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**NATURAL RESOURCE ASSESSMENT REPORT
FOR**

9710 SW Day Road

T3S, R1W, Section 2B, Tax Lot 600 & 601
Wilsonville, Washington County, Oregon

Prepared for

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Introduction

Schott & Associates (S&A) was contracted to conduct a natural resource assessment for the proposed project site located at 9710 SW Day Road, Wilsonville, Washington County, OR (T3S, R1W, Section 2B, Tax Lot 600 & 601; Figure 1). The site features natural resources including streams, wetlands, and associated riparian corridors and Impact Areas that are subject to City of Wilsonville's Significant Resource Overlay Zone (SROZ) Ordinance (Section 4.139.00 of the Wilsonville Planning and Land Development Code). This report is intended to fulfil the requirements of SROZ Map Verification pursuant to Section 4.139.06(.01)(B-H) and a standard Significant Resource Impact Report (SRIR) pursuant to Section 4.139.06(0.02)(D)(1). Wetland delineation has been approved by the Oregon Department of State Lands (DSL; WD#2021-0556; Appendix H).

Statement of Qualifications

Schott & Associates has over 30 years of experience in environmental consultation and project permitting. S&A staff is composed of well qualified and experienced individuals. All have been through wetland delineation training and are proficient in performing wetland delineations and habitat assessments. Kim Biafora was assigned to manage this project and performed project coordination, fieldwork, and report and map production.

Kim Biafora is a wetland scientist and GIS analyst who joined Schott & Associates in April 2018. She received her Bachelor's degree from Portland State University in Environmental Science and Management. Kim contributes 10 years of experience in wetland delineation and reporting, permitting, habitat assessment and mapping, data collection and analysis, and GIS applications to the company. Kim has worked largely in the lower Columbia River region and has a foundation in Pacific Northwest ecology with expertise in lowland and montane rainforest, and tidal estuarine and freshwater wetland habitats. She is versed in general ecological survey and data analysis methods, as well as protocols specific to wetland delineation and functions assessment, habitat mapping and assessment and mitigation site monitoring. She is familiar with wetland/habitat ordinance and permitting requirements for many local jurisdictions throughout Oregon and Washington, as well as state and federal wetland regulation.

Site Description

The project site consisted of the entirety of tax lots 600 and 601. This site featured a single-family residence in the northeastern section and a graveled area and access road in the southern and central portion. An unimproved access road and associated 125-foot electric transmission line and storm drainage easement cut south across the western portion of the site from SW Day Road to a transmission tower located in the southwestern site corner. A 100-foot BPA right-of-way (ROW) is located in the southwest corner adjacent to the 125-foot utility easement (refer to Appendix B for topographic survey). The remainder of the site was undeveloped and generally vegetated by Douglas-fir (*Psuedotsuga menziesii*) forest in the eastern and western portions and English hawthorn (*Crataegus monogyna*)/Himalayan blackberry (*Rubus armeniacus*) shrubland in the central portion (refer to Appendix C for tree survey).

Site topography included a west-facing hillslope in the eastern portion which flattened out in the central portion and remained fairly level in the western portion. Tapman Creek, a tributary to Seely Ditch and the Willamette River, flowed from double 36-inch diameter culverts under SW Day Road, south through the western portion of the site and into a culvert at the southwestern site corner. A compensatory wetland mitigation (CWM) site was located just west of and parallel to the creek. The CWM site was constructed to mitigate for the widening of SW Day Road and replacement of a single culvert with the existing 88-foot-long double culverts at Tapman Creek (DSL #25201-FP; Corps #2002-00173). Both of these features are within the 125-foot utility easement.

The site was surrounded by commercial development to the north and south and rural residential development to the east and west. At the time of assessment, the site was zoned for 20-acre future development (Washington County zoning designation FD-20). According to the Wilsonville SROZ map, significant natural resources are mapped on the site (Appendix D).

Methods

Prior to visiting the site, the following existing data and information was reviewed:

- Washington County InterMap (<http://washims.co.washington.or.us/InterMap/>)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) and Oregon Department of Forestry (ODF) mapping
- Metro Title 3 lands mapping
- U.S. Department of Agriculture (USDA) NRCS gridded Soil Survey Geographic (gSSURGO) database for Washington County
- Google Earth aerial photographs from the time period between 1994 and 2019
- Oregon Department of Geology and Mineral Industries (DOGAMI) LiDAR data

Schott & Associates initially visited the site October 23, 2019. Follow-up fieldwork was performed on September 1, 2021 to document any changes since 2019 fieldwork. Data on vegetation, hydrology, and soils were collected according to methods described in the *Corps Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Delineation Manual: Western Mountains, Valleys, and Coast (Version 2)* (Environmental Laboratory 2010). Nineteen sample plots were established throughout the site to locate the boundaries of wetlands. Plant indicator status was determined using the 2018 National Wetland Plant List (Corps 2018). Onsite streams were delineated via the ordinary high-water mark (OHWM) as indicated by top of bank, wrack or scour lines, change in vegetation communities, or gage elevation where applicable.

All identified wetlands and waters are classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and the *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and*

Riparian Sites (DSL 2001). A wetland delineation report was prepared and submitted to DSL. The report received DSL concurrence in December 2021 (Appendix H).

Wetland functional analysis was conducted according to the Oregon Freshwater Wetlands Assessment Methodology (OFWAM) per section 4.139.06(.02)(D)(3)(c).

Application and width of Vegetated Corridors were determined based on water type, flow period, drainage basin, and adjacent slopes according to Table NR-1 of Section 4.139.00. Water type and flow period were determined based on a combination of field observations, available data and information, and guidance from state and federal agencies. Drainage basins were delineated using topography data available from the Oregon Department of Geology and Mineral Industries (DOGAMI) LiDAR data. Adjacent slopes were measured at a minimum of three slope cross-sections established perpendicular to the water feature spaced at no more than 100-foot increments using a combination of field measurements and topographical survey data. Vegetated corridor width in areas where the slopes are equal to or greater than 25% gradient are extended to 50 feet beyond the break in slope, up to 200 feet from the edge of the water resource for primary protected water features and 50 feet for secondary protected water features.

The composition, structure, and condition of Vegetated Corridors were assessed at representative sample points established in each community type. Wildlife habitat assessment of Vegetated Corridors was conducted according to Metro's 2001 Wildlife Habitat Assessment Methodology.

Ground-level photographs were collected to document site conditions (Appendix E).

Results

Physical Analysis

Five soil series were mapped within the study site boundary according to the USDA NRCS soil survey for Washington County. Saum silt loam at slopes from 2-20% was mapped in the eastern, southern, and much of the northern site margins. The Saum series consists of very deep, well drained soils that formed in colluvium and residuum from the Columbia River Basalt Group and occurs on summits and side slopes in areas affected by mass movement. This series is nonhydryc and not subject to flooding or ponding. Quatama loam at slopes of 0-30% was mapped over a small area along the northern site margin. The Quatama series consists of very deep, moderately well-drained soils that formed from stratified glaciolacustrine deposits from the Missoula Floods and occurs on terrace steps and risers. This series is predominantly nonhydryc (4% hydryc inclusions) and not subject to flooding or ponding. Salem gravelly silt loam at slopes of 0-12% was mapped in the western site margin. The Salem series is a very deep, well-drained soil that formed from loamy alluvium over sandy and gravelly alluvium and occurs on stream terraces. This series is nonhydryc and not subject to flooding or ponding. Briedwell stony silt loam at slopes of 0-20% was mapped in the central portion of the site. The Briedwell series consists of very deep, well drained soils that formed in mixed alluvium and occurs on stream terraces. This series is nonhydryc and not subject to flooding or ponding.

Wapato silty clay loam at slopes of 0-3% was mapped through the western portion of the site in the area corresponding with the location of Tapman Creek and the CWM site. The Wapato series consists of very deep, poorly drained soils that formed in loamy mixed alluvium and occur on floodplains and basins. This series is predominantly hydric (92% hydric inclusions) and subject to frequent flooding and ponding.

Wetlands and Waters

Two wetlands and one wetland drainage (Tapman Creek) were identified within the study site; Wetlands 1 and 2 totaled 0.33 acre and Tapman Creek totaled 0.10 acre on site. Wetland, sample plots, and photo point locations are shown on Figure 2.

Tapman Creek: Tapman Creek was a wetland drainage which originated on the site from a pair of culverts installed under SW Day Road and drained south through the western portion of the study site between Wetlands 1 and 2 (described below). At the southern boundary, the creek turned sharply west and drained into a collapsed metal culvert. The creek featured a defined bed and bank and was identified as a creek by ODF; however, this study classified it as a wetland drainage based on the presence of hydric soils and vegetation throughout its length onsite. The boundary was mapped based on top of bank, scour, and paired plots and covered 0.10 acre onsite. At the approximate center, Tapman Creek connected with Wetland 1 (CWM site). The channel was 5-10 feet wide and approximately 3-4 feet deep with steep, incised banks featuring some erosion and undercutting. The channel has likely been artificially deepened and rerouted along its southern reach at some point. It was almost entirely vegetated along its length with reed canarygrass (*Phalaris arundinacea*; FACW), water parsley (*Oenanthe sarmentosa*; OBL), creeping buttercup (*Ranunculus repens*; FAC), and Himalayan blackberry (FAC). Riparian vegetation included Oregon ash (*Fraxinus latifolia*; FACW), English hawthorn (FAC), Himalayan blackberry, serviceberry (*Amelanchier alnifolia*; FACU), snowberry (*Symphoricarpos albus*; FACU), English ivy (*Hedera helix*; FACU), and trailing blackberry (*Rubus ursinus*; FACU). According to ODF stream mapping, Tapman Creek is a small, seasonal, fish-bearing tributary to Seely Ditch located approximately two miles south of the site. It drains a basin of approximately 400 acres. The drainage was assessed as a riverine flow-through HGM class with a Cowardin class of seasonally flooded, palustrine emergent (PEMC). It meets the definition of a Primary Protected Water Feature according to Table NR-1 of Section 4.139.00.

The soil sample met the Corps hydric soil indicator for redox dark surface. Soils were black in matrix color with common to many yellow-red redoximorphic concentrations occurring as soft masses and pore linings. Soil texture was silty clay loam. Corps wetland hydrological indicators observed included sparsely vegetated concave surface, water-stained leaves, sediment deposits, FAC-neutral test, and geomorphic position. No surface water was present during October 2019 or September 2021 fieldwork and a seasonal flow period was assumed.

Wetland 1: Wetland 1 consisted of the CWM site constructed in 2002 and covered 0.26 acre. The wetland was sustained by seasonal flows conducted south under SW Day Road through a culvert as well as high flows from Tapman Creek. The CWM site was

excavated from hydric soils to increase stormwater capacity and alleviate downstream flooding of Tapman Creek. According to the CWM plan, the northern portion of the CWM site (0.1 acre) was designed as a water quality facility and the remaining 0.25 acre was to serve as mitigation. The CWM site was planted with Pacific willow (*Salix lasiandra*; FACW), spiraea (*Spiraea douglasii*; FACW), black hawthorn (*Crataegus douglasii*; FAC), Nootka rose (*Rosa nutkana*; FAC), slough sedge (*Carex obnupta*; OBL), spreading rush (*Juncus patens*; FACW), and red fescue (*Festuca rubra*; FAC). The wetland featured steep, well-defined banks that were graded at a 3:1 slope. It connected with Tapman Creek in the approximate center of the wetland, though this connection does not appear part of the original design. Additionally, a pipe outlet was present in the southwestern portion of the wetland, that isn't shown on site design plan. It is unknown whether this pipe serves as an overflow pipe or discharges into the wetland.

The wetland was assessed as a depressional outflow HGM class and an excavated, seasonally flooded palustrine scrub-shrub (PSSCx) Cowardin class. Vegetation included a patchy canopy of Oregon ash with a dense understory of Pacific willow, Scouler's willow (*Salix scouleriana*; FAC), Sitka willow (*S. sitchensis*; FACW), spiraea, Nootka rose, Himalayan blackberry, reed canarygrass, and soft rush (*Juncus effusus*; FACW). The northern portion of the wetland featured more shrub and tree cover while the southern portion featured more herbaceous cover. This wetland does not meet the definition of a primary or secondary protected water resource according to Table NR-1.

The soil samples met the Corps hydric soil indicator for redox dark surface. Soils were black (10 YR 2/1) to very dark gray (10 YR 3/1) in matrix color with common to many yellow-red redoximorphic concentrations occurring as soft masses. Soil texture was silty clay loam. Corps wetland hydrological indicators including high water table and soil saturation were observed during October 2019 fieldwork.

Wetland 2: Wetland 2 occupied a broad, very shallow depression to the east of Tapman Creek and covered 0.07 acre. It appeared to have no inlet or outlet and was likely hydrologically sustained by high groundwater and impounded precipitation and possibly received overbank flooding from Tapman Creek during very high flow events. The wetland was assessed as a flats HGM class and a seasonally flooded palustrine forested (PFOC) Cowardin class. Vegetation consisted of an Oregon ash stand with a sparse understory of Nootka rose, English hawthorn, Himalayan blackberry, and spiraea. This wetland does not meet the definition of a primary or secondary protected water resource according to Table NR-1.

The soil samples met the Corps hydric soil indicator for redox dark surface. Soils were black in matrix color with common to many yellow-red redoximorphic concentrations occurring as soft masses and pore linings. Soil texture was silty clay loam. Corps wetland hydrological indicators observed included oxidized rhizospheres along living roots, geomorphic position, and FAC-neutral test.

Vegetated Corridors

According to Table NR-1, the Vegetated Corridor applied to primary protected water features (Tapman Creek, an intermittent stream draining more than 100 acres) has a base width of 50 feet. The base width can extend up to 200 feet in cases where the adjacent slope gradient is greater than or equal to 25%. Slope gradients adjacent to Tapman Creek varied from 2-4%. Thus, the Vegetated Corridor applied to the creek was 50 feet wide and totaled 0.99 acre (43,189 sq. ft) onsite. The Vegetated Corridor boundary is coincident with the Goal 5 safe harbor boundary according to the standards within the Oregon Administrative Rule OAR 660-023-990(5). This rule accords all streams with average annual stream flow less than 1,000 cubic feet per second a 50-foot riparian corridor. The Vegetated Corridor and safe harbor boundary are shown in Figure 2.

Vegetation in the onsite Vegetated Corridor was dominated by nonnative vegetation including English hawthorn, Himalayan blackberry, orchardgrass (*Dactylis glomerata*), creeping bentgrass (*Agrostis stolonifera*), tall fescue (*Schedonorus arundinaceus*), hairy cat's ear (*Hypochaeris radicata*), wild carrot (*Daucus carota*), oxeye daisy (*Leucanthemum vulgare*), and dovefoot geranium (*Geranium molle*). A few Oregon ash trees were present within the Vegetated Corridor, as well as in Wetlands 1 and 2 as described above.

Impact Areas

Impact Areas consist of the 25 ft. wide band adjacent to the outer 50 ft. Vegetated Corridor boundary. The Impact Area featured a utility maintenance access road west of the Vegetated Corridor and mixed shrubs east of the Vegetated Corridor. Vegetation included English hawthorn, Himalayan blackberry, and Nootka rose with nonnative turfgrasses and weedy forbs. Impact Areas onsite totaled 0.51 acre (22,332 sq. ft.)

Ecological Analysis

Wetlands

Wetlands were assessed based on evaluation criteria in the Oregon Freshwater Wetlands Assessment Methodology (OFWAM). OFWAM evaluates wildlife habitat, fish habitat, water quality, and hydrologic control functions. A summary of functional analysis is presented in Table 1 below. OFWAM assessment forms are included as Appendix F.

Table 1. Wetland Functional Analysis Summary

Function	Tapman Creek	Wetland 1	Wetland 2
Wildlife Habitat	Habitat for some species	Habitat for some species	Habitat for some species
Fish Habitat	Impacted/degraded	Impacted/degraded	N/A
Water Quality	Intact	Intact	None
Hydrologic Control	Impacted/degraded	Impacted/degraded	Impacted/degraded

Tapman creek provides some wildlife habitat based on its surface water connection to other wetlands, presence of vegetative buffer greater than 25 feet, and unimpacted water

quality in upstream reaches; however, it lacks diversity of habitat and vegetation structure and is surrounded by developed land uses. Fish habitat function was assessed as impacted/degraded based on the modified character of the channel, low cover of stream shading by riparian vegetation, developed surroundings, and lack of fish access. Water quality function was assessed as intact based on a surface water hydrological source, flooding or ponding during a portion of the growing season, high cover of wetland vegetation, and surrounding developed uses. Hydrological control function was assessed as impacted/degraded as the stream is not within a 100-year floodplain or closed basin, is dominated by emergent vegetation, and has an upstream forested/natural area land use.

Wetland 1 provides some wildlife habitat based on the presence of multiple habitat types, woody vegetation, surface water connection to other wetlands, vegetative buffer, and unimpacted water quality in upstream reaches; however, it is less than 0.5 acre in size and is surrounded by developed uses. Fish habitat function was assessed as impacted/degraded based on developed surroundings and lack of fish access. Water quality function was assessed as intact based on a surface water hydrological source, flooding or ponding during a portion of the growing season, high cover of wetland vegetation, and surrounding developed uses. Hydrological control function was assessed as impacted/degraded as the wetland is not within a 100-year floodplain or closed basin, has minor outlet restriction, and has an upstream forested/natural area land use.

Wetland 2 provides some wildlife habitat based on the presence of woody vegetation, waterbodies within one mile, vegetative buffer, and unimpacted water quality in upstream reaches; however, it features low habitat interspersion, is less than 0.5 acre in size, and is surrounded by developed uses. Fish habitat function was assessed as not present due to lack of surface water and fish access. Water quality function was assessed as not present based on a ground water hydrological source, lack of flooding or ponding during the growing season, small size, lack of connected wetlands, and lack of water quality impairments in upstream reaches. Hydrological control function was assessed as impacted/degraded as the wetland is not within a 100-year floodplain or closed basin, has no evidence of flooding or ponding during the growing season, and has an upstream forested/natural area land use.

Wildlife Habitat

Wildlife habitat in riparian/Vegetated Corridors was assessed according to Metro's 2001 Wildlife Habitat Assessment (WHA) Methodology. The assessment evaluates wildlife habitat diversity (food, cover, water sources), water quality protection, ecological integrity (disturbance), connectivity, and uniqueness. Riparian/Vegetated Corridors were generally vegetated by invasive species including Himalayan blackberry, English hawthorn, nonnative grasses, and weedy forbs along with some native Oregon ash, Scouler's willow, Nootka rose, spiraea, snowberry, and trailing blackberry cover.

Based on WHA results, overall wildlife habitat value provided onsite was moderate to low. The results are summarized in Table 2 and discussed below. The WHA form is included as Appendix G.

Table 2. Wildlife Habitat Assessment Scores

Parameter	Component	Score/Total	Rating
Habitat Diversity	Water	15/28	Moderate
	Food	10/24	Moderate
	Cover	14/28	Moderate
Ecological Integrity	Physical Disturbance	1/4	Low
	Human Disturbance	2/4	Moderate
Connectivity			Low
Uniqueness		0/4	Low

Habitat diversity scored moderate based on the presence of a seasonal stream/wetlands, limited food sources with a short season, and primarily shrub cover. Habitat features generally favored small mammals and passerine birds common to urban and suburban areas. Ecological integrity scored low-moderate based on the dominance of invasive species within the vegetation community, low tree cover, and developed surrounding land use but infrequent direct human use. Connectivity was scored low due to the developed surrounding land use, busy adjacent road corridor, and piping of the stream as it enters and exits the site. Uniqueness was scored low due to a lack of rare, threatened, or sensitive plant or wildlife species, rare habitat types, scenic value, or educational potential.

Riparian Corridor Condition

Riparian corridor condition was assessed as generally moderate. Little large woody debris was present in or adjacent to the stream as few trees grow in the riparian area or could be recruited from offsite areas since Tapman Creek is conducted onsite via culverts. Some shading is present in the northern portion of the site where larger woody shrubs (willow) or trees occur, but as Himalayan blackberry generally dominates the riparian vegetation community, there is little overhanging vegetation to provide stream shading. Erosion and sediment control is provided by dense growth of invasive reed canarygrass, which dominates the creek channel. Some erosion and scour was evident within the stream channel, but was not significant. The well-vegetated riparian buffer provides good water quality protection as demonstrated by the OFWAM functional analysis of Tapman Creek. Due to channelization and the constrained nature of the creek, little floodplain connectivity is evident, though some minor overbank flooding may occur during very high-water events. Habitat onsite is connected with larger, intact, high-quality wetland/stream and forested upland habitat to the north of the site across SW Day Road; however, the habitat onsite is poorer quality, disturbed by utility maintenance, and cut off from the habitat to the north by the high-traffic road. South of the site, the area is developed for commercial and utility use and no habitat functions are present.

Proposed Plan

The proposed project consists of the expansion of the transportation company to the south (Delta Logistics) and includes the construction of a large warehouse in the eastern portion

of the site with parking and truck trailer storage in the central and western portions of the property. Crossing of Tapman Creek is required to access the western portion of the property. Construction of direct access from SW Day Road to the western portion of the site is prohibited by the City for the purpose of achieving preferred access spacing. Widening and improvements along the property's frontage of SW Day Road is also required by the City as a condition of project approval. The site plan has been designed to avoid encroachments to the stream and wetland and minimize encroachments to the Vegetated Corridor while meeting those City goals. The site plan also positions vegetated water quality treatment facilities as a buffer between the proposed development and remaining SROZ area. Areas of proposed encroachment are vegetated entirely by invasive species and contain no tree canopy. The site plan included in Appendix A. The development design implements the following habitat friendly development practices:

- Incorporates stormwater management in road rights-of-way
- Disconnects downspouts from roofs and directs the flow to vegetated water quality facility
- Minimizes the number of stream crossings and places crossing perpendicular to stream channel
- Uses a bridge crossing rather than culverts
- Uses native vegetation throughout the development
- Locates landscaping adjacent to SROZ
- Reduces light spill-off into SROZ areas from development
- Preserves and maintains existing trees and tree canopy coverage, and plans trees, where appropriate to maximize future tree canopy coverage

Prior to any site clearing, grading or construction, the SROZ area shall be staked, and fenced per approved plan. During construction, the SROZ area shall remain fenced and undisturbed except as allowed by an approved development permit.

Proposed Encroachments

Encroachments are proposed to the Vegetated Corridor and Impact Area. Encroachments will occur in the northern portion of the Vegetated Corridor for the City required widening of SW Day Rd and in the southern portion for the Tapman Creek crossing. These areas are vegetated entirely by invasive species including Himalayan blackberry and reed canarygrass. No trees or native species will be removed as a result of construction. Encroachments will occur on both sides of the creek for the road crossing and along the eastern portion of the Impact Area for the road widening, creek crossing, and construction of a vegetated water quality and stormwater detention facility. No encroachments to Tapman Creek or the wetlands are proposed. No trees will be removed from the SROZ. Development activity has been limited to the Impact Area where practical except where necessary to widen SW Day Road and cross Tapman Creek to access the western portion of the site. Encroachments are summarized in Table 3 below

Table 3. Encroachment Summary

SROZ	Total Area	Encroachment (sq. ft.)	Remaining Area
Vegetated corridor	43,189	10,300	32,889
Impact area	22,332	14,500	7,332
TOTAL	65,521	23,300	42,222

Proposed encroachments will reduce the overall area of Vegetated Corridor by 10,300 sq. ft.; however, the impact to the overall functions and values of the water resources and riparian corridor is expected to be minimal since it will be left largely intact and the encroachment area is currently low functioning and dominated with nonnative species. The encroachments are proposed at the margins of the site adjacent to or in the vicinity of existing development. The elements with existing moderate function will not be affected. The proposed vegetated stormwater quality facilities located to the east and west of the remaining Vegetated Corridor will operate as a buffer to the SROZ area by intercepting and treating stormwater runoff before it reaches the area. The mitigation plan described below has been developed to improve the existing function of the riparian corridor and offset any potential impacts.

Mitigation and Enhancement Plan

The mitigation plan was developed with guidance from Wilsonville Development Code Section 4.139.06(.02)(E)(1)(b) and Table NR-4. Section 4.139.06(.02)(E)(1)(b) requires native trees and shrubs to be planted at a minimum rate of five (5) trees and twenty-five (25) shrubs per every 500 sq.ft. of disturbance area. For a disturbance area of 10,300 sq. ft., planting at this rate amounts to 103 trees and 515 shrubs. Table NR-4 prescribes a ratio of mitigation area to disturbance area based on the existing function of the site and proposed function of the site. Based on the functional assessment of the vegetated corridor/riparian corridor described above, both the impact site and mitigation site have low-to-moderate natural resource function based on low canopy cover, high invasive species cover, proximity to developed land uses, channelization of Tapman Creek, and fragmented connectivity to other habitats. The proposed mitigation plan is expected to provide ecological uplift and increase wildlife habitat, ecological integrity, and water quality protection functions as shown in Table 4 below. The prescribed mitigation ratio was determined as 2.5:1.

Table 4. Natural Resource Enhancement Mitigation Ratios

Function	Mitigation Site/Impact Site Existing Function	Mitigation Site Proposed Function	Change
Wildlife Habitat	Moderate	High	Increase

Ecological Integrity	Low	Moderate	Increase
Connectivity	Low	Low	None
Water Quality Protection	Moderate	High	Increase
Uniqueness	Low	Low	None
Ratio per Table NR-4			2.5:1
Proposed Mitigation Ratio			3.2:1

The proposed mitigation plan will enhance the remaining vegetated corridor/riparian area east of the existing access road which is assessed as low-to-moderate in natural resource function with low canopy cover and high nonnative species cover. The enhancement activities involve removal of invasive species and planting of native trees, shrubs, and herbs over 32,863 sq. ft of SROZ area. As much of the SROZ west of Wetland 1 is located within the utility ROW, tree planting will be limited to areas outside of the easements. Trees will be planted at the higher end of the required density (8 ft. on center) in this area to compensate for the lack of tree planting within the utility ROW. A total of 134 trees and 1,643 shrubs are proposed to be planted. Bare ground shall be planted or seeded with native grasses or herbs. The proposed mitigation plan far exceeds the planting numbers prescribed by 4.139.06(.02)(E)(1)(b) and results in a mitigation ratio of 3.2:1 exceeding the ratio prescribed by Table NR-4.

Planting Plan

The planting plan is proposed for the 32,863 sq. ft. of vegetated/riparian corridor and is shown on Figure 3. As the planting site is adjacent to a stream and wetlands, a riparian community was selected. The forest community will include 134 trees and 430 shrubs planted over 8,600 sq. ft. outside of the utility ROW. The shrub community will include 1,213 shrubs over 24,263 sq. ft. inside of the utility ROW. The planting palette is listed in Table 5 below. The species selected are appropriate to proposed site conditions. All bare ground within the enhancement area will be seeded with ProTime 400 or equivalent at a rate to achieve 100% aerial cover.

Table 5. Planting Palette for Vegetated Corridor Enhancement Area (32,863 ft²)

Species	Category	Minimum Size*	Spacing	Quantity
Riparian Forest Community (outside the ROW): 8,600 sq. ft.				
Oregon ash <i>Fraxinus latifolia</i>	Tree	2 gal.	8'OC	37
Scouler's willow <i>Salix scouleriana</i>	Tree	2 gal. or bare root	8'OC	37
Western redcedar <i>Thuja plicata</i>	Tree	2 gal. or bare root	8'OC	60
Redosier dogwood <i>Cornus stolonifera</i>	Shrub	1 gal. or bare root	5'OC cluster	86
Red elderberry <i>Sambucus racemosa</i>	Shrub	1 gal. or bare root	5'OC cluster	86

Snowberry <i>Symphoricarpos albus</i>	Shrub	1 gal. or bare root	5'OC cluster	86
Salmonberry <i>Rubus spectabilis</i>	Shrub	1 gal. or bare root	5'OC cluster	86
Swamp rose <i>Rosa pisocarpa</i>	Shrub	1 gal. or bare root	5'OC cluster	86
Riparian Shrub Community (inside the ROW): 24,263 sq. ft.				
Redosier dogwood <i>Cornus stolonifera</i>	Shrub	1 gal. or bare root	5'OC cluster	200
Red elderberry <i>Sambucus racemosa</i>	Shrub	1 gal. or bare root	5'OC cluster	200
Snowberry <i>Symphoricarpos albus</i>	Shrub	1 gal. or bare root	5'OC cluster	213
Salmonberry <i>Rubus spectabilis</i>	Shrub	1 gal. or bare root	5'OC cluster	200
Swamp rose <i>Rosa pisocarpa</i>	Shrub	1 gal. or bare root	5'OC cluster	200
Indian plum <i>Oemleria cerasiformis</i>	Shrub	1 gal. or bare root	5'OC cluster	200
ProTime 402*	herb		25 lbs/acre	17.5 lbs

*Native riparian mix includes blue wildrye (*Elymus glaucus*), meadow barley (*Hordeum brachyantherum*), and tufted hairgrass (*Deschampsia cespitosa*)

The mitigation planting plan was designed according Section 4.139.07(.02)(E) and shall meet the following:

- The planting plan shall be implemented prior to or at the same time as the impact activity is conducted
- All trees, shrubs and ground cover shall be native vegetation.
- Trees and shrubs shall be at least one-gallon in size and shall be at least twelve (12) inches in height.
- Trees shall be planted between eight (8) and twelve (12) feet on center, and shrubs shall be planted between four (4) and five (5) feet on center, or clustered in single species groups of no more than four (4) plants, with each cluster planted between eight (8) and ten (10) feet on center. When planting near existing trees, the drip line of the existing tree shall be the starting point for plant spacing measurements
- Shrubs shall consist of at least two (2) different species. If five (5) trees or more are planted, then no more than fifty (50) percent of the trees may be of the same genus.
- Invasive non-native or noxious vegetation shall be removed within the mitigation area prior to planting and shall be removed or controlled for five (5) years following the date that the mitigation planting is completed.

- Mulch shall be applied around new plantings at a minimum of three inches in depth and eighteen inches in diameter. Browse protection shall be installed on trees and shrubs. Mulching and browse protection shall be maintained during the two-year plant establishment period.
- Trees and shrubs that die shall be replaced in kind to the extent necessary to ensure that a minimum of eighty (80) percent of the trees and shrubs initially required shall remain alive on the fifth anniversary of the date that the mitigation planting is completed

Mitigation Goals and Performance Standards

The mitigation site goal is as follows:

Enhance 32,890 sq. ft. of vegetated corridor to improve riparian corridor, water quality protection, ecological integrity and wildlife habitat functions by removing invasive species and maintaining a native, woody-dominated plant community.

Performance standards are based on Metro’s Title 3 water quality performance standards to protect and improve water quality and protect the functions and values of Water Quality Resource Areas (Metro 2018). This plan’s performance standards for forest and/or shrub dominated areas and shall consist of the following:

1. Establishment of permanent monitoring locations during the first annual monitoring.
2. Cover of native herbaceous species is at least 60%
3. Cover of invasive species is no more than 10%. After the site has matured to the stage when desirable canopy species reach 50% cover, the cover of invasive species may increase but may not exceed 30%.
4. Bare substrate represents no more than 20% cover
5. Density of woody vegetation is at least 1,600 live trees or shrubs per acre OR the cover of native woody vegetation on site is at least 50%. Native volunteer species may be included in the cover or density estimate.
6. By Year 3 and thereafter, at least 6 different native species must be present. To qualify, a species must have at least 5% average cover in the habitat class and occur in at least 10% of the plots sampled
7. By Year 5, a minimum of eighty (80) percent of the trees and shrubs initially required shall remain alive

Maintenance and Monitoring

Monitoring will occur annually over a 5-year monitoring period to assess condition of plantings, irrigation, mulch etc. Monitoring will be conducted by qualified personnel during peak growing season (July-August). Annual monitoring reports will be provided to the Planning Director for review by December of each monitoring year. The report shall contain, at a minimum, photographs from established photo points, quantitative measure of success criteria, including plant survival and vigor. The Year 1 annual report shall be submitted one year following mitigation action implementation. The final annual

report (Year 5 report) shall document successful satisfaction of mitigation goals, as per the stated performance standards

The applicant will be responsible for coordinating ongoing maintenance and management. If the ownership of the mitigation site property changes, the new owners will have the continued responsibilities Maintenance activities including mulching, weed removal, herbivory control, and supplemental planting will be conducted by a qualified contractor at least twice per growing season and once prior to the growing season or more frequently as indicated by monitoring results. Any failed plants will be replaced in-kind with the cause of loss (wildlife damage, poor plant stock, drought, weed overgrowth, etc.) documented and additional maintenance done to address the cause of loss and ensure future plant survival.

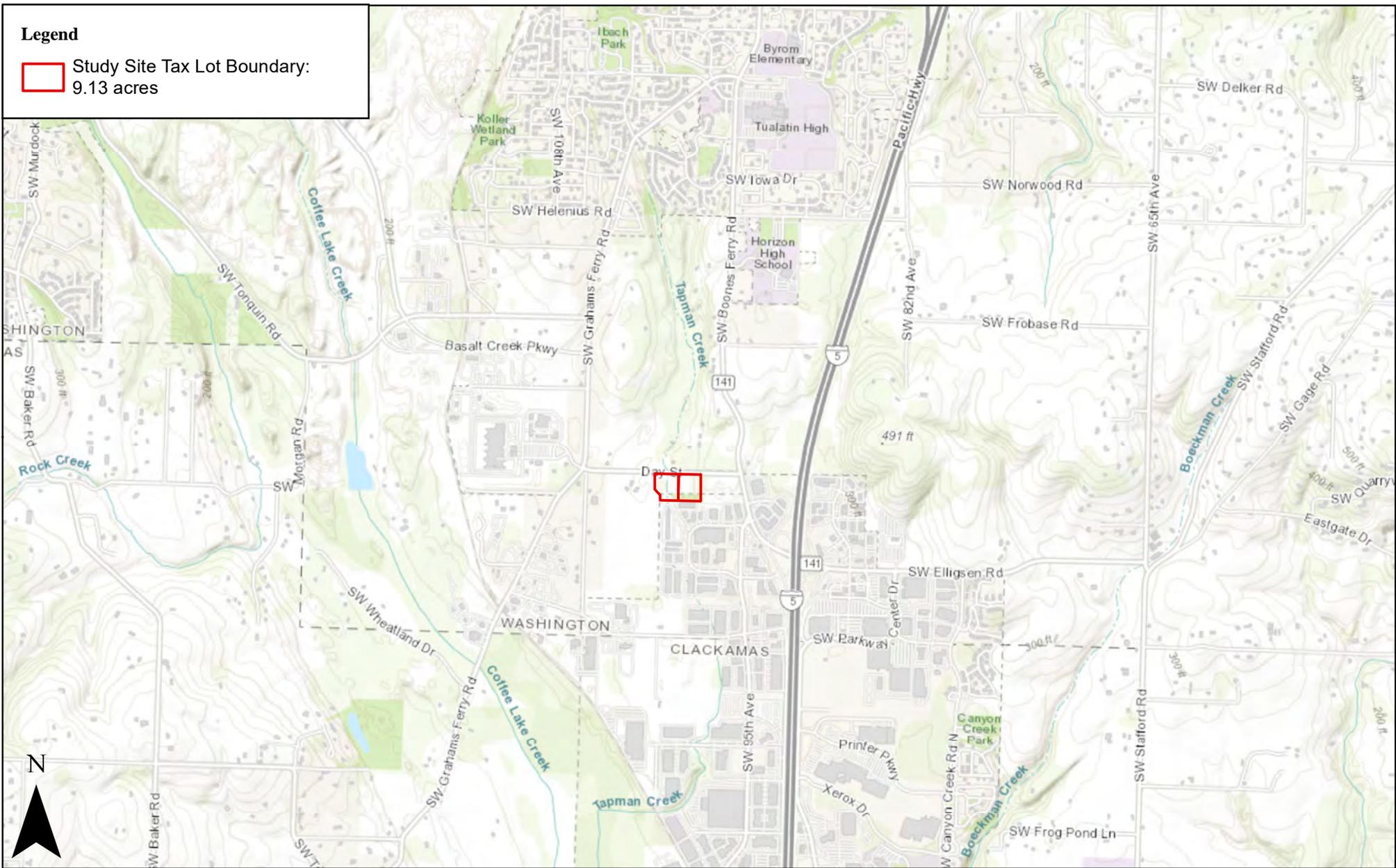
Summary and Conclusions

In summary, the applicant (Delta Logistics) proposes a commercial development on a property located at 9710 SW Day Road (T3S, R1W, Section 2B, Tax Lot 600 & 601).

- The property features SROZ area in the western portion including wetlands (0.33 acre), Tapman Creek (0.10 acre), and associated Vegetated Corridor (43,189 sq. ft) and Impact Areas (22,332 sq. ft.).
- The proposed design maximizes use of the site while minimizing adverse impacts to natural resources and incorporates several habitat friendly development practices. No encroachments to onsite wetlands or waters are proposed and no trees will be removed from the SROZ.
- Encroachments to Vegetated Corridor (10,300 sq. ft.) and Impact Areas (14,500 sq. ft.) are proposed due to City-required widening and improvements along the property's frontage of SW Day Road and to access the west side of Tapman Creek. Accessing the western portion of the property from SW Day Road is prohibited by the City, leaving a stream crossing as the only option to utilize this valuable area.
 - The existing Vegetated Corridor/riparian corridor conditions were assessed as low-to-moderate in function with high invasive species cover and low tree canopy cover. These areas are within a utility easement and are historically disturbed.
 - The specific areas of the of the SROZ proposed for encroachment (particularly along SW Day Road) are low-functioning and vegetated entirely by invasive or nonnative species (primarily Himalayan blackberry and reed canarygrass) and lack tree cover.
 - The proposed encroachments are not expected to affect the overall functions of the riparian/Vegetated Corridor as the preponderance of the SROZ will remain intact and the elements with existing moderate function will not be affected. Vegetated water quality treatment facilities are positioned between the remaining SROZ area and the development and will serve as a buffer by intercepting and treating stormwater runoff. The encroachments are proposed at the margins of the site adjacent to or

- in the vicinity of existing development. A mitigation plan has been developed to offset any potential impacts to natural resources.
- The Mitigation and Enhancement Plan provides functional uplift to the remaining onsite riparian/Vegetated Corridor. The Plan will enhance 32,863 sq. ft. of riparian/Vegetated Corridor and provide benefits that exceed the mitigation recommendations of the SROZ regulation.
 - A total of 134 trees and 1,643 shrubs are proposed to be planted. Bare ground shall be planted or seeded with native grasses or herbs
 - Trees will be planted at the higher end of the required density (8 ft. on center) outside the ROW to compensate for the lack of tree planting within the utility ROW.
 - The proposed mitigation plan far exceeds the planting numbers prescribed by 4.139.06(.02)(E)(1)(b) and results in a mitigation ratio of 3.2:1 exceeding the ratio prescribed by Table NR-4.
 - While the overall area of the riparian/Vegetated Corridor will be smaller, wildlife habitat, ecological integrity, and water quality protection functions will substantially improve through removal of widespread invasive species and establishment of native forest and shrub communities.
 - Connectivity and uniqueness functions will remain the same.

