

Land Use Application For Parkway Village South Site Plan Review & Subdivision

Date: July 17, 2017

Submitted to: City of Sherwood
Planning Department
22560 SW Pine Street
Sherwood, OR 97140

Applicant: Langer Family, LLC
15555 SW Tualatin Sherwood Road
Sherwood, OR 97140



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Exhibits

- Exhibit A:** City Application Forms & Checklists
- Exhibit B:** Preliminary Plans & Architectural Drawings
- Exhibit C:** Neighborhood Meeting Documentation
- Exhibit D:** CWS Service Provider Letter
- Exhibit E:** County Assessor Map, Partition Plat 2017-019, & Preliminary Title Report
- Exhibit F:** Traffic Study
- Exhibit G:** Preliminary Stormwater Report
- Exhibit H:** 2017 Similar Use Interpretation
- Exhibit I:** 2010 Development Agreement
- Exhibit J:** Surrounding Land Uses
- Exhibit K:** Mailing Labels & 1,000-foot Notification List

Additional Enclosures

- Application Fee (1)**
- Mailing Labels (Two Sets)**
- Full Size Preliminary Plans & Architectural Drawings (15)**
- 8.5" x 11" Preliminary Plans & Architectural Drawings (1)**
- Electronic Copy of the Full Application (1)**

Please note, only 3 copies of the applicable materials listed above will be submitted for completeness review. Additional copies will be provided once the application has been deemed complete.

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Submitted to: City of Sherwood
Planning Department
22560 SW Pine Street
Sherwood, OR 97140

Owner/Applicant: Langer Family, LLC
15555 SW Tualatin Sherwood Road
Sherwood, OR 97140

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Site Location: Southeast of the intersection of SW Langer Farms
Parkway and SW Century Drive

Assessor's Information: Tax Map 2S 1 29 DC, Tax Lot 100
Parcel 2 of Partition Plat 2017-019

Site Size: ± 15.67 Acres

Land Use Districts: LI-PUD (Light Industrial)



I. Executive Summary

Langer Family, LLC (Applicant) is pleased to submit this application for a Subdivision and Site Plan Review to the City of Sherwood. The project site is a ± 15.67-acre parcel zoned LI PUD.

The essential components of this project include:

- Creating five legal lots that meet or exceed City requirements.
- Lots ranging in size from ± 0.50 acres (Lot 5) to ± 8.24 acres (Lot 3). Lot 1 at ± 3.60 acres is reserved for future use, and is not included in the concurrent Site Plan Review application.
- Frontage improvements along SW Century Drive consisting of a new 9.5-foot-wide curb tight sidewalk with tree wells matching the improvements on the north side of SW Century Drive.
- ± 92,899 square feet of an indoor entertainment and recreation Fun Center.
- ± 32,408 square feet of retail across four buildings and ± 392 square feet of a drive-through coffee kiosk.
- Off-street parking to accommodate ± 487 vehicle spaces and ± 56 bicycle spaces.
- ± 83,338 square feet of landscaped area (± 15.9% of site area).
- ± 267 trees providing ± 191,110 square feet of expected tree canopy (± 36.5% of site area).
- Stormwater captured on-site and conveyed to the regional stormwater facility.

The City of Sherwood Zoning and Community Development Code (SZCDC) holds that approval of this Subdivision application and Site Plan Review application are subject to review through a Type IV procedure. This written statement includes findings of fact demonstrating that the application complies with all applicable approval criteria. These findings are supported by substantial evidence in the application, including preliminary plans, and other written documentation. Considered together, this information provides the necessary basis for the City of Sherwood to approve the application.

II. Site Description/Setting

The subject property is a ± 15.67-acre parcel abutting the south side of SW Century Drive and the east side of SW Langer Farms Parkway, both designated as collector streets in the City of Sherwood Transportation System Plan (TSP). The City of Sherwood approved a partition of the property (MLP 16-02) in 2016, and Partition Plat 2017-019 was recorded in June 2017. No new tax lot number has been assigned.

Sewer, water, and franchise utilities are located within SW Langer Farms Parkway and SW Century Drive. Site topography slopes up gently from east to west. The site is also adjacent to a regional stormwater quality facility to the southeast which was committed to serving this tax lot. There is an existing drainageway, and associated wetlands and vegetated corridor designation, located within an unbuildable tract to the southeast that was established as part of the Langer Farms subdivision plat.

Parkway Village at Sherwood is located north of the site on land zoned LI PUD. Properties to the south are also zoned LI PUD, and contain self-storage facilities. Property to the west is zoned High Density Residential, and contains the Sherwood Village subdivision. Property to the east is zoned LI, and contains a vegetated corridor and developed industrial land.

III. Background & Application Description

The PUD (Planned Unit Development) designation was assigned as part of the Langer Family Planned Unit Development application (PUD 95-01, hereafter referred to as the “PUD”) that was approved by the City of Sherwood on April 26, 1995. The subject property is included as part of Phase 8 of the PUD. The City approved an application (PUD 07-01) covering the land uses that are permitted within the PUD in January 2008. The 2008 City decision was memorialized in a development agreement in 2010.

ORS 92.040(2) states that after September 9, 1995, when a local government approves a subdivision application inside an urban growth boundary, only those local government laws implemented under an acknowledged plan and in effect at the time of the subdivision application apply to subsequent construction on the property, unless the Applicant elects otherwise. This vesting remains in place for 10 years after approval of the subdivision, pursuant to ORS 92.040(3).

The approved Langer Farms subdivision was submitted in April 2012, establishing that the land use laws in effect on that date apply within the subdivision area, including PUD Phase 8 and the subject property. The 2010 Development Agreement was in effect in April 2012. Therefore, the uses permitted in the 1995 SZCDC are permitted on the subject property. The City of Sherwood approved a Similar Use Interpretation establishing that the planned Fun Center is a permitted use on the subject property under the 1995 SZCDC in April 2017.

Subdivision

Approval of this application will create five legal lots, in conformance with City requirements. The subdivision lots will range in size from ± 0.50 acres (Lot 5) to ± 8.24 acres (Lot 3). Lot 1 at ± 3.60 acres is reserved for future use, and is not included in the concurrent Site Plan Review application. The lot lines have been established based on a proportionate share of parking required for each anticipated use. All lots will have a shared access and maintenance responsibility of the common parking areas.

Site Plan Review

A Site Plan Review is required for the planned retail use and Fun Center. Consistent with the PUD approval and the 2010 Development Agreement, this Site Plan Review application for ± 32,408 square feet of retail across four buildings, a ± 392 square foot drive-through coffee kiosk, and a ± 92,899 square foot Fun Center provides specific details for land uses, buildings, landscaping, and site circulation/access/etc. Improvement of this property in accordance with the Langer Family PUD and the 2010 Development Agreement represents a substantial commitment on the part of the property owner.

IV. Applicable Review Criteria

CITY OF SHERWOOD MUNICIPAL CODE

Title 16 - ZONING AND COMMUNITY DEVELOPMENT CODE

Division II - LAND USE AND DEVELOPMENT

Chapter 16.31 - Industrial Land Use Districts

16.31.010 - Purpose

(***)

- B. Light Industrial (LI) - The LI zoning district provides for the manufacturing, processing, assembling, packaging and treatment of products which have been previously prepared from raw materials. Industrial establishments shall not have objectionable external features and shall feature well-landscaped sites and attractive architectural design, as determined by the Commission.

16.31.020 - Uses

RESPONSE: The PUD designation was assigned as part of the Langer Family Planned Unit Development application approved by the City of Sherwood on April 26, 1995. The subject property is included as part of Phase 8 of the PUD. The City approved an application, in January 2008 (PUD 07-01), covering the land uses that are permitted within the PUD. The 2008 City decision was memorialized in the 2010 Development Agreement, which was vested in the subject property when the City approved the Langer Farms subdivision.

The 2010 Development Agreement provides that the uses permitted in the 1995 SZCDC are permitted on the subject property, including "Uses permitted outright in the GC zone Section 2.109.02..." Section 2.1099.02(B) of the 1995 SZCDC lists "General retail trade" as a permitted use. In April 2017, the City of Sherwood approved a Similar Use Interpretation establishing that the planned Fun Center is a permitted use on the subject property under the 1995 SZCDC. The planned uses are permitted in the zone.

16.31.030 - Development Standards

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- B. Development Standards

Except as otherwise provided, required minimum lot areas and dimensions and setbacks shall be:

Development Standards by Zone	LI	GI	EI
Lot area - Industrial Uses:	10,000 SF	20,000 SF	3 acres ⁹
Lot area - Commercial Uses (subject to Section 16.31.050):	10,000 SF	20,000 SF	10,000 SF
Lot width at front property line:	100 feet		
Lot width at building line:	100 feet		
Front yard setback ¹¹	20 feet	None	20 feet
Side yard setback ¹⁰	None	None	None
Rear yard setback ¹¹	None	None	None
Corner lot street side ¹¹	20 feet	None	20 feet
Height ¹¹	50 feet		

⁹ Lots within the EI zone that were legal lots of record prior to October 5, 2010 and smaller than the minimum lot size required in the table below may be developed if found consistent with other applicable requirements of Chapter 16.31 and this Code. Further subdivision of lots smaller than three (3) acres shall be prohibited unless Section 16.31.050 applies.

¹⁰ When a yard is abutting a residential zone or public park, there shall be a minimum setback of forty (40) feet provided for properties zoned Employment Industrial and Light Industrial Zones, and a minimum setback of fifty (50) feet provided for properties zoned General Industrial.

¹¹ Structures located within one-hundred (100) feet of a residential zone shall be limited to the height requirements of that residential zone.

RESPONSE: The Preliminary Plat shows the five planned lots will meet the dimensional standards for the LI zone listed in the table above. The subdivision will comply with the applicable dimensional standards for lots in the LI zone.

The project will establish commercial uses consistent with the 2010 Development Agreement and 1995 SZCDC. The standard setbacks for the LI zone conflict with provisions of the Design Standards for commercial projects, and generally require buildings to be flush with the right-of-way or as close to the front property line as practicable. In approving SP 12-05/CUP 12-02, the City established a precedent that the Design Standards should supersede because they contribute to a more visually-appealing and pedestrian-friendly built environment. The buildings along SW Langer Farms Parkway and SW Century Drive are planned to be set back from the right-of-way at least 10 feet to comply with the requirements for landscaped visual corridors.

The maximum height of structures in the LI zone is 50 feet, subject to footnote 11, which limits the portions of buildings within 100 feet of a residential zone to the height requirements of that residential zone. The land across SW Langer Farms Parkway is zoned High Density Residential with a maximum height of 40 feet (60 feet or more for certain chimneys, aerials, and towers). The Fun Center is the only building with a planned height of more than 40 feet. The plat of Langer Farms shows a Langer Farms Parkway half street width of 41 feet (west) and 39 feet (east) along the Fun Center frontage. The Site Plan shows the 39-foot half street and a ± 24-foot Fun Center building setback, which would put the building more than 100 feet from a residential zone. Therefore, the buildings meet the applicable dimensional standards.

Chapter 16.40 - Planned Unit Development

16.40.030 - Final Development Plan

A. Generally

Upon approval of the PUD overlay zoning district and preliminary development plan by the Council, the applicant shall prepare a detailed Final Development Plan as per this Chapter, for review and approval of the Commission. The Final Development Plan shall comply with all conditions of approval as per Section 16.40.020. In addition, the applicant shall prepare and submit a detailed site plan for any non-single-family structure or use not addressed under Section 16.40.020(B)(6), for review and approval, pursuant to the provisions of Chapter 16.90. The site plan shall be processed concurrently with the Final Development Plan.

RESPONSE: The subject property is a ± 15.67-acre parcel approved by the City of Sherwood in 2016 (MLP 16-02), and finalized by Partition Plat 2017-019 which was recorded in June 2017. Site Plan Review applies to planned Lots 2 through 5. Planned Lot 1 is reserved for future use and is not included in the Site Plan Review application. The subject property is zoned LI-PUD.

The PUD designation was initially assigned as part of the Langer Family PUD. Preliminary and Final Development Plans were approved by the City in 1995. The subject property is included as part of Phase 8 of the PUD. Phases 1, 2, 3, and 5 are located off site to the west and have already been developed in accordance with the City approval. Phases 4, 6, and 7 are located to the north of this property and are not included in this application.

Consistent with the PUD approval and the 2010 Development Agreement (included as Exhibit I), this Site Plan Review application provides specific details for land uses, buildings, landscaping, site circulation, and access. The project complies with the PUD conditions and Development Agreement as stated below:

2010 Development Agreement

Agreement

A. PUD USES

1. **Applicable Code.** ZCDC 16.32.020.H, provides that "Approved PUDs may elect to establish uses which are permitted or conditionally permitted under the base zone text at the time of final approval of the PUD." The Langer PUD was approved and Phases 4, 6, 7 and 8 were assigned the Light Industrial ("LI") base zone designation on August 3, 1995.
2. **Permitted and Conditional Uses.** Accordingly, Langer elects to establish uses on the LI-designated phases of the PUD that were permitted or conditionally permitted under the LI base zone text applicable on August 3, 1995, including: "Uses permitted outright in the GC zone Section 2.109.02, except for adult entertainment businesses, which are prohibited." A copy of the uses permitted in the LI and GC zones on August 3, 1995 is set forth in Attachment A, attached hereto and incorporated herein by reference.

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3. Election of Uses and Acceptance. The City acknowledges and accepts Langer's decision to elect to develop Phases 4, 6, 7 and 8 under ZCDC 16.32.020.H, including the ability to develop those phases for General Retail Trade under Section 2.109.02 of the 1995 ZCDC. Accordingly, the current provisions of ZCDC 16.32.030.K, which restrict retail uses in the LI zone to a maximum of 60,000 square feet, will not apply to site plan review of the PUD.

RESPONSE: This project includes improvements and uses permitted under the 2010 Development Agreement and applicable sections of the 1995 SZCDC, as described in the response to Section 16.31.020. Section 2.1099.02(B) of the 1995 SZCDC lists "General retail trade" as a permitted use. The City of Sherwood approved a Similar Use Interpretation in April 2017 establishing that the planned Fun Center is a permitted use on the subject property under the 1995 SZCDC.

B. ADAMS DRIVE SOUTH EXTENSION

RESPONSE: The southerly extension of SW Adams Drive, now SW Langer Farms Parkway, was completed in the fall of 2011.

C. ADAMS DRIVE NORTH EXTENSION

RESPONSE: The northerly extension of SW Adams Drive, now SW Langer Farms Parkway, was completed in 2014.

D. RAIL CROSSING

RESPONSE: The railroad crossing at the southerly end of SW Adams Drive, now SW Langer Farms Parkway, was completed in the fall of 2011.

E. CENTURY DRIVE

RESPONSE: The SW Century Drive extension was completed in 2014.

F. STORMWATER FACILITY

Langer Commitments. Prior to issuance of final occupancy permits for all structures located in Phase 6 or Phase 7, Langer will design and substantially construct a stormwater facility ("Stormwater Facility") on Phase 8 (including any necessary portions of Phase 6), to accommodate existing stormwater detention and treatment for the PUD, any additional detention and treatment associated with development of Phases 6, 7 and 8, and any detention and treatment associated with the South Extension and the Century Drive Connection. In conjunction with this construction, Langer retains the right to terminate use of the existing stormwater facilities currently located on Phase 7 and Phase 8 ("Existing Facilities"), provided the stormwater detention and treatment functions of the Existing Facilities are incorporated into the Stormwater Facility. Langer retains the right to expand the Stormwater Facility to serve other public rights-of-way and uses outside the PUD in Langer's sole discretion, provided such expansion otherwise complies with City standards, including without limitation, awarding credits for SDC's.

City Commitments. The City agrees to work with Langer, to the extent allowed by law, to issue any land use approvals related to termination of the Existing Facilities through an administrative process and to facilitate any related process for the vacation of any prior public dedications associated with the Existing Facilities.

RESPONSE: The regional stormwater facility was completed in 2013. This criterion is met.

1995 PUD Design Guidelines

RESPONSE: The PUD approval established design guidelines for the PUD in 1995. Based on previous discussions with City staff and review of past decisions, the design standards entail a two-page undated document entitled “Sherwood Village Retail/Commercial Design Guidelines.” The guidelines have four headings: 1. Retail Building Construction, 2. Landscaping, 3. Signage, and 4. Lighting. Only 1. Retail Building Construction and 2. Landscaping are applicable to this Site Plan Review.

1. RETAIL BUILDING CONSTRUCTION

A. Exterior materials and treatment (trim, etc.)

- 1) Predominantly wood exterior.
- 2) Exterior windows and doors will have minimum 1 inch x 3 inch surrounds painted white.
- 3) Paint: Light tone palettes (white, off-white, grey, beige, tan}, or similar as per Design Review Committee's approval.

B. Shapes of openings

- 1) Arched openings and bays encouraged.

C. Storefronts

- 1) Storefronts should have trimmed openings similar to above A. 2.).

D. Roofs

- 1) Pitched roof forms are encouraged.
- 2) Large amounts of flat roof are discouraged.

RESPONSE: The criteria listed above are “guidelines” and not mandatory “standards.” Therefore, the Applicant only needs to show general conformance with the applicable guidelines rather than strict adherence to them. City approvals of previous phases of the Langer PUD have provided wide latitude and flexibility in the application of these design guidelines. Specifically, City approval of the Target shopping center (Phase 5) in the early 2000s and the Parkway Village (Phase 7) in 2012 were evaluated against the intent of these guidelines.

Page 10 of the Staff Report for the Parkway Village approval (SP 12-05 /CUP 12-02) includes the finding:

The applicant is correct in that the guidelines are not intended to be prescriptive, and to the extent that the other phases of the Langer PUD has been developed with these standards, it is clear that a lot of latitude and flexibility has been provided to prior approvals. Arguably, the presence of the gabled roofs, addition of exposed wood, stone, and glass will provide a development that is much closer to achieving the guidelines than prior decisions.

Page 28 of the July 10, 2001 Revised Staff Report for the Target shopping center approval provides the following finding related to the guideline to provide a “predominantly wood exterior”:

Does not comply in the strict sense. The applicant states that wood exteriors are not typically used for such large buildings due to difficulty of maintenance and concern for fire safety. Therefore, the exterior is proposed, instead, to consist primarily of smooth face block that is accented with trim of darker split face block. The only glass is on the entry doors and windows at the NW corner of the store. The door and window surrounds are an industry standard size and the applicant states that the trim will be natural aluminum, which will be light-toned similar to white to provide similar contrast. Exterior building colors are proposed as a light tone palette (white, off-white, gray, beige or tan) in accordance with the Design Guidelines.

Color elevations submitted with this application show building exteriors that incorporate board and batten, lap siding, wood columns, wood decking and canopies, and shingles. Other materials used include brick veneer, stone veneer, split-face CMU, and metal roofing. While not all the materials are wood, they are natural materials which reflect the vernacular and styles of the region and create a similar visual appeal. Robust Northwest-appropriate materials will weather well, and last long-term in the damp Pacific Northwest climate.

Brick and ledgerstone create a solid and timeless look, and the incorporation of siding with horizontal lap evokes a classic storefront look consistent with the guidelines. All windows will include trim of a color compatible with the external building materials. The second story pitched roofs contain board and batten siding, shingles, wood eaves and trimmed square windows with grids. The project provides building exteriors that incorporate wood, light window surrounds, light or natural earth-tone colors, bays, storefronts, and pitched roofs. The ultimate result is a welcoming residential or village feel that meets the intent of the guidelines.

2. LANDSCAPING

- A. Barkdust is not to be substituted as grass in front yards.
- B. All driveways and vehicular storage areas shall be paved with asphalt, gravel, or other dust minimizing material.
- C. Trash and service areas must be screened from public view.

RESPONSE: Project landscaping includes a mixture of shrubs, trees and groundcover designed to complement the site, buildings and hardscapes. The preliminary Landscape Plan shows that barkdust is not planned, except perhaps in conjunction with plantings. Several types of vegetative groundcover are listed on the preliminary Landscape Plan in Exhibit B.

All driveways and vehicle use areas will be paved and dust will be minimized. Walls and plantings will be utilized to screen trash enclosures. The guidelines are met.

Division III. - ADMINISTRATIVE PROCEDURES

Chapter 16.70 - GENERAL PROVISIONS

16.70.010 - Pre-Application Conference

Pre-application conferences are encouraged and shall be scheduled to provide applicants with the informational and procedural requirements of this Code; to exchange information regarding applicable policies, goals and standards of the Comprehensive Plan; to provide technical and design assistance; and to identify opportunities and constraints for a proposed land use action. An applicant may apply at one time for all permits or zone changes needed for a development project as determined in the pre-application conference.

RESPONSE: A pre-application conference (PAC 16-08) was held on January 4, 2017.

16.70.020 - Neighborhood Meeting

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- B. Applicants of Type III, IV and V applications are required to hold a meeting, at a public location for adjacent property owners and recognized neighborhood organizations that are within 1,000 feet of the subject application, prior to submitting their application to the City. Affidavits of mailing, sign-in sheets and a summary of the meeting notes must be included with the application when submitted. Applicants for Type II land use action are encouraged, but not required to hold a neighborhood meeting.

RESPONSE: Applicant held a neighborhood meeting on May 15, 2017 at Sherwood Middle School, 21970 SW Sherwood Boulevard, Sherwood, OR 97140. Notice was provided to owners of property within 1,000 feet of the subject property. Documentation consistent with the provisions of this section is provided in Exhibit C. The criteria are met.

Division V. - COMMUNITY DESIGN

Chapter 16.90 - SITE PLANNING

16.90.020 - Site Plan Review

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D. Required Findings

No site plan approval will be granted unless each of the following is found:

1. The proposed development meets applicable zoning district standards and design standards in Division II, and all provisions of Divisions V, VI, VIII and IX.

RESPONSE: The findings in this narrative, preliminary plans, and other documentation included in this application demonstrate compliance with the listed approval criteria. This criterion is met.

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2. The proposed development can be adequately served by services conforming to the Community Development Plan, including but not limited to water, sanitary facilities, storm water, solid waste, parks and open space, public safety, electric power, and communications.

RESPONSE: The subject property is adequately served by public urban services. Sanitary sewer, water, and franchise utilities are located within SW Century Drive and SW Langer Farms Parkway. Stormwater will drain to a regional stormwater facility located east of the subject site. This criterion is met.

3. Covenants, agreements, and other specific documents are adequate, in the City's determination, to assure an acceptable method of ownership, management, and maintenance of structures, landscaping, and other on-site features.

RESPONSE: The planned subdivision will create five legal lots in conformance with City requirements. The subdivision lots will range in size from ± 0.50 acres (Lot 5) to ± 8.24 acres (Lot 3). Lot 1 at ± 3.60 acres is reserved for future use, and is not included in the concurrent Site Plan Review application. Covenants, conditions and restrictions (CC&Rs) for the projects, as well as shared access easements, will be recorded with the final plat, providing for ownership, management, and maintenance of on-site features, as necessary. On-going maintenance of the structures, landscaping, etc. will be provided by the property owner, lessee, or other appropriate party. This criterion is met.

4. The proposed development preserves significant natural features to the maximum extent feasible, including but not limited to natural drainage ways, wetlands, trees, vegetation (including but not limited to environmentally sensitive lands), scenic views, and topographical features, and conforms to the applicable provisions of Division VIII of this Code and Chapter 5 of the Community Development Code.

RESPONSE: The site does not contain any identified significant natural features, sensitive lands, or protected scenic views. An existing drainageway, with associated wetlands and a vegetated corridor, runs east of the subject site. It is located off site and protected by an open space tract created with a previous phase of the PUD. Clean Water Services (CWS) has conducted a Sensitive Area Pre-Screening Site Assessment, verifying that the project will not significantly impact existing or potentially sensitive areas found near the site. A CWS Service Provider Letter has been included in Exhibit D. The preliminary plans show that trees are preserved to the maximum extent feasible and consistent with applicable City standards. The applicable criteria are met.

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5. For developments that are likely to generate more than 400 average daily trips (ADTs), or at the discretion of the City Engineer, the applicant must provide adequate information, such as a traffic impact analysis (TIA) or traffic counts, to demonstrate the level of impact to the surrounding transportation system. The developer is required to mitigate for impacts attributable to the project, pursuant to TIA requirements in Section 16.106.080 and rough proportionality requirements in Section 16.106.090. The determination of impact or effect and the scope of the impact study must be coordinated with the provider of the affected transportation facility.

RESPONSE: This project is expected to generate more than 400 ADT. Kittelson & Associates has prepared a detailed traffic impact analysis that is included as Exhibit F. The scope of the traffic analysis was developed in consultation with the City of Sherwood and, based on the estimated trip generation and assignment patterns, specific intersections and the site accesses were analyzed.

6. The proposed commercial, multi-family, institutional or mixed-use development is oriented to the pedestrian and bicycle, and to existing and planned transit facilities. Urban design standards include the following:
 - a. Primary, front entrances are located and oriented to the street, and have significant articulation and treatment, via facades, porticos, arcades, porches, portal, forecourt, or stoop to identify the entrance for pedestrians. Additional entrance/exit points for buildings, such as a postern, are allowed from secondary streets or parking areas.

RESPONSE: The site has been designed around the SW Langer Farms Parkway frontage to create an inviting and pedestrian-friendly orientation that draws people in from the street. The project frontage achieves this using several urban design principles. First, this project creates an attractive and inviting streetscape, achieved by locating pedestrian-scale buildings as close as possible to the sidewalk and pedestrian corridors. The project uses window glazing, building materials, and design to avoid presenting blank walls to pedestrians, bicyclists, and drivers. Active spaces work when site materials such as paving, walls, and plantings are strategically placed and cohesively designed to address the street and pedestrian. A dynamic streetscape is created through well-designed and thoughtful outdoor spaces utilizing storefronts, plazas, fountains, and professionally designed landscaping. Vehicle parking is separated from the sidewalk, and located behind the buildings. In addition to screening and separation provided by the buildings themselves, the parking areas are screened with landscaping.

This project also provides multiple direct and convenient pedestrian connections between the boundary streets and the buildings. An approximately 4,000-square-foot plaza and water feature – a shared design element with the commercial area to the north – is planned to be located at the corner of SW Langer Farms Parkway and SW Century Drive, a critical entry point and visual focal point for the project. The plaza will open to pedestrians entering through an attractive trellis from the 12-foot-wide multi-use pathway that runs along the east side of SW Langer Farms Parkway. This design feature

reinforces the corner of the site, emphasizes the intersection of streets, articulates a gateway into the project, provides a means of wayfinding, and ultimately delivers a dynamic public space where pedestrians' paths intersect. This corner is designed to be a node of social and economic activity, which is achieved through a distinctive yet familiar architectural treatment. Additional plaza areas are planned abutting the retail buildings. These areas will have pedestrian connections to the sidewalk, and will accommodate the outdoor seating that will generate the activity that draws in pedestrians walking by the site.

A breezeway is planned to connect from SW Century Drive south through the parking area to the main entrance of the Fun Center. The 10-foot-wide covered walkway is separated from the parking and vehicle use areas by curbs, trees on both sides, and the stone and timber frame of the structure. The Fun Center is a large building, and its main entrance provides the focal point once one is within the site. The building itself has been oriented so that its narrower, more pedestrian-scale side faces the SW Langer Farms Parkway sidewalk. The pitched roof, building materials, and other design cues recall the smaller retail buildings that also front SW Langer Farms Parkway. This design scales and focuses the entries to the pedestrian while making the development look cohesive.

The outdoor spaces, landscaping, pedestrian connections, and building design provide a harmonious and inviting environment that is human in scale. The site design facilitates wayfinding as site entrances, internal walkways, and building entries are well defined and oriented to pedestrians. The criteria are met.

- b. Buildings are located adjacent to and flush to the street, subject to landscape corridor and setback standards of the underlying zone.

RESPONSE: As stated above, the smaller retail buildings that have a pedestrian scale are located along SW Langer Farms Parkway and SW Century Drive. Per Section 16.142.040, a landscaped visual corridor is required along both SW Century Drive and SW Langer Farms Parkway. Buildings are located as close to the street as possible, with at least one building flush to each right-of-way, outside of PUEs and required view corridors. This criterion is met.

- c. The architecture of buildings are oriented to the pedestrian and designed for the long term and be adaptable to other uses. Aluminum, vinyl, and T-111 siding are prohibited. Street facing elevations have windows, transparent fenestration, and divisions to break up the mass of any window. Roll up and sliding doors are acceptable. Awnings that provide a minimum 3 feet of shelter from rain are required unless other architectural elements are provided for similar protection, such as an arcade.

RESPONSE: As stated above, in the response to (a), the site creates an interesting and enjoyable pedestrian experience along the boundary streets, SW Langer Farms Parkway and SW Century Drive. Large storefront windows are planned to face the street. Each street-facing elevation presents multiple bays created through fenestration and design, including the use of multiple types of stone, brick, lap siding, shingles, columns, and wood canopy supports. Building design articulates a clear and distinct base, middle, and top to break

up the vertical massing and develop a pedestrian scale. The use of ledgerstone creates a solid base, and banding and changes in color and/or material emphasize horizontal breaks and vertical coherence in the building plane. Additionally, street-facing elevations have varying heights, dormers, upper floor windows, and roof-types. Awning and canopies provide shelter from weather. No aluminum, vinyl, or T-111 siding will be utilized.

This type of classic, Northwest design lends itself to multiple uses. The commercial buildings are designed as flex space so they are adaptable for use by various retail tenants. The robust Northwest-appropriate materials – including stone, timber, brick, hardiplank shingles and siding, and metal roofing – will weather well and last long-term in the Pacific Northwest climate. The criteria are met.

- d. As an alternative to the standards in Section 16.90.020.D.6.a—c, the following Commercial Design Review Matrix may be applied to any commercial, multi-family, institutional or mixed use development (this matrix may not be utilized for developments within the Old Town Overlay). A development must propose a minimum of 60 percent of the total possible points to be eligible for exemption from the standards in Section 16.90.020.D.6.a—c. In addition, a development proposing between 15,001 and 40,000 square feet of floor area, parking or seating capacity and proposing a minimum of 80 percent of the total possible points from the matrix below may be reviewed as a Type II administrative review, per the standards of Section 16.72.010.A.2.

COMMERCIAL DESIGN REVIEW MATRIX					
Design Criteria	Possible Points				
	0	1	2	3	4
Building Design (21 Total Points Possible; Minimum 12 Points Required)					
These standards may be applied to individual buildings or developments with multiple buildings.					
Materials ¹	Concrete, artificial materials (artificial or "spray" stucco, etc.)	Cultured stone, brick, stone, decorative patterned masonry, wood	A mixture of at least two (2) materials (i.e. to break up vertical facade)	A mixture of at least three (3) materials (i.e. to break up vertical facade)	A mixture of at least three (3) of the following materials: brick, stone, cultured stone, decorative patterned masonry, wood
RESPONSE:	4 points. The buildings will incorporate a mix of several materials, including wood, brick, cultured stone.				
Roof Form ²	Flat (no cornice) or	Distinctive from existing	Distinctive from existing	—	—

	single-pitch (no variation)	adjacent structures (not applicable to expansion of same building) or either variation in pitch or flat roof with cornice treatment	adjacent structures (not applicable to expansion of same building) and either variation in pitch or flat roof with cornice treatment		
RESPONSE: 2 points. The buildings incorporate several roof forms, including gabled, shed, and flat roofs with a variety of pitches, heights, parapets, and cornice treatments.					
Glazing ³	0—20% glazing on street-facing side(s)	>20% glazing on at least one street-facing side (inactive, display or façade windows)	>20% glazing on all street-facing sides (inactive, display or façade windows)	>20% glazing on at least one street-facing side (active glazing—actual windows)	>20% glazing on all street-facing sides (active glazing—actual windows)
RESPONSE: 0 points. Street-facing sizes will have less than 20% glazing.					
Fenestration on street-facing elevation(s)	One distinct "bay" with no vertical building elements	Multiple "bays" with one or more "bay" exceeding 30 feet in width	Vertical building elements with no "bay" exceeding 30 feet in width	Vertical building elements with no "bay" exceeding 20 feet in width	—
RESPONSE: 1 point. Street-facing facades utilize the arrangement of windows and/or doors to create multiple distinct bays, many with vertical elements. Certain bays exceed 30 feet in width.					
Entrance Articulation	No weather protection provided	Weather protection provided via awning, porch, etc.	—	Weather protection provided via awning, porch, etc. and pedestrian amenities such as benches, tables and chairs, etc. provided near	Weather protection provided via awning, porch, etc. and pedestrian amenities such as benches, tables and chairs, etc. provided near the entrance and covered

				the entrance but not covered	
RESPONSE:	4 points. The buildings will provide weather protection using awnings and porches. Furthermore, pedestrian amenities, such as benches, are provided throughout the site, and it's anticipated that tenants will provide outdoor seating and tables near their entrances.				
Structure Size ⁴ to discourage "big box" style development	Greater than 80,000 square feet	60,000—79,999 square feet	40,000—59,999 square feet	20,000—39,999 square feet	Less than 20,000 square feet
RESPONSE:	3 points. When multiple buildings are planned, the average building size is used. The total building area, across all six buildings, is ± 125,699 square feet. The average is ± 20,949 square feet. Total Points for Building Design: 14/21 points.				
Building Location and Orientation (6 Total Points Possible; Minimum 3 Points Required)					
Location ⁵	Building(s) not flush to any right-of- way (including required PUE adjacent to ROW, setbacks or visual corridor) (i.e. parking or drive aisle intervening)	Building(s) located flush to right-of-way on at least one side (with the exception of required setbacks, easements or visual corridors)	Buildings flush to all possible right-of-way (with the exception of required setbacks, easements or visual corridors) (i.e. "built to the corner")	—	—
RESPONSE:	2 points. The site fronts two separate rights-of-way. Per Section 16.142.040, a landscaped visual corridor is required along both SW Century Drive and SW Langer Farms Parkway. Buildings are located as close to the street as possible, with at least one building flush to each right-of-way, outside of PUEs and required view corridors.				
Orientation	Single- building site primary entrance oriented to parking lot	—	Single-building site primary entrance oriented to the pedestrian (i.e. entrance is adjacent to	—	—

			public sidewalk or adjacent to plaza area connected to public sidewalk and does not cross a parking area)		
	Multiple building site primary entrance to anchor tenant or primary entrance to development oriented to parking lot	—	Multiple building site primary entrance to anchor tenant or primary entrance to development oriented to the pedestrian	—	—

RESPONSE: 2 points. The site contains six buildings. The site provides five sidewalk connections to SW Langer Farms Parkway and four sidewalk connections to SW Century Drive. A breezeway – oriented entirely to pedestrians – provides a direct connection from the street to the Fun Center.

Secondary Public Entrance ⁶			Secondary public pedestrian entrance provided adjacent to public sidewalk or adjacent to plaza area connected to public sidewalk		
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RESPONSE: 2 points. As stated above, the primary entrance is oriented to the pedestrian, so these points are automatic. **Total Points for Building Location and Orientation: 6/6 points.**

Parking and Loading Areas (13 Total Points Possible; Minimum 7 Points Required)

Location of Parking	Greater than 50 percent of required parking is located between any	25—50 percent of required parking is located between any	Less than 25 percent of required parking is located between any building	No parking is located between any building and a public street	—
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	building and a public street	building and a public street	and a public street		
RESPONSE:	3 points. All parking is separated from the street by the planned buildings. No parking is located between a building and the public street.				
Loading Areas	Visible from public street and not screened	Visible from public street and screened	Not visible from public street	—	—
RESPONSE:	2 points. The loading area is set back from the street ± 150 feet and will be screened by buildings and landscaping.				
Vegetation	At least one "landscaped" island every 13—15 parking spaces in a row	At least one "landscaped" island every 10—12 parking spaces in a row	At least one "landscaped" island every 8—9 parking spaces in a row	At least one "landscaped" island every 6—7 parking spaces in a row	—
RESPONSE:	2 points. The preliminary Landscape Plans shows ± 37,502 square feet of parking lot landscaping (± 12.3% of the parking lot). The largest row of parking without a landscaped island is 10 spaces, and several rows contain only 6-7 spaces.				
Number of Parking Spaces ⁷	>120%	101—120%	100%	<100% (i.e. joint use or multiple reduction) (1 bonus)	—
RESPONSE:	1 point. The site plan shows 487 spaces, ± 120% of the minimum required 406 spaces.				
Parking Surface	Impervious	Some pervious paving (10—25%)	Partially pervious paving (26—50%)	Mostly pervious paving (>50%)	—
RESPONSE:	No points. No pervious parking spaces are planned. Total Points for Location of Parking: 8/13 points.				
Landscaping (24 Total Point Possible, Minimum 14 Points Required)					
Tree Retention ⁸	Less than 50% of existing trees on-site retained	51—60% of existing trees on-site retained	61—70% of existing trees on-site retained	71—80% of existing trees on-site retained	81—100% of existing trees on-site retained
RESPONSE:	No points. The Preliminary Tree Preservation and Removal Table shows 21 existing trees on site and 3 trees (± 14%) to be preserved.				

Mitigation Trees ⁹	Trees mitigated off-site or fee-in-lieu	25—50% of trees mitigated on-site	51—75% of trees mitigated on-site	76—100% of trees mitigated on-site	—
RESPONSE: 3 points. The Preliminary Tree Preservation and Removal Table shows 18 existing trees are planned to be removed. 14 trees (\pm 78%) will be mitigated on-site.					
Landscaping Trees ¹⁰	Less than one tree for every 500 square feet of landscaping	1 tree for every 500 square feet of landscaping	2 trees for every 500 square feet of landscaping	3 trees for every 500 square feet of landscaping	4 trees for every 500 square feet of landscaping
RESPONSE: 2 points. The Landscaping Plan shows 267 trees will be provided, minus 14 mitigation trees. The resulting 253 net trees and 83,338 square feet of landscaping establishes a ratio of \pm 1.52 trees per 500 square feet of landscaping.					
Landscaped Areas	Greater than 35% of landscaped areas are less than 100 square feet in size	Less than 25% of landscaped areas are less than 100 square feet in size	No landscaped areas are less than 100 square feet in size	—	—
RESPONSE: 2 points. All landscaped islands are at least 100 square feet in area.					
Landscaping Trees greater than 3-inch Caliper	<25%	25—50%	>50%	—	—
RESPONSE: 1 point. Conifers such as Douglas Fir or Cedar are generally not measured by caliper inch until they reach 6-inches in width. 8-10-foot conifers are generally considered equivalent to a 3-inch caliper or larger tree. The Landscaping Plan shows 79 of 267 (\pm 30%) site trees as 3-inch caliper or larger.					
Amount of Grass ^{11,12}	>75% of landscaped areas	50—75% of landscaped areas	25—49% of landscaped areas	<25% of landscaped areas	—
RESPONSE: 3 points. The Landscaping Plan shows \pm 14,923 square feet (\pm 19% of landscaped area) as lawn.					
Total Amount of Site Landscaping ¹³	<10% of gross site	10—15% of gross site	16—20% of gross site	21—25% of gross site	>25% of gross site

RESPONSE: 2 points. The Landscaping Plan shows ± 83,338 square feet of landscaped area, ± 16% of the total site.					
Automatic Irrigation	No	Partial	Yes	—	—
RESPONSE: 2 points. Irrigation to be provided by a fully automatic underground system. Total Landscaping Points: 15/24 points.					
Miscellaneous (10 Total Points Possible; Minimum 5 Points Required)					
Equipment Screening (roof)	Equipment not screened	Equipment partially screened	Equipment fully screened	Equipment fully screened by materials matching building architecture/ finish	—
RESPONSE: 3 points. All roof equipment will be fully screened by parapets matching the design and/or finish of the building.					
Fences and Walls ¹⁴	Standard fencing and wall materials (i.e. wood fences, CMU walls etc.)	—	Fencing and wall materials match building materials	—	—
RESPONSE: 2 points. Walls and any fencing will match building material. Walls for the bicycle gazebo and along the entry trellis at the plaza are planned to be cultured stone matching the cultured stone on the buildings. Trash enclosure are planned to be CMU, but will have gray natural finished concrete caps matching the gray natural finished concrete caps that top the cultured stone base of several building facades.					
On-Site Pedestrian Amenities Not Adjacent to Building Entrances	No	Yes; 1 per building	Yes; more than 1 per building	—	—
RESPONSE: 2 points. Pedestrian amenities including plazas, benches, outdoor seating areas, and a water feature are planned near all buildings.					
Open Space Provided for Public Use	No	Yes; <500 square feet	Yes; 500—1,000 square feet	Yes; >1,000 square feet	—

RESPONSE: 3 points. The site plan shows plazas larger than 1,000 square feet that will be open space for public use.					
Green Building Certification				LEED, Earth Advantage, etc. (Bonus)	
RESPONSE: 0 points. Total Miscellaneous Points: 10/10 points.					

- RESPONSE:** Based on the analysis contained in the responses to the Commercial Design Review Matrix, the project earns 53 of the available 74 points, as summarized below:
- Total Points for Building Design: 14/21 points.
 - Total Points for Building Location and Orientation: 6/6 points
 - Total Points for Location of Parking: 8/13 points.
 - Total Landscaping Points: 15/24 points.
 - Total Miscellaneous Points: 10/10 points.

This exceeds the minimum 45 points (60%) required for exemption from the standards in Section 16.90.020(D)(6)(a) through (c). The applicable criteria are met.

- e. As an alternative to the standards in Sections 16.90.020.D.6.a—c, the Old Town Design Standards (Chapter 16.162) may be applied to achieve this performance measure.
- f. As an alternative to the standards in Sections 16.90.020.D.6.a.—e, an applicant may opt to have a design review hearing before the Planning Commission to demonstrate how the proposed development meets or exceeds the objectives in Section 16.90.010.B of this Code. This design review hearing will be processed as a Type IV review with public notice and a public hearing.

RESPONSE: The Applicant does not elect to apply the Old Town Design Standards. Due to the planned square footage of the project, a Planning Commission hearing is required. The project meets the applicable design standards as described in the responses to Sections 16.90.020(D)(6)(a) through (c), above.

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- 8. Driveways that are more than twenty-four (24) feet in width shall align with existing streets or planned streets as shown in the Local Street Connectivity Map in the adopted Transportation System Plan (Figure 17), except where prevented by topography, rail lines, freeways, pre-existing development, or leases, easements, or covenants.

RESPONSE: The planned primary driveway providing ingress and egress to SW Langer Farms Parkway is more than 24 feet in width. It is aligned with SW Whitestone Way. The planned driveways to SW Century Drive align with the existing driveways on the north side of the street. The applicable criteria are met.

Chapter 16.92 - Landscaping

16.92.010 - Landscaping Plan Required

All proposed developments for which a site plan is required pursuant to Section 16.90.020 shall submit a landscaping plan that meets the standards of this Chapter. All areas not occupied by structures, paved roadways, walkways, or patios shall be landscaped or maintained according to an approved site plan.

RESPONSE: The preliminary Landscape Plan, prepared by a licensed landscape architect, is included in Exhibit B. Pervious areas will be landscaped consistent with the applicable landscaping standards, in accordance with the submitted plans.

16.92.020 - Landscaping Materials

A. Type of Landscaping

Required landscaped areas shall include an appropriate combination of native evergreen or deciduous trees and shrubs, evergreen ground cover, and perennial plantings. Trees to be planted in or adjacent to public rights-of-way shall meet the requirements of this Chapter. Plants may be selected from the City's "Suggested Plant Lists for Required Landscaping Manual" or suitable for the Pacific Northwest climate and verified by a landscape architect or certified landscape professional.

1. Ground Cover Plants

- a. All of the landscape that is not planted with trees and shrubs must be planted in ground cover plants, which may include grasses. Mulch is not a substitute for ground cover, but is allowed in addition to the ground cover plants.
- b. Ground cover plants other than grasses must be at least the four-inch pot size and spaced at distances appropriate for the plant species. Ground cover plants must be planted at a density that will cover the entire area within three (3) years from the time of planting.

2. Shrubs

- a. All shrubs must be of sufficient size and number to be at full growth within three (3) years of planting.
- b. Shrubs must be at least the one-gallon container size at the time of planting.

3. Trees

- a. Trees at the time of planting must be fully branched and must be a minimum of two (2) caliper inches and at least six (6) feet in height.
- b. Existing trees may be used to meet the standards of this chapter, as described in Section 16.92.020.C.2.

