form of a post-construction report documenting observations, adaptive management measures taken during construction, and outcomes of those actions. WWSP's website includes a page dedicated to sharing information pertaining to PLW_2.0 construction in OWNP, www.ourreliablewater.org/orenco-woods-nature-park, where much of this information will be available. Additionally, WWSP intends to hold regular briefings during construction. The schedule and format for these briefings will be established closer to construction (when the construction schedule itself is established) but will be held approximately once every three months, with the first briefing to be held before construction begins in the areas covered in this Plan.

As stated in Section 2.2.4, Hillsboro and Metro will be notified of substantive issues should they arise during construction.

3 Related Measures During and After Construction Closeout

In addition to wildlife and habitat protection during construction, WWSP is committed to various activities during and after construction closeout with direct benefits to wildlife and/or wildlife habitat, as applicable, including:

- Monitor site restoration and review as-built plans for compliance with environmental commitments and obligations
- Monitor restored areas against performance standards and make recommendations for maintenance actions
- Maintain or correct conditions to meet restoration and survival performance standards, including replacing plantings

To date, PLW_2.0 has been extensively reviewed and approved by various agencies with jurisdiction over natural resources. Some of these agencies imposed post-construction site restoration requirements relevant to their authority. WWSP developed a conceptual site restoration plan early on to accommodate anticipated site restoration requirements from various entities in a manner compatible with the pipeline infrastructure. The *Conceptual Post-Construction Site Restoration Plan* (DEA 2017b) provides guidance for designing site revegetation in wetlands and riparian areas after construction, including at Rock Creek. Final project design must be consistent with the *Conceptual Post-Construction Site Restoration Plan* under permits issued by U.S. Army Corps of Engineers, Oregon Department of State Lands, and Clean Water Services. Additionally, Hillsboro requires specific site restoration in the park as part of the Significant Natural Resource Overlay zones associated with Rock Creek and Beaverton Creek. Significant Natural Resource Overlay site restoration requirements are currently under development.

Detailed designs for Rock Creek and Beaverton Creek restoration are currently under design. Consistent with permit requirements, aquatic habitats, including stream channels and streambanks, will be restored to conditions that are equivalent to or better than preconstruction conditions. The floodplains and streambanks impacted during construction will be reshaped to match upstream and downstream conditions. Design criteria will follow stream restoration guidelines and focus on bio-engineered stabilization techniques such as woody plantings and live stakes, brush layering or brush mattresses, quickly establishing herbaceous cover, erosion control fabric, and coir lift. The Washington Department of Fish and Wildlife *Integrated Streambank Protection Guidelines* (Cramer 2003) and *Stream Habitat Restoration Guidelines* (Cramer 2012) and N*atural Resources Conservation Service Stream Corridor Restoration Guidelines* (Federal Interagency Stream Restoration Working Group 1998) are examples that will be considered during design.

Under restoration requirements imposed to date, WWSP will monitor and maintain restored conditions for a minimum of 5 years after construction in OWNP, and a minimum of 3 years after construction at Beaverton Creek. WWSP is obligated to monitor and report conditions to

the regulatory agencies and, if conditions do not meet the applicable performance standard of each agency, WWSP must correct those conditions (such as replanting vegetation if the number of plants surviving do not meet the standards). The agencies have the ability to extend the period of monitoring and maintenance, if necessary, to achieve the performance standards. Additionally, Hillsboro and Metro as co-owners of OWNP are expected to impose their own requirements for site restoration, monitoring, and maintenance as part of the terms for granting WWSP an easement through OWNP. This Plan does not currently reflect consideration of requirements which may be imposed in the future.

4 List of Preparers and Reviewers

Various subject matter experts and stakeholders participated in the development of this Plan. The names, affiliations, and qualifications of preparers are provided in Table 2. Reviewers may have read working versions and/or portions of this Plan, or provided feedback through meetings, emails, or conversations with preparers. Regardless of the format of their feedback, the reviewers listed in Table 3 provided essential contributions to this Plan.

Table 2 – List of Preparers

Name	Title	Qualifications
Willamette Water Supply Program		
Jill Chomycia, PH and PMP	Permit Coordinator	M.S. Soil Science, M.S. Hydrology; 13 years' experience in environmental compliance and permitting
Meredith Jordan	Permitting Specialist	M.S. Environmental Science and Management; 4 years' experience in environmental sciences and permitting
Erika Murphy, PE	PLW_2.0 Project Manager	B.S. Civil Engineering; 18 years' experience in civil engineering
David Kraska, PE	Program Director	M.S. Environmental Engineering; 31 years' experience in engineering and program management
Andre Tolme, PE	Program Construction Manager	B.S. Civil Engineering, 25 years' experience in heavy civil construction and engineering
Bill Van Derveer, PMP	Program Manager	M.S. Applied Natural Science (Biology); 31 years' experience in environmental science, regulatory compliance, and program management
Christina Walter	Permitting and Outreach Manager	M.P.A with focus on Environmental Policy and Planning; 14 years in environmental compliance, stormwater utility management, National Pollutant Discharge Elimination System Permit compliance, and watershed protection
David Evans and Associates, Inc.		
Kristine Marshall	Senior Environmental Specialist	B.S. Biology; 30 years' experience in wildlife and fisheries biology, construction monitoring, habitat monitoring, and restoration
Phil Rickus	Ecologist	B.A. Biology; 28 years' experience in wildlife biology, wildlife passage, construction monitoring, habitat monitoring, and restoration

Table 3 – Reviewers

Name	Title
City of Hillsboro	
Niki Iverson	Water Director, Water Department
Jeroen Kok	Planning & Development Manager, Parks and Recreation Department
Tacy Steele	Water Programs Manager, Water Department
Laura Trunk	Restoration Biologist, Parks and Recreation Department
Metro	
Dan Moeller	Conservation Program Director
Jonathan Soll	Science and Stewardship Division Manager
Brian Vaughn	Natural Resource Scientist
Rod Wojtanik	Parks and Nature Planning Manager
Lori Hennings	Senior Natural Resource Scientist
Oregon Department of Fish and Wildlife	
Rachel Wheat, PhD	Wildlife Connectivity Coordinator
Susan Barnes	Regional Wildlife Conservation Biologist
Portland Audubon	
Bob Sallinger	Director of Conservation
Urban Greenspaces Institute	
Mike Houck	Founder

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ATTACHMENT 1 - Environmental Compliance Site Visit Form

Environmental Construction Compliance Site Visit

Current Weather Conditions

Previous Day Rainfall

Project Information

Date

Time

Work Package

Construction Company

Contractor Project Manager

Contractor CESCL

WWSP Construction Manager

Applicable Subcontractor

Environmental Compliance Inspector

Construction Phase

Site Preparation: ☐ Construction: ☐ In-water Work: ☐ Restoration: ☐ Plant Establishment: ☐

Inspection Results ☐

Item	Rating (Y, N, NA)	Date Corrected	Comments
Env. Records Management (Env. Permits Onsite, ESCM Plans, Turbidity Reports)			
ESCM Condition			
Soil Erosion			
Turbidity			
Dewatering			
Drain/Inlet Protection			
Fuel/Oil Leak Protection			
Fuel/Equipment/ Haz Mat Storage			
Construction Debris Management			
Construction Waste Water Management			

Wetland Protection			
Stream/Riparian Protection			
Tree Protection			
MBTA Compliance			
In-Water Work Area Isolation			
Temporary Fish Passage			
Sound Attenuation Devices			
Wildlife Protections			
Wildlife Salvage/#?			
Other Items			

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