FIGURE 1: PROJECT VICINITY MAP

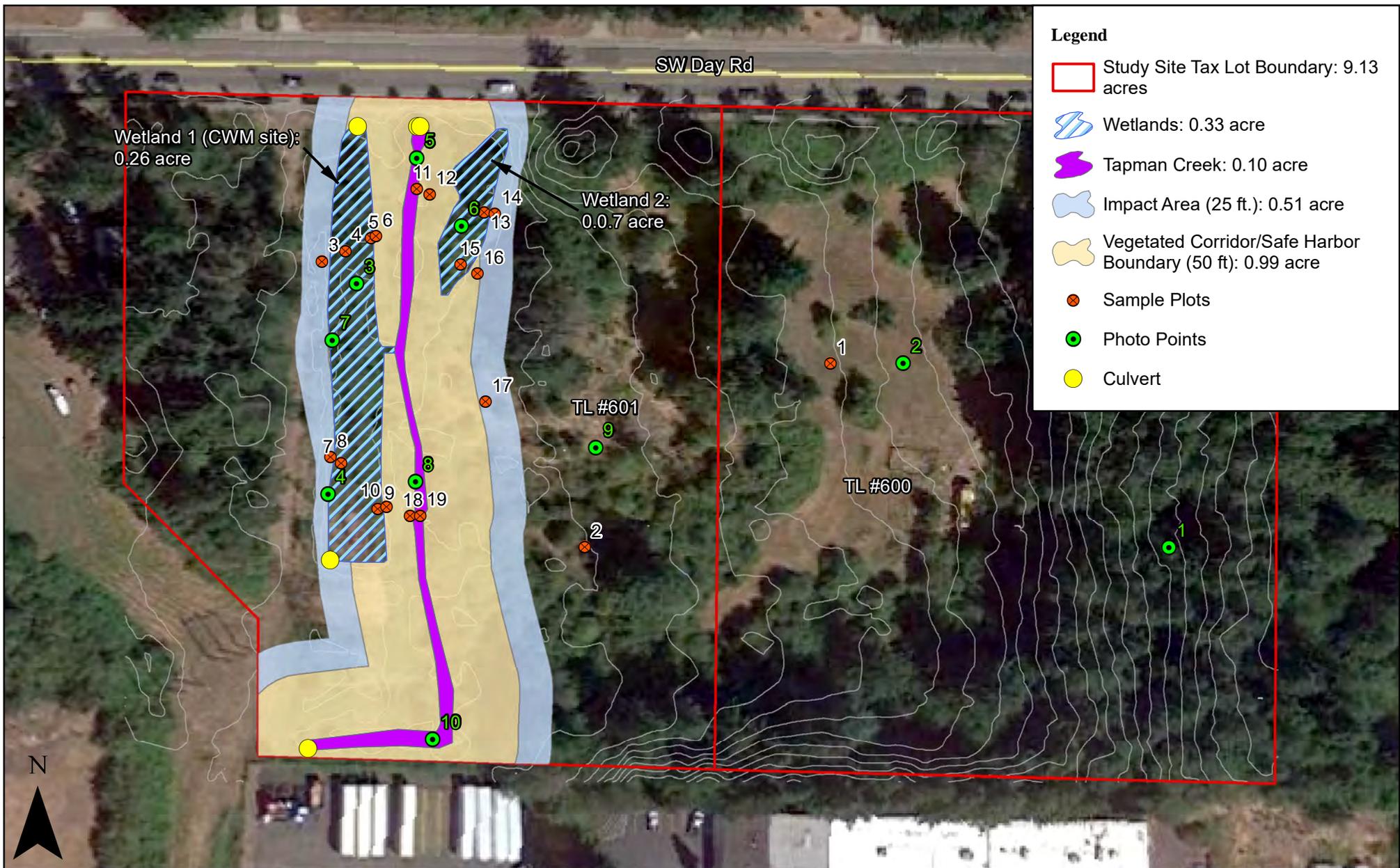


Date: 9/9/2021

Data Source: ESRI, 2021; Washington County Intermap, 2021

Figure 1. Location Map

**FIGURE 2: EXISTING CONDITIONS – SIGNIFICANT RESOURCE
OVERLAY ZONE**



Legend

- Study Site Tax Lot Boundary: 9.13 acres
- / / / / Wetlands: 0.33 acre
- ~ Tapman Creek: 0.10 acre
- ~ Impact Area (25 ft.): 0.51 acre
- ~ Vegetated Corridor/Safe Harbor Boundary (50 ft): 0.99 acre
- x Sample Plots
- o Photo Points
- o Culvert

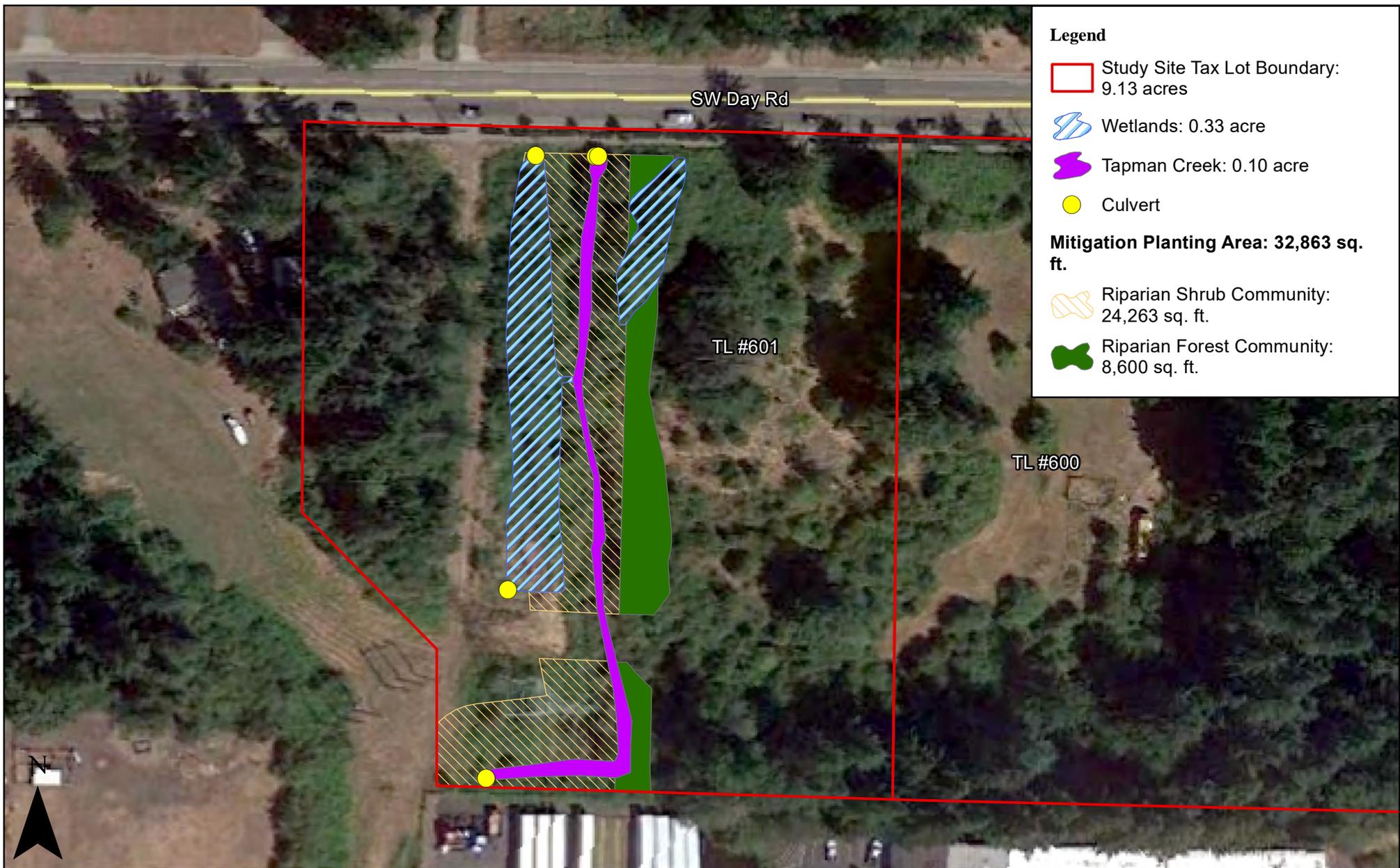
Date: 1/11/2022

Data Source: Google Earth, 2021; Washington County Intermap, 2021; DOGAMI, 2014

Figure 2. Existing Conditions - Significant Resources Overlay Zone

SW Day Road Project Site: S&A #2739

FIGURE 3: MITIGATION PLANTING AREA

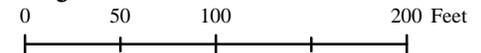


Date: 1/11/2022

Data Source: Google Earth, 2021;
Washington County Intermap, 2021

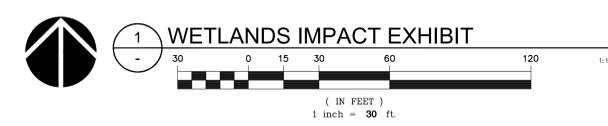
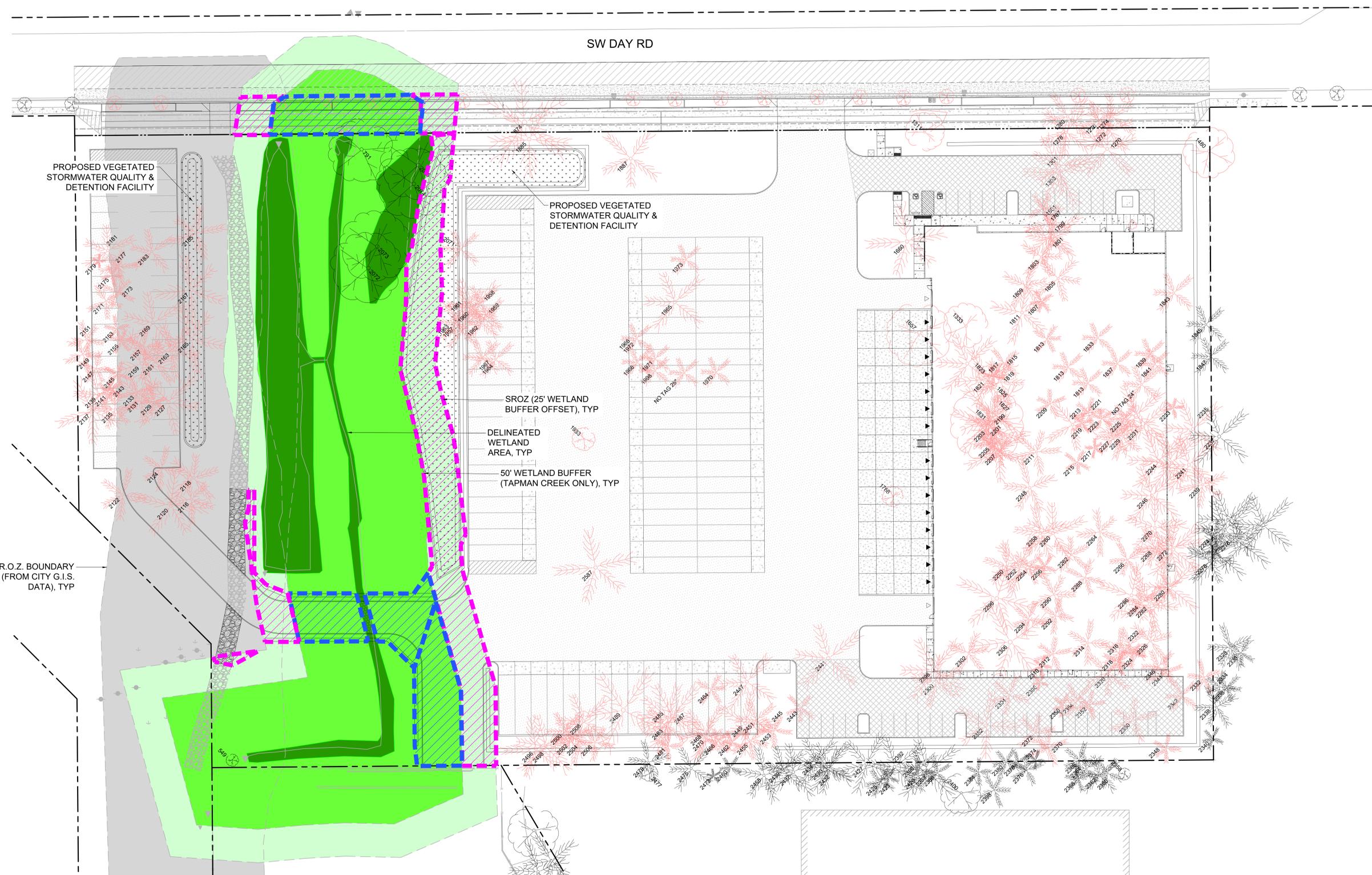
Figure 3. Mitigation Planting Area

SW Day Road Project Site: S&A #2739



APPENDIX A: SITE PLAN

REVISION SCHEDULE		
Delta	Issued As	Issue Date
-	ISSUED	11/30/2021
-	ISSUED	12/02/2021
-	ISSUED	12/15/2021
-	ISSUED	01/18/2022



IMPACT AREA	ESTABLISHMENT	DAY ROAD WIDENING		GENERAL SITEWORK		CREEK BRIDGING & SEMI-TRACTOR STORAGE		TOTALS
		TEMPORARY	PERMANENT	TEMPORARY	PERMANENT	TEMPORARY	PERMANENT	
WETLAND, SQ FT	DELINEATED	0	0	0	0	0	0	0
WETLAND BUFFER, SQ FT	50' DELINEATION OFFSET	0	3,200	0	3,300	0	3,800	10,300
SROZ, SQ FT	25' OFFSET FROM BUFFER	0	1,500	0	11,500	0	1,500	14,500
TREES (IN SROZ), EA	SURVEY	-	0	-	0	-	0	0
TREES (NON-SROZ), EA	SURVEY	-	4	-	174	-	33	211

STREET TREES NOT TABULATED & WILL BE REPLACED

APPENDIX B. TOPOGRAPHIC SURVEY



0 60 120 180
 SCALE: 1" = 60'
 1-FT. CONTOUR INTERVAL
 SEPTEMBER 20, 2021
 UPDATED NOV. 11, 2021 (ADDED SEWER PIPE DATA)

TOPOGRAPHIC SURVEY

9710 SW DAY ROAD

LOCATED IN THE SW 1/4 AND THE NW 1/4
 SECTION 2, T.3S., R.1W., W.M.
 WASHINGTON COUNTY, OREGON

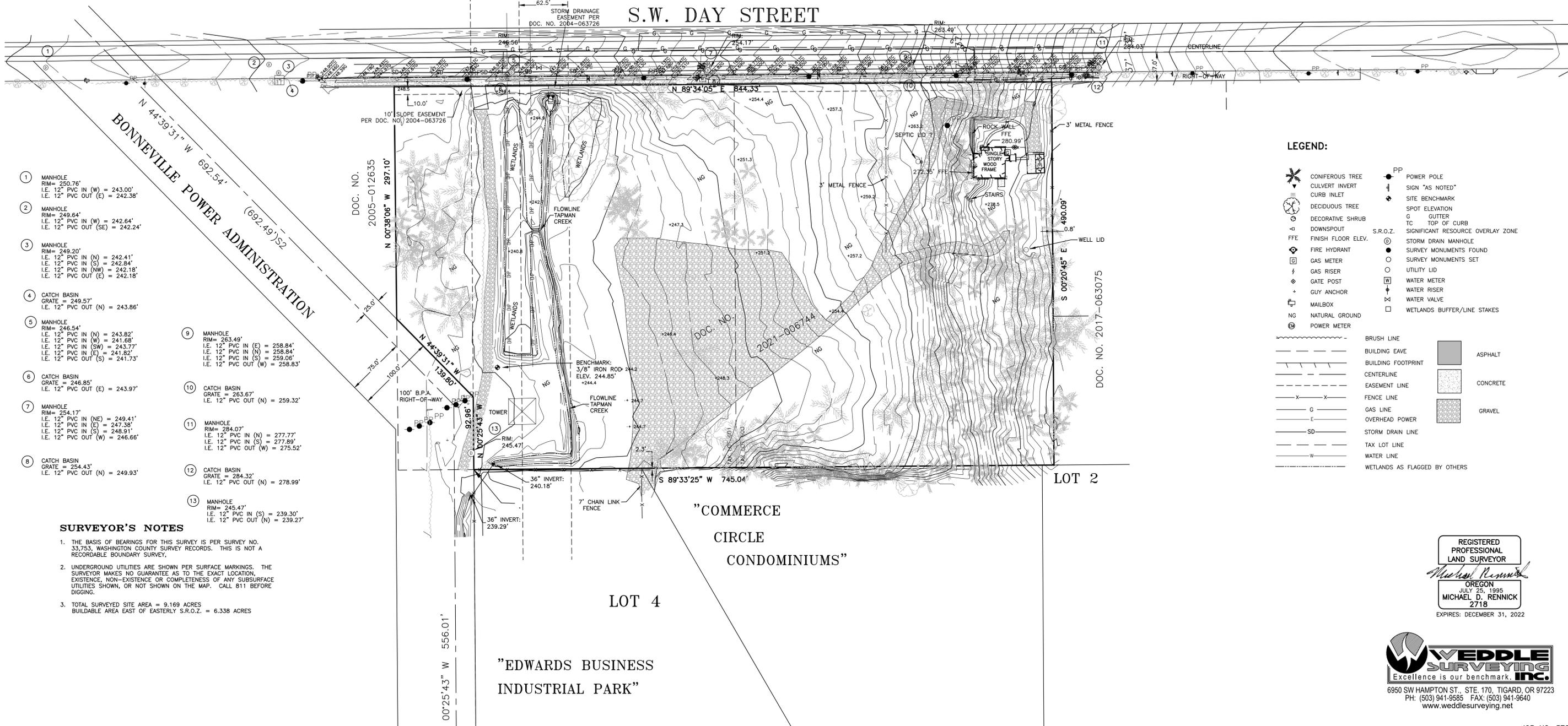
PRELIMINARY RESULTS

FOR: DELTA LOGISTICS
 9835 SW COMMERCE CIRCLE
 WILSONVILLE, OR 97070

REQUESTED BY: VLAD TKACH, PRESIDENT
 VLAD@DELTA.GOV.COM

BENCHMARK THE BENCHMARK USED FOR THIS PROJECT WAS AN OPUS-DERIVED (STATIC GPS) ELEVATION ON WEDDLE SURVEYING CONTROL POINT #400, A 3/8" IRON ROD WITH RED PLASTIC CAP MARKED "AKS CONTROL POINT" ELEVATION: 244.85' NAVD '88 DATUM (GEOID 12B)

125' ELECTRIC TRANSMISSION LINE EASEMENT PER BOOK 4B3, PAGE 344
 125' STORM DRAINAGE EASEMENT PER DOC. NO. 2004-063726



- 1 MANHOLE
RIM = 250.76'
I.E. 12" PVC IN (W) = 243.00'
I.E. 12" PVC OUT (E) = 242.38'
- 2 MANHOLE
RIM = 249.64'
I.E. 12" PVC IN (W) = 242.64'
I.E. 12" PVC OUT (SE) = 242.24'
- 3 MANHOLE
RIM = 249.20'
I.E. 12" PVC IN (N) = 242.41'
I.E. 12" PVC IN (S) = 242.84'
I.E. 12" PVC IN (NW) = 242.18'
I.E. 12" PVC OUT (E) = 242.18'
- 4 CATCH BASIN
GRATE = 249.57'
I.E. 12" PVC OUT (N) = 243.86'
- 5 MANHOLE
RIM = 246.54'
I.E. 12" PVC IN (N) = 243.82'
I.E. 12" PVC OUT (W) = 241.68'
I.E. 12" PVC IN (SW) = 243.77'
I.E. 12" PVC IN (E) = 241.82'
I.E. 12" PVC OUT (S) = 241.73'
- 6 CATCH BASIN
GRATE = 246.85'
I.E. 12" PVC OUT (E) = 243.97'
- 7 MANHOLE
RIM = 254.17'
I.E. 12" PVC IN (NE) = 249.41'
I.E. 12" PVC IN (E) = 247.39'
I.E. 12" PVC IN (S) = 248.91'
I.E. 12" PVC OUT (W) = 246.66'
- 8 CATCH BASIN
GRATE = 254.43'
I.E. 12" PVC OUT (N) = 249.93'
- 9 MANHOLE
RIM = 263.49'
I.E. 12" PVC IN (E) = 258.84'
I.E. 12" PVC IN (N) = 258.84'
I.E. 12" PVC IN (S) = 259.08'
I.E. 12" PVC OUT (W) = 258.83'
- 10 CATCH BASIN
GRATE = 263.67'
I.E. 12" PVC OUT (N) = 259.32'
- 11 MANHOLE
RIM = 284.07'
I.E. 12" PVC IN (N) = 277.77'
I.E. 12" PVC IN (S) = 277.89'
I.E. 12" PVC OUT (W) = 275.52'
- 12 CATCH BASIN
GRATE = 284.32'
I.E. 12" PVC OUT (N) = 278.99'
- 13 MANHOLE
RIM = 245.47'
I.E. 12" PVC IN (S) = 239.30'
I.E. 12" PVC OUT (N) = 239.27'

LEGEND:

	CONIFEROUS TREE		POWER POLE
	CULVERT INVERT		SIGN "AS NOTED"
	CURB INLET		SITE BENCHMARK
	DECIDUOUS TREE		SPOT ELEVATION
	DECORATIVE SHRUB		GUTTER
	DOWNSPOUT		TC TOP OF CURB
	FINISH FLOOR ELEV.		S.R.O.Z. SIGNIFICANT RESOURCE OVERLAY ZONE
	FIRE HYDRANT		STORM DRAIN MANHOLE
	GAS METER		SURVEY MONUMENTS FOUND
	GAS RISER		SURVEY MONUMENTS SET
	GATE POST		UTILITY LID
	GUY ANCHOR		WATER METER
	MAILBOX		WATER RISER
	NATURAL GROUND		WATER VALVE
	POWER METER		WETLANDS BUFFER/LINE STAKES

	BRUSH LINE		ASPHALT
	BUILDING EAVE		CONCRETE
	BUILDING FOOTPRINT		GRAVEL
	CENTERLINE		
	EASEMENT LINE		
	FENCE LINE		
	GAS LINE		
	OVERHEAD POWER		
	STORM DRAIN LINE		
	TAX LOT LINE		
	WATER LINE		
	WETLANDS AS FLAGGED BY OTHERS		

SURVEYOR'S NOTES

1. THE BASIS OF BEARINGS FOR THIS SURVEY IS PER SURVEY NO. 33,753, WASHINGTON COUNTY SURVEY RECORDS. THIS IS NOT A RECORDABLE BOUNDARY SURVEY.
2. UNDERGROUND UTILITIES ARE SHOWN PER SURFACE MARKINGS. THE SURVEYOR MAKES NO GUARANTEE AS TO THE EXACT LOCATION, EXISTENCE, NON-EXISTENCE OR COMPLETENESS OF ANY SUBSURFACE UTILITIES SHOWN, OR NOT SHOWN ON THE MAP. CALL 811 BEFORE DIGGING.
3. TOTAL SURVEYED SITE AREA = 9.169 ACRES
 BUILDABLE AREA EAST OF EASTERLY S.R.O.Z. = 6.338 ACRES

REGISTERED PROFESSIONAL LAND SURVEYOR
Michael D. Rennick
 OREGON
 JULY 25, 1985
 MICHAEL D. RENNICK
 2718
 EXPIRES: DECEMBER 31, 2022

WEDDLE SURVEYING INC.
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 www.weddlesurveying.net

APPENDIX C. TREE SURVEY

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
549	English hawthorn	<i>Crataegus monogyna</i>	5	2.5	Fair	Fair	Multiple stems		tbd	tbd
791	Willow	<i>Salix sp.</i>	20	10	Poor	Very Poor	Data visually collected due to inaccessible area		tbd	tbd
874	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Good	Fair	Broken limbs at base		tbd	tbd
1270	Douglas-fir	<i>Pseudotsuga menziesii</i>	47	23.5	Fair	Fair	Co-dominant stem with included bark, broken limbs in crown		tbd	tbd
1272	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	20.5	Good	Good			tbd	tbd
1274	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Good	Fair	Wood pecker damage at base		tbd	tbd
1276	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Fair	Thin crown		tbd	tbd
1278	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Fair	Fair	Thin crown, sap sucker damage at base		tbd	tbd
1280	Douglas-fir	<i>Pseudotsuga menziesii</i>	43	21.5	Good	Good			tbd	tbd
1301	Douglas-fir	<i>Pseudotsuga menziesii</i>	40	20	Good	Good			tbd	tbd
1303	Douglas-fir	<i>Pseudotsuga menziesii</i>	50	25	Fair	Poor	Weeping crack at 12', decay with sloughing bark at base		tbd	tbd
1311	sweet cherry	<i>Prunus avium</i>	20	10	Very Poor	Very Poor	Tree in heavy decline		tbd	tbd
1333			Tree not present				Tree not present		tbd	tbd
1480	sweet cherry	<i>Prunus avium</i>	8	4	Fair	Poor	Data visually collected	x	tbd	tbd
1501	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	Good	Good			tbd	tbd
1657			Tree not present				Tree not present		tbd	tbd
1660	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Fair	Fair	Broken limbs at base, thin crown		tbd	tbd
1766			Tree not present				Tree not present		tbd	tbd
1797	Douglas-fir	<i>Pseudotsuga menziesii</i>	49	24.5	Fair	Fair	Wood pecker damage at base		tbd	tbd
1799	Douglas-fir	<i>Pseudotsuga menziesii</i>	44	22	Fair	Fair	Co-dominant stem with included bark		tbd	tbd
1801	Douglas-fir	<i>Pseudotsuga menziesii</i>	44	22	Fair	Fair	Co-dominant stem with included bark, cracks and wood pecker holes at base		tbd	tbd
1803	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Thin crown, excavation in root zone		tbd	tbd
1805	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Fair	Fair	Buried root flare		tbd	tbd
1807	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			tbd	tbd
1809	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	20.5	Fair	Fair	Torsion cracks at base, excavation in root zone		tbd	tbd

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
1811	Douglas-fir	<i>Pseudotsuga menziesii</i>	49	24.5	Fair	Fair	Torsion cracks in stem, wood pecker damage at base		tbd	tbd
1813	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Fair	Thin crown, bark damage at base		tbd	tbd
1815	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Fair	Crack with good response growth at base		tbd	tbd
1817	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Dead	Dead			tbd	tbd
1819	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Good	Good			tbd	tbd
1821	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Contorted stem at 25'		tbd	tbd
1821.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Good	Fair	Swelling at base where other tree was removed		tbd	tbd
1821.2	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Contorted stem at 15', bark damage at base		tbd	tbd
1823			Tree not present				Tree not present		tbd	tbd
1825			Tree not present				Tree not present		tbd	tbd
1827			Tree not present				Tree not present		tbd	tbd
1831			Tree not present				Tree not present		tbd	tbd
1833	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Good	Good			tbd	tbd
1835	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	17	Fair	Fair	Thin crown		tbd	tbd
1837	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Excavation in root zone		tbd	tbd
1839	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Thin crown		tbd	tbd
1841	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Good	Fair	Holes in trunk at base		tbd	tbd
1843	Douglas-fir	<i>Pseudotsuga menziesii</i>	51	25.5	Fair	Fair	Thin crown		tbd	tbd
1845	Douglas-fir	<i>Pseudotsuga menziesii</i>	48	24	Fair	Fair	Thin crown, dead limbs in crown		tbd	tbd
1847	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown, bark damage at base		tbd	tbd
1849	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			tbd	tbd
1885	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Good	Fair	Broken limbs at base		tbd	tbd
1887	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	19	Good	Fair	Broken limbs at base		tbd	tbd
1933			Tree not present				Tree not present		tbd	tbd
1957	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Dead	Dead			tbd	tbd
1958	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Dead	Dead			tbd	tbd
1959	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Dead	Dead			tbd	tbd
1960	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Thin crown, dead top		tbd	tbd

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
1961	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Dead	Dead			tbd	tbd
1962	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Dead	Dead			tbd	tbd
1963	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Poor	Poor	Dead top		tbd	tbd
1964	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Poor	Poor	Tree in decline		tbd	tbd
1965	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown		tbd	tbd
1966	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown		tbd	tbd
1967	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Good	Epicormic growth on limbs		tbd	tbd
1968	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Good	Fair	Broken limbs at base		tbd	tbd
1969	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Broken limbs at base		tbd	tbd
1970	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Fair	Fair	Thin crown		tbd	tbd
1971	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown		tbd	tbd
1972	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Thin crown		tbd	tbd
1973	Douglas-fir	<i>Pseudotsuga menziesii</i>	51	25.5	Fair	Fair	Broken limbs at base, over extended limbs		tbd	tbd
2071	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Good	Fair	Bark damage at base, ivy at base		tbd	tbd
2072	Oregon ash	<i>Fraxinus latifolia</i>	11	5.5	Poor	Poor	Contorted stem, thin crown		tbd	tbd
2073	Willow	<i>Salix sp.</i>	14	7	Dead	Dead			tbd	tbd
2074	Oregon ash	<i>Fraxinus latifolia</i>	20	10	Poor	Poor	Dead limbs in crown, over extended limbs		tbd	tbd
2075	Oregon ash	<i>Fraxinus latifolia</i>	14	7	Fair	Poor	One failed stem at base, decay at base, heavy lean		tbd	tbd
2116	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Dead	Dead			tbd	tbd
2118	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Dead	Dead			tbd	tbd
2120	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Poor	Poor	Dead top		tbd	tbd
2122	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Fair	Thin crown, bark damage at base		tbd	tbd
2124	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Fair	Fair	Bark damage at base, ivy in crown		tbd	tbd
2127	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Good	Fair	Bark damage at base		tbd	tbd
2129	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Very Poor	Very Poor	Dead top		tbd	tbd
2131	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Ivy in crown, thin crown		tbd	tbd
2133	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Ivy in crown		tbd	tbd
2135	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Thin crown, ivy covering base		tbd	tbd
2137	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	Fair	Good	Bark damage at base		tbd	tbd
2139	Douglas-fir	<i>Pseudotsuga menziesii</i>	37	18.5	Good	Good			tbd	tbd
2141	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Fair	Fair	Co-dominant stem with included bark at base, fruiting body at base		tbd	tbd
2143	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Dead	Dead			tbd	tbd
2145	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown		tbd	tbd
2147	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Thin crown		tbd	tbd
2149	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Poor	Thin crown, contorted stem, ivy covering base		tbd	tbd
2151	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	14.5	Poor	Poor	Thin crown, ivy covering stem		tbd	tbd

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
2153	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Dead	Dead			tbd	tbd
2155	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Ivy covering base		tbd	tbd
2157	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Dead	Dead			tbd	tbd
2159	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Good	Fair	Ivy covering base		tbd	tbd
2161	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Dead	Dead			tbd	tbd
2163	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Thin crown		tbd	tbd
2165	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Dead	Dead			tbd	tbd
2167	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	17	Fair	Fair	Bark damage at base, thin crown		tbd	tbd
2169	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Poor	Fair	Thin crown		tbd	tbd
2171	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown, ivy covering base, bark damage at base		tbd	tbd
2173	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Very Poor	Very Poor	Tree in heavy decline		tbd	tbd
2175	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Dead	Dead			tbd	tbd
2177	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Very Poor	Very Poor	Tree in heavy decline		tbd	tbd
2179	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Dead	Dead			tbd	tbd
2181	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Dead	Dead			tbd	tbd
2183	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Dead	Dead			tbd	tbd
2185	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Poor	Very Poor	Tree previously topped		tbd	tbd
2199	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	Good	Fair	Limb with included bark at 25', bark damage at base		tbd	tbd
2201	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Good	Poor	Co-dominant stem at base, heavy lean		tbd	tbd
2203	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Good	Fair	Co-dominant stem at base		tbd	tbd
2205	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	14.5	Good	Fair	Bark damage at base		tbd	tbd
2207	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			tbd	tbd
2209	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Fair	Fair	Thin crown, bark damage at base		tbd	tbd
2211	Douglas-fir	<i>Pseudotsuga menziesii</i>	42	21	Fair	Poor	Thin crown, decay at base		tbd	tbd
2213	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Poor	Fair	Thin crown		tbd	tbd
2215	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Fair	Fair	Bark damage at base		tbd	tbd
2217	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Fair	Fair	Pistol butt stem, thin crown		tbd	tbd
2219	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		tbd	tbd
2221	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Good			tbd	tbd
2223	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Thin crown		tbd	tbd
2225	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Poor	Poor	Sloughing bark at base, thin crown		tbd	tbd
2227	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Good	Good			tbd	tbd
2229	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Fair	Fair	Thin crown		tbd	tbd
2231	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Poor	Poor	Red ring rot fruiting bodies on stem		tbd	tbd

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
2233	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Poor	Poor	Bark damage at base, thin crown, decay at base		tbd	tbd
2235	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	19	Fair	Fair	Thin crown, excavation in root zone		tbd	tbd
2237	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Fair	Data visually collected	x	tbd	tbd
2239	Douglas-fir	<i>Pseudotsuga menziesii</i>	35	17.5	Fair	Poor	Insect damage at base, thin crown		tbd	tbd
2241	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Bark damage at base, thin crown		tbd	tbd
2241.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Dead	Dead			tbd	tbd
2244	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	14.5	Fair	Fair	Thin crown, decay at base		tbd	tbd
2246	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Fair	Thin crown		tbd	tbd
2248	Douglas-fir	<i>Pseudotsuga menziesii</i>	47	23.5	Good	Good			tbd	tbd
2250	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Decay at base, thin crown, barbed wire in base		tbd	tbd
2252	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Fair	Thin crown, soil around base		tbd	tbd
2254	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Fair	Thin crown		tbd	tbd
2256	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		tbd	tbd
2258	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Good	Poor	Excavation in root zone, bark damage at base		tbd	tbd
2260	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Bark damage at base, thin crown		tbd	tbd
2262	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Contorted stem, thin crown		tbd	tbd
2264	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Poor	Poor	Contorted top, bark damage at base, thin crown		tbd	tbd
2266	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	5.5	Fair	Fair	Thin crown, rock piled at base		tbd	tbd
2268	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Poor	Poor	Thin crown, ivy at base		tbd	tbd
2270	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Poor	Poor	Decay at base		tbd	tbd
2272	Douglas-fir	<i>Pseudotsuga menziesii</i>	46	23	Fair	Fair	Old wound with decay at base, thin crown		tbd	tbd
2274	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Good	Data visually collected	x	tbd	tbd
2276	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Good	Good	Data visually collected	x	tbd	tbd
2278	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Thin crown, bark damage at base, appears to be on edge of property line		tbd	tbd
2280	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Poor	Fair	Decay at base, thin crown		tbd	tbd
2282	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Poor	Poor	Decay at base, thin crown		tbd	tbd
2284	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Poor	Poor	Decay at base		tbd	tbd
2286	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Fair	Fair	Thin crown		tbd	tbd
2288	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Fair	Thin crown		tbd	tbd
2290	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Very Poor	Very Poor	Dead top		tbd	tbd
2292	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Ivy covering base, thin crown		tbd	tbd
2294	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Poor	Poor	Decay at base, ivy covering base		tbd	tbd
2296	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	20.5	Fair	Poor	Decay at base, thin crown		tbd	tbd

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
2298	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Fair	Fair	Thin crown		tbd	tbd
2300	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		tbd	tbd
2302	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Decay in stem at 20', thin crown		tbd	tbd
2304	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Good	Fair	Fence in base		tbd	tbd
2306	Douglas-fir	<i>Pseudotsuga menziesii</i>	54	27	Fair	Fair	Broken limb at base, thin crown		tbd	tbd
2308	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Thin crown		tbd	tbd
2310	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Fair	Fair	Thin crown		tbd	tbd
2312	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Thin crown		tbd	tbd
2314	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Thin crown		tbd	tbd
2316	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Fair	Ivy covering base		tbd	tbd
2318	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Ivy covering base		tbd	tbd
2320	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Good	Fair	Pistol butt		tbd	tbd
2322	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Ivy covering base		tbd	tbd
2324	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Ivy covering base		tbd	tbd
2326	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Ivy growing on stem		tbd	tbd
2328	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Good	Good	Data visually collected	x	tbd	tbd
2330	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Data visually collected	x	tbd	tbd
2332	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Good	Good			tbd	tbd
2334	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Data visually collected	x	tbd	tbd
2336	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Data visually collected	x	tbd	tbd
2338	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Good	Good	Data visually collected	x	tbd	tbd
2340	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Fair	Bark damage on roots, appears to be on edge of property line		tbd	tbd
2342	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Fair	Thin crown		tbd	tbd
2344	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		tbd	tbd
2346	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Poor	Decay in stem, bark damage at base		tbd	tbd
2348	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Decay in stem, thin crown		tbd	tbd
2350	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Good	Good			tbd	tbd
2352	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Poor	Poor	Exposed roots, thin crown		tbd	tbd
2354	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Fair	Fair	Thin crown		tbd	tbd
2356	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Good	Good			tbd	tbd
2358	Pacific madrone	<i>Arbutus menziesii</i>	18	9	Poor	Fair	Data visually collected	x	tbd	tbd
2360	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Good	Good	Data visually collected	x	tbd	tbd
2362	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Fair	Data visually collected	x	tbd	tbd
2364	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Fair	Good	Data visually collected	x	tbd	tbd
2366	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Poor	Fair	Thin crown, appears to be on edge of property line		tbd	tbd
2368	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Good	Data visually collected	x	tbd	tbd
2370	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Fair	Good	Thin crown		tbd	tbd
2372	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			tbd	tbd

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
2374	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Good	Good	Appears to be on edge of property line		tbd	tbd
2376	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	17	Good	Good	Data visually collected	x	tbd	tbd
2378	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Good	Fair	Data visually collected	x	tbd	tbd
2380	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Good	Data visually collected	x	tbd	tbd
2382	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Poor	Fair	Ivy covering base, thin crown		tbd	tbd
2384	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Data visually collected	x	tbd	tbd
2386	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Good	Data visually collected	x	tbd	tbd
2388	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Data visually collected	x	tbd	tbd
2390	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Fair	Fair	Data visually collected	x	tbd	tbd
2392	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Fair	Good	Data visually collected	x	tbd	tbd
2398	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Good	Good	Data visually collected	x	tbd	tbd
2400	bigleaf maple	<i>Acer macrophyllum</i>	10	5	Good	Fair	Data visually collected	x	tbd	tbd
2420	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Poor	Data visually collected	x	tbd	tbd
2423	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Data visually collected	x	tbd	tbd
2425	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	5	Poor	Poor	Data visually collected	x	tbd	tbd
2427	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Good	Data visually collected	x	tbd	tbd
2430	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Good	Fair	Data visually collected	x	tbd	tbd
2432	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Good	Fair	Data visually collected	x	tbd	tbd
2434	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Fair	Fair	Fence in base, thin crown, appears to be on edge of property line		tbd	tbd
2437	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Data visually collected	x	tbd	tbd
2439	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Good	Data visually collected	x	tbd	tbd
2441	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Fair	Thin crown		tbd	tbd
2443	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Fair	Fair	Thin crown, bark damage at base		tbd	tbd
2445	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Fair	Fair	Thin crown		tbd	tbd
2447	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Good	Fair	Bark damage at base		tbd	tbd
2449	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown		tbd	tbd
2451	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Poor	Wood pecker damage at base, thin crown, decay at base		tbd	tbd
2453	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Thin crown		tbd	tbd
2455	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Poor	Poor	Red ring rot, thin crown		tbd	tbd
2458	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Good	Good	Data visually collected	x	tbd	tbd
2460	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Good	Good	Data visually collected	x	tbd	tbd
2462	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Thin crown		tbd	tbd
2464	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Broken top, decay in stem		tbd	tbd
2466	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	5	Fair	Fair	Thin crown		tbd	tbd
2468	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Co-dominant stem with included bark		tbd	tbd
2470	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Co-dominant stem with included bark, ivy covering stem		tbd	tbd

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Mitigation ⁴
2472	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	5	Good	Fair	Data visually collected	x	tbd	tbd
2475	Douglas-fir	<i>Pseudotsuga menziesii</i>	40	20	Good	Good	Data visually collected	x	tbd	tbd
2477	Oregon white oak	<i>Quercus garryana</i>	12	6	Fair	Fair	Data visually collected	x	tbd	tbd
2479	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown, fence in base		tbd	tbd
2481	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		tbd	tbd
2483	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Good	Good			tbd	tbd
2485	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Fair	Bark damage at base		tbd	tbd
2487	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Poor	Poor	Broken limbs in crown, thin crown		tbd	tbd
2489	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Poor	Poor	Thin crown		tbd	tbd
2496	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Thin crown		tbd	tbd
2498	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Fair	Fair	Co-dominant stem with included bark, thin crown		tbd	tbd
2500	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Dead	Dead			tbd	tbd
2502	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Good	Good			tbd	tbd
2504	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		tbd	tbd
2506	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Fair	Fair	Bark damage at base, thin crown		tbd	tbd
2508	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Poor	Fair	Thin crown		tbd	tbd
2587	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Fair	Poor	Co-dominant stem with included bark		tbd	tbd

¹DBH is the trunk diameter in inches measured per International Society of Arboriculture (ISA) standards.

²C-Rad is the approximate crown radius in feet.

³Condition and Structure ratings range from dead, very poor, poor, fair, to good.

⁴Mitigation is recommended for the removal of trees over 6-inch DBH. Trees that are less than 6-inch DBH are not recommended for mitigation.