RESPONSE: The preliminary Landscape Plan shows a combination of trees, shrubs and groundcover is proposed in all landscaped area in compliance with this section. This standard is met.

B. Plant Material Selection and Preparation

1. Required landscaping materials shall be established and maintained in a healthy condition and of a size sufficient to meet the intent of the approved landscaping plan. Specifications shall be submitted showing that adequate preparation of the topsoil and subsoil will be undertaken.
2. Landscape materials should be selected and sited to produce a hardy and drought-resistant landscape area. Selection of the plants should include consideration of soil type, and depth, the amount of maintenance required, spacing, exposure to sun and wind, the slope and contours of the site, and compatibility with existing native vegetation preserved on the site.

RESPONSE: Appropriate plant material has been selected to meet the applicable standard for the specific space and purpose. Irrigation will be provided by a fully automatic, underground system. Plants will cover the landscaping islands without overgrowth. Construction plans and specifications will provide required standards and/or plant health and top soil preparation. Planting notes are provided on the landscaping plans.

C. Existing Vegetation

1. All developments subject to site plan review per Section 16.90.020 and required to submit landscaping plans per this section shall preserve existing trees, woodlands and vegetation on the site to the maximum extent possible, as determined by the Review Authority, in addition to complying with the provisions of Section 16.142. (Parks, Trees and Open Space) and Chapter 16.144 (Wetland, Habitat, and Natural Resources).
2. Existing vegetation, except those plants on the Nuisance Plants list as identified in the "Suggested Plant Lists for Required Landscaping Manual" may be used to meet the landscape standards, if protected and maintained during the construction phase of the development.
 - a. If existing trees are used, each tree six (6) inches or less in diameter counts as one (1) medium tree.
 - b. Each tree that is more than six (6) inches and up to nine (9) inches in diameter counts as two (2) medium trees.
 - c. Each additional three (3) inch diameter increment above nine (9) inches counts as an additional medium tree.

RESPONSE: The Preliminary Tree Preservation and Removal Table shows three of the existing 21 trees on site are planned to be retained. The trees planned for removal conflict with required parking, internal circulation, infrastructure, and future construction. The preliminary Landscape Plan reflects the applicable requirements in Section 16.142, which is addressed in the responses below. The applicable standards are met.

D. Non-Vegetative Features

1. Landscaped areas as required by this Chapter may include architectural features interspersed with planted areas, such as sculptures, benches, masonry or stone walls, fences, rock groupings, bark dust, semi-pervious decorative paving, and graveled areas.
2. Impervious paving shall not be counted toward the minimum landscaping requirements unless adjacent to at least one (1) landscape strip and serves as a pedestrian pathway.
3. Artificial plants are prohibited in any required landscaped area.

RESPONSE: Required landscaping will be planted with trees, ground cover and shrubs. Preliminary plans show hardscaping including but not limited to plazas, benches, fences, and walls. This standard is met.

16.92.030 - Site Area Landscaping and Perimeter Screening Standards

A. Perimeter Screening and Buffering

1. Perimeter Screening Separating Residential Zones:

A minimum six-foot high sight-obscuring wooden fence, decorative masonry wall, or evergreen screen, shall be required along property lines separating single and two-family uses from multi-family uses, and along property lines separating residential zones from commercial, institutional/public or industrial zones subject to the provisions of Chapter 16.48.020 (Fences, Walls and Hedges).

- a. For new uses adjacent to inventoried environmentally sensitive areas, screening requirements shall be limited to vegetation only to preserve wildlife mobility. In addition, the Review Authority may require plants and other landscaping features in locations and sizes necessary to protect the privacy of residences and buffer any adverse effects of adjoining uses.
- b. The required screening shall have breaks, where necessary, to allow pedestrian access to the site. The design of the wall or screening shall also provide breaks or openings for visual surveillance of the site and security.
- c. Evergreen hedges used to comply with this standard shall be a minimum of thirty-six (36) inches in height at maturity, and shall be of such species, number and spacing to provide the required screening within one (1) year after planting.

RESPONSE: The subject property does not directly abut residential zones. The nearest residential zones are west of SW Langer Farms Road, a collector street. Therefore, these criteria do not apply.

2. Perimeter Landscaping Buffer

- a. A minimum ten (10) foot wide landscaped strip comprised of trees, shrubs and ground cover shall be provided between off-street parking, loading, or vehicular use areas on separate, abutting, or adjacent properties.

RESPONSE: The northern and western boundaries of the subject property, abutting the collector streets, provide a 10-foot-wide landscaped visual corridor. The preliminary Landscape Plan in Exhibit B shows a minimum 10-foot-wide landscape strip comprised of trees, shrubs, and ground cover along the eastern and southern boundaries of the site. The criterion is met.

3. Perimeter Landscape Buffer Reduction

If the separate, abutting property to the proposed development contains an existing perimeter landscape buffer of at least five (5) feet in width, the applicant may reduce the proposed site's required perimeter landscaping up to five (5) feet maximum, if the development is not adjacent to a residential zone. For example, if the separate abutting perimeter landscaping is five (5) feet, then applicant may reduce the perimeter landscaping to five (5) feet in width on their site so there is at least five (5) feet of landscaping on each lot.

RESPONSE: The northern and western boundaries of the subject property, abutting the collector streets, provide a 10-foot-wide landscaped visual corridor. The preliminary Landscape Plans show a minimum 10-foot-wide landscape strip comprised of trees, shrubs, and ground cover along the eastern and southern boundaries of the site. The criterion is met.

B. Parking Area Landscaping

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3. Required Landscaping

There shall be at least forty-five (45) square feet parking area landscaping for each parking space located on the site. The amount of required plant materials are based on the number of spaces as identified below.

RESPONSE: Preliminary plans show 487 parking spaces, which require 21,915 square feet of landscaping. The preliminary Landscape Plan shows ± 37,502 square feet of interior parking lot landscaping and ± 1,720 square feet of perimeter parking lot landscaping. The criterion is met.

4. Amount and Type of Required Parking Area Landscaping

- a. Number of Trees required based on Canopy Factor

Small trees have a canopy factor of less than forty (40), medium trees have a canopy factor from forty (40) to ninety (90), and large trees have a canopy factor greater than ninety (90);

- (1) Any combination of the following is required:

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- (i) One (1) large tree is required per four (4) parking spaces;
 - (ii) One (1) medium tree is required per three (3) parking spaces; or
 - (iii) One (1) small tree is required per two (2) parking spaces.
 - (iv) At least five (5) percent of the required trees must be evergreen.
- (2) Street trees may be included in the calculation for the number of required trees in the parking area.
- b. Shrubs:
- (1) Two (2) shrubs are required per each space.
 - (2) For spaces where the front two (2) feet of parking spaces have been landscaped instead of paved, the standard requires one (1) shrub per space. Shrubs may be evergreen or deciduous.
- c. Ground cover plants:
- (1) Any remainder in the parking area must be planted with ground cover plants.
 - (2) The plants selected must be spaced to cover the area within three (3) years. Mulch does not count as ground cover.

RESPONSE: Based on the planned 487 parking spaces, 122 large trees are required. The preliminary Landscape Plan shows 136 large trees provided, of which 24 (17.6%) are conifers. Based on planned parking, 974 shrubs are required and 2,309 shrubs are planned. The remainder of the parking area landscaping will be planted with ground cover. The criteria are met.

5. Individual Landscape Islands Requirements

- a. Individual landscaped areas (islands) shall be at least ninety (90) square feet in area and a minimum width of five (5) feet and shall be curbed to protect the landscaping.
- b. Each landscape island shall be planted with at least one (1) tree.
- c. Landscape islands shall be evenly spaced throughout the parking area.
- d. Landscape islands shall be distributed according to the following:
 - (1) Residential uses in a residential zone: one (1) island for every eight (8) contiguous parking spaces.

- (2) Multi or mixed-uses, institutional and commercial uses: one (1) island for every ten (10) contiguous parking spaces.
- (3) Industrial uses: one (1) island for every twelve (12) contiguous parking spaces.

RESPONSE: The preliminary Landscape Plan shows individual landscaped areas will be at least 90 square feet, with a minimum width of five feet. Islands will contain at least one tree and will be curbed to protect landscaping. Islands are evenly spaced, with no more than approximately 6-10 parking spaces between islands. The criteria are met.

- e. Storm water bio-swales may be used in lieu of the parking landscape areas and may be included in the calculation of the required landscaping amount.

RESPONSE: Bio-swales are not planned. The criterion is not applicable.

- f. **Exception to Landscape Requirement**
 Linear raised or marked sidewalks and walkways within the parking areas connecting the parking spaces to the on-site buildings may be included in the calculation of required site landscaping provide that it:
 - (1) Trees are spaced a maximum of thirty (30) feet on at least one (1) side of the sidewalk.
 - (2) The minimum unobstructed sidewalk width is at least six (6) feet wide.
 - (3) The sidewalk is separated from the parking areas by curbs, bollards, or other means on both sides.

RESPONSE: A breezeway is planned to connect from SW Century Drive south through the parking area to the Fun Center. The preliminary Landscape Plan shows trees spaced less than 30 feet on both sides of the 10-foot-wide sidewalk. The sidewalk separated from the parking and vehicle use areas by curbs and the stone and timber frame of the structure. The criteria are met, and the breezeway area is included in the parking lot landscaping area.

6. **Landscaping at Points of Access**

When a private access-way intersects a public right-of-way or when a property abuts the intersection of two (2) or more public rights-of-way, landscaping shall be planted and maintained so that minimum sight distances shall be preserved pursuant to Section 16.58.010.

RESPONSE: The preliminary Landscape Plan shows plantings near the planned access points have been designed not to obstruct minimum sight distances. The criterion is met.

C. **Screening of Mechanical Equipment, Outdoor Storage, Service and Delivery Areas**

All mechanical equipment, outdoor storage and manufacturing, and service and delivery areas, shall be screened from view from all public streets and any adjacent residential zones. If unfeasible to fully

screen due to policies and standards, the applicant shall make efforts to minimize the visual impact of the mechanical equipment.

RESPONSE: The preliminary Landscape Plan shows that all mechanical equipment, outdoor storage, and service and delivery areas will be sited and/or sufficiently screened to restrict their visibility from SW Century Drive and SW Langer Farms Parkway. This criterion is met.

D. Visual Corridors

Except as allowed by subsection 6. above, new developments shall be required to establish landscaped visual corridors along Highway 99W and other arterial and collector streets, consistent with the Natural Resources and Recreation Plan Map, Appendix C of the Community Development Plan, Part II, and the provisions of Chapter 16.142 (Parks, Trees, and Open Space). Properties within the Old Town Overlay are exempt from this standard.

RESPONSE: A landscaped visual corridor is required, per Section 16.142.040, along both SW Century Drive and SW Langer Farms Parkway. The preliminary Landscape Plan shows multiple layers of trees, combined with shrubs and groundcover, providing a continuous visual and/or acoustical buffer between the collector streets and the planned buildings and vehicle use areas. Chapter 16.142 is addressed below. The criterion is met.

Chapter 16.94 - Off-Street Parking And Loading

16.94.010 - General Requirements

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E. Location

1. Residential off-street parking spaces:
 - a. Shall be located on the same lot or development as the residential use.
 - b. Shall not include garages or enclosed buildings with the exception of a parking structure in multifamily developments where three (3) or more spaces are not individually enclosed. (Example: Underground or multi-level parking structures).
2. For other uses, required off-street parking spaces may include adjacent on-street parking spaces, nearby public parking and shared parking located within five hundred (500) feet of the use. The distance from the parking, area to the use shall be measured from the nearest parking space to a building entrance, following a sidewalk or other pedestrian route. The right to use private off-site parking must be evidenced by a recorded deed, lease, easement, or similar written notarized letter or instrument.
3. Vehicle parking is allowed only on improved parking shoulders that meet City standards for public streets, within garages, carports and other structures, or on driveways or parking lots that have been developed in conformance with this code. Specific locations and types of spaces (car pool, compact, etc.) for parking shall be indicated on submitted plans and located to the side or rear of buildings where feasible.

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- a. All new development with forty (40) employees or more shall include preferential spaces for carpool/vanpool designation. Carpool and vanpool parking spaces shall be located closer to the main employee entrance than all other parking spaces with the exception of ADA parking spaces. Carpool/vanpool spaces shall be clearly marked as reserved for carpool/vanpool only.
 - b. Existing development may redevelop portions of designated parking areas for multi-modal facilities (transit shelters, park and ride, and bicycle parking), subject to meeting all other applicable standards, including minimum space standards.

RESPONSE: The Site Plan shows that required off-street parking for the planned commercial project can be accommodated entirely on site. There is area available for future businesses with 40 or more employees to provide carpool/vanpool parking. Therefore, the applicable criterion can be met.

F. Marking

All parking, loading or maneuvering areas shall be clearly marked and painted. All interior drives and access aisles shall be clearly marked and signed to show the direction of flow and maintain vehicular and pedestrian safety.

RESPONSE: All parking, loading, and maneuvering areas are planned to be marked as shown on the preliminary plans. The planned markings clearly show the direction of flow, and maintain safety for vehicles and pedestrians. The criterion is met.

G. Surface and Drainage

- 1. All parking and loading areas shall be improved with a permanent hard surface such as asphalt, concrete or a durable pervious surface. Use of pervious paving material is encouraged and preferred where appropriate considering soils, location, anticipated vehicle usage and other pertinent factors.
- 2. Parking and loading areas shall include storm water drainage facilities approved by the City Engineer or Building Official.

RESPONSE: All parking and loading areas will be improved with a permanent hard surface such as asphalt pavement. Stormwater will be captured on-site and conveyed to the regional stormwater facility located to the east of the subject property. The criteria are met.

(***)

I. Parking and Loading Plan

An off-street parking and loading plan, drawn to scale, shall accompany requests for building permits or site plan approvals, except for single and two-family dwellings, and manufactured homes on residential lots. The plan shall show but not be limited to:

- 1. Delineation of individual parking and loading spaces and dimensions.

2. Circulation areas necessary to serve parking and loading spaces.
3. Location of accesses to streets, alleys and properties to be served, and any curb cuts.
4. Landscaping as required by Chapter 16.92.
5. Grading and drainage facilities.
6. Signing and bumper guard specifications.
7. Bicycle parking facilities as specified in Section 16.94.020.C.
8. Parking lots more than one (1) acre in size shall provide street-like features including curbs, sidewalks, and street trees or planting strips.

RESPONSE: The preliminary plans included with this application provide all the information listed above. The standard is met.

16.94.020 - Off-Street Parking Standards

A. Generally

Where square feet are specified, the area measured shall be the gross building floor area primary to the functioning of the proposed use. Where employees are specified, persons counted shall be those working on the premises, including proprietors, during the largest shift at peak season. Fractional space requirements shall be counted as a whole space. The Review Authority may determine alternate off - street parking and loading requirements for a use not specifically listed in this Section based upon the requirements of comparable uses.

Table 1: Minimum and Maximum Parking Standards (Metro spaces are based on 1 per 1,000 sq ft of gross leasable area)			
	Minimum Parking Standard	Maximum Permitted Parking Zone A ¹	Maximum Permitted Parking Zone B ²
General retail or personal service	4.1 (244 sf)	5.1	6.2
Sports club/recreation facility	4.3 (233 sf)	5.4	6.5

¹ Parking Zone A reflects the maximum number of permitted vehicle parking spaces allowed for each listed land use. Parking Zone A areas include those parcels that are located within one-quarter (1/4) mile walking distance of bus transit stops, one-half (1/2) mile walking distance of light rail station platforms, or both, or that have a greater than twenty-minute peak hour transit service.

² Parking Zone B reflects the maximum number of permitted vehicle parking spaces allowed for each listed land use. Parking Zone B areas include those parcels that are located at a distance greater than one-quarter (1/4) mile walking distance of bus transit stops, one-half (1/2) mile walking distance of light rail station platforms, or both.

³ If the street on which the house has direct access does not permit on-street parking or is less than twenty-eight (28) feet wide, two (2) off-street parking spaces are required per single-family residential unit. (includes single-family detached or attached, two-family dwelling or a manufactured home on an individual lot) If the abutting street is twenty-eight (28) feet or wider, one (1) standard (9 ft. x 20 ft.) parking space is required.

⁴ Visitor parking in residential developments: Multi-family dwelling units with more than ten (10) required parking spaces shall provide an additional fifteen (15) percent of the required number of parking spaces for the use of guests of the residents of the development. The spaces shall be centrally located or distributed throughout the development. Required bicycle parking facilities shall also be centrally located within or evenly distributed throughout the development.

RESPONSE: The table on the Site Plan shows that a minimum of 406 parking spaces are required based on the gross floor area of the buildings, the planned uses, and the ratios listed above. Due to the operational characteristics of the sub-use and the large area required to serve relatively few users at one time, the Applicant anticipates that the ± 40,035 gross square feet of racing within the Fun Center can be adequately served by 40 parking spaces. The Site Plan shows 487 parking spaces are planned. This is less than the maximum 497 parking spaces permitted for Zone A. The criteria are met.

B. Dimensional and General Configuration Standards

1. **Dimensions** For the purpose of this Chapter, a "parking space" means a stall nine (9) feet in width and twenty (20) feet in length. Up to twenty five (25) percent of required parking spaces may have a minimum dimension of eight (8) feet in width and eighteen (18) feet in length so long as they are signed as compact car stalls.

RESPONSE: The Site Plan shows all parking spaces are planned to be 20 feet long and 9 feet wide. The criterion is met.

2. **Layout**

Parking space configuration, stall and access aisle size shall be of sufficient width for all vehicle turning and maneuvering. Groups of more than four (4) parking spaces shall be served by a driveway so as to minimize backing movements or other maneuvering within a street, other than an alley. All parking areas shall meet the minimum standards shown in the following table and diagram.

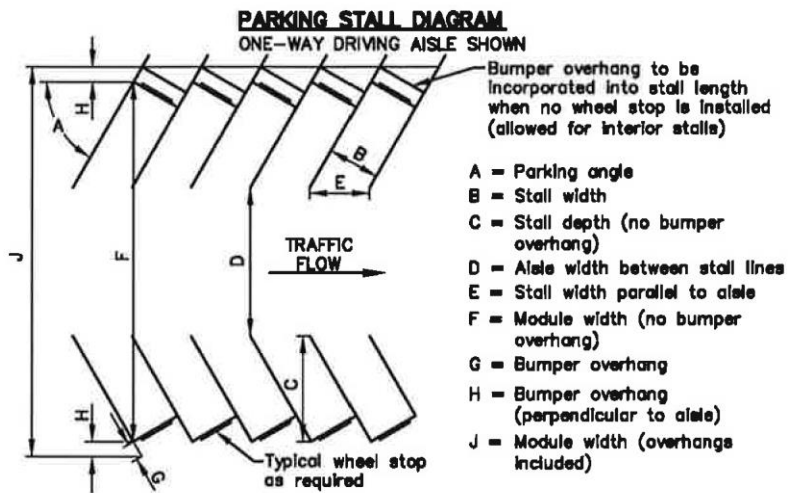


Table 3: Two-Way Driving Aisle (Dimensions in Feet)								
A	B	C	D	E	F	G	H	J
45°	8.0	16.5	24.0	11.3	57.0	3.0	2.5	62.0
	9.0	18.5	24.0	12.7	61.0	3.0	2.5	66.0
60°	8.0	17.0	24.0	9.2	58.0	3.0	2.5	63.0
	9.0	19.5	24.0	10.4	63.0	3.0	2.5	68.0
75°	8.0	16.5	26.0	8.3	59.0	3.0	3.0	65.0
	9.0	19.0	24.0	9.3	62.0	3.0	3.0	68.0
90°	8.0	15.0	26.0	8.0	56.0	3.0	3.0	62.0
	9.0	17.0	24.0	9.0	58.0	3.0	3.0	64.0

RESPONSE: The Site Plan shows all parking spaces will be served by drive aisles that meet the applicable requirements for 90-degree parking. The criterion is met.

3. Wheel Stops

- a. Parking spaces along the boundaries of a parking lot or adjacent to interior landscaped areas or sidewalks shall be provided with a wheel stop at least four (4) inches high, located three (3) feet back from the front of the parking stall as shown in the above diagram.
- b. Wheel stops adjacent to landscaping, bio-swales or water quality facilities shall be designed to allow storm water runoff.
- c. The paved portion of the parking stall length may be reduced by three (3) feet if replaced with three (3) feet of low lying landscape or hardscape in lieu of a wheel stop; however, a curb is still required. In other words, the traditional three-foot vehicle overhang from a wheel stop may be low-lying landscaping rather than an impervious surface.

RESPONSE: Wheel stops are not planned. Parking stalls are planned to have limited overhang onto sidewalks and landscaped areas, which have been widened sufficiently to accommodate any necessary overhang. The applicable criteria are met.

C. Bicycle Parking Facilities

1. General Provisions

- a. **Applicability.** Bicycle parking spaces shall be provided for new development, changes of use, and major renovations, defined as construction valued at twenty-five (25) percent or more of the assessed value of the existing structure.

-
- b. **Types of Spaces.** Bicycle parking facilities shall be provided in terms of short-term bicycle parking and long-term bicycle parking. Short-term bicycle parking is intended to encourage customers and other visitors to use bicycles by providing a convenient and readily accessible place to park bicycles. Long-term bicycle parking provides employees, students, residents, commuters, and others who generally stay at a site for at least several hours a weather-protected place to park bicycles.
 - c. **Minimum Number of Spaces.** The required total minimum number of bicycle parking spaces for each use category is shown in Table 4, Minimum Required Bicycle Parking Spaces.
 - d. **Minimum Number of Long-term Spaces.** If a development is required to provide eight (8) or more required bicycle parking spaces in Table 4, at least twenty-five (25) percent shall be provided as long-term bicycle with a minimum of one (1) long-term bicycle parking space.
 - e. **Multiple Uses.** When there are two or more primary uses on a site, the required bicycle parking for the site is the sum of the required bicycle parking for the individual primary uses.

RESPONSE: The table on the Site Plan in Exhibit B shows that a minimum of 29 bicycle parking spaces are required, per Table 4, including 8 long-term spaces. The Site Plan shows 56 bicycle spaces are planned. The applicable criteria are met.

2. **Location and Design.**

a. **General Provisions**

- (1) Each space must be at least two (2) feet by six (6) feet in area, be accessible without moving another bicycle, and provide enough space between the rack and any obstructions to use the space properly.
- (2) There must be an aisle at least five (5) feet wide behind all required bicycle parking to allow room for bicycle maneuvering. Where the bicycle parking is adjacent to a sidewalk, the maneuvering area may extend into the right-of-way.
- (3) **Lighting.** Bicycle parking shall be at least as well lit as vehicle parking for security.
- (4) **Reserved Areas.** Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only.

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- (5) Bicycle parking in the Old Town Overlay District can be located on the sidewalk within the right-of-way. A standard inverted "U shaped" or staple design is appropriate. Alternative, creative designs are strongly encouraged.
 - (6) Hazards. Bicycle parking shall not impede or create a hazard to pedestrians. Parking areas shall be located so as to not conflict with vision clearance standards.

RESPONSE: Planned bicycle parking has been located and designed to accommodate the design standards listed above. A conceptual design for the planned bike racks is provided on the Site Amenities Plan in Exhibit B. The applicable criteria are met.

b. Short-term Bicycle Parking

- (1) Provide lockers or racks that meet the standards of this section.
- (2) Locate inside or outside the building within thirty (30) feet of the main entrance to the building or at least as close as the nearest vehicle parking space, whichever is closer.

RESPONSE: The location of planned bicycle parking is shown on the Site Plan. A conceptual design for the planned bike racks is provided on the Site Amenities Plan. The criteria are met.

c. Long-term Bicycle Parking

- (1) Provide racks, storage rooms, or lockers in areas that are secure or monitored (e.g., visible to employees or customers or monitored by security guards).
- (2) Locate the outside bicycle parking spaces within one hundred (100) feet of the entrance that will be accessed by the intended users.
- (3) All of the spaces shall be covered.

d. Covered Parking (Weather Protection)

- (1) When required, covered bicycle parking shall be provided in one (1) of the following ways: inside buildings, under roof overhangs or awnings, in bicycle lockers, or within or under other structures.
- (2) Where required covered bicycle parking is not within a building or locker, the cover must be permanent and designed to protect the bicycle from rainfall and provide seven-foot minimum overhead clearance.

- (3) Where required bicycle parking is provided in lockers, the lockers shall be securely anchored.

RESPONSE: The location of planned bicycle parking is shown on the Site Plan. At least 8 long-term spaces can be provided, consistent with the applicable design and locational standards. The criteria are met.

Table 4: Minimum Required Bicycle Parking Spaces	
Use Categories	Minimum Required Spaces
Commercial Categories	
Retail sales/service office	2 or 1 per 20 auto spaces, whichever is greater
Commercial parking facilities, commercial, outdoor recreation, major event entertainment	4 or 1 per 20 auto spaces, whichever is greater

16.94.030 - Off-Street Loading Standards

A. Minimum Standards

1. A driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading passengers shall be located on the site of any school, or other public meeting place, which is designed to accommodate more than twenty five (25) persons at one time.
2. The minimum loading area for non-residential uses shall not be less than ten (10) feet in width by twenty-five (25) feet in length and shall have an unobstructed height of fourteen (14) feet.
3. Multiple uses on the same parcel or adjacent parcels may utilize the same loading area if it is shown in the development application that the uses will not have substantially overlapping delivery times.
4. The following additional minimum loading space is required for buildings in excess of twenty thousand (20,000) square feet of gross floor area:
 - a. Twenty thousand (20,000) to fifty (50,000) sq. ft. - five hundred (500) sq. ft.
 - b. Fifty (50,000) sq. ft. or more - seven hundred fifty (750) sq. ft.

RESPONSE: The Site Plan shows a large loading zone behind the Fun Center. At the planned location, there is sufficient space to accommodate the minimum 10-foot-wide by 25-foot-long (250 square feet) loading zone, plus the 750 square feet of additional area required for buildings in excess of 20,000 square feet. Deliveries to the retail spaces are planned to be accommodated within the parking area, consistent with both standard practices in the retail industry and past City approvals. The applicable criteria are met.

B. Separation of Areas

Any area to be used for the maneuvering of delivery vehicles and the unloading or loading of materials shall be separated from designated off-street parking areas and designed to prevent the encroachment of delivery vehicles onto off-street parking areas or public streets. Off-street parking areas used to fulfill the requirements of this Chapter shall not be used for loading and unloading operations.

RESPONSE: The Site Plan shows a large loading zone behind the Fun Center, separated from designated off-street parking spaces. Deliveries to the retail spaces are planned to be accommodated within the parking area. The planned parking area provides 81 spaces more than the minimum required, an adequate surplus to accommodate loading for the smaller retail buildings. The criterion is met.

Chapter 16.96 - ON-SITE CIRCULATION

16.96.010 - On-Site Pedestrian and Bicycle Circulation

(***)

C. Joint Access

Two (2) or more uses, structures, or parcels of land may utilize the same ingress and egress when the combined ingress and egress of all uses, structures, or parcels of land satisfied the other requirements of this Code, provided that satisfactory legal evidence is presented to the City in the form of deeds, easements, leases, or contracts to clearly establish the joint use.

RESPONSE: The Preliminary Plat shows the configuration of the five planned lots. Lots range in size from ± 0.50 acres (Lot 5) to ± 8.24 acres (Lot 3). Lot 1 at ± 3.60 acres is reserved for future use, and is not included in the concurrent Site Plan Review application. Consequently, four of the planned lots will contain buildings and share access to the abutting public streets. The Applicant will prepare covenants, conditions and restrictions (CC&Rs) for the project as well as shared access easements. These agreements will be provided to the City following land use approval and will allow for shared parking and access across the project site. The criteria can be met.

D. Connection to Streets

1. Except for joint access per this Section, all ingress and egress to a use or parcel shall connect directly to a public street, excepting alleyways with paved sidewalk.
2. Required private sidewalks shall extend from the ground floor entrances or the ground floor landing of stairs, ramps or elevators to the public sidewalk or curb of the public street which provides required ingress and egress.

RESPONSE: Joint access is addressed above in the response to "C. Joint Access." Vehicular and pedestrian access will be provided to SW Langer Farms Parkway and SW Century Drive. Internal walkways will connect all buildings to the public sidewalk. The criteria are met.

(***)

F. Access to Major Roadways

Points of ingress or egress to and from Highway 99W and arterials designated on the Transportation Plan Map, attached as Appendix C of the Community Development Plan, Part II, shall be limited as follows:

1. Single and two-family uses and manufactured homes on individual residential lots developed after the effective date of this Code shall not be granted permanent driveway ingress or egress from Highway 99W and arterial roadways. If alternative public access is not available at the time of development, provisions shall be made for temporary access which shall be discontinued upon the availability of alternative access.
2. Other private ingress or egress from Highway 99W and arterial roadways shall be minimized. Where alternatives to Highway 99W or arterials exist or are proposed, any new or altered uses developed after the effective date of this Code shall be required to use the alternative ingress and egress.
3. All site plans for new development submitted to the City for approval after the effective date of this Code shall show ingress and egress from existing or planned local or collector streets, consistent with the Transportation Plan Map and Section VI of the Community Development Plan.

RESPONSE: Access will be provided to SW Langer Farms Parkway and SW Century Drive, both collector streets. No access is available or planned to an arterial street. The criteria are not applicable.

G. Service Drives

Service drives shall be provided pursuant to Section 16.94.030.

RESPONSE: Section 16.94.030 is addressed above. The criterion is met.

16.96.030 - Minimum Non-Residential Standards

Minimum standards for private, on-site circulation improvements in non-residential developments:

A. Driveways

1. Commercial: Improved hard surface driveways are required as follows:

Required		Minimum Width	
Parking Spaces	# Driveways	One-Way Pair	Two-Way
1 - 49	1	15 feet	24 feet
50 & above	2	15 feet	24 feet

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3. Surface materials are encouraged to be pervious when appropriate considering soils, anticipated vehicle usage and other pertinent factors.

RESPONSE: The Site Plan shows the driveways are planned to meet or exceed the minimum 24-foot width requirement. Based on anticipated vehicle usage and soil conditions, there are no plans to utilize pervious surfaces.

B. Sidewalks and Curbs

1. A private pathway/sidewalk system extending throughout the development site shall be required to connect to existing development, to public rights-of-way with or without improvements, to parking and storage areas, and to connect all building entrances to one another. The system shall also connect to transit facilities within five hundred (500) feet of the site, future phases of development, and whenever possible to parks and open spaces.
2. Curbs shall also be required at a standard approved by the Hearing Authority. Private pathways/sidewalks shall be connected to public rights-of-way along driveways but may be allowed other than along driveways if approved by the Hearing Authority.
3. **Private Pathway/Sidewalk Design.** Private pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other pervious durable surface. Primary pathways connecting front entrances to the right of way shall be at least 6 feet wide and conform to ADA standards. Secondary pathways between buildings and within parking areas shall be a minimum of four (4) feet wide and/or conform to ADA standards. Where the system crosses a parking area, driveway or street, it shall be clearly marked with contrasting paving materials or raised crosswalk (hump). At a minimum all crosswalks shall include painted striping.
4. **Exceptions.** Private pathways/sidewalks shall not be required where physical or topographic conditions make a connection impracticable, where buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or pathways would violate provisions of leases, restrictions or other agreements.

RESPONSE: A private system of pedestrian walkways extends throughout the project and connects to buildings, outdoor spaces, parking, and the public boundary streets. Curbs are provided to separate pedestrians and vehicles. Walkways will be a durable hard surface, will meet applicable ADA standards, and the Site Plan shows they meet the applicable dimensional requirements. Driveway crossings will be marked, as applicable. The applicable standards are met.

16.96.040 - On-Site Vehicle Circulation

(***)

B. Joint Access [See also Chapter 16.108]

Two (2) or more uses, structures, or parcels of land are strongly encouraged to utilize jointly the same ingress and egress when the combined ingress and egress of all uses, structures, or parcels of land satisfy the other requirements of this Code, provided that satisfactory legal evidence is presented to the City in the form of deeds, easements, leases, or contracts to clearly establish the joint use. In some cases, the City may require a joint access to improve safety, vision clearance, site distance, and comply with access spacing standards for the applicable street classification.

RESPONSE: The Preliminary Plat shows the configuration of the five planned lots. Lots range in size from ± 0.50 acres (Lot 5) to ± 8.24 acres (Lot 3). Lot 1 at ± 3.60 acres is reserved for future use, and is not included in the concurrent Site Plan Review application. Consequently, four of the planned lots will contain buildings and will share access to the abutting public streets. The Applicant will prepare covenants, conditions and restrictions (CC&Rs) for the project as well as shared access easements. These agreements will be provided to the City following land use approval and will allow for shared parking and access across the project site. The criteria can be met.

C. Connection to Streets

1. Except for joint access per this Section, all ingress and egress to a use or parcel shall connect directly to a public street, excepting alleyways.
2. Required private sidewalks shall extend from the ground floor entrances or the ground floor landing of stairs, ramps or elevators to the public sidewalk or curb of the public street which provides required ingress and egress.

RESPONSE: Joint access is addressed above in the response to “B. Joint Access.” Vehicular and pedestrian access will be provided to SW Langer Farms Parkway and SW Century Drive. Internal walkways will connect all buildings to the public sidewalk. The criteria are met.

(***)

E. Service Drives

Service drives shall be provided pursuant to Section 16.94.030.

RESPONSE: Section 16.94.030 is addressed above. The criterion is met.

Chapter 16.98 - On-Site Storage

16.98.020 - Solid Waste and Recycling Storage

All uses shall provide solid waste and recycling storage receptacles which are adequately sized to accommodate all solid waste generated on site. All solid waste and recycling storage areas and receptacles shall be located out of public view. Solid waste and recycling receptacles for multi-family, commercial, industrial and institutional uses shall be screened by six (6) foot high sight-obscuring fence or masonry wall and shall be easily accessible to collection vehicles.

RESPONSE: Trash and recycling enclosures have been distributed throughout the parking area for ease of access by tenants. The enclosures will be screened with 6-foot tall masonry walls and surrounding landscaping. The location and orientation of trash enclosures has been coordinated with Pride Disposal Company. The criteria are met.

16.98.040 - Outdoor Sales and Merchandise Display

A. Sales Permitted

Outdoor sales and merchandise display activities, including sales and merchandise display that is located inside when the business is closed but otherwise located outside, shall be permitted when such activities are deemed by the Commission to be a customary and integral part of a permitted commercial or industrial use.

1. Permanent outdoor sales and merchandise display are in use year round or in excess of four (4) months per year and require the location to be reviewed through a site plan review. They will be reviewed as conditional uses in accordance with Chapter 16.82. Permanent outdoor and merchandise display are subject to the standards outlined in subsection B, below.
2. Temporary outdoor sales and merchandise display are seasonal and are not displayed year round and must meet the requirements of Chapter 16.86 (temporary uses). When the temporary use is not occurring the site shall return to its original state.
3. Food vendors including food carts, ice cream trucks, hotdog stands or similar uses are only permitted as a permanent outdoor sale use as described in A.1 above.

B. Standards

1. Outdoor sales and merchandise display areas shall be kept free of debris. Merchandise shall be stacked or arranged, or within a display structure. Display structures shall be secured and stable.
2. Outdoor sales and merchandise display shall not be located within required yard, building, or landscape setbacks, except where there is intervening right-of-way of a width equal to or greater than the required setback; and shall not interfere with on-site or off-site pedestrian or vehicular circulation.
3. Outdoor retail sales and merchandise display areas for vehicles, boats, manufactured homes, farm equipment, and other similar uses shall be improved with asphalt surfacing, crushed rock, or other dust-free materials.
4. Additional standards may apply to outdoor sales and merchandise display dependent on specific restrictions in the zone.

RESPONSE: Outdoor sales and merchandise displays are not planned. Any future external material storage will comply with the applicable requirements.

Division VI. - PUBLIC INFRASTRUCTURE

Chapter 16.106 - Transportation Facilities

16.106.010 - Generally

A. Creation

Public streets shall be created in accordance with provisions of this Chapter. Except as otherwise provided, all street improvements and rights-of-way shall conform to standards for the City's functional street classification, as shown on the Transportation System Plan (TSP) Map (Figure 15) and other applicable City standards. The following table depicts the guidelines for the street characteristics.

RESPONSE: SW Langer Farms Parkway and SW Century Drive are collector streets that abut the subject property on two sides. Both streets are fully improved except for the sidewalk along the south side of SW Century Drive. The preliminary plans show construction of a new 9.5-foot-wide curb tight sidewalk with tree wells along the SW Century Drive frontage matching the improvements on the north side of SW Century Drive. With these planned improvements adequate pedestrian and bicycle facilities will be provided on both sides of SW Langer Farms Parkway and SW Century Drive. New public streets are neither planned nor necessary.

16.106.040 - Design

Standard cross sections showing street design and pavement dimensions are located in the City of Sherwood's Engineering Design Manual.

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H. Buffering of Major Streets

Where a development abuts Highway 99W, or an existing or proposed principal arterial, arterial or collector street, or neighborhood route, adequate protection for residential properties must be provided, through and local traffic be separated, and traffic conflicts minimized. In addition, visual corridors pursuant to Section 16.142.040, and all applicable access provisions of Chapter 16.96, are to be met. Buffering may be achieved by: parallel access streets, lots of extra depth abutting the major street with frontage along another street, or other treatment suitable to meet the objectives of this Code.

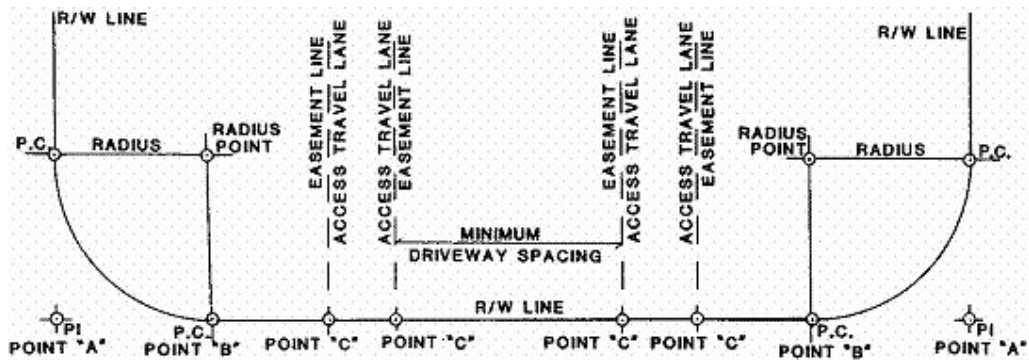
RESPONSE: SW Langer Farms Parkway and SW Century Drive are collector streets that abut the subject property on two sides. Both streets are fully improved except for the sidewalk along the south side of SW Century Drive. The preliminary plans show construction of a new 9.5-foot-wide curb tight sidewalk with tree wells along the SW Century Drive frontage matching the improvements on the north side of SW Century Drive. Ten-foot-wide landscaped visual corridors will be provided pursuant to Section 16.142.040. Applicable access provisions are addressed in the responses to Chapter 16.96. The applicable standards are met.

(***)

M. Vehicular Access Management

All developments shall have legal access to a public road. Access onto public streets shall be permitted upon demonstration of compliance with the provisions of adopted street standards in the Engineering Design Manual.

1. Measurement: See the following access diagram where R/W = Right-of-Way; and P.I. = Point-of-Intersection where P.I. shall be located based upon a 90 degree angle of intersection between ultimate right-of-way lines.
 - a. Minimum right-of-way radius at intersections shall conform to City standards.
 - b. All minimum distances stated in the following sections shall be governed by sight distance requirements according to the Engineering Design Manual.
 - c. All minimum distances stated in the following sections shall be measured to the nearest easement line of the access or edge of travel lane of the access on both sides of the road.
 - d. All minimum distances between accesses shall be measured from existing or approved accesses on both sides of the road.
 - e. Minimum spacing between driveways shall be measured from Point "C" to Point "C" as shown below:



RESPONSE: The preliminary plans show the project will be served by driveways that conform to all applicable geometric requirements. The applicable standards are met.

2. Roadway Access

No use will be permitted to have direct access to a street or road except as specified below. Access spacing shall be measured from existing or approved accesses on either side of a street or road. The lowest functional classification street available to the legal lot, including alleys within a public easement, shall take precedence for new access points.

(***)

c. Collectors:

All commercial, industrial and institutional uses with one-hundred-fifty (150) feet or more of frontage will be permitted direct access to a Collector. Uses with less than one-hundred-fifty (150) feet of frontage shall not be permitted direct access to Collectors unless no other alternative exists.

Where joint access is available it shall be used, provided that such use is consistent with Section 16.96.040, Joint Access. No use will be permitted direct access to a Collector within one-hundred (100) feet of any present Point "A." Minimum spacing between driveways (Point "C" to Point "C") shall be one-hundred (100) feet. In all instances, access points near an intersection with a Collector or Arterial shall be located beyond the influence of standing queues of the intersection in accordance with AASHTO standards. This requirement may result in access spacing greater than one hundred (100) feet.

RESPONSE: The planned commercial project has more than 150 feet of frontage on two collector streets. Joint access is planned, as discussed in the response to Section 16.96.040. The three driveways shown on the preliminary plans comply with the applicable spacing requirements. The applicable standards are met.

16.106.060 - Sidewalks

A. Required Improvements

1. Except as otherwise provided, sidewalks shall be installed on both sides of a public street and in any special pedestrian way within new development.
2. For Highway 99W, arterials, or in special industrial districts, the City Manager or designee may approve a development without sidewalks if alternative pedestrian routes are available.
3. In the case of approved cul-de-sacs serving less than fifteen (15) dwelling units, sidewalks on one side only may be approved by the City Manager or designee.

B. Design Standards

1. Arterial and Collector Streets
Arterial and collector streets shall have minimum eight (8) foot wide sidewalks/multi-use path, located as required by this Code.
2. Local Streets
Local streets shall have minimum five (5) foot wide sidewalks, located as required by this Code.
3. Handicapped Ramps

Sidewalk handicapped ramps shall be provided at all intersections.

C. Pedestrian and Bicycle Paths

Provide bike and pedestrian connections on public easements or right-of-way when full street connections are not possible, with spacing between connections of no more than 330 feet except where prevented by topography, barriers such as railroads or highways, or environmental constraints such as rivers and streams.

RESPONSE: SW Langer Farms Parkway and SW Century Drive are collector streets that abut the subject property on two sides. Both streets are fully improved, except for the sidewalk along the south side of SW Century Drive. The preliminary plans show construction of a new 9.5-foot-wide curb tight sidewalk with tree wells along the SW Century Drive frontage matching the improvements on the north side of SW Century Drive. With these planned improvements adequate pedestrian and bicycle facilities will be provided on both sides of SW Langer Farms Parkway and SW Century Drive.

16.106.080 - Traffic Impact Analysis (TIA)

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C. Requirements

The following are typical requirements that may be modified in coordination with Engineering Staff based on the specific application.

1. Pre-application Conference. The applicant shall meet with the City Engineer prior to submitting an application that requires a TIA. This meeting will be coordinated with Washington County and ODOT when an approach road to a County road or Highway 99W serves the property, so that the TIA will meet the requirements of all relevant agencies.
2. Preparation. The TIA shall be prepared by an Oregon Registered Professional Engineer qualified to perform traffic Engineering analysis and will be paid for by the applicant.
3. Typical Average Daily Trips and Peak Hour Trips. The latest edition of the Trip Generation Manual, published by the Institute of Transportation Engineers (ITE), shall be used to gauge PM peak hour vehicle trips, unless a specific trip generation study that is approved by the City Engineer indicates an alternative trip generation rate is appropriate.
4. Intersection-level Analysis. Intersection-level analysis shall occur at every intersection where the analysis shows that fifty (50) or more peak hour vehicle trips can be expected to result from the development.
5. Transportation Planning Rule Compliance. The requirements of OAR 660-012-0060 shall apply to those land use actions that significantly affect the transportation system, as defined by the Transportation Planning Rule.

RESPONSE: Kittelson & Associates has prepared a detailed traffic impact analysis that is included as Exhibit F. The scope of the traffic analysis was developed in consultation with the City of

Sherwood and, based on the estimated trip generation and assignment patterns, specific intersections and the site accesses were analyzed.