REQUESTED BY:
LEE LEIGHTON (MACKENZIE)
FOR: DELTA LOGISTICS
9835 SW COMMERCE CIRCLE
WILSONVILLE, OR 97070

DRAFT

TREE SURVEY

9710 SW DAY ROAD
LOCATED IN THE SW 1/4 AND THE NW 1/4
SECTION 2, T.3S., R.1W., W.M.
WASHINGTON COUNTY, OREGON

SURVEYOR'S NOTES

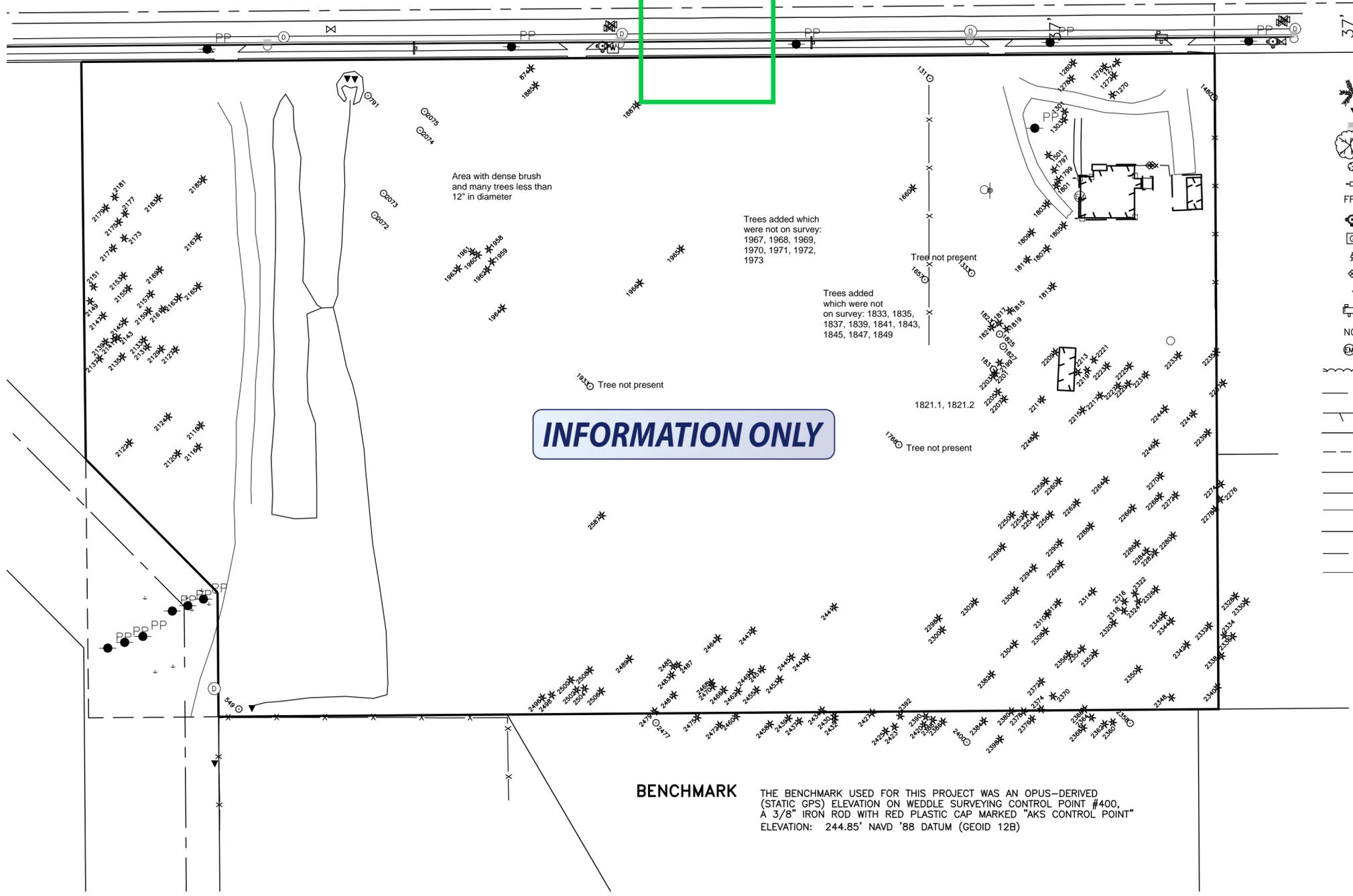
1. THE BASIS OF BEARINGS FOR THIS SURVEY IS PER SURVEY NO. 29,223, WASHINGTON COUNTY SURVEY RECORDS. THIS IS NOT A RECORDABLE BOUNDARY SURVEY, A RECORD OF SURVEY IS IN PROGRESS.
2. UNDERGROUND UTILITIES ARE SHOWN PER SURFACE MARKINGS. THE SURVEYOR MAKES NO GUARANTEE AS TO THE EXACT LOCATION, EXISTENCE, NON-EXISTENCE OR COMPLETENESS OF ANY SUBSURFACE UTILITIES SHOWN, OR NOT SHOWN ON THE MAP. CALL 811 BEFORE DIGGING.
3. TOTAL SURVEYED SITE AREA = 9.169 ACRES
BUILDABLE AREA EAST OF EASTERLY S.R.O.Z. = 6.338 ACRES
4. DUE TO THE DENSE, OVERGROWN NATURE OF VEGETATION ON SITE, NOT ALL TREES WERE MAPPED AND A 3-D SURFACE OVER THE ENTIRE SITE WAS NOT OBTAINABLE.



SCALE: 1" = 60'
OCTOBER, 2019
SEPTEMBER, 2021

S.W. DAY STREET

SW DAY ROAD



INFORMATION ONLY

LEGEND	
	CONIFEROUS TREE
	CULVERT INVERT
	CURB INLET
	DECIDUOUS TREE
	DECORATIVE SHRUB
	DOWNSPOUT
	FINISH FLOOR ELEV.
	FIRE HYDRANT
	GAS METER
	GAS RISER
	GATE POST
	GUY ANCHOR
	MAILBOX
	NATURAL GROUND
	POWER METER
	POWER POLE
	SIGN "AS NOTED"
	SITE BENCHMARK
	SPOT ELEVATION
	GUTTER
	TOP OF CURB
	SIGNIFICANT RESOURCE OVERLAY ZONE
	STORM DRAIN MANHOLE
	SURVEY MONUMENTS FOUND
	SURVEY MONUMENTS SET
	UTILITY LID
	WATER METER
	WATER RISER
	WATER VALVE
	WETLANDS BUFFER/LINE STAKES
	BRUSH LINE
	BUILDING EAVE
	BUILDING FOOTPRINT
	CENTERLINE
	EASEMENT LINE
	FENCE LINE
	GAS LINE
	OVERHEAD POWER
	STORM DRAIN LINE
	TAX LOT LINE
	WATER LINE
	WETLANDS BUFFER
	ASPHALT
	CONCRETE
	GRAVEL

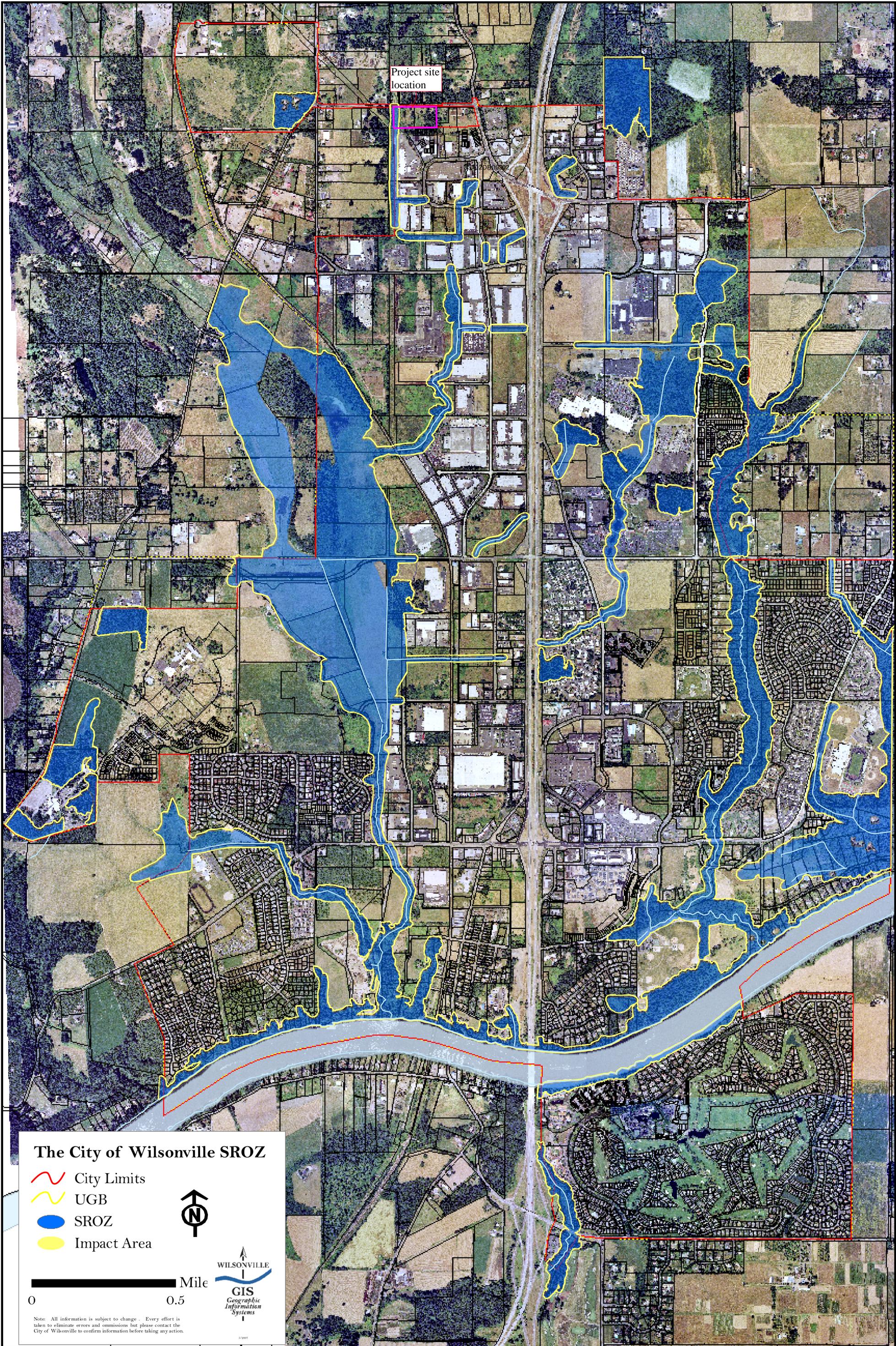
BENCHMARK

THE BENCHMARK USED FOR THIS PROJECT WAS AN OPUS-DERIVED (STATIC GPS) ELEVATION ON WEDDLE SURVEYING CONTROL POINT #400, A 3/8" IRON ROD WITH RED PLASTIC CAP MARKED "AKS CONTROL POINT" ELEVATION: 244.85' NAVD '88 DATUM (GEOID 12B)

REGISTERED PROFESSIONAL LAND SURVEYOR
Anthony B. Ryan
OREGON
JULY 13, 2004
ANTHONY B. RYAN
58833
EXPIRES: DECEMBER 31, 2022

6950 SW HAMPTON ST., STE. 170, TIGARD, OR 97223
PH: (503) 941-9585 FAX: (503) 941-9640
www.weddlesurveying.net

**APPENDIX D. WILSONVILLE SIGNIFICANT RESOURCE
OVERLAY ZONE MAP**



Project site location

The City of Wilsonville SROZ

-  City Limits
-  UGB
-  SROZ
-  Impact Area



0  Mile 0.5



Note: All information is subject to change. Every effort is taken to eliminate errors and omissions but please contact the City of Wilsonville to confirm information before taking any action.

APPENDIX E. GROUND LEVEL PHOTOGRAPHS



Photo Point 1. From forested hillside in the eastern portion of the site facing north (photo date: 10/23/2019).



Photo Point 1. From forested hillside in the eastern portion of the site facing east (photo date: 10/23/2019).



Photo Point 1. From forested hillside in the eastern portion of the site facing south (photo date: 10/23/2019).



Photo Point 1. From forested hillside in the eastern portion of the site facing west (photo date: 10/23/2019).



Photo Point 2. From the bottom of the hill in the central portion of the site facing north (photo date: 10/23/2019).



Photo Point 2. From the bottom of the hill in the central portion of the site facing east (photo date: 10/23/2019).



Photo Point 2. From the bottom of the hill in the central portion of the site facing south (photo date: 10/23/2019).



Photo Point 2. From the bottom of the hill in the central portion of the site facing west (photo date: 10/23/2019).



Photo Point 3. From the northern portion of Wetland 1 (CWM site) facing north toward wetland area (photo date: 10/23/2019).



Photo Point 3. From the northern portion of Wetland 1 (CWM site) facing east toward wetland boundary (photo date: 10/23/2019).



Photo Point 3. From the northern portion of Wetland 1 (CWM site) facing south toward wetland area (photo date: 10/23/2019).



Photo Point 3. From the northern portion of Wetland 1 (CWM site) facing west toward wetland boundary (photo date: 10/23/2019).



Photo Point 4. From the southern portion of Wetland 1 (CWM site) facing north along wetland boundary at toe of slope (photo date: 10/23/2019).



Photo Point 4. From Wetland 1 (CWM site) facing east toward wetland area (photo date: 10/23/2019).



Photo Point 4. From the southern portion of Wetland 1 (CWM site) facing south along wetland boundary at toe of slope (photo date: 10/23/2019).



Photo Point 4. From Wetland 1 (CWM site) facing west toward access road and upland forest area (photo date: 10/23/2019).



Photo Point 5. From the northern portion of Tapman Creek (wetland drainage) facing north toward double culverts (photo date: 10/23/2019).



Photo Point 5. From the northern portion of Tapman Creek (wetland drainage) facing east toward drainage bank (photo date: 10/23/2019).



Photo Point 5. From the northern portion of Tapman Creek (wetland drainage) facing south, downslope (photo date: 10/23/2019).



Photo Point 5. From the northern portion of Tapman Creek (wetland drainage) facing west toward drainage bank (photo date: 10/23/2019).



Photo Point 6. From Wetland 2 facing north toward wetland area (photo date: 10/23/2019).



Photo Point 6. From Wetland 2 facing east toward wetland boundary (photo date: 10/23/2019).



Photo Point 6. From Wetland 2 facing south toward wetland area (photo date: 10/23/2019).



Photo Point 6. From Wetland 2 facing west toward wetland boundary (photo date: 10/23/2019).



Photo Point 7. From the top of bank of the CWM site (Wetland 1) facing south (photo date: 9/1/2021).



Photo Point 7. From the top of bank of the CWM site (Wetland 1) facing north (photo date: 9/1/2021).



Photo Point 7. From the top of bank of the CWM site (Wetland 1) facing west (photo date: 9/1/2021).



Photo Point 8. From the top of bank of Tapman Creek (wetland drainage) in the central portion facing north, upslope (photo date: 9/1/2021).



Photo Point 8. From the top of bank of Tapman Creek (wetland drainage) in the central portion facing east across the drainage (photo date: 9/1/2021).



Photo Point 8. From the top of bank of Tapman Creek (wetland drainage) in the central portion facing south, downslope (photo date: 9/1/2021).



Photo Point 8. From the top of bank of Tapman Creek (wetland drainage) in the central portion facing west toward CWM site (Wetland 1) (photo date: 9/1/2021).



Photo Point 9. From the recently graveled area facing west (photo date: 9/1/2021).



Photo Point 9. From the recently graveled area facing north (photo date: 9/1/2021).



Photo Point 9. From the recently graveled area facing east (photo date: 9/1/2021).



Photo Point 9. From the recently graveled area facing south (photo date: 9/1/2021).



Photo Point 10. From the southern end of Tapman Creek facing west (photo date: 9/1/2021).



Photo Point 10. From the southern end of Tapman Creek facing east (photo date: 9/1/2021).

APPENDIX F. OFWAM FORMS

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY (OFWAM)
ASSESSMENT QUESTIONS

Wetland 1

Wildlife Habitat (WH)

1. How many Cowardin wetland classes are present (include vertical strata $\geq 20\%$ cover)?
 - a. 2 or more
 - b. 1 with >5 plant species
 - c. 1 w/ ≤ 5 plant species
2. What is the dominant wetland vegetation cover type?
 - a. Woody vegetation
 - b. Emergent vegetation and ponding, or open water only
 - c. Emergent vegetation or wet meadow
3. What is the degree of Cowardin class interspersion for the wetland being observed (Fig. 3)?
 - a. High
 - b. Moderate
 - c. Low
4. How many acres of unvegetated open water are present?
 - a. More than 1 acre
 - b. Between 0.5 and 1 acre
 - c. Less than 0.5 acre
5. How is the wetland connected to another body of water, such as a stream, lake or pond (F. 2)?
 - a. The wetland is connected by surface water to another body of water
 - b. No surface water connection exists, but other bodies of water lie within 1 mile
 - c. No surface water connection exists, and no other bodies of water lie within 1 mile
6. How is the wetland connected to other wetlands?
 - a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake
 - b. Not connected by surface water, but other unconnected wetlands lie within a 3-mile radius
 - c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius
7. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?
 - a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
8. What is the dominant existing land use within 500 feet of the wetland's edge?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c. Developed uses
- 9b. What percent of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide?
 - a. Greater than 40%
 - b. Between 10 and 40%
 - c. Less than 10%

Is it 50 feet wide or wider? **yes** ___ no ___ notes:

Wildlife Habitat Assessment Criteria	
The wetland provides <i>diverse</i> wildlife habitat if:	At least four questions are answered "a," and no more than one is answered "c."
The wetland provides <i>habitat for some species</i> if:	Answers do not satisfy the above- or below-listed criteria.
The wetland's wildlife habitat function is <i>lost or not present</i> if:	All questions are answered "c."

Fish Habitat (FH)

Part A - Streams

1. What percentage of the stream is shaded by stream-side (riparian) vegetation?
 - a. More than 75%
 - b.** Between 50 and 75%
 - c. Less than 50%
2. What is the physical character of the stream channel?
 - a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel
 - b.** Only portions of the stream channel are modified
 - c. The stream is extensively modified or confined in a non-vegetated channel or pipe
3. What percentage of the entire stream contains instream structures such as large woody debris, floating submerged vegetation, large rocks or boulders?
 - a. More than 25%
 - b.** Between 10 and 25%
 - c. Less than 10%
4. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (= WH7)?
 - a.** No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
5. What is the dominant existing land use within 500 feet of the wetland's edge (= WH8)?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c.** Developed uses
6. Are fish present in a stream, lake or pond associated with the wetland?
 - a. Salmon, trout or sensitive species are present at some time during the year
 - b. Species not covered in "a" are present at some time during the year
 - c.** No species are present at any time during the year

Part B - Lakes and Ponds

1. Does the lake or pond contain areas of both deep and shallow water?
 - a. Yes
 - b. Cannot be determined.
 - c. No
2. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
 - a. More than 25%
 - b. Between 10 and 75%
 - c. Less than 10%
3. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
 - a. 60% or more
 - b. Between 20 and 59%
 - c. Less than 20%
4. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (= WH7)?
 - a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
5. What is the dominant existing land use within 500 feet of the wetland's edge (= WH8)?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c. Developed uses
6. Are fish in a stream, lake or pond associated with the wetland?
 - a. Salmon, trout or sensitive species are present at some time during the year
 - b. Species not covered in "a" are present at some time during the year

c. No species are present at any time during the year

Fish Habitat Assessment Criteria	
The wetland's fish habitat function is <i>intact</i> if:	Three or more questions are answered "a," and no more than one is answered "c."
The wetlands's fish habitat function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
The wetlands's fish habitat function is <i>lost or not present</i> if:	All questions are answered "c."

Water Quality (Pollutant Removal; WQ)

1. What is the wetland's primary source of water?
 - a. Surface flow, including streams and ditches
 - b. Precipitation or sheet flow
 - c. Groundwater, including seeps and springs
2. Is there evidence of flooding or ponding during a portion of the growing season?
 - a. Yes
 - b. Unable to determine or not applicable
 - c. No
3. What is the degree of wetland vegetation cover?
 - a. High (>60%; OW<40%)
 - b. Moderate (~60%; OW=40%)
 - c. Low (<60%; OW>40%)
4. What is the wetland's area in acres?
 - a. >5 acres
 - b. Between 0.5 acre and 5 acres; or <0.5 acres and the wetland is connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake
 - c. <0.5 acre, and the wetland is not connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake
5. What is the dominant, existing land use within 500 feet of the wetland's edge (opposite WH8)?
 - a. Developed uses
 - b. Agriculture
 - c. Exclusive Forest Use or Open Space
6. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (opposite WH7)?
 - a. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. No upstream or adjacent reached are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants

Water Quality Assessment Criteria	
A wetland's water-quality function is <i>intact</i> if:	Four or more questions are answered "a."
A wetland's water-quality function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
A wetlands's water-quality function is <i>lost or not present</i> if:	Four or more questions are answered "c."

Hydrologic Control (Flood Control & Water Supply; HC)

1. Is all or part of the wetland located within the 100-year floodplain or within an enclosed basin?
 - a. Yes b. **No**
2. Is there evidence of flooding or ponding during a portion of the growing season?
 - a.** Yes b. Unable to determine or not applicable c. No
3. What is the wetland's area in acres?
 - a. >5 acres b. Between 0.5 and 5 acres **c.** <0.5 acre
4. Is waterflow out of the wetland restricted (eg., beaver dam, concrete structure, undersized culvert)?
 - a. Yes, the outlet is restricted or the wetland has not outlet
 - b.** Minor restrictions slow down the water (i.e., undersized culvert)
 - c. No the outlet has unrestricted flow
5. What is the dominant wetland vegetation cover type (=WH2)?
 - a.** Woody vegetation
 - b. Emergent vegetation and ponding, or open water only
 - c. Emergent vegetation or wet meadow
6. What is the dominant existing land use within 500 feet of the wetland on the downstream or down-slope edge of the wetland?
 - a.** Developed uses b. Agriculture c. Exclusive Forest Use or Open Space
7. What is the dominant land use in the watershed upstream from the assessment area?
 - a. Urban or Urbanizing b. Agriculture **c.** Forested or Natural Area

Hydrologic Control Assessment Criteria	
A wetland's hydrologic control function is <i>intact</i> if:	Four or more questions are answered "a."
A wetland's hydrologic control function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
A wetland's hydrologic control function is <i>lost or not present</i> if:	Four or more questions are answered "c."

OFWAM FUNCTION SUMMARY

WH: Some habitat

FH: Impacted or degraded

WQ: Intact

HC: Impacted or degraded

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY (OFWAM)
ASSESSMENT QUESTIONS

Wetland 2

Wildlife Habitat (WH)

1. How many Cowardin wetland classes are present (include vertical strata $\geq 20\%$ cover)?
 - a. 2 or more
 - b. 1 with >5 plant species
 - c. 1 w/ ≤ 5 plant species
2. What is the dominant wetland vegetation cover type?
 - a. Woody vegetation
 - b. Emergent vegetation and ponding, or open water only
 - c. Emergent vegetation or wet meadow
3. What is the degree of Cowardin class interspersion for the wetland being observed (Fig. 3)?
 - a. High
 - b. Moderate
 - c. Low
4. How many acres of unvegetated open water are present?
 - a. More than 1 acre
 - b. Between 0.5 and 1 acre
 - c. Less than 0.5 acre
5. How is the wetland connected to another body of water, such as a stream, lake or pond (F. 2)?
 - a. The wetland is connected by surface water to another body of water
 - b. No surface water connection exists, but other bodies of water lie within 1 mile
 - c. No surface water connection exists, and no other bodies of water lie within 1 mile
6. How is the wetland connected to other wetlands?
 - a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake
 - b. Not connected by surface water, but other unconnected wetlands lie within a 3-mile radius
 - c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius
7. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?
 - a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
8. What is the dominant existing land use within 500 feet of the wetland's edge?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c. Developed uses
- 9b. What percent of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide?
 - a. Greater than 40%
 - b. Between 10 and 40%
 - c. Less than 10%

Is it 50 feet wide or wider? **yes** ___ no ___ notes:

Wildlife Habitat Assessment Criteria	
The wetland provides <i>diverse</i> wildlife habitat if:	At least four questions are answered "a," and no more than one is answered "c."
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Fish Habitat (FH)

Part A - Streams

1. What percentage of the stream is shaded by stream-side (riparian) vegetation?
 - a. More than 75%
 - b. Between 50 and 75%
 - c. Less than 50%
2. What is the physical character of the stream channel?
 - a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel
 - b. Only portions of the stream channel are modified
 - c. The stream is extensively modified or confined in a non-vegetated channel or pipe
3. What percentage of the entire stream contains instream structures such as large woody debris, floating submerged vegetation, large rocks or boulders?
 - a. More than 25%
 - b. Between 10 and 25%
 - c. Less than 10%
4. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (= WH7)?
 - a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
5. What is the dominant existing land use within 500 feet of the wetland's edge (= WH8)?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c. Developed uses
6. Are fish present in a stream, lake or pond associated with the wetland?
 - a. Salmon, trout or sensitive species are present at some time during the year
 - b. Species not covered in "a" are present at some time during the year
 - c. No species are present at any time during the year

Part B - Lakes and Ponds

1. Does the lake or pond contain areas of both deep and shallow water?
 - a. Yes
 - b. Cannot be determined.
 - c. No
2. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
 - a. More than 25%
 - b. Between 10 and 75%
 - c. Less than 10%
3. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
 - a. 60% or more
 - b. Between 20 and 59%
 - c. Less than 20%
4. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (= WH7)?
 - a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
5. What is the dominant existing land use within 500 feet of the wetland's edge (= WH8)?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c. Developed uses
6. Are fish in a stream, lake or pond associated with the wetland?
 - a. Salmon, trout or sensitive species are present at some time during the year
 - b. Species not covered in "a" are present at some time during the year

c. No species are present at any time during the year

Fish Habitat Assessment Criteria	
The wetland's fish habitat function is <i>intact</i> if:	Three or more questions are answered "a," and no more than one is answered "c."
The wetlands's fish habitat function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
The wetlands's fish habitat function is <i>lost or not present</i> if:	All questions are answered "c."

Water Quality (Pollutant Removal; WQ)

1. What is the wetland's primary source of water?
 - a. Surface flow, including streams and ditches
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 - c. Groundwater, including seeps and springs
2. Is there evidence of flooding or ponding during a portion of the growing season?
 - a. Yes
 - b. Unable to determine or not applicable
 - c. No
3. What is the degree of wetland vegetation cover?
 - a. High (>60%; OW<40%)
 - b. Moderate (~60%; OW=40%)
 - c. Low (<60%; OW>40%)
4. What is the wetland's area in acres?
 - a. >5 acres
 - b. Between 0.5 acre and 5 acres; or <0.5 acres and the wetland is connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake
 - c. <0.5 acre, and the wetland is not connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake
5. What is the dominant, existing land use within 500 feet of the wetland's edge (opposite WH8)?
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6. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (opposite WH7)?
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Water Quality Assessment Criteria	
A wetland's water-quality function is <i>intact</i> if:	Four or more questions are answered "a."
A wetland's water-quality function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
A wetlands's water-quality function is <i>lost or not present</i> if:	Four or more questions are answered "c."

Hydrologic Control (Flood Control & Water Supply; HC)

1. Is all or part of the wetland located within the 100-year floodplain or within an enclosed basin?
 - a. Yes b. **No**
2. Is there evidence of flooding or ponding during a portion of the growing season?
 - a. Yes b. Unable to determine or not applicable **c. No**
3. What is the wetland's area in acres?
 - a. >5 acres b. Between 0.5 and 5 acres **c. <0.5 acre**
4. Is waterflow out of the wetland restricted (eg., beaver dam, concrete structure, undersized culvert)?
 - a. Yes, the outlet is restricted or the wetland has not outlet**
 - b. Minor restrictions slow down the water (i.e., undersized culvert)
 - c. No the outlet has unrestricted flow
5. What is the dominant wetland vegetation cover type (=WH2)?
 - a. Woody vegetation**
 - b. Emergent vegetation and ponding, or open water only
 - c. Emergent vegetation or wet meadow
6. What is the dominant existing land use within 500 feet of the wetland on the downstream or down-slope edge of the wetland?
 - a. Developed uses** b. Agriculture c. Exclusive Forest Use or Open Space
7. What is the dominant land use in the watershed upstream from the assessment area?
 - a. Urban or Urbanizing b. Agriculture **c. Forested or Natural Area**

Hydrologic Control Assessment Criteria	
A wetland's hydrologic control function is <i>intact</i> if:	Four or more questions are answered "a."
A wetland's hydrologic control function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
A wetland's hydrologic control function is <i>lost or not present</i> if:	Four or more questions are answered "c."

OFWAM FUNCTION SUMMARY

WH: Some habitat

FH: Not present

WQ: Lost

HC: Impacted or degraded

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY (OFWAM)
ASSESSMENT QUESTIONS

Wetland Tapman Creek

Wildlife Habitat (WH)

1. How many Cowardin wetland classes are present (include vertical strata $\geq 20\%$ cover)?
 - a. 2 or more
 - b. 1 with >5 plant species
 - c.** 1 w/ ≤ 5 plant species
2. What is the dominant wetland vegetation cover type?
 - a. Woody vegetation
 - b. Emergent vegetation and ponding, or open water only
 - c.** Emergent vegetation or wet meadow
3. What is the degree of Cowardin class interspersion for the wetland being observed (Fig. 3)?
 - a. High
 - b. Moderate
 - c.** Low
4. How many acres of unvegetated open water are present?
 - a. More than 1 acre
 - b. Between 0.5 and 1 acre
 - c.** Less than 0.5 acre
5. How is the wetland connected to another body of water, such as a stream, lake or pond (F. 2)?
 - a. The wetland is connected by surface water to another body of water
 - b.** No surface water connection exists, but other bodies of water lie within 1 mile
 - c. No surface water connection exists, and no other bodies of water lie within 1 mile
6. How is the wetland connected to other wetlands?
 - a.** Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake
 - b. Not connected by surface water, but other unconnected wetlands lie within a 3-mile radius
 - c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius
7. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?
 - a.** No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
8. What is the dominant existing land use within 500 feet of the wetland's edge?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c.** Developed uses
- 9b. What percent of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide?
 - a.** Greater than 40%
 - b. Between 10 and 40%
 - c. Less than 10%

Is it 50 feet wide or wider? **yes** no notes:

Wildlife Habitat Assessment Criteria	
The wetland provides <i>diverse</i> wildlife habitat if:	At least four questions are answered "a," and no more than one is answered "c."
The wetland provides <i>habitat for some species</i> if:	Answers do not satisfy the above- or below-listed criteria.
The wetland's wildlife habitat function is <i>lost or not present</i> if:	All questions are answered "c."

Fish Habitat (FH)

Part A - Streams

1. What percentage of the stream is shaded by stream-side (riparian) vegetation?
 - a. More than 75%
 - b.** Between 50 and 75%
 - c. Less than 50%
2. What is the physical character of the stream channel?
 - a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel
 - b.** Only portions of the stream channel are modified
 - c. The stream is extensively modified or confined in a non-vegetated channel or pipe
3. What percentage of the entire stream contains instream structures such as large woody debris, floating submerged vegetation, large rocks or boulders?
 - a. More than 25%
 - b. Between 10 and 25%
 - c.** Less than 10%
4. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (= WH7)?
 - a.** No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
5. What is the dominant existing land use within 500 feet of the wetland's edge (= WH8)?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c.** Developed uses
6. Are fish present in a stream, lake or pond associated with the wetland?
 - a. Salmon, trout or sensitive species are present at some time during the year
 - b. Species not covered in "a" are present at some time during the year
 - c.** No species are present at any time during the year

Part B - Lakes and Ponds

1. Does the lake or pond contain areas of both deep and shallow water?
 - a. Yes
 - b. Cannot be determined.
 - c. No
2. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?
 - a. More than 25%
 - b. Between 10 and 75%
 - c. Less than 10%
3. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?
 - a. 60% or more
 - b. Between 20 and 59%
 - c. Less than 20%
4. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (= WH7)?
 - a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
5. What is the dominant existing land use within 500 feet of the wetland's edge (= WH8)?
 - a. Exclusive Forest Use or Open Space
 - b. Agriculture
 - c. Developed uses
6. Are fish in a stream, lake or pond associated with the wetland?
 - a. Salmon, trout or sensitive species are present at some time during the year
 - b. Species not covered in "a" are present at some time during the year

c. No species are present at any time during the year

Fish Habitat Assessment Criteria	
The wetland's fish habitat function is <i>intact</i> if:	Three or more questions are answered "a," and no more than one is answered "c."
The wetlands's fish habitat function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
The wetlands's fish habitat function is <i>lost or not present</i> if:	All questions are answered "c."

Water Quality (Pollutant Removal; WQ)

1. What is the wetland's primary source of water?
 - a. Surface flow, including streams and ditches
 - b. Precipitation or sheet flow
 - c. Groundwater, including seeps and springs
2. Is there evidence of flooding or ponding during a portion of the growing season?
 - a. Yes
 - b. Unable to determine or not applicable
 - c. No
3. What is the degree of wetland vegetation cover?
 - a. High (>60%; OW<40%)
 - b. Moderate (~60%; OW=40%)
 - c. Low (<60%; OW>40%)
4. What is the wetland's area in acres?
 - a. >5 acres
 - b. Between 0.5 acre and 5 acres; or <0.5 acres and the wetland is connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake
 - c. <0.5 acre, and the wetland is not connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake
5. What is the dominant, existing land use within 500 feet of the wetland's edge (opposite WH8)?
 - a. Developed uses
 - b. Agriculture
 - c. Exclusive Forest Use or Open Space
6. What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland (opposite WH7)?
 - a. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants
 - b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants
 - c. No upstream or adjacent reached are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants

Water Quality Assessment Criteria	
A wetland's water-quality function is <i>intact</i> if:	Four or more questions are answered "a."
A wetland's water-quality function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
A wetlands's water-quality function is <i>lost or not present</i> if:	Four or more questions are answered "c."

Hydrologic Control (Flood Control & Water Supply; HC)

1. Is all or part of the wetland located within the 100-year floodplain or within an enclosed basin?
 - a. Yes b. **No**
2. Is there evidence of flooding or ponding during a portion of the growing season?
 - a.** Yes b. Unable to determine or not applicable c. No
3. What is the wetland's area in acres?
 - a. >5 acres b. Between 0.5 and 5 acres **c.** <0.5 acre
4. Is waterflow out of the wetland restricted (eg., beaver dam, concrete structure, undersized culvert)?
 - a.** Yes, the outlet is restricted or the wetland has not outlet
 - b. Minor restrictions slow down the water (i.e., undersized culvert)
 - c. No the outlet has unrestricted flow
5. What is the dominant wetland vegetation cover type (=WH2)?
 - a. Woody vegetation
 - b. Emergent vegetation and ponding, or open water only
 - c.** Emergent vegetation or wet meadow
6. What is the dominant existing land use within 500 feet of the wetland on the downstream or down-slope edge of the wetland?
 - a.** Developed uses b. Agriculture c. Exclusive Forest Use or Open Space
7. What is the dominant land use in the watershed upstream from the assessment area?
 - a. Urban or Urbanizing b. Agriculture **c.** Forested or Natural Area

Hydrologic Control Assessment Criteria	
A wetland's hydrologic control function is <i>intact</i> if:	Four or more questions are answered "a."
A wetland's hydrologic control function is <i>impacted or degraded</i> if:	Answers do not satisfy the above- or below-listed criteria.
A wetland's hydrologic control function is <i>lost or not present</i> if:	Four or more questions are answered "c."

OFWAM FUNCTION SUMMARY

WH: Some habitat

FH: Not present

WQ: Lost

HC: Impacted or degraded

APPENDIX G. HABITAT ASSESSMENT FORM

Component		Degree			Score	Comments
WATER	Quantity and Seasonality	None 0.....	Seasonal 4.....	Perennial8	4	Small seasonal wetland/streams present
	Quality	Stagnant 0.....	Seasonally Flushed 3.....	Continually Flushed6	3	Wetlands seasonally inundated and sloped
	Proximity to Cover	None 0.....	Nearby 3.....	Immediately adjacent6	4	Dense blackberry thicket proximal to wetland. Cover for small wildlife only
	Diversity (Streams, Ponds, Wetlands)	One 2.....	Two 4.....	Three8	4	2 water types present
	WATER TOTAL				15	
FOOD	Variety	Low 0.....	Medium 4.....	High8	2	Blackberry and hawthorn berries only major food source
	Quality and Seasonality	None 0.....	Limited 4.....	Year around8	2	Short berry season
	Proximity to Cover	None 0.....	Nearby 4.....	Immediately adjacent8	6	Blackberry thicket provides cover for small wildlife only. Forest cover nearby offers cover for larger
FOOD TOTAL				10		
COVER	Structural Diversity	Low 0.....	Medium 4.....	High8	4	Mostly shrub, some trees
	Variety	Low 0.....	Medium 4.....	High8	4	Mostly shrub, some trees
	Nesting	Low 0.....	Medium 2.....	High4	2	
	Escape	Low 0.....	Medium 2.....	High4	2	
	Seasonality	None 0.....	Limited 2.....	Year around4	2	
COVER TOTAL				14		

ADDITIONAL VALUE						
DISTURBANCE	PHYSICAL	Permanent 0.....2.....4	Temporary	Undisturbed	1	invasive species dominant, little natural tree cover
	HUMAN	High 0.....2.....4	Medium	Low	2	Surrounded by developed uses
HABITAT INTERSPERSION		Low 0.....3.....6	Medium	High	3	
UNIQUE FEATURES 0-4		Wildlife _____ Flora _____ Scenic _____ Potential _____	Rarity of Habitat _____ Type _____ Educational _____ Potential _____		0	none

APPENDIX H: DSL CONCURRENCE LETTER: WD2021-0556



Oregon

Kate Brown, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregon.gov/dsl

State Land Board

Kate Brown

Governor

Shemia Fagan

Secretary of State

Tobias Read

State Treasurer

December 2, 2021

Delta Logistics, Inc.
Attn: Vladimir Tkach
9835 SW Commerce Circle
Wilsonville, OR 97070

Re: WD # 2021-0556 **Approved**
Wetland Delineation Report for SW Day Road
Washington County; T3S R1W S02B TLs 600 and 601; RGL # 1793
City of Sherwood Local Wetlands Inventory Wetland 3.03

Dear Vladimir Tkach:

The Department of State Lands has reviewed the wetland delineation report prepared by Schott and Associates for the site referenced above. Based upon the information presented in the report, and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in Figures 6A and 6B of the report. Please replace all copies of the preliminary wetland maps with these final Department-approved maps.

Within the study area, 2 wetlands (Wetland 1 and 2, totaling approximately 0.33 acres) and Tapman Creek were identified. The wetlands and creek are subject to the permit requirements of the state Removal-Fill Law. Normally, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL cannot be determined). However, Wetland 1 is a compensatory wetland mitigation (CWM) area (RGL # 1793). Any impact within a CWM area may require a state permit.

This concurrence is for purposes of the state Removal-Fill Law only. We recommend that you attach a copy of this concurrence letter to any subsequent state permit application to speed application review. Federal, other state agencies or local permit requirements may apply as well. The U.S. Army Corps of Engineers will determine jurisdiction under the Clean Water Act, which may require submittal of a complete Wetland Delineation Report.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. If you have any questions, please contact the Jurisdiction Coordinator for Washington County, Chris Stevenson, PWS, at (503) 986-5246.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Ryan".

Peter Ryan, SPWS
Aquatic Resource Specialist

Enclosures

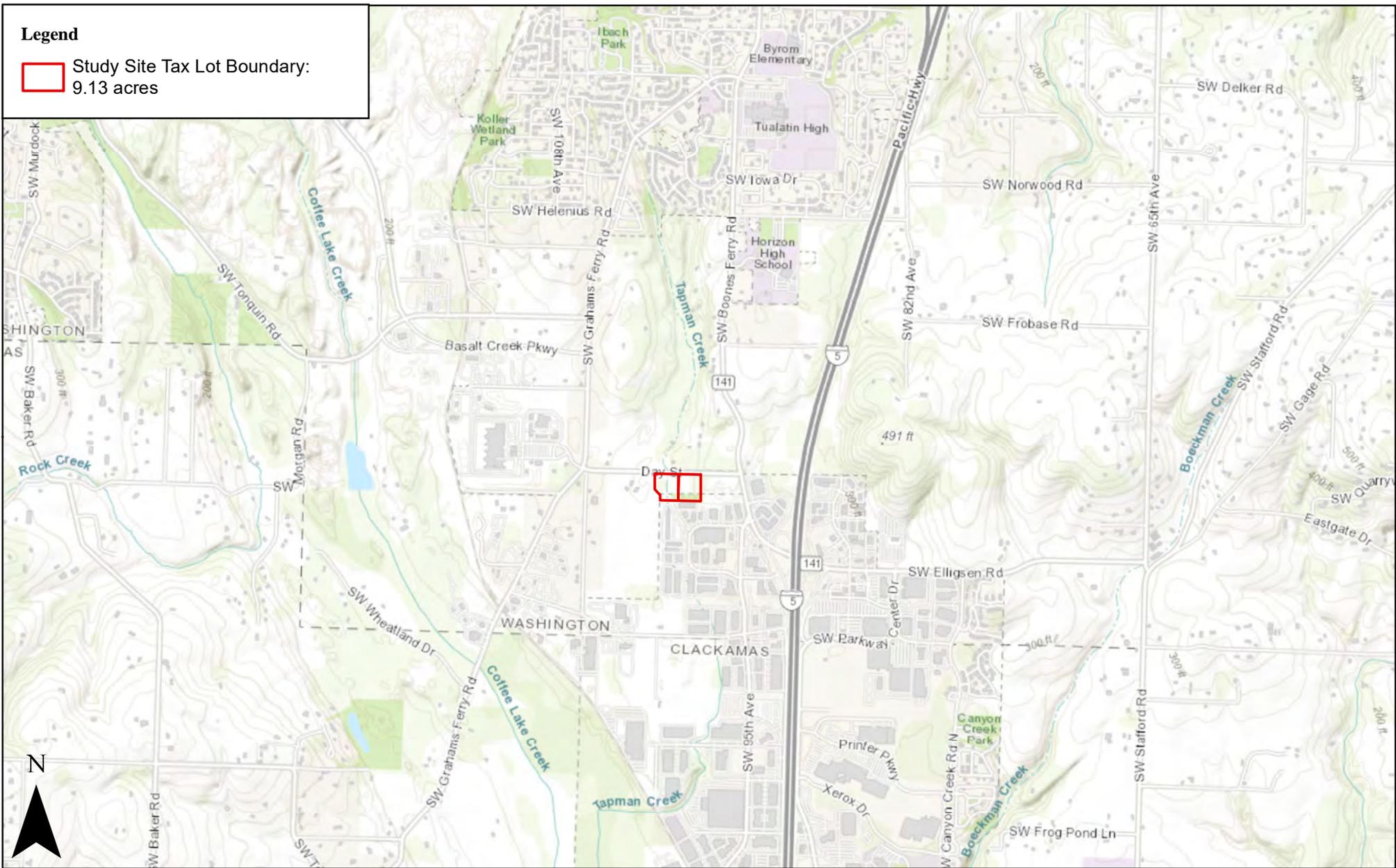
ec: Kim Biafora, Schott and Associates
City of Sherwood Planning Department
Danielle Erb, Corps of Engineers
Michael De Blasi, DSL
Lindsey Obermiller, Clean Water Services

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at: <https://apps.oregon.gov/DSL/EPS/program?key=4>.

Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279**. A single PDF of the completed cover form and report may be e-mailed to: **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

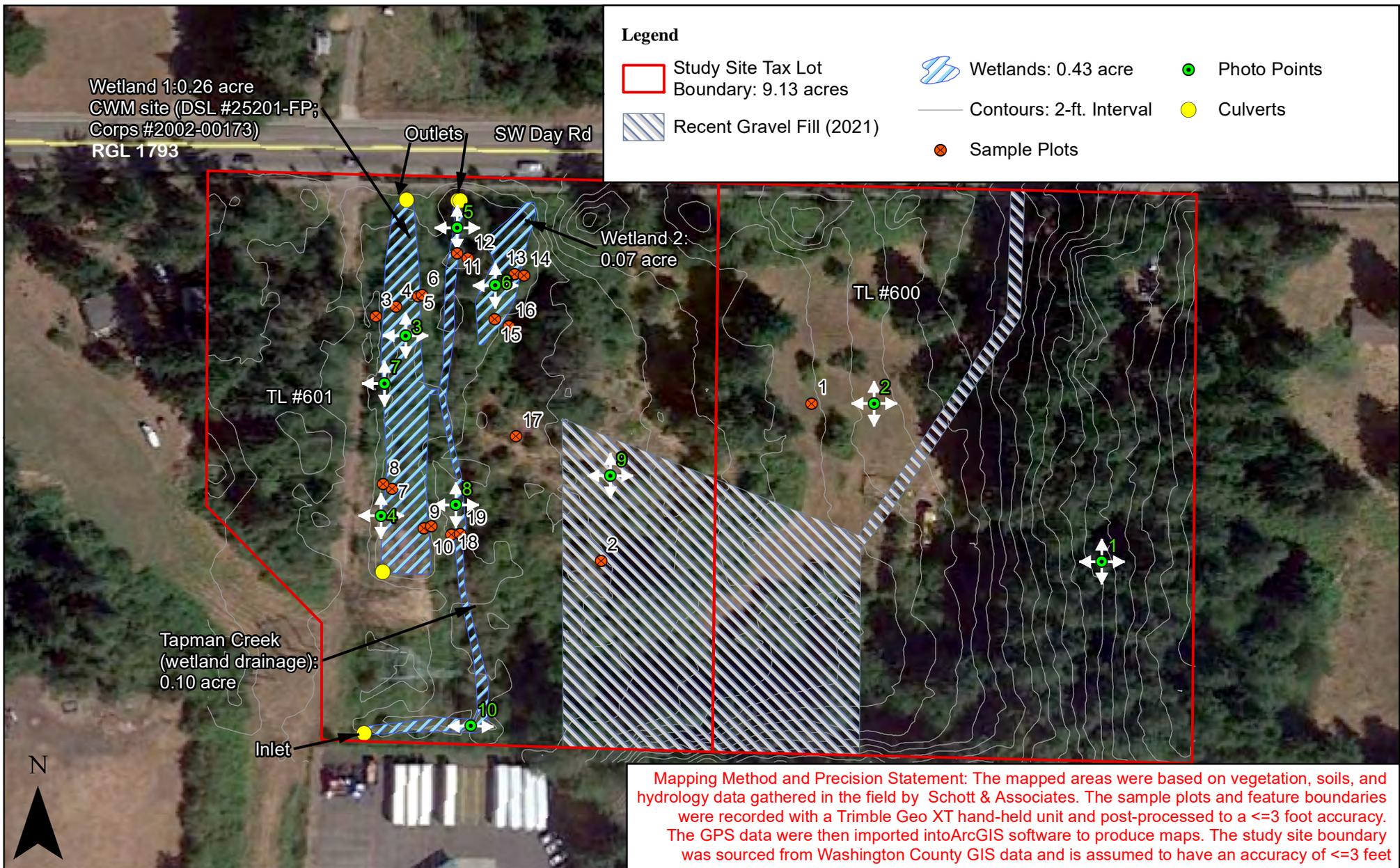
Contact and Authorization Information	
<input type="checkbox"/> Applicant <input checked="" type="checkbox"/> Owner Name, Firm and Address: Vladimir Tkach/ Delta Logistics, Inc. 9835 SW Commerce Cir, Wilsonville, OR 97070	Business phone # 800-595-3077 Mobile phone # (optional) E-mail: Vlad@deltagov.com
<input type="checkbox"/> Authorized Legal Agent, Name and Address (if different):	Business phone # Mobile phone # (optional) E-mail:
I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.	
Typed/Printed Name: <u>Vladimir Tkach</u> Signature:	
Date: <u>09/27/2021</u> Special instructions regarding site access: _____	
Project and Site Information	
Project Name: SW Day Road	Latitude: 45.339611° Longitude: -122.778340° decimal degree - centroid of site or start & end points of linear project
Proposed Use: Trailer parking/storage	Tax Map # 3S102B Tax Lot(s) 600, 601
Project Street Address (or other descriptive location): 9710 SW Day Rd	Tax Map # Tax Lot(s)
City: Wilsonville County: Washington	Township 3S Range 1W Section 2B QQ NW/SE Use separate sheet for additional tax and location information
	Waterway: Tapman Creek River Mile: 6
Wetland Delineation Information	
Wetland Consultant Name, Firm and Address: Kim Biafora Schott & Associates PO Box 589 Aurora, OR 97002	Phone # (503) 678-6028 Mobile phone # (if applicable) E-mail: kim@schottandassociates.com
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.	
Consultant Signature: <u>Kim Biafora</u> Date: <u>10/7/2021</u>	
Primary Contact for report review and site access is <input type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent	
Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Study Area size: 9.13 Total Wetland Acreage: 0.33	
Check Applicable Boxes Below	
<input type="checkbox"/> R-F permit application submitted	<input type="checkbox"/> Fee payment submitted \$ _____
<input checked="" type="checkbox"/> Mitigation bank site	<input type="checkbox"/> Resubmittal of rejected report (\$100)
<input type="checkbox"/> EFSC/ODOE Proj. Mgr: _____	<input type="checkbox"/> Request for Reissuance. See eligibility criteria. (no fee) DSL # _____ Expiration date _____
<input type="checkbox"/> Wetland restoration/enhancement project (not mitigation)	<input type="checkbox"/> LWI shows wetlands or waters on parcel Wetland ID code _____
<input checked="" type="checkbox"/> Previous delineation/application on parcel If known, previous DSL # <u>25201-FP</u>	
For Office Use Only	
DSL Reviewer: _____ Fee Paid Date: ____/____/____	DSL WD # _____
Date Delineation Received: ____/____/____ Scanned: <input type="checkbox"/> Electronic: <input type="checkbox"/>	DSL App.# _____



Date: 9/9/2021

Data Source: ESRI, 2021; Washington County Intermap, 2021

Figure 1. Location Map



Date: 11/29/2021

Data Source: ESRI, 2021; Washington County Intermap, 2021; DOGAMI, 2014

DSL WD # 2021-0556
Approval Issued 12/2/2021
Approval Expires 12/2/2026

Figure 6a. Wetland Delineation Map - Overview

SW Day Road Road Project Site: S&A #2739



Date: 11/29/2021

Data Source: ESRI, 2021; Marion
County GIS Dept, 2021; DOGAMI, 2014

DSL WD # 2021-0556
Approval Issued 12/2/2021
Approval Expires 12/2/2026

Figure 6b. Wetland Delineation
Map - Detail



SCHOTT & ASSOCIATES
Ecologists & Wetlands Specialists

21018 NE Hwy 99E • P.O. Box 589 • Aurora, OR 97002 • (503) 678-6007 • FAX: (503) 678-6011

March 1, 2023

City of Wilsonville Planning Staff
29799 SW Town Center Loop E
Wilsonville, OR 97070

CC: Lee Leighton (Mackenzie, Portland); lleighton@mcknze.com
Igor Nichiporchik (Delta Logistics); igor@deltagov.com
Vlad Tkach (Delta Logistics); vlad@deltagov.com

Re: 2200502.00 Delta Logistics Wilsonville Annex/Zone Change February 2023 plan revision

To whom it concerns,

Schott & Associates (S&A) prepared the natural resource assessment report (January 2022) for the proposed transportation company expansion project at 9710 SW Day Road, sponsored by Delta Logistics (applicant). The proposal involved impacts to the Significant Natural Resource Overlay Zone (SROZ) associated with Tapman Creek from a private crossing to allow vehicular access to the western portion of the property, as well as road widening and improvements along the property's frontage of SW Day Road as required by the City. The proposal would have resulted in 10,300 sq. ft. of impact to the 50-foot Vegetated Corridor associated with Tapman Creek. The applicant proposed mitigation in the form of enhancement of the remaining Vegetated Corridor at a ratio of 3.2:1.

The applicant has decided to modify the site plan and refrain from developing the western portion of the site since the City does not support the proposal to cross Tapman Creek or the alternative plan of constructing a second driveway from SW Day Road to access the western portion of the site. However, the revised proposal still includes the City-required street improvements to SW Day Road along the property frontage, which will result in 1,850 sq. ft. of permanent encroachment into the Tapman Creek Vegetated Corridor adjacent to the roadway. The applicant proposes to mitigate the impact through enhancement of 6,305 sq. ft. of remaining Vegetated Corridor, to include invasive species removal and planting of native trees and shrubs appropriate to site conditions and constraints (e.g., the PGE transmission line easement). The proposed mitigation ratio is 3.4:1. As documented in the natural resource assessment report prepared in January 2022, the Tapman Creek Vegetated Corridor was assessed as low-to-moderate in function with high invasive species cover and low tree canopy cover. The proposed Vegetated Corridor encroachment area is along an existing roadway and is vegetated entirely with invasive Himalayan blackberry (*Rubus armeniacus*) or reed canarygrass (*Phalaris arundinacea*). No trees or native species will be removed as a result of the roadway improvements. The project is expected to have very little impact to the overall function of the SROZ, as the Vegetated Corridor will be left largely undisturbed and unfragmented. Invasive species removal

and establishment of native forest and shrub communities will improve wildlife habitat, ecological integrity, and water quality protection functions of the Tapman Creek riparian corridor.

Please feel free to contact me with any questions or concerns.

Sincerely,

Kim Cartwright

Kim Cartwright, Wetland Ecologist

503-678-6028

kim@schottandassociates.com



TERAGAN & ASSOCIATES, INC. ARBORICULTURAL CONSULTANTS

MEMORANDUM

DATE: April 11, 2022

TO: Igor Nichiporchik (Delta Logistics)

FROM: Todd Prager, RCA #597, ISA Board Certified Master Arborist
Terrence P. Flanagan, ISA Board Certified Master Arborist, PN-0120BTML

RE: Tree Removal and Protection Recommendations for Delta Logistics Site Expansion

Summary

This memorandum provides tree removal and protection recommendations for the Delta Logistics Site Expansion development.

Background

Delta Logistics is proposing to construct the Delta Logistics Site Expansion development at 9710 SW Day Road in Wilsonville, Oregon. The site survey with existing trees is provided in Attachment 1 and the proposed site plan with proposed grading is provided in Attachment 2.

The assignment requested of our firm for this project was as follows:

1. Provide an assessment of the existing trees.
2. Provide recommendations for tree removal and retention based on the proposed site improvements.
3. Provide protection recommendations for the trees to be retained.

Tree Assessment

In September 2021, and March and April of 2022, our firm completed an assessment of the existing trees at the site. The complete inventory data is provided in the tree inventory spreadsheet in Attachment 3. The data collected for each tree includes the tree number, species (common and scientific names), trunk diameter (DBH), crown radius, tree health condition, tree structural condition, pertinent comments, whether the tree was on a neighboring property, and treatment (remove or retain). The tree numbers in the tree inventory in Attachment 3 correspond to the tree numbers on the existing conditions survey in Attachment 1 and proposed site plan in Attachment 2.

Proposed Tree Removal

A typical minimum root protection zone allows encroachments no closer than a radius from a tree of .5 feet per inch of DBH if no more than 25 percent of the root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept. This standard may need to be adjusted on a case-by-case basis due to tree health, species, root distribution, whether the tree will be impacted on multiple sides, and other factors.

Based on the proposed construction, grading, and utility footprint shown in Attachment 1, all onsite trees are proposed for removal except for six trees within the significant resource overlay zone (trees 549, 791, and 2072 through 2075). In addition, all but 13 of the inventoried offsite trees highlighted in green in Attachment 2 are recommended for removal if approved by the neighboring property owners.

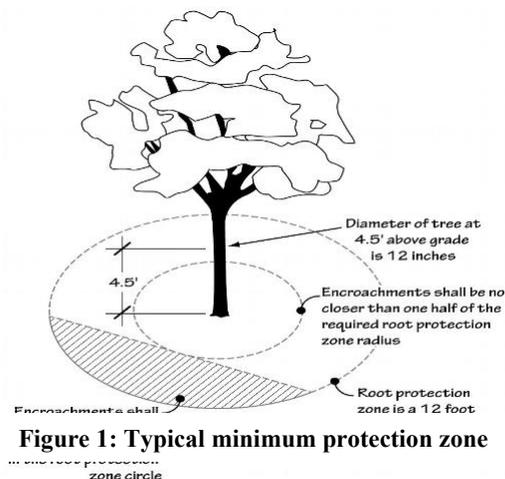


Figure 1: Typical minimum protection zone

Mitigation is recommended for the removal of trees over 6-inch DBH that are in fair to good health and structural condition. Based on these criteria, mitigation is required for 170 trees to be removed at a minimum ratio of 1:1. The tree inventory in Attachment 3 lists the trees subject to mitigation. The proposed landscape plan for the project needs to include a minimum of 158, 2-inch caliper mitigation trees unless a mitigation fee is provided.

Protection recommendations for the trees to be retained at the site are provided in the next section of this report.

Tree Protection Recommendations

The following recommendations apply to the trees to be retained:

- **Protection Fencing:** Establish tree protection fencing in the locations shown on the plan sheet redlines in Attachment 2. The intent of the tree protection fencing is to protect vegetation in the significant resource overlay zone and the minimum root protection zones detailed in Figure 1.
- **Property Line Trees:** All of the inventoried offsite trees are recommended for retention. Adjustments to the proposed construction or grading have been made to adequately protect their root zones. There are four trees near the property line that are shown to be removed. I recommend informing the neighbors of the potential tree impacts via certified letter so they are fully aware of the potential impacts and can make an informed decision about the trees should there be any questions of ownership.
- **Directional Felling** - Fell the trees to be removed away from the trees to be retained so they do not contact or otherwise damage the trunks or branches of the retained trees. No vehicles or heavy equipment should be permitted within the tree protection zones during tree removal operations.
- **Stump Removal** - The stumps of the trees to be removed within the tree protection zones that are adjacent to the trees to be preserved shall be retained or carefully stump ground so as not to disturb the root systems of the retained trees.
- **Periodic Risk Assessments:** The offsite retained trees were previously protected within a stand of surrounding trees. The removal of adjacent trees will expose the retained trees to changes in wind forces which will increase their risk of windthrow. I recommend the project arborist conduct a tree risk assessment immediately

following site clearing to identify trees that pose significant risks. For trees that pose significant risks, mitigation strategies for retaining them such as pruning, or snag creation should be explored as recommended by the project arborist. Any recommended tree removal or snag creation will require the review and approval of the City of Wilsonville and impacted property owners. Risk assessments should be conducted periodically throughout construction to document whether trees are adapting to the new site conditions and risks are mitigated appropriately with City approval.

- **Protect Crowns of Trees:** The crowns of the trees may extend beyond the tree protection fencing. Care will need to be taken to not contact or otherwise damage the crowns of the trees during construction activities. Any required pruning shall be completed by an ISA certified arborist consistent with ANSI A300 pruning standards as directed by the project arborist.
- **Sediment Fencing:** Sediment fencing shall be installed outside the protection zones of the trees to be retained to minimize root disturbances. If erosion control is required inside the root zones, straw wattles shall be used on the soil surface.

Attachment 3 includes additional recommendations to protect the trees during construction.

Conclusion

All onsite trees are proposed for removal except for six trees within the significant resource overlay zone (trees 549, 791, and 2072 through 2075). All of the inventoried offsite trees are recommended for retention. The mitigation requirements for the project will be met through onsite replanting of a minimum of 158 trees unless a mitigation fee is provided. The trees to be retained will be protected by adhering to the recommendations in this report.

Please contact me if you have questions, concerns, or need any additional information.

Sincerely,



Todd Prager
ASCA Registered Consulting Arborist #597
ISA Board Certified Master Arborist, WE-6723B
ISA Qualified Tree Risk Assessor
AICP, American Planning Association

Attachment 1:	Site Survey with Existing Trees
Attachment 2:	Proposed Site Plan with Tree Removal and Tree Protection
Attachment 3:	Tree Inventory
Attachment 4:	Additional Tree Protection Recommendations
Attachment 5:	Assumptions and Limiting Conditions



0 60 120 180
 SCALE: 1" = 60'
 OCTOBER, 2019
 REVISED: SEPTEMBER, 2021
 UPDATED: APRIL 6, 2022 (TREES ADDED)

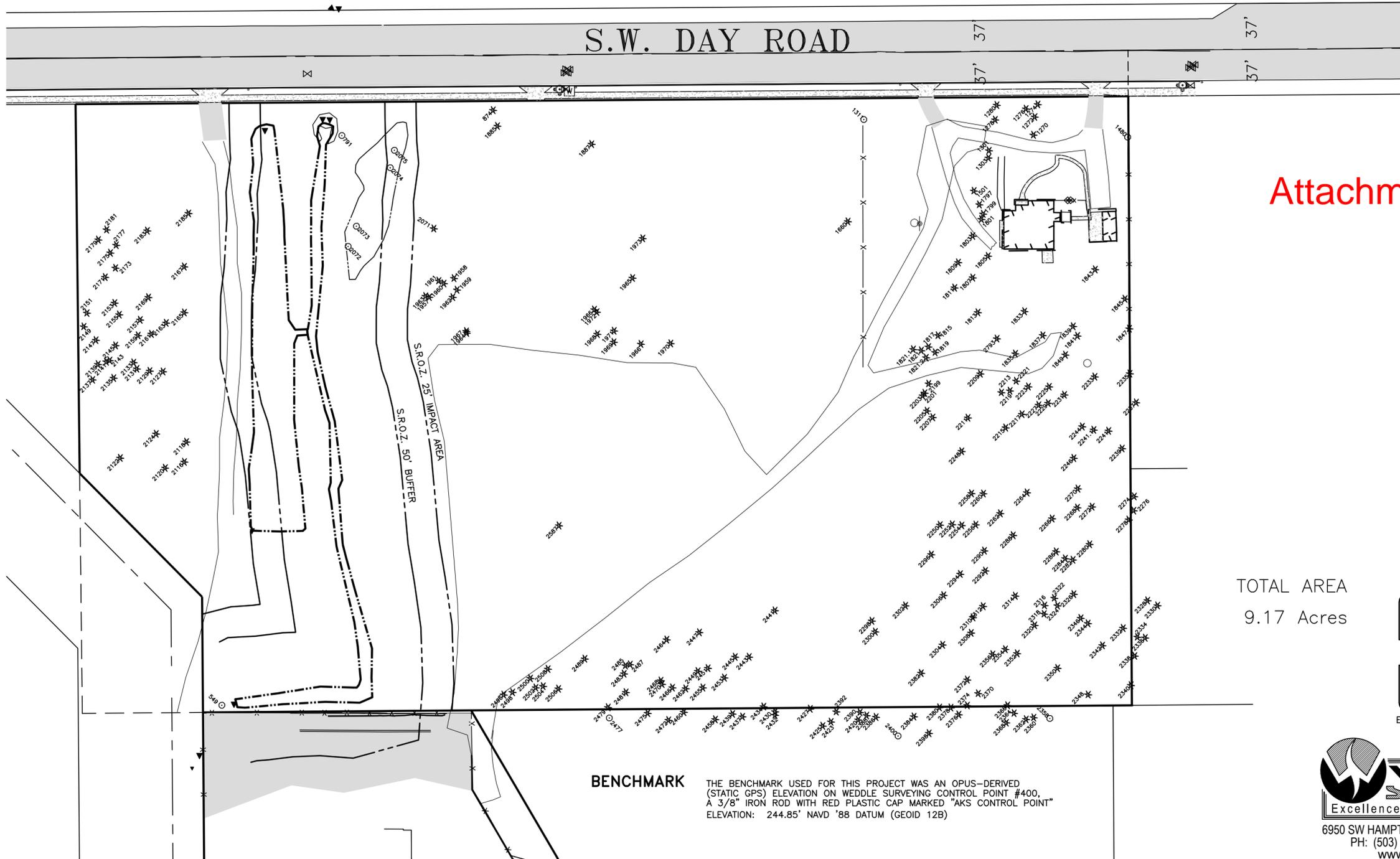
REQUESTED BY:

LEE LEIGHTON (MACKENZIE)
 FOR: DELTA LOGISTICS
 9835 SW COMMERCE CIRCLE
 WILSONVILLE, OR 97070

TREE SURVEY
"DELTA LOGISTICS"
9710 SW DAY ROAD
 IN THE SW 1/4 AND THE NW 1/4
 SECTION 2, T.3S., R.1W., W.M.
 WASHINGTON COUNTY, OREGON

SURVEYOR'S NOTES

1. THE BASIS OF BEARINGS FOR THIS SURVEY IS PER SURVEY NO. 29,223, WASHINGTON COUNTY SURVEY RECORDS. THIS IS NOT A RECORDABLE BOUNDARY SURVEY, A RECORD OF SURVEY IS IN PROGRESS.
2. UNDERGROUND UTILITIES ARE SHOWN PER SURFACE MARKINGS. THE SURVEYOR MAKES NO GUARANTEE AS TO THE EXACT LOCATION, EXISTENCE, NON-EXISTENCE OR COMPLETENESS OF ANY SUBSURFACE UTILITIES SHOWN, OR NOT SHOWN ON THE MAP. CALL 811 BEFORE DIGGING.
3. TOTAL SURVEYED SITE AREA = 9.169 ACRES
 BUILDABLE AREA EAST OF EASTERLY S.R.O.Z. = 6.338 ACRES
4. DUE TO THE DENSE, OVERGROWN NATURE OF VEGETATION ON SITE, NOT ALL TREES WERE MAPPED AND A 3-D SURFACE OVER THE ENTIRE SITE WAS NOT OBTAINABLE.



Attachment 1

TOTAL AREA
 9.17 Acres

BENCHMARK
 THE BENCHMARK USED FOR THIS PROJECT WAS AN OPUS-DERIVED (STATIC GPS) ELEVATION ON WEDDLE SURVEYING CONTROL POINT #400, A 3/8" IRON ROD WITH RED PLASTIC CAP MARKED "AKS CONTROL POINT" ELEVATION: 244.85' NAVD '88 DATUM (GEOID 12B)

REGISTERED
 PROFESSIONAL
 LAND SURVEYOR
 OREGON
 JULY 13, 2004
 ANTHONY B. RYAN
 58833
 EXPIRES: DECEMBER 31, 2022

WEDDLE SURVEYING INC.
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Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Location	Mitigation ⁴
549	English hawthorn	<i>Crataegus monogyna</i>	5	2.5	Fair	Fair	Multiple stems		Retain	Private	None
791	Willow	<i>Salix sp.</i>	20	10	Poor	Very Poor	Data visually collected due to inaccessible area		Retain	SROZ	None
874	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Good	Fair	Broken limbs at base	x	Remove	Public	1
1270	Douglas-fir	<i>Pseudotsuga menziesii</i>	47	23.5	Fair	Fair	Co-dominant stem with included bark, broken limbs in crown		Remove	Private	1
1272	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	20.5	Good	Good			Remove	Private	1
1274	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Good	Fair	Wood pecker damage at base	x	Remove	Public	1
1276	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Fair	Thin crown	x	Remove	Public	1
1278	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Fair	Fair	Thin crown, sap sucker damage at base	x	Remove	Private	1
1280	Douglas-fir	<i>Pseudotsuga menziesii</i>	43	21.5	Good	Good		x	Remove	Public	1
1301	Douglas-fir	<i>Pseudotsuga menziesii</i>	40	20	Good	Good			Remove	Private	1
1303	Douglas-fir	<i>Pseudotsuga menziesii</i>	50	25	Fair	Poor	Weeping crack at 12', decay with sloughing bark at base		Remove	Private	None
1311	sweet cherry	<i>Prunus avium</i>	20	10	Very Poor	Very Poor	Tree in heavy decline		Remove	Private	None
1480	sweet cherry	<i>Prunus avium</i>	8	4	Fair	Poor	Data visually collected	x	Remove	Private	None
1501	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	Good	Good			Remove	Private	1
1660	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Fair	Fair	Broken limbs at base, thin crown		Remove	Private	1
1797	Douglas-fir	<i>Pseudotsuga menziesii</i>	49	24.5	Fair	Fair	Wood pecker damage at base		Remove	Private	1
1799	Douglas-fir	<i>Pseudotsuga menziesii</i>	44	22	Fair	Fair	Co-dominant stem with included bark		Remove	Private	1
1801	Douglas-fir	<i>Pseudotsuga menziesii</i>	44	22	Fair	Fair	Co-dominant stem with included bark, cracks and wood pecker holes at base		Remove	Private	1
1803	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Thin crown, excavation in root zone		Remove	Private	1
1805	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Fair	Fair	Buried root flare		Remove	Private	1
1807	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			Remove	Private	1
1809	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	20.5	Fair	Fair	Torsion cracks at base, excavation in root zone		Remove	Private	1
1811	Douglas-fir	<i>Pseudotsuga menziesii</i>	49	24.5	Fair	Fair	Torsion cracks in stem, wood pecker damage at base		Remove	Private	1
1813	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Fair	Thin crown, bark damage at base		Remove	Private	1
1815	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Fair	Crack with good response growth at base		Remove	Private	1
1817	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Dead	Dead			Remove	Private	None
1819	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Good	Good			Remove	Private	1
1821	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Contorted stem at 25'		Remove	Private	1
1821.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Good	Fair	Swelling at base where other tree was removed		Remove	Private	1
1821.2	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Contorted stem at 15', bark damage at base		Remove	Private	1
1833	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Good	Good			Remove	Private	1
1835	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	17	Fair	Fair	Thin crown		Remove	Private	1
1837	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Excavation in root zone		Remove	Private	1
1839	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Thin crown		Remove	Private	1
1841	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Good	Fair	Holes in trunk at base		Remove	Private	1

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Location	Mitigation ⁴
1843	Douglas-fir	<i>Pseudotsuga menziesii</i>	51	25.5	Fair	Fair	Thin crown		Remove	Private	1
1845	Douglas-fir	<i>Pseudotsuga menziesii</i>	48	24	Fair	Fair	Thin crown, dead limbs in crown		Remove	Private	1
1847	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown, bark damage at base		Retain	Private	None
1849	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			Remove		1
1885	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Good	Fair	Broken limbs at base		Remove	Private	1
1887	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	19	Good	Fair	Broken limbs at base		Remove	Private	1
1957	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Dead	Dead			Remove	Private	None
1958	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Dead	Dead			Remove	Private	None
1959	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Dead	Dead			Remove	Private	None
1960	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Thin crown, dead top		Remove	Private	None
1961	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Dead	Dead			Remove	Private	None
1962	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Dead	Dead			Remove	Private	None
1963	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Poor	Poor	Dead top		Remove	Private	None
1964	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Poor	Poor	Tree in decline		Remove	Private	None
1965	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown		Remove	Private	1
1966	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown		Remove	Private	1
1967	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Good	Epicormic growth on limbs		Remove	Private	1
1968	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Good	Fair	Broken limbs at base		Remove	Private	1
1969	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Broken limbs at base		Remove	Private	1
1970	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Fair	Fair	Thin crown		Remove	Private	1
1971	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown		Remove	Private	1
1972	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Thin crown		Remove	Private	1
1973	Douglas-fir	<i>Pseudotsuga menziesii</i>	51	25.5	Fair	Fair	Broken limbs at base, over extended limbs		Remove	Private	1
2071	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Good	Fair	Bark damage at base, ivy at base		Remove	Private	1
2072	Oregon ash	<i>Fraxinus latifolia</i>	11	5.5	Poor	Poor	Contorted stem, thin crown		Retain	SROZ	None
2073	Willow	<i>Salix sp.</i>	14	7	Dead	Dead			Retain	SROZ	None
2074	Oregon ash	<i>Fraxinus latifolia</i>	20	10	Poor	Poor	Dead limbs in crown, over extended limbs		Retain	SROZ	None
2075	Oregon ash	<i>Fraxinus latifolia</i>	14	7	Fair	Poor	One failed stem at base, decay at base, heavy lean		Retain	SROZ	None
2116	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Dead	Dead			Remove	Private	None
2118	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Dead	Dead			Remove	Private	None
2120	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Poor	Poor	Dead top		Remove	Private	None
2122	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Fair	Thin crown, bark damage at base		Remove	Private	1
2124	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Fair	Fair	Bark damage at base, ivy in crown		Remove	Private	1
2127	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Good	Fair	Bark damage at base		Remove	Private	1
2129	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Very Poor	Very Poor	Dead top		Remove	Private	None
2131	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Ivy in crown, thin crown		Remove	Private	None
2133	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Ivy in crown		Remove	Private	1
2135	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Thin crown, ivy covering base		Remove	Private	1
2137	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	Fair	Good	Bark damage at base		Remove	Private	1
2139	Douglas-fir	<i>Pseudotsuga menziesii</i>	37	18.5	Good	Good			Remove	Private	1
2141	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Fair	Fair	Co-dominant stem with included bark at bas, fruiting body at base		Remove	Private	1
2143	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Dead	Dead			Remove	Private	None
2145	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown		Remove	Private	1
2147	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Thin crown		Remove	Private	1

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Location	Mitigation ⁴
2149	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Poor	Thin crown, contorted stem, ivy covering base		Remove	Private	None
2151	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	14.5	Poor	Poor	Thin crown, ivy covering stem		Remove	Private	None
2153	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Dead	Dead			Remove	Private	None
2155	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Ivy covering base		Remove	Private	1
2157	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Dead	Dead			Remove	Private	1
2159	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Good	Fair	Ivy covering base		Remove	Private	1
2161	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Dead	Dead			Remove	Private	None
2163	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Thin crown		Remove	Private	1
2165	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Dead	Dead			Remove	Private	None
2167	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	17	Fair	Fair	Bark damage at base, thin crown		Remove	Private	1
2169	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Poor	Fair	Thin crown		Remove	Private	1
2171	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown, ivy covering base, bark damage at base		Remove	Private	1
2173	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Very Poor	Very Poor	Tree in heavy decline		Remove	Private	None
2175	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Dead	Dead			Remove	Private	None
2177	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Very Poor	Very Poor	Tree in heavy decline		Remove	Private	None
2179	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Dead	Dead			Remove	Private	None
2181	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Dead	Dead			Remove	Private	None
2183	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Dead	Dead			Remove	Private	None
2185	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Poor	Very Poor	Tree previously topped		Remove	Private	None
2199	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	Good	Fair	Limb with included bark at 25', bark damage at base		Remove	Private	1
2201	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Good	Poor	Co-dominant stem at base, heavy lean		Remove	Private	None
2203	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Good	Fair	Co-dominant stem at base		Remove	Private	1
2205	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	14.5	Good	Fair	Bark damage at base		Remove	Private	1
2207	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			Remove	Private	1
2209	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Fair	Fair	Thin crown, bark damage at base		Remove	Private	1
2211	Douglas-fir	<i>Pseudotsuga menziesii</i>	42	21	Fair	Poor	Thin crown, decay at base		Remove	Private	None
2213	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Poor	Fair	Thin crown		Remove	Private	1
2215	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Fair	Fair	Bark damage at base		Remove	Private	1
2217	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Fair	Fair	Pistol butt stem, thin crown		Remove	Private	1
2219	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		Remove	Private	1
2221	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Good			Remove	Private	1
2223	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Thin crown		Remove	Private	1
2225	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Poor	Poor	Sloughing bark at base, thin crown		Remove	Private	None
2227	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Good	Good			Remove	Private	1
2229	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Fair	Fair	Thin crown		Remove	Private	1
2231	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Poor	Poor	Red ring rot fruiting bodies on stem		Remove	Private	None
2233	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Poor	Poor	Bark damage at base, thin crown, decay at base		Remove	Private	None
2235	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	19	Fair	Fair	Thin crown, excavation in root zone		Remove	Private	1
2237	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Fair	Data visually collected	x	Retain	Private	None
2239	Douglas-fir	<i>Pseudotsuga menziesii</i>	35	17.5	Fair	Poor	Insect damage at base, thin crown		Remove	Private	None
2241	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Bark damage at base, thin crown		Remove	Private	None

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Location	Mitigation ⁴
2241.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Dead	Dead			Remove	Private	None
2244	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	14.5	Fair	Fair	Thin crown, decay at base		Remove	Private	1
2246	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Fair	Thin crown		Remove	Private	1
2248	Douglas-fir	<i>Pseudotsuga menziesii</i>	47	23.5	Good	Good			Remove	Private	1
2250	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Decay at base, thin crown, barbed wire in base		Remove	Private	1
2252	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Fair	Thin crown, soil around base		Remove	Private	1
2254	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Fair	Thin crown		Remove	Private	1
2256	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		Remove	Private	1
2258	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Good	Poor	Excavation in root zone, bark damage at base		Remove	Private	None
2260	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Bark damage at base, thin crown		Remove	Private	1
2262	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Contorted stem, thin crown		Remove	Private	1
2264	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Poor	Poor	Contorted top, bark damage at base, thin crown		Remove	Private	None
2266	Douglas-fir	<i>Pseudotsuga menziesii</i>	11	5.5	Fair	Fair	Thin crown, rock piled at base		Remove	Private	1
2268	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Poor	Poor	Thin crown, ivy at base		Remove	Private	None
2270	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Poor	Poor	Decay at base		Remove	Private	None
2272	Douglas-fir	<i>Pseudotsuga menziesii</i>	46	23	Fair	Fair	Old wound with decay at base, thin crown		Remove	Private	1
2274	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Good	Data visually collected	x	Remove	Private	1
2276	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Good	Good	Data visually collected	x	Remove	Private	None
2278	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Thin crown, bark damage at base, appears to be on edge of property line		Retain	Private	None
2280	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Poor	Fair	Decay at base, thin crown		Remove	Private	None
2282	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Poor	Poor	Decay at base, thin crown		Remove	Private	None
2284	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Poor	Poor	Decay at base		Remove	Private	None
2286	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Fair	Fair	Thin crown		Remove	Private	1
2288	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Fair	Thin crown		Remove	Private	1
2290	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Very Poor	Very Poor	Dead top		Remove	Private	None
2292	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Ivy covering base, thin crown		Remove	Private	1
2294	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	15.5	Poor	Poor	Decay at base, ivy covering base		Remove	Private	None
2296	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	20.5	Fair	Poor	Decay at base, thin crown		Remove	Private	None
2298	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Fair	Fair	Thin crown		Remove	Private	1
2300	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		Remove	Private	1
2302	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Decay in stem at 20', thin crown		Remove	Private	None
2304	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Good	Fair	Fence in base		Remove	Private	1
2306	Douglas-fir	<i>Pseudotsuga menziesii</i>	54	27	Fair	Fair	Broken limb at base, thin crown		Remove	Private	1
2308	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Thin crown		Remove	Private	1
2310	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Fair	Fair	Thin crown		Remove	Private	1
2312	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Thin crown		Remove	Private	None
2314	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Thin crown		Remove	Private	None
2316	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Fair	Ivy covering base		Remove	Private	1
2318	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Ivy covering base		Remove	Private	1
2320	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Good	Fair	Pistol butt		Remove	Private	1

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Location	Mitigation ⁴
2322	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Ivy covering base		Remove	Private	1
2324	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Ivy covering base		Remove	Private	1
2326	Douglas-fir	<i>Pseudotsuga menziesii</i>	15	7.5	Fair	Fair	Ivy growing on stem		Remove	Private	1
2328	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Good	Good	Data visually collected	x	Retain	Private	None
2330	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Poor	Poor	Data visually collected	x	Retain	Private	None
2332	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Good	Good			Remove	Private	1
2334	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Data visually collected	x	Retain	Private	None
2336	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Fair	Fair	Data visually collected	x	Retain	Private	None
2338	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Good	Good	Data visually collected	x	Retain	Private	1
2340	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Fair	Bark damage on roots, appears to be on edge of property line		Retain	Private	None
2342	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Fair	Thin crown		Remove	Private	1
2344	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		Remove	Private	1
2346	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Poor	Decay in stem, bark damage at base		Remove	Private	None
2348	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Decay in stem, thin crown		Remove	Private	None
2350	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	19.5	Good	Good			Remove	Private	1
2352	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Poor	Poor	Exposed roots, thin crown		Remove	Private	None
2354	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Fair	Fair	Thin crown		Remove	Private	1
2356	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Good	Good			Remove	Private	1
2358	Pacific madrone	<i>Arbutus menziesii</i>	18	9	Poor	Fair	Data visually collected	x	Retain	Private	None
2360	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Good	Good	Data visually collected	x	Retain	Private	None
2362	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Fair	Data visually collected	x	Retain	Private	None
2364	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Fair	Good	Data visually collected	x	Remove	Private	1
2366	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Poor	Fair	Thin crown, appears to be on edge of property line		Retain	Private	None
2368	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Good	Data visually collected	x	Retain	Private	None
2370	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Fair	Good	Thin crown		Remove	Private	1
2372	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Good	Good			Remove	Private	1
2374	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Good	Good	Appears to be on edge of property line		Retain	Private	None
2376	Douglas-fir	<i>Pseudotsuga menziesii</i>	34	17	Good	Good	Data visually collected	x	Retain	Private	None
2378	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Good	Fair	Data visually collected	x	Retain	Private	None
2380	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Fair	Good	Data visually collected	x	Retain	Private	None
2382	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Poor	Fair	Ivy covering base, thin crown		Remove	Private	None
2384	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Data visually collected	x	Retain	Private	None
2386	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Good	Good	Data visually collected	x	Retain	Private	None
2388	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Poor	Poor	Data visually collected	x	Retain	Private	None
2390	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Fair	Fair	Data visually collected	x	Retain	Private	None
2392	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Fair	Good	Data visually collected	x	Retain	Private	None
2398	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Good	Good	Data visually collected	x	Retain	Private	None
2400	bigleaf maple	<i>Acer macrophyllum</i>	10	5	Good	Fair	Data visually collected	x	Retain	Private	None
2420	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Poor	Data visually collected	x	Retain	Private	None
2423	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Data visually collected	x	Retain	Private	None
2425	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	5	Poor	Poor	Data visually collected	x	Retain	Private	None
2427	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	16	Fair	Good	Data visually collected	x	Retain	Private	None
2430	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	8.5	Good	Fair	Data visually collected	x	Retain	Private	None
2432	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Good	Fair	Data visually collected	x	Retain	Private	None

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Location	Mitigation ⁴
2434	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	10.5	Fair	Fair	Fence in base, thin crown, appears to be on edge of property line		Remove	Private	1
2437	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Good	Fair	Data visually collected	x	Retain	Private	None
2439	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Good	Good	Data visually collected	x	Retain	Private	None
2441	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Fair	Thin crown		Remove	Private	1
2443	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Fair	Fair	Thin crown, bark damage at base		Remove	Private	1
2445	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Fair	Fair	Thin crown		Remove	Private	1
2447	Douglas-fir	<i>Pseudotsuga menziesii</i>	13	6.5	Good	Fair	Bark damage at base		Remove	Private	1
2449	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	11	Fair	Fair	Thin crown		Remove	Private	1
2451	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	14	Fair	Poor	Wood pecker damage at base, thin crown, decay at base		Remove	Private	None
2453	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Thin crown		Remove	Private	1
2455	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Poor	Poor	Red ring rot, thin crown		Remove	Private	None
2458	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	12.5	Good	Good	Data visually collected	x	Retain	Private	None
2460	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Good	Good	Data visually collected	x	Retain	Private	None
2462	Douglas-fir	<i>Pseudotsuga menziesii</i>	12	6	Fair	Fair	Thin crown		Remove	Private	1
2464	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Poor	Poor	Broken top, decay in stem		Remove	Private	None
2466	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	5	Fair	Fair	Thin crown		Remove	Private	1
2468	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Co-dominant stem with included bark		Remove	Private	1
2470	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	11.5	Fair	Fair	Co-dominant stem with included bark, ivy covering stem		Remove	Private	1
2472	Douglas-fir	<i>Pseudotsuga menziesii</i>	10	5	Good	Fair	Data visually collected	x	Retain	Private	None
2475	Douglas-fir	<i>Pseudotsuga menziesii</i>	40	20	Good	Good	Data visually collected	x	Retain	Private	None
2477	Oregon white oak	<i>Quercus garryana</i>	12	6	Fair	Fair	Data visually collected	x	Retain	Private	None
2479	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Fair	Fair	Thin crown, fence in base		Remove	Private	1
2481	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		Remove	Private	1
2483	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	9	Good	Good			Remove	Private	1
2485	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	7	Fair	Fair	Bark damage at base		Remove	Private	1
2487	Douglas-fir	<i>Pseudotsuga menziesii</i>	26	13	Poor	Poor	Broken limbs in crown, thin crown		Remove	Private	None
2489	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	16.5	Poor	Poor	Thin crown		Remove	Private	None
2496	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Fair	Fair	Thin crown		Remove	Private	1
2498	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	13.5	Fair	Fair	Co-dominant stem with included bark, thin crown		Remove	Private	1
2500	Douglas-fir	<i>Pseudotsuga menziesii</i>	19	9.5	Dead	Dead			Remove	Private	None
2502	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Good	Good			Remove	Private	1
2504	Douglas-fir	<i>Pseudotsuga menziesii</i>	16	8	Fair	Fair	Thin crown		Remove	Private	1
2506	Douglas-fir	<i>Pseudotsuga menziesii</i>	20	10	Fair	Fair	Bark damage at base, thin crown		Remove	Private	1
2508	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	12	Poor	Fair	Thin crown		Remove	Private	None
2587	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	18	Fair	Poor	Co-dominant stem with included bark		Remove	Private	None
2793	Douglas-fir	<i>Pseudotsuga menziesii</i>	24	18	Good	Fair	One sided		Remove	Private	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1

Tree No.	Common Name	Scientific Name	DBH ¹	C-Rad ²	Condition ³	Structure	Comments	Not On Property	Treatment	Location	Mitigation ⁴
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1
	Street tree							X	Remove	Public	1

¹DBH is the trunk diameter in inches measured per International Society of Arboriculture (ISA) standards.

²C-Rad is the approximate crown radius in feet.

³Condition and Structure ratings range from dead, very poor, poor, fair, to good.

⁴Mitigation is recommended for the removal of trees over 6-inch DBH. Trees that are less than 6-inch DBH are not recommended for mitigation

Attachment 4 Tree Protection Recommendations

Before Construction Begins

1. Notify all contractors of tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
 - a. Hold a tree protection meeting with all contractors to explain the goals of tree protection.
 - c. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the resulting fines issued by the local jurisdiction plus the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outlined in the current edition of the *Guide for Plant Appraisal* by the Council of Tree & Landscape Appraisers. The penalty should be paid to the owner of the property.
2. Fencing
 - a. Tree protection fencing may be set as shown in Attachment 2.
 - b. The fencing should be put in place before the ground is cleared to protect the trees and the soil around the trees from disturbances.
 - c. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
 - d. Fencing should consist of 4-foot high steel fencing on concrete blocks or other anchoring devices, or 4-foot metal fencing secured to the ground with 6-foot metal posts to prevent it from being moved by contractors, sagging, or falling down.
 - e. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.
3. Signage
 - a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

TREE PROTECTION ZONE

**DO NOT REMOVE OR ADJUST THE LOCATION OF THIS
TREE PROTECTION FENCING**

UNAUTHORIZED ENCROACHMENT MAY RESULT IN FINES

Please contact the project arborist if alterations to the location of the tree protection fencing are necessary.

Todd Prager, Project Arborist, Teragan & Associates, 971-295-4835

- b. Signage should be placed every 75-feet or less.

During Construction

1. Protection Guidelines Within the Tree Protection Zones:
 - a. No new buildings; grade change or cut and fill, during or after construction; new impervious surfaces; or utility or drainage field placement should be allowed within the tree protection zones.
 - b. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
 - c. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
 - d. Construction trailers should not be parked/placed within the tree protection zones.
 - e. No vehicles should be allowed to park within the tree protection zones.
 - f. No other activities should be allowed that will cause soil compaction within the tree protection zones.
2. The trees should be protected from any cutting, skinning or breaking of branches, trunks or woody roots.
3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
4. Trees that have woody roots cut should be provided supplemental water during the summer months.
5. Any necessary passage of utilities through the tree protection zones should be by means of tunneling under woody roots by hand digging or boring with oversight by the project arborist.
6. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

After Construction

1. Carefully landscape the areas within the tree protection zones. Do not allow trenching for irrigation or other utilities within the tree protection zones.
2. Carefully plant new plants within the tree protection zones. Avoid cutting the woody roots of trees that are retained.
3. Do not install permanent irrigation within the tree protection zones unless it is drip irrigation to support a specific planting or the irrigation is approved by the project arborist.
4. Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
5. Provide for the ongoing inspection and treatment of insect and disease populations that can damage the retained trees and plants.
6. The retained trees may need to be fertilized if recommended by the project arborist.
7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

Attachment 5
Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. The information provided by Delta Logistics and their consultants was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The purpose of this report is to:
 - Provide an assessment of the existing trees;
 - Provide recommendations for tree removal and retention based on the proposed site improvements; and
 - Provide protection recommendations for the trees to be retained.



Subject: Addendum to Tree Plan for the Delta Logistics Project in Wilsonville

Address of the Site: 9710 SW Day Road, Wilsonville, OR
Date of Report: February 28, 2023
Addendum Submitted To: Igor Nichiporchik, Delta Logistics

This addendum reviews the changes to the plans that were included in the tree plan for the project dated April 11, 2022. The changes to the project that I received on February 27, 2023 include the removal of the western part of the property from the planned development. The trees on the western section of the property west of Tapman Creek will not be removed. In addition, there are five trees east of the creek but north of the planned edge of the parking lot/storm water facility that will also not be removed but will be protected with appropriate tree protection fencing location.

The rest of the trees east of the western edge of the planned parking lot on the property will be removed on the property. The tree protection fencing as shown on sheet L0.04, Tree Mitigation Plan dated 02/28/23 will adequately protect the trees that will not be removed on the neighboring properties and the western section of the subject property.

The mitigation tree planting is addressed on the landscape plan. There are several Oregon ash trees that will be planted just west of the tree protection fence as shown on sheet L0.04. The landscape contractor will have to adjust the tree protection fencing from the planned location during the property development to around the trees that are to be protected as shown on the Tree Mitigation Plan included in the appendix of this memo to ensure that the existing trees are not inadvertently impacted by the process of planting the mitigation trees.

Please contact us with any questions/concerns.

Thank you,

Terrence P. Flanagan
ISA Board Certified Master Arborist, #PN-0120 BMTL
ISA Tree Risk Assessment Qualified
Member, American Society of Consulting Arborists

Appendix #1 – Adjusted Tree Protection Plan for Landscaping Phase

Appendix #1 Adjusted Tree Protection Plan

MITIGATION REQUIREMENTS

REPLACE LEVING TREES 6 INCH IN DBH OR LARGER WITH A 2-INCH CALIPER TREE OR LARGER OF SIMILAR MATURE CANOPY SIZE AND STRUCTURE.

TOTAL TREES REQUIRING MITIGATION	175
TOTAL 2" CAL. TREES IN PLAN	175
TOTAL TREES REQUIRING PEE IN LIBU	0

TREE CREDITS (SECTION 4.176.06.F)

DBH IS 12-14"	3 TREE CREDITS
DBH IS 25-31"	4 TREE CREDITS
DBH IS 32" OR GREATER	5 TREE CREDITS

FOR FULL LIST OF TREES TO BE REMOVED SEE EXHIBIT 'A' ARCHITECT'S REPORT.

TREES TO BE RETAINED DBH CREDITS CONDITION

581 CRATAEGUS MONOGYNA	5'	0	FAIR
791 WILLOW SALIX	20'	0	POOR
1847 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	22'	0	FAIR
2072 OREGON ASH / FRAXINUS LATIFOLIA	11"	0	POOR
2073 WILLOW SALIX	14"	0	DEAD
2074 OREGON ASH / FRAXINUS LATIFOLIA	20'	0	POOR
2075 OREGON ASH / FRAXINUS LATIFOLIA	14"	0	FAIR
2118 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	21"	0	DEAD
2118 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	24"	0	DEAD
2120 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	32"	0	POOR
2122 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	32"	0	FAIR
2124 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	17"	0	FAIR
2131 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	17"	0	POOR
2139 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	18"	0	VERY POOR
2131 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	18"	0	POOR
2133 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	15"	0	FAIR

2133 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	15"	0	FAIR
2137 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	30"	4	GOOD
2138 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	31"	5	GOOD
2141 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	19"	3	FAIR
2143 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	16"	0	DEAD
2145 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	26"	4	FAIR
2147 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	15"	0	FAIR
2149 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	24"	3	FAIR
2151 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	25"	0	POOR
2153 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	15"	0	DEAD
2154 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	12"	0	FAIR
2157 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	15"	0	DEAD
2159 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	25"	0	GOOD
2161 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	16"	0	DEAD
2163 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	32"	5	POOR
2165 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	25"	0	DEAD
2167 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	34"	5	FAIR
2168 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	26"	4	POOR
2171 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	22"	3	FAIR
2172 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	21"	0	VERY POOR
2175 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	20"	0	DEAD
2177 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	24"	0	VERY POOR
2179 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	15"	0	DEAD
2181 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	24"	0	DEAD
2183 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	24"	0	DEAD
2185 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	25"	3	POOR
2278 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	14"	0	POOR
2345 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	23"	3	GOOD
2376 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	13"	0	POOR
2374 DOUGLAS-FIR / PSEUDOTSUGA MENZIESII	12"	0	GOOD

TOTAL TREE CREDITS 55 TREES

EXISTING TREE INVENTORY

EXISTING	BOTANICAL / COMMON NAME	QTY
40	DOUGLAS FIR TO REMAIN	40
1	ENGLISH HAWTHORN TO REMAIN	1
3	OREGON ASH TO REMAIN	3
2	WILLOW TO REMAIN	2

PROPOSED TREES

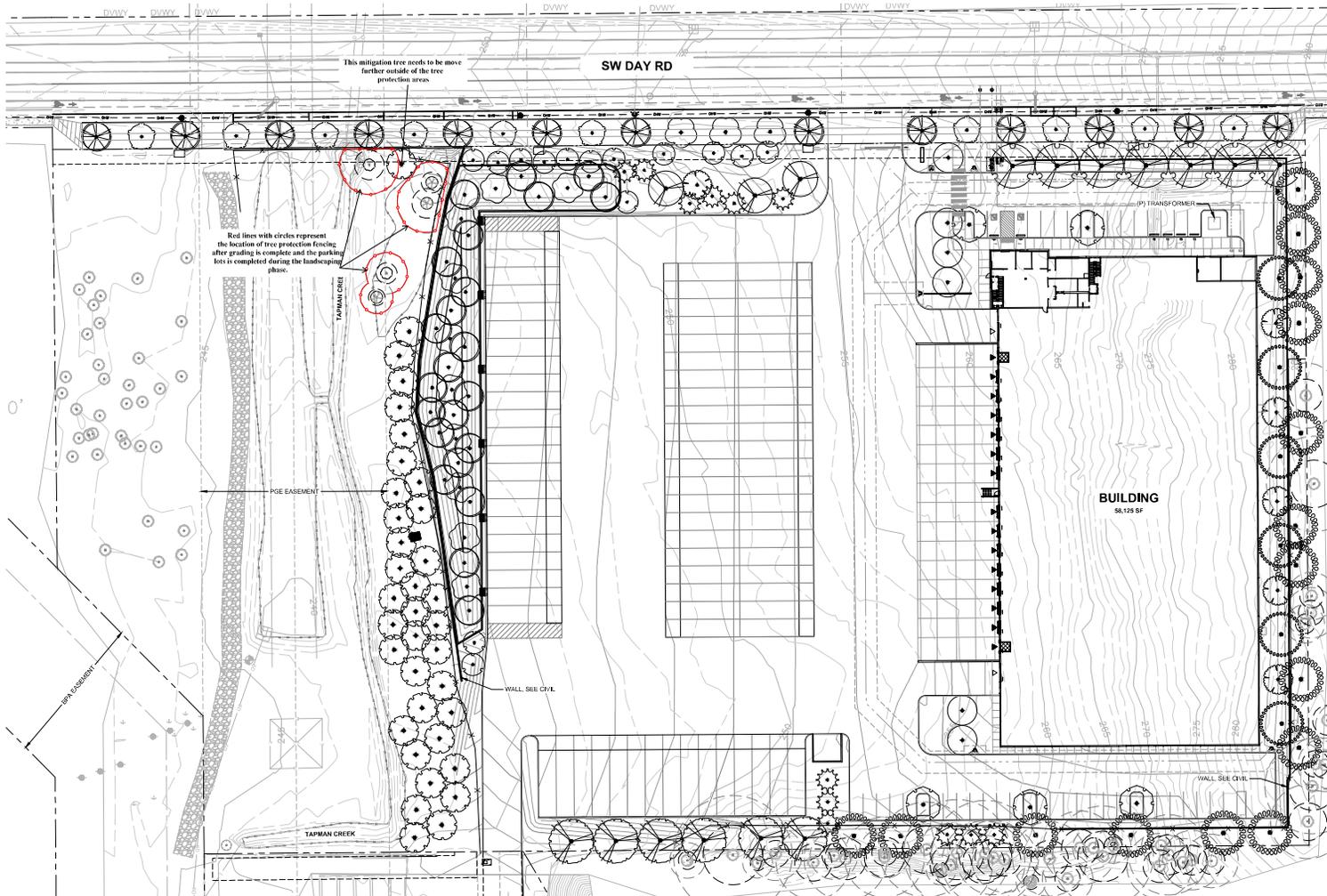
ACCENT TREES	QTY	BOTANICAL / COMMON NAME
6	ACER RUBRUM 'BONHALL'	BONHALL RED MAPLE
14	AMELANCHIER ALNIFOLIA 'AUTUMN BRILLIANCE'	SERVICEBERRY
6	CORNUS KOUSA X MUTTALLI '04-4-43'	STARLIGHT KOUSA DOGWOOD
PRIMARY TREES	QTY	BOTANICAL / COMMON NAME
7	FRAXINUS PENNSYLVANICA 'MARSHALL'S SEEDLESS'	MARSHALL'S SEEDLESS GREEN ASH
6	PINUS PONDEROSA	PONDEROSA PINE
15	PSEUDOTSUGA MENZIESII	DOUGLAS FIR
6	BUNYONIS GARRYANA	OREGON WHITE OAK
SECONDARY TREES	QTY	BOTANICAL / COMMON NAME
12	GALICEGORUS DECURRENS	INCENSE CEDAR
3	TILIA TOMENTOSA 'STERLING'	STERLING SILVER LINDY
5	ULMUS X 'FRONTIER'	FRONTIER ELM
STORMWATER TREES	QTY	BOTANICAL / COMMON NAME
10	CORNUS X 'EDDIE'S WHITE WONDER'	EDDIE'S WHITE WONDER DOGWOOD
29	FRAXINUS LATIFOLIA	OREGON ASH
33	RHAMNUS PURSHIANA	CASCARA BUCKTHORN
STREET TREES	QTY	BOTANICAL / COMMON NAME
13	ACER GRANDIDENTATUM 'SOMMID'	TM ROCKY MOUNTAIN GLOW MAPLE
3	CORNUS KOUSA 'MILKY WAY'	MILKY WAY KOUSA DOGWOOD
10	PARROTTA PERSICA 'INGE'S RUBY VASE'	TM RUBY VASE PERSIAN PARROTTA

NOTE

1. OFF-SITE TREES IMPACTED BY CONTE IMPROVEMENT ON ADJACENT PRIVATE PROPERTY ARE RECOMMENDED FOR REMOVAL AND REPLACEMENT CONTINGENT UPON APPROVAL OF ADJACENT PROPERTY OWNER.

FULL ROOT PROTECTION ZONE

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Project
DELTA LOGISTICS
SITE EXPANSION
9710 SW DAY RD.
CITY OF
WILSONVILLE, OR



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DATE	REVISION	BY	DATE

TREE MITIGATION PLAN

L0.04

JOB NO. 2200502.04



DELTA
LOGISTICS, INC.
100 SW Commerce Circle

DELTA LOGISTICS ANNEX TRANSPORTATION IMPACT ANALYSIS

FEBRUARY 2022

PREPARED FOR:



PREPARED BY DKS ASSOCIATES

Scott Mansur, P.E., PTOE
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INTRODUCTION

This study evaluates the transportation impacts associated with the proposed Delta Logistics Annex industrial development to be located at 9710 Day Road in Wilsonville, Oregon. The project will consist of an approximately 56,100 square foot industrial building which will have direct access to Day Road and an internal connection to the existing auxiliary operations at 9835 Commerce Circle. The project site is located within the Wilsonville Coffee Creek Industrial Design Overlay Zone.

The purpose of this transportation impact analysis is to identify potential mitigation measures needed to offset transportation impacts that the proposed development may have on the nearby transportation network. The impact analysis is focused on the study intersections, which were selected for evaluation. The intersections are listed below and shown in Figure 1. Table 1 lists important characteristics of the study area and proposed project.

1. Site Access/ Day Road
2. Boones Ferry Road/ Day Road
3. Boones Ferry Road/ 95th Avenue
4. I-5 Southbound Ramps/ Elligsen Road
5. I-5 Northbound Ramps/ Elligsen Road

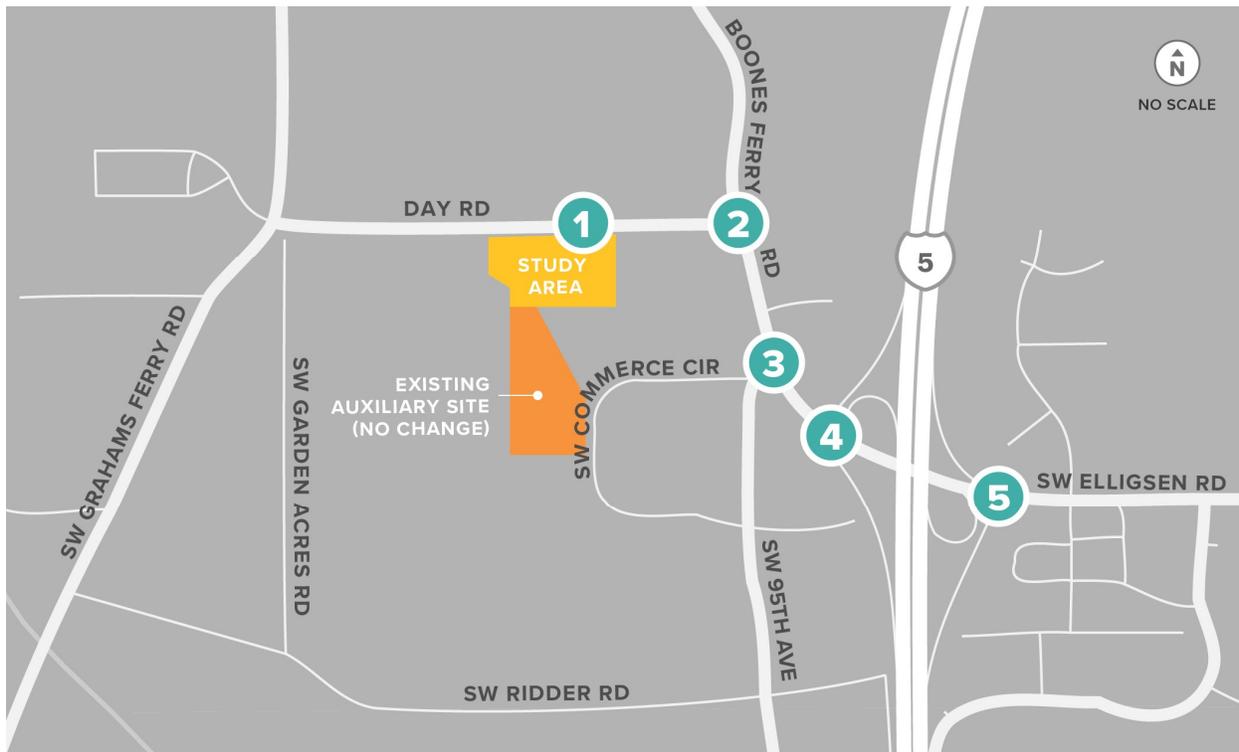


FIGURE 1: STUDY AREA

TABLE 1: STUDY AREA AND PROPOSED PROJECT CHARACTERISTICS

STUDY AREA	
NUMBER OF STUDY INTERSECTIONS	Five
ANALYSIS PERIODS	Weekday PM peak hour (one hour between 4pm and 6pm)
PROPOSED DEVELOPMENT	
SIZE AND LAND USE	56,100 square-foot industrial building
PROJECT TRIPS	33 PM peak hour trips (9 in, 24 out), 127 weekday trips
VEHICLE ACCESS POINTS	One full site access on Day Road and an internal connection to an auxiliary site property on Commerce Circle.
OTHER TRANSPORTATION FACILITIES	
PEDESTRIAN AND BICYCLE FACILITIES	Sidewalks and bicycle lanes currently exist on Day Road fronting the project site.
TRANSIT FACILITIES	SMART Transit Route 5 and TriMet Route 96 have bus stops in the project vicinity.

EXISTING CONDITIONS

This chapter provides documentation of existing study area conditions, including the study area roadway network, pedestrian and bicycle facilities, and existing traffic volumes and operations.

STUDY AREA ROADWAY NETWORK

Key roadways in the study area are summarized in Table 2 along with their existing roadway characteristics. The functional classifications for City of Wilsonville streets are provided in the City of Wilsonville Transportation System Plan (TSP).¹

TABLE 2: STUDY AREA ROADWAY CHARACTERISTICS

ROADWAY	FUNCTIONAL CLASSIFICATION	LANES	POSTED SPEED	SIDEWALKS	BIKE FACILITIES	ON-STREET PARKING
DAY ROAD	Major Arterial	3	40 mph ^a	Partial ^b	Yes	No
BOONES FERRY ROAD	Major Arterial	3-4	35 mph ^c 45 mph ^c	Yes	Yes	No
95 TH AVENUE	Minor Arterial	3	35 mph	Yes	Yes	No
COMMERCE CIRCLE	Local	2	25 mph	Partial ^d	No	Yes
ELLIGSEN ROAD	Major Arterial	4	35 mph	Yes	Yes	No

^a 35 mph advisory speed west of Boones Ferry Road due to hill and limited sight distance.

^b Sidewalks only exist on the south side of Day Road.

^c Posted speed limit on Boones Ferry Road is 35 mph south of Day Road & 45 mph north of Day Road.

^d Sidewalks exist on the south side of Commerce Circle for approximately 1000 linear feet west of the southern intersection with 95th Avenue.

BICYCLE AND PEDESTRIAN FACILITIES

There are existing marked bicycle lanes on Day Road, Boones Ferry Road, and Elligsen Road (no bike facilities on Commerce Circle). Full sidewalks exist on Boones Ferry Road, Elligsen Road, and 95th Avenue (partial sidewalks on Day Road and Commerce Circle).

PUBLIC TRANSIT SERVICE

South Metro Area Regional Transit (SMART) provides public transportation services within Wilsonville and outlying areas, including Canby, Salem, and the south end of Portland. Route 5 provides service between Wilsonville Transit Center and Commerce Circle on Monday through

¹ Wilsonville Transportation System Plan, Amended November 16, 2020.

Friday with 30-minute headways during peak periods. The closest bus stops are located at the Grahams Ferry Road/ Day Road intersection and at two points along the Commerce Circle loop.

TriMet provides public transportation services in the Portland Metro region. Route 96 services the northern extents of Wilsonville via Boones Ferry Road and Commerce Circle on Monday through Friday with approximately 30-minute intervals during peak periods. Stops are located at the Boones Ferry Road/ Day Road intersection and at a few locations along the Commerce Circle loop.

PLANNED PROJECTS

The City of Wilsonville Transportation System Plan (TSP) has a list of Higher Priority projects which includes the recommended projects reasonably expected to be funded through 2035. These are the highest priority solutions to meet the City’s most important needs. The list includes the following projects that impact the key roadways near the proposed project site.²

- SI-07 – Add a second southbound right turn lane to the I-5 Exit Ramp at the Boones Ferry Road intersection.
- SI-08 – Improve operations at the Boones Ferry Road/95th Avenue intersection by removing the east private access approach. Pioneer Court access onto Boones Ferry Road will be right-on/right-out. Additional access will occur via a north-south local street connection between Pioneer Court, passing under the Day Road I-5 overcrossing approach, and a new west-east local street (north of Day Road) with full intersection access at Boones Ferry Road.
- RW-02 – Widen Day Road from Boones Ferry Road to Grahams Ferry Road to include additional travel lanes in both directions along with bike lanes and sidewalks; project includes improvements at the Day Road/ Boones Ferry Road and Day Road/ Grahams Ferry Road intersections.
- RW-04 – Widen Boones Ferry Road from Day Road to Basalt Creek Parkway to five lanes.

EXISTING TRAFFIC VOLUMES

Intersection turning movement count data was utilized from a previous traffic study. Those counts were collected on two consecutive weekdays during the PM peak period (4:00-6:00 pm) in September 2021 at the study intersections, and the specific movement data was averaged.

In July 2021, ODOT released their final COVID Monitoring Traffic Report, which indicated that statewide traffic levels were approximately back to “pre-COVID” levels (plus or minus 5%). Other local agencies in the area have anecdotally noted similar observations on the local street system. Additionally, the traffic counts were collected when Wilsonville schools were back to full-time, in-person attendance. Therefore, no COVID adjustment was applied to the traffic counts.

Figure 1 shows the Existing 2021 PM peak hour traffic volumes for the study intersections, along with the lane configurations and traffic control.

² Table 5-3/Figure 5-4 and Table 5-4/Figure 5-5, Wilsonville Transportation System Plan, Amended April 15, 2019.

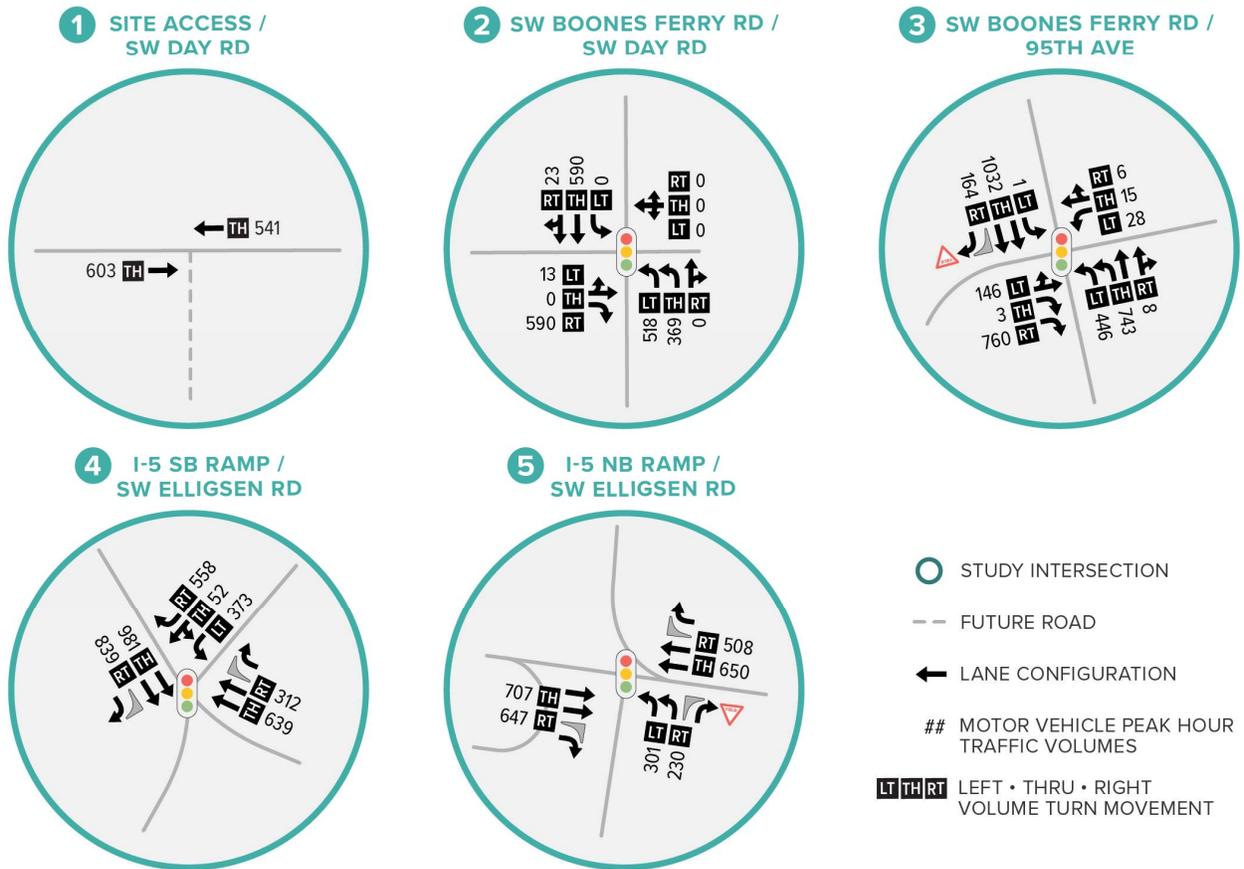
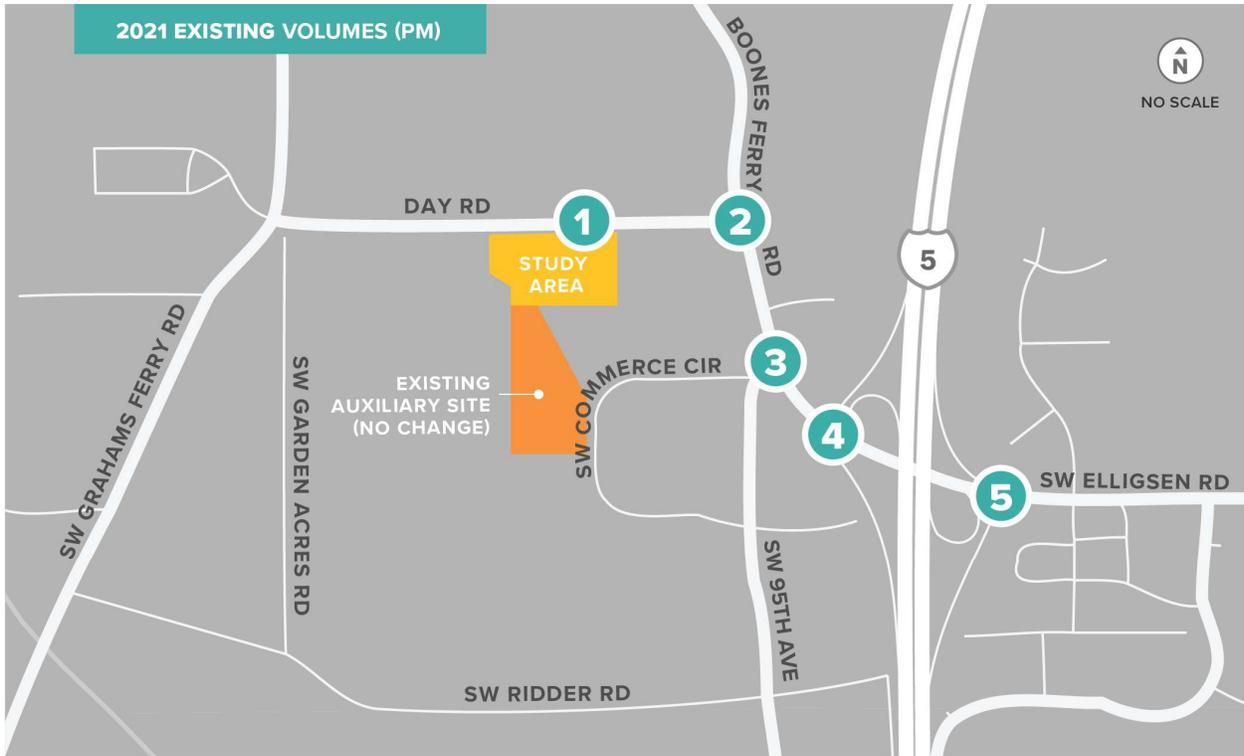


FIGURE 2: EXISTING PM PEAK HOUR TRAFFIC VOLUMES

INTERSECTION PERFORMANCE MEASURES

Agency mobility standards often require intersections to meet level of service (LOS) or volume-to-capacity (V/C) intersection operation thresholds.

- The intersection LOS is similar to a “report card” rating based upon average vehicle delay. Level of service A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. Level of service D and E are progressively worse operating conditions. Level of service F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.
- The volume-to-capacity (v/c) ratio represents the level of saturation of the intersection or individual movement. It is determined by dividing the peak hour traffic volume by the maximum hourly capacity of an intersection or turn movement. When the V/C ratio approaches 0.95, operations become unstable and small disruptions can cause the traffic flow to break down, resulting in the formation of excessive queues.

The City of Wilsonville requires study intersections on public streets to meet its minimum acceptable level of service (LOS) standard, which is LOS D for the overall intersection for the PM peak period.

The two intersections located at the Interstate-5/Elligsen Road interchange are required to meet ODOT mobility targets, which are identified in the METRO Regional Transportation Plan (2018) and the Oregon Highway Plan (1999). For the I-5 corridor between the Marquam Bridge to Wilsonville, the PM peak hour target for the first and second hour is a v/c ratio equal to or less than 0.99.³

EXISTING INTERSECTION OPERATIONS

An analysis of the 2021 existing intersection operations was performed at the study intersections to determine the current operating conditions of the study area. Intersection operations were analyzed for the PM peak hour using Highway Capacity Manual (HCM) 6th Edition methodology.⁴ The volume to capacity (v/c) ratio, delay, and level of service (LOS) of each study intersection are listed in Table 3.

³ Table 2.4, Regional Transportation Plan, METRO, December 6, 2018.

Table 7, Oregon Highway Plan, Oregon Department of Transportation, 1999.

⁴ Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.

TABLE 3: EXISTING 2021 STUDY INTERSECTION OPERATIONS

INTERSECTION	OPERATING STANDARD/ MOBILITY TARGET	EXISTING PM PEAK HOUR		
		V/C	DELAY	LOS
SIGNALIZED				
BOONES FERRY RD/ DAY RD	LOS D (City)	0.65	15.8	B
BOONES FERRY RD/ 95TH AVE	LOS D (City)	0.69	20.3	C
I-5 SOUTHBOUND RAMPS/ ELLIGSEN RD	$v/c \leq 0.99$ (ODOT)	0.75	9.5	A
I-5 NORTHBOUND RAMPS/ ELLIGSEN RD	$v/c \leq 0.99$ (ODOT)	0.33	7.2	A
TWO-WAY STOP- CONTROLLED				
SITE ACCESS/ DAY RD	LOS D (City)	-	-	-

SIGNALIZED INTERSECTION:

Delay = Average Intersection Delay (secs)
v/c = Total Volume-to-Capacity Ratio
LOS = Total Level of Service

TWO-WAY STOP CONTROLLED INTERSECTION:

Delay = Critical Movement Delay (secs)
v/c = Critical Movement Volume-to-Capacity Ratio
LOS = Critical Levels of Service (Major/Minor Road)

As shown, all study intersections meet the City’s operating standard under the existing analysis scenario. HCM reports are provided in the appendix.

PROJECT IMPACTS

This chapter reviews the impacts that the proposed development may have on the study area transportation system. This analysis includes trip generation and distribution estimates, future year traffic volumes, and operating conditions for the study intersections.

PROPOSED DEVELOPMENT

The proposed Delta Logistics Annex industrial development is located at 9710 Day Road in Wilsonville, Oregon. The project will consist of an approximately 56,100 square foot industrial building which will have direct access to Day Road. The development serves as an annex to the existing operations of Delta Logistics at 9835 SW Commerce Circle and will include an internal connection between the two sites. The project site is located within the Wilsonville Coffee Creek Industrial Design Overlay Zone.

FUTURE ANALYSIS SCENARIOS

Operating conditions were analyzed at the study intersections for the following traffic scenarios. The comparison of the following scenarios enables the assessment of project impacts:

- Existing + Stage II
- Existing + Project
- Existing + Stage II + Project

All future analysis scenarios assume the same traffic control as existing conditions. Stage II represents traffic from other developments that have Stage II approval or are under construction in Wilsonville.

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles added to site driveways and the adjacent roadway network by a development during a specified period (i.e., such as the PM peak hour).

For this study, the Institute of Transportation Engineers (ITE) trip generation rates for Warehousing (150) were used.⁵ This ITE land use code was deemed appropriate through a comparison of the Warehousing (150) trip generation rate with a weekday PM peak hour driveway count that was collected at the existing auxiliary site access for Delta Logistics. The traffic count showed a similar traffic generation as would be expected for the Warehousing (150) land use code, which validates that the land use code would be acceptable for the new site. The total trip generation for the proposed development is shown in Table 4.

⁵ Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, 2021.

TABLE 4: VEHICLE TRIP GENERATION

LAND USE (ITE CODE)	SIZE ^a	PM PEAK TRIP RATE	PM PEAK TRIPS			DAILY TRIPS
			IN	OUT	TOTAL	
Warehousing (150)	56.1 KSF	1.20 trips per KSF	9	24	33	127

^a KSF = 1,000 square feet

As shown, the proposed development is expected to generate a total 33 PM peak hour trips (9 in, 24 out). The project trips at the study intersections are shown in Figure 2 in the following section.

VEHICLE TRIP DISTRIBUTION

Vehicle trip distribution provides an estimation of where vehicles would be coming from and going to. It is given as a percentage at key gateways to the study area and is used to route project trips through the study intersections. Figure 3 shows the trip distribution for the proposed site. The trip distribution was based on the Wilsonville Travel Demand Model⁶ and matched prior studies conducted near the project vicinity.⁷

Due to study site having an internal access point to the existing auxiliary site, the vehicle trips that originated south along 95th Avenue were routed through the existing auxiliary site access on Commerce Circle. With 15% of trips on 95th Avenue, this equated to 4 trips out and 1 trip in during the PM peak hour in which the generated vehicles do not interact with a study intersection.

PROJECT TRIPS THROUGH CITY OF WILSONVILLE INTERCHANGE AREAS

The project trips through the two City of Wilsonville I-5 interchange areas were estimated based on the trip generation and distribution assumptions as discussed prior. Approximately 5% of the project trips are expected to travel through the I-5/Wilsonville Road interchange area and 45% are expected to travel through the I-5/Elligsen Road interchange area; that is, the proposed development is expected to generate 2 new PM peak hour trips through the I-5/Wilsonville Road interchange area and 15 new PM peak hour trips through the I-5/Elligsen Road interchange area.

FUTURE TRAFFIC VOLUMES

Traffic volumes were estimated at the study intersections for the three future analysis scenarios. The future scenarios include various combinations of three types of traffic: Existing, Project, and Stage II. Stage II development trips are estimated based on the list of currently approved Stage II developments provided by City staff.⁸ The Stage II list is included in the appendix. Figure 4 shows the PM peak hour traffic volumes used to analyze the future scenarios.

⁶ 2035 Wilsonville Travel Demand Model, Select Zone Analysis, Zone 4143.

⁷ Coffee Creek Industrial Development, Transportation Impact Study, DKS Associates, November 2021.

⁸ Daniel Pauly Email, City of Wilsonville, September 21, 2021.