(***)

F. Approval Criteria

When a TIA is required, a proposal is subject to the following criteria, in addition to all criteria otherwise applicable to the underlying land use proposal:

1. The analysis complies with the requirements of 16.106.080.C;
2. The analysis demonstrates that adequate transportation facilities exist to serve the proposed development or identifies mitigation measures that resolve identified traffic safety problems in a manner that is satisfactory to the City Engineer and, when County or State highway facilities are affected, to Washington County and ODOT;
3. For affected non-highway facilities, the TIA demonstrates that mobility and other applicable performance standards established in the adopted City TSP have been met; and
4. Proposed public improvements are designed and will be constructed to the street standards specified in Section 16.106.010 and the Engineering Design Manual, and to the access standards in Section 16.106.040.
5. Proposed public improvements and mitigation measures will provide safe connections across adjacent right-of-way (e.g., protected crossings) when pedestrian or bicycle facilities are present or planned on the far side of the right-of-way.

RESPONSE: Kittelson & Associates has prepared a detailed traffic impact analysis that is included as Exhibit F. The scope of the traffic analysis was developed in consultation with the City of Sherwood and, based on the estimated trip generation and assignment patterns, specific intersections and the site accesses were analyzed.

Chapter 16.110 - SANITARY SEWERS

16.110.010 - Required Improvements

Sanitary sewers shall be installed to serve all new developments and shall connect to existing sanitary sewer mains. Provided, however, that when impractical to immediately connect to a trunk sewer system, the use of septic tanks may be approved, if sealed sewer laterals are installed for future connection and the temporary system meets all other applicable City, Clean Water Services, Washington County and State sewage disposal standards.

16.110.020 - Design Standards

A. Capacity

Sanitary sewers shall be constructed, located, sized, and installed at standards consistent with this Code, the Sanitary Sewer Service Plan Map in the Sanitary Sewer Master Plan, and other applicable Clean Water Services and City standards, in order to adequately serve the proposed development and allow for future extensions.

B. Over-Sizing

1. When sewer facilities will, without further construction, directly serve property outside a proposed development, gradual reimbursement may be used to equitably distribute the cost of that over-sized system.
2. Reimbursement shall be in an amount estimated by the City to be a proportionate share of the cost for each connection made to the sewer by property owners outside of the development, for a period of ten (10) years from the time of installation of the sewers. The boundary of the reimbursement area and the method of determining proportionate shares shall be determined by the City. Reimbursement shall only be made as additional connections are made and shall be collected as a surcharge in addition to normal connection charges.

16.110.030 - Service Availability

Approval of construction plans for new facilities pursuant to Chapter 16.106, and the issuance of building permits for new development to be served by existing sewer systems shall include certification by the City that existing or proposed sewer facilities are adequate to serve the development.

RESPONSE:

According to comments provided by the City after the pre-application conference (PAC 16-08), there is currently an 8-inch diameter public sanitary sewer main within SW Langer Farms Parkway and within SW Century Drive along the property frontage. There are three 8-inch diameter sanitary sewer laterals stubbed off to the subject property, and a private 8-inch diameter sanitary sewer line that runs along the eastern side of the subject property within a 20-foot wide public sanitary sewer easement. Planned improvements related to sanitary sewers are shown on the Preliminary Composite Utility Plan in Exhibit B. The applicable standards are met.

Chapter 16.112 - WATER SUPPLY

16.112.010 - Required Improvements

Water lines and fire hydrants conforming to City and Fire District standards shall be installed to serve all building sites in a proposed development. All waterlines shall be connected to existing water mains or shall construct new mains appropriately sized and located in accordance with the Water System Master Plan.

16.112.020 - Design Standards

A. Capacity

Water lines providing potable water supply shall be sized, constructed, located and installed at standards consistent with this Code, the Water System Master Plan, the City's Design and Construction Manual, and with other applicable City standards and specifications, in order to adequately serve the proposed development and allow for future extensions.

B. Fire Protection

All new development shall comply with the fire protection requirements of Chapter 16.116, the applicable portions of Chapter 7 of the Community Development Plan, and the Fire District.

C. Over-Sizing

1. When water mains will, without further construction, directly serve property outside a proposed development, gradual reimbursement may be used to equitably distribute the cost of that over-sized system.
2. Reimbursement shall be in an amount estimated by the City to be the proportionate share of the cost of each connection made to the water mains by property owners outside the development, for a period of ten (10) years from the time of installation of the mains. The boundary of the reimbursement area and the method of determining proportionate shares shall be determined by the City. Reimbursement shall only be made as additional connections are made and shall be collected as a surcharge in addition to normal connection charges.
3. When over-sizing is required in accordance with the Water System Master Plan, it shall be installed per the Water System Master Plan. Compensation for over-sizing may be provided through direct reimbursement, from the City, after mainlines have been accepted. Reimbursement of this nature would be utilized when the cost of over-sizing is for system wide improvements.

16.112.030 - Service Availability

Approval of construction plans for new water facilities pursuant to Chapter 16.106, and the issuance of building permits for new development to be served by existing water systems shall include certification by the City that existing or proposed water systems are adequate to serve the development.

RESPONSE: According to comments provided by the City after the pre-application conference (PAC 16-08), there is currently a 16-inch diameter public water main within SW Langer Farms Parkway and a 12-inch diameter public water main within SW Century Drive along the subject property frontage. Planned improvements related to water are shown on the Preliminary Composite Utility Plan. The applicable standards are met.

Chapter 16.114 - Storm Water

16.114.010 - Required Improvements

Storm water facilities, including appropriate source control and conveyance facilities, shall be installed in new developments and shall connect to the existing downstream drainage systems consistent with the Comprehensive Plan and the requirements of the Clean Water Services water quality regulations contained in their Design and Construction Standards R&O 04-9, or its replacement.

16.114.020 - Design Standards

A. Capacity

Storm water drainage systems shall be sized, constructed, located, and installed at standards consistent with this Code, the Storm

Drainage Master Plan Map, attached as Exhibit E, Chapter 7 of the Community Development Plan, other applicable City standards, the Clean Water Services Design and Construction standards R&O 04-9 or its replacement, and hydrologic data and improvement plans submitted by the developer.

B. On-Site Source Control

Storm water detention and groundwater recharge improvements, including but not limited to such facilities as dry wells, detention ponds, and roof top ponds shall be constructed according to Clean Water Services Design and Construction Standards.

C. Conveyance System

The size, capacity and location of storm water sewers and other storm water conveyance improvements shall be adequate to serve the development and accommodate upstream and downstream flow. If an upstream area discharges through the property proposed for development, the drainage system shall provide capacity to the receive storm water discharge from the upstream area. If downstream drainage systems are not sufficient to receive an increase in storm water caused by new development, provisions shall be made by the developer to increase the downstream capacity or to provide detention such that the new development will not increase the storm water caused by the new development.

16.114.030 - Service Availability

Approval of construction plans for new storm water drainage facilities pursuant to Chapter 16.106, and the issuance of building permits for new development to be served by existing storm water drainage systems shall include certification by the City that existing or proposed drainage facilities are adequate to serve the development.

RESPONSE: According to comments provided by the City after the pre-application conference (PAC 16-08), there is currently a public storm sewer system within SW Langer Farms Parkway and within SW Century Drive along the subject property frontage. There is also a 36-inch diameter public storm sewer main that exists along the eastern side of the subject property within a 20-foot wide public storm drainage easement. A regional water quality/detention facility was previous sized and constructed to treat/detain storm water runoff from the subject property. Planned improvements related to storm sewer are shown on the Preliminary Composite Utility Plan and addressed in the Preliminary Stormwater Report (Exhibit G). The applicable standards are met.

Chapter 16.116 - Fire Protection

16.116.010 - Required Improvements

When land is developed so that any commercial or industrial structure is further than two hundred and fifty (250) feet or any residential structure is further than five hundred (500) feet from an adequate water supply for fire protection, as determined by the Fire District, the developer shall provide fire protection facilities necessary to provide adequate water supply and fire safety.

16.116.020 - Standards

A. Capacity

All fire protection facilities shall be approved by and meet the specifications of the Fire District, and shall be sized, constructed, located, and installed consistent with this Code, Chapter 7 of the Community Development Plan, and other applicable City standards, in order to adequately protect life and property in the proposed development.

B. Fire Flow

Standards published by the Insurance Services Office, entitled "Guide for Determination of Required Fire Flows" shall determine the capacity of facilities required to furnish an adequate fire flow. Fire protection facilities shall be adequate to convey quantities of water, as determined by ISO standards, to any outlet in the system, at no less than twenty (20) pounds per square inch residual pressure. Water supply for fire protection purposes shall be restricted to that available from the City water system. The location of hydrants shall be taken into account in determining whether an adequate water supply exists.

C. Access to Facilities

Whenever any hydrant or other appurtenance for use by the Fire District is required by this Chapter, adequate ingress and egress shall be provided. Access shall be in the form of an improved, permanently maintained roadway or open paved area, or any combination thereof, designed, constructed, and at all times maintained, to be clear and unobstructed. Widths, height clearances, ingress and egress shall be adequate for District firefighting equipment. The Fire District, may further prohibit vehicular parking along private accessways in order to keep them clear and unobstructed, and cause notice to that effect to be posted.

D. Hydrants

Hydrants located along private, accessways shall either have curbs painted yellow or otherwise marked prohibiting parking for a distance of at least fifteen (15) feet in either direction, or where curbs do not exist, markings shall be painted on the pavement, or signs erected, or both, given notice that parking is prohibited for at least fifteen (15) feet in either direction.

RESPONSE: Adequate water supply consisting of a 16-inch diameter public water main within SW Langer Farms Parkway and a 12-inch diameter public water main within SW Century Drive are available along the property frontage. Fire hydrants will be placed at locations approved by the City and Tualatin Valley Fire & Rescue to ensure adequate access and flows for the proposed structures. No deficiencies have been identified. The applicable standards are met.

Chapter 16.118 - Public And Private Utilities

16.118.020 - Standard

- A.** Installation of utilities shall be provided in public utility easements and shall be sized, constructed, located and installed consistent with this Code, Chapter 7 of the Community Development Code, and applicable utility company and City standards.
- B.** Public utility easements shall be a minimum of eight (8) feet in width unless a reduced width is specifically exempted by the City Engineer.

An eight-foot wide public utility easement (PUE) shall be provided on private property along all public street frontages. This standard does not apply to developments within the Old Town Overlay.

- C. Where necessary, in the judgment of the City Manager or his designee, to provide for orderly development of adjacent properties, public and franchise utilities shall be extended through the site to the edge of adjacent property(ies).
- D. Franchise utility conduits shall be installed per the utility design and specification standards of the utility agency.
- E. Public Telecommunication conduits and appurtenances shall be installed per the City of Sherwood telecommunication design standards.
- F. Exceptions: Installation shall not be required if the development does not require any other street improvements. In those instances, the developer shall pay a fee in lieu that will finance installation when street or utility improvements in that location occur.

RESPONSE: The required 8-foot PUE was previously dedicated on the original subdivision plat. Installation of the utilities necessary to serve this project will occur with construction of this project, as shown on the Preliminary Composite Utility Plan. No deficiencies have been identified. This standard is met

16.118.030 - Underground Facilities

Except as otherwise provided, all utility facilities, including but not limited to, electric power, telephone, natural gas, lighting, cable television, and telecommunication cable, shall be placed underground, unless specifically authorized for above ground installation, because the points of connection to existing utilities make underground installation impractical, or for other reasons deemed acceptable by the City.

RESPONSE: All utilities necessary to serve this project are planned to be constructed underground. This standard is met.

Division VII - LAND DIVISIONS, SUBDIVISIONS, PARTITIONS, LOT LINE ADJUSTMENTS AND MODIFICATIONS

Chapter 16.120 - Subdivisions

16.120.040 - Approval Criteria: Preliminary Plat

No preliminary plat shall be approved unless:

- A. Streets and roads conform to plats approved for adjoining properties as to widths, alignments, grades, and other standards, unless the City determines that the public interest is served by modifying streets or road patterns.

RESPONSE: SW Langer Farms Parkway and SW Century Drive are collector streets that abut the subject property on two sides. Both streets are fully improved except for the sidewalk along the south side of SW Century Drive. The preliminary plans show construction of a new 9.5-foot-wide curb tight sidewalk with tree wells along the SW Century Drive frontage matching the improvements on the north side of SW Century Drive. With these planned improvements, adequate pedestrian and bicycle facilities will be provided on

both sides of SW Langer Farms Parkway and SW Century Drive. New public streets are neither planned nor necessary. The criterion is met.

- B. Streets and roads held for private use are clearly indicated on the plat and all reservations or restrictions relating to such private roads and streets are set forth thereon.

RESPONSE: No private streets or roads are planned. The criterion does not apply.

- C. The plat complies with applicable zoning district standards and design standards in Division II, and all provisions of Divisions IV, VI, VIII and IX. The subdivision complies with Chapter 16.128 (Land Division Design Standards).

RESPONSE: The applicable zoning district and PUD standards are addressed above in the responses to Chapters 16.31 and 16.40.

- D. Adequate water, sanitary sewer, and other public facilities exist to support the use of land proposed in the plat.

RESPONSE: The preliminary plans show that sanitary sewer and potable water are available within SW Langer Farms Parkway and SW Century Drive, and capacity exists to serve the project. Stormwater runoff generated on the subject property will be collected and routed to an existing regional stormwater facility east of the site. As discussed in the Preliminary Stormwater Report, the regional stormwater facility was designed to accommodate runoff from this site. The criterion is met.

- E. Development of additional, contiguous property under the same ownership can be accomplished in accordance with this Code.

RESPONSE: Lot 1 is reserved for future use, and is not included in the concurrent Site Plan Review application. Lot 1 has more than 300 feet of frontage along SW Century Drive, which contains necessary public facilities and could provide adequate access. The criterion is met.

- F. Adjoining land can either be developed independently or is provided access that will allow development in accordance with this Code.

RESPONSE: The subject property is bordered by SW Century Drive to the north, SW Langer Farms Parkway to the west, a vegetated corridor and developed industrial land to the east, and developed industrial land to the south. The developable land contiguous to the subject property is already largely developed. This project does not prevent the future use of adjoining land. The criterion is met.

- G. Tree and woodland inventories have been submitted and approved as per Section 16.142.060.

- H. The plat clearly shows the proposed lot numbers, setbacks, dedications and easements.

RESPONSE: The required elements are shown on the Preliminary Plat, as applicable. The criterion is met.

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- I. A minimum of five percent (5%) open space has been provided per Section 16.44.010.B.8 (Townhome-Standards) or Section 16.142.030 (Parks, Open Spaces and Trees-Single-Family Residential Subdivisions), if applicable.

RESPONSE: These provisions do not apply to the planned project.

Chapter 16.128 - Land Division Design Standards

16.128.010 - Blocks

A. Connectivity

1. Block Size

The length, width, and shape of blocks shall be designed to provide adequate building sites for the uses proposed, and for convenient access, circulation, traffic control and safety.

2. Block Length

Block length standards shall be in accordance with Section 16.108.040. Generally, blocks shall not exceed five-hundred thirty (530) feet in length, except blocks adjacent to principal arterial, which shall not exceed one thousand eight hundred (1,800) feet. The extension of streets and the formation of blocks shall conform to the Local Street Network map contained in the Transportation System Plan.

RESPONSE: New streets and blocks are neither planned nor necessary with this project. The project does not affect the ability of surrounding areas to comply with block length requirements. These standards are met.

3. Pedestrian and Bicycle Connectivity. Paved bike and pedestrian accessways shall be provided on public easements or right-of-way consistent with Figure 7.401.

RESPONSE: SW Langer Farms Parkway and SW Century Drive are collector streets that abut the subject property on two sides. Both streets are fully improved, except for the sidewalk along the south side of SW Century Drive. The preliminary plans show construction of a new 9.5-foot-wide curb tight sidewalk with tree wells along the SW Century Drive frontage matching the improvements on the north side of SW Century Drive. With these planned improvements, adequate pedestrian and bicycle facilities will be provided on both sides of SW Langer Farms Parkway and SW Century Drive. This standard is met.

- B. Utilities Easements for sewers, drainage, water mains, electric lines, or other utilities shall be dedicated or provided for by deed. Easements shall be a minimum of ten (10) feet in width and centered on rear or side lot lines; except for tie-back easements, which shall be six (6) feet wide by twenty (20) feet long on side lot lines at the change of direction.

RESPONSE: The required PUEs were previously dedicated on the original subdivision plat. Installation of the utilities necessary to serve this project will occur with construction of this project as shown on the Preliminary Composite Utility Plan. This standard is met.

C. Drainages

Where a subdivision is traversed by a watercourse, drainage way, channel or street, drainage easements or rights-of-way shall be provided conforming substantially to the alignment and size of the drainage.

RESPONSE: The required easements are shown on the Preliminary Plat. The standard is met.

16.128.020 - Pedestrian and Bicycle Ways

Pedestrian or bicycle ways may be required to connect cul-de-sacs, divide through an unusually long or oddly shaped block, or to otherwise provide adequate circulation.

RESPONSE: The site does not include a cul-de-sac or irregularly shaped block. A private system of pedestrian walkways extends throughout the project and connects to buildings, outdoor spaces, parking, and the public boundary streets. No additional pedestrian or bicycle ways are necessary or required.

16.128.030 - Lots

A. Size and Shape

Lot size, width, shape, and orientation shall be appropriate for the location and topography of the subdivision or partition, and shall comply with applicable zoning district requirements, with the following exception:

1. Lots in areas not served by public sewer or water supply shall conform to any special County Health Department standards.

RESPONSE: The Preliminary Plat in Exhibit B shows five lots that will comply with the applicable requirements. All lots can be served by public sewer and water facilities within SW Langer Farms Parkway and SW Century Drive. The criteria are met.

B. Access

All lots in a subdivision shall abut a public street, except as allowed for infill development under Chapter 16.68.

RESPONSE: The Preliminary Plat shows that all lots will abut a public street. Lots 1 and 5 have frontage on SW Century Drive. Lots 2 and 4 have frontage on both SW Century Drive and SW Langer Farms Parkway. Lot 2 will be provided access to SW Century Drive by an access easement across Lot 3. The easement is an interest in real property that will be recorded in the public records. The easement will be appurtenant to Lot 2 because it is accessory to Lot 2, and the use and enjoyment of Lot 2 is dependent upon the continued existence of the access rights provided by the easement. In this way, the easement is effectively part and parcel of Lot 2. Consequently, Lot 2, through its easement, effectively abuts a public street consistent with the standard.

This is consistent with the definition of "Lot" found in Section 16.10.020: "A parcel of land of at least sufficient size to meet the minimum zoning requirements of this Code, and with frontage on a public street, or easement approved by the City..." [emphasis added]. City approval of prior subdivisions (including SUB 12-02) under these same standards has

established precedence for allowing subdivided lots to provide their frontage and access requirements through the provision of an easement over another lot.

C. Double Frontage

Double frontage and reversed frontage lots are prohibited except where essential to provide separation of residential development from railroads, traffic arteries, adjacent nonresidential uses, or to overcome specific topographical or orientation problems. A five (5) foot wide or greater easement for planting and screening may be required.

RESPONSE: Double frontage lots are not planned. The standard does not apply.

D. Side Lot Lines Side lot lines shall, as far as practicable, run at right angles to the street upon which the lots face, except that on curved streets side lot lines shall be radial to the curve of the street.

RESPONSE: The Preliminary Plat shows that side lot lines run at right angles to the abutting street frontage as far as practicable. The standard is met.

E. Grading

Grading of building sites shall conform to the following standards, except when topography of physical conditions warrants special exceptions:

1. Cut slopes shall not exceed one (1) and one-half (1 1/2) feet horizontally to one (1) foot vertically.
2. Fill slopes shall not exceed two (2) feet horizontally to one (1) foot vertically.

RESPONSE: The Preliminary Grading and Erosion and Sediment Control Plan shows the project will comply with the applicable grading standard.

Division VIII. - ENVIRONMENTAL RESOURCES

Chapter 16.142 - Parks, Trees And Open Spaces

16.142.040 - Visual Corridors

A. Corridors Required

New developments located outside of the Old Town Overlay with frontage on Highway 99W, or arterial or collector streets designated on Figure 8-1 of the Transportation System Plan shall be required to establish a landscaped visual corridor according to the following standards:

Landscaped Visual Corridor Requirements		
	Category	Width
3.	Collector	10 feet

In residential developments where fences are typically desired adjoining the above described major street the corridor may be placed in the road right-of-way between the property line and the

sidewalk. In all other developments, the visual corridor shall be on private property adjacent to the right-of-way.

RESPONSE: The preliminary Landscape Plan shows a 10-foot-wide landscaped visual corridor abutting SW Langer Farms Parkway and SW Century Drive. The standard is met.

B. Landscape Materials

The required visual corridor areas shall be planted as specified by the review authority to provide a continuous visual and/or acoustical buffer between major streets and developed uses. Except as provided for above, fences and walls shall not be substituted for landscaping within the visual corridor. Uniformly planted, drought resistant street trees and ground cover, as specified in Section 16.142.060, shall be planted in the corridor by the developer. The improvements shall be included in the compliance agreement. In no case shall trees be removed from the required visual corridor.

C. Establishment and Maintenance

Designated visual corridors shall be established as a portion of landscaping requirements pursuant to Chapter 16.92. To assure continuous maintenance of the visual corridors, the review authority may require that the development rights to the corridor areas be dedicated to the City or that restrictive covenants be recorded prior to the issuance of a building permit.

D. Required Yard

Visual corridors may be established in required yards, except that where the required visual corridor width exceeds the required yard width, the visual corridor requirement shall take precedence. In no case shall buildings be sited within the required visual corridor, with the exception of front porches on townhomes, as permitted in Section 16.44.010(E)(4)(c).

RESPONSE: The preliminary Landscape Plan shows multiple layers of trees, combined with shrubs and groundcover, providing a continuous visual and/or acoustical buffer between the collector streets and the planned buildings and vehicle use areas. A 10-foot-wide landscaped visual corridor abutting SW Langer Farms Parkway and SW Century Drive is provided. The applicable standards are met.

16.142.070 - Trees on Property Subject to Certain Land Use Applications

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C. Inventory

1. To assist the City in making its determinations on the retention of trees and woodlands, land use applications including Type II - IV development shall include a tree and woodland inventory and report. The report shall be prepared by a qualified professional and must contain the following information:

- a. Tree size (in DBH and canopy area)
- b. Tree species
- c. The condition of the tree with notes as applicable explaining the assessment

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- d. The location of the tree on the site
 - e. The location of the tree relative to the planned improvements
 - f. Assessment of whether the tree must be removed to accommodate the development
 - g. Recommendations on measures that must be taken to preserve trees during the construction that are not proposed to be removed.

RESPONSE: A Preliminary Tree Preservation Table, consistent with the requirements of this section, is included in Exhibit B.

D. Retention requirements

1. Trees may be considered for removal to accommodate the development including buildings, parking, walkways, grading etc., provided the development satisfies of D.2 or D.3, below.

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3. **Required Tree Canopy - Non-Residential and Multi-family Developments**

Each net development site shall provide a variety of trees to achieve a minimum total tree canopy of 30 percent. The canopy percentage is based on the expected mature canopy of each tree by using the equation πr^2 to calculate the expected square footage of each tree. The expected mature canopy is counted for each tree even if there is an overlap of multiple tree canopies.

The canopy requirement can be achieved by retaining existing trees or planting new trees. Required landscaping trees can be used toward the total on site canopy required to meet this standard. The expected mature canopy spread of the new trees will be counted toward the required canopy cover. A certified arborist or other qualified professional shall provide an estimated tree canopy for all proposed trees to the planning department for review as a part of the land use review process.

	Residential (single family & two family developments)	Old Town & Infill developments	Commercial, Industrial, Institutional Public and Multi-family
Canopy Requirement	40%	N/A	30%
Counted Toward the Canopy Requirement			
Street trees included in canopy requirement	Yes	N/A	No
Landscaping requirements included in canopy requirement	N/A	N/A	Yes
Existing trees onsite	Yes x2	N/A	Yes x2
Planting new trees onsite	Yes	N/A	Yes
<p>Mature Canopy in Square Feet Equation πr^2 or $(3.14159 * \text{radius}^2)$ (This is the calculation to measure the square footage of a circle. The Mature Canopy is given in diameter. In gardening and horticulture reference books, therefore to get the radius you must divide the diameter in half.</p>			
<p>Canopy Calculation Example: Pin Oak Mature canopy = 35' $(3.14159 * 17.5^2) = 962$ square feet</p>			

RESPONSE: The Landscaping Plan shows an expected tree canopy coverage of 191,110 square feet, 36.5% of the total site area. The standard applicable for this commercial project is met.

Chapter 16.146 - Noise

16.146.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses in the City shall comply with the noise standards contained in OAR 340-35-035. The City may require proof of compliance with OAR 340-35-035 in the form of copies of all applicable State permits or certification by a professional acoustical engineer that the proposed uses will not cause noise in excess of State standards.

16.146.020 - Noise Sensitive Uses

When proposed commercial and industrial uses do not adjoin land exclusively in commercial or industrial zones, or when said uses adjoin special care, institutional, or parks and recreational facilities, or other uses that are, in the City's determination, sensitive to noise impacts, then:

- A. The applicant shall submit to the City a noise level study prepared by a professional acoustical engineer. Said study shall define noise levels at the boundaries of the site in all directions.
- B. The applicant shall show that the use will not exceed the noise standards contained in OAR 340-35-035, based on accepted noise modeling procedures and worst case assumptions when all noise sources on the site are operating simultaneously.

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- C. If the use exceeds applicable noise standards as per subsection B of this Section, then the applicant shall submit a noise mitigation program prepared by a professional acoustical engineer that shows how and when the use will come into compliance with said standards.

16.146.030 - Exceptions

This Chapter does not apply to noise making devices which are maintained and utilized solely as warning or emergency signals, or to noise caused by automobiles, trucks, trains, aircraft, and other similar vehicles when said vehicles are properly maintained and operated and are using properly designated rights-of-way, travel ways, flight paths or other routes. This Chapter also does not apply to noise produced by humans or animals. Nothing in this Chapter shall preclude the City from abating any noise problem as per applicable City nuisance and public safety ordinances.

RESPONSE: The subject property adjoins land in commercial and industrial zones. Noise levels would be expected similar to the commercial area to the north. Commercial uses do not typically generate noise beyond that associated with traffic entering and leaving the site, along with other activities typical of what could be expected to occur in an urban area. The proposed use will be within required standards and there will be no adverse impacts.

Chapter 16.148 - Vibrations

16.148.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses shall not cause discernible vibrations that exceed a peak of 0.002 gravity at the property line of the originating use, except for vibrations that last five (5) minutes or less per day, based on a certification by a professional engineer.

16.148.020 - Exceptions

This Chapter does not apply to vibration caused by construction activities including vehicles accessing construction sites, or to vibrations caused by automobiles, trucks, trains, aircraft, and other similar vehicles when said vehicles are properly maintained and operated and are using properly designated rights-of-way, travelways, flight paths or other routes. Nothing in this Chapter shall preclude the City from abating any vibration problem as per applicable City nuisance and public safety ordinances.

RESPONSE: Vibration levels would be expected similar to the commercial area to the north. Elevated levels of vibration, beyond what is expected in an urban area, are not anticipated. Therefore, the proposed use will be within required standards and there will be no adverse impacts.

Chapter 16.150 - Air Quality

16.150.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses shall comply with applicable State air quality rules and statutes:

- A. All such uses shall comply with standards for dust emissions as per OAR 340-21-060.

-
- B. Incinerators, if otherwise permitted by Section 16.140.020, shall comply with the standards set forth in OAR 340-25-850 through 340-25-905.
 - C. Uses for which a State Air Contaminant Discharge Permit is required as per OAR 340-20-140 through 340-20-160 shall comply with the standards of OAR 340-220 through 340-20-276.

16.150.020 - Proof of Compliance

Proof of compliance with air quality standards as per Section 16.150.010 shall be in the form of copies of all applicable State permits, or if permits have not been issued, submission by the applicant, and acceptance by the City, of a report certified by a professional engineer indicating that the proposed use will comply with State air quality standards. Depending on the nature and size of the use proposed, the applicant may, in the City's determination, be required to submit to the City a report or reports substantially identical to that required for issuance of State Air Contaminant Discharge Permits.

16.150.030 - Exceptions

Nothing in this Chapter shall preclude the City from abating any air quality problem as per applicable City nuisance and public safety ordinances.

RESPONSE: Air quality impacts would be expected similar to the commercial area to the north. Levels of emissions, beyond what is expected in an urban area, are not anticipated. The proposed use will be within required standards and there will be no adverse impacts.

Chapter 16.152 - Odors*

16.152.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses shall incorporate the best practicable design and operating measures so that odors produced by the use are not discernible at any point beyond the boundaries of the development site.

16.152.020 - Standards

The applicant shall submit a narrative explanation of the source, type and frequency of the odorous emissions produced by the proposed commercial, industrial, or institutional use. In evaluating the potential for adverse impacts from odors, the City shall consider the density and characteristics of surrounding populations and uses, the duration of any odorous emissions, and other relevant factors.

16.152.030 - Exceptions

Nothing in this Chapter shall preclude the City from abating any odor problem as per applicable City nuisance and public safety ordinances.

RESPONSE: Odor impacts would be expected similar to the commercial area to the north. Odorous or unusual emissions, beyond what is expected in an urban area, are not anticipated. The proposed use will be within required standards and there will be no adverse impacts.

Chapter 16.154 - Heat And Glare*

16.154.010 - Generally

Except for exterior lighting, all otherwise permitted commercial, industrial, and institutional uses shall conduct any operations producing excessive heat or glare entirely within enclosed buildings. Exterior lighting shall be directed away from adjoining properties, and the use shall not cause such glare or lights to shine off site in excess of one-half (0.5) foot candle when adjoining properties are zoned for residential uses.

16.154.020 - Exceptions

Nothing in this Chapter shall preclude the City from abating any heat and glare problem as per applicable City nuisance and public safety ordinances.

RESPONSE: A site lighting photometric plan has been prepared and is included with the preliminary plans submitted with this application.

IV. Conclusion

The required findings have been made and this narrative and accompanying documentation demonstrate the application is consistent with the applicable provisions of the City of Sherwood Zoning and Community Development Code. The evidence in the record is substantial and supports approval of the application. Therefore, the Applicant respectfully requests the City approve this consolidated Site Plan Review and Subdivision application.



Exhibit A: City Application Forms & Checklists



Home of the Tualatin River National Wildlife Refuge

Case No. _____
Fee _____
Receipt # _____
Date _____
TYPE _____

City of Sherwood Application for Land Use Action

Type of Land Use Action Requested: (check all that apply)

- Annexation
- Plan Amendment (Proposed Zone _____)
- Planned Unit Development
- Site Plan (square footage of building and parking area)
- Variance (list standards to be varied in description)
- Conditional Use
- Partition (# of lots _____)
- Subdivision (# of lots 5)
- Other: _____

By submitting this form the Owner, or Owner's authorized agent/ representative, acknowledges and agrees that City of Sherwood employees, and appointed or elected City Officials, have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related specifically to the project site.

Note: See City of Sherwood current Fee Schedule, which includes the "Publication/Distribution of Notice" fee, at www.sherwoodoregon.gov. Click on Government/Finance/Fee Schedule.

Owner/Applicant Information:

Applicant: Langer Family, LLC Phone: Contact Consultant
 Applicant Address: 15555 SW Tualatin Sherwood Rd, Sherwood, OR 97140 Email: Contact Consultant
 Owner: Langer Family, LLC Phone: Contact Consultant
 Owner Address: 15555 SW Tualatin Sherwood Rd, Sherwood, OR 97140 Email: Contact Consultant
 Contact for Additional Information: Consultant: AKS Engineering & Forestry, John Christiansen
12965 SW Herman Rd, Suite 100, Tualatin, OR 97062

Property Information:

johnc@aks-eng.com, 503.563.6151
 Street Location: Southeast corner of the intersection of SW Century Drive and SW Langer Farms Parkway
 Tax Lot and Map No: Tax Lot 100 of 2S 1 29 DC (Parcel 2 of Partition Plat 2017-019)
 Existing Structures/Use: Vacant field
 Existing Plan/Zone Designation: LI PUD
 Size of Property(ies) ± 15.68 Acres

Proposed Action:

Purpose and Description of Proposed Action:

5 lot subdivision and construction of commercial buildings and related facilities. Please see attached narrative.

Proposed Use: Commercial

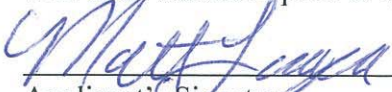
Proposed No. of Phases (one year each): 1 Phase

LAND USE APPLICATION FORM

Authorizing Signatures:

I am the owner/authorized agent of the owner empowered to submit this application and affirm that the information submitted with this application is correct to the best of my knowledge.

I further acknowledge that I have read the applicable standards for review of the land use action I am requesting and understand that I must demonstrate to the City review authorities compliance with these standards prior to approval of my request.



Applicant's Signature



Date



Owner's Signature



Date

The following materials must be submitted with your application or it will not be accepted at the counter. Once taken at the counter, the City has up to 30 days to review the materials submitted to determine if we have everything we need to complete the review. Applicant can verify submittal includes specific materials necessary for the application per checklist.

- 3 Copies of Application Form*** completely filled out and signed by the property owner (or person with authority to make decisions on the property).
- Copy of Deed** to verify ownership, easements, etc.
- At least 3 folded** sets of plans*
- At least 3 copies** of narrative addressing application criteria*
- Fee** (along with calculations utilized to determine fee if applicable)
- Neighborhood Meeting Verification** including affidavit, sign-in sheet and meeting summary (required for Type III, IV and V projects)

* **Note** that the required numbers of copies identified on the checklist are required for completeness; however, upon initial submittal applicants are encouraged to submit only 3 copies for completeness review. Prior to completeness, the required number of copies identified on the checklist and one full electronic copy will be required to be submitted.



APPLICATION MATERIALS REQUIRED FOR SITE PLAN REVIEW

Submit the following to the City of Sherwood Planning Department, 22560 SW Pine St., Sherwood, OR 97140: (503) 925-2308.

It is strongly suggested that you have a pre-application meeting with the City prior to submitting for Site Plan Review. (See *Pre-application Process* form for information.)

Note: Clean Water Services (CWS) requires a pre-screening to determine if water quality sensitive areas exist on the property. If these sensitive areas exist, a Site Assessment and Service Provider Letter are required prior to submitting for Site Plan Review or undertaking any development. **This application will not be accepted without a completed Pre-Screening Form and if required a Service Provider Letter.** Please contact CWS at (503) 681-3600.

If the proposal is next to a Washington County roadway, the applicant must submit an Access Report (Traffic Study) to Washington County Department of Land Use and Transportation (503) 846-8761. **This application will not be accepted until an Access Report (Traffic Study) is submitted to Washington County and the Access Report is deemed complete by the County; or written verification from Washington County that an Access Report is not required is provided.**

I. **FEES** - See City of Sherwood current Fee Schedule, which includes the “Publication/ Distribution of Notice” fee, at <http://www.sherwoodoregon.gov> Click on Government/Planning/Planning Fees.

Note: The above fees are required at the time you submit for site plan review. Additional fees will be charged for building permit, system development charges, impact fees and other fees applicable to the development. These fees will be charged when you make application for building permit. Building permit application will not be accepted until site plan approval is issued.

II. **BACKGROUND INFORMATION** (All materials to be collated & folded (not rolled) to create *fifteen (15) sets).

*Note that the *final* application must contain fifteen (15) folded sets of the above, however, upon initial submittal of the application and prior to completeness review, the applicant may submit three (3) complete folded sets with the application in lieu of fifteen (15), with the understanding that fifteen (15) complete sets of the application materials will be required before the application is deemed complete and scheduled for review.

- ✓ **Application Form** – One original and fourteen (14) copies of a completed **City of Sherwood Application for Land Use Action** form. Original signatures from all owners must be on the application form.
- ✓ **Documentation of Neighborhood Meeting** (Type III- Type V) - Affidavits of mailing, sign-in sheets and a summary of the meeting notes shall be included with the application.
- ✓ **Tax Map** - Fifteen (15) copies of the latest Tax Map available from the Washington County Assessor's Office showing property within at least 300 feet with scale (1"=100' or 1"= 200') north point, date and legend.
- ✓ **Mailing Labels** – Two (2) sets of mailing labels for property owners within 1,000 feet of the subject site, including a map of the area showing the properties to receive notice. Mailing labels can be obtained from a private title insurance company. Ownership records shall be based on the most current available information from the Tax Assessor's office. *It is the applicant's responsibility to provide mailing labels that accurately reflect all property owners that reside within 1,000 feet of the subject site.*
- ✓ **Vicinity Map** – Fifteen (15) copies of a vicinity map showing the City limits and the Urban Growth Boundary.
- ✓ **Narrative** – Fifteen (15) copies and **an electronic copy** of a narrative explaining the proposal in detail and a response to the Required Findings for Site Plan Review, located in Chapter 16 of the Municipal Code/Zoning & Development, Section 16.90.010. The Municipal Code/Zoning & Development is available online at www.sherwoodoregon.gov, Click on Government/Municipal Code.
- ✓ **Electronic Copy** – An electronic copy of the **entire** application packet. This should include all submittal materials (narrative, vicinity map, mailing labels, site plan, preliminary plat, etc.).

III. REQUIRED PLANS

Submit fifteen (15) sets of the following folded full-size plans and **an electronic copy in .PDF format.** Plans must have:

- 1) The proposed name of the development. If a proposed project name is the same as or similar to other existing projects in the City of Sherwood, the applicant may be required to modify the project name.
- 2) The name, address and phone of the owner, developer, applicant and plan producer.
- 3) North arrow,
- 4) Legend,
- 5) Date plans were prepared and date of any revisions
- 6) Scale clearly shown. Other than architectural elevations, all plans must be drawn to an engineer scale.
- 7) All dimensions clearly shown.

- ✓ **Existing Conditions Plan** - Existing conditions plan drawn to scale showing: property lines and dimensions, existing structures and other improvements such as streets and utilities, existing vegetation including trees, any floodplains or wetlands and any easements on the property. The existing conditions plan shall also include the slope of the site at 5-foot contour intervals



Preliminary Development Plans- Plans must be sufficient for the Hearing Authority to determine compliance with applicable standards. The following information is typically needed for adequate review:

1. The subject parcel (s), its dimensions and area.
2. The location and dimensions of proposed development, including the following:

Transportation

- a. Public and private streets with proposed frontage improvements including curb, gutters, sidewalks, planter strip, street lighting, distances to street centerline, pavement width, right-of-way width, bike lanes and driveway drops.
- b. Public and private access easements, width and location.
- c. General circulation plan showing location, widths and direction of existing and proposed streets, bicycle and pedestrian ways, and transit routes and facilities within ½ mile of the subject property.
- d. Show the location and distance to neighboring driveways and the width and locations of driveways located across the street.
- e. The location and size of accesses, sight distance and any fixed objects on collectors or arterial streets.
- f. Emergency accesses.
- g. Indicate the location and size of off-street parking spaces including curbing and wheel stop locations.
- h. Proposed transit facilities.
- i. Indicate loading and maneuvering areas.
- j. Delivery truck and bus circulation patterns.

Grading and Erosion Control

- k. Indicate the proposed grade at two (2)-foot contour intervals.
- l. Indicate the proposed erosion control measures to CWS standards (refer to CWS R&O 07-20).
- m. Show areas of cut and fill with areas of structural fill.
- n. Show the location of all retaining walls, the type of material to be used, the height of the retaining wall from the bottom of the footing to the top of the wall and the exposed height of the wall.

Utilities

- o. Utilities must be shown after proposed grade with 2-foot contour intervals.
- p. Map location, purpose, dimensions and ownership of easements.
- q. Fire hydrant locations and fire flows.
- r. Water, sewer and stormwater line locations, types and sizes.
- s. Clearly indicate the private and public portions of the system.
- t. Above-ground utilities and manhole locations.

Preliminary Stormwater Plan

- u. Show location, size and slope of water quality facility.
- v. Preliminary calculations justifying size of facility.

- w. The total square footage of the new and existing impervious area.
- x. The stormwater facility to CWS standards. (R&O 07-20).

Sensitive Areas

- y. Show any and all streams, ponds, wetlands and drainage ways.
- z. Indicate the vegetative corridor for sensitive areas to CWS standards. (R&O 07-20).
- aa. Indicate measures to avoid environmental degradation that meet CWS, DSL and Army Corp requirements.
- bb. Flood elevation.
- cc. Wetland delineation and buffering proposed.
- dd. Location and size of all trees greater than 5 inches DBH (indicate if trees are proposed for removal).

Land Use

- ee. The square footage of each building and a breakdown of square footage by use. (i.e. retail, office, industrial, residential, etc.).
- ff. Net buildable acres. (The land remaining after unbuildable areas are taken out, such as the floodplain and wetland areas).
- gg. Net density calculation for residential use.
- hh. Landscaping areas including the square footage of the site covered by landscaping and planting types. (refer to Ch. 5 of the Community Development Code).
- ii. Existing trees proposed to remain and trees to be removed and the drip-lines of trees proposed to remain.
- jj. Street tree location, size and type. (refer to Ch. 8, Section 8.304.06 of the Community Development Code).
- kk. Bicycle parking areas. (Refer to Ch 5 of the Community Development Code).
- ll. On-site pathways and sidewalk locations.
- mm. Structures proposed to be built and structures proposed to remain with their dimensions and the distances to property lines.
- nn. Outdoor storage areas and proposed screening.
- oo. Outdoor sales and merchandise display areas and proposed screening.
- pp. Truck loading and maneuvering areas.
- qq. Number of parking spaces and required parking calculations based on Section 5.302 of the Community Development Code.
- rr. The size and location of solid waste and recycle storage areas and screening.
- ss. Location, size and height of proposed free-standing signs.
- tt. Location, height and type of fencing and walls.
- uu. For each lot indicated the building envelope.



Reduced - Proposed Development Plans – One (1) reduced copies of the Proposed Development Plan on 8 1/2” by 11” sheets and fifteen (15) reduced copies on 11” by 17” sheets.



Lighting Plan – Photometric lighting plan indicating foot candle power on and along the perimeter of the site. Proposed locations, height and size of lights. (If outdoor lighting is proposed).



Surrounding Land Uses – Existing land use including nature, size and location of existing structures within 300 feet.



Architectural Exterior – Scaled architectural sketches and elevations of all proposed structures. Include a description of materials, textures and colors. Show the size, placement and dimensions of proposed wall signs on the elevation drawings. These drawings can be done at an architectural or engineering scale. If color is used, two color copies and eight black and white copies are acceptable.

IV. DOCUMENTS REQUIRED



Title Report – Two (2) copies of a current preliminary title report available from a private title insurance company.



CWS Service Provider Letter – Four (4) copies of the CWS service provider letter

V. ADDITIONAL DOCUMENTS THAT MAY BE REQUIRED

NA

Army Corps and DSL wetland applications and/or permits – Four (4) copies of required Divisions of State Lands and/or Army Corp of Engineers permits and/or permit applications if applicable.



Traffic Study – Four (4) copies of a traffic study. (If required by the City Engineer).



Soils Analysis and/or Geotechnical Report – Four (4) copies completed by a registered Soils Engineer or Geologist including measures to protect natural hazards. (If required by the City Engineer).



Tree Report – Two (2) copies of a tree report prepared by an arborist, forester, landscape architect, botanist or other qualified professional. (If required trees are on-site).

NA

Natural Resource Assessment – If required by Clean Water Services (CWS). The CWS Pre-Screening indicates as to whether this report is required or not.

NA

Wetland Delineation Study – if required by Oregon Division of State Lands (DSL) or the Army Corps of Engineers.

NA

Other Special Studies and/or Reports – if required by the Planning Director or the City Engineer to address issues identified in the pre-application meeting or during project review.

NA

Verification of compliance with other agency standards such as CWS, DSL, Army Corps of Engineers, ODOT, PGE, BPA, Washington County.



APPLICATION MATERIALS REQUIRED FOR SUBDIVISION PLAT

Submit the following to the City of Sherwood Planning Department, 22560 SW Pine St., Sherwood, OR 97140: (503) 925-2308.

It is strongly suggested that you have a pre-application meeting with the City prior to submitting for a Subdivision. (See *Pre-application Process* form for information.)

Note: The Clean Water Services (CWS) requires a pre-screening to determine if water quality sensitive areas exist on the property. If these sensitive areas exist, a Site Assessment and Service Provider Letter is required prior to submitting for a subdivision or minor land partition or undertaking any development. **This application will not be accepted without a completed Pre-Screening Form and if required a Service Provider Letter.** Please contact CWS at (503) 681-3600.

If the proposal is next to a Washington County roadway, the applicant must submit an Access Report (Traffic Study) to Washington County Department of Land Use and Transportation (503) 846-8761. **This application will not be accepted until an Access Report (Traffic Study) is submitted to Washington County and the Access Report is deemed complete by the County; or written verification from Washington County that an Access Report is not required is provided.**

I. **Fee** - See City of Sherwood current Fee Schedule, which includes the “Publication/Distribution of Notice” fee, at www.sherwoodoregon.gov. Click on Departments/Planning/ Fee Schedule.

Note: The above fee is required at the time you submit for a subdivision. Additional fees will be charged for building permit, system development charges, impact fees and other fees applicable to the development. These fees will be charged when you make application for building permit. Building permit application will not be accepted until the final plat is recorded.

II. **BACKGROUND INFORMATION** (all materials collated and folded (not rolled) to create fifteen (15) sets)

*Note that the *final* application must contain fifteen (15) folded sets of the above, however, upon initial submittal of the application and prior to completeness review, the applicant may submit three (3) complete folded sets with the application in lieu of fifteen (15), with the understanding that fifteen (15) complete sets of the application materials will be required before the application is deemed complete and scheduled for review.

- ✓ **Application Form** – One original and fourteen (14) copies of a completed **City of Sherwood Application for Land Use Action** form. Original signatures from all owners must be on the application form.
- ✓ **Documentation of Neighborhood Meeting** - Affidavits of mailing, sign-in sheets and a summary of the meeting notes shall be included with the application.
- ✓ **Tax Map** - Fifteen (15) copies of the latest Tax Map available from the Washington County Assessor's Office showing property within at least 300 feet with scale (1"=100' or 1"= 200') north point, date and legend.
- ✓ **Mailing Labels** – Two (2) sets of mailing labels for property owners within 1,000 feet of the subject site, including a map of the area showing the properties to receive notice. Mailing labels are available from the Washington County Assessors office or a private title insurance company. . Ownership records shall be based on the most current available information from the Tax Assessor's office. *It is the applicant's responsibility to provide mailing labels that accurately reflect all property owners that reside within 1,000 feet of the subject site.*
- ✓ **Vicinity Map** – Fifteen (15) copies of a vicinity map. A photocopy of the Thomas Guide is adequate, showing the City limits and the Urban Growth Boundary.
- ✓ **Narrative** – Fifteen (15) copies and **an electronic copy** of a narrative explaining the proposal in detail and a response to the Required Findings for Subdivision, located in Chapter 16 of the Municipal Code/Zoning & Development, Section 16.120. The Municipal Code/Zoning & Development is available online at www.sherwoodoregon.gov, City Government/Records.
- ✓ **Electronic Copy** – An electronic copy of the entire application packet. This should include all submittal materials (narrative, vicinity map, mailing labels, site plan, preliminary plat, etc.).

III. **REQUIRED PLANS**

Submit fifteen (15) sets of the following folded full-size plans and **an electronic copy in PDF format.** Plans must have:

- 1) The proposed name of the development. If a proposed project name is the same as or similar to other existing projects in the City of Sherwood, the applicant may be required to modify the project name.
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- 3) North arrow,
- 4) Legend,
- 5) Date plans were prepared and date of any revisions
- 6) Scale clearly shown. Other than architectural elevations, all plans must be drawn to an engineer scale.
- 7) All dimensions clearly shown.

- ✓ **Existing Conditions Plan** - Existing conditions plan drawn to scale showing: property lines and dimensions, existing structures and other improvements such as streets and utilities, existing vegetation including trees, any floodplains or wetlands and any easements on the property. The existing conditions plan shall also include the slope of the site at 5-foot contour intervals



Preliminary Development Plans- Plans must be sufficient for the Hearing Authority to determine compliance with applicable standards. The following information is typically needed for adequate review:

1. The subject parcel(s), its dimensions and area and the buildable area of each lot.
2. The location and dimensions of proposed development, including the following:

Transportation

- a. Public and private streets with proposed frontage improvements including curb, gutters, sidewalks, planter strip, street lighting, distances to street centerline, pavement width, right-of-way width, bike lanes and driveway drops.
- b. Public and private access easements, width and location.
- c. General circulation plan showing location, widths and direction of existing and proposed streets, bicycle and pedestrian ways and transit routes and facilities.
- d. Show the location and distance to neighboring driveways and the width and locations of driveways located across the street.
- e. The location and size of accesses, sight distance and any fixed objects on collectors or arterial streets.
- f. Emergency accesses.

Grading and Erosion Control

- g. Indicate the proposed grade at two (2)-foot contour intervals.
- h. Indicate the proposed erosion control measures to CWS standards (refer to CWS R&O 07-20).
- i. Show areas of cut and fill with areas of structural fill.
- j. Show the location of all retaining walls, the type of material to be used, the height of the retaining wall from the bottom of the footing to the top of the wall and the exposed height of the wall.

Utilities

- k. Utilities must be shown after proposed grade with 2-foot contour intervals.
- l. Map location, purpose, dimensions and ownership of easements.
- m. Fire hydrant locations and fire flows.
- n. Water, sewer and stormwater line locations, types and sizes.
- o. Clearly indicate the private and public portions of the system.
- p. Above-ground utilities and manhole locations

Preliminary Stormwater Plan

- q. Show location, size and slope of water quality facility.
- r. Preliminary calculations justifying size of facility.
- s. The total square footage of the new and existing impervious area.
- t. Indicate a stormwater facility to CWS standards (CWS R&O 07-20).

Sensitive Areas

- u. Show any and all streams, ponds, wetlands and drainage ways.
- v. Indicate the vegetative corridor for sensitive areas to CWS standards. (R&O 07-20).
- w. Indicate measures to avoid environmental degradation that meet CWS, DSL and Army Corp requirements.
- x. Flood elevation.
- y. Wetland delineation and buffering proposed.

Land Use

- z. The square footage of each building and a break down of square footage by use. (i.e. retail, office, industrial, residential, etc.).
- aa. Net buildable acres. (The land remaining after unbuildable areas are taken out, such as the floodplain and wetland areas.)
- bb. Net density calculation for residential use.
- cc. Existing trees proposed to remain and trees to be removed and the drip-lines of trees proposed to remain.
- dd. Street tree location, size and type. (refer to Ch. 8, Section 8.304.06 of the Community Development Code).
- ee. Location, size and height of proposed free-standing signs.
- ff. Location, height and type of fencing and walls.
- gg. For each lot indicated the building envelope.



Reduced - Proposed Development Plans – One (1) reduced copy of the Proposed Development Plans on 8 1/2” by 11” sheets and fifteen (15) reduced copies on 11” by 17” sheets.



Lighting Plan – Photometric lighting plan indicating foot candle power on and along the perimeter of the site. Proposed locations, height and size of lights. (If outdoor lighting is proposed).



Surrounding Land Uses – Existing land use including nature, size and location of existing structures within 300 feet. .

IV. DOCUMENTS REQUIRED



Title Report – Two (2) copies of a current preliminary title report available from a private title insurance company.



CWS Service Provider Letter – Four (4) copies of the CWS service provider letter.



Soils Analysis and/or Geotechnical Report – Four (4) copies completed by a registered Soils Engineer or Geologist including measures to protect natural hazards. (If required by the City Engineer).



Traffic Study – Four (4) copies of a traffic study. (If required by the City Engineer)

V. ADDITIONAL DOCUMENTS THAT MAY BE REQUIRED

NA

Army Corps and DSL wetland applications and/or permits – Four (4) copies of required Divisions of State Lands and/or Army Corp of Engineers permits and/or permit applications if applicable.

NA

Trip Analysis - verifying compliance with the Capacity Allocation Program, if required per 16.108.070.



Tree Report – Two (2) copies of a tree report prepared by an arborist, forester, landscape architect, botanist or other qualified professional. (If trees are on-site).

- NA **Natural Resource Assessment** – If required by Clean Water Services (CWS). The CWS Pre-Screening indicates as to whether this report is required or not.
- NA **Wetland Delineation Study** – if required by Oregon Division of State Lands (DSL) or the Army Corps of Engineers.
- NA **Other Special Studies and/or Reports** – if required by the Planning Director or the City Engineer to address issues identified in the pre-application meeting or during project review.
- NA Verification of compliance with other agency standards such as CWS, DSL, Army Corps of Engineers, ODOT, PGE, BPA, Washington County



Exhibit B: Preliminary Plans & Architectural Drawings

PROJECT TEAM

OWNER:	LANGER FAMILY LLC 15555 SW TUALATIN-SHERWOOD RD SHERWOOD, OR 97140
OWNER CONTACT:	MATT LANGER 503.956.9220 MATT.LANGER04@GMAIL.COM
ARCHITECT:	TILAND / SCHMIDT ARCHITECTS, PC 3611 SW HOOD AVE, SUITE 200 PORTLAND, OR 97239 FRANK M. SCHMIDT, AIA, NCARB 503.220.8517 FRANKSCHMIDT@TILANDSCHMIDT.COM
PLANNER/ENGINEER:	AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, SUITE 100 TUALATIN, OR 97062 JOEY SHEARER - LAND PLANNER JOHN CHRISTIANSEN - PROJECT ENGINEER 503.563.6151 SHEARERJ@AKS-ENG.COM JOHNC@AKS-ENG.COM
LANDSCAPE ARCHITECT:	CHRISTOPHER FRESHLEY LANDSCAPE ARCHITECTS 3944 SW 36TH PLACE PORTLAND, OR 97221 CHRIS FRESHLEY, RLA 503.222.9881 CHRIS@FRESHLEYLANDSCAPEARCHITECT.COM
ELECTRICAL ENGINEER:	MKE & ASSOCIATES 6915 SW MACADAM AVENUE, SUITE 200 PORTLAND, OR 97219 STEVE LOCKHART, PE / HANK BARLEEN 503.892.1188 STEVEL@MKE-INC.COM HANKB@MKE-INC.COM

DRAWING INDEX

T 0.0	COVER SHEET	COF1.1	DRIVE-UP COFFEE KIOSK: FLOOR PLAN AND EXTERIOR ELEVATIONS
P01	COVER SHEET WITH VICINITY AND SITE MAPS	RET1.1	PARTIAL SITE PLAN AND COMBINED ELEVATIONS
P02	EXISTING CONDITIONS	RET2.1	BUILDING A: FLOOR PLAN AND EXTERIOR ELEVATIONS
P03	PRELIMINARY PLAT	RET2.2	BUILDING B: FLOOR PLAN AND EXTERIOR ELEVATIONS
P04	PRELIMINARY DIMENSIONED CIVIL SITE PLAN	RET2.3	BUILDING C: FLOOR PLAN AND EXTERIOR ELEVATIONS
P05	PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN	PAD1.1	PAD A: FLOOR PLAN AND EXTERIOR ELEVATIONS
P06	PRELIMINARY TREE PRESERVATION AND REMOVAL TABLE	FEC2.1	FAMILY FUN CENTER: FIRST FLOOR PLAN
P07	PRELIMINARY GRADING AND EROSION AND SEDIMENT CONTROL PLAN	FEC2.2	FAMILY FUN CENTER: MEZZANINE FLOOR PLANS
P08	PRELIMINARY STORM DRAINAGE PLAN	FEC6.0	FAMILY FUN CENTER: EXTERIOR ELEVATIONS
P09	PRELIMINARY COMPOSITE UTILITY PLAN	FEC6.0A	FAMILY FUN CENTER: AVERAGE EXTERIOR ELEVATION HEIGHT EXHIBIT
P10	PRELIMINARY TRANSPORTATION CIRCULATION PAN	1C	FULL COLOR SITE PLAN
SP1.1	SITE PLAN	2C	FULL COLOR FUN CENTER FLOOR PLAN
SPL1.0	LANDSCAPE CALCULATIONS	3C	FULL COLOR SITE VIEW LOOKING SOUTHWEST
BR1.1	BREEZEWAY PLANS AND ELEVATIONS	4C	FULL COLOR SITE VIEW LOOKING SOUTHEAST
BR1.2	BICYCLE GAZEBO PLAN AND ELEVATIONS	BR1.1C	BREEZEWAY PLANS AND COLOR ELEVATIONS
TR1.1	CORNER TRELIS AND PLAZA PLAN AND ELEVATIONS	BR1.2C	BICYCLE GAZEBO PLAN AND COLOR ELEVATIONS
TE1.1	TRASH ENCLOSURES PLANS AND ELEVATIONS	COF1.1C	DRIVE-UP COFFEE KIOSK: FLOOR PLAN AND COLOR EXTERIOR ELEVATIONS
SA1.1	SITE AMENITIES	RET2.1C	BUILDING A: FLOOR PLAN AND COLOR EXTERIOR ELEVATIONS
L1	OVERALL LANDSCAPE PLAN	RET2.2C	BUILDING B: FLOOR PLAN AND COLOR EXTERIOR ELEVATIONS
L2	PARTIAL LANDSCAPE PLAN	RET2.3C	BUILDING C: FLOOR PLAN AND COLOR EXTERIOR ELEVATIONS
L3	PARTIAL LANDSCAPE PLAN	PAD1.1C	PAD A: FLOOR PLAN AND COLOR EXTERIOR ELEVATIONS
L4	PARTIAL LANDSCAPE PLAN	FEC6.0C	FAMILY FUN CENTER: COLOR EXTERIOR ELEVATIONS
L5	PARTIAL LANDSCAPE PLAN	MB1 - 8	MATERIAL COLOR / SAMPLE BOARDS
ELC1.0	SITE LIGHTING CALC		
ELC2.5	SITE LIGHTING LUMINAIRE CUT SHEETS		

TSA PROJECT NUMBERS

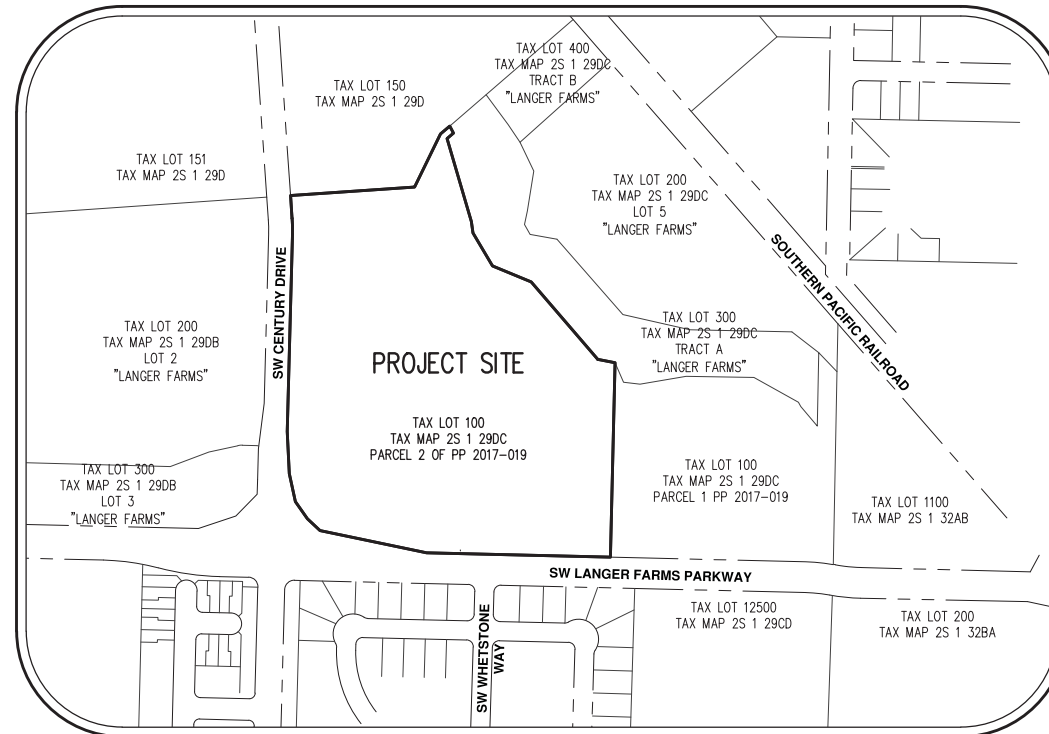
16191	FAMILY FUN CENTER
16198	SITE PLANNING AND LAND USE
16199	BUILDINGS AND PLAZAS

PARKWAY VILLAGE SOUTH

PRELIMINARY SUBDIVISION AND SITE PLAN REVIEW APPLICATION PLANS



VICINITY MAP
NTS



SITE MAP
1"=250'

PLANNING/CIVIL ENGINEERING/ SURVEYING FIRM:

AKS ENGINEERING & FORESTRY, LLC.
CONTACT: JOHN P. CHRISTIANSEN, PE
12965 SW HERMAN RD STE 100
TUALATIN, OR 97062
P: (503) 563-6151
F: (503) 563-6152

PROJECT LOCATION:

TAX LOT 100 WASHINGTON COUNTY ASSESSOR'S MAP 2S 1 290C (LOT 4 PARCEL 2 "LANGER FARMS") LOCATED IN THE SOUTHEAST 1/4 OF SECTION 29, TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, WASHINGTON COUNTY, OREGON.

SITE AREA:

±15.67 ACRES

PROPERTY DESCRIPTION:

SOUTHEAST CORNER OF SW CENTURY DRIVE & SW LANGER FARMS PARKWAY IN SHERWOOD, OREGON.

EXISTING LAND USE:

VACANT FIELD

PROJECT PURPOSE:

COMPLETION OF A PORTION OF PHASE 8 OF THE LANGER FAMILY PUD.

VERTICAL DATUM:

ELEVATIONS ARE BASED ON WASHINGTON COUNTY BENCHMARK NO. 103, A BRASS DISK IN CONCRETE AT THE SW CORNER OF THE INTERSECTION OF SW TUALATIN-SHERWOOD ROAD AND THE RAILROAD CROSSING, APPROXIMATELY 1.1 MILE EAST OF SIX CORNERS. WITH A NGVD 29 ELEVATION OF 171.38 FEET.

SHEET INDEX

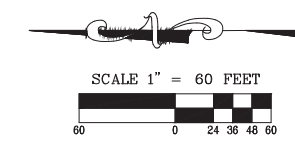
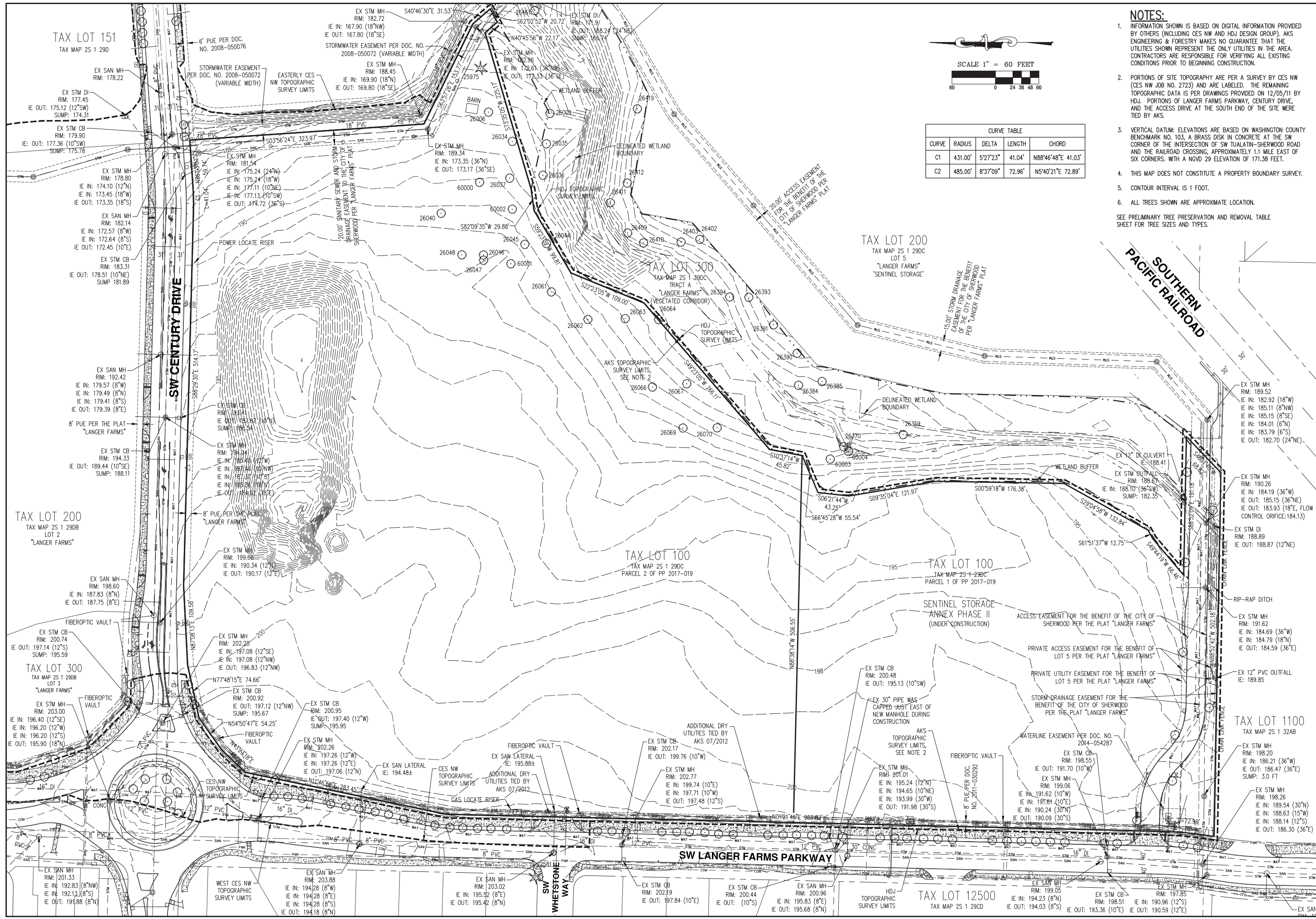
- P01 COVER SHEET WITH VICINITY AND SITE MAPS
- P02 EXISTING CONDITIONS
- P03 PRELIMINARY SUBDIVISION PLAT
- P04 PRELIMINARY DIMENSIONED CIVIL SITE PLAN
- P05 PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN
- P06 PRELIMINARY TREE PRESERVATION AND REMOVAL TABLE
- P07 PRELIMINARY GRADING AND EROSION AND SEDIMENT CONTROL PLAN
- P08 PRELIMINARY STORM DRAINAGE PLAN
- P09 PRELIMINARY COMPOSITE UTILITY PLAN
- P10 PRELIMINARY TRANSPORTATION CIRCULATION PLAN

LEGEND

	EXISTING	PROPOSED		EXISTING	PROPOSED
DECIDUOUS TREE			STORM SEWER CLEAN OUT		
CONIFEROUS TREE			STORM SEWER CATCH BASIN		
FIRE HYDRANT			STORM SEWER AREA DRAIN		
WATER BLOWOFF			STORM SEWER MANHOLE		
WATER METER			GAS METER		
WATER VALVE			GAS VALVE		
DOUBLE CHECK VALVE			GUY WIRE ANCHOR		
AIR RELEASE VALVE			POWER POLE		
SANITARY SEWER CLEAN OUT			POWER VAULT		
SANITARY SEWER MANHOLE			POWER JUNCTION BOX		
SIGN			POWER PEDESTAL		
STREET LIGHT			COMMUNICATIONS VAULT		
MAILBOX			COMMUNICATIONS JUNCTION BOX		
			COMMUNICATIONS RISER		

	EXISTING	PROPOSED		EXISTING	PROPOSED
RIGHT-OF-WAY LINE					
BOUNDARY LINE					
PROPERTY LINE					
CENTERLINE					
DITCH					
CURB					
EDGE OF PAVEMENT					
EASEMENT					
FENCE LINE					
GRAVEL EDGE					
POWER LINE					
OVERHEAD WIRE					
COMMUNICATIONS LINE					
FIBER OPTIC LINE					
GAS LINE					
STORM SEWER LINE					
SANITARY SEWER LINE					
WATER LINE					

AKS DRAWING FILE: 5656_P02_EX_COND.DWG | LAYOUT: P02



CURVE TABLE				
CURVE	RADIUS	DELTA	LENGTH	CHORD
C1	431.00'	52°27'23"	41.04'	N88°46'48"E 41.03'
C2	485.00'	8°37'09"	72.96'	N5°40'21"E 72.89'

- NOTES:**
- INFORMATION SHOWN IS BASED ON DIGITAL INFORMATION PROVIDED BY OTHERS (INCLUDING CES NW AND HDJ DESIGN GROUP). AKS ENGINEERING & FORESTRY MAKES NO GUARANTEE THAT THE UTILITIES SHOWN REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
 - PORTIONS OF SITE TOPOGRAPHY ARE PER A SURVEY BY CES NW (CES NW JOB NO. 2723) AND ARE LABELED. THE REMAINING TOPOGRAPHIC DATA IS PER DRAWINGS PROVIDED ON 12/05/11 BY HDJ. PORTIONS OF LARGER FARMS PARKWAY, CENTURY DRIVE, AND THE ACCESS DRIVE AT THE SOUTH END OF THE SITE WERE TIED BY AKS.
 - VERTICAL DATUM: ELEVATIONS ARE BASED ON WASHINGTON COUNTY BENCHMARK NO. 103, A BRASS DISK IN CONCRETE AT THE SW CORNER OF THE INTERSECTION OF SW TUALATIN-SHERWOOD ROAD AND THE RAILROAD CROSSING, APPROXIMATELY 1.1 MILE EAST OF SIX CORNERS. WITH A NGVD 29 ELEVATION OF 171.38 FEET.
 - THIS MAP DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.
 - CONTOUR INTERVAL IS 1 FOOT.
 - ALL TREES SHOWN ARE APPROXIMATE LOCATION.
- SEE PRELIMINARY TREE PRESERVATION AND REMOVAL TABLE SHEET FOR TREE SIZES AND TYPES.

AKS
 AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD. STE 100
 TUALATIN, OR 97062
 P: 503.563.6151
 F: 503.563.6152
 aks-eng.com

ENGINEERING • SURVEYING • NATURAL RESOURCES
 FORESTRY • PLANNING • LANDSCAPE ARCHITECTURE

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC.
SHERWOOD OREGON
 WASHINGTON COUNTY TAX MAP 2S 1 29DC
 TAX LOT 100

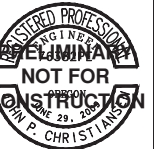
EXISTING CONDITIONS

DESIGNED BY: MEB/ADS
 DRAWN BY: MEB/ADS
 CHECKED BY: RDR
 SCALE: AS NOTED
 DATE: 07/17/2017
 REGISTERED LAND SURVEYOR
 PRELIMINARY
NOT FOR CONSTRUCTION
 JANUARY 11, 2005
 ROBERT D. RETTIG
 601245
 RENEWS: 12/31/18
 REVISIONS:

JOB NUMBER
5656
 SHEET
P02

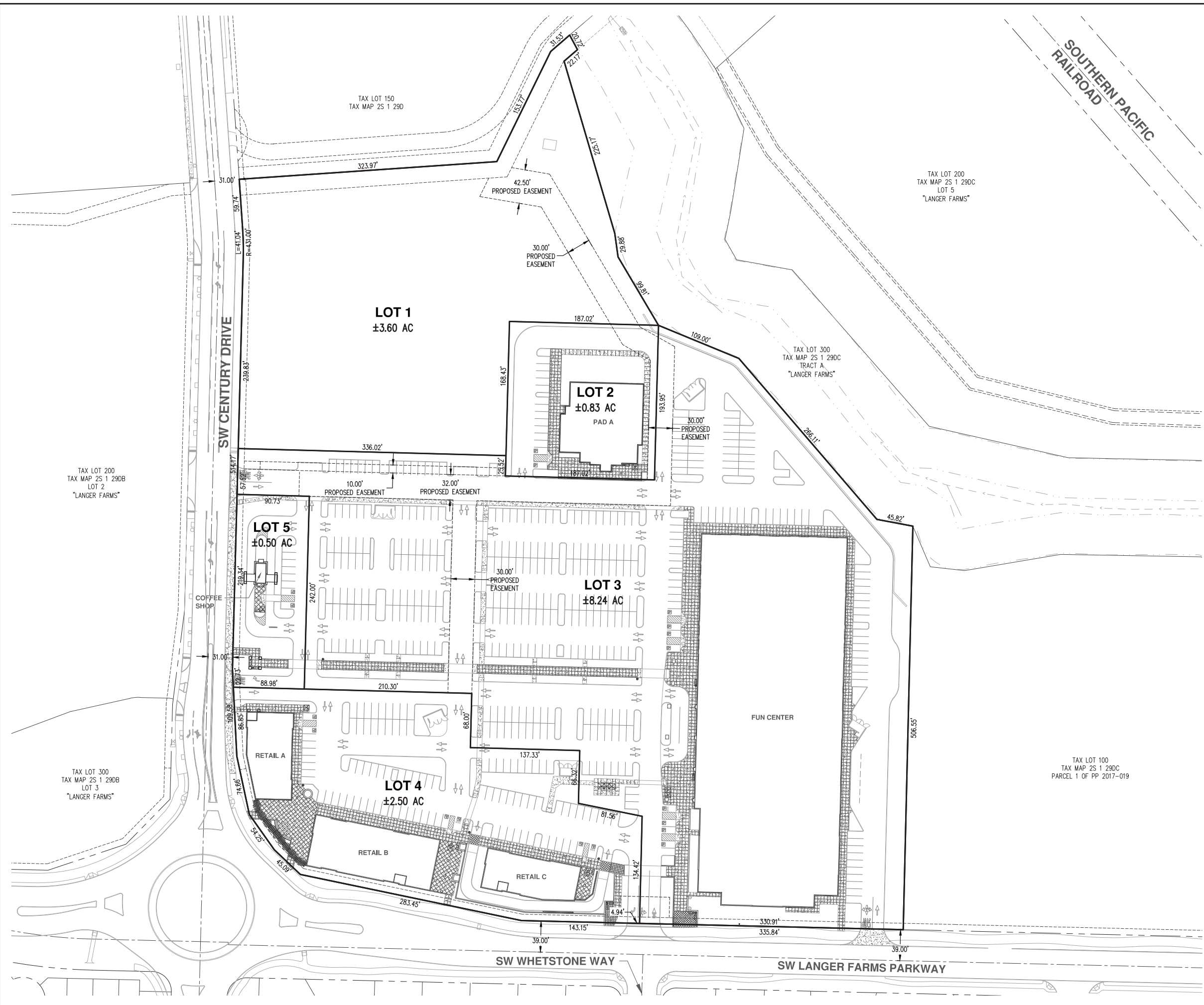
**PRELIMINARY
 SUBDIVISION PLAT**

DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JPC
 SCALE: AS NOTED
 DATE: 07/17/2017



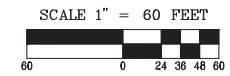
RENEWAL DATE: 12/31/17
 REVISIONS:

JOB NUMBER
5656
 SHEET
P03



TAX LOT 100
 TAX MAP 2S 1 29DC
 PARCEL 1 OF PP 2017-019

NOTE:
 THE PURPOSE OF THIS PRELIMINARY PLAT IS TO SHOW THE PROPOSED LOT DIMENSIONS AND AREAS. THIS IS NOT AN OFFICIAL PLAT AND IS NOT TO BE USED FOR SURVEY PURPOSES.



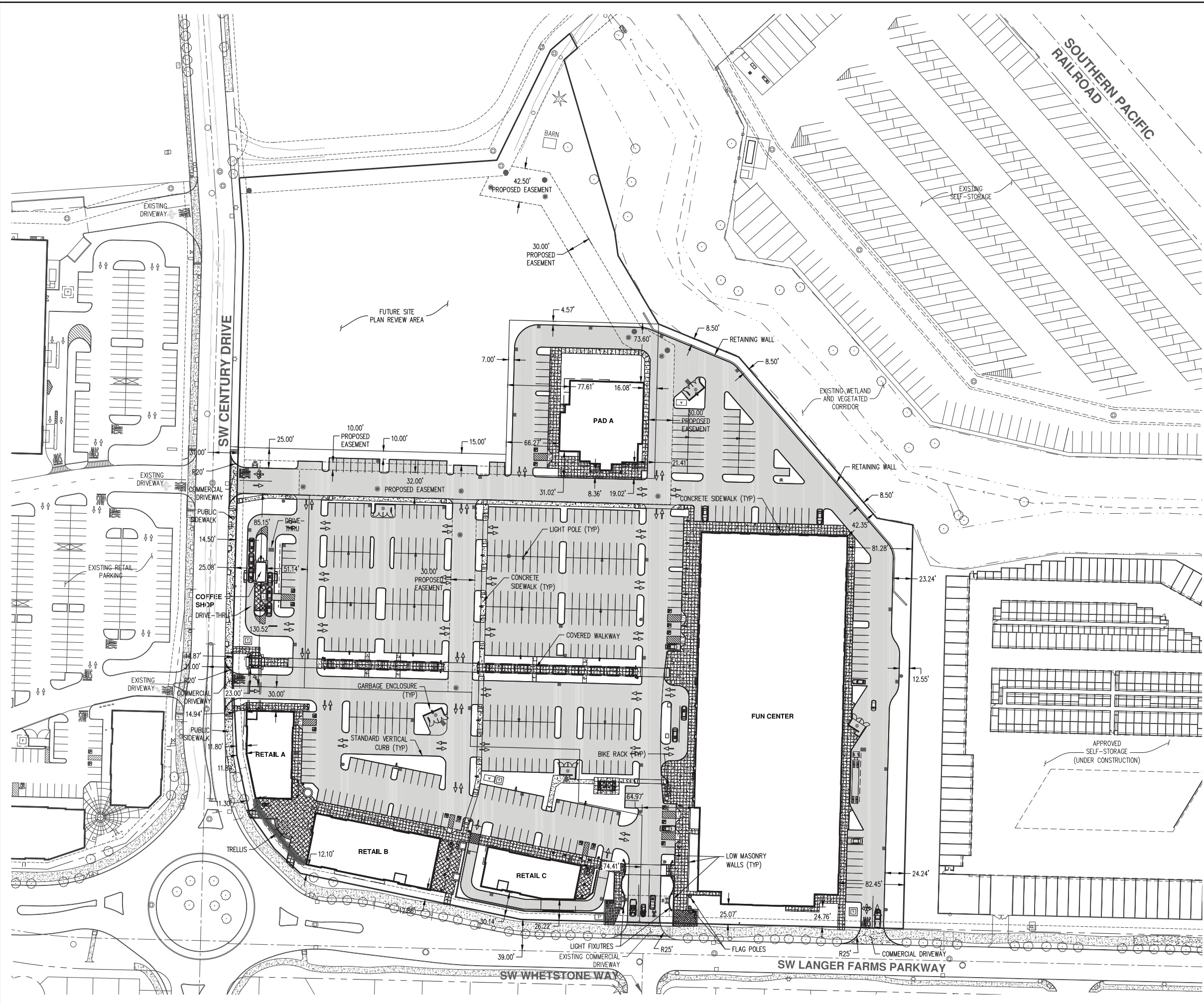
**PRELIMINARY
 DIMENSIONED CIVIL
 SITE PLAN**

DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JPC
 SCALE: AS NOTED
 DATE: 07/17/2017



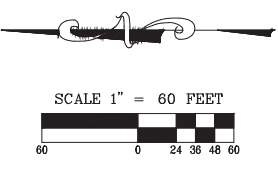
RENEWAL DATE: 12/31/17
 REVISIONS:

JOB NUMBER
5656
 SHEET
P04



LEGEND

- ASPHALT CONCRETE PAVEMENT
- CONCRETE SIDEWALK/DRIVEWAY



AKS DRAWING FILE: 5656 P04 SITE PLANNING | LAYOUT: P04

PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN

DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JPC
 SCALE: AS NOTED
 DATE: 07/17/2017

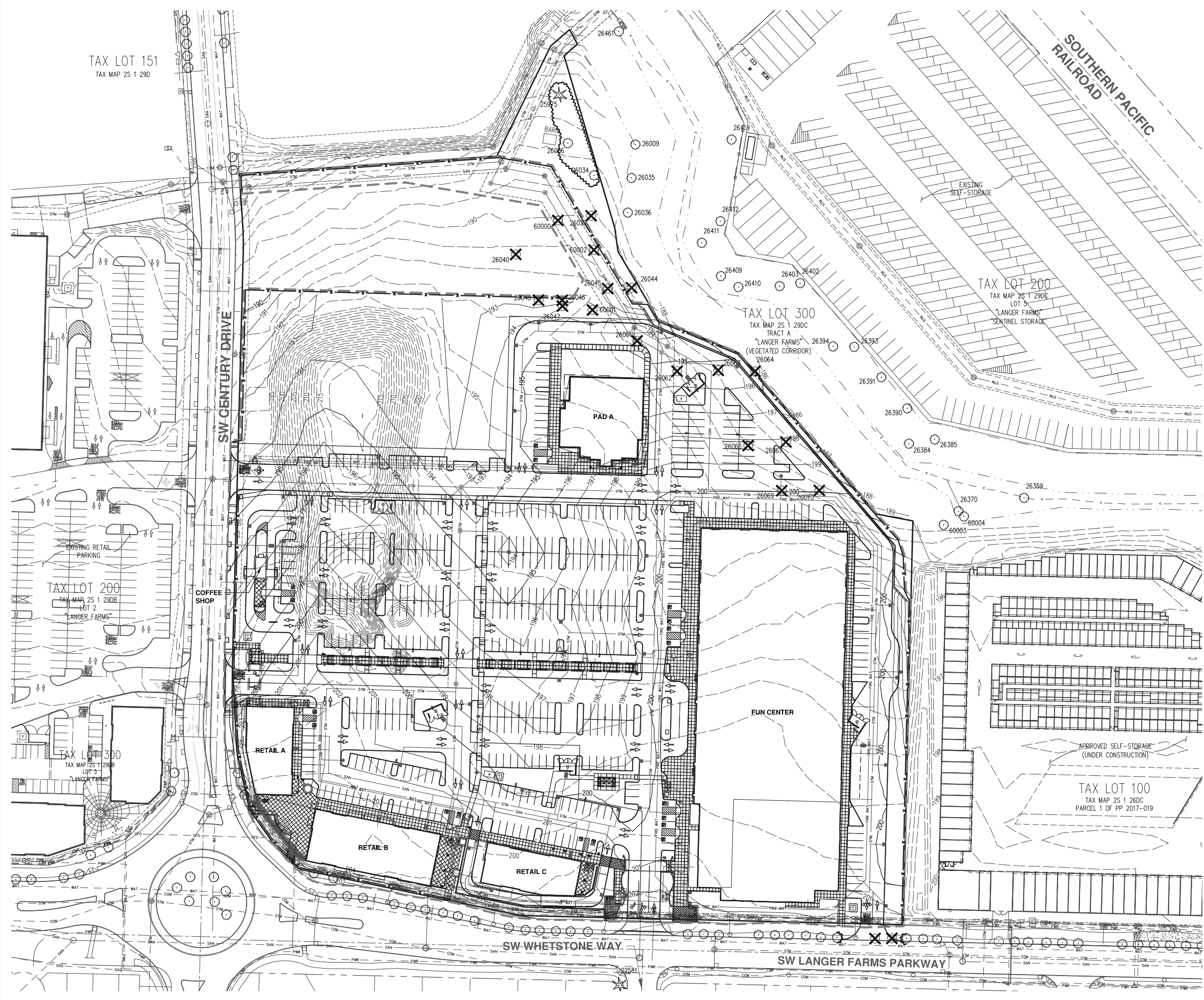
REGISTERED PROFESSIONAL
ARBORETRIST
BRUCE R. BALDWIN
 CERTIFICATE NUMBER: PH-6568A
 EXPIRATION DATE: 12/31/17

NOT FOR CONSTRUCTION
 J.P. CHRISTIANSON

RENEWAL DATE: 12/31/17
 REVISIONS:

JOB NUMBER
5656

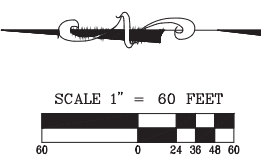
SHEET
P05



LEGEND

EXISTING GROUND CONTOUR (1 FT)	--- 201 ---
EXISTING GROUND CONTOUR (5 FT)	--- 205 ---
FINISHED GRADE CONTOUR (1 FT)	--- 201 ---
FINISHED GRADE CONTOUR (5 FT)	--- 205 ---
GRADING LIMITS	--- ---
EXISTING TREES TO BE PRESERVED	○ * (C) (D)
EXISTING TREE TO BE REMOVED	○ × (C) (D)
SEDIMENT FENCE (ALSO SERVES AS TREE PROTECTION FENCE)	--- x ---
TREE PROTECTION FENCE (4-FT ORANGE PLASTIC CONSTRUCTION OR APPROVED EQUIVALENT)	~~~~~

NOTE:
 TREES SHOWN WITHOUT A TREE NUMBER ARE LESS THAN 6-INCHES IN DBH AND ARE EXEMPT FROM INVENTORY PURPOSES PER CITY OF SHERWOOD MUNICIPAL CODE CHAPTER 16.142.070. THEREFORE, THE TREES SHOWN WITHOUT A TREE NUMBER WERE NOT SURVEYED, NOT EVALUATED, AND THEIR LOCATIONS ARE APPROXIMATE.



AKS DRAWING FILE: 5656 P05 PRELIMINARY TREE PRESERVATION AND REMOVAL PLANNING | LAYOUT: P05

DESIGNED BY: JDS

DRAWN BY: JDS

CHECKED BY: JPC

SCALE: AS NOTED

DATE: 07/17/2017



RENEWAL DATE: 12/31/17

REVISIONS

JOB NUMBER

5656

SHEET

P06

Detailed Tree Inventory for Langer Farms Phase 2

AKS Job No. 5656

Tree #	DBH (in.)	Tree Species Common Name (Scientific name)	Comments	Health Rating*	Structure Rating**	Remove / Preserve
22581	-	Coniferous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
25975	53	Douglas-fir (<i>Pseudotsuga menziesii</i>)		1	1	Preserve
26006	14	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavity; Decay; Broken branches; Dead	3	3	Preserve
26009	16	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26034	14	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavity; Decay; Crooked; Declining	2	3	Preserve
26035	16	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26036	16	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26037	14	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavity; Decay; Crooked; Declining	2	3	Remove
26040	18	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavity; Decay; Crooked; Declining	2	3	Remove
26044	16	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavity; Decay; Broken branches; Declining	3	2	Remove
26045	8,8,8	Black Walnut (<i>Juglans nigra</i>)	Decay at base; Crooked; Dead branches	2	2	Remove
26046	20	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavity; Bore holes; Crooked; Decay	1	3	Remove
26047	20,20	Oregon Ash (<i>Fraxinus latifolia</i>)	Horizontal cracks on bole; Lean (W); Crooked	1	3	Remove
26048	52	American Chestnut (<i>Castanea dentata</i>)	Broken branches; Cavity; Decay; Scars; Cracks	2	3	Remove
26061	14	Oregon Ash (<i>Fraxinus latifolia</i>)	Very sparse foliage; Crooked; Cavity; Decay; Declining	3	3	Remove
26062	14	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavities; Decay	2	2	Remove
26063	18	Oregon Ash (<i>Fraxinus latifolia</i>)	Foliage color lightening; Sparse foliage; Scars; Decay; Declining	2	3	Remove
26064	18	Oregon Ash (<i>Fraxinus latifolia</i>)	Broken branches; Scars; Decay	2	2	Remove
26066	6	Oregon Ash (<i>Fraxinus latifolia</i>)	Sparse foliage; Broken branches; Foliage color lightening; Declining	2	2	Remove
26067	16	Oregon Ash (<i>Fraxinus latifolia</i>)	Broken branches; Dead branches; Sparse foliage; Declining	3	2	Remove
26069	16	Oregon Ash (<i>Fraxinus latifolia</i>)	Broken branches; Scars; Decay; Sparse foliage; Declining	2	2	Remove
26070	16	Oregon Ash (<i>Fraxinus latifolia</i>)	Sparse foliage; Cavities; Decay; Broken branches; Declining	2	3	Remove
26359	16,16,16, 16,16	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26370	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26384	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26385	12	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26390	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26391	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26393	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26394	12	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26402	16	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26403	16	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26409	18	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26410	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26411	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26412	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26419	10,10,10, 10,10	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
26461	14	Deciduous	OFFSITE; Not evaluated by an Arborist	-	-	Preserve
60000	14	Oregon Ash (<i>Fraxinus latifolia</i>)	Scars; Cavities; Decay; Sparse foliage; Declining	2	3	Remove
60001	28	Black Walnut (<i>Juglans nigra</i>)	Sparse foliage; Crooked; Lean (W)	2	2	Remove
60002	20	Oregon Ash (<i>Fraxinus latifolia</i>)	Cavities; Decay; Scars; Sparse foliage; Declining	3	2	Remove
60003	15,15	Black Cottonwood (<i>Populus trichocarpa</i>)	OFFSITE; Codominant	1	1	Preserve
60004	15,20	Black Cottonwood (<i>Populus trichocarpa</i>)	OFFSITE; Codominant	1	1	Preserve

Total # of Existing Trees Inventoried = 43

Total # of Existing Onsite Trees = 21

Total # of Existing Onsite Trees to be Preserved = 3

Total # of Existing Onsite Trees to be Removed = 18

Total # of Existing Offsite Trees = 22

Total # of Existing Offsite Trees to be Preserved = 22

Total # of Existing Offsite Trees to be Removed = 0

***Health Rating:**

- 1 = Good Health - A tree that exhibits typical foliage, bark, and root characteristics, for its respective species, shows no signs of infection or infestation, and has a high level of vigor and vitality.
- 2 = Fair Health - A tree that exhibits some abnormal health characteristics and/or shows some signs of infection or infestation, but may be reversed or abated with supplemental treatment.
- 3 = Poor Health - A tree that is in significant decline, to the extent that supplemental treatment would not likely result in reversing or abating its decline.

****Structure Rating:**

- 1 = Good Structure - A tree that exhibits typical physical form characteristics, for its respective species, shows no signs of structural defects of the canopy, trunk, and/or root system.
- 2 = Fair Structure - A tree that exhibits some abnormal physical form characteristics and/or some signs of structural defects, which reduce the structural integrity of the tree, but are not indicative of imminent physical failure, and may be corrected using arboricultural abatement methods.
- 3 = Poor Structure - A tree that exhibits extensively abnormal physical form characteristics and/or significant structural defects that substantially reduces the structural viability of the tree, cannot feasibly be abated, and are indicative of imminent physical failure.

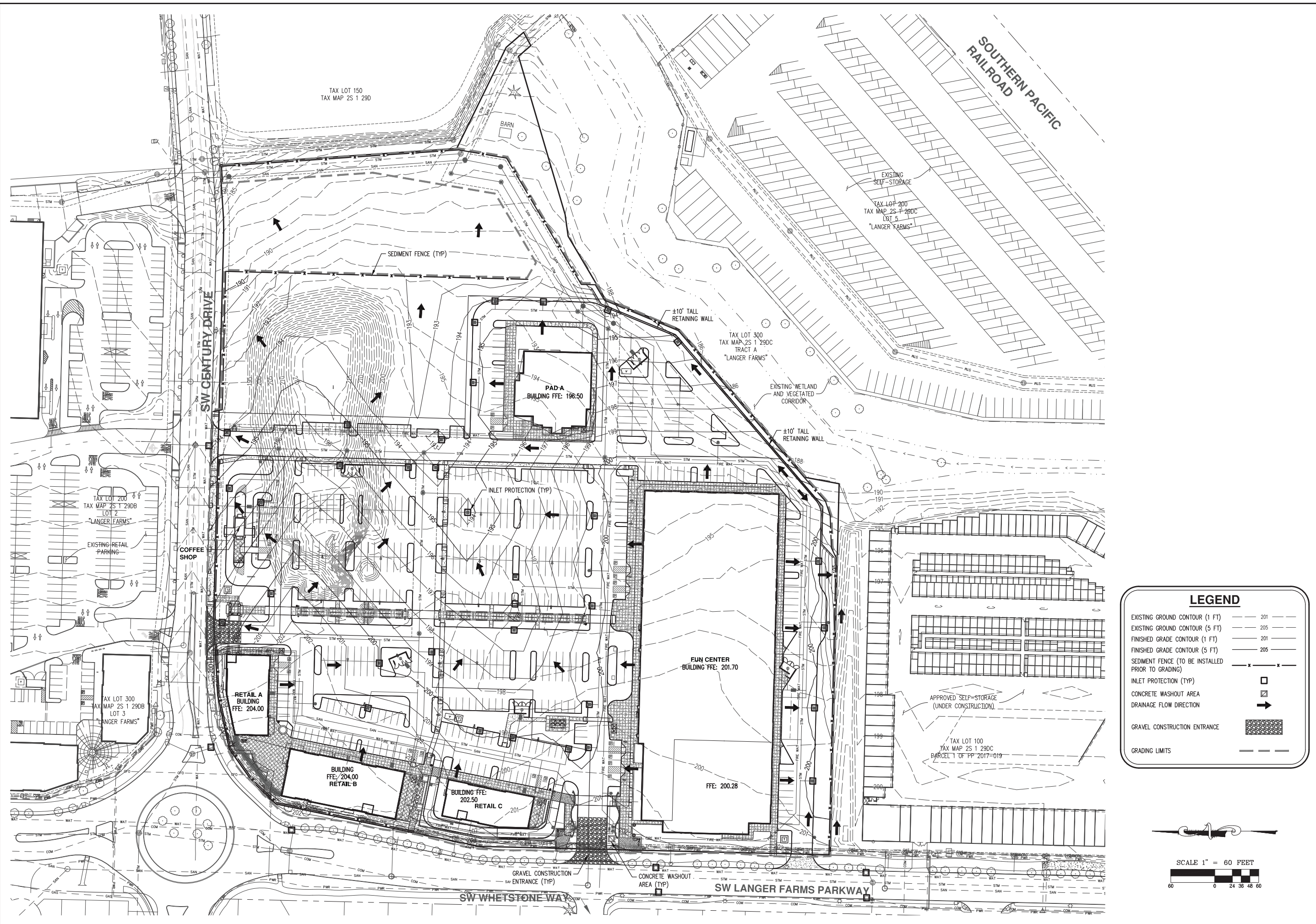
Arborist Disclosure Statement:

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees, and attempt to reduce the risk of living near trees. The Client and Jurisdiction may choose to accept or disregard the recommendations of the arborist, or seek additional advice. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees. Neither this author nor AKS Engineering & Forestry, LLC have assumed any responsibility for liability associated with the trees on or adjacent to this site.

At the completion of construction, all trees should once again be reviewed. Land clearing and removal of adjacent trees can expose previously unseen defects and otherwise healthy trees can be damaged during construction.

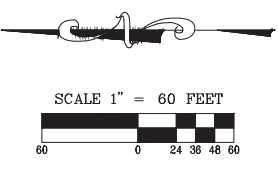


BRUCE R. BALDWIN
 CERTIFICATE NUMBER: PE-6666A
 EXPIRATION DATE: 12/31/17



LEGEND

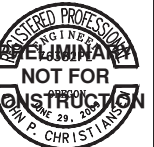
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- EXISTING GROUND CONTOUR (5 FT) --- 205 ---
- FINISHED GRADE CONTOUR (1 FT) --- 201 ---
- FINISHED GRADE CONTOUR (5 FT) --- 205 ---
- SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING) --- x ---
- INLET PROTECTION (TYP) [Symbol]
- CONCRETE WASHOUT AREA [Symbol]
- DRAINAGE FLOW DIRECTION [Arrow]
- GRAVEL CONSTRUCTION ENTRANCE [Symbol]
- GRADING LIMITS [Dashed Line]



AKS DRAWING FILE: 5656_P07_PRELIMINARY GRADING AND EROSION CONTROL.DWG | LAYOUT: P07

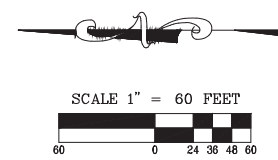
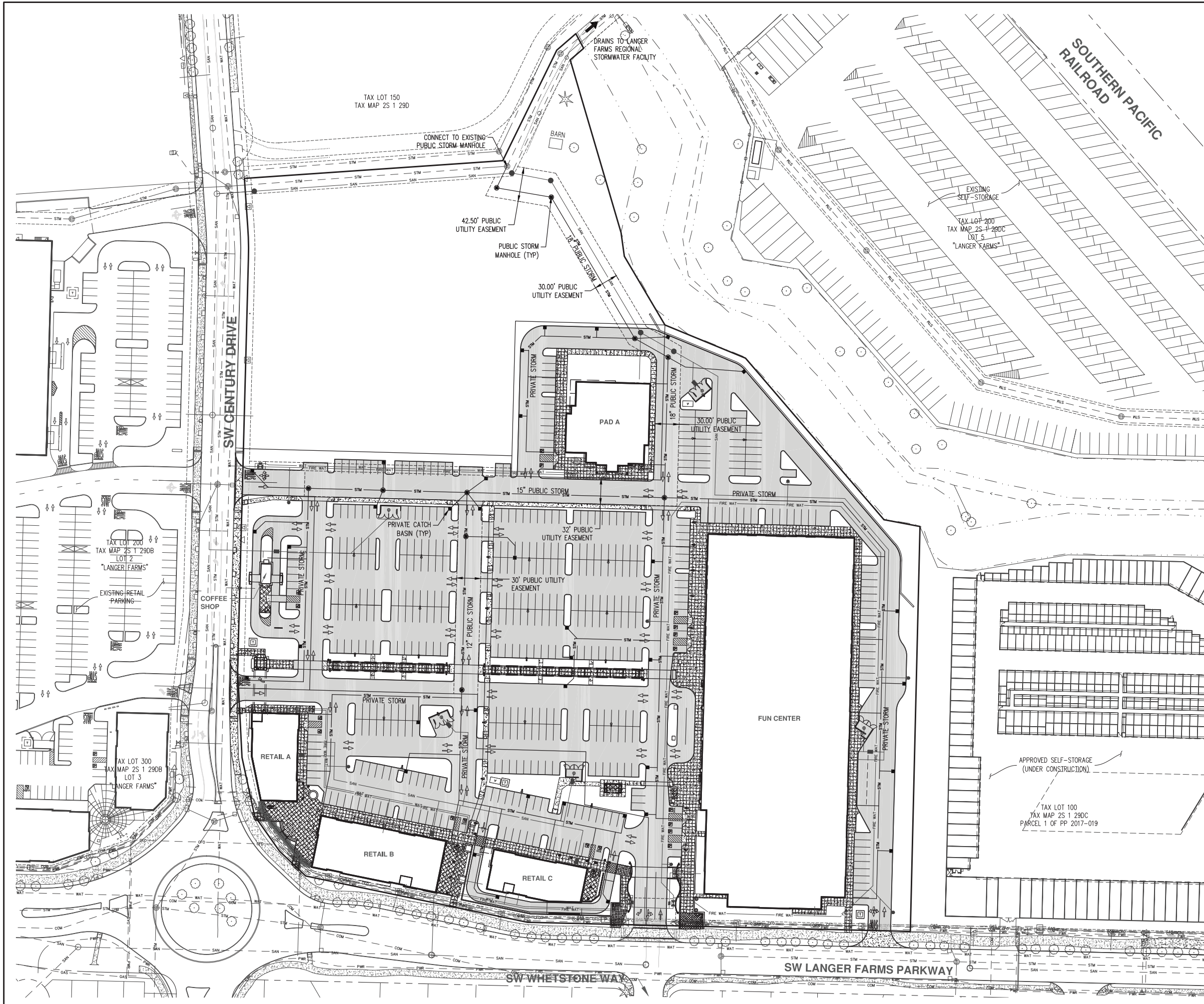
**PRELIMINARY STORM
 DRAINAGE PLAN**

DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JPC
 SCALE: AS NOTED
 DATE: 07/17/2017



RENEWAL DATE: 12/31/17
 REVISIONS:

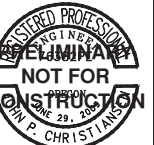
JOB NUMBER
5656
 SHEET
P08



AKS DRAWING FILE: 5656_P08 PRELIMINARY STORM DRAINAGE PLANNING | LAYOUT: P08

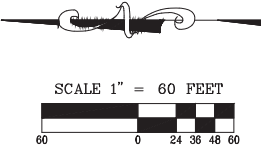
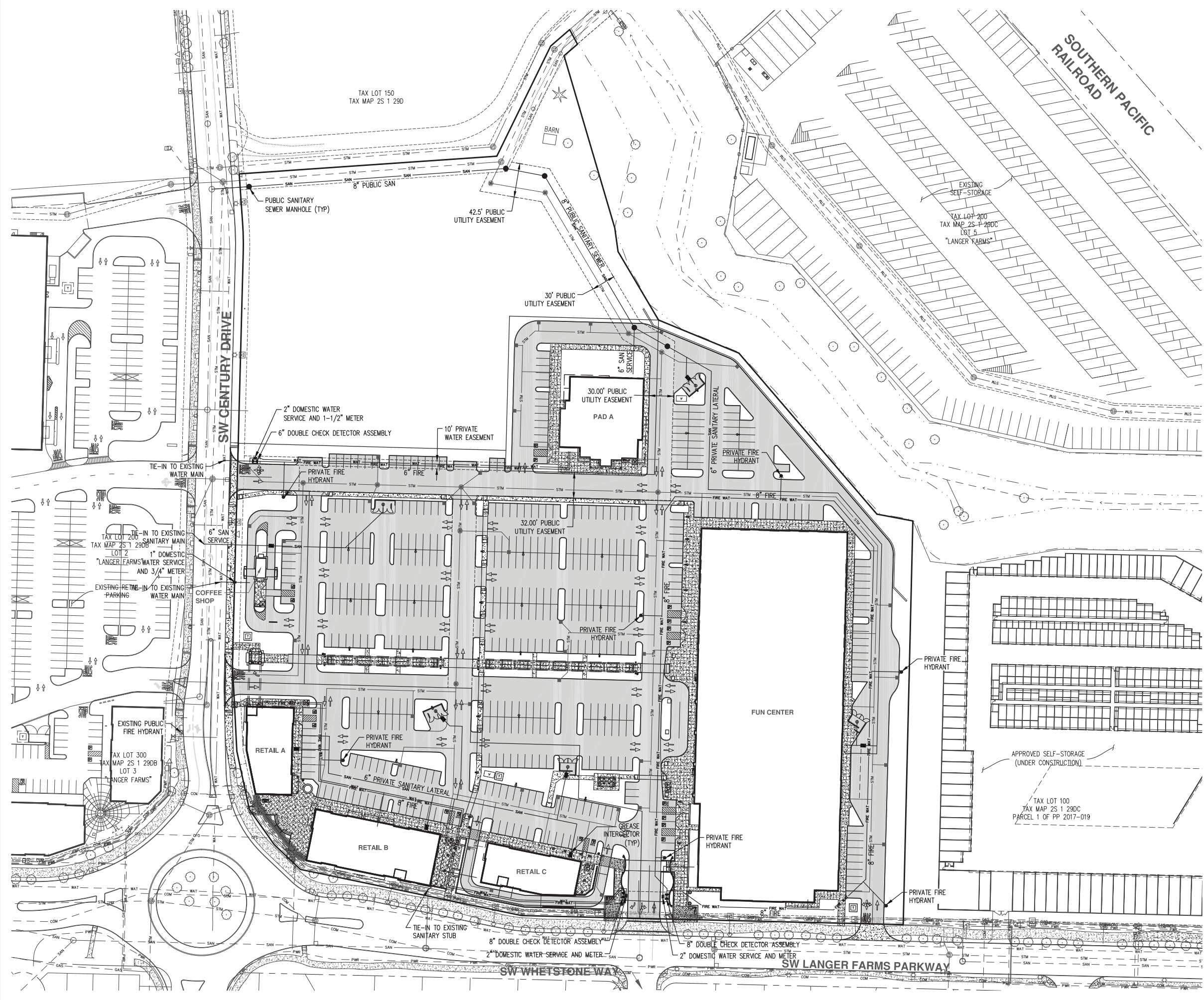
**PRELIMINARY COMPOSITE
 UTILITY PLAN**

DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JPC
 SCALE: AS NOTED
 DATE: 07/17/2017



RENEWAL DATE: 12/31/17
 REVISIONS:

JOB NUMBER
5656
 SHEET
P09



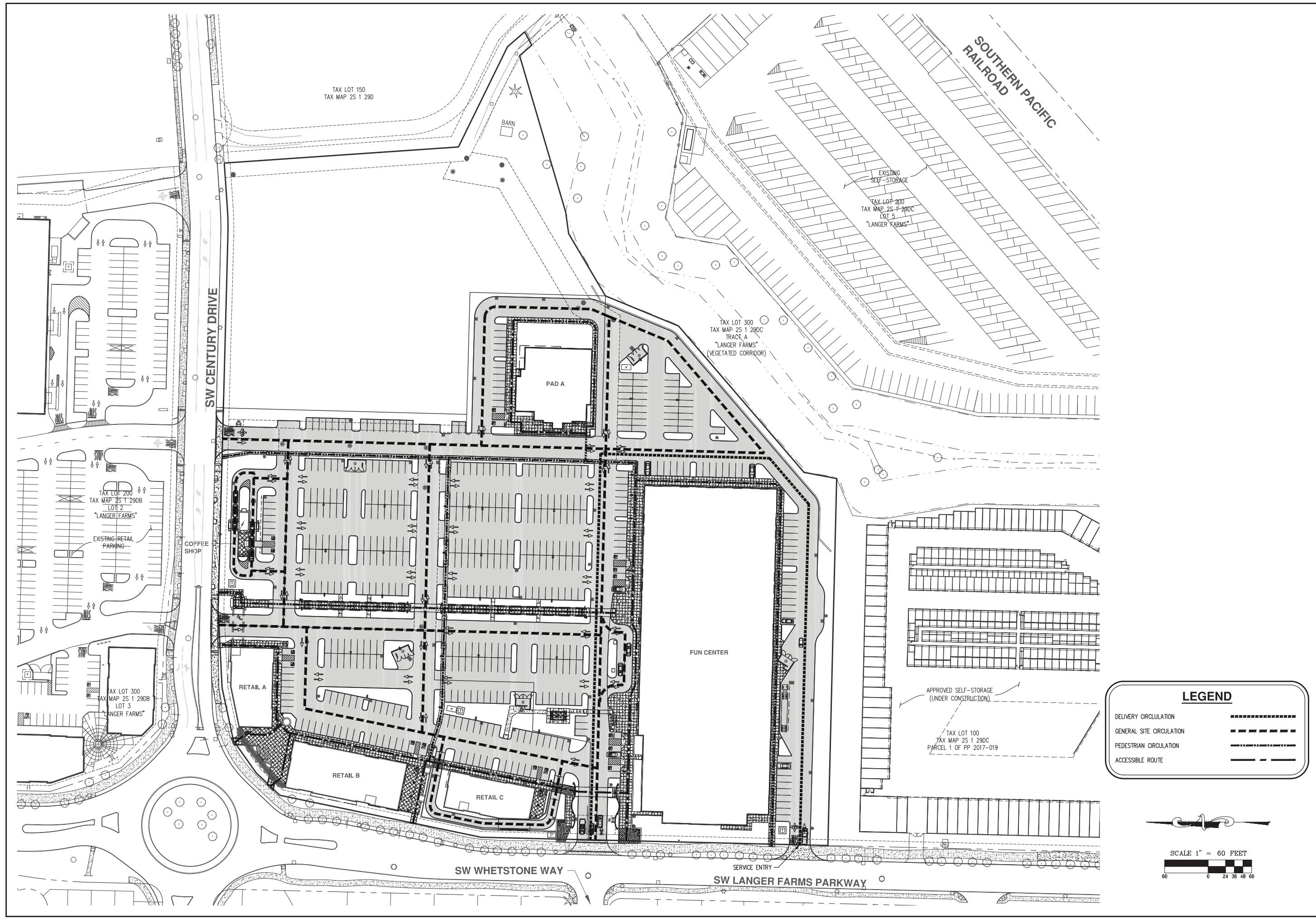
AKS DRAWING FILE: 5656 P09 PRELIMINARY COMPOSITE UTILITY PLANNING LAYOUT: P09

**PRELIMINARY
 TRANSPORTATION
 CIRCULATION PLAN**

DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JPC
 SCALE: AS NOTED
 DATE: 07/17/2017

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
NOT FOR CONSTRUCTION
 JOHN P. CHRISTIAN
 RENEWAL DATE: 12/31/17
 REVISIONS:

JOB NUMBER
5656
 SHEET
P10

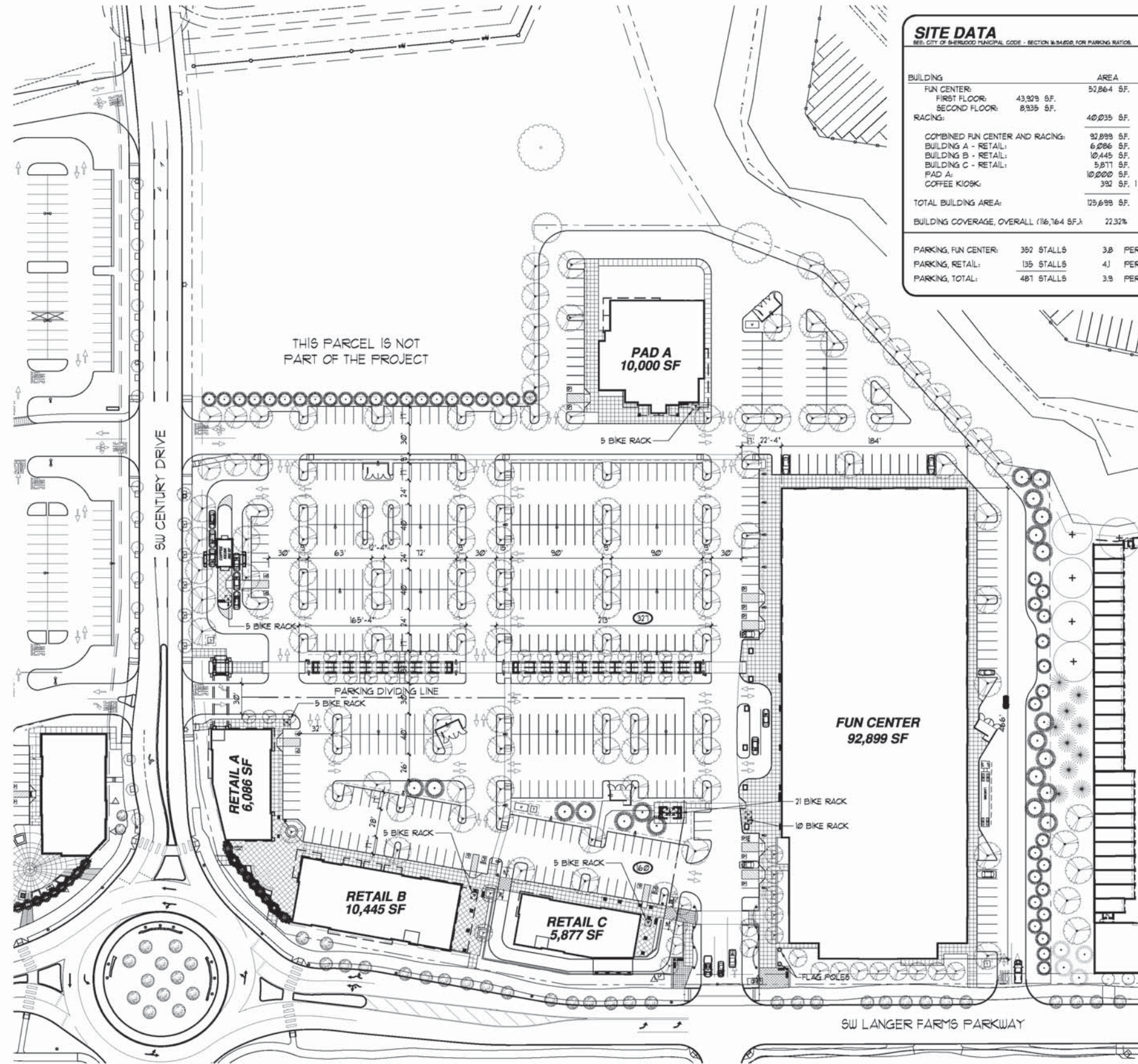


LEGEND

- DELIVERY CIRCULATION
- GENERAL SITE CIRCULATION
- PEDESTRIAN CIRCULATION
- ACCESSIBLE ROUTE

SCALE 1" = 60 FEET

AKS DRAWING FILE: 5656_P10 PRELIMINARY CIRCULATION PLANNING | LAYOUT: P10



SITE DATA
REF. CITY OF SEASIDE MUNICIPAL CODE - SECTION 9-4-600 FOR PARKING RATIOS.

BUILDING	AREA	PARKING RATIO (PER 1000 SF.)		PARKING STALLS			BICYCLE PARKING (TABLE 4)
		MIN	MAX	MIN	S PER	MAX	
FUN CENTER:							
FIRST FLOOR:	43,929 SF.	4.3	5.4	228	265	286	16
SECOND FLOOR:	8,935 SF.						
RACING:	40,035 SF.	ASSUMED 40		40	40	40	2
COMBINED FUN CENTER AND RACING:	92,899 SF.	4.3	5.4	268	305	326	18
BUILDING A - RETAIL:	6,086 SF.	4.1	5.1	25	31	32	2
BUILDING B - RETAIL:	10,445 SF.	4.1	5.1	43	53	54	3
BUILDING C - RETAIL:	5,877 SF.	4.1	5.1	25	30	30	2
PAD A:	10,000 SF.	4.1	5.1	41	50	51	3
COFFEE KIOSK:	392 SF.	1 PER 101 SF.	4	4	4	1	1
TOTAL BUILDING AREA:	125,699 SF.			406	413	491	TOTAL: 28
BUILDING COVERAGE, OVERALL (116,164 SF.):	22.32%			OVERALL RATIO:	3.23	3.16	3.95 PROVIDED: 56
PARKING, FUN CENTER:	352 STALLS	3.8 PER 1000 SF.	(92,899 SF.) - GROSS				
PARKING, RETAIL:	135 STALLS	4.1 PER 1000 SF.	(32,800 SF.)				
PARKING, TOTAL:	487 STALLS	3.9 PER 1000 SF.	(125,699 SF.)				

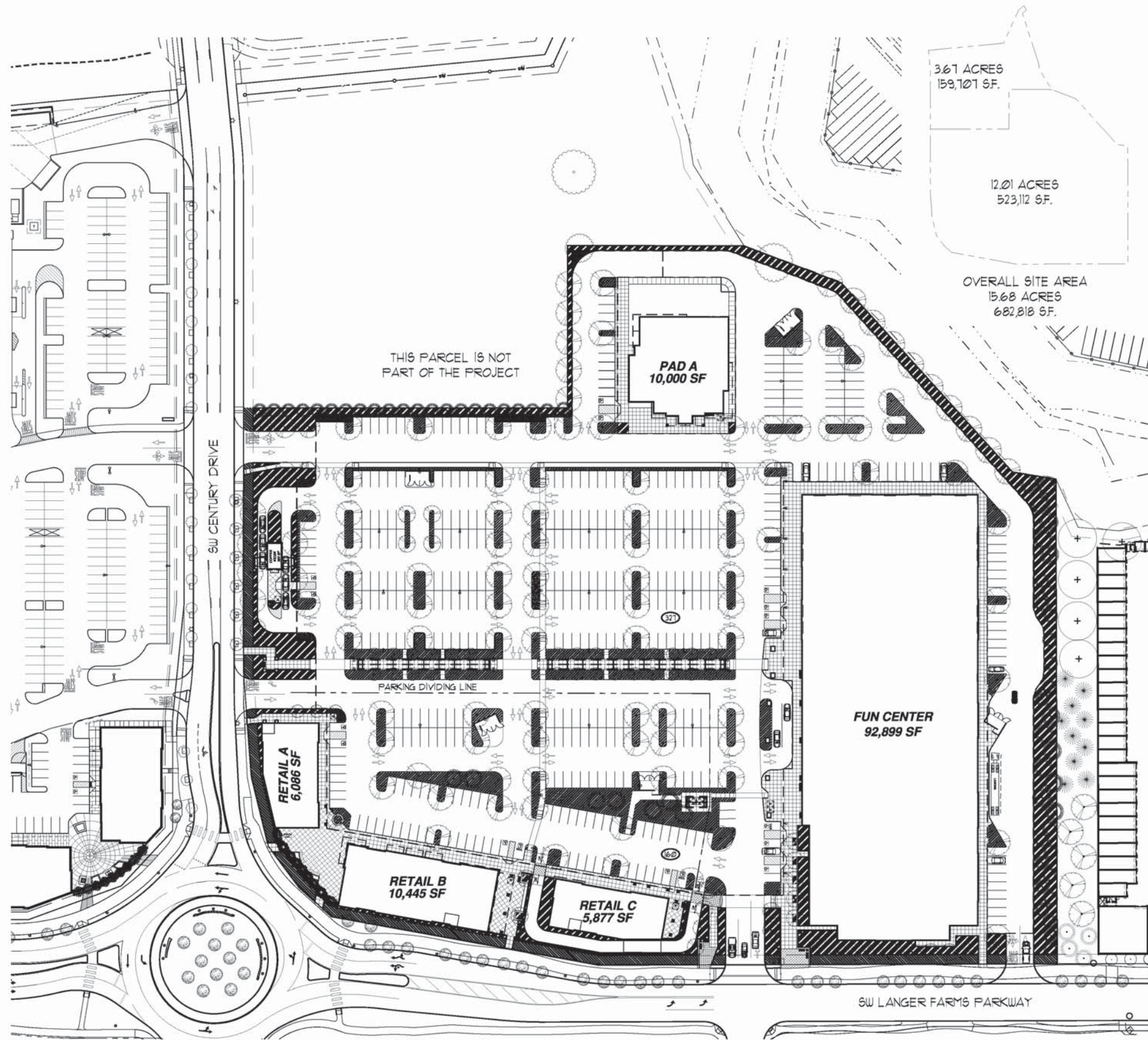
TILAND / SCHMIDT ARCHITECTS, P.C.
3611 SW HOOD AVE. SUITE 200
PORTLAND, OR 97239
(503) 220-8517
FAX (503) 220-8518

SITE PLAN
07-14-2017 1" = 60'-0"

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC



SP
1.1



3.61 ACRES
159,101 SF.

12.01 ACRES
523,112 SF.

OVERALL SITE AREA
15.68 ACRES
682,213 SF.

THIS PARCEL IS NOT
PART OF THE PROJECT

PAD A
10,000 SF

FUN CENTER
92,899 SF

RETAIL A
6,086 SF

RETAIL B
10,445 SF

RETAIL C
5,877 SF

TOTAL SITE AREA:	523,112 S.F.
TOTAL BUILDING AREA:	116,764 S.F.
10% LANDSCAPE REQ'D:	52,312 S.F.
PROPOSED LANDSCAPING:	
PARKING AREA:	33,064 S.F.
OTHER AREAS:	35,187 S.F.
BUFFERS:	10,649 S.F.
<hr/>	
TOTAL SITE LANDSCAPE:	78,900 S.F.
PERCENT OF SITE:	15.1 %

PARKING STALLS:	487
PARKING STALL RATIO:	
487 / 125,699 =	3.87 PER 1000 S.F.
PARKING LANDSCAPE AREA PER STALL:	
45 S.F. x 487 =	21,915 S.F.
33,064 S.F. / 487 =	67.89 S.F.

NOTES:
CAR BUMPER OVERHANGS ARE COUNTED
IN PARKING AREA LANDSCAPING.

LEGEND

- PARKING LOT INTERIOR LANDSCAPING
= 31,344 S.F.
- PARKING LOT PERIMETER LANDSCAPING
= 1,720 S.F.
- SITE BUFFER LANDSCAPING
= 10,649 S.F.
- OTHER SITE LANDSCAPING
= 35,187 S.F.
- PARKING LOT EXTENTS

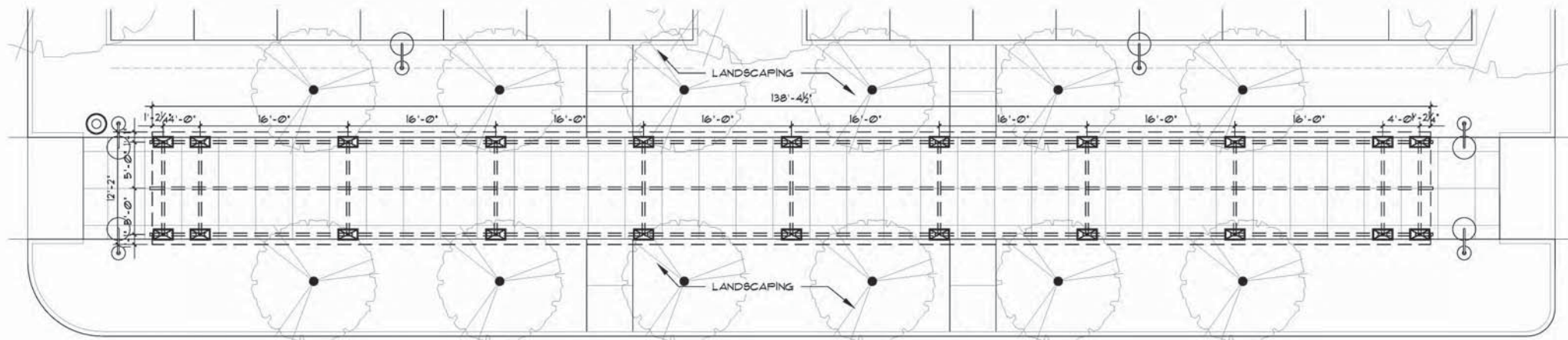
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LANDSCAPE CALCULATIONS
07-14-2017 1" = 60'-0"

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC

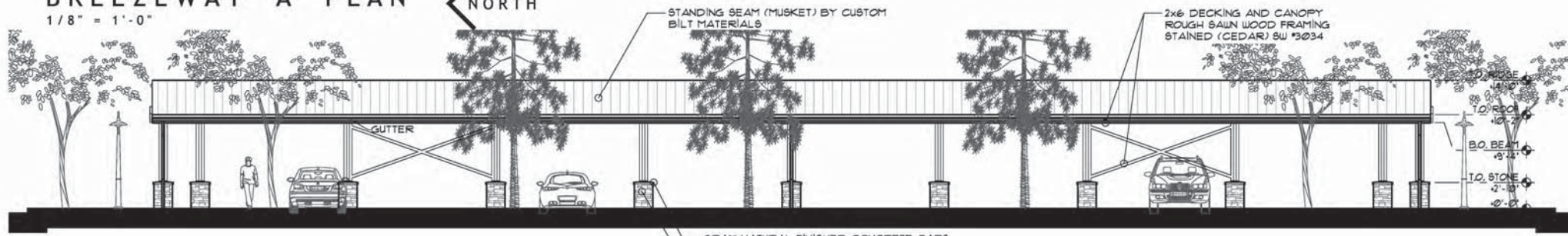


SPL
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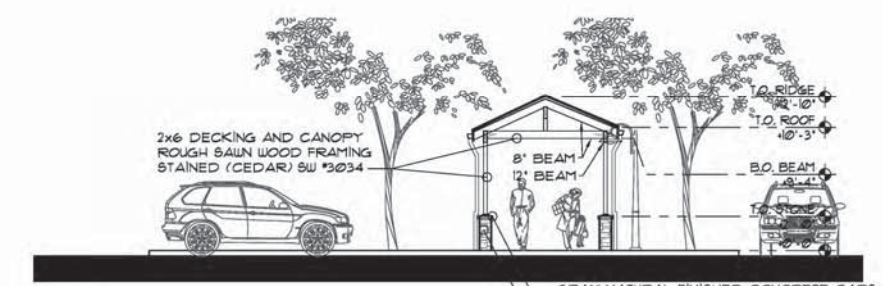
BREEZEWAY 'A' PLAN

1/8" = 1'-0"



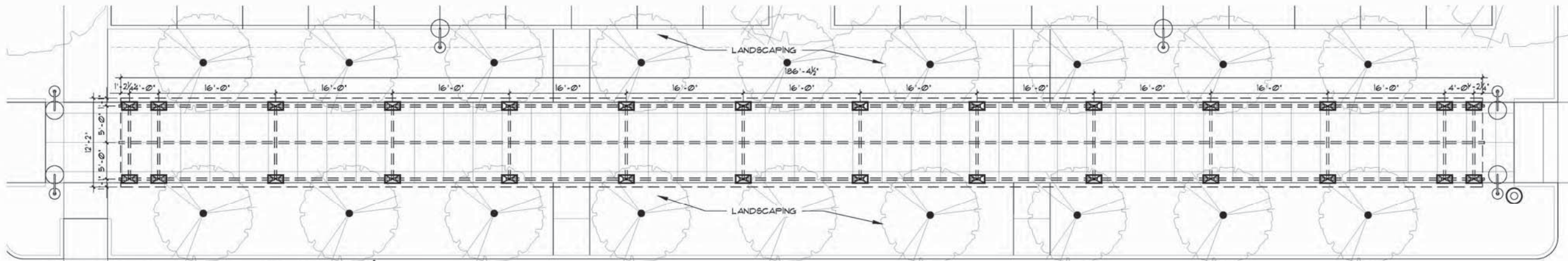
SIDE BREEZEWAY 'A' ELEVATION

1/8" = 1'-0"



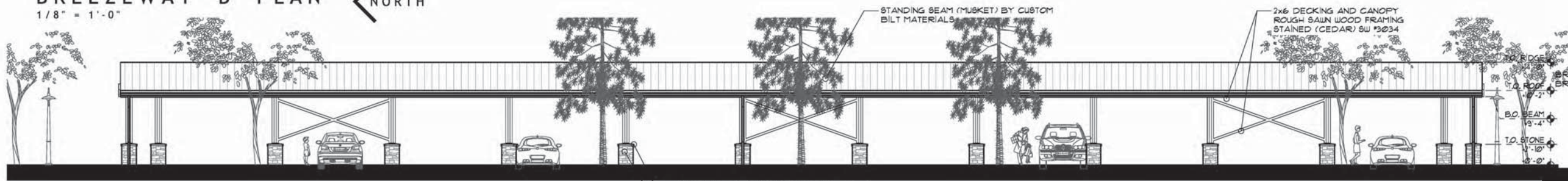
FRONT BREEZEWAY ELEVATION

1/8" = 1'-0"



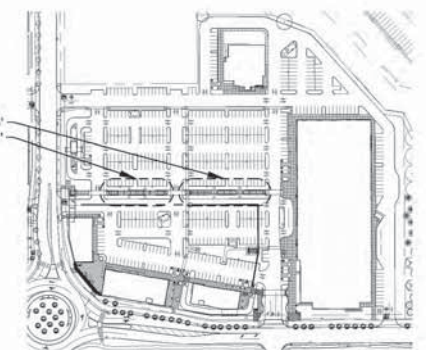
BREEZEWAY 'B' PLAN

1/8" = 1'-0"



SIDE BREEZEWAY 'B' ELEVATION

1/8" = 1'-0"



SITE KEY PLAN

N.T.S.

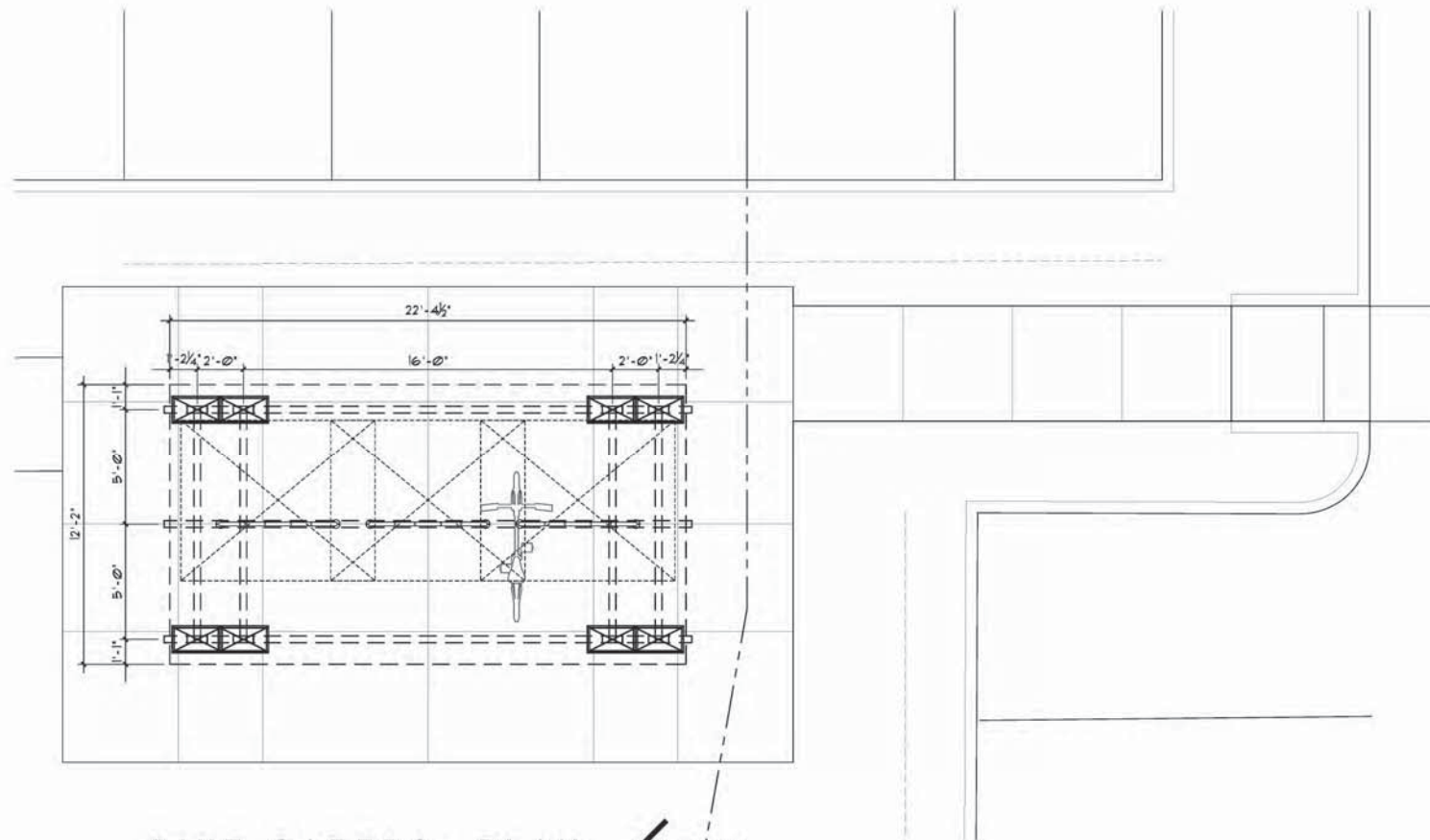



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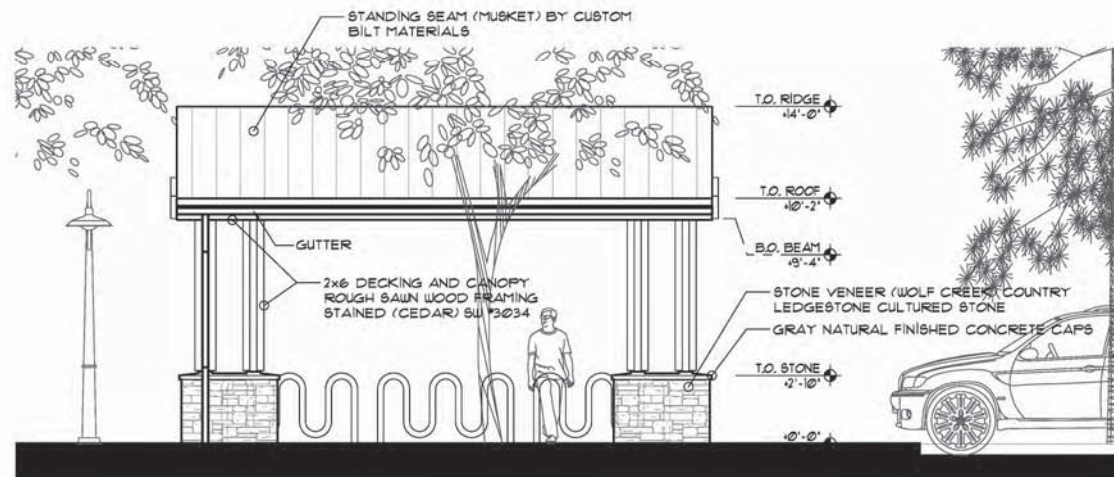
BREEZEWAYS
07-14-2017

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC

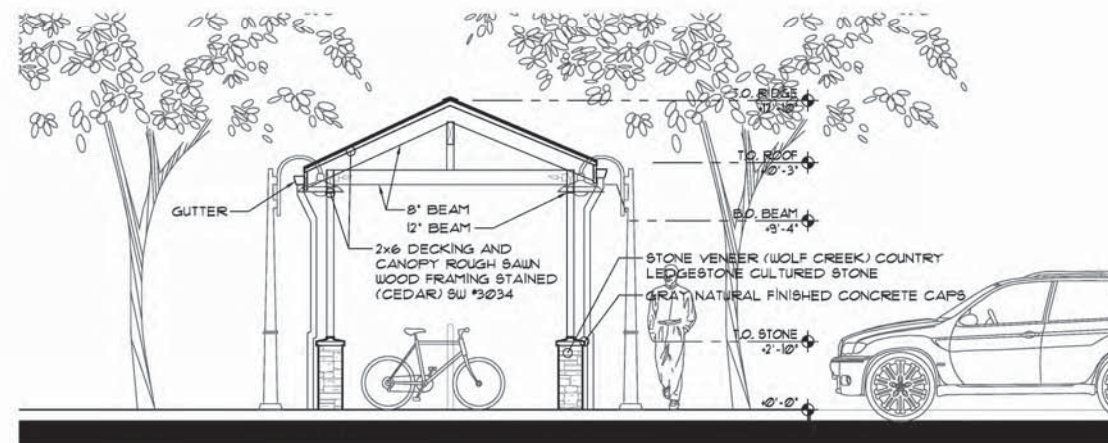
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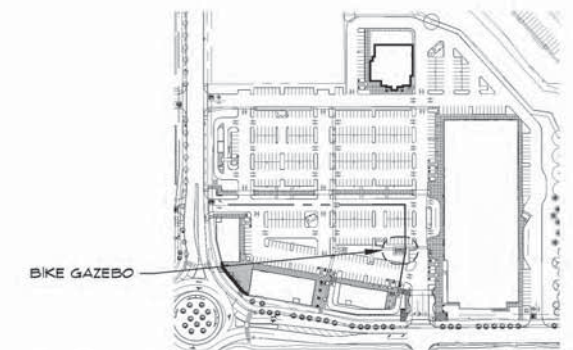
BIKE GAZEBO PLAN  NORTH
1/4" = 1'-0"



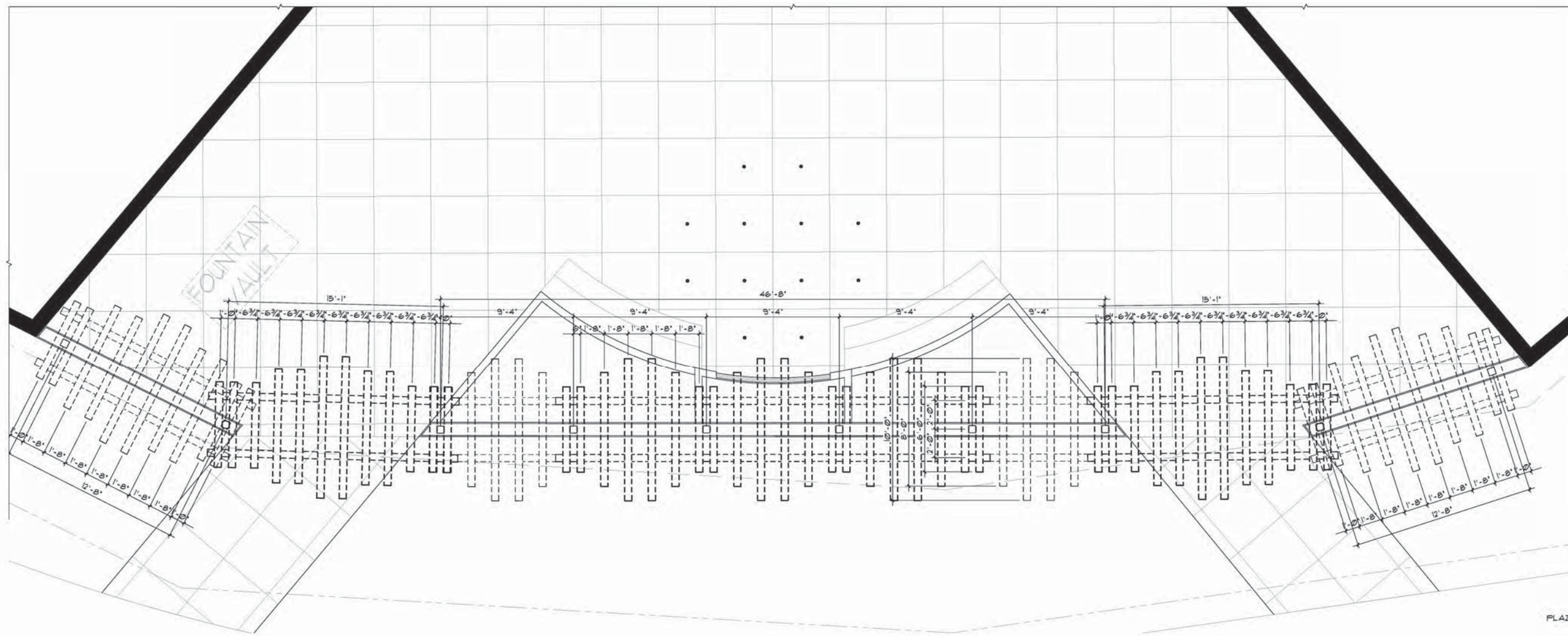
SIDE ELEVATION
1/8" = 1'-0"



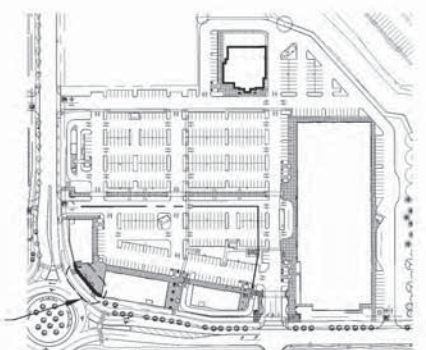
END ELEVATION
1/8" = 1'-0"



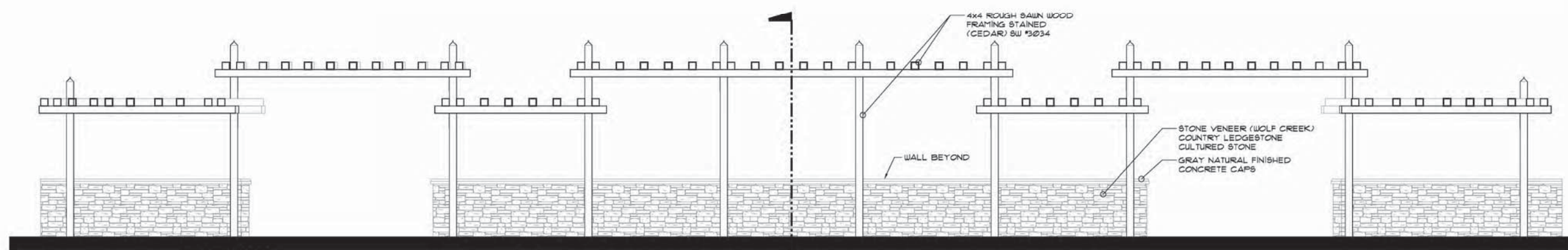
SITE KEY PLAN  NORTH
N.T.S.



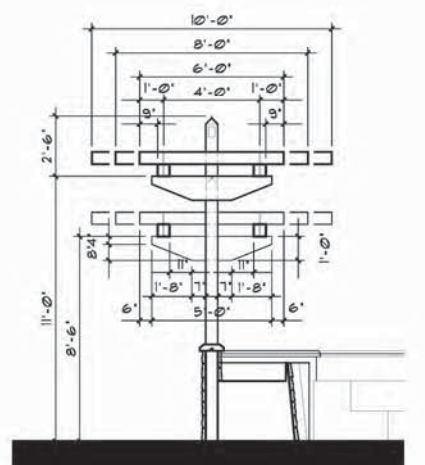
CORNER TRELLIS AND PLAZA PLAN
 1/4" = 1'-0" NORTH



SITE KEY PLAN
 N.T.S. NORTH



CORNER TRELLIS ELEVATION
 NORTH-WEST
 1/4" = 1'-0"

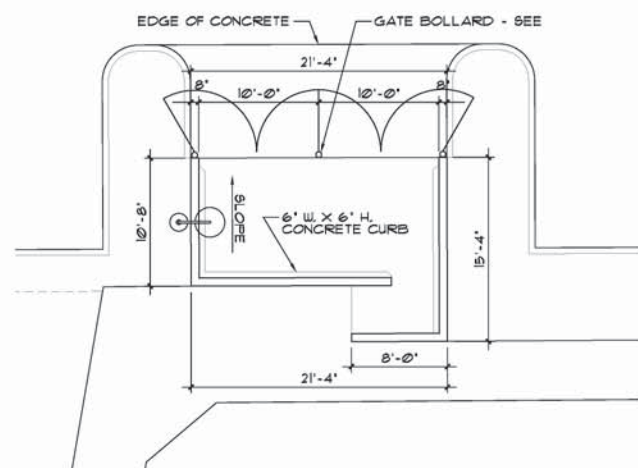


PLAZA TRELLIS SECTION
 1/4" = 1'-0"

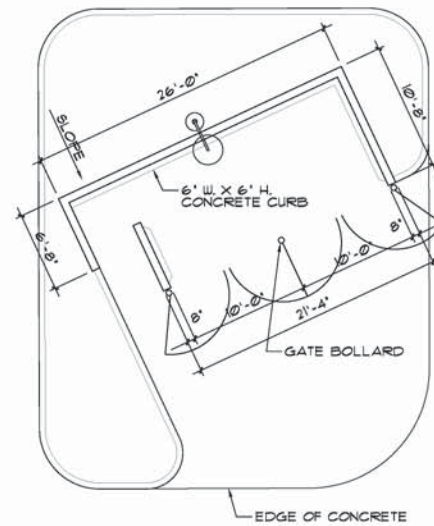
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CORNER TRELLIS AND PLAZA **PARKWAY VILLAGE SOUTH**
 07-14-2017 LANGER FAMILY LLC

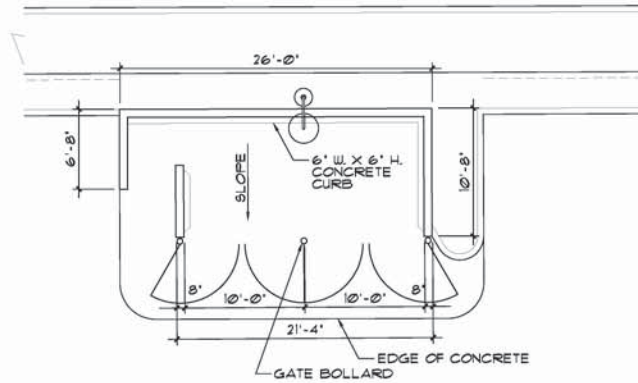
TR
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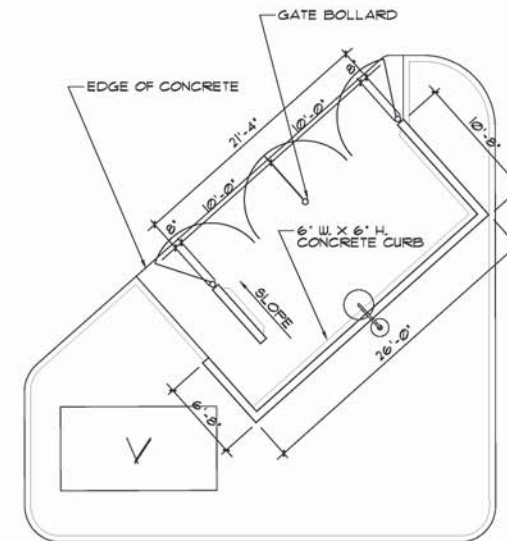
TRASH ENCLOSURE 'A' PLAN
1/8" = 1'-0"



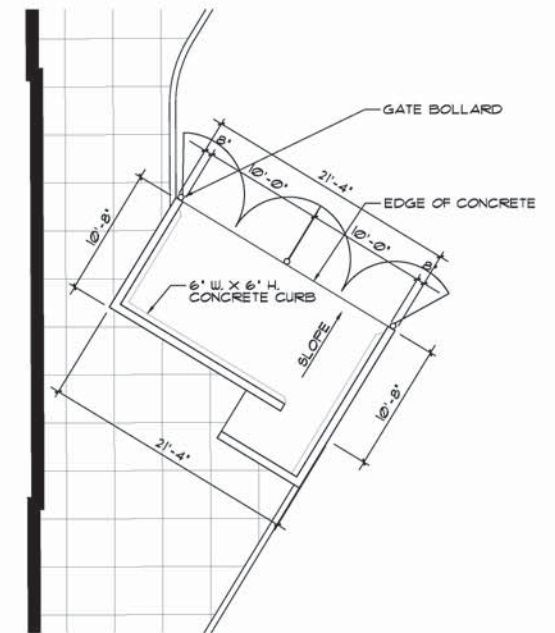
TRASH ENCLOSURE 'B' PLAN
1/8" = 1'-0"



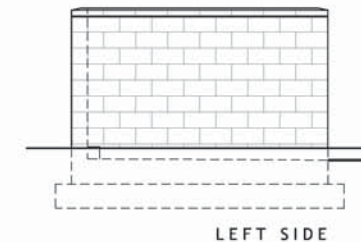
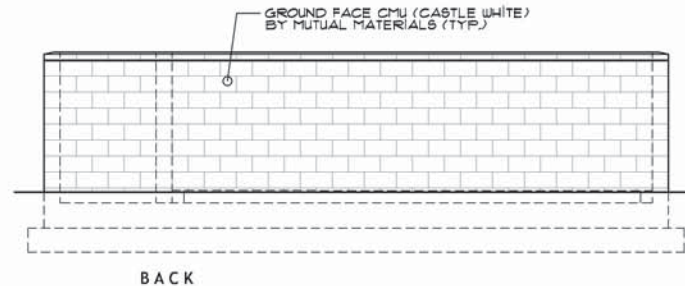
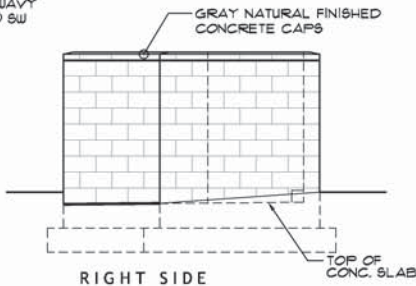
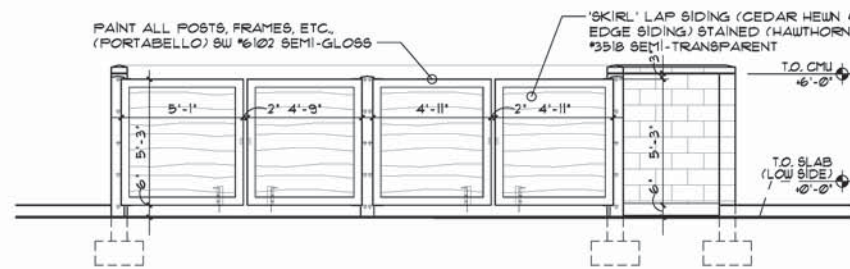
TRASH ENCLOSURE 'C' PLAN
1/8" = 1'-0"



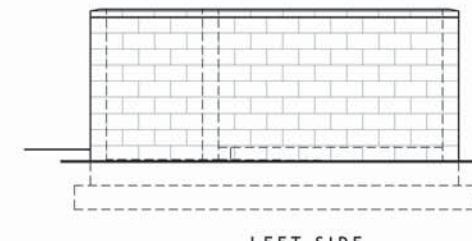
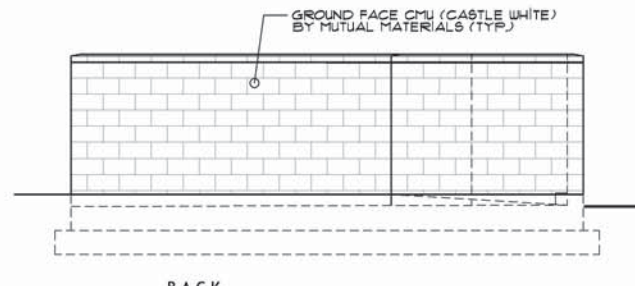
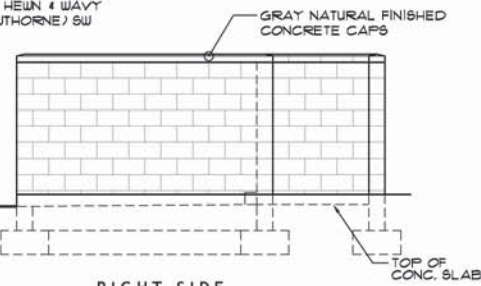
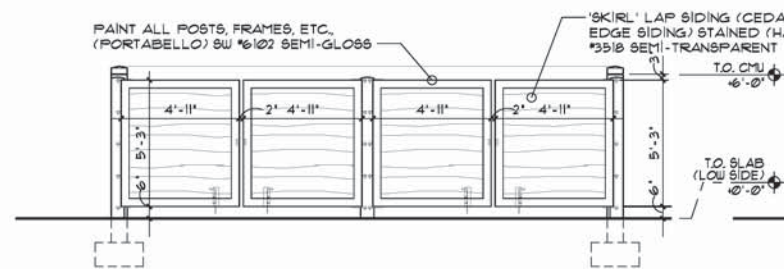
TRASH ENCLOSURE 'D' PLAN
1/8" = 1'-0"



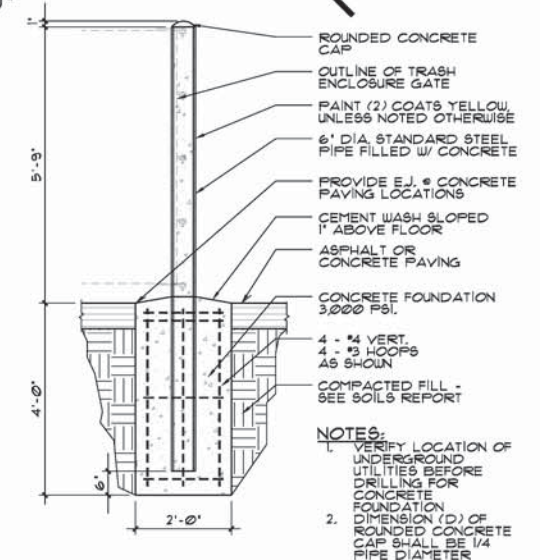
TRASH ENCLOSURE FUN CENTER PLAN
1/8" = 1'-0"



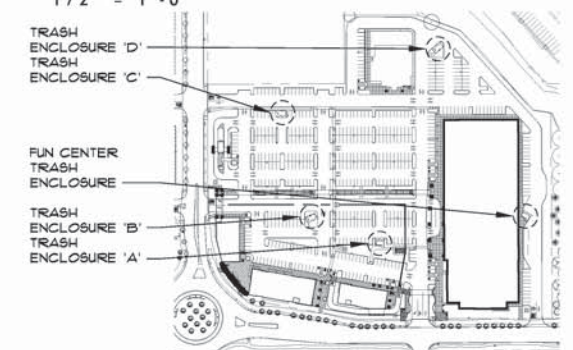
FRONT TRASH ENCLOSURE 'B,' 'C,' AND 'D' ELEVATIONS
1/4" = 1'-0"



FRONT TRASH ENCLOSURE 'A' AND FUN CENTER ELEVATIONS
1/4" = 1'-0"



GATE BOLLARD DETAIL
1/2" = 1'-0"

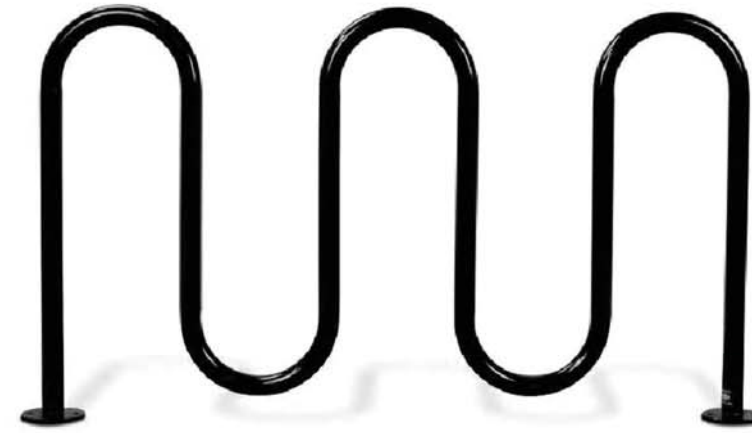


SITE KEY PLAN
N.T.S.



SITE BENCHES

HUNTCO SITE FURNISHINGS - WILLAMETTE BENCH - 6'-0" LONG - POWDER-COAT BLACK



BIKE RACKS

HUNTCO SITE FURNISHINGS - THE RAMBLER MULTI-CAPACITY RACK - 5 AND 7 BIKE - POWDER-COAT BLACK



TRASH RECEPTICALS

HUNTCO SITE FURNISHINGS - WENATCHEE TRASH RECEPTACLE - POWDER-COATED BLACK



MAIL BOXES

SALSBURY INDUSTRIES - CBU 3312 - SANDSTONE / TAN

LANDSCAPE LEGEND

SYMBOL	COMMON NAME BOTANICAL NAME	SIZE/COND.	SPACING	COMMENTS	QUANTITY
TREES					
CP	Chanticleer Pear <i>Pyrus calleryana</i> 'Chanticleer'	2" Cal.	as shown		6
DF	Douglas Fir <i>Pseudotsuga menziesii</i>	8"-10"	15' o.c.	Full, no sheared trees	24
EBM	Edith Bouge Magnolia <i>Magnolia grandiflora</i> 'Edith Bouge'	2" Cal.	as shown		12
GVZ	Green Vase Zelkova <i>Zelkova serrata</i> 'Green Vase'	2" Cal.	as shown		25
HTD	Heart Throb Dogwood <i>Cornus kousa</i> 'Schmred'	2" Cal.	25' o.c.	6' branching, matched set	6
KT	Katsura Tree <i>Cercidiphyllum japonicum</i>	2" Cal.	as shown		3
LP	London Planetree <i>Platanus acerifolia</i> 'Bloodgood'	2" Cal.	as shown		25
MA	Marshall Ash <i>Fraxinus pennsylvanica</i> 'Marshall'	2" Cal.	as shown		39
MH	Magnifica Hackberry <i>Celtis Magnifica</i>	2" Cal.	as shown		11
PSG	Princeton Sentry Ginkgo <i>Ginkgo biloba</i> 'Princeton Sentry'	2" Cal.	as shown		41
RB	River Birch <i>Betula nigra</i>	2" Cal.	20' o.c.		20
SO	Scarlet Oak <i>Quercus coccinea</i>	3" Cal.	40' o.c.		12
VC	Virescens Cedar <i>Thuja plicata</i> 'Virescens'	8"-10"	12' o.c.		43

SHRUBS					
AFD	Artic Fire Dogwood <i>Cornus sericea</i> 'Artic Fire'	5 Gal.	3.5' o.c.	Full & Bushy	108
BE	Boxleaf Euonymus <i>Euonymus japonicus</i> 'Microphyllus'	5 Gal.	3' o.c.	Full & Bushy	92
BH	Blue Holly <i>Ilex meserveae</i> 90% Blue Girl -10% Blue Boy	5 Gal.	3' o.c.	Full & Bushy	86
BW	Boxwood <i>Buxus</i> 'Green Mountain'	5 Gal.	2.5' o.c.	Full & Bushy	29
CPB	Crimson Pygmy Barberry <i>Berberis thunbergii</i>	5 Gal.	3' o.c.	Full & Bushy	86
DV	David Viburnum <i>Viburnum davidii</i>	5 Gal.	3' o.c.	Full & Bushy	222
DY	Dense Yew <i>Taxus densiformis</i>	5 Gal.	3.5' o.c.	Full & Bushy	103
FPHB	Fire Power Heavenly Bamboo <i>Nandina domestica</i> 'Fire Power'	3 Gal.	1.5' o.c.	Full & Bushy	18
FG	Fountain Grass <i>Pennisetum alopecuroides</i> 'Hameln'	1 Gal.	2.5' o.c.		1,203
GFS	Gold Flame Spirea <i>Spiraea bumalda</i> 'Gold Flame'	5 Gal.	3.5' o.c.	Full & Bushy	110
HB	Heavenly Bamboo <i>Nandina domestica</i> 'Sienna Sunrise'	5 Gal.	3' o.c.	Full & Bushy	25
JH	Japanese Holly <i>Ilex crenata</i> 'Convexa'	5 Gal.	3' o.c.	Full & Bushy	356
KFG	Karl Foerster Feather Reed Grass <i>Calamagrostis arundifolia</i> 'Karl Foerster'	5 Gal.	3' o.c.	Full & Bushy	28
OH	Oakleaf Hydrangea <i>Hydrangea quercifolia</i>	5 Gal.	5' o.c.	Full & Bushy	26
OG	Oregon Grape <i>Mahonia aquifolium</i>	5 Gal.	3' o.c.	Full & Bushy	33
OLL	Otto Luyken Laurel <i>Prunus laurocerasus</i> 'Otto Luyken'	5 Gal.	3' o.c.	Full & Bushy	134
PKR	Pink Knockout Rose <i>Rosa radcan</i> 'Pink'	2 Gal.	3' o.c.	Full & Bushy	565
PRR	Purple Rock Rose <i>Cistus purpureus</i>	5 Gal.	4' o.c.	Full & Bushy	11
SDBE	Sunny Delight Boxleaf Euonymus <i>Euonymus japonicus</i> 'Sunny Delight'	5 Gal.	3' o.c.	Full & Bushy	32
SF	Scarletta Fetterbush <i>Leucothoe fontanesiana</i> 'Zebild'	5 Gal.	3' o.c.	Full & Bushy	91
WLP	Waxleaf Privet <i>Ligustrum texanum</i>	5 Gal.	3.5' o.c.	Full & Bushy	183

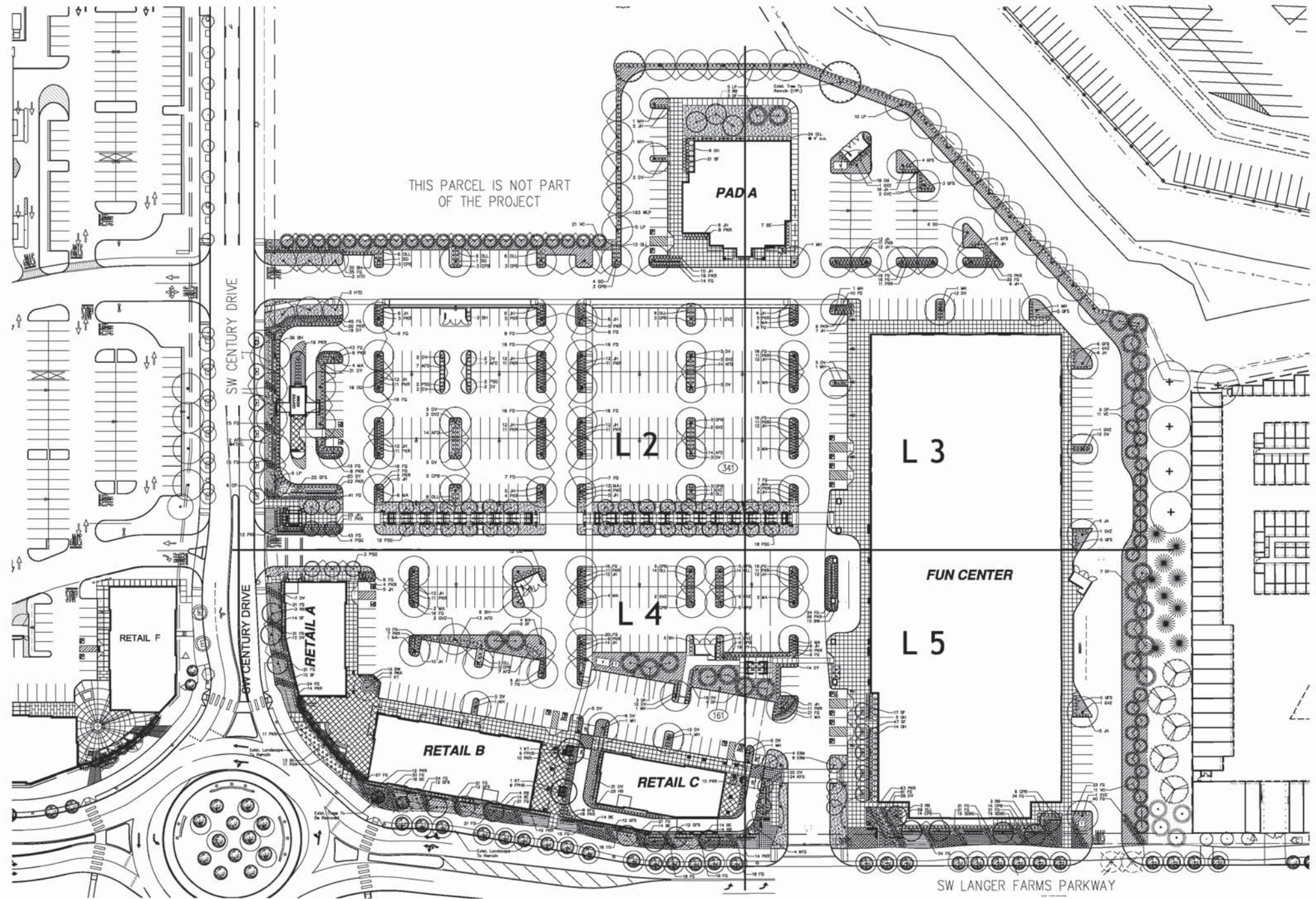
GROUND COVER

	Emerald Carpet Common Bearberry <i>Arctostaphylos uva-ursi</i> 'Emerald Carpet'	1 Gal.	24" o.c.		
	Bearberry Cotoneaster <i>Cotoneaster dammeri</i>	1 Gal.	24" o.c.		
	Big Blue Lily Turf <i>Liriope muscari</i> 'Big Blue'	4" POT	12" o.c.		
	Ice Dance Carex <i>Carex morrowii</i> 'Ice Dance'	4" POT	12" o.c.		
	Creeping Oregon Grape <i>Mahonia repens</i>	2 Gal.	18" o.c.		
	St. John's Wort <i>Hypericum calycinum</i>	4" POT	12" o.c.		
	Blue Oat Grass <i>Helictotrichon sempervirens</i>	1 Gal.	24" o.c.		
	Purple Leaf Wintercreeper <i>Euonymus fortunei</i> 'Colorata'	1 Gal.	18" o.c.		
	Sod Lawn - RTF SOD as available from Kuenzi Turf, Salem, Or. 1 800 285-8337				

NOTES

- IRRIGATION TO BE PROVIDED BY A FULLY AUTOMATIC UNDERGROUND SYSTEM. PLANS TO BE SUBMITTED AT BUILDING PERMIT.
- LANDSCAPE PLANS WILL COMPLY WITH ALL CITY OF SHERWOOD LANDSCAPE CODE REQUIREMENTS AND ANY CONDITIONS OF APPROVAL.
- EXISTING SITE TOPSOIL WILL BE REVISED FOR LANDSCAPE PLANTINGS, SOIL TESTS WILL BE CONDUCTED ON STOCKPILED TOPSOIL AND THE TOPSOIL WILL BE AMENDED AS PER THE RECOMMENDATIONS OF THE SOILS TEST.

- Existing Trees To Remain
- Existing Trees To Be Removed



SITE TREE CALCULATIONS

487 PKG. STALLS DIVIDED BY 4 = 122 "LARGE TREES" REQUIRED UNDER CODE
 136 "LARGE TREES" PROVIDED OF WHICH 24 (17.6%) ARE CONIFERS
 131 SMALL TREES PROVIDED
 77 PERIMETER BUFFER TREES PROVIDED
 267 TOTAL SITE TREES PROVIDED - DOES NOT INCLUDE STREET TREES
 78,900 S.F. LANDSCAPE AREA DIVIDED BY 267 SITE TREES = 1 TREE PER 295 S.F.
 "LARGE TREES" AS PER CITY OF PORTLAND TREE & LANDSCAPING MANUAL.

SITE SHRUB CALCULATIONS

487 PKG. STALLS X 2 = 974 SHRUBS REQUIRED.
 2,309 SHRUBS PROVIDED (DOES NOT INCLUDE ORN. GRASSES)

LANDSCAPE CALCULATIONS

TOTAL SITE AREA = 523,112 S.F.
 83,338 S.F. LANDSCAPE AREA (15.9% OF SITE AREA)
 LAWN AREA = 14,923 S.F. (17.9% OF LANDSCAPE AREA)
 TOTAL PARKING AREA = 302,963 S.F.
 TOTAL PARKING LOT LANDSCAPE = 37,502 S.F. - 12.3% OF PKG. LOT
 TOTAL PARKING LOT INTERIOR LANDSCAPE = 35,782 S.F. - 95.4% OF PKG. LOT LANDSCAPE
 TOTAL PARKING LOT PERIMETER LANDSCAPE = 1,720 S.F.
 TOTAL SITE BUFFER LANDSCAPE = 10,649 S.F.
 TOTAL OTHER LANDSCAPE = 35,187 S.F.

TREE CANOPY CALCULATIONS

SYMBOL	SIZE	COMMON NAME	EXPECTED DIA.	SPREAD/AREA	QTY.	CANOPY AREA
CP	SMALL	CHANTICLEER PEAR	15'	- 177 S.F.	X 6 =	1,062 S.F.
DF	LARGE	DOUGLAS FIR	30'	- 707 S.F.	X 24 =	16,968 S.F.
EBM	SMALL	EDITH BOUGE MAGNOLIA	15'	- 177 S.F.	X 12 =	2,124 S.F.
GVZ	LARGE	GREEN VASE ZELKOVA	38'	- 1,134 S.F.	X 25 =	28,350 S.F.
HTD	SMALL	HEART THROB DOGWOOD	20'	- 314 S.F.	X 6 =	1,884 S.F.
KT	SMALL	KATSURA TREE	40'	- 1,257 S.F.	X 3 =	3,771 S.F.
LP	LARGE	LONDON PLANETREE	40'	- 1,257 S.F.	X 25 =	31,425 S.F.
MA	LARGE	MARSHALL ASH	40'	- 1,257 S.F.	X 39 =	49,023 S.F.
MH	LARGE	MAGNIFICA HACKBERRY	40'	- 1,257 S.F.	X 11 =	13,827 S.F.
PSG	SMALL	PRINCETON SENTRY GINKGO	15'	- 177 S.F.	X 41 =	7,257 S.F.
RB	SMALL	RIVER BIRCH	30'	- 707 S.F.	X 20 =	14,140 S.F.
SO	LARGE	SCARLET OAK	40'	- 1,257 S.F.	X 12 =	15,084 S.F.
VC	SMALL	VIRESCENS CEDAR	15'	- 177 S.F.	X 43 =	7,611 S.F.

TOTAL EXPECTED TREE CANOPY COVERAGE PROVIDED (36.5%) 191,110 S.F.
 NET SITE AREA = 523,112 S.F. X 30% TREE CANOPY = 156,934 S.F. TREE CANOPY AREA REQUIRED
 SOURCE FOR EXPECTED TREE CANOPY DIAMETER: SUNSET WESTERN GARDEN BOOK & NORTHWEST SHADE TREES CATALOGUE - BROOKS, OREGON



LANDSCAPE LEGEND

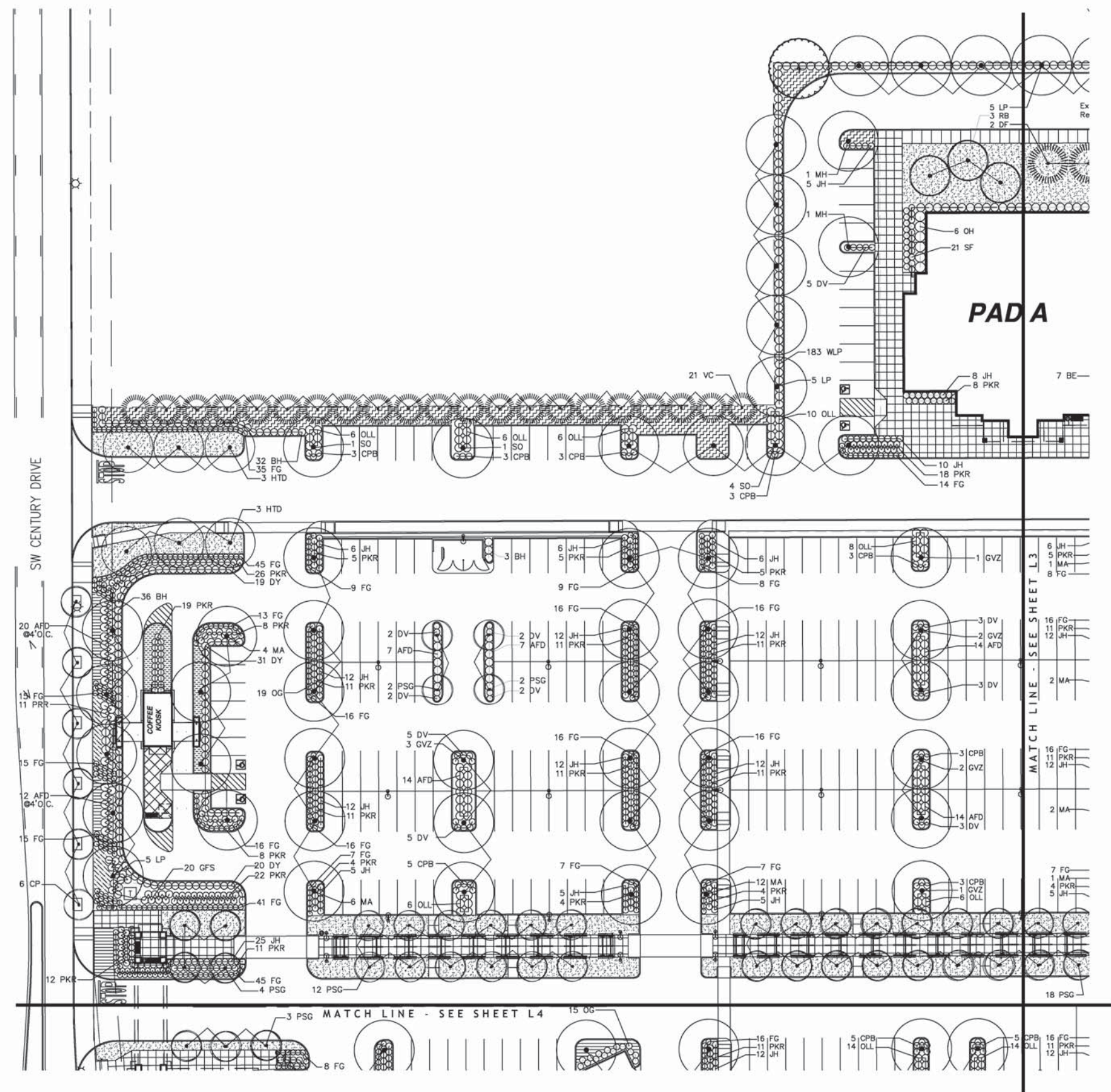
SYMBOL	COMMON NAME BOTANICAL NAME	SIZE/COND.	SPACING	COMMENTS	QUANTITY
TREES					
CP	Chanticleer Pear <i>Pyrus calleryana</i> 'Chanticleer'	2" Cal.	as shown		6
DF	Douglas Fir <i>Pseudotsuga menziesii</i>	8'-10'	15' o.c.	Full, no sheared trees	24
EBM	Edith Bouge Magnolia <i>Magnolia grandiflora</i> 'Edith Bouge'	2" Cal.	as shown		12
GVZ	Green Vase Zelkova <i>Zelkova serrata</i> 'Green Vase'	2" Cal.	as shown		25
HTD	Heart Throb Dogwood <i>Cornus kousa</i> 'Schmred'	2" Cal.	25' o.c.	6' branching, matched set	6
KT	Katsura Tree <i>Cercidiphyllum japonicum</i>	2" Cal.	as shown		3
LP	London Planetree <i>Platanus acerifolia</i> 'Bloodgood'	2" Cal.	as shown		25
MA	Marshall Ash <i>Fraxinus pennsylvanica</i> 'Marshall'	2" Cal.	as shown		39
MH	Magnifica Hackberry <i>Celtis 'Magnifica'</i>	2" Cal.	as shown		11
PSG	Princeton Sentry Ginkgo <i>Ginkgo biloba</i> 'Princeton Sentry'	2" Cal.	as shown		41
RB	River Birch <i>Betula nigra</i>	2" Cal.	20' o.c.		20
SO	Scarlet Oak <i>Quercus coccinea</i>	3" Cal.	40' o.c.		12
VC	Virescens Cedar <i>Thuja plicata</i> 'Virescens'	8'-10'	12' o.c.		43

SHRUBS					
AFD	Artic Fire Dogwood <i>Cornus sericea</i> 'Artic Fire'	5 Gal.	3.5' o.c.	Full & Bushy	108
BE	Boxleaf Euonymus <i>Euonymus japonicus</i> 'Microphyllus'	5 Gal.	3' o.c.	Full & Bushy	92
BH	Blue Holly <i>Ilex meserveae</i> 90% Blue Girl -10% Blue Boy	5 Gal.	3' o.c.	Full & Bushy	86
BW	Boxwood <i>Buxus</i> 'Green Mountain'	5 Gal.	2.5' o.c.	Full & Bushy	29
CPB	Crimson Pygmy Barberry <i>Berberis thunbergii</i>	5 Gal.	3' o.c.	Full & Bushy	86
DV	David Viburnum <i>Viburnum davidii</i>	5 Gal.	3' o.c.	Full & Bushy	222
DY	Dense Yew <i>Taxus densiformis</i>	5 Gal.	3.5' o.c.	Full & Bushy	103
FPHB	Fire Power Heavenly Bamboo <i>Nandina domestica</i> 'Fire Power'	3 Gal.	1.5' o.c.	Full & Bushy	18
FG	Fountain Grass <i>Fernisetum alopecuroides</i> 'Hamel'	1 Gal.	2.5' o.c.		1,203
GFS	Gold Flame Spirea <i>Spiraea bumalda</i> 'Gold Flame'	5 Gal.	3.5' o.c.	Full & Bushy	110
HB	Heavenly Bamboo <i>Nandina domestica</i> 'Sienna Sunrise'	5 Gal.	3' o.c.	Full & Bushy	25
JH	Japanese Holly <i>Ilex crenata</i> 'Convexa'	5 Gal.	3' o.c.	Full & Bushy	356
KFG	Karl Foerster Feather Reed Grass <i>Calamagrostis arundifolia</i> 'Karl Foerster'	5 Gal.	3' o.c.	Full & Bushy	28
OH	Oakleaf Hydrangea <i>Hydrangea quercifolia</i>	5 Gal.	5' o.c.	Full & Bushy	25
OG	Oregon Grape <i>Mahonia aquifolium</i>	5 Gal.	3' o.c.	Full & Bushy	33
OLL	Otto Luyken Laurel <i>Prunus laurocerasus</i> 'Otto Luyken'	5 Gal.	3' o.c.	Full & Bushy	134
PKR	Pink Knockout Rose <i>Rosa radcan</i> 'Pink'	2 Gal.	3' o.c.	Full & Bushy	565
PRR	Purple Rock Rose <i>Cistus purpureus</i>	5 Gal.	4' o.c.	Full & Bushy	11
SDBE	Sunny Delight Boxleaf Euonymus <i>Euonymus japonicus</i> 'Sunny Delight'	5 Gal.	3' o.c.	Full & Bushy	32
SF	Scarletta Fetterbush <i>Leucothoe fontanesiana</i> 'Zebild'	5 Gal.	3' o.c.	Full & Bushy	91
WLP	Waxleaf Privet <i>Ligustrum texanum</i>	5 Gal.	3.5' o.c.	Full & Bushy	183

GROUND COVER			
	Emerald Carpet Common Bearberry <i>Arctostaphylos uva-ursi</i> 'Emerald Carpet'	1 Gal.	24" o.c.
	Bearberry Cotoneaster <i>Cotoneaster dammeri</i>	1 Gal.	24" o.c.
	Big Blue Lily Turf <i>Liriope muscari</i> 'Big Blue'	4" POT	12" o.c.
	Ice Dance Carex <i>Carex morrowii</i> 'Ice Dance'	4" POT	12" o.c.
	Creeping Oregon Grape <i>Mahonia repens</i>	2 Gal.	18" o.c.
	St. John's Wort <i>Hypericum calycinium</i>	4" POT	12" o.c.
	Blue Oat Grass <i>Helictotrichon sempervirens</i>	1 Gal.	24" o.c.
	Purple Leaf Wintercreeper <i>Euonymus fortunei</i> 'Colorata'	1 Gal.	18" o.c.
	Sod Lawn - RTF SOD as available from Kuenzi Turf, Salem, Or. 1 800 285-8337		

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 - LANDSCAPE PLANS WILL COMPLY WITH ALL CITY OF SHERWOOD LANDSCAPE CODE REQUIREMENTS AND ANY CONDITIONS OF APPROVAL.
 - EXISTING SITE TOPSOIL WILL BE REUSED FOR LANDSCAPE PLANTINGS, SOIL TESTS WILL BE CONDUCTED ON STOCKPILED TOPSOIL AND THE TOPSOIL WILL BE AMENDED AS PER THE RECOMMENDATIONS OF THE SOILS TEST.

- Existing Trees To Remain
- Existing Trees To Be Removed



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CHRISTOPHER FRESHLEY LANDSCAPE ARCHITECT

PARTIAL LANDSCAPE PLAN
1" = 30'-0" 07-14-2017

FAMILY FUN CENTER
LANGER FAMILY LLC



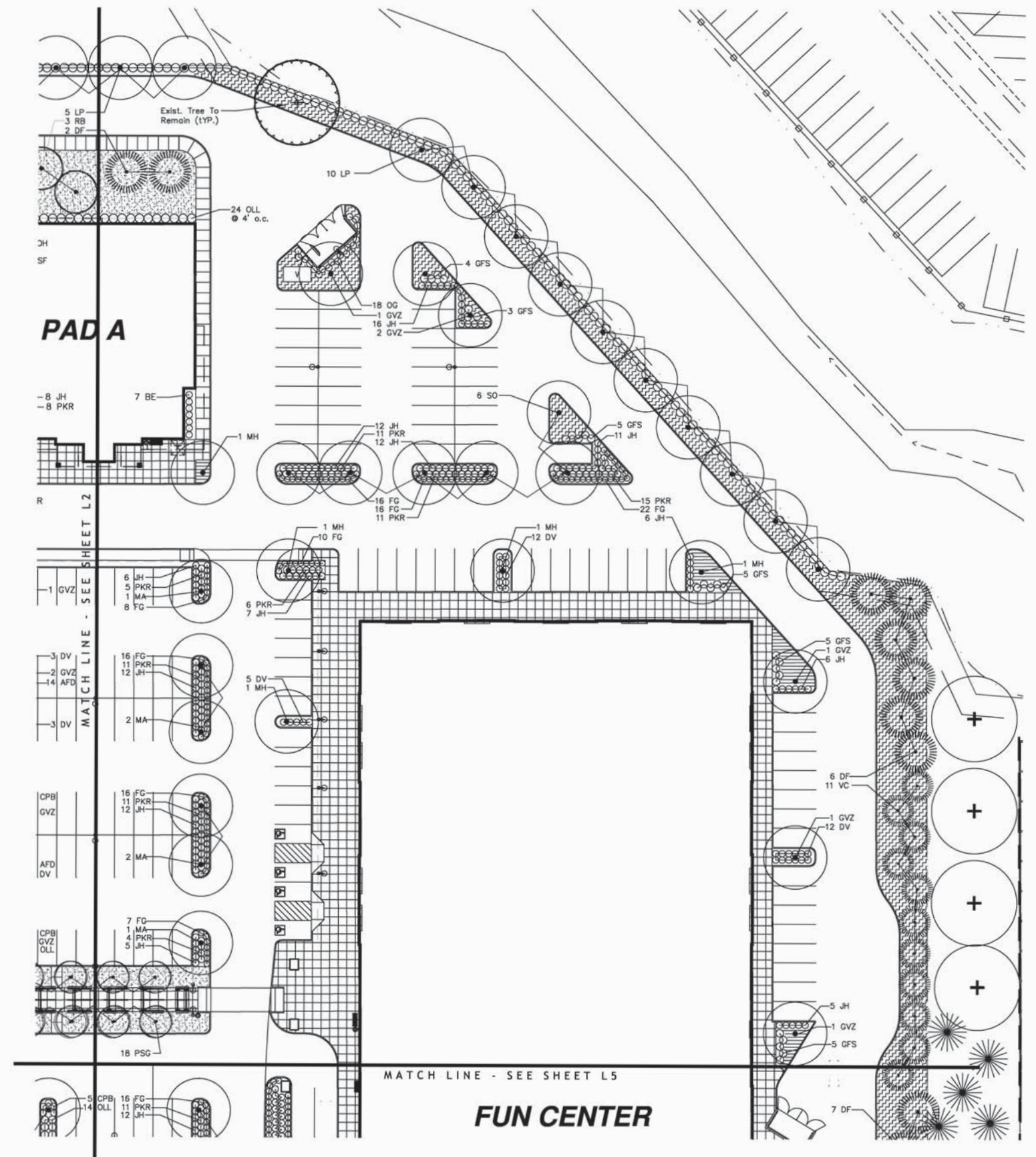
LANDSCAPE LEGEND

SYMBOL	COMMON NAME BOTANICAL NAME	SIZE/COND.	SPACING	COMMENTS	QUANTITY
TREES					
CP	Chanticleer Pear <i>Pyrus calleryana</i> 'Chanticleer'	2" Cal.	as shown		6
DF	Douglas Fir <i>Pseudotsuga menziesii</i>	8"-10'	15' o.c.	Full, no sheared trees	24
EBM	Edith Bouge Magnolia <i>Magnolia grandiflora</i> 'Edith Bouge'	2" Cal.	as shown		12
GVZ	Green Vase Zelkova <i>Zelkova serrata</i> 'Green Vase'	2" Cal.	as shown		25
HTD	Heart Throb Dogwood <i>Cornus kousa</i> 'Schmred'	2" Cal.	25' o.c.	6' branching, matched set	6
KT	Katsura Tree <i>Cercidiphyllum japonicum</i>	2" Cal.	as shown		3
LP	London Planetree <i>Platanus acerifolia</i> 'Bloodgood'	2" Cal.	as shown		25
MA	Marshall Ash <i>Fraxinus pennsylvanica</i> 'Marshall'	2" Cal.	as shown		39
MH	Magnifica Hackberry <i>Celtis 'Magnifica'</i>	2" Cal.	as shown		11
PSG	Princeton Sentry Ginkgo <i>Ginkgo biloba</i> 'Princeton Sentry'	2" Cal.	as shown		41
RB	River Birch <i>Betula nigra</i>	2" Cal.	20' o.c.		20
SO	Scarlet Oak <i>Quercus coccinea</i>	3" Cal.	40' o.c.		12
VC	Virescens Cedar <i>Thuja plicata</i> 'Virescens'	8"-10'	12' o.c.		43

SHRUBS					
AFD	Artic Fire Dogwood <i>Cornus sericea</i> 'Artic Fire'	5 Gal.	3.5' o.c.	Full & Bushy	108
BE	Boxleaf Euonymus <i>Euonymus japonicus</i> 'Microphyllus'	5 Gal.	3' o.c.	Full & Bushy	92
BH	Blue Holly <i>Ilex meserveae</i> 90% Blue Girl -10% Blue Boy	5 Gal.	3' o.c.	Full & Bushy	86
BW	Boxwood <i>Buxus</i> 'Green Mountain'	5 Gal.	2.5' o.c.	Full & Bushy	29
CPB	Crimson Pygmy Barberry <i>Berberis thunbergii</i>	5 Gal.	3' o.c.	Full & Bushy	86
DV	David Viburnum <i>Viburnum davidii</i>	5 Gal.	3' o.c.	Full & Bushy	222
DY	Dense Yew <i>Taxus densiformis</i>	5 Gal.	3.5' o.c.	Full & Bushy	103
FPHB	Fire Power Heavenly Bamboo <i>Nandina domestica</i> 'Fire Power'	3 Gal.	1.5' o.c.	Full & Bushy	18
FG	Fountain Grass <i>Pennisetum alopecuroides</i> 'Hameln'	1 Gal.	2.5' o.c.		1,203
GFS	Gold Flame Spiraea <i>Spiraea bumalda</i> 'Gold Flame'	5 Gal.	3.5' o.c.	Full & Bushy	110
HB	Heavenly Bamboo <i>Nandina domestica</i> 'Sienna Sunrise'	5 Gal.	3' o.c.	Full & Bushy	25
JH	Japanese Holly <i>Ilex crenata</i> 'Convexa'	5 Gal.	3' o.c.	Full & Bushy	356
KFG	Karl Foerster Feather Reed Grass <i>Calamagrostis arundifolia</i> 'Karl Foerster'	5 Gal.	3' o.c.	Full & Bushy	28
OH	Oakleaf Hydrangea <i>Hydrangea quercifolia</i>	5 Gal.	5' o.c.	Full & Bushy	25
OG	Oregon Grape <i>Mahonia aquifolium</i>	5 Gal.	3' o.c.	Full & Bushy	33
OLL	Otto Luyken Laurel <i>Prunus laurocerasus</i> 'Otto Luyken'	5 Gal.	3' o.c.	Full & Bushy	134
PKR	Pink Knockout Rose <i>Rosa radcan</i> 'Pink'	2 Gal.	3' o.c.	Full & Bushy	565
PRR	Purple Rock Rose <i>Cistus purpureus</i>	5 Gal.	4' o.c.	Full & Bushy	11
SDBE	Sunny Delight Boxleaf Euonymus <i>Euonymus japonicus</i> 'Sunny Delight'	5 Gal.	3' o.c.	Full & Bushy	32
SF	Scarletta Fetterbush <i>Leucothoe fontanesiana</i> 'Zebild'	5 Gal.	3' o.c.	Full & Bushy	91
WLP	Waxleaf Privet <i>Ligustrum texanum</i>	5 Gal.	3.5' o.c.	Full & Bushy	183

GROUND COVER			
	Emerald Carpet Common Bearberry <i>Arctostaphylos uva-ursi</i> 'Emerald Carpet'	1 Gal.	24" o.c.
	Bearberry Cotoneaster <i>Cotoneaster dammeri</i>	1 Gal.	24" o.c.
	Big Blue Lily Turf <i>Liriope muscari</i> 'Big Blue'	4" POT	12" o.c.
	Ice Dance Carex <i>Carex morrowii</i> 'Ice Dance'	4" POT	12" o.c.
	Creeping Oregon Grape <i>Mahonia repens</i>	2 Gal.	18" o.c.
	St. John's Wort <i>Hypericum calycinium</i>	4" POT	12" o.c.
	Blue Oat Grass <i>Helictotrichon sempervirens</i>	1 Gal.	24" o.c.
	Purple Leaf Wintercreeper <i>Euonymus fortunei</i> 'Colorata'	1 Gal.	18" o.c.
	Sod Lawn - RTF SOD as available from Kuenzi Turf, Salem, Or. 1 800 285-8337		

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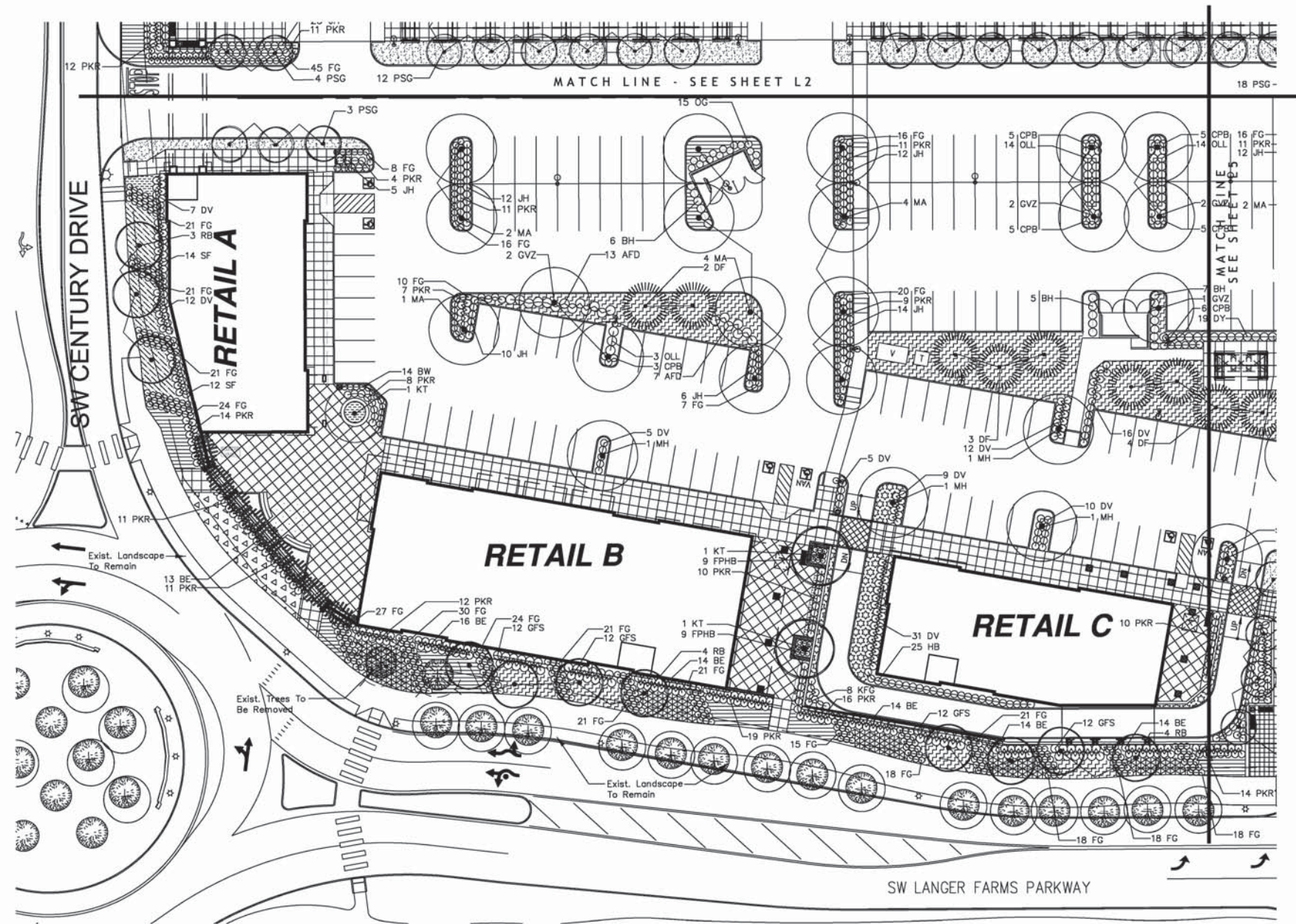
LANDSCAPE LEGEND

SYMBOL	COMMON NAME BOTANICAL NAME	SIZE/COND.	SPACING	COMMENTS	QUANTITY
TREES					
CP	Chanticleer Pear <i>Pyrus calleryana</i> 'Chanticleer'	2" Cal.	as shown		6
DF	Douglas Fir <i>Pseudotsuga menziesii</i>	8'-10'	15' o.c.	Full, no sheared trees	24
EBM	Edith Bouge Magnolia <i>Magnolia grandiflora</i> 'Edith Bouge'	2" Cal.	as shown		12
GVZ	Green Vase Zelkova <i>Zelkova serrata</i> 'Green Vase'	2" Cal.	as shown		25
HTD	Heart Throb Dogwood <i>Cornus kousa</i> 'Schmred'	2" Cal.	25' o.c.	6' branching, matched set	6
KT	Katsura Tree <i>Cercidiphyllum japonicum</i>	2" Cal.	as shown		3
LP	London Planetree <i>Platanus acerifolia</i> 'Bloodgood'	2" Cal.	as shown		25
MA	Marshall Ash <i>Fraxinus pennsylvanica</i> 'Marshall'	2" Cal.	as shown		39
MH	Magnifica Hackberry <i>Celtis 'Magnifica'</i>	2" Cal.	as shown		11
PSG	Princeton Sentry Ginkgo <i>Ginkgo biloba</i> 'Princeton Sentry'	2" Cal.	as shown		41
RB	River Birch <i>Betula nigra</i>	2" Cal.	20' o.c.		20
SO	Scarlet Oak <i>Quercus coccinea</i>	3" Cal.	40' o.c.		12
VC	Virescens Cedar <i>Thuja plicata</i> 'Virescens'	8'-10'	12' o.c.		43
SHRUBS					
AFD	Artic Fire Dogwood <i>Cornus sericea</i> 'Artic Fire'	5 Gal.	3.5' o.c.	Full & Bushy	108
BE	Boxleaf Euonymus <i>Euonymus japonicus</i> 'Microphyllus'	5 Gal.	3' o.c.	Full & Bushy	92
BH	Blue Holly <i>Ilex meserveae</i> 90% Blue Girl -10% Blue Boy	5 Gal.	3' o.c.	Full & Bushy	86
BW	Boxwood <i>Buxus</i> 'Green Mountain'	5 Gal.	2.5' o.c.	Full & Bushy	29
CPB	Crimson Pymy Barberry <i>Berberis thunbergii</i>	5 Gal.	3' o.c.	Full & Bushy	86
DV	David Viburnum <i>Viburnum davidii</i>	5 Gal.	3' o.c.	Full & Bushy	222
DY	Dense Yew <i>Taxus densiformis</i>	5 Gal.	3.5' o.c.	Full & Bushy	103
FPHB	Fire Power Heavenly Bamboo <i>Nandina domestica</i> 'Fire Power'	3 Gal.	1.5' o.c.	Full & Bushy	18
FG	Fountain Grass <i>Pennisetum alopecuroides</i> 'Hameln'	1 Gal.	2.5' o.c.		1,203
GFS	Gold Flame Spirea <i>Spirea bumalda</i> 'Gold Flame'	5 Gal.	3.5' o.c.	Full & Bushy	110
HB	Heavenly Bamboo <i>Nandina domestica</i> 'Sienna Sunrise'	5 Gal.	3' o.c.	Full & Bushy	25
JH	Japanese Holly <i>Ilex crenata</i> 'Convexa'	5 Gal.	3' o.c.	Full & Bushy	356
KFG	Karl Foerster Feather Reed Grass <i>Calamagrostis arundifolia</i> 'Karl Foerster'	5 Gal.	3' o.c.	Full & Bushy	28
OH	Oakleaf Hydrangea <i>Hydrangea quercifolia</i>	5 Gal.	5' o.c.	Full & Bushy	25
OG	Oregon Grape <i>Mahonia aquifolium</i>	5 Gal.	3' o.c.	Full & Bushy	33
OLL	Otto Luyken Laurel <i>Prunus laurocerasus</i> 'Otto Luyken'	5 Gal.	3' o.c.	Full & Bushy	134
PKR	Pink Knockout Rose <i>Rosa radcan</i> 'Pink'	2 Gal.	3' o.c.	Full & Bushy	565
PRR	Purple Rock Rose <i>Cistus purpureus</i>	5 Gal.	4' o.c.	Full & Bushy	11
SDBE	Sunny Delight Boxleaf Euonymus <i>Euonymus japonicus</i> 'Sunny Delight'	5 Gal.	3' o.c.	Full & Bushy	32
SF	Scarletta Fetterbush <i>Leucothoe fontanesiana</i> 'Zebild'	5 Gal.	3' o.c.	Full & Bushy	91
WLP	Waxleaf Privet <i>Ligustrum texanum</i>	5 Gal.	3.5' o.c.	Full & Bushy	183
GROUND COVER					
[Symbol]	Emerald Carpet Common Bearberry <i>Arctostaphylos uva-ursi</i> 'Emerald Carpet'	1 Gal.	24" o.c.		
[Symbol]	Bearberry Cotoneaster <i>Cotoneaster dammeri</i>	1 Gal.	24" o.c.		
[Symbol]	Big Blue Lily Turf <i>Liriope muscari</i> 'Big Blue'	4" POT	12" o.c.		
[Symbol]	Ice Dance Carex <i>Carex morrowii</i> 'Ice Dance'	4" POT	12" o.c.		
[Symbol]	Creeping Oregon Grape <i>Mahonia repens</i>	2 Gal.	18" o.c.		
[Symbol]	St. John's Wort <i>Hypericum calycinum</i>	4" POT	12" o.c.		
[Symbol]	Blue Oat Grass <i>Helictotrichon sempervirens</i>	1 Gal.	24" o.c.		
[Symbol]	Purple Leaf Wintercreeper <i>Euonymus fortunei</i> 'Colorata'	1 Gal.	18" o.c.		
[Symbol]	Sod Lawn - RTF SOD as available from Kuenzi Turf, Salem, Or. 1 800 285-8337				

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CHRISTOPHER FRESHLEY LANDSCAPE ARCHITECT

PARTIAL LANDSCAPE PLAN
1" = 30'-0" 07-14-2017

FAMILY FUN CENTER
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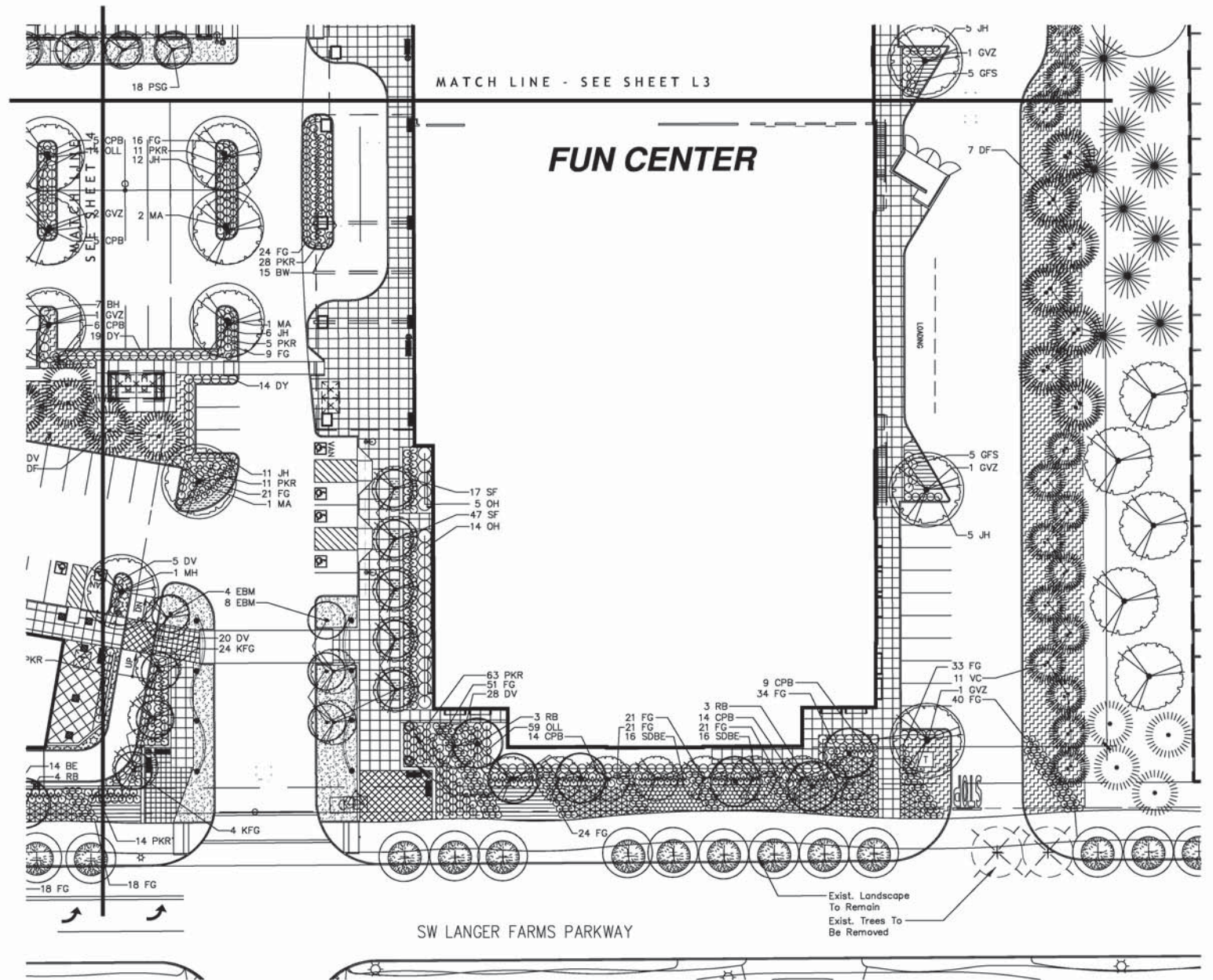


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LANDSCAPE LEGEND

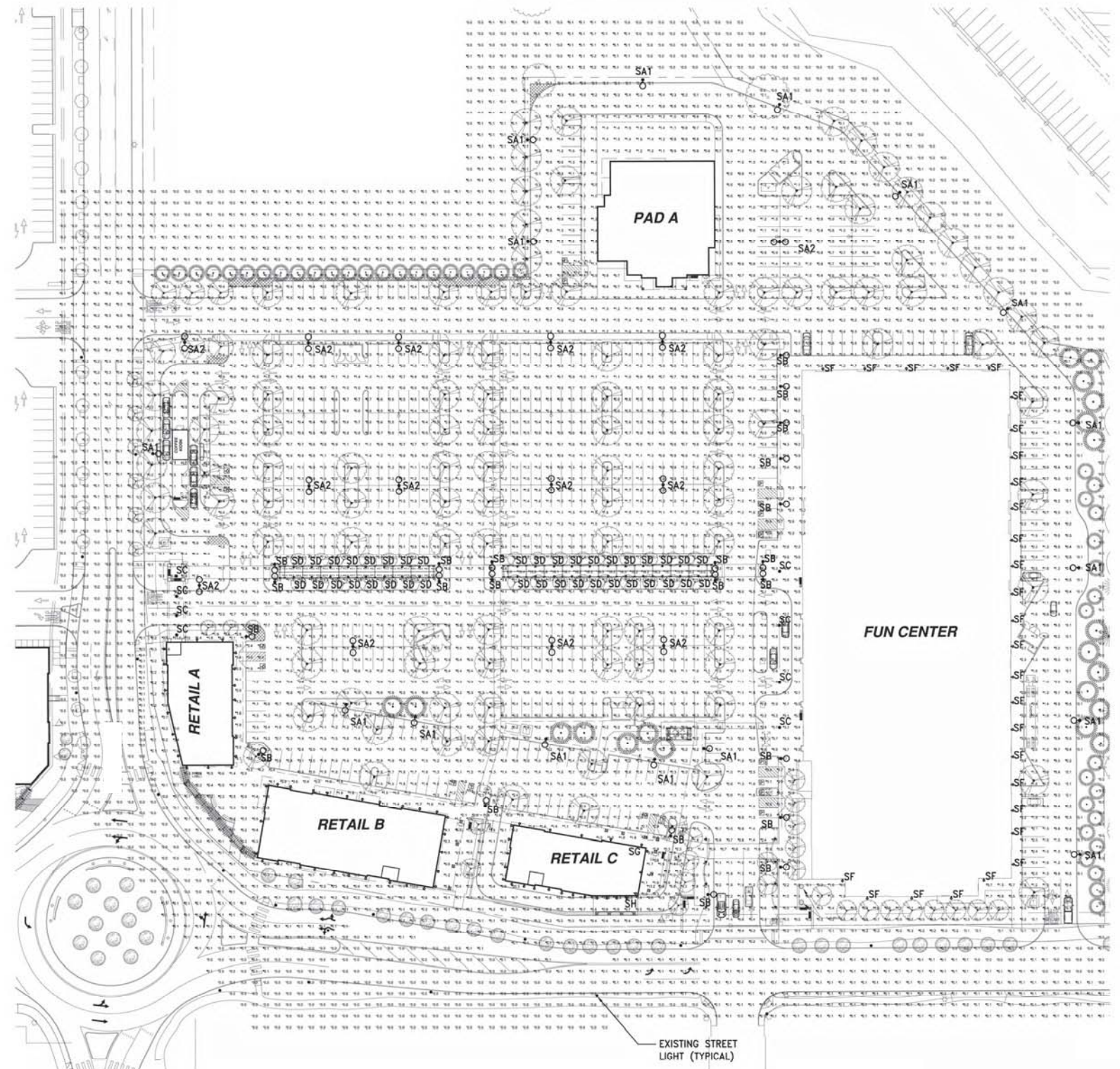
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FPHB	Fire Power Heavenly Bamboo <i>Nandina domestica</i> 'Fire Power'	3 Gal.	1.5' o.c.	Full & Bushy	18
FG	Fountain Grass <i>Pennisetum alopecuroides</i> 'Hameln'	1 Gal.	2.5' o.c.		1,203
GFS	Gold Flame Spirea <i>Spirea bumalda</i> 'Gold Flame'	5 Gal.	3.5' o.c.	Full & Bushy	110
HB	Heavenly Bamboo <i>Nandina domestica</i> 'Sienna Sunrise'	5 Gal.	3' o.c.	Full & Bushy	25
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OH	Oakleaf Hydrangea <i>Hydrangea quercifolia</i>	5 Gal.	5' o.c.	Full & Bushy	25
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OLL	Otto Luyken Laurel <i>Prunus laurocerasus</i> 'Otto Luyken'	5 Gal.	3' o.c.	Full & Bushy	134
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[Symbol]	Big Blue Lily Turf <i>Liriope muscari</i> 'Big Blue'	4" POT	12" o.c.		
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- IRRIGATION TO BE PROVIDED BY A FULLY AUTOMATIC UNDERGROUND SYSTEM, PLANS TO BE SUBMITTED AT BUILDING PERMIT.
 - LANDSCAPE PLANS WILL COMPLY WITH ALL CITY OF SHERWOOD LANDSCAPE CODE REQUIREMENTS AND ANY CONDITIONS OF APPROVAL.
 - EXISTING SITE TOPSOIL WILL BE REUSED FOR LANDSCAPE PLANTINGS, SOIL TESTS WILL BE CONDUCTED ON STOCKPILED TOPSOIL AND THE TOPSOIL WILL BE AMENDED AS PER THE RECOMMENDATIONS OF THE SOILS TEST.



Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
○	SA1	16	ARCHITECTURAL AREA LIGHTING	UCL-T4-56LED-4K-700-HSS	UNIVERSE FIXTURE, SPUN ALUMINUM HOOD, CAST ALUMINUM BALLAST COMPARTMENT, DECK CONSISTING OF DIODES, PRISMS, HEATSINKS, CARRIER PLATES AND HOUSESIDE SHIELD.	56 DIODES, 4200K	1	UCL-T4-56LED-4K-HSS-700.IES	5757	0.95	129.9
○	SA2	14	ARCHITECTURAL AREA LIGHTING	UCL-T2-56LED-4K-450	SPUN ALUMINUM HOOD, CAST ALUMINUM BALLAST COMPARTMENT, DECK CONSISTING OF DIODES, PRISMS, HEATSINKS AND CARRIER PLATES.	56 DIODES, 4200K	1	UCL-T2-56LED-4K-450.IES	6166	0.95	168
○	SB	24	ARCHITECTURAL AREA LIGHTING	UCM-ANG-T5-32LED-4K-700	UNIVERSE Medium - Type 5 w/ Angled Hood	32-4000K LEDs	1	UCM-ANG-T5-32LED-4K-700.IES	6606.374	0.95	71.5
⊕	SC	4	ARCHITECTURAL AREA LIGHTING	UCM-ANG-T5-32LED-4K-700	UNIVERSE Medium - Type 5 w/ Angled Hood	32-4000K LEDs	1	UCM-ANG-T5-32LED-4K-700.IES	6606.374	0.95	71.5
□	SD	38	FRACTION BY THE LIGHTING QUOTIENT	S172-5072-X-02-1-V0-9-FL-00 500mA	EXTRUDED WHITE PAINTED METAL HOUSING WITH SEMI-SPECULAR INTERIOR FINISH, FLAT METAL END CAPS WITH BLACK RUBBER FINISHED INTERIOR, 2 EXTRUDED SEA SPECULAR METAL CIRCUIT BOARD MOUNTING PLATES EACH CONSISTING OF FOUR WHITE CIRCUIT BOARDS EACH WITH 9 LEDs, ONE CLEAR PLASTIC OPTIC AND HOLOGRAPHIC PLASTIC OVERLAY PER CIRCUIT BOARD, CLEAR MICRO-PRISMATIC FLAT GLASS LENS IN FABRICATED WHITE PAINTED METAL FRAME WITH FABRICATED WHITE PAINTED METAL FORWARD REFLECTOR/VISOR, LENS TILTED FORWARD 47.5 DEGREES FROM HORIZONTAL WITH PRISMS IN.	SEVENTY-TWO WHITE LIGHT EMITTING DIODES (LEDs), TILTED 47.5-DEGREES FROM VERTICAL BASE-DOWN POSITION.	72	S172-5072-49_70_C_83624.IES	105.1221	0.95	110
♀	SF	28	Lithonia Lighting	WST LED P1 27K VF HVOLT	WST LED, Performance package 1, 2700 K, visual comfort forward throw, HVOLT	LED	1	WST_LED_P1_27K_VF_HVOL.T.ies	1494	0.96	14
♀	SG	37	SPI Lighting Inc. Mequon, WI 53092	Optical 6584 ORIGINAL TEST DATA	SPI Lighting - Wall luminaire. Product: 6584 White formed housing with internal compartments. White side lenses and prisms. Flat plastic lenses to bottom. 84 LEDs in a row of 21 on each of four white PCBs. Two in-line on each side with frosted clear plastic lenses. Two High Perfection Tech drivers. Model: LP1020-24. Operating at 120 VAC and 60 Hz.		84	AEW8081_558.dl.Flamore.28w.ies	6.621798	0.95	28.7
♀	SH	41	SISTEMALUX INC. MONTREAL, QUEBEC	S3950-830-25-14	SISTEMALUX MINI SLOT ROUND SUB ASSEMBLY LED ENGINE WITH FACETED SPECULAR REFLECTOR, CLEAR LENS	ONE WHITE ARRAY LED, LUMEN OUTPUT = 1191 LMS.	1	S3950-830-25_L435C.IES	1192	0.9	13.85

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
ADA PARKING AND PEDESTRIAN	+	2.1 fc	5.9 fc	0.2 fc	29.5:1	10.5:1
BREEZEWAY 'A'	+	17.1 fc	18.6 fc	11.3 fc	1.6:1	1.5:1
BREEZEWAY 'B'	+	15.5 fc	16.6 fc	9.4 fc	1.8:1	1.6:1
FOR FUTURE BLDGS	+	1.2 fc	21.3 fc	0.0 fc	N/A	N/A
FULL SITE	+	1.4 fc	14.2 fc	0.1 fc	141.0:1	14.0:1
Off Site Light Encroachment	+	0.1 fc	0.9 fc	0.0 fc	N/A	N/A
COFFEE AREA	+	0.7 fc	6. fc	0.1 fc	60.0:1	7.0:1



1 SITE LIGHTING CALC
ELC1.0 SCALE: 1"=60'-0"



6915 SW MACADAM AVE.
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PHONE: 503.892.1188
FAX: 503.892.1190
CONTACT...HANK BARLEEN
engineering@mke-inc.com



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SITE LIGHTING CALC

06-12-2017

1" = 60'-0"

PARKWAY VILLAGE SOUTH

LANGER FAMILY LLC

ELC
1.0

TYPE 'SA1', 'SA2', 'SB' & 'SC' CUT SHEET

TYPE 'SD' CUT SHEET

TYPE 'SF' CUT SHEET

UCM/UCL

Universe Collection® - Medium/Large Scale

- MicroCore™ technology
- First decorative, modular system with precise LED aiming capabilities
- Surge protection included
- 0-10v dimming ready
- IP66 optics
- DLC listed
- Powder coat finish in 13 standard colors with a polymer primer sealer



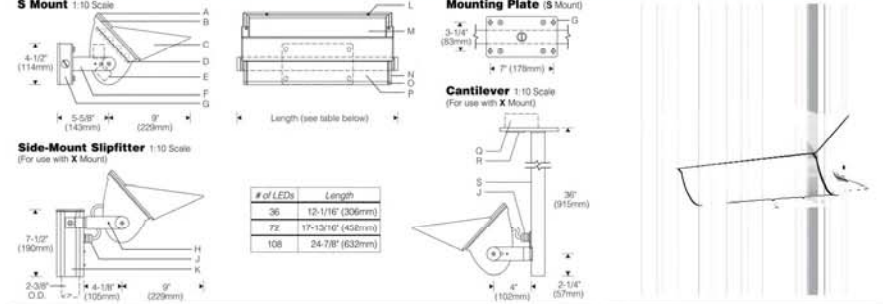
ORDERING INFORMATION

UCM/UCL		HOOD		FEATURE FINISH		OPTIONS	
UCM Universe Medium	UCL Universe Large	ANG Angled hood	REL Bell hood	WH Arctic White	BL Black	COP Copper	SIS Stainless Steel
UCM Upgrade Kit - UCL-LK		FLB Flared hood	STR Straight hood	BLT Matte Black	DGN Dark Green	OP Opal	
UPLT For internal illumination. Add 4 watts		SKB Skirted bell hood		DGN Dark Green	DB Dark Bronze	SLC Luminous element remains until during normal operation	
Distribution T2, T3, T4, T5, T6, TR		LUMINOUS ELEMENTS OPTION		TT Titanium	WDB Weathered Bronze	FTG Flat glass lens	
Color 32LED-3K, 32LED-4K, 32LED-5K		WND 4 lumens windows		MDB Metallic Bronze	YBU Verde Blue	FLD Lightly diffused finish on flat glass lens	
Driver 700 (700mA, 75 watts)		SR Solid rings		CRT Corten	MAL Matte Aluminum	RCK Rock guard, UCL only	
Bezel Fishes Available in 13 standard finishes and premium finishes		VSL Vertical slots		MG Medium Grey	AGN Antique Green	LDL Lightly diffused lens	
		LUMINOUS RINGS OPTION		LC Light Grey	PCA-C Rotatable photocell housing - contemporary	SCP Programmable motion control, factory default is 50%, requires pole.	
		BLU Blue inner lens		GRN Green inner lens	RAI Provide a RAI 4 digit color number	CUSTOM COLOR Please provide color chip for matching	
		RD Red inner lens					
		GRN Green inner lens					
		DISTRIBUTION					
		T2 Type 2					
		T3 Type 3					
		T4 Type 4					
		T5 Type 5					
		TL 45° Left					
		TR 45° Right					

Please visit www.aal.net for mounting, dimensions, weight and EPA.



Uplighting Large outdoor, integral driver



Specifications

A Milled extruded aluminum door frame	E Integral driver	L Tamper-resistant captive door screws	P Specular extruded aluminum housing
B Precured silicone door and lens gasket	F Aluminum yoke	M Micro-prismatic impact resistant tempered glass lens	Q Outlet box (by others)
C Cut-off visor	G Surface splice box	N Die-cast aluminum end plates	R Welded aluminum mounting plate with splice access cover (black)
D Field serviceable light engine with fragtir™ asymmetric optic	H Locking set screw	O Aluminum reveal plate (black)	S 1-1/2" aluminum arm
	J 1/2" NPT nipple		
	K Accessory extruded aluminum slipfitter		

Optic Assembly: Two-piece extruded aluminum heat sink housing and light engine. Exterior heat sink anodized for maximum emissivity. Removable interior extension treated to maximize thermal conductivity. Precision formed asymmetric optical light bar of high temperature, water-clear acrylic. Extruded aluminum door frame with captive tamper-resistant fasteners. Clear tempered glass lens with elliptical distribution holographic diffuser; maximizes lateral distribution without disturbing asymmetric, forward throw.

Finish: Exterior surfaces - 6 stage pretreatment and electrostatically applied thermoset polyester powder coating for a durable abrasion, fade and corrosion resistant finish. Choice of serigraph colors (see ordering information). Extruded aluminum heat sink housing plus yoke, door frame and decorative end plates are finished in color. All hardware and components - non-corrosive stainless steel or aluminum.

U.S. Patent 8,465,190; foreign patents pending

Lighting Facts: The Brighter Choice

PIA15: 15 Year Warranty

elliptipar: with fragtir LED

TYPE 'SG' CUT SHEET

FILLORE EXTERIOR WALL
AEW8081

The Fillore exterior wall sconce has a formed metal triangular housing with four windows on each side. An opal polycarbonate lens is standard. The contemporary look of this exterior sconce is perfect for a host of applications including offices, retail buildings and health care facilities. Choose from a palette of both painted and metal finishes.

Features:

- Opt acrylic diffuser lens enhances a space with filtered illumination
- Formed metal construction provides durable protection for internal components and is recyclable
- Bellows has minimum start temperature of 0° C, suitable for most exterior applications
- Integral Class II power supply standard

Technical Notes:

- ETL listed to UL standards (US and Canada) for use in wet locations
- Integral electronic ballast utilizes the latest energy-saving technology to maintain consistent color temperature, CRI and lumen maintenance, while eliminating the need for remote mounting and specifying installation
- SPI uses strict quality guidelines in LED selection to ensure the white LEDs we use meet or exceed ANSI Binning Standards (ANSI-C78-733)

Dimensions:

W	H	D	MC
13.9 in	22.2 in	3.9 in	11.0 in
34.3 cm	56.9 cm	10.1 cm	27.9 cm

Weight:
Hanging weight: 55.0 lb (22.7 kg)

Additional Documents:
Color Chart (http://www.splighting.com/SP1_Color_Chart.pdf)

TYPE 'SH' CUT SHEET

SLOT ROUND LED

Wall mounted luminaire

Luminaire characteristics:
Power input: 25.0W
Lumens: 1330lm
Luminaire efficacy: 53lm/W

Source: LED module (LM-80 tested) 3000K, 90CRI
Also available in 4000K, 90CRI
Lumen maintenance: 70% of initial lumens at +50,000 hours (3.7% L80/B70 tested)

Optics: 20° medium beam angle, adjustable ±15°

Material: Body: Diecast and extruded aluminum body and machined aluminum mounting plate
Reflector: 99.99% pure anodized aluminum
Diffuser: Bron thick clear tempered glass
Hardware: Stainless steel screws and silicone gaskets

Electrical: Integral high efficiency electronic power supply, rated at 50,000 hours, 120-277V

Mounting: Install on a standard 4" box, up or down light

Finish: Aluminum gray or Anthracite gray

Weight: 15.21lbs (6.8kg)

Warranty: 5 year limited warranty

Certification: cULus listed for wet location

Rating: IP65, IK08



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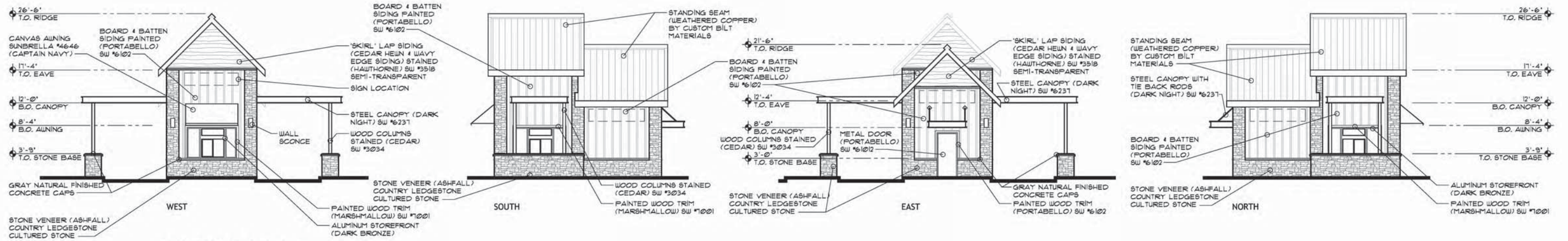
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SITE LIGHTING LUMINAIRE CUT SHEETS PARKWAY VILLAGE SOUTH LARGER FAMILY LLC

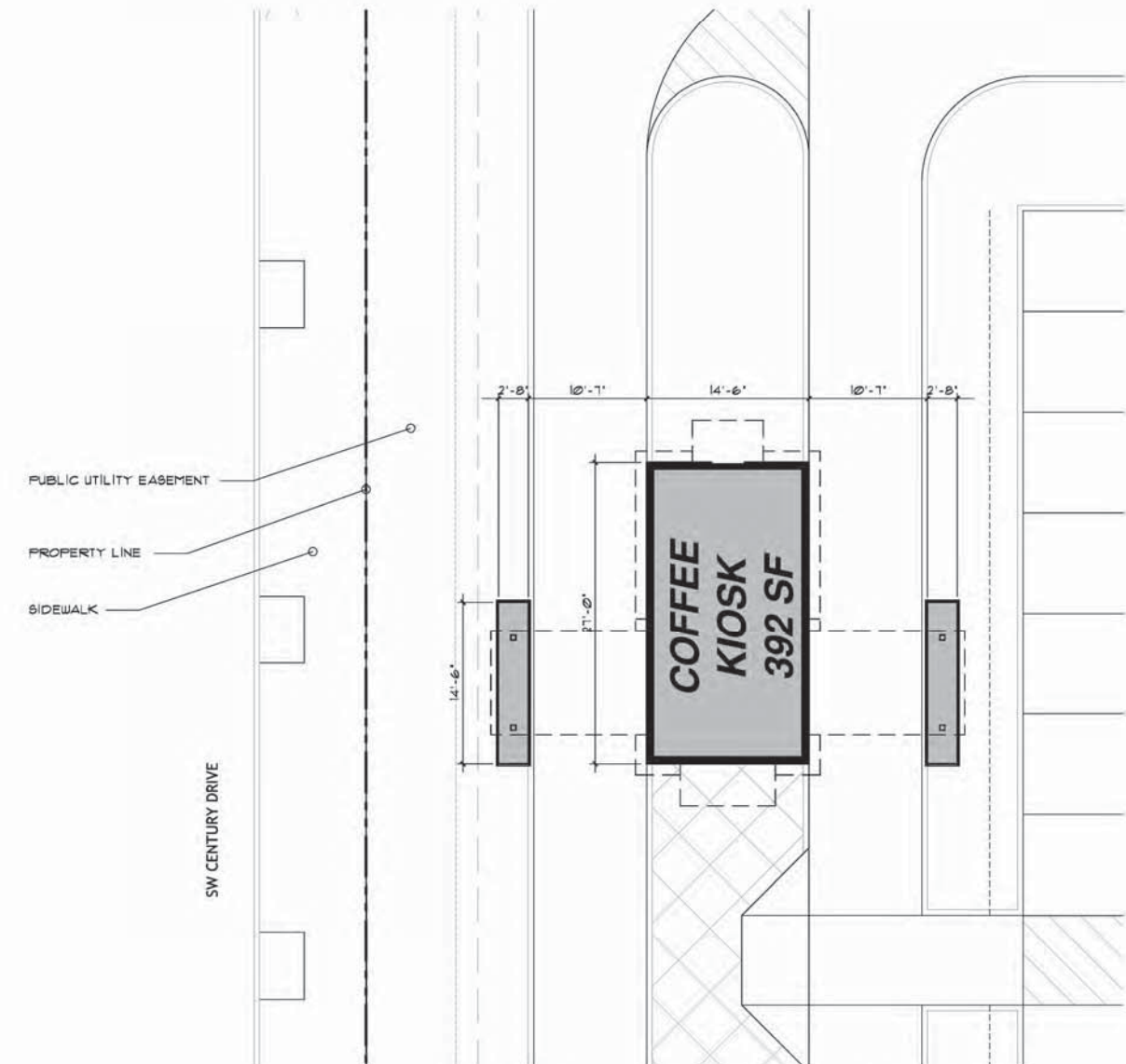
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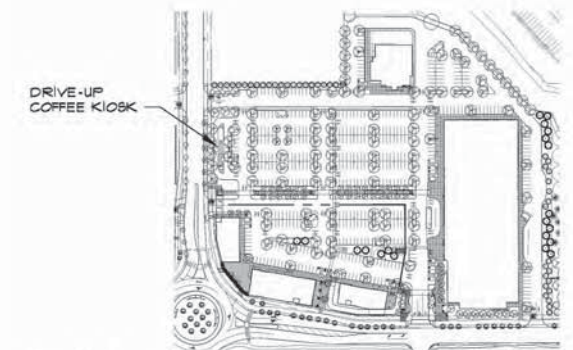
ELC 2.5



ELEVATIONS



FLOOR AND PLAZA PLAN NORTH



SITE KEY PLAN NORTH N.T.S.

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DRIVE-UP COFFEE KIOSK
 07-14-2017 1/8" = 1'-0"

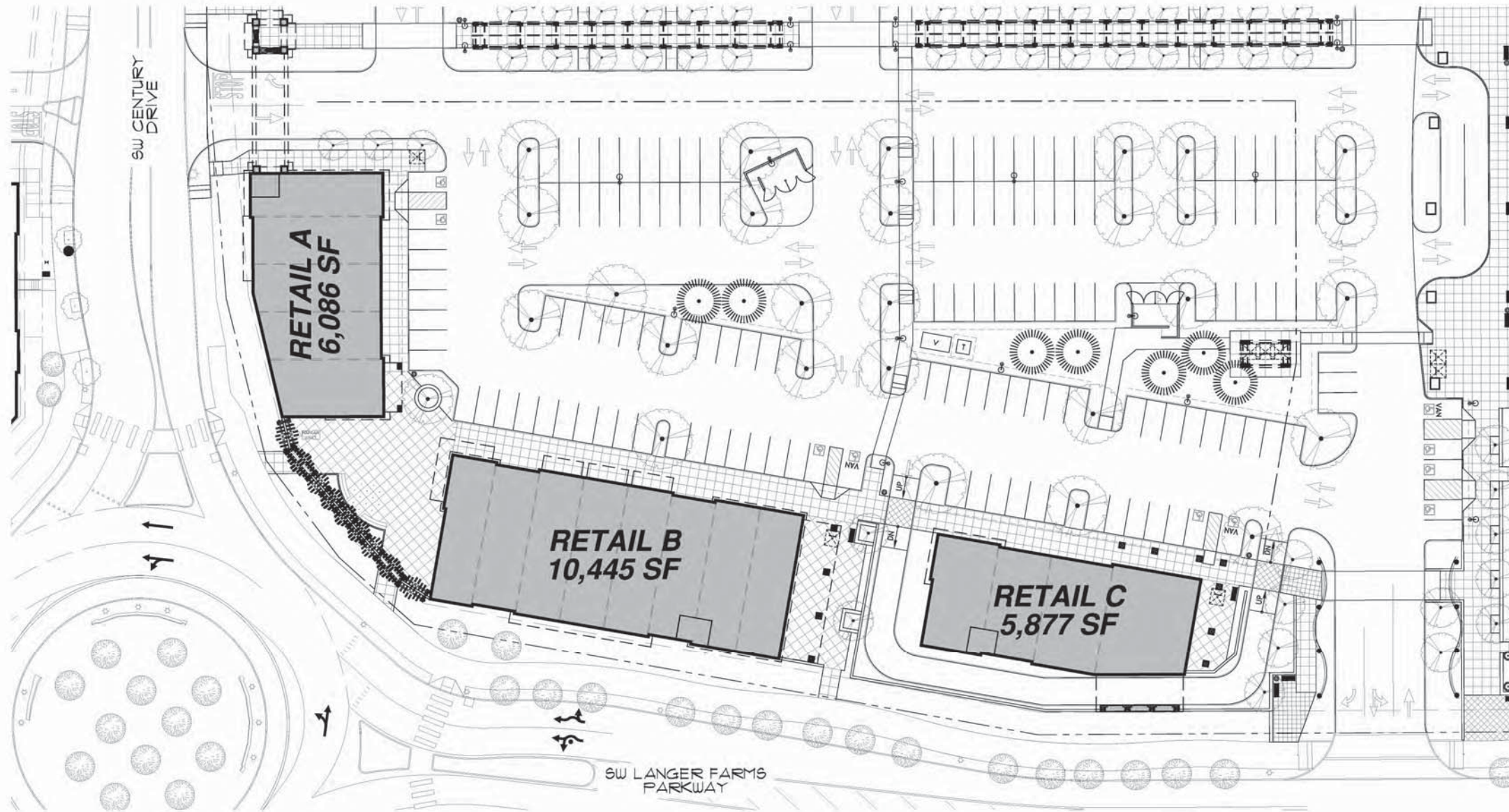
PARKWAY VILLAGE SOUTH
 LANGER FAMILY LLC

COF 1.1



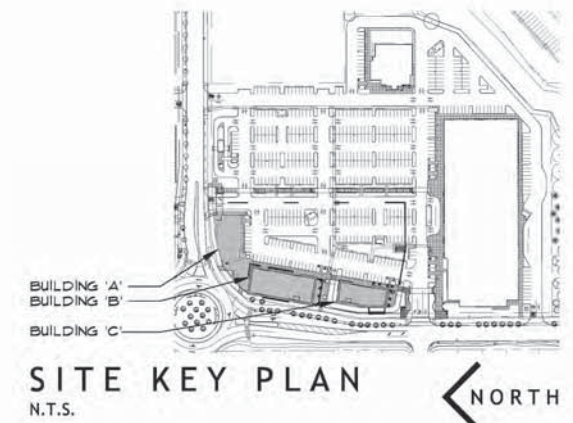
PLAZA SIDE ELEVATION

1" = 20'-0"



PLAZA PLAN

1" = 30'-0"



SITE KEY PLAN

N.T.S.



SW CENTURY DRIVE / SW LANGER FARMS PARKWAY ELEVATION

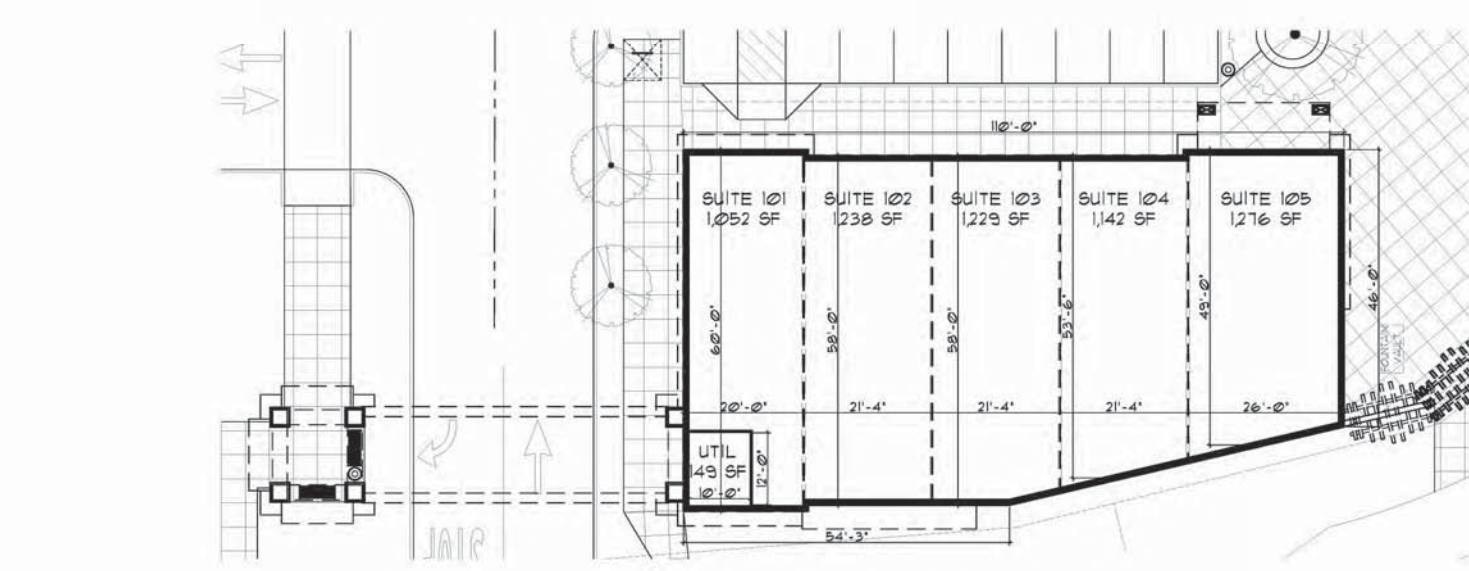
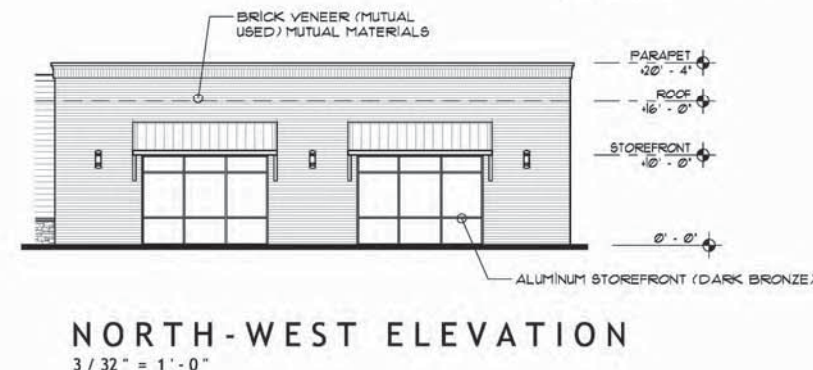
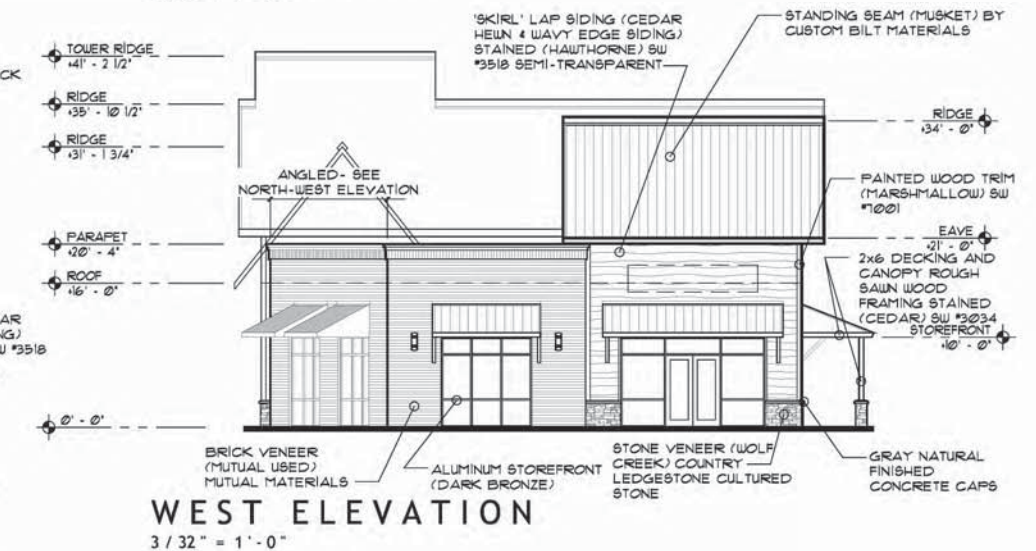
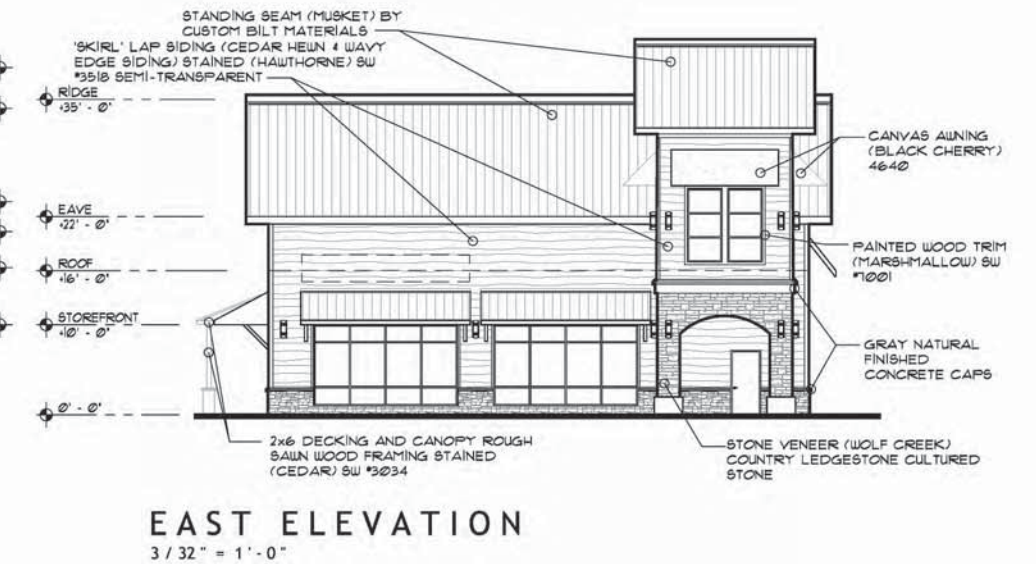
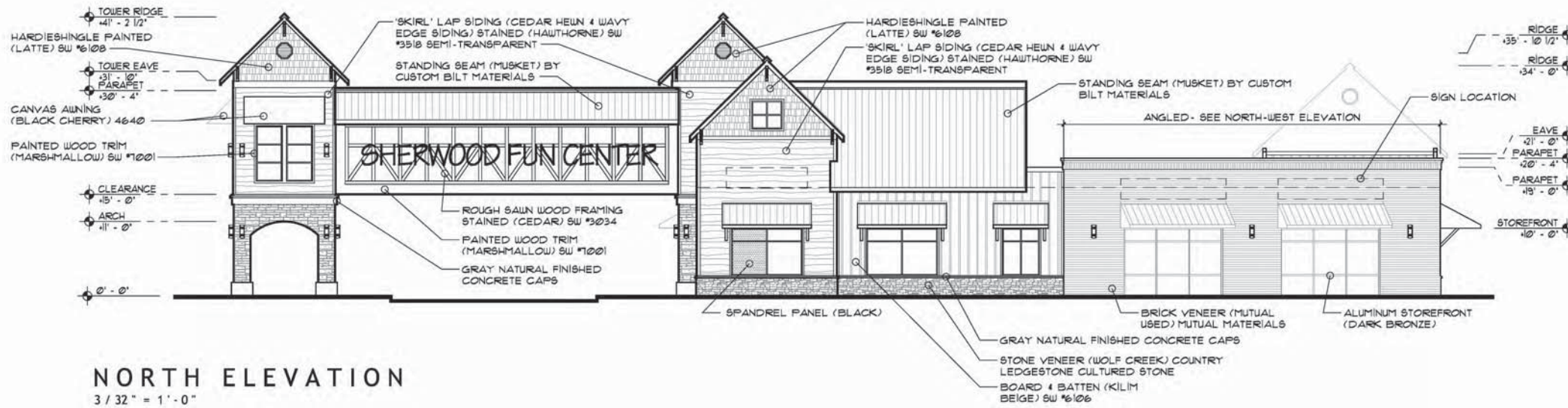
1" = 20'-0"

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PARTIAL SITE PLAN AND COMBINED ELEVATIONS
07-14-2017

LANGER FAMILY LLC

RET
1.1



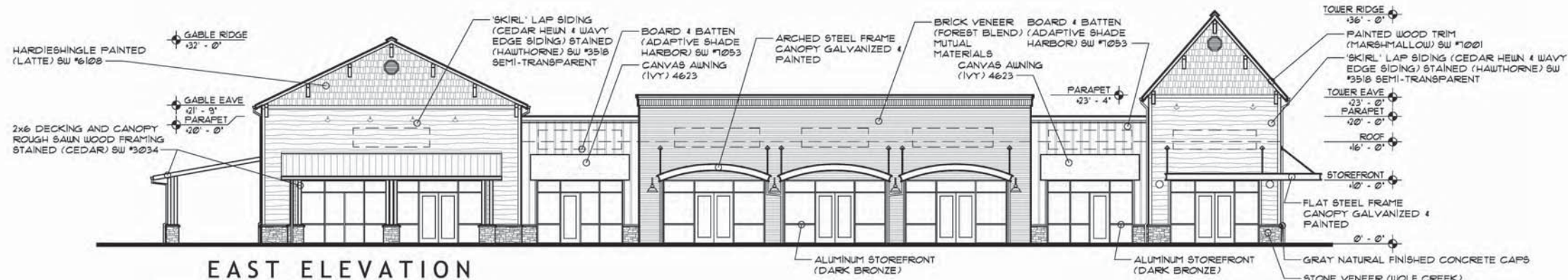
GROSS AREA:	6,086 SF.
UTILITY ROOM:	149 SF.
NET AREA:	5,937 SF.
SUITE 101:	1,052 SF. TENANT
SUITE 102:	1,238 SF. TENANT
SUITE 103:	1,229 SF. TENANT
SUITE 104:	1,142 SF. TENANT
SUITE 105:	1,276 SF. TENANT

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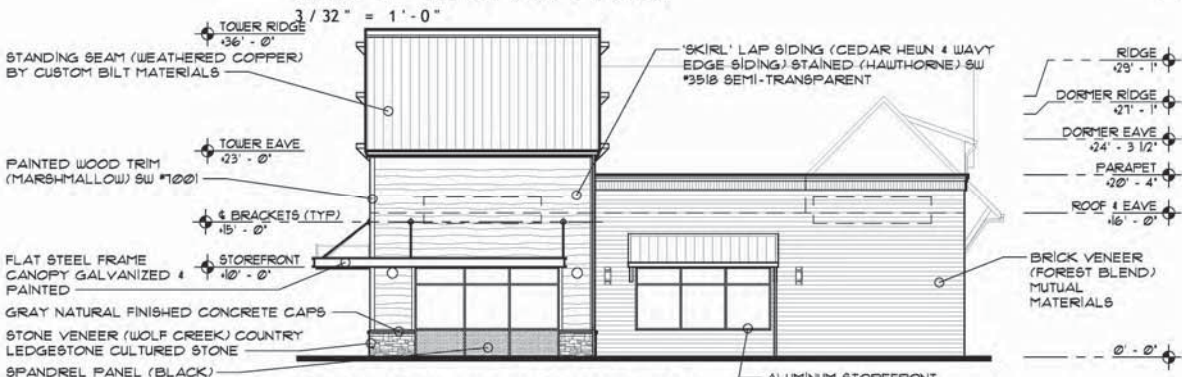
FLOOR AND PLAZA PLAN
1/16" = 1'-0"
BUILDING A
NORTH
07-14-2017

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC

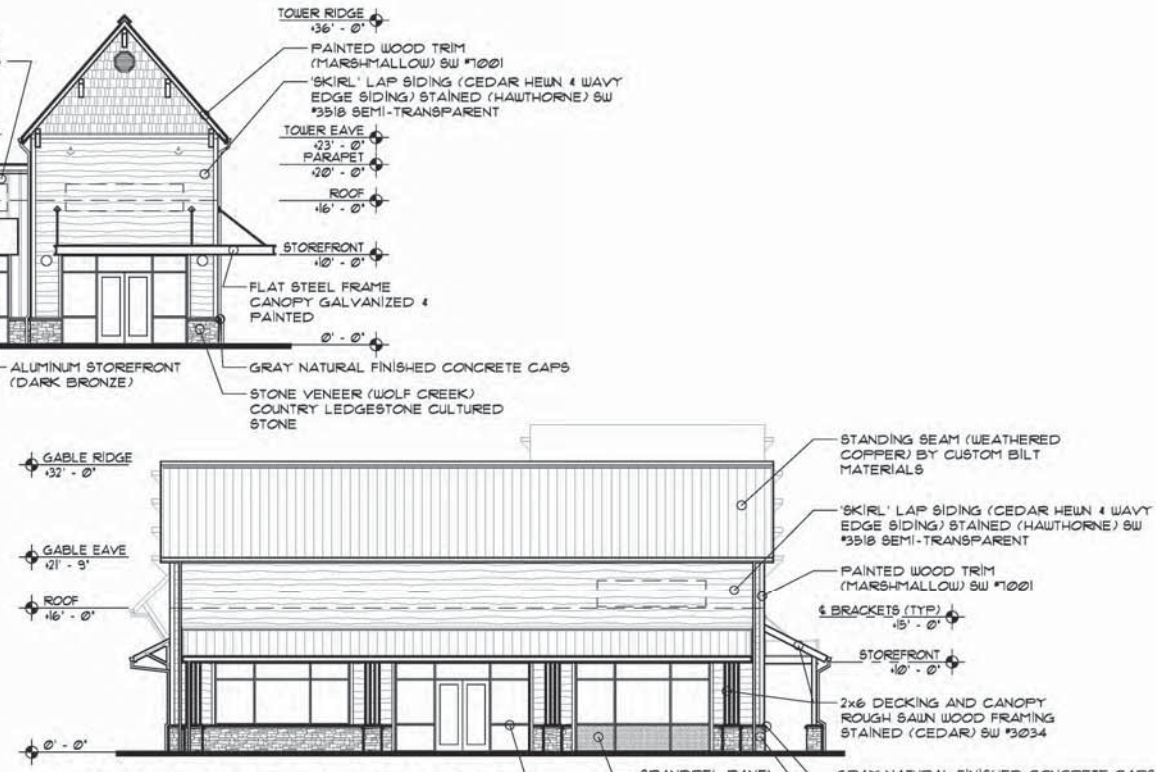
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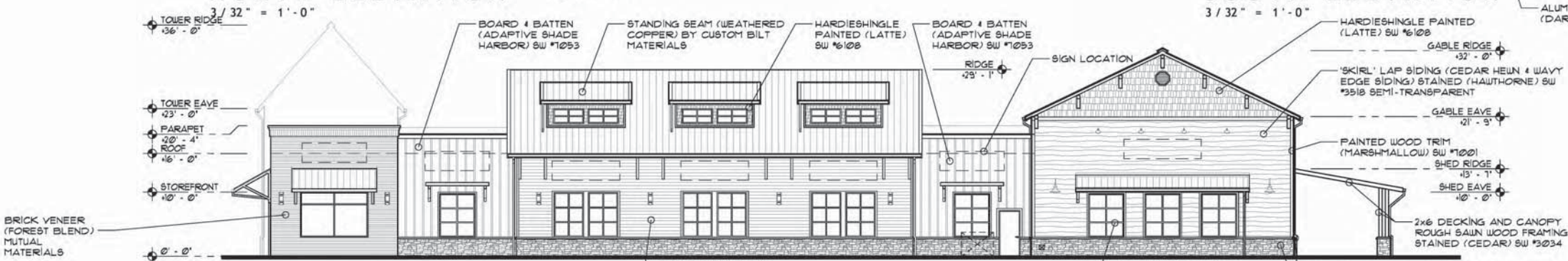
EAST ELEVATION



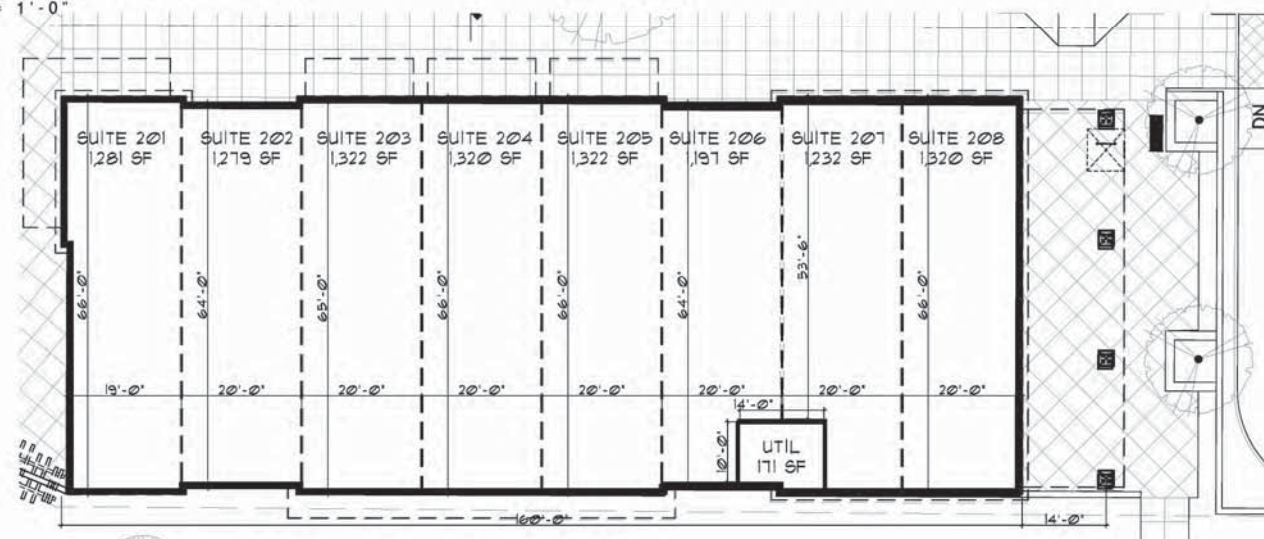
NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION



FLOOR AND PLAZA PLAN

BUILDING B

07-14-2017

GROSS AREA:	10,445 S.F.
UTILITY ROOM:	171 S.F.
NET AREA:	10,274 S.F.
SUITE 201:	1281 S.F. TENANT
SUITE 202:	1279 S.F. TENANT
SUITE 203:	1322 S.F. TENANT
SUITE 204:	1320 S.F. TENANT
SUITE 205:	1322 S.F. TENANT
SUITE 206:	1191 S.F. TENANT
SUITE 207:	1232 S.F. TENANT
SUITE 208:	1320 S.F. TENANT



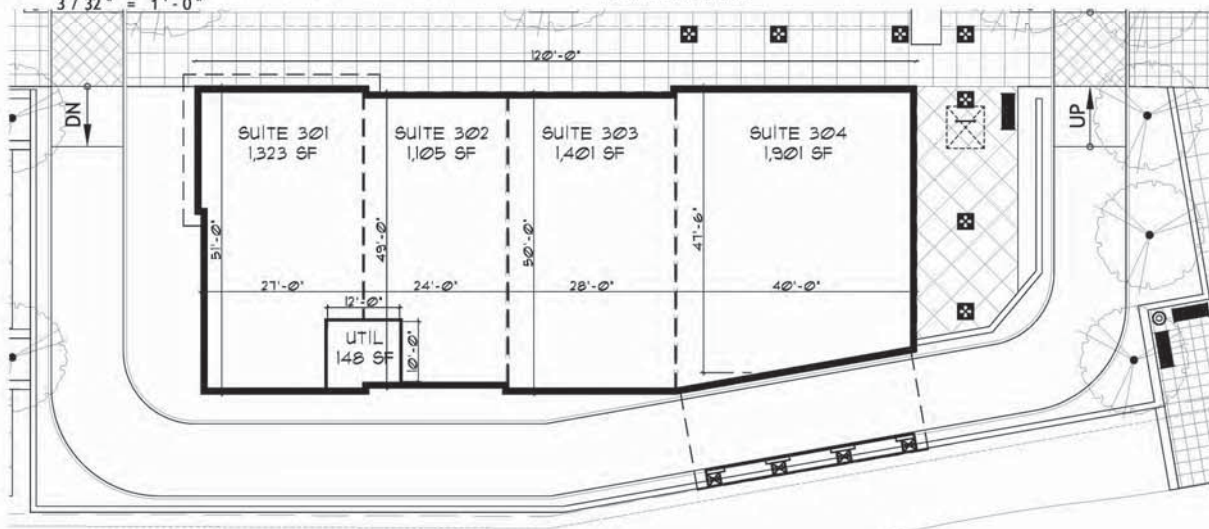
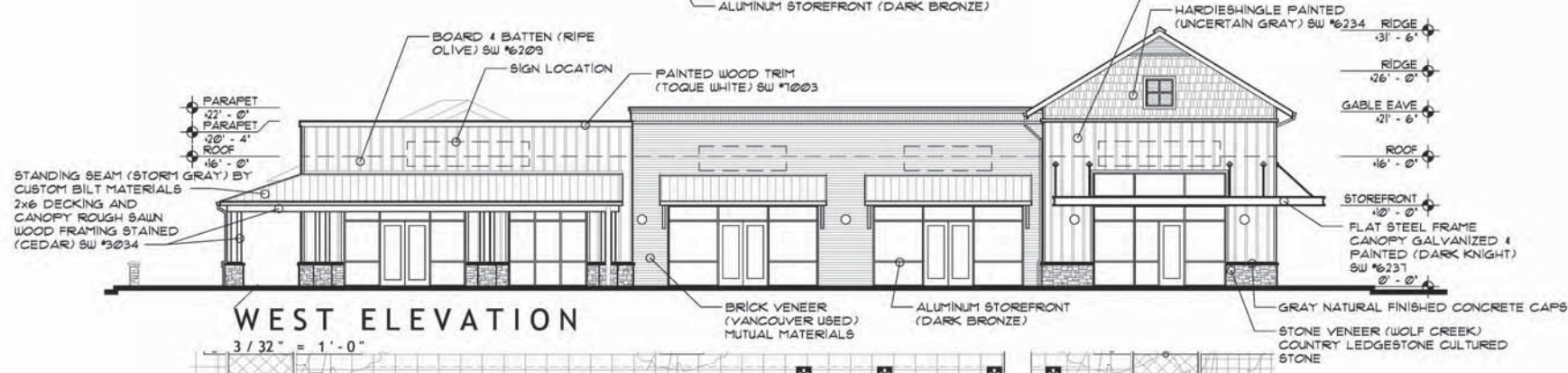
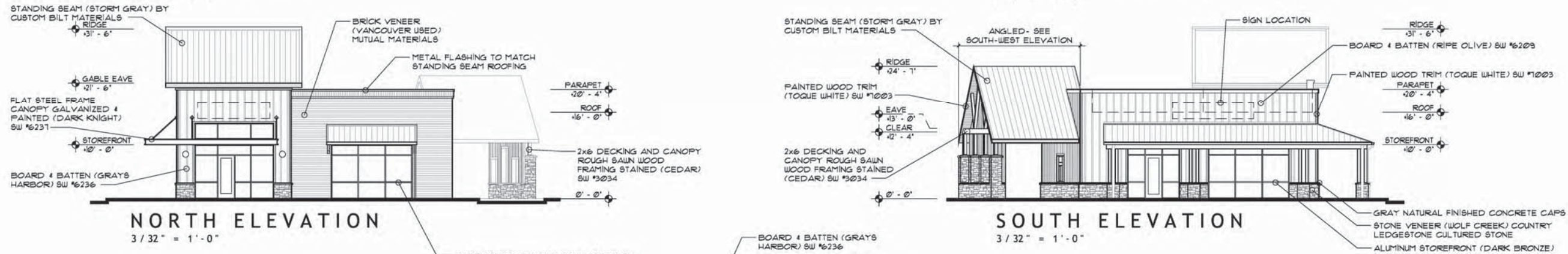
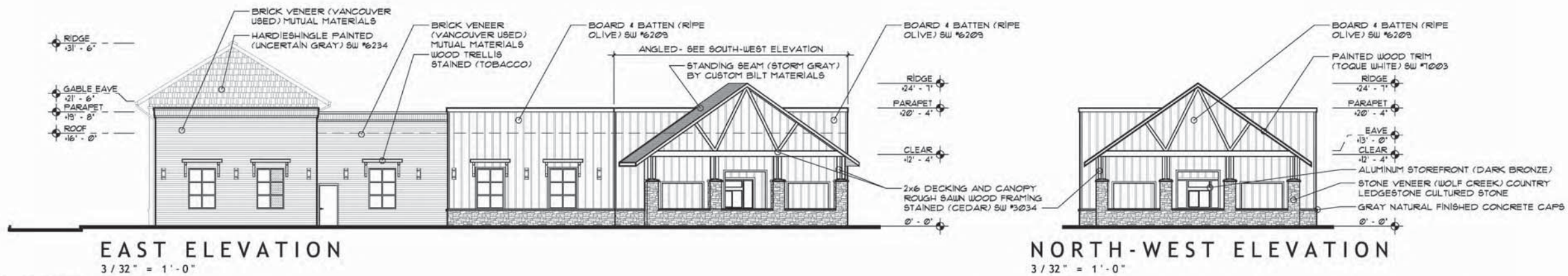
SITE KEY PLAN

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(503) 220-8511
FAX (503) 220-8518

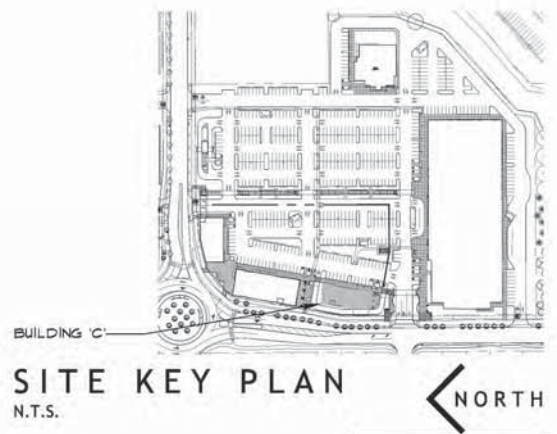
PARKWAY VILLAGE SOUTH

LANGER FAMILY LLC

RET 2.2



GROSS AREA:	5,871 SF.
UTILITY ROOM:	141 SF.
NET AREA:	5,730 SF.
SUITE 301:	1,323 SF. TENANT
SUITE 302:	1,105 SF. TENANT
SUITE 303:	1,401 SF. TENANT
SUITE 304:	1,901 SF. TENANT



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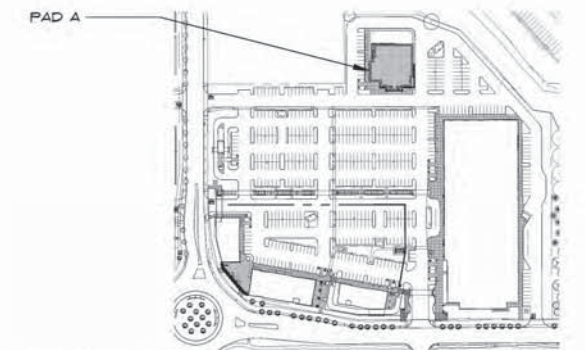
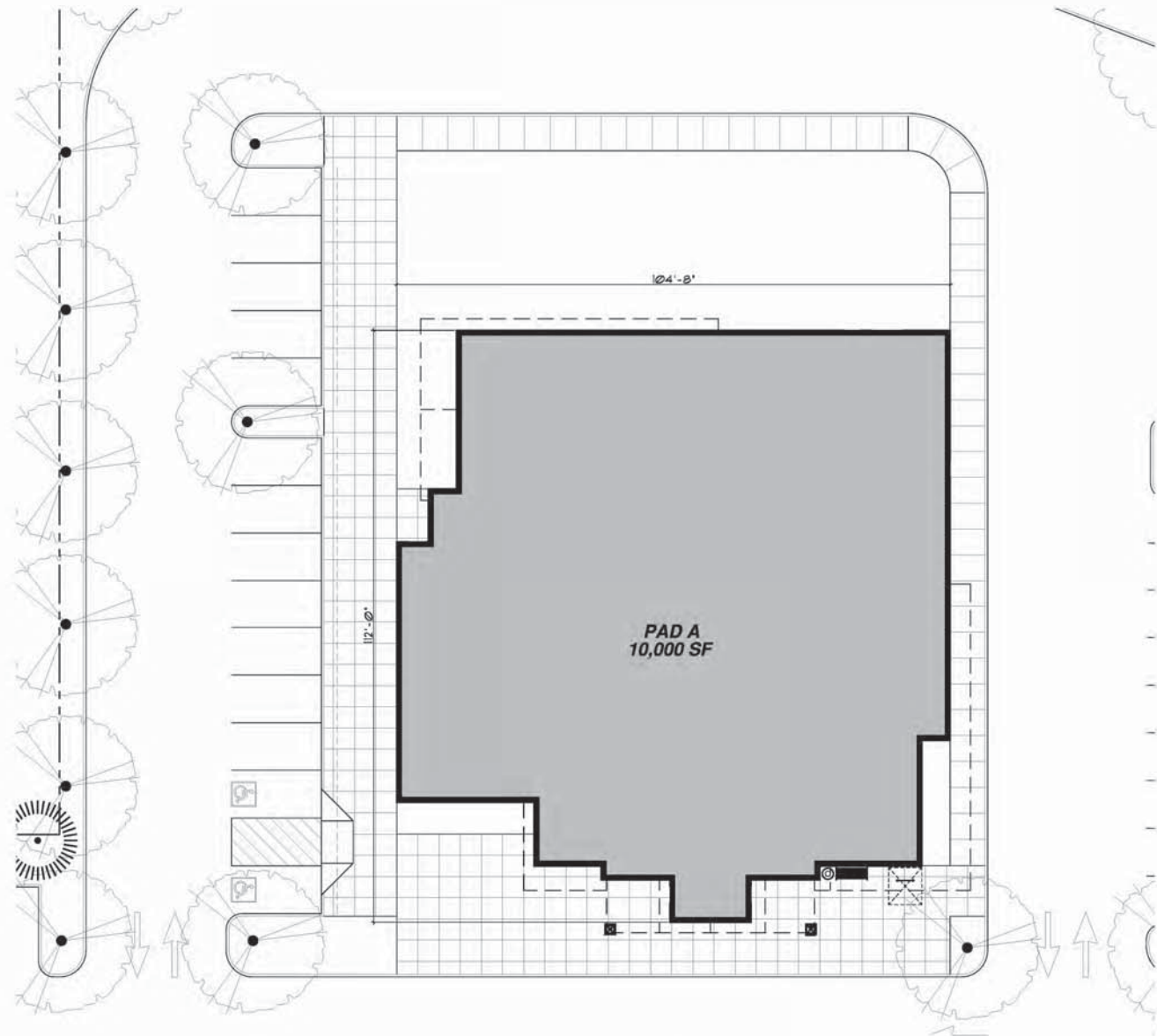
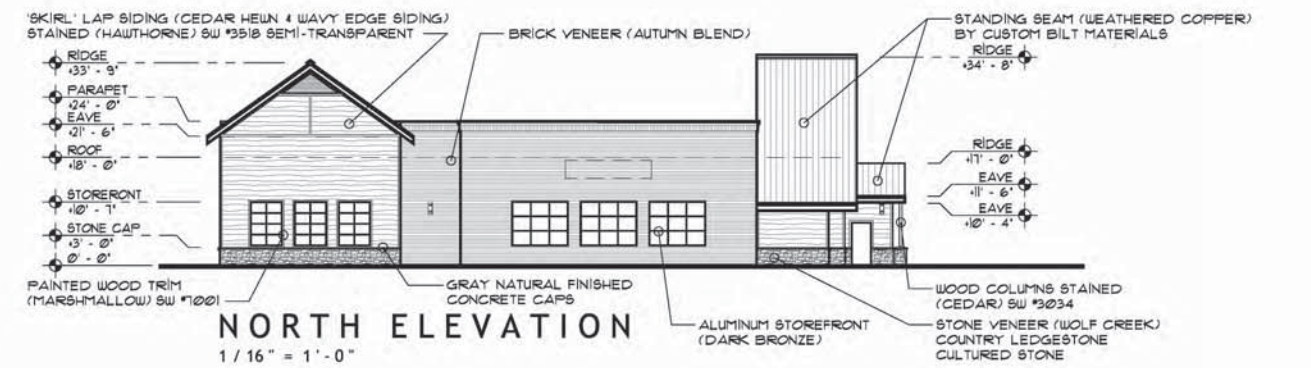