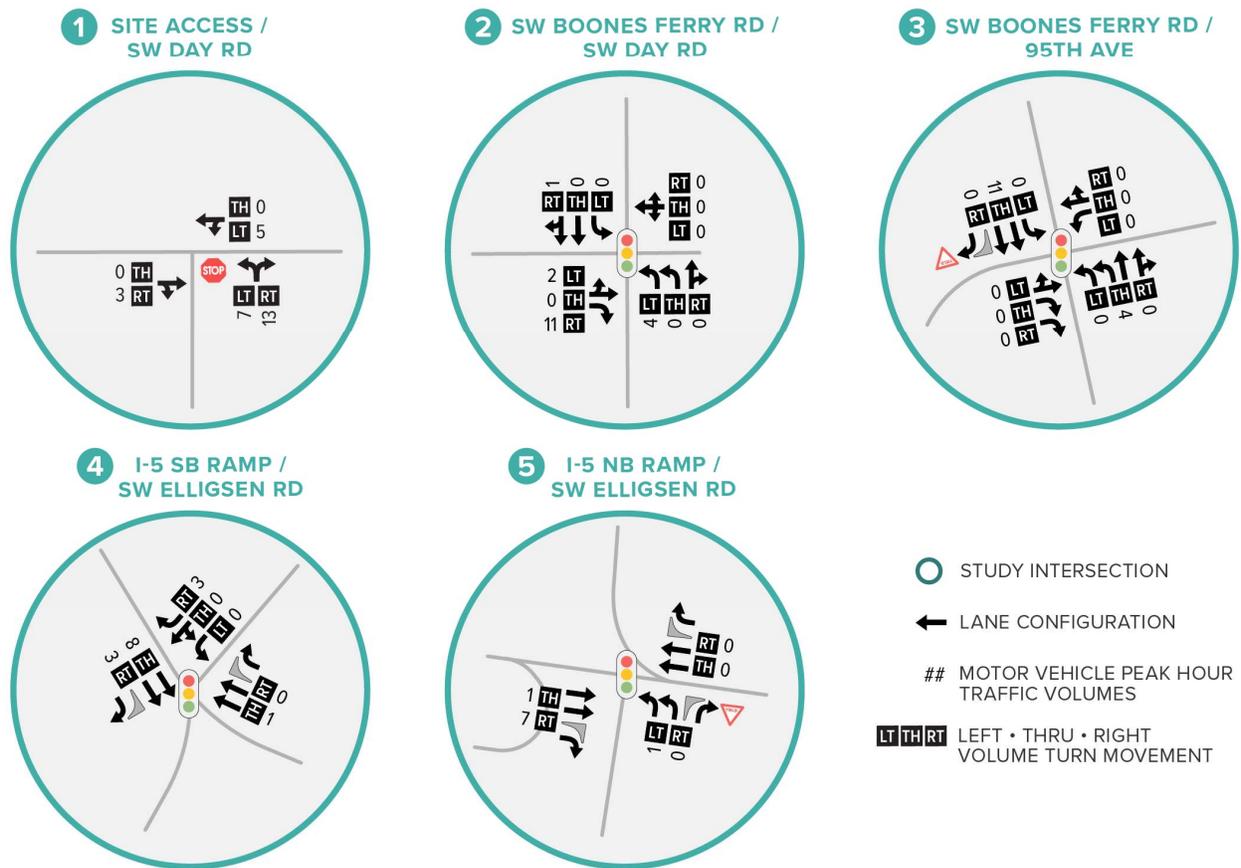
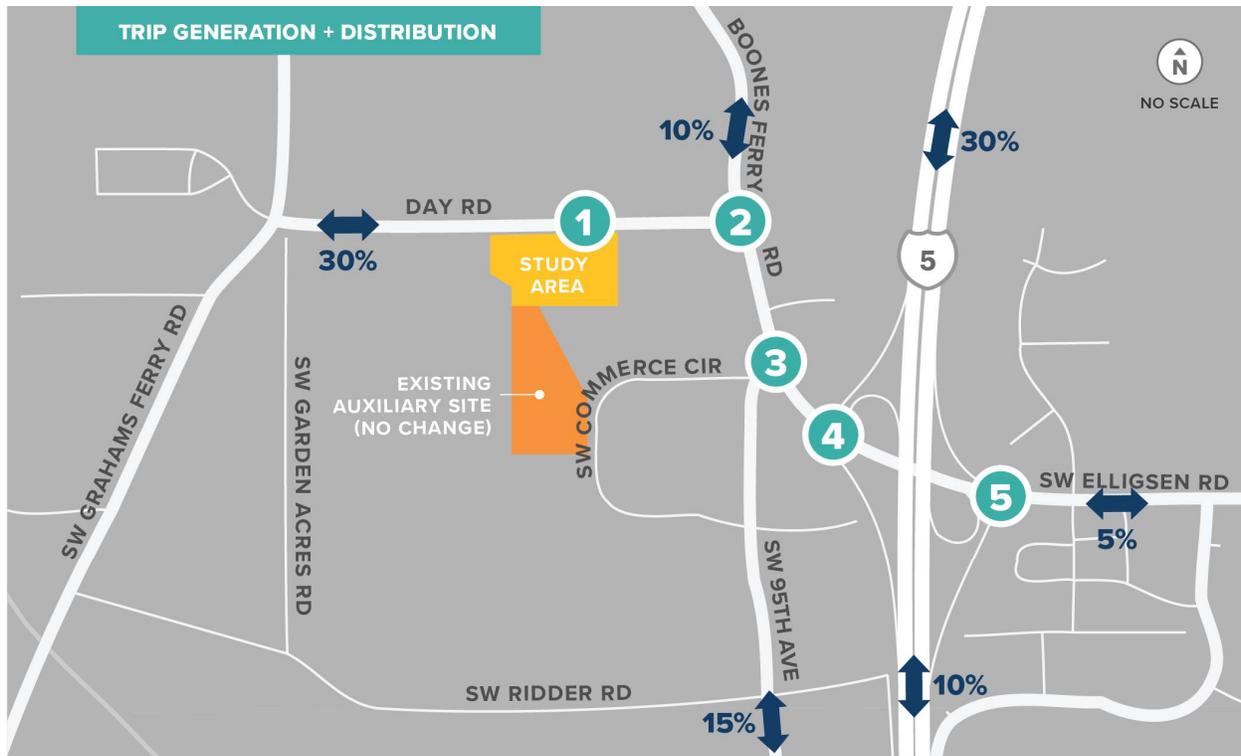


FIGURE 3: TRIP DISTRIBUTION AND PROJECT TRIPS

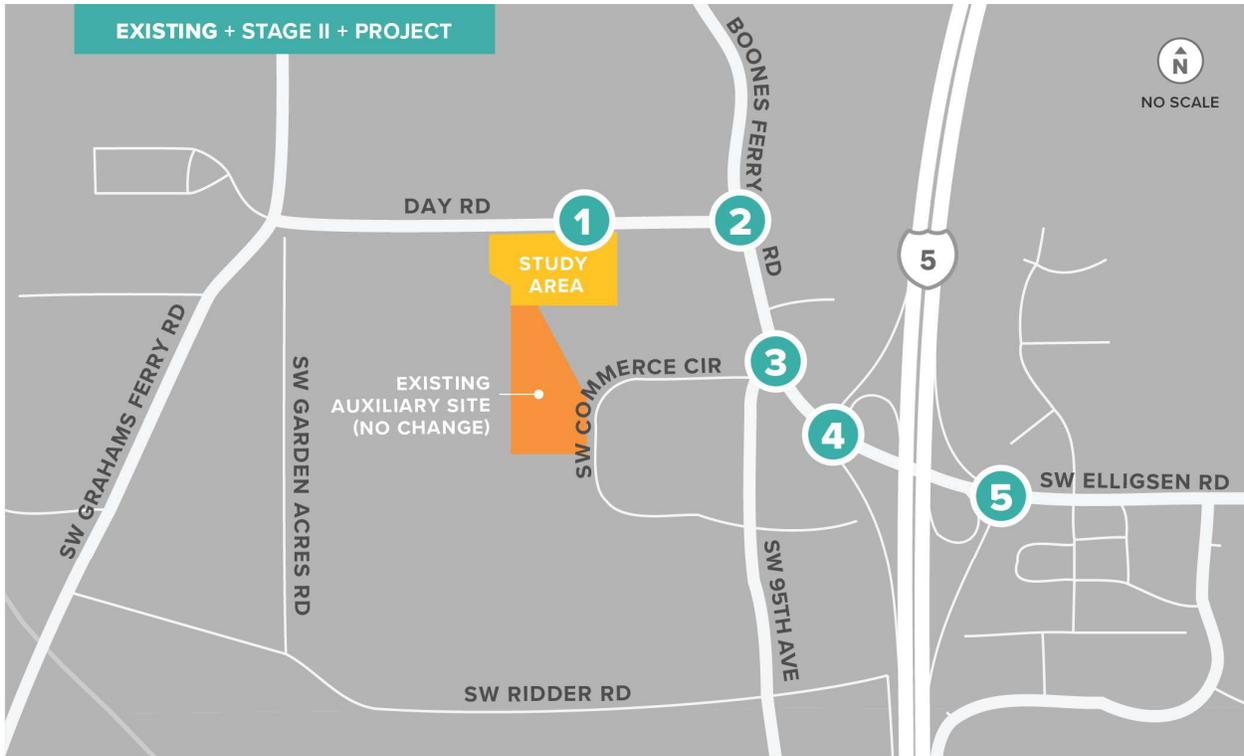


FIGURE 4: FUTURE PM PEAK HOUR TRAFFIC VOLUMES

FUTURE INTERSECTION OPERATIONS

An analysis of the future intersection operations was performed at the study intersections for each future scenario. Intersection operations were analyzed for the PM peak hour using Highway Capacity Manual (HCM) 6th Edition methodology.⁹ The volume to capacity (v/c) ratio, delay, and level of service (LOS) of each study intersection are listed in Table 5.

TABLE 5: FUTURE INTERSECTION OPERATIONS

INTERSECTION	OPERATING STANDARD/ MOBILITY TARGET	EXISTING + PROJECT			EXISTING + STAGE II			EXISTING + STAGE II + PROJECT		
		V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
SIGNALIZED										
BOONES FERRY RD/ DAY RD	LOS D (City)	0.66	16.0	B	0.66	15.8	B	0.67	16.0	B
BOONES FERRY RD/ 95TH AVE	LOS D (City)	0.70	20.4	C	0.71	20.6	C	0.71	20.7	C
I-5 SOUTHBOUND RAMPS/ ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.76	9.6	A	0.79	10.3	B	0.79	10.4	B
I-5 NORTHBOUND RAMPS/ ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.33	7.2	A	0.35	7.2	A	0.35	7.2	A
TWO-WAY STOP- CONTROLLED										
SITE ACCESS/ DAY RD	LOS D (City)	0.06	14.5	A/B	-	-	-	0.06	14.5	A/B

SIGNALIZED INTERSECTION:

Delay = Average Intersection Delay (secs)
v/c = Total Volume-to-Capacity Ratio
LOS = Total Level of Service

TWO-WAY STOP CONTROLLED INTERSECTION:

Delay = Critical Movement Delay (secs)
v/c = Critical Movement Volume-to-Capacity Ratio
LOS = Critical Levels of Service (Major/Minor Road)

As shown, all study intersections are expected to meet the City’s operating standard under all future analysis scenarios. HCM reports are provided in the appendix.

SITE REVIEW

This chapter provides a documented evaluation of the site plan, including discussions on the site access and sight distance, frontage improvements, pedestrian and bicycle facilities, circulation, and parking. The site plan is provided in the appendix.

SITE ACCESSES

A full site access is currently proposed on Day Road approximately 1,200 feet west of the Boones Ferry Road intersection. Also shown is an internal connection to the auxiliary site property to the

⁹ Highway Capacity Manual, 6th Edition, Transportation Research Board, 2017.

south, which has access to Commerce Circle. The full site access on Day Road will support both employee passenger vehicle traffic and freight truck traffic. The proposed access on Day Road is required to meet the City’s public works construction standards.¹⁰ The access spacing standard for a Major Arterial is to be a minimum 1,000 feet, but the desired spacing is 1,320 feet.

The approximate spacing between the proposed site access and the Boones Ferry Road intersection is 1,000 feet, meeting the City’s minimum standard. However, as shown in the City’s Development Code for the Coffee Creek Industrial Design Overlay Zone¹¹, there is a proposed Supporting Street connection to Day Road that is proposed to be built just to the east of the project property, approximately 420 feet from the proposed driveway. Ideally, the site would be able to connect directly to the future Supporting Street, but because of the existing wetlands and the Significant Resource Overlay Zone (SROZ) on the west side of the property, access to the proposed Supporting Street is not feasible and therefore, a direct access to Day Road is necessary.

INTERSECTION SIGHT DISTANCE

The proposed driveway is to meet the recommend sight distances per AASHTO¹². The posted speed on Day Road is 40 mph and there is a 5% uphill grade traveling eastbound and a 2% uphill grade traveling westbound from the proposed driveway. Based on these conditions, the preliminary intersection sight distance requirement along Day Road is shown in the table below.

TABLE 6: PRELIMINARY INTERSECTION SIGHT DISTANCE (ISD) PER AASHTO

DIRECTION OF TRAVEL	DESIGN SPEED	PASSENGER CAR	TRUCK
Left Turn From Driveway	40 mph	530 ft	780 ft
Right Turn From Driveway		475 ft	720 ft
DKS PRELIMINARY FIELD MEASUREMENTS:			
Looking to the Left: approximately 750 feet		✓	✗
Looking to the Right: approximately 600 feet		✓	✓

Sight distance was evaluated and documented in a memo by Mackenzie that verified sight distances at the proposed driveway are met for passenger cars but not for trucks.¹³ A field visit

¹⁰ Table 2.12 Public Works Construction Standards, City of Wilsonville, 2017.

¹¹ Wilsonville Development Code, Section 4.134.

¹² Table 9-7 and 9-9, A Policy on Geometric Design of Highways and Streets, 7th Edition, American Association of State Highway and Transportation Officials (AASHTO), 2018 with 2019 Errata.

¹³ Delta Logistics – Wilsonville Annexation, Day Road Sight Distance Evaluation, Makenzie, March 18, 2021.

conducted by DKS also verified the same sight distance findings at the proposed site access as Mackenzie.¹⁴

In January 2022, Makenzie evaluated the intersection sight distances at three alternative driveway locations along Day Road at both a 35 mph and 40 mph design speed to determine if recommended sight distances could be met at any of the other locations and at a lower posted speed. However, due to the vertical curve on Day Road, none of the other driveway locations were able to meet recommended intersection sight distances.

Based on these findings, DKS recommends that the proposed driveway be provided as shown on the site plan. Trucks desiring to head west on Day Road will need to utilize to the existing site access to the site on SW Commerce Circle. Appropriate coordination with truck drivers and signage will need to be installed on site to prohibits trucks from turning left out of the Day Road driveway.

Prior to occupancy, sight distance at any new or modified access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

FRONTAGE IMPROVEMENTS

Based on the City's street cross-section design standards,¹⁵ major arterials are required to have sidewalks, planter strips, and bike lanes along the project frontage. As sidewalks, planter strips, and bike lanes already exist along the project frontage, the project sponsor should verify that the existing facilities meet the facility width requirements.

CIRCULATION & STRUCTURE

As an industrial warehousing and trucking site, there is the necessity for substantial semi-truck tractor and trailer parking. The site separates out the personal vehicle, semi-tractor, and semi-trailer parking into three areas. The passenger car parking areas are located on the south side of the property and along the north side of the building. Semi-trailer parking is located just west of the building at the center of the property and semi-tractor parking is located on the far west side of the property. A circular isle is provided around the semi-trailer parking area that connects the Day Road access, internal access to the auxiliary site, and loading dock doors.

The semi-tractor parking area on the west end of the property is accessed a drive aisle that is shown to cross over a Significant Resource Overlay Zone (SROZ). While the parking area appears to be outside of the SROZ, the access road to reach the parking area would require building the access road within the SROZ. Based on discussions with the City, it is our understanding that a crossing over the SROZ will not be permitted and therefore, the proposed semi-tractor parking should be relocated elsewhere on the project site.

¹⁴ Field visit conducted by DKS Associates on October 27, 2021.

¹⁵ Wilsonville Transportation System Plan, Amended November 16, 2020.

PARKING

The proposed project is required to comply with the City code for the number of personal vehicular parking stalls and bicycle parking spaces that are provided on site.¹⁶ Assuming the entire building is classified as Storage Warehouse, the project site is to have between 0.3 and 0.5 vehicle parking spaces per 1,000 square feet of building, which equates to between 17 and 29 spaces. The site plan shows a proposed 56 vehicular parking spaces, exceeding the maximum number of parking stalls per code for Storage Warehouse land use.

Based on the ITE Parking Generation Manual, the 85th percentile parking demand for Land Use 150 (Warehousing) is 0.81 parking stalls per 1,000 square feet of building. This results in an estimated parking demand of 47 parking stalls for the project site. Because the project site is anticipated to be a distribution center, it will need to provide enough parking for the truck/freight drivers' personal vehicles as well as on-site employees' personal vehicles. The proposed 56 parking passenger car spaces is appropriate for this project site.

This industrial site is also to have one bicycle parking space per 20,000 square feet, which equates to three bicycle parking spots. The site plan does not show any proposed bicycle parking spaces. It is recommended that the final site plan show a minimum of three bicycle parking spaces to meet the City code requirement.

SUMMARY OF PROJECT IMPACTS

The key findings of the study for the Delta Logistics Annex development are discussed below.

- The proposed Delta Logistics Annex industrial development includes an approximately 56,100 square foot industrial building that will serve as an annex to the existing operations of Delta Logistics located on Commerce Circle.
- The proposed development is expected to generate 33 PM peak hour trips (9 in, 24 out) and 127 weekday trips.
- Of the PM peak hour project trips, 2 new trips are expected to travel through the I-5/Wilsonville Road interchange area and 15 new trips are expected to travel through the I-5/Elligsen Road interchange area.
- The traffic operations at the five study intersections are expected to operate within the City's operating standard and ODOT's mobility target under project build conditions.
- The proposed site driveway does not meet access spacing standards nor the recommended intersection sight distances for trucks turning left out of the driveway. However, based on the intersection sight distance evaluation, the proposed driveway location provides the best intersection sight distance as compared to other locations along Day Road.

¹⁶ Wilsonville Development Code, Section 4.155, Table 5, Updated October 2019.

- A condition of approval will be needed to prohibit trucks from turning left onto Day Road. Trucks desiring to head west on Day Road will need to utilize the existing site access on SW Commerce Circle. Appropriate coordination with truck drivers and internal signage will need to be installed on site to prohibit trucks from turning left out of the Day Road site driveway. Prior to occupancy, sight distance at any new or modified access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.
- Based on discussions with the City, it is our understanding that a crossing over the SROZ will not be permitted and therefore, the proposed parking lot on the west side of the site should be relocated.
- It is recommended that the final site plan includes a minimum of three bicycle parking spaces to meet the City code requirement.

APPENDIX

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- A. TRAFFIC COUNT DATA
- B. HCM REPORT – EXISTING CONDITIONS
- C. STAGE II LIST
- D. HCM REPORT – EXISTING + PROJECT
- E. HCM REPORT – EXISTING + STAGE II
- F. HCM REPORT – EXISTING + STAGE II + PROJECT
- G. SITE PLAN



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APPENDIX A

TRAFFIC COUNT DATA

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	11	9	21	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	5	7	7	19	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	3	6	9	18	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	1	7	7	15	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	2	5	4	11	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	8	4	12	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	7	4	12	4:30 PM	0	0	1	0	1	4:30 PM	0	0	0	0	0
4:35 PM	0	2	5	6	13	4:35 PM	0	0	0	0	0	4:35 PM	0	1	0	0	1
4:40 PM	0	0	1	3	4	4:40 PM	0	0	0	0	0	4:40 PM	0	1	0	0	1
4:45 PM	0	1	11	6	18	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	5	6	11	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	8	0	8	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	4	2	7	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	3	2	5	5:05 PM	0	0	0	1	1	5:05 PM	0	0	0	0	0
5:10 PM	0	0	5	2	7	5:10 PM	0	0	1	0	1	5:10 PM	0	0	0	0	0
5:15 PM	0	1	5	1	7	5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0
5:20 PM	0	0	2	1	3	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	2	2	4	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	1	4	2	7	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	1	2	3	6	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	1	3	2	6	5:40 PM	0	0	0	1	1	5:40 PM	0	0	0	0	0
5:45 PM	0	1	1	4	6	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	4	0	5	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	3	3	0	6	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	26	119	86	231	Count Total	0	1	2	2	5	Count Total	0	2	0	0	2
Peak Hour	0	11	70	53	134	Peak Hour	0	0	1	1	2	Peak Hour	0	2	0	0	2



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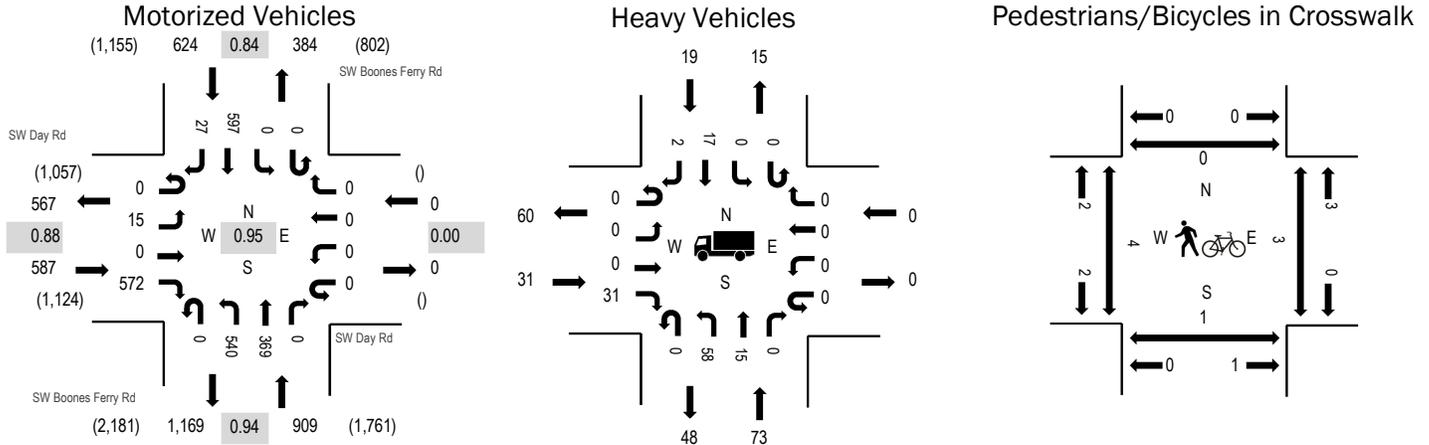
Location: 2 SW Boones Ferry Rd & SW Day Rd PM

Date: Tuesday, September 21, 2021

Study Peak Hour: 04:10 PM - 05:10 PM

Peak 15-Minutes in Study Peak Hour: 04:35 PM - 04:50 PM

Study Peak Hour (for all study intersections)



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.3%	0.88
WB	0.0%	0.00
NB	8.0%	0.94
SB	3.0%	0.84
All	5.8%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	SW Day Rd Eastbound				SW Day Rd Westbound				SW Boones Ferry Rd Northbound				SW Boones Ferry Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	2	0	64	0	0	0	0	0	30	21	0	0	0	35	6	158	2,101
4:05 PM	0	1	0	50	0	0	0	0	0	43	23	0	0	0	44	4	165	2,100
4:10 PM	0	1	0	50	0	0	0	0	0	42	32	0	0	0	58	3	186	2,120
4:15 PM	0	1	0	47	0	0	0	0	0	37	32	0	0	0	63	2	182	2,094
4:20 PM	0	1	0	54	0	0	0	0	0	51	23	0	0	0	55	5	189	2,072
4:25 PM	0	1	0	60	0	0	0	0	0	53	28	0	0	0	32	4	178	2,064
4:30 PM	0	4	0	46	0	0	0	0	0	45	30	0	0	0	42	2	169	2,040
4:35 PM	0	0	0	50	0	0	0	0	0	46	37	0	0	0	41	2	176	2,026
4:40 PM	0	3	0	49	0	0	0	0	0	47	38	0	0	0	42	1	180	1,999
4:45 PM	0	0	0	48	0	0	0	0	0	31	31	0	0	0	68	1	179	1,999
4:50 PM	0	0	0	37	0	0	0	0	0	49	33	0	0	0	47	3	169	1,988
4:55 PM	0	2	0	60	0	0	0	0	0	38	18	0	0	0	51	1	170	1,973
5:00 PM	0	0	0	35	0	0	0	0	0	46	28	0	0	0	45	3	157	1,939
5:05 PM	0	2	0	36	0	0	0	0	0	55	39	0	0	0	53	0	185	
5:10 PM	0	1	0	46	0	0	0	0	0	39	30	0	0	0	40	4	160	
5:15 PM	0	2	0	35	0	0	0	0	0	34	33	0	0	0	54	2	160	
5:20 PM	0	0	0	54	0	0	0	0	0	43	33	0	0	0	45	6	181	
5:25 PM	0	1	0	50	0	0	0	0	0	40	25	0	0	0	35	3	154	
5:30 PM	0	0	0	40	0	0	0	0	0	41	43	0	0	0	31	0	155	
5:35 PM	0	2	0	29	0	0	0	0	0	35	34	0	0	0	48	1	149	
5:40 PM	0	3	0	36	0	0	0	0	0	53	40	0	0	0	46	2	180	
5:45 PM	0	1	0	46	0	0	0	0	0	35	44	0	0	0	39	3	168	
5:50 PM	0	5	0	39	0	0	0	0	0	33	41	0	0	0	35	1	154	
5:55 PM	0	2	0	28	0	0	0	0	0	28	31	0	0	0	43	4	136	
Count Total	0	35	0	1,089	0	0	0	0	0	994	767	0	0	0	1,092	63	4,040	
Peak Hour	0	15	0	572	0	0	0	0	0	540	369	0	0	0	597	27	2,120	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	8	10	0	1	19	4:00 PM	0	1	0	0	1	4:00 PM	0	0	0	0	0
4:05 PM	3	7	0	1	11	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	3	7	0	2	12	4:10 PM	0	2	0	0	2	4:10 PM	0	0	1	0	1
4:15 PM	6	3	0	3	12	4:15 PM	0	2	0	1	3	4:15 PM	0	0	1	0	1
4:20 PM	1	5	0	2	8	4:20 PM	0	1	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	4	14	0	1	19	4:25 PM	0	0	0	1	1	4:25 PM	0	0	0	0	0
4:30 PM	3	5	0	0	8	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	2	3	0	1	6	4:35 PM	0	1	0	0	1	4:35 PM	0	0	1	0	1
4:40 PM	2	10	0	1	13	4:40 PM	0	1	0	0	1	4:40 PM	0	0	0	0	0
4:45 PM	2	5	0	3	10	4:45 PM	0	0	0	0	0	4:45 PM	2	1	0	0	3
4:50 PM	3	9	0	3	15	4:50 PM	0	0	0	1	1	4:50 PM	2	0	0	0	2
4:55 PM	2	3	0	1	6	4:55 PM	0	0	0	2	2	4:55 PM	0	0	0	0	0
5:00 PM	2	4	0	1	7	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	1	5	0	1	7	5:05 PM	0	0	0	1	1	5:05 PM	0	0	0	0	0
5:10 PM	1	5	0	0	6	5:10 PM	0	0	0	1	1	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	1	1	5:15 PM	0	1	0	1	2	5:15 PM	0	0	0	0	0
5:20 PM	0	3	0	4	7	5:20 PM	0	1	0	0	1	5:20 PM	0	0	0	0	0
5:25 PM	2	1	0	1	4	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	2	5	0	0	7	5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0
5:35 PM	3	1	0	1	5	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	3	4	0	0	7	5:40 PM	0	1	0	0	1	5:40 PM	0	0	0	0	0
5:45 PM	3	2	0	1	6	5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0
5:50 PM	1	6	0	1	8	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	4	0	1	5	5:55 PM	0	2	0	0	2	5:55 PM	0	0	1	0	1
Count Total	57	121	0	31	209	Count Total	1	14	0	8	23	Count Total	4	1	4	0	9
Peak Hour	31	73	0	19	123	Peak Hour	0	7	0	6	13	Peak Hour	4	1	3	0	8



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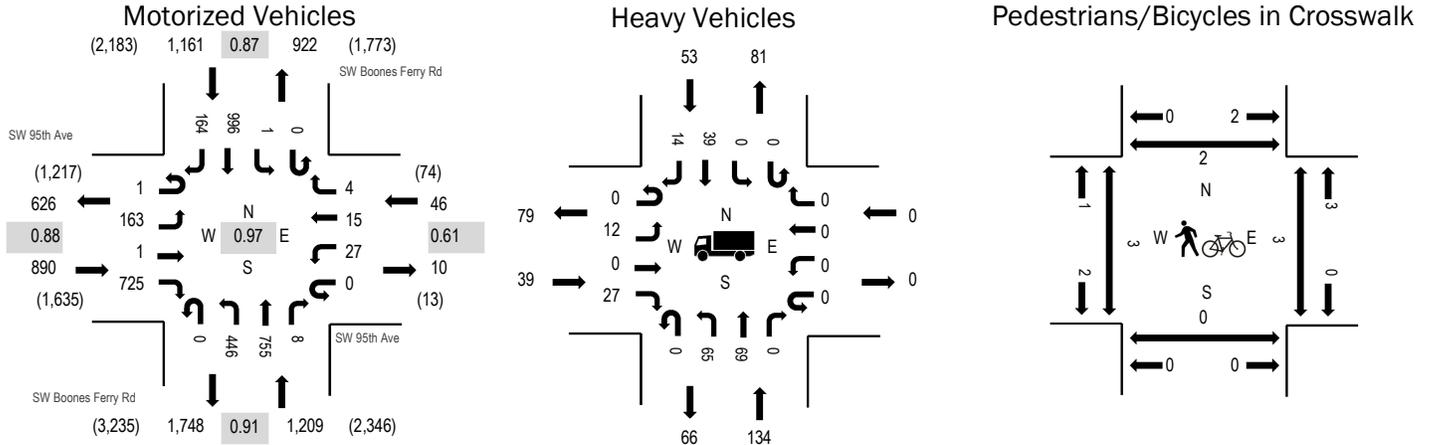
Location: 3 SW Boones Ferry Rd & SW 95th Ave PM

Date: Tuesday, September 21, 2021

Study Peak Hour: 04:10 PM - 05:10 PM

Peak 15-Minutes in Study Peak Hour: 04:35 PM - 04:50 PM

Study Peak Hour (for all study intersections)



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.4%	0.88
WB	0.0%	0.61
NB	11.1%	0.91
SB	4.6%	0.87
All	6.8%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	SW 95th Ave Eastbound				SW 95th Ave Westbound				SW Boones Ferry Rd Northbound				SW Boones Ferry Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	11	0	55	0	2	1	0	0	41	43	1	0	0	82	17	253	3,293
4:05 PM	0	10	0	85	0	2	2	0	0	41	55	1	0	0	81	10	287	3,298
4:10 PM	0	18	0	77	0	2	2	0	0	26	59	2	0	0	78	11	275	3,306
4:15 PM	0	11	0	56	0	3	0	0	0	36	74	1	0	0	103	18	302	3,295
4:20 PM	0	16	0	62	0	1	1	0	0	36	50	0	0	0	95	17	278	3,249
4:25 PM	0	13	0	39	0	0	1	1	0	34	67	1	0	0	83	17	256	3,216
4:30 PM	0	16	0	62	0	3	0	0	0	39	66	2	0	0	73	16	277	3,233
4:35 PM	0	15	0	91	0	5	1	1	0	43	78	1	0	0	59	10	304	3,174
4:40 PM	0	15	0	50	0	0	1	0	0	29	56	0	0	0	101	6	258	3,096
4:45 PM	1	13	0	67	0	2	0	0	0	44	61	0	0	0	71	12	271	3,095
4:50 PM	0	9	1	48	0	0	5	0	0	27	65	1	0	1	97	11	265	3,063
4:55 PM	0	10	0	44	0	3	1	1	0	48	52	0	0	0	89	19	267	3,006
5:00 PM	0	14	0	57	0	7	1	1	0	42	54	0	0	0	65	17	258	2,945
5:05 PM	0	13	0	72	0	1	2	0	0	42	73	0	0	0	82	10	295	
5:10 PM	0	17	0	77	0	3	0	0	0	38	51	0	0	0	73	5	264	
5:15 PM	0	14	0	54	0	1	1	0	0	44	47	0	0	0	85	10	256	
5:20 PM	0	10	0	48	0	1	0	0	0	39	68	0	0	0	65	14	245	
5:25 PM	0	8	0	46	0	5	1	1	0	39	69	0	0	0	88	16	273	
5:30 PM	0	10	0	45	0	2	0	0	0	21	63	0	0	0	67	10	218	
5:35 PM	0	14	1	37	0	1	0	0	0	38	60	0	0	0	63	12	226	
5:40 PM	0	9	0	41	0	1	0	0	0	42	80	0	0	0	64	20	257	
5:45 PM	0	18	0	28	0	1	0	0	0	31	70	0	0	0	78	13	239	
5:50 PM	0	15	0	44	0	1	0	0	0	33	54	0	0	0	47	14	208	
5:55 PM	0	8	0	40	0	1	1	0	0	22	46	0	0	0	73	15	206	
Count Total	1	307	2	1,325	0	48	21	5	0	875	1,461	10	0	1	1,862	320	6,238	
Peak Hour	1	163	1	725	0	27	15	4	0	446	755	8	0	1	996	164	3,306	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	11	0	9	26	4:00 PM	0	1	0	1	2	4:00 PM	0	0	1	0	1
4:05 PM	1	7	0	3	11	4:05 PM	0	1	0	0	1	4:05 PM	1	0	0	0	1
4:10 PM	7	11	0	5	23	4:10 PM	2	1	0	0	3	4:10 PM	0	0	1	1	2
4:15 PM	5	11	0	9	25	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	3	7	0	3	13	4:20 PM	0	1	0	0	1	4:20 PM	0	0	1	0	1
4:25 PM	4	17	0	6	27	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	2	13	0	5	20	4:30 PM	0	1	0	0	1	4:30 PM	0	0	1	0	1
4:35 PM	3	10	0	4	17	4:35 PM	0	2	0	0	2	4:35 PM	1	0	0	1	2
4:40 PM	2	11	0	3	16	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	5	12	0	3	20	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	3	13	0	6	22	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	5	0	4	10	4:55 PM	0	0	0	0	0	4:55 PM	1	0	0	0	1
5:00 PM	3	11	0	2	16	5:00 PM	0	0	0	1	1	5:00 PM	1	0	0	0	1
5:05 PM	1	13	0	3	17	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	2	11	0	0	13	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	4	0	2	6	5:15 PM	1	0	0	0	1	5:15 PM	1	0	0	0	1
5:20 PM	3	8	0	1	12	5:20 PM	1	0	0	0	1	5:20 PM	0	0	0	0	0
5:25 PM	4	7	0	3	14	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	3	5	0	3	11	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	3	6	0	4	13	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	7	0	4	13	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	3	6	0	3	12	5:45 PM	2	0	0	0	2	5:45 PM	0	0	0	0	0
5:50 PM	1	5	0	0	6	5:50 PM	0	0	0	0	0	5:50 PM	1	0	0	1	2
5:55 PM	3	7	0	3	13	5:55 PM	0	2	0	0	2	5:55 PM	0	0	2	0	2
Count Total	70	218	0	88	376	Count Total	6	9	0	2	17	Count Total	6	0	6	3	15
Peak Hour	39	134	0	53	226	Peak Hour	2	5	0	1	8	Peak Hour	3	0	3	2	8



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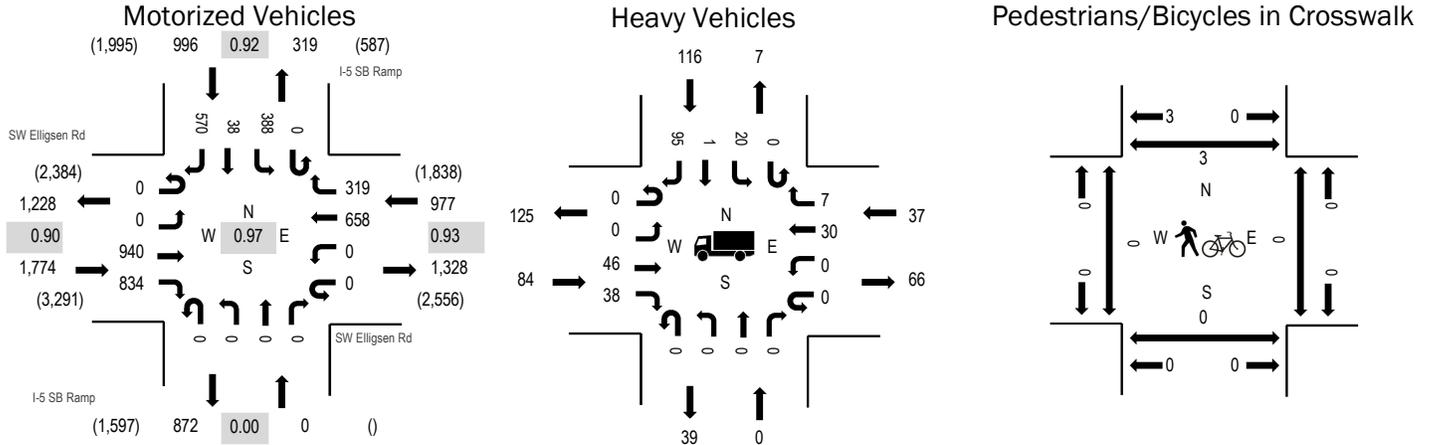
Location: 4 I-5 SB Ramp & SW Elligsen Rd PM

Date: Tuesday, September 21, 2021

Study Peak Hour: 04:10 PM - 05:10 PM

Peak 15-Minutes in Study Peak Hour: 04:35 PM - 04:50 PM

Study Peak Hour (for all study intersections)



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.7%	0.90
WB	3.8%	0.93
NB	0.0%	0.00
SB	11.6%	0.92
All	6.3%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	SW Elligsen Rd Eastbound				SW Elligsen Rd Westbound				I-5 SB Ramp Northbound				I-5 SB Ramp Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	76	62	0	0	41	33	0	0	0	0	0	38	18	46	314	3,748
4:05 PM	0	0	103	73	0	0	50	23	0	0	0	0	0	33	4	50	336	3,740
4:10 PM	0	0	77	75	0	0	52	31	0	0	0	0	0	31	1	40	307	3,747
4:15 PM	0	0	98	73	0	0	74	33	0	0	0	0	0	27	3	35	343	3,739
4:20 PM	0	0	79	89	0	0	44	18	0	0	0	0	0	18	3	47	298	3,711
4:25 PM	0	0	69	61	0	0	40	19	0	0	0	0	0	36	1	62	288	3,687
4:30 PM	0	0	76	61	0	0	54	22	0	0	0	0	0	34	4	52	303	3,693
4:35 PM	0	0	99	59	0	0	66	26	0	0	0	0	0	26	4	47	327	3,669
4:40 PM	0	0	80	66	0	0	44	34	0	0	0	0	0	48	0	53	325	3,601
4:45 PM	0	0	77	71	0	0	55	24	0	0	0	0	0	37	2	48	314	3,568
4:50 PM	0	0	59	77	0	0	57	21	0	0	0	0	0	31	7	44	296	3,500
4:55 PM	0	0	75	67	0	0	53	26	0	0	0	0	0	27	2	47	297	3,438
5:00 PM	0	0	69	61	0	0	59	25	0	0	0	0	0	40	7	45	306	3,376
5:05 PM	0	0	82	74	0	0	60	40	0	0	0	0	0	33	4	50	343	
5:10 PM	0	0	95	61	0	0	49	25	0	0	0	0	0	29	6	34	299	
5:15 PM	0	0	74	72	0	0	45	28	0	0	0	0	0	37	7	52	315	
5:20 PM	0	0	55	61	0	0	55	29	0	0	0	0	0	27	1	46	274	
5:25 PM	0	0	58	76	0	0	50	11	0	0	0	0	0	38	2	59	294	
5:30 PM	0	0	66	61	0	0	61	30	0	0	0	0	0	24	0	37	279	
5:35 PM	0	0	57	47	0	0	62	18	0	0	0	0	0	32	0	43	259	
5:40 PM	0	0	70	40	0	0	60	13	0	0	0	0	0	53	0	56	292	
5:45 PM	0	0	60	46	0	0	43	17	0	0	0	0	0	32	0	48	246	
5:50 PM	0	0	58	39	0	0	38	13	0	0	0	0	0	34	0	52	234	
5:55 PM	0	0	58	49	0	0	39	28	0	0	0	0	0	21	0	40	235	
Count Total	0	0	1,770	1,521	0	0	1,251	587	0	0	0	0	0	786	76	1,133	7,124	
Peak Hour	0	0	940	834	0	0	658	319	0	0	0	0	0	388	38	570	3,747	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	11	0	5	12	28	4:00 PM	0	0	1	0	1	4:00 PM	0	1	0	1	2
4:05 PM	3	0	0	7	10	4:05 PM	0	0	0	1	1	4:05 PM	0	0	0	0	0
4:10 PM	8	0	5	9	22	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	11	0	4	8	23	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	1	1
4:20 PM	5	0	5	9	19	4:20 PM	0	0	1	0	1	4:20 PM	0	0	0	0	0
4:25 PM	6	0	3	12	21	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	1	1
4:30 PM	7	0	4	8	19	4:30 PM	0	0	1	1	2	4:30 PM	0	0	0	1	1
4:35 PM	5	0	2	7	14	4:35 PM	0	0	1	0	1	4:35 PM	0	0	0	0	0
4:40 PM	4	0	1	14	19	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	9	0	3	12	24	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	12	0	4	9	25	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	9	0	0	8	17	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	4	0	3	9	16	5:00 PM	1	0	0	0	1	5:00 PM	0	0	0	0	0
5:05 PM	4	0	3	11	18	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	2	0	4	5	11	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	0	2	7	10	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	8	0	0	6	14	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	6	0	1	3	10	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	3	0	2	5	10	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	7	0	3	5	15	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	3	0	5	3	11	5:40 PM	0	0	1	0	1	5:40 PM	0	0	0	0	0
5:45 PM	6	0	0	8	14	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	1	4	5	5:50 PM	0	0	0	0	0	5:50 PM	0	1	0	0	1
5:55 PM	5	0	5	7	17	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	139	0	65	188	392	Count Total	1	0	5	2	8	Count Total	0	2	0	4	6
Peak Hour	84	0	37	116	237	Peak Hour	1	0	3	1	5	Peak Hour	0	0	0	3	3



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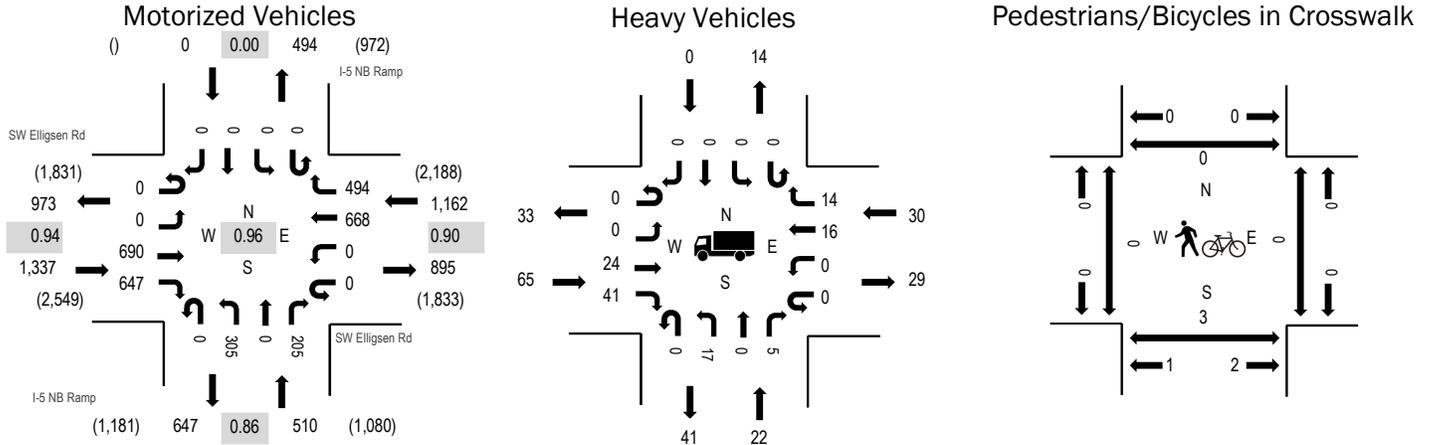
Location: 5 I-5 NB Ramp & SW Elligsen Rd PM

Date: Tuesday, September 21, 2021

Study Peak Hour: 04:10 PM - 05:10 PM

Peak 15-Minutes in Study Peak Hour: 04:35 PM - 04:50 PM

Study Peak Hour (for all study intersections)



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.9%	0.94
WB	2.6%	0.90
NB	4.3%	0.86
SB	0.0%	0.00
All	3.9%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	SW Elligsen Rd Eastbound				SW Elligsen Rd Westbound				I-5 NB Ramp Northbound				I-5 NB Ramp Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	56	60	0	0	49	48	0	24	0	23	0	0	0	0	260	3,018
4:05 PM	0	0	58	71	0	0	47	43	0	26	0	33	0	0	0	0	278	2,998
4:10 PM	0	0	45	63	0	0	60	34	0	24	0	25	0	0	0	0	251	3,009
4:15 PM	0	0	58	70	0	0	65	49	0	40	0	20	0	0	0	0	302	3,015
4:20 PM	0	0	46	56	0	0	43	22	0	19	0	21	0	0	0	0	207	2,950
4:25 PM	0	0	59	44	0	0	39	44	0	20	0	13	0	0	0	0	219	2,981
4:30 PM	0	0	64	44	0	0	53	47	0	23	0	16	0	0	0	0	247	2,974
4:35 PM	0	0	57	67	0	0	63	42	0	29	0	14	0	0	0	0	272	2,972
4:40 PM	0	0	60	48	0	0	53	41	0	25	0	20	0	0	0	0	247	2,932
4:45 PM	0	0	66	59	0	0	63	40	0	17	0	18	0	0	0	0	263	2,931
4:50 PM	0	0	66	37	0	0	52	31	0	24	0	17	0	0	0	0	227	2,890
4:55 PM	0	0	54	49	0	0	57	42	0	24	0	19	0	0	0	0	245	2,838
5:00 PM	0	0	66	43	0	0	51	43	0	31	0	6	0	0	0	0	240	2,799
5:05 PM	0	0	49	67	0	0	69	59	0	29	0	16	0	0	0	0	289	
5:10 PM	0	0	57	57	0	0	54	55	0	21	0	13	0	0	0	0	257	
5:15 PM	0	0	52	42	0	0	46	43	0	26	0	28	0	0	0	0	237	
5:20 PM	0	0	50	43	0	0	59	38	0	25	0	23	0	0	0	0	238	
5:25 PM	0	0	56	39	0	0	41	39	0	20	0	17	0	0	0	0	212	
5:30 PM	0	0	54	43	0	0	54	34	0	36	0	24	0	0	0	0	245	
5:35 PM	0	0	53	42	0	0	49	41	0	32	0	15	0	0	0	0	232	
5:40 PM	0	0	79	42	0	0	42	32	0	29	0	22	0	0	0	0	246	
5:45 PM	0	0	60	31	0	0	36	42	0	24	0	29	0	0	0	0	222	
5:50 PM	0	0	50	34	0	0	26	31	0	25	0	9	0	0	0	0	175	
5:55 PM	0	0	53	30	0	0	45	32	0	22	0	24	0	0	0	0	206	
Count Total	0	0	1,368	1,181	0	0	1,216	972	0	615	0	465	0	0	0	0	5,817	
Peak Hour	0	0	690	647	0	0	668	494	0	305	0	205	0	0	0	0	3,009	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	6	6	2	0	14	4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0
4:05 PM	2	2	2	0	6	4:05 PM	0	0	0	0	0	4:05 PM	0	1	0	0	1
4:10 PM	6	3	4	0	13	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	8	2	3	0	13	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	4	3	3	0	10	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	3	3	2	0	8	4:25 PM	0	0	0	0	0	4:25 PM	0	2	0	0	2
4:30 PM	5	3	4	0	12	4:30 PM	0	0	1	0	1	4:30 PM	0	0	0	0	0
4:35 PM	6	0	2	0	8	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	7	1	1	0	9	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	4	4	3	0	11	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	5	1	1	0	7	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	7	0	5	0	12	4:55 PM	0	0	0	0	0	4:55 PM	0	1	0	0	1
5:00 PM	3	1	2	0	6	5:00 PM	1	0	0	0	1	5:00 PM	0	0	0	0	0
5:05 PM	7	1	0	0	8	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	5	0	0	6	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	1	2	0	4	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	5	0	0	0	5	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	4	1	1	0	6	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	2	1	0	0	3	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	5	2	2	0	9	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	3	3	1	0	7	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	3	2	0	0	5	5:45 PM	0	0	0	0	0	5:45 PM	0	1	0	0	1
5:50 PM	1	1	0	0	2	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	3	3	3	0	9	5:55 PM	0	0	1	0	1	5:55 PM	0	0	0	0	0
Count Total	101	49	43	0	193	Count Total	1	0	3	0	4	Count Total	0	5	0	0	5
Peak Hour	65	22	30	0	117	Peak Hour	1	0	1	0	2	Peak Hour	0	3	0	0	3

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	2	10	8	20	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	3	6	9	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	3	3	2	8	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	3	3	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	1	4	2	7	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	2	3	5	10	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	6	1	8	4:30 PM	0	0	0	1	1	4:30 PM	0	0	0	0	0
4:35 PM	0	2	4	4	10	4:35 PM	0	0	0	1	1	4:35 PM	0	0	0	0	0
4:40 PM	0	1	5	8	14	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	1	6	5	12	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	2	3	5	10	4:50 PM	0	0	0	1	1	4:50 PM	0	0	0	0	0
4:55 PM	0	1	11	2	14	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	4	2	7	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	3	1	5	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	3	4	7	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	2	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	3	2	5	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	5	4	9	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	1	1	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	1	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	1	3	1	5	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	2	3	5	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	1	3	5	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	2	2	4	8	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	23	88	78	189	Count Total	0	0	0	3	3	Count Total	0	0	0	0	0
Peak Hour	0	15	55	45	115	Peak Hour	0	0	0	3	3	Peak Hour	0	0	0	0	0



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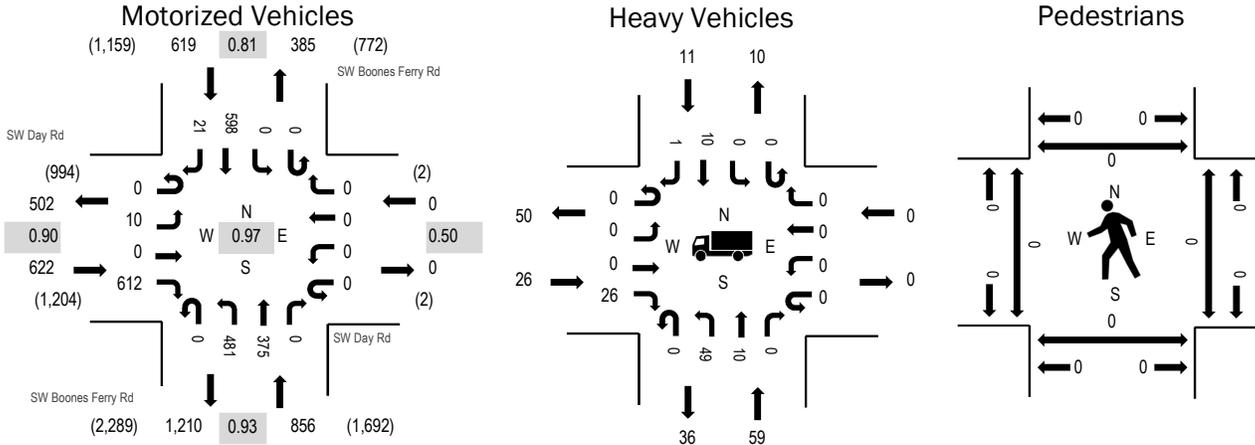
Location: 2 SW Boones Ferry Rd & SW Day Rd PM

Date: Wednesday, September 22, 2021

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:05 PM - 04:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.2%	0.90
WB	0.0%	0.50
NB	6.9%	0.93
SB	1.8%	0.81
All	4.6%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	SW Day Rd Eastbound				SW Day Rd Westbound				SW Boones Ferry Rd Northbound				SW Boones Ferry Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	62	0	0	0	0	0	31	25	0	0	0	39	2	159	2,097
4:05 PM	0	1	0	47	0	0	0	0	0	49	31	0	0	0	52	3	183	2,085
4:10 PM	0	1	0	50	0	0	0	0	0	40	30	0	0	0	58	1	180	2,062
4:15 PM	0	1	0	40	0	0	0	0	0	32	28	0	0	0	74	3	178	2,054
4:20 PM	0	0	0	57	0	0	0	0	0	47	34	0	0	0	42	1	181	2,055
4:25 PM	0	2	0	53	0	0	0	0	0	35	39	0	0	0	38	3	170	2,040
4:30 PM	0	2	0	63	0	0	0	0	0	36	24	0	0	0	36	1	162	2,069
4:35 PM	0	1	0	50	0	0	0	0	0	44	38	0	0	0	44	1	178	2,064
4:40 PM	0	0	0	52	0	0	0	0	0	42	30	0	0	0	43	3	170	2,064
4:45 PM	0	1	0	48	0	0	0	0	0	37	33	0	0	0	55	0	174	2,041
4:50 PM	0	1	0	42	0	0	0	0	0	50	34	0	0	0	57	1	185	2,030
4:55 PM	0	0	0	48	0	0	0	0	0	38	29	0	0	0	60	2	177	1,986
5:00 PM	0	1	0	57	0	0	0	0	0	46	19	0	0	0	24	0	147	1,960
5:05 PM	0	0	0	39	0	0	0	0	0	43	35	0	0	0	38	5	160	
5:10 PM	0	0	0	55	0	0	1	0	0	44	28	1	0	0	41	2	172	
5:15 PM	0	1	0	61	0	0	0	0	0	31	31	0	0	0	55	0	179	
5:20 PM	0	4	0	43	0	0	0	0	0	32	26	0	0	0	59	2	166	
5:25 PM	0	2	0	57	0	0	0	0	0	54	38	0	0	0	46	2	199	
5:30 PM	0	0	0	43	0	0	0	0	0	34	35	0	0	0	43	2	157	
5:35 PM	0	2	0	45	0	0	0	0	0	37	37	0	0	0	53	4	178	
5:40 PM	0	1	0	49	0	0	0	0	0	33	22	0	0	0	42	0	147	
5:45 PM	0	4	0	30	0	0	0	0	0	52	30	0	0	0	46	1	163	
5:50 PM	0	2	0	44	0	0	0	0	1	30	38	0	0	0	24	2	141	
5:55 PM	0	3	0	39	0	0	0	1	0	32	27	0	0	1	45	3	151	
Count Total	0	30	0	1,174	0	0	1	1	1	949	741	1	0	1	1,114	44	4,057	
Peak Hour	0	10	0	612	0	0	0	0	0	481	375	0	0	0	598	21	2,097	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	5	3	0	3	11	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	2	4	0	1	7	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	1	0	2	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	4	0	1	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	4	0	3	7	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	3	6	0	0	9	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	6	0	0	7	4:30 PM	0	2	0	0	2	4:30 PM	0	0	0	0	0
4:35 PM	0	3	0	0	3	4:35 PM	0	0	0	0	0	4:35 PM	0	0	1	0	1
4:40 PM	5	11	0	0	16	4:40 PM	0	2	0	0	2	4:40 PM	0	0	0	0	0
4:45 PM	4	2	0	0	6	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	3	7	0	1	11	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	2	8	0	0	10	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	2	2	0	0	4	5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0
5:05 PM	1	4	0	1	6	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	1	0	0	2	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	4	0	1	6	5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0
5:20 PM	1	4	0	1	6	5:20 PM	0	0	0	1	1	5:20 PM	0	0	0	0	0
5:25 PM	2	7	0	1	10	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	2	0	1	4	5:30 PM	1	0	0	1	2	5:30 PM	0	0	0	0	0
5:35 PM	1	3	0	0	4	5:35 PM	0	1	0	0	1	5:35 PM	0	0	0	0	0
5:40 PM	1	4	0	0	5	5:40 PM	0	0	0	1	1	5:40 PM	1	0	0	0	1
5:45 PM	1	1	0	2	4	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	2	6	0	0	8	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	4	2	0	1	7	5:55 PM	0	0	0	1	1	5:55 PM	0	0	0	0	0
Count Total	44	99	0	19	162	Count Total	1	7	0	4	12	Count Total	1	0	1	0	2
Peak Hour	26	59	0	11	96	Peak Hour	0	4	0	0	4	Peak Hour	0	0	1	0	1



ALL TRAFFIC DATA SERVICES

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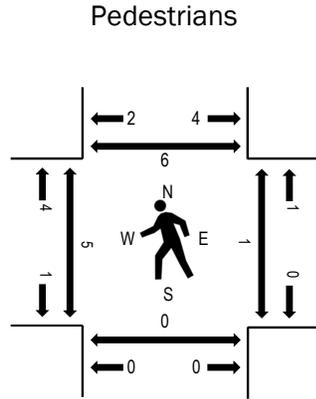
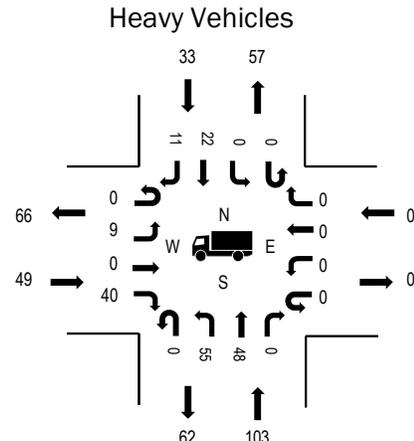
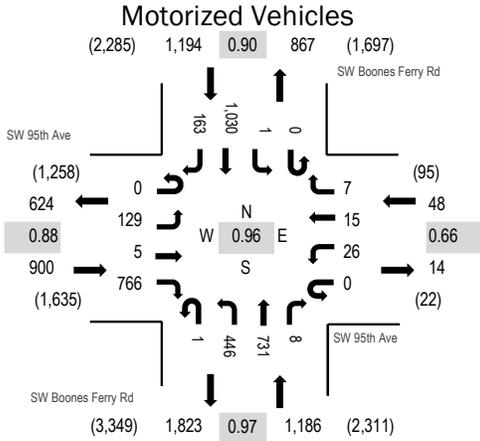
Location: 3 SW Boones Ferry Rd & SW 95th Ave PM

Date: Wednesday, September 22, 2021

Peak Hour: 04:05 PM - 05:05 PM

Peak 15-Minutes: 04:05 PM - 04:20 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.4%	0.88
WB	0.0%	0.66
NB	8.7%	0.97
SB	2.8%	0.90
All	5.6%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	SW 95th Ave Eastbound				SW 95th Ave Westbound				SW Boones Ferry Rd Northbound				SW Boones Ferry Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	7	0	51	0	3	1	0	0	37	50	0	0	0	92	9	250	3,320
4:05 PM	0	16	3	75	0	1	4	0	0	47	58	0	0	0	74	19	297	3,328
4:10 PM	0	16	0	81	0	3	2	1	0	35	62	3	0	0	91	11	305	3,313
4:15 PM	0	7	0	50	0	1	2	0	0	40	60	0	0	0	87	20	267	3,266
4:20 PM	0	7	0	43	0	1	0	0	0	30	71	2	0	1	110	15	280	3,262
4:25 PM	0	10	0	52	0	4	0	0	0	35	66	0	0	0	77	17	261	3,242
4:30 PM	0	11	0	84	0	3	2	2	0	37	42	1	0	0	90	12	284	3,265
4:35 PM	0	10	0	76	0	1	0	2	0	47	77	0	0	0	83	5	301	3,205
4:40 PM	0	12	1	64	0	3	1	0	0	34	53	0	0	0	85	13	266	3,160
4:45 PM	0	11	0	68	0	1	1	0	0	19	64	1	0	0	90	10	265	3,138
4:50 PM	0	16	0	53	0	2	1	0	0	42	71	0	0	0	78	10	273	3,114
4:55 PM	0	9	0	57	0	3	1	0	1	38	58	1	0	0	87	16	271	3,058
5:00 PM	0	4	1	63	0	3	1	2	0	42	49	0	0	0	78	15	258	3,006
5:05 PM	0	24	1	71	0	5	2	2	0	29	56	1	0	0	78	13	282	
5:10 PM	0	16	0	63	0	4	4	0	0	34	47	2	0	0	77	11	258	
5:15 PM	0	9	0	53	0	4	0	0	0	38	56	1	0	0	84	18	263	
5:20 PM	0	21	0	52	0	2	5	0	0	34	51	0	0	0	81	14	260	
5:25 PM	0	13	0	41	0	3	0	1	0	37	73	0	0	0	96	20	284	
5:30 PM	0	9	0	40	0	0	0	1	0	33	50	2	0	0	76	13	224	
5:35 PM	0	7	0	44	0	1	0	1	0	38	65	0	0	0	83	17	256	
5:40 PM	0	7	0	45	0	3	0	0	0	41	51	0	0	0	83	14	244	
5:45 PM	0	17	0	39	0	1	0	0	1	49	64	0	0	0	59	11	241	
5:50 PM	0	15	0	44	0	3	0	0	0	45	44	0	0	0	53	13	217	
5:55 PM	0	18	0	28	0	1	0	0	0	40	55	1	0	0	62	14	219	
Count Total	0	292	6	1,337	0	56	27	12	2	901	1,393	15	0	1	1,954	330	6,326	
Peak Hour	0	129	5	766	0	26	15	7	1	446	731	8	0	1	1,030	163	3,328	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	7	1	8	20	4:00 PM	0	0	0	0	0	4:00 PM	1	0	0	0	1
4:05 PM	5	4	0	4	13	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	10	0	1	13	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	4	11	0	1	16	4:15 PM	0	0	0	0	0	4:15 PM	1	0	0	0	1
4:20 PM	4	8	0	3	15	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	1	1
4:25 PM	5	6	0	3	14	4:25 PM	0	0	0	0	0	4:25 PM	0	0	1	2	3
4:30 PM	10	9	0	1	20	4:30 PM	2	0	0	0	2	4:30 PM	1	0	0	1	2
4:35 PM	3	11	0	0	14	4:35 PM	0	0	0	0	0	4:35 PM	2	0	0	0	2
4:40 PM	6	11	0	4	21	4:40 PM	1	0	0	0	1	4:40 PM	0	0	0	1	1
4:45 PM	3	4	0	6	13	4:45 PM	0	0	0	0	0	4:45 PM	1	0	0	1	2
4:50 PM	6	12	0	1	19	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	12	0	6	19	4:55 PM	0	1	0	0	1	4:55 PM	0	0	0	0	0
5:00 PM	0	5	0	3	8	5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	0	1
5:05 PM	3	6	0	2	11	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	4	6	0	0	10	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	8	0	2	10	5:15 PM	1	0	0	0	1	5:15 PM	0	0	0	0	0
5:20 PM	4	13	0	0	17	5:20 PM	0	0	0	1	1	5:20 PM	0	0	0	0	0
5:25 PM	5	5	0	3	13	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	5	3	0	2	10	5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0
5:35 PM	4	9	0	2	15	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	5	5	1	1	12	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	6	5	0	2	13	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	6	8	0	2	16	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	1	1
5:55 PM	4	2	0	5	11	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	99	180	2	62	343	Count Total	5	1	0	1	7	Count Total	7	0	1	7	15
Peak Hour	49	103	0	33	185	Peak Hour	3	1	0	0	4	Peak Hour	6	0	1	6	13

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	9	0	2	6	17	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	10	0	2	6	18	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	0	3	8	13	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	2	0	6	10	18	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	5	0	1	6	12	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	6	0	3	7	16	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	6	0	4	7	17	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	1	9	11	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	10	0	4	11	25	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	7	0	1	7	15	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	5	0	2	12	19	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	6	0	7	8	21	4:55 PM	0	0	1	0	1	4:55 PM	0	0	0	1	1
5:00 PM	4	0	1	7	12	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	2	0	3	3	8	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	4	0	2	7	13	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	2	6	8	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	3	0	4	10	17	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	7	0	2	4	13	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	4	0	2	5	11	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	4	0	5	5	14	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	7	0	2	2	11	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	7	0	1	6	14	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	9	0	3	7	19	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	5	0	3	7	15	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	125	0	66	166	357	Count Total	0	0	1	0	1	Count Total	0	0	0	1	1
Peak Hour	69	0	36	97	202	Peak Hour	0	0	1	0	1	Peak Hour	0	0	0	1	1

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	7	1	2	0	10	4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	0	0
4:05 PM	4	2	1	0	7	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	2	2	0	6	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	3	3	1	0	7	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	7	2	5	0	14	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	4	2	2	0	8	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	7	2	3	0	12	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	2	1	2	0	5	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	6	0	4	0	10	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	6	0	0	0	6	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	6	2	2	0	10	4:50 PM	0	0	0	0	0	4:50 PM	0	1	0	0	1
4:55 PM	4	5	2	0	11	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	0	2	0	3	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	4	3	1	0	8	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	3	0	1	0	4	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	4	1	0	6	5:15 PM	0	0	0	0	0	5:15 PM	0	1	0	0	1
5:20 PM	2	4	1	0	7	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	4	2	0	0	6	5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0
5:30 PM	7	1	2	0	10	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	5	3	3	0	11	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	4	2	1	0	7	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	3	1	1	0	5	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	4	2	2	0	8	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	3	2	5	0	10	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	99	46	46	0	191	Count Total	1	0	1	0	2	Count Total	0	2	0	0	2
Peak Hour	52	21	26	0	99	Peak Hour	0	0	0	0	0	Peak Hour	0	1	0	0	1

APPENDIX B

HCM REPORT – EXISTING CONDITIONS

HCM 6th TWSC
1: Site Access & Day Rd

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	603	0	0	541	0	0
Future Vol, veh/h	603	0	0	541	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	670	0	0	601	0	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	670	0	1271
Stage 1	-	-	-	-	670
Stage 2	-	-	-	-	601
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	930	-	187
Stage 1	-	-	-	-	512
Stage 2	-	-	-	-	551
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	930	-	187
Mov Cap-2 Maneuver	-	-	-	-	327
Stage 1	-	-	-	-	512
Stage 2	-	-	-	-	551

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	930	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th Signalized Intersection Summary
2: Boones Ferry Road & Day Rd

Wilsonville Delta Logistics TIA
Existing PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	590	0	0	0	518	369	0	0	590	23
Future Volume (veh/h)	13	0	590	0	0	0	518	369	0	0	590	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1900	1900	1900	1752	1841	1900	1900	1870	1811
Adj Flow Rate, veh/h	14	0	579	0	0	0	540	384	0	0	615	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	4	0	0	0	10	4	0	0	2	6
Cap, veh/h	137	0	921	0	90	0	1757	1613	0	2	1033	37
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.91	1.00	0.00	0.00	0.30	0.30
Sat Flow, veh/h	1440	0	1560	0	1900	0	3237	1841	0	1810	3497	125
Grp Volume(v), veh/h	14	0	579	0	0	0	540	384	0	0	312	325
Grp Sat Flow(s),veh/h/ln	1440	0	1560	0	1900	0	1618	1841	0	1810	1777	1845
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	15.8	15.8
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	15.8	15.8
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	137	0	921	0	90	0	1757	1613	0	2	525	545
V/C Ratio(X)	0.10	0.00	0.63	0.00	0.00	0.00	0.31	0.24	0.00	0.00	0.60	0.60
Avail Cap(c_a), veh/h	288	0	1085	0	290	0	1757	1613	0	69	525	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	0.0	14.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	31.6	31.6
Incr Delay (d2), s/veh	0.3	0.0	0.9	0.0	0.0	0.0	0.1	0.3	0.0	0.0	4.9	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	8.6	0.0	0.0	0.0	0.6	0.1	0.0	0.0	7.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	0.0	14.9	0.0	0.0	0.0	2.4	0.3	0.0	0.0	36.5	36.4
LnGrp LOS	D	A	B	A	A	A	A	A	A	A	D	D
Approach Vol, veh/h		593			0			924			637	
Approach Delay, s/veh		15.7			0.0			1.6			36.5	
Approach LOS		B						A			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	96.0		9.0	61.0	35.0		9.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	73.0		16.0	46.0	31.0		16.0				
Max Q Clear Time (g_c+I1), s	0.0	2.0		3.0	4.3	17.8		0.0				
Green Ext Time (p_c), s	0.0	2.5		2.0	2.1	3.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			15.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary

3: Boones Ferry Road & 95th Avenue

Wilsonville Delta Logistics TIA
Existing PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖	↗	↖		↖	↗	↖
Traffic Volume (veh/h)	146	3	760	28	15	6	446	743	8	1	1032	164
Future Volume (veh/h)	146	3	760	28	15	6	446	743	8	1	1032	164
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No										
Adj Sat Flow, veh/h/ln	1796	1900	1841	1900	1900	1900	1693	1781	1900	1900	1856	1781
Adj Flow Rate, veh/h	152	3	760	29	16	1	465	774	7	1	1075	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	0	4	0	0	0	14	8	0	0	3	8
Cap, veh/h	301	5	1210	116	311	19	850	2029	18	164	1444	
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.54	1.00	1.00	0.09	0.41	0.00
Sat Flow, veh/h	1324	26	2637	714	1765	110	3127	3436	31	1810	3526	1510
Grp Volume(v), veh/h	155	0	760	29	0	17	465	381	400	1	1075	0
Grp Sat Flow(s),veh/h/ln	1350	0	1319	714	0	1875	1564	1692	1775	1810	1763	1510
Q Serve(g_s), s	10.8	0.0	0.0	4.2	0.0	0.8	10.1	0.0	0.0	0.1	27.2	0.0
Cycle Q Clear(g_c), s	11.6	0.0	0.0	15.7	0.0	0.8	10.1	0.0	0.0	0.1	27.2	0.0
Prop In Lane	0.98		1.00	1.00		0.06	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	305	0	1210	116	0	330	850	999	1048	164	1444	
V/C Ratio(X)	0.51	0.00	0.63	0.25	0.00	0.05	0.55	0.38	0.38	0.01	0.74	
Avail Cap(c_a), veh/h	380	0	1349	153	0	429	850	999	1048	164	1444	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.73	0.73	0.77	0.77	0.00
Uniform Delay (d), s/veh	40.8	0.0	22.2	47.8	0.0	36.0	19.8	0.0	0.0	43.4	26.3	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.7	0.8	0.0	0.0	0.5	0.8	0.8	0.0	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	6.8	0.8	0.0	0.4	3.0	0.2	0.2	0.0	11.4	0.0
Unsig. Movement Delay, s/veh												15.50
LnGrp Delay(d),s/veh	41.8	0.0	22.8	48.6	0.0	36.0	20.3	0.8	0.8	43.4	29.1	15.5
LnGrp LOS	D	A	C	D	A	D	C	A	A	D	C	B
Approach Vol, veh/h		915			46			1246			1173	A
Approach Delay, s/veh		26.0			43.9			8.1			28.0	
Approach LOS		C			D			A			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.5	48.0		23.5	14.5	67.0		23.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	23.0	43.0		24.0	4.0	62.0		24.0				
Max Q Clear Time (g_c+1/2), s	11.0	29.2		17.7	2.1	2.0		13.6				
Green Ext Time (p_c), s	1.7	4.7		0.1	0.0	8.9		3.0				

Intersection Summary

HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved changes to right turn type.
- Unsignalized Delay for [SBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

Wilsonville Delta Logistics TIA

4: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Rd

Existing PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑
Traffic Volume (veh/h)	0	981	839	0	639	312	0	0	0	373	52	558
Future Volume (veh/h)	0	981	839	0	639	312	0	0	0	373	52	558
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1841	0	1826	1870				1841	1856	1663
Adj Flow Rate, veh/h	0	1044	0	0	680	0				436	0	538
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	5	4	0	5	2				4	3	16
Cap, veh/h	0	1697		0	1697					1457	0	577
Arrive On Green	0.00	0.98	0.00	0.00	0.98	0.00				0.42	0.00	0.42
Sat Flow, veh/h	0	3561	1560	0	3561	1585				3506	0	1389
Grp Volume(v), veh/h	0	1044	0	0	680	0				436	0	538
Grp Sat Flow(s),veh/h/ln	0	1735	1560	0	1735	1585				1753	0	1389
Q Serve(g_s), s	0.0	1.7	0.0	0.0	0.7	0.0				8.7	0.0	38.8
Cycle Q Clear(g_c), s	0.0	1.7	0.0	0.0	0.7	0.0				8.7	0.0	38.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1697		0	1697					1457	0	577
V/C Ratio(X)	0.00	0.62		0.00	0.40					0.30	0.00	0.93
Avail Cap(c_a), veh/h	0	1697		0	1697					1803	0	714
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.68	0.00	0.00	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.6	0.0	0.0	0.6	0.0				20.5	0.0	29.3
Incr Delay (d2), s/veh	0.0	1.1	0.0	0.0	0.7	0.0				0.1	0.0	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	0.0	0.3	0.0				3.4	0.0	14.4
Unsig. Movement Delay, s/veh			1.20			0.30						
LnGrp Delay(d),s/veh	0.0	1.7	1.2	0.0	1.2	0.3				20.5	0.0	45.3
LnGrp LOS	A	A	A	A	A	A				C	A	D
Approach Vol, veh/h		1937	A		1012	A					974	
Approach Delay, s/veh		1.5			0.9						34.2	
Approach LOS		A			A						C	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		56.4		48.6		56.4						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		41.0		54.0		41.0						
Max Q Clear Time (g_c+I1), s		3.7		40.8		2.7						
Green Ext Time (p_c), s		9.9		2.9		5.6						

Intersection Summary

HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved changes to right turn type.
- Unsignalized Delay for [EBR, WBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 5: I-5 NB Off-Ramp/I-5 NB On-Ramp & Elligsen Rd

Wilsonville Delta Logistics TIA
 Existing PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↘↘		↗			
Traffic Volume (veh/h)	0	707	647	0	650	508	301	0	230	0	0	0
Future Volume (veh/h)	0	707	647	0	650	508	301	0	230	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1811	0	1870	1870	1811	0	1841			
Adj Flow Rate, veh/h	0	752	0	0	691	0	320	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	0	3	6	0	2	2	6	0	4			
Cap, veh/h	0	2780		0	2802		405	0				
Arrive On Green	0.00	1.00	0.00	0.00	0.79	0.00	0.12	0.00	0.00			
Sat Flow, veh/h	0	3618	1535	0	3647	1585	3346	0	1560			
Grp Volume(v), veh/h	0	752	0	0	691	0	320	0	0			
Grp Sat Flow(s),veh/h/ln	0	1763	1535	0	1777	1585	1673	0	1560			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	5.4	0.0	9.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	5.4	0.0	9.8	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2780		0	2802		405	0				
V/C Ratio(X)	0.00	0.27		0.00	0.25		0.79	0.00				
Avail Cap(c_a), veh/h	0	2780		0	2802		1291	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.67	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	2.9	0.0	44.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	1.4	0.0	4.0	0.0	0.0			
Unsig. Movement Delay, s/veh			0.80			0.60			42.30			
LnGrp Delay(d),s/veh	0.0	0.2	0.8	0.0	3.1	0.6	47.0	0.0	42.3			
LnGrp LOS	A	A	A	A	A	A	D	A	D			
Approach Vol, veh/h		1440	A		1231	A		416	A			
Approach Delay, s/veh		0.5			2.0			45.9				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		87.8				87.8		17.2				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		55.0				55.0		40.5				
Max Q Clear Time (g_c+1), s		2.0				7.4		11.8				
Green Ext Time (p_c), s		6.6				5.8		1.0				

Intersection Summary

HCM 6th Ctrl Delay		7.2										
HCM 6th LOS		A										

Notes

Unsignalized Delay for [NBR, EBR, WBR] is included in calculations of the approach delay and intersection delay.

ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
2	Synchro HCM 6th Signal	Boones Ferry Road & Day Rd	Signal	B	16	0.65
3	Synchro HCM 6th Signal	Boones Ferry Road & 95th Avenue	Signal	C	20	0.69
4	Synchro HCM 6th Signal	I-5 SB On Ramp/I-5 SB Off Ramp & Boon	Signal	A	10	0.75
5	Synchro HCM 6th Signal	I-5 NB Off-Ramp/I-5 NB On-Ramp & Ellig	Signal	A	7	0.33

APPENDIX C

STAGE II LIST

Updated by D. Pauly 09.21.2021

Stage II Approved									
Project	Land Use	Status	Size	Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
					Internal	Pass-By	In	Out	Total
Hydro-Temp: Recent agreement with the City, the project is vested and so are the traffic trips	Office/Flex-Space	Not built	60.8 KSF				44	46	90
Mercedes Benz (Phase 2)	Auto Dealership	Not built					20	26	46
Shredding Systems (SQFT does not including paint canopy and another canopy)	Industrial/Commercial	Under construction	66.8 KSF				20	46	66
Town Center Ph III and trip dedication to Miller Paint store Uses marked with "*" have not been built and PM peak hr trip sum exceeds remaining vested trip level by 2 trips. It has yet to be determined how to allocate trips between remaining buildings.	*High Turnover Restaurant (Pad 1)	Not built	7.5 KSF				24	17	47*
	Remaining Approved Total								47
Wilsonville Road Business Park Phase II	Phase 2 - office (2-story building on west parcel)	Partially Built	21.7 KSF				15	71	86
Frog Pond-Stafford Meadows (Phase 2 and 3a of 10/18 study)	Residential	Partially Built, 24 homes built and occupied	46 units				12	10	22
Frog Pond-Frog Pond Meadows (Phase 3B, 4A, 4B of 10/18 Study)	Residential	Partially Built, 3 homes built and occupied	74 units				44	27	71
Frog Pond Ridge	Residential	Under construction, no homes built and occupied	71 units				43	28	71
Frog Pond-Morgan Farm	Residential	Partially Built, 38 homes built and occupied	80 units				28	14	42
Fir Avenue Commons	Residential	Partially Built, 2 homes built and occupied	10 units				6	2	8
Magnolia Townhomes	Residential	Under construction	6 units				3	2	5
Aspen Meadows II	Residential	Under construction, no homes sold and occupied	5 units				2	3	5
Canyon Creek III	Residential	Approved	5 units (traffic study was for 11)				2	3	5
Coffee Creek Logistics	Industrial/Commercial	Under construction	115K				16	41	57

Stage II Approved – Villebois													
Project	Phase	Status	Land Use					Total PM Peak Trips	Trip Allocation Percentage		Net New (Primary + Diverted) PM Peak Hour Trips not yet active		
			SF	Town.	Apt.	Retail	School		Internal	Pass-By	In	Out	Total
North (Entirety)	Residential	Partially built, 364 homes sold and occupied	466								65	37	102
Central	Residential	Partially Built, 735 homes (102 single family, 319 condo/row homes, 365 apartments) occupied	102	391	365	8.5 KSF					30	13	43
FOR REFERENCE SAP EAST			537	42									
FOR REFERENCE SAP SOUTH (Includes PDP 7 Grande Poin 560													

Pending Projects for Which Traffic Analysis has been completed (except Villebois)										
Project	Land Use	Status	Size	Total PM Peak Trips	Trip Allocation Percentage			Net New (Primary) PM Peak Hour Trips		
					Internal	Pass-By	Diverted	In	Out	Total
PW Complex on Boberg	Public	under review	15,800 office, 17,900 warehouse					11	39	50
DAS North Valley Complex	Public/Industrial	under review	174,700 sf					5	15	20
Frog Pond Crossing								19	9	28
Boones Ferry Gas Station/Convenience	Commercial	under review	3,460 sf store, 12,000 sf gas station	240		134		53	53	106

APPENDIX D

HCM REPORT – EXISTNG + PROJECT

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	603	3	5	541	7	13
Future Vol, veh/h	603	3	5	541	7	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	670	3	6	601	8	14

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	673	0	1285 672
Stage 1	-	-	-	-	672 -
Stage 2	-	-	-	-	613 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	927	-	183 459
Stage 1	-	-	-	-	511 -
Stage 2	-	-	-	-	544 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	927	-	182 459
Mov Cap-2 Maneuver	-	-	-	-	323 -
Stage 1	-	-	-	-	511 -
Stage 2	-	-	-	-	541 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	400	-	-	927	-
HCM Lane V/C Ratio	0.056	-	-	0.006	-
HCM Control Delay (s)	14.5	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th Signalized Intersection Summary
2: Boones Ferry Road & Day Rd

Wilsonville Delta Logistics TIA
Existing PM + Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	601	0	0	0	522	369	0	0	590	24
Future Volume (veh/h)	15	0	601	0	0	0	522	369	0	0	590	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1900	1900	1900	1752	1841	1900	1900	1870	1811
Adj Flow Rate, veh/h	16	0	590	0	0	0	544	384	0	0	615	23
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	4	0	0	0	10	4	0	0	2	6
Cap, veh/h	140	0	936	0	94	0	1782	1610	0	2	997	37
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.92	1.00	0.00	0.00	0.29	0.29
Sat Flow, veh/h	1440	0	1560	0	1900	0	3237	1841	0	1810	3491	130
Grp Volume(v), veh/h	16	0	590	0	0	0	544	384	0	0	313	325
Grp Sat Flow(s),veh/h/ln	1440	0	1560	0	1900	0	1618	1841	0	1810	1777	1844
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	16.0	16.1
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	16.0	16.1
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	140	0	936	0	94	0	1782	1610	0	2	508	527
V/C Ratio(X)	0.11	0.00	0.63	0.00	0.00	0.00	0.31	0.24	0.00	0.00	0.62	0.62
Avail Cap(c_a), veh/h	288	0	1097	0	290	0	1782	1610	0	69	508	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	13.5	0.0	0.0	0.0	2.0	0.0	0.0	0.0	32.5	32.5
Incr Delay (d2), s/veh	0.4	0.0	0.9	0.0	0.0	0.0	0.1	0.3	0.0	0.0	5.5	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	8.6	0.0	0.0	0.0	0.5	0.1	0.0	0.0	7.5	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	0.0	14.4	0.0	0.0	0.0	2.1	0.3	0.0	0.0	38.0	37.9
LnGrp LOS	D	A	B	A	A	A	A	A	A	A	D	D
Approach Vol, veh/h		606			0			928			638	
Approach Delay, s/veh		15.3			0.0			1.4			37.9	
Approach LOS		B						A			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	95.8		9.2	61.8	34.0		9.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	73.0		16.0	47.0	30.0		16.0				
Max Q Clear Time (g_c+I1), s	0.0	2.0		3.1	4.0	18.1		0.0				
Green Ext Time (p_c), s	0.0	2.5		2.1	2.1	3.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
 3: Boones Ferry Road & 95th Avenue

Wilsonville Delta Logistics TIA
 Existing PM + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖	↗	↖		↖	↗	↖
Traffic Volume (veh/h)	146	3	760	28	15	6	446	747	8	1	1043	164
Future Volume (veh/h)	146	3	760	28	15	6	446	747	8	1	1043	164
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No										
Adj Sat Flow, veh/h/ln	1796	1900	1841	1900	1900	1900	1693	1781	1900	1900	1856	1781
Adj Flow Rate, veh/h	152	3	761	29	16	1	465	778	7	1	1086	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	0	4	0	0	0	14	8	0	0	3	8
Cap, veh/h	301	5	1210	116	311	19	849	2029	18	164	1444	
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.54	1.00	1.00	0.09	0.41	0.00
Sat Flow, veh/h	1324	26	2637	713	1765	110	3127	3436	31	1810	3526	1510
Grp Volume(v), veh/h	155	0	761	29	0	17	465	383	402	1	1086	0
Grp Sat Flow(s),veh/h/ln1350	0	1319	713	0	1875	1564	1692	1775	1810	1763	1510	
Q Serve(g_s), s	10.8	0.0	0.0	4.2	0.0	0.8	10.1	0.0	0.0	0.1	27.6	0.0
Cycle Q Clear(g_c), s	11.6	0.0	0.0	15.7	0.0	0.8	10.1	0.0	0.0	0.1	27.6	0.0
Prop In Lane	0.98		1.00	1.00		0.06	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	305	0	1210	116	0	330	849	999	1048	164	1444	
V/C Ratio(X)	0.51	0.00	0.63	0.25	0.00	0.05	0.55	0.38	0.38	0.01	0.75	
Avail Cap(c_a), veh/h	380	0	1349	153	0	429	849	999	1048	164	1444	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.73	0.73	0.73	0.77	0.77	0.00
Uniform Delay (d), s/veh	40.8	0.0	22.2	47.8	0.0	36.0	19.8	0.0	0.0	43.4	26.5	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.7	0.8	0.0	0.0	0.5	0.8	0.8	0.0	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	6.8	0.8	0.0	0.4	3.0	0.2	0.2	0.0	11.6	0.0
Unsig. Movement Delay, s/veh												15.50
LnGrp Delay(d),s/veh	41.8	0.0	22.8	48.6	0.0	36.0	20.3	0.8	0.8	43.4	29.3	15.5
LnGrp LOS	D	A	C	D	A	D	C	A	A	D	C	B
Approach Vol, veh/h		916			46			1250			1184	A
Approach Delay, s/veh		26.0			43.9			8.1			28.2	
Approach LOS		C			D			A			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.5	48.0		23.5	14.5	67.0		23.5				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	23.0	43.0		24.0	4.0	62.0		24.0				
Max Q Clear Time (g_c+1/2), s	11.0	29.6		17.7	2.1	2.0		13.6				
Green Ext Time (p_c), s	1.7	4.7		0.1	0.0	9.0		3.0				

Intersection Summary

HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved changes to right turn type.
- Unsignalized Delay for [SBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 4: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Rd

Wilsonville Delta Logistics TIA
 Existing PM + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑
Traffic Volume (veh/h)	0	989	842	0	640	312	0	0	0	373	52	561
Future Volume (veh/h)	0	989	842	0	640	312	0	0	0	373	52	561
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1841	0	1826	1870				1841	1856	1663
Adj Flow Rate, veh/h	0	1052	0	0	681	0				436	0	542
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	5	4	0	5	2				4	3	16
Cap, veh/h	0	1688		0	1688					1467	0	581
Arrive On Green	0.00	0.97	0.00	0.00	0.97	0.00				0.42	0.00	0.42
Sat Flow, veh/h	0	3561	1560	0	3561	1585				3506	0	1389
Grp Volume(v), veh/h	0	1052	0	0	681	0				436	0	542
Grp Sat Flow(s),veh/h/ln	0	1735	1560	0	1735	1585				1753	0	1389
Q Serve(g_s), s	0.0	2.2	0.0	0.0	0.9	0.0				8.7	0.0	39.1
Cycle Q Clear(g_c), s	0.0	2.2	0.0	0.0	0.9	0.0				8.7	0.0	39.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1688		0	1688					1467	0	581
V/C Ratio(X)	0.00	0.62		0.00	0.40					0.30	0.00	0.93
Avail Cap(c_a), veh/h	0	1688		0	1688					1803	0	715
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.67	0.00	0.00	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.8	0.0	0.0	0.7	0.0				20.3	0.0	29.1
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.0	0.7	0.0				0.1	0.0	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.0	0.4	0.0				3.3	0.0	14.5
Unsig. Movement Delay, s/veh			1.20			0.30						
LnGrp Delay(d),s/veh	0.0	1.9	1.2	0.0	1.4	0.3				20.4	0.0	45.4
LnGrp LOS	A	A	A	A	A	A				C	A	D
Approach Vol, veh/h		1948	A		1013	A					978	
Approach Delay, s/veh		1.6			1.0						34.2	
Approach LOS		A			A						C	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		56.1		48.9		56.1						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		41.0		54.0		41.0						
Max Q Clear Time (g_c+I1), s		4.2		41.1		2.9						
Green Ext Time (p_c), s		9.9		2.8		5.6						
Intersection Summary												
HCM 6th Ctrl Delay			9.6									
HCM 6th LOS			A									
Notes												
User approved volume balancing among the lanes for turning movement.												
User approved changes to right turn type.												
Unsignalized Delay for [EBR, WBR] is included in calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary
 5: I-5 NB Off-Ramp/I-5 NB On-Ramp & Elligsen Rd

Wilsonville Delta Logistics TIA
 Existing PM + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑↑		↑			
Traffic Volume (veh/h)	0	708	654	0	650	508	302	0	230	0	0	0
Future Volume (veh/h)	0	708	654	0	650	508	302	0	230	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1811	0	1870	1870	1811	0	1841			
Adj Flow Rate, veh/h	0	753	0	0	691	0	321	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	0	3	6	0	2	2	6	0	4			
Cap, veh/h	0	2779		0	2801		406	0				
Arrive On Green	0.00	1.00	0.00	0.00	0.79	0.00	0.12	0.00	0.00			
Sat Flow, veh/h	0	3618	1535	0	3647	1585	3346	0	1560			
Grp Volume(v), veh/h	0	753	0	0	691	0	321	0	0			
Grp Sat Flow(s),veh/h/ln	0	1763	1535	0	1777	1585	1673	0	1560			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	5.4	0.0	9.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	5.4	0.0	9.8	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2779		0	2801		406	0				
V/C Ratio(X)	0.00	0.27		0.00	0.25		0.79	0.00				
Avail Cap(c_a), veh/h	0	2779		0	2801		1291	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.66	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	2.9	0.0	44.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	1.4	0.0	4.0	0.0	0.0			
Unsig. Movement Delay, s/veh			0.80			0.60			42.30			
LnGrp Delay(d),s/veh	0.0	0.2	0.8	0.0	3.1	0.6	47.0	0.0	42.3			
LnGrp LOS	A	A	A	A	A	A	D	A	D			
Approach Vol, veh/h		1449	A		1231	A		418	A			
Approach Delay, s/veh		0.5			2.0			45.9				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		87.8				87.8		17.2				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		55.0				55.0		40.5				
Max Q Clear Time (g_c+1), s		2.0				7.4		11.8				
Green Ext Time (p_c), s		6.6				5.8		1.0				

Intersection Summary

HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR, WBR] is included in calculations of the approach delay and intersection delay.

ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
2	Synchro HCM 6th Signal	Boones Ferry Road & Day Rd	Signal	B	16	0.66
3	Synchro HCM 6th Signal	Boones Ferry Road & 95th Avenue	Signal	C	20	0.7
4	Synchro HCM 6th Signal	I-5 SB On Ramp/I-5 SB Off Ramp & Boon	Signal	A	10	0.76
5	Synchro HCM 6th Signal	I-5 NB Off-Ramp/I-5 NB On-Ramp & Ellig	Signal	A	7	0.33

APPENDIX E

HCM REPORT – EXISTNG + STAGE II

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↑	↔	
Traffic Vol, veh/h	603	0	0	541	0	0
Future Vol, veh/h	603	0	0	541	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	670	0	0	601	0	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	670	0	1271 670
Stage 1	-	-	-	-	670 -
Stage 2	-	-	-	-	601 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	930	-	187 460
Stage 1	-	-	-	-	512 -
Stage 2	-	-	-	-	551 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	930	-	187 460
Mov Cap-2 Maneuver	-	-	-	-	327 -
Stage 1	-	-	-	-	512 -
Stage 2	-	-	-	-	551 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	930	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th Signalized Intersection Summary
 2: Boones Ferry Road & Day Rd

Wilsonville Delta Logistics TIA
 Existing PM + Stage II

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	590	0	0	0	518	375	0	0	593	23
Future Volume (veh/h)	13	0	590	0	0	0	518	375	0	0	593	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1900	1900	1900	1752	1841	1900	1900	1870	1811
Adj Flow Rate, veh/h	14	0	579	0	0	0	540	391	0	0	618	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	4	0	0	0	10	4	0	0	2	6
Cap, veh/h	137	0	921	0	90	0	1757	1613	0	2	1033	37
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.91	1.00	0.00	0.00	0.30	0.30
Sat Flow, veh/h	1440	0	1560	0	1900	0	3237	1841	0	1810	3498	124
Grp Volume(v), veh/h	14	0	579	0	0	0	540	391	0	0	314	326
Grp Sat Flow(s),veh/h/ln	1440	0	1560	0	1900	0	1618	1841	0	1810	1777	1846
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	15.9	15.9
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	15.9	15.9
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	137	0	921	0	90	0	1757	1613	0	2	525	545
V/C Ratio(X)	0.10	0.00	0.63	0.00	0.00	0.00	0.31	0.24	0.00	0.00	0.60	0.60
Avail Cap(c_a), veh/h	288	0	1085	0	290	0	1757	1613	0	69	525	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	0.0	14.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	31.7	31.7
Incr Delay (d2), s/veh	0.3	0.0	0.9	0.0	0.0	0.0	0.1	0.3	0.0	0.0	5.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	8.6	0.0	0.0	0.0	0.6	0.2	0.0	0.0	7.4	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	0.0	14.9	0.0	0.0	0.0	2.4	0.3	0.0	0.0	36.6	36.5
LnGrp LOS	D	A	B	A	A	A	A	A	A	A	D	D
Approach Vol, veh/h		593			0			931			640	
Approach Delay, s/veh		15.7			0.0			1.6			36.6	
Approach LOS		B						A			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	96.0		9.0	61.0	35.0		9.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	73.0		16.0	46.0	31.0		16.0				
Max Q Clear Time (g_c+I1), s	0.0	2.0		3.0	4.3	17.9		0.0				
Green Ext Time (p_c), s	0.0	2.6		2.0	2.1	3.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			15.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
 3: Boones Ferry Road & 95th Avenue

Wilsonville Delta Logistics TIA
 Existing PM + Stage II



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖	↗	↖		↖	↗	↖
Traffic Volume (veh/h)	150	3	796	28	15	6	475	745	8	1	1033	166
Future Volume (veh/h)	150	3	796	28	15	6	475	745	8	1	1033	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No										
Adj Sat Flow, veh/h/ln	1796	1900	1841	1900	1900	1900	1693	1781	1900	1900	1856	1781
Adj Flow Rate, veh/h	156	3	800	29	16	1	495	776	7	1	1076	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	0	4	0	0	0	14	8	0	0	3	8
Cap, veh/h	306	5	1236	115	317	20	868	2029	18	158	1410	
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.56	1.00	1.00	0.09	0.40	0.00
Sat Flow, veh/h	1326	25	2638	687	1765	110	3127	3436	31	1810	3526	1510
Grp Volume(v), veh/h	159	0	800	29	0	17	495	382	401	1	1076	0
Grp Sat Flow(s),veh/h/ln	1351	0	1319	687	0	1875	1564	1692	1775	1810	1763	1510
Q Serve(g_s), s	11.1	0.0	0.0	4.3	0.0	0.8	10.8	0.0	0.0	0.1	27.7	0.0
Cycle Q Clear(g_c), s	11.8	0.0	0.0	16.1	0.0	0.8	10.8	0.0	0.0	0.1	27.7	0.0
Prop In Lane	0.98		1.00	1.00		0.06	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	310	0	1236	115	0	337	868	999	1048	158	1410	
V/C Ratio(X)	0.51	0.00	0.65	0.25	0.00	0.05	0.57	0.38	0.38	0.01	0.76	
Avail Cap(c_a), veh/h	380	0	1365	148	0	429	868	999	1048	158	1410	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.70	0.70	0.70	0.77	0.77	0.00
Uniform Delay (d), s/veh	40.6	0.0	21.8	47.7	0.0	35.7	19.3	0.0	0.0	43.8	27.2	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.8	0.9	0.0	0.0	0.6	0.8	0.7	0.0	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	7.2	0.8	0.0	0.4	3.1	0.2	0.2	0.0	11.7	0.0
Unsig. Movement Delay, s/veh												15.50
LnGrp Delay(d),s/veh	41.5	0.0	22.6	48.6	0.0	35.7	19.9	0.8	0.7	43.8	30.3	15.5
LnGrp LOS	D	A	C	D	A	D	B	A	A	D	C	B
Approach Vol, veh/h		959			46			1278			1175	A
Approach Delay, s/veh		25.8			43.8			8.2			29.1	
Approach LOS		C			D			A			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.2	47.0		23.8	14.2	67.0		23.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	24.0	42.0		24.0	4.0	62.0		24.0				
Max Q Clear Time (g_c+1/2g), s	11.8	29.7		18.1	2.1	2.0		13.8				
Green Ext Time (p_c), s	1.8	4.4		0.1	0.0	9.0		3.1				

Intersection Summary

HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved changes to right turn type.
- Unsignalized Delay for [SBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 4: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Rd

Wilsonville Delta Logistics TIA
 Existing PM + Stage II



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑
Traffic Volume (veh/h)	0	1016	841	0	644	317	0	0	0	416	52	584
Future Volume (veh/h)	0	1016	841	0	644	317	0	0	0	416	52	584
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1841	0	1826	1870				1841	1856	1663
Adj Flow Rate, veh/h	0	1081	0	0	685	0				482	0	566
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	5	4	0	5	2				4	3	16
Cap, veh/h	0	1629		0	1629					1525	0	605
Arrive On Green	0.00	0.94	0.00	0.00	0.94	0.00				0.44	0.00	0.44
Sat Flow, veh/h	0	3561	1560	0	3561	1585				3506	0	1389
Grp Volume(v), veh/h	0	1081	0	0	685	0				482	0	566
Grp Sat Flow(s),veh/h/ln	0	1735	1560	0	1735	1585				1753	0	1389
Q Serve(g_s), s	0.0	5.3	0.0	0.0	2.1	0.0				9.5	0.0	40.8
Cycle Q Clear(g_c), s	0.0	5.3	0.0	0.0	2.1	0.0				9.5	0.0	40.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1629		0	1629					1525	0	605
V/C Ratio(X)	0.00	0.66		0.00	0.42					0.32	0.00	0.94
Avail Cap(c_a), veh/h	0	1629		0	1629					1803	0	715
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.66	0.00	0.00	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	1.8	0.0	0.0	1.8	0.0				19.4	0.0	28.3
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.0	0.7	0.0				0.1	0.0	17.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.0	0.0	0.7	0.0				3.6	0.0	15.3
Unsig. Movement Delay, s/veh			1.20			0.30						
LnGrp Delay(d),s/veh	0.0	3.3	1.2	0.0	2.5	0.3				19.5	0.0	45.7
LnGrp LOS	A	A	A	A	A	A				B	A	D
Approach Vol, veh/h		1976	A		1022	A					1048	
Approach Delay, s/veh		2.3			1.8						33.6	
Approach LOS		A			A						C	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		54.3		50.7		54.3						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		41.0		54.0		41.0						
Max Q Clear Time (g_c+I1), s		7.3		42.8		4.1						
Green Ext Time (p_c), s		10.1		2.9		5.6						

Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved changes to right turn type.
- Unsignalized Delay for [EBR, WBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 5: I-5 NB Off-Ramp/I-5 NB On-Ramp & Elligsen Rd

Wilsonville Delta Logistics TIA
 Existing PM + Stage II



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑↑		↑			
Traffic Volume (veh/h)	0	755	677	0	659	508	302	0	234	0	0	0
Future Volume (veh/h)	0	755	677	0	659	508	302	0	234	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1811	0	1870	1870	1811	0	1841			
Adj Flow Rate, veh/h	0	803	0	0	701	0	321	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	0	3	6	0	2	2	6	0	4			
Cap, veh/h	0	2779		0	2801		406	0				
Arrive On Green	0.00	1.00	0.00	0.00	0.79	0.00	0.12	0.00	0.00			
Sat Flow, veh/h	0	3618	1535	0	3647	1585	3346	0	1560			
Grp Volume(v), veh/h	0	803	0	0	701	0	321	0	0			
Grp Sat Flow(s),veh/h/ln	0	1763	1535	0	1777	1585	1673	0	1560			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	5.5	0.0	9.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	5.5	0.0	9.8	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2779		0	2801		406	0				
V/C Ratio(X)	0.00	0.29		0.00	0.25		0.79	0.00				
Avail Cap(c_a), veh/h	0	2779		0	2801		1259	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.64	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	2.9	0.0	44.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	1.4	0.0	4.0	0.0	0.0			
Unsig. Movement Delay, s/veh			0.80			0.60			42.30			
LnGrp Delay(d),s/veh	0.0	0.2	0.8	0.0	3.1	0.6	47.0	0.0	42.3			
LnGrp LOS	A	A	A	A	A	A	D	A	D			
Approach Vol, veh/h		1523	A		1241	A		435	A			
Approach Delay, s/veh		0.5			2.0			45.8				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		87.8				87.8		17.2				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		56.0				56.0		39.5				
Max Q Clear Time (g_c+1), s		2.0				7.5		11.8				
Green Ext Time (p_c), s		7.2				5.9		1.0				

Intersection Summary

HCM 6th Ctrl Delay		7.2										
HCM 6th LOS		A										

Notes

Unsignalized Delay for [NBR, EBR, WBR] is included in calculations of the approach delay and intersection delay.

ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
2	Synchro HCM 6th Signal	Boones Ferry Road & Day Rd	Signal	B	16	0.66
3	Synchro HCM 6th Signal	Boones Ferry Road & 95th Avenue	Signal	C	21	0.71
4	Synchro HCM 6th Signal	I-5 SB On Ramp/I-5 SB Off Ramp & Boon	Signal	B	10	0.79
5	Synchro HCM 6th Signal	I-5 NB Off-Ramp/I-5 NB On-Ramp & Ellig	Signal	A	7	0.35

APPENDIX F

HCM REPORT – EXISTNG + PROJECT + STAGE II

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	603	3	5	541	7	13
Future Vol, veh/h	603	3	5	541	7	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	670	3	6	601	8	14

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	673	0	1285
Stage 1	-	-	-	-	672
Stage 2	-	-	-	-	613
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	927	-	183
Stage 1	-	-	-	-	511
Stage 2	-	-	-	-	544
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	927	-	182
Mov Cap-2 Maneuver	-	-	-	-	323
Stage 1	-	-	-	-	511
Stage 2	-	-	-	-	541

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	400	-	-	927	-
HCM Lane V/C Ratio	0.056	-	-	0.006	-
HCM Control Delay (s)	14.5	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th Signalized Intersection Summary
 2: Boones Ferry Road & Day Rd

Wilsonville Delta Logistics TIA
 Existing PM + Stage II + Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	601	0	0	0	522	375	0	0	593	24
Future Volume (veh/h)	15	0	601	0	0	0	522	375	0	0	593	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1841	1900	1900	1900	1752	1841	1900	1900	1870	1811
Adj Flow Rate, veh/h	16	0	590	0	0	0	544	391	0	0	618	23
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	4	0	0	0	10	4	0	0	2	6
Cap, veh/h	140	0	936	0	94	0	1782	1610	0	2	998	37
Arrive On Green	0.05	0.00	0.05	0.00	0.00	0.00	0.92	1.00	0.00	0.00	0.29	0.29
Sat Flow, veh/h	1440	0	1560	0	1900	0	3237	1841	0	1810	3491	130
Grp Volume(v), veh/h	16	0	590	0	0	0	544	391	0	0	314	327
Grp Sat Flow(s),veh/h/ln	1440	0	1560	0	1900	0	1618	1841	0	1810	1777	1844
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	16.1	16.1
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	16.1	16.1
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		0.07
Lane Grp Cap(c), veh/h	140	0	936	0	94	0	1782	1610	0	2	508	527
V/C Ratio(X)	0.11	0.00	0.63	0.00	0.00	0.00	0.31	0.24	0.00	0.00	0.62	0.62
Avail Cap(c_a), veh/h	288	0	1097	0	290	0	1782	1610	0	69	508	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	13.5	0.0	0.0	0.0	2.0	0.0	0.0	0.0	32.5	32.6
Incr Delay (d2), s/veh	0.4	0.0	0.9	0.0	0.0	0.0	0.1	0.3	0.0	0.0	5.6	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	8.6	0.0	0.0	0.0	0.5	0.2	0.0	0.0	7.6	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	0.0	14.4	0.0	0.0	0.0	2.1	0.3	0.0	0.0	38.1	38.0
LnGrp LOS	D	A	B	A	A	A	A	A	A	A	D	D
Approach Vol, veh/h		606			0			935			641	
Approach Delay, s/veh		15.3			0.0			1.3			38.0	
Approach LOS		B						A			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	95.8		9.2	61.8	34.0		9.2				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	4.0	73.0		16.0	47.0	30.0		16.0				
Max Q Clear Time (g_c+I1), s	0.0	2.0		3.1	4.0	18.1		0.0				
Green Ext Time (p_c), s	0.0	2.6		2.1	2.1	3.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
3: Boones Ferry Road & 95th Avenue

Wilsonville Delta Logistics TIA
Existing PM + Stage II + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↗	↖	↗	↖		↖	↗	↖
Traffic Volume (veh/h)	150	3	796	28	15	6	475	749	8	1	1044	166
Future Volume (veh/h)	150	3	796	28	15	6	475	749	8	1	1044	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.96	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No										
Adj Sat Flow, veh/h/ln	1796	1900	1841	1900	1900	1900	1693	1781	1900	1900	1856	1781
Adj Flow Rate, veh/h	156	3	798	29	16	1	495	780	7	1	1088	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	0	4	0	0	0	14	8	0	0	3	8
Cap, veh/h	306	5	1210	115	317	20	839	2029	18	158	1444	
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.54	1.00	1.00	0.09	0.41	0.00
Sat Flow, veh/h	1326	25	2638	689	1765	110	3127	3437	31	1810	3526	1510
Grp Volume(v), veh/h	159	0	798	29	0	17	495	384	403	1	1088	0
Grp Sat Flow(s),veh/h/ln	1351	0	1319	689	0	1875	1564	1692	1775	1810	1763	1510
Q Serve(g_s), s	11.1	0.0	0.0	4.3	0.0	0.8	11.3	0.0	0.0	0.1	27.7	0.0
Cycle Q Clear(g_c), s	11.8	0.0	0.0	16.1	0.0	0.8	11.3	0.0	0.0	0.1	27.7	0.0
Prop In Lane	0.98		1.00	1.00		0.06	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	310	0	1210	115	0	337	839	999	1048	158	1444	
V/C Ratio(X)	0.51	0.00	0.66	0.25	0.00	0.05	0.59	0.38	0.38	0.01	0.75	
Avail Cap(c_a), veh/h	380	0	1339	148	0	429	839	999	1048	158	1444	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.70	0.70	0.70	0.76	0.76	0.00
Uniform Delay (d), s/veh	40.6	0.0	22.6	47.7	0.0	35.7	20.4	0.0	0.0	43.8	26.5	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.9	0.9	0.0	0.0	0.8	0.8	0.7	0.0	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	7.3	0.8	0.0	0.4	3.3	0.2	0.2	0.0	11.7	0.0
Unsig. Movement Delay, s/veh												15.50
LnGrp Delay(d),s/veh	41.5	0.0	23.5	48.6	0.0	35.7	21.2	0.8	0.7	43.8	29.3	15.5
LnGrp LOS	D	A	C	D	A	D	C	A	A	D	C	B
Approach Vol, veh/h		957			46			1282			1188	A
Approach Delay, s/veh		26.5			43.8			8.7			28.2	
Approach LOS		C			D			A			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.2	48.0		23.8	14.2	67.0		23.8				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	23.0	43.0		24.0	4.0	62.0		24.0				
Max Q Clear Time (g_c+1/3), s	11.3	29.7		18.1	2.1	2.0		13.8				
Green Ext Time (p_c), s	1.7	4.7		0.1	0.0	9.0		3.1				

Intersection Summary

HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved changes to right turn type.
- Unsignalized Delay for [SBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

Wilsonville Delta Logistics TIA

4: I-5 SB On Ramp/I-5 SB Off Ramp & Boones Ferry Road/Elligsen Rd Existing PM + Stage II + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑	↑	↑
Traffic Volume (veh/h)	0	1024	844	0	645	317	0	0	0	416	52	587
Future Volume (veh/h)	0	1024	844	0	645	317	0	0	0	416	52	587
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1841	0	1826	1870				1841	1856	1663
Adj Flow Rate, veh/h	0	1089	0	0	686	0				482	0	569
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	5	4	0	5	2				4	3	16
Cap, veh/h	0	1623		0	1623					1532	0	607
Arrive On Green	0.00	0.94	0.00	0.00	0.94	0.00				0.44	0.00	0.44
Sat Flow, veh/h	0	3561	1560	0	3561	1585				3506	0	1389
Grp Volume(v), veh/h	0	1089	0	0	686	0				482	0	569
Grp Sat Flow(s),veh/h/ln	0	1735	1560	0	1735	1585				1753	0	1389
Q Serve(g_s), s	0.0	5.7	0.0	0.0	2.2	0.0				9.4	0.0	41.0
Cycle Q Clear(g_c), s	0.0	5.7	0.0	0.0	2.2	0.0				9.4	0.0	41.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1623		0	1623					1532	0	607
V/C Ratio(X)	0.00	0.67		0.00	0.42					0.31	0.00	0.94
Avail Cap(c_a), veh/h	0	1623		0	1623					1803	0	715
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.65	0.00	0.00	0.93	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	2.0	0.0	0.0	1.9	0.0				19.3	0.0	28.2
Incr Delay (d2), s/veh	0.0	1.5	0.0	0.0	0.8	0.0				0.1	0.0	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	0.7	0.0				3.6	0.0	15.4
Unsig. Movement Delay, s/veh			1.20			0.30						
LnGrp Delay(d),s/veh	0.0	3.4	1.2	0.0	2.6	0.3				19.4	0.0	45.8
LnGrp LOS	A	A	A	A	A	A				B	A	D
Approach Vol, veh/h		1987	A		1023	A					1051	
Approach Delay, s/veh		2.4			1.9						33.7	
Approach LOS		A			A						C	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		54.1		50.9		54.1						
Change Period (Y+Rc), s		5.0		5.0		5.0						
Max Green Setting (Gmax), s		41.0		54.0		41.0						
Max Q Clear Time (g_c+I1), s		7.7		43.0		4.2						
Green Ext Time (p_c), s		10.2		2.9		5.7						

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

User approved changes to right turn type.

Unsignalized Delay for [EBR, WBR] is included in calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 5: I-5 NB Off-Ramp/I-5 NB On-Ramp & Elligsen Rd

Wilsonville Delta Logistics TIA
 Existing PM + Stage II + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑	↑↑		↑			
Traffic Volume (veh/h)	0	756	684	0	659	508	303	0	234	0	0	0
Future Volume (veh/h)	0	756	684	0	659	508	303	0	234	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1856	1811	0	1870	1870	1811	0	1841			
Adj Flow Rate, veh/h	0	804	0	0	701	0	322	0	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	0	3	6	0	2	2	6	0	4			
Cap, veh/h	0	2778		0	2800		407	0				
Arrive On Green	0.00	1.00	0.00	0.00	0.79	0.00	0.12	0.00	0.00			
Sat Flow, veh/h	0	3618	1535	0	3647	1585	3346	0	1560			
Grp Volume(v), veh/h	0	804	0	0	701	0	322	0	0			
Grp Sat Flow(s),veh/h/ln	0	1763	1535	0	1777	1585	1673	0	1560			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	5.5	0.0	9.8	0.0	0.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	5.5	0.0	9.8	0.0	0.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2778		0	2800		407	0				
V/C Ratio(X)	0.00	0.29		0.00	0.25		0.79	0.00				
Avail Cap(c_a), veh/h	0	2778		0	2800		1259	0				
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.63	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	2.9	0.0	44.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0	2.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	1.4	0.0	4.1	0.0	0.0			
Unsig. Movement Delay, s/veh			0.80			0.60			42.30			
LnGrp Delay(d),s/veh	0.0	0.2	0.8	0.0	3.2	0.6	47.0	0.0	42.3			
LnGrp LOS	A	A	A	A	A	A	D	A	D			
Approach Vol, veh/h		1532	A		1241	A		437	A			
Approach Delay, s/veh		0.5			2.0			45.7				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		87.7				87.7		17.3				
Change Period (Y+Rc), s		5.0				5.0		4.5				
Max Green Setting (Gmax), s		56.0				56.0		39.5				
Max Q Clear Time (g_c+11), s		2.0				7.5		11.8				
Green Ext Time (p_c), s		7.2				5.9		1.0				

Intersection Summary

HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

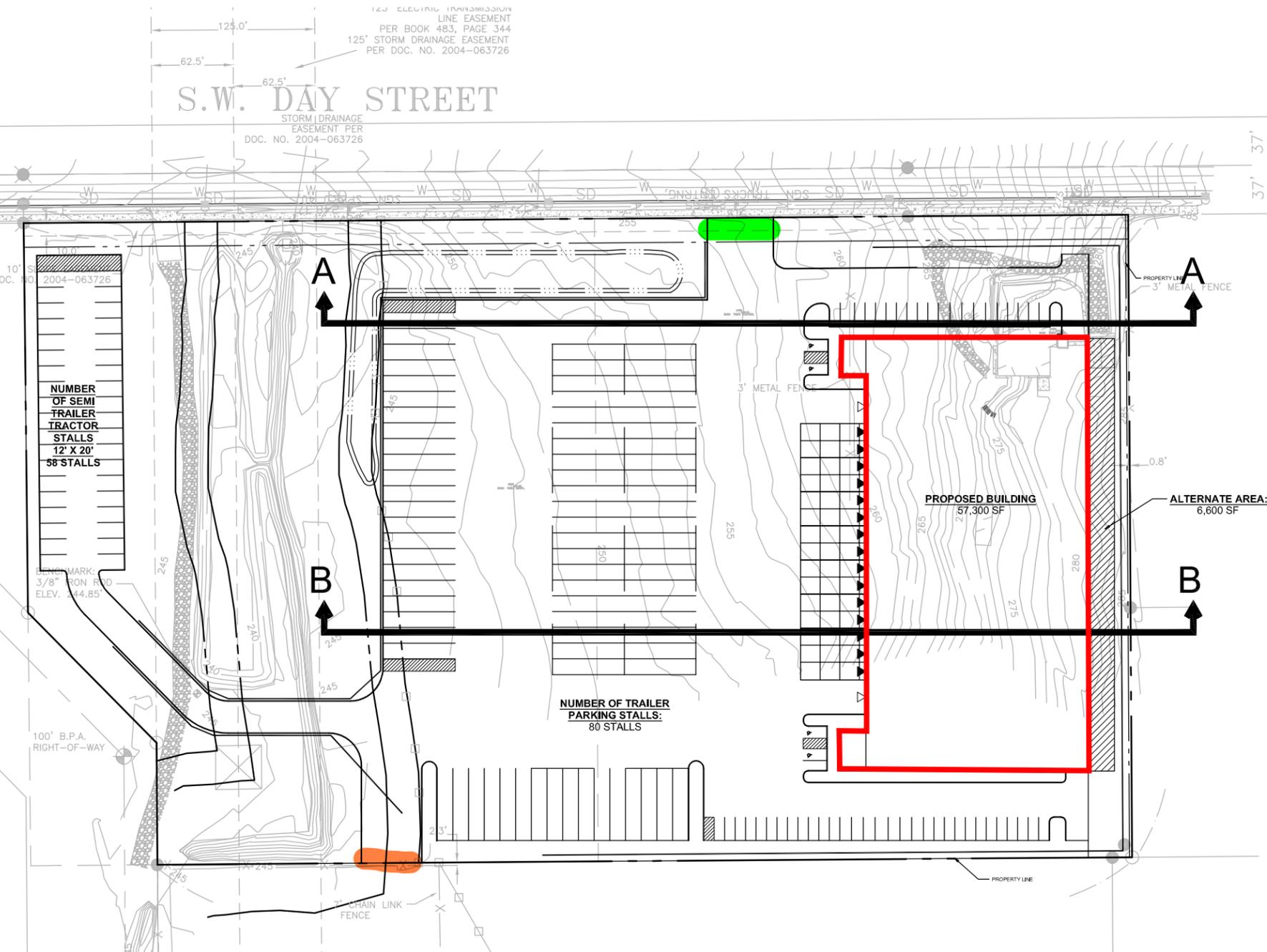
Notes

Unsignalized Delay for [NBR, EBR, WBR] is included in calculations of the approach delay and intersection delay.

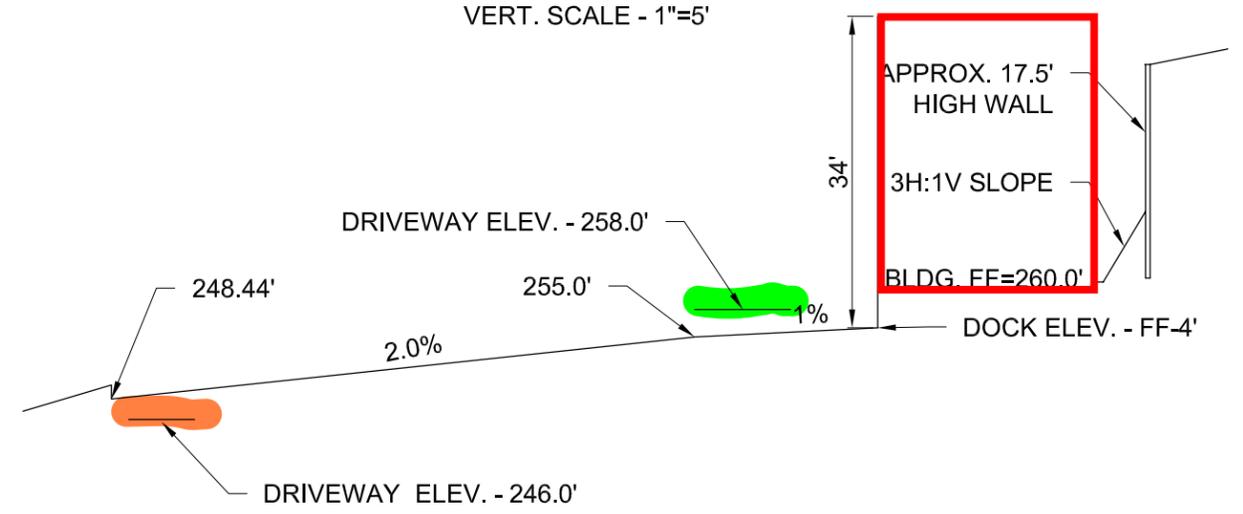
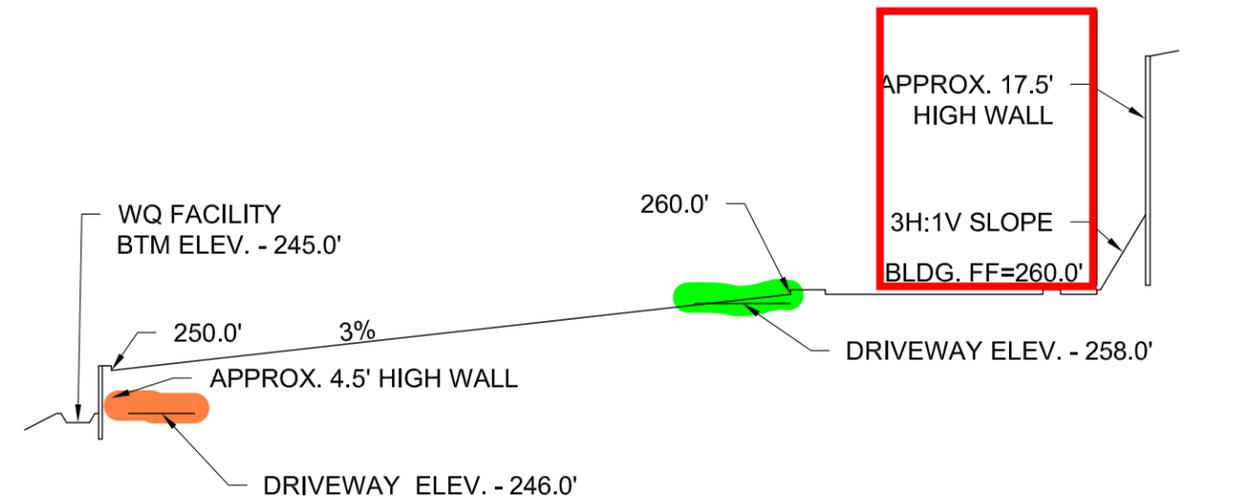
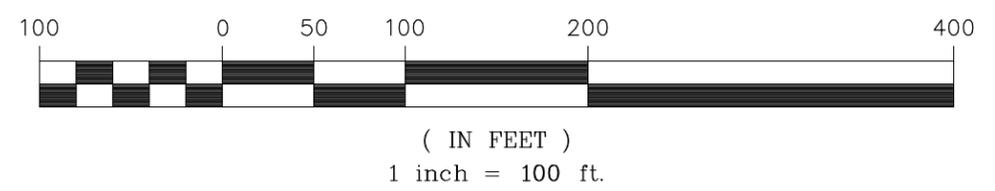
ID	Software/Method	Intersection	Control Type	LOS	Delay	V/C Ratio
2	Synchro HCM 6th Signal	Boones Ferry Road & Day Rd	Signal	B	16	0.67
3	Synchro HCM 6th Signal	Boones Ferry Road & 95th Avenue	Signal	C	21	0.71
4	Synchro HCM 6th Signal	I-5 SB On Ramp/I-5 SB Off Ramp & Boon	Signal	B	10	0.79
5	Synchro HCM 6th Signal	I-5 NB Off-Ramp/I-5 NB On-Ramp & Ellig	Signal	A	7	0.35

APPENDIX G

SITE PLAN



SITE PLAN - SCALE = 1"=100'



SITE DATA TABLE

DOCK DOORS	15
DRIVE UP DOORS	2
TRAILER STALLS	80
SEMI TRAILER TRACTOR STALLS	38
PARKING STALLS	56 TOTAL
ACCESSIBLE	4
BUILDING AREA	57,300 SF
ADDITIONAL AREA	6,600 SF

Lee D. Leighton

From: Pepper, Amy <apecpper@ci.wilsonville.or.us>
Sent: Friday, June 10, 2022 5:11 PM
To: Lee D. Leighton; Bradford, Philip
Cc: Scott Moore; Adam Goldberg; Igor Nichiporchik; Vlad Tkach; Janet T. Jones; Breezy Rinehart-Young; Greg Mino
Subject: RE: Delta Logistics (DB22-0007 et al) - Building SF increase and TIA

Lee ~

I consulted with DKS. The proposed change results in approximately 5 additional PM peak trips. The intersections have adequate capacity and a new TIA is not needed.

Have a great weekend!

Amy

From: Lee D. Leighton <LLeighton@mcknze.com>
Sent: Tuesday, June 7, 2022 1:54 PM
To: Pepper, Amy <apecpper@ci.wilsonville.or.us>; Bradford, Philip <pbradford@ci.wilsonville.or.us>
Cc: Scott Moore <SMoore@mcknze.com>; Adam Goldberg <AGoldberg@mcknze.com>; Igor Nichiporchik <igor@deltagov.com>; Vlad Tkach <vlad@deltagov.com>; Janet T. Jones <JTJ@mcknze.com>; Breezy Rinehart-Young <BRinehart@mcknze.com>; Greg Mino <GMino@mcknze.com>
Subject: Delta Logistics (DB22-0007 et al) - Building SF increase and TIA

[This email originated outside of the City of Wilsonville]

Hi Amy, Hi Philip:

We are currently in the process of responding to guidance from City staff in the notice of incomplete application for the Delta Logistics Annex project on SW Day Road (DB22-0007 et al).

In that context, it has come to our attention that the TIA prepared by DIKS used an assumed building size of 56,100 SF, but two changes have occurred that affect the building size figure:

1. The submitted plans include a building that is 2,016 SF larger, at 58,116 SF, and
2. The owner has asked us to design two interior mezzanine structures as possible future expansions.

As a result, we anticipate that this ultimate configuration will be in our revised land use submittal:

Proposed building SF:		58,116 SF (of which NW Office is 2,437 SF and SW Office is 2,037 SF)
Additional Mezzanines:	NW	2,196 SF
	SW	<u>1,833 SF</u>

Revised Total Building SF: 62,145 SF

The resulting SF figure represents a 10.8% increase in the building’s proposed overall floor area relative to the anticipated building area in the TIA. We think it makes sense to ask DKS to comment on whether this change will affect the conclusions of their February 2022 TIA for the project. Based on the results of their Table 5: Future Intersection Operations, we think it unlikely that any study intersection’s performance will be significantly affected by the change:

FUTURE INTERSECTION OPERATIONS

An analysis of the future intersection operations was performed at the study intersections for each future scenario. Intersection operations were analyzed for the PM peak hour using Highway Capacity Manual (HCM) 6th Edition methodology.⁹ The volume to capacity (v/c) ratio, delay, and level of service (LOS) of each study intersection are listed in Table 5.

TABLE 5: FUTURE INTERSECTION OPERATIONS

INTERSECTION	OPERATING STANDARD/ MOBILITY TARGET	EXISTING + PROJECT			EXISTING + STAGE II			EXISTING + STAGE II + PROJECT		
		V/C	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS
SIGNALIZED										
BOONES FERRY RD/ DAY RD	LOS D (City)	0.66	16.0	B	0.66	15.8	B	0.67	16.0	B
BOONES FERRY RD/ 95TH AVE	LOS D (City)	0.70	20.4	C	0.71	20.6	C	0.71	20.7	C
I-5 SOUTHBOUND RAMPS/ ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.76	9.6	A	0.79	10.3	B	0.79	10.4	B
I-5 NORTHBOUND RAMPS/ ELLIGSEN RD	v/c ≤ 0.99 (ODOT)	0.33	7.2	A	0.35	7.2	A	0.35	7.2	A
TWO-WAY STOP- CONTROLLED										
SITE ACCESS/ DAY RD	LOS D (City)	0.06	14.5	A/B	-	-	-	0.06	14.5	A/B

SIGNALIZED INTERSECTION:
 Delay = Average Intersection Delay (secs)
 v/c = Total Volume-to-Capacity Ratio
 LOS = Total Level of Service

TWO-WAY STOP CONTROLLED INTERSECTION:
 Delay = Critical Movement Delay (secs)
 v/c = Critical Movement Volume-to-Capacity Ratio
 LOS = Critical Levels of Service (Major/Minor Road)

As shown, all study intersections are expected to meet the City’s operating standard under all future analysis scenarios. HCM reports are provided in the appendix.

(DKS TIA report at p. 14)

Please consider and reply to let us know what action is needed to take note of this change.

Thank you,

~Lee

Lee Leighton, AICP | he/him/his
 Land Use Planning
 D 971.346.3727 E lleighton@mcknze.com

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Mackenzie Email [Disclaimer](#)

From: Adam Goldberg <AGoldberg@mcknze.com>
Sent: Wednesday, June 1, 2022 9:43 AM
To: Lee D. Leighton <LLeighton@mcknze.com>
Cc: Scott Moore <SMoore@mcknze.com>
Subject: Office Areas - Delta Logistics Wilsonville

Lee,

Below are the areas for current and future office build-outs for Delta:

- NW Office: 2,437sf
- NW Mezzanine: 2,196sf
- Future SW Office: 2,037sf
- Future SW Mezzanine: 1,833sf
- **Total Office Area: 8,503sf**

Let me know if you need anything else for this matter.

Thanks,

Adam Goldberg
Architect
AIA, NCARB
D 971.346.3735 E agoldberg@mcknze.com

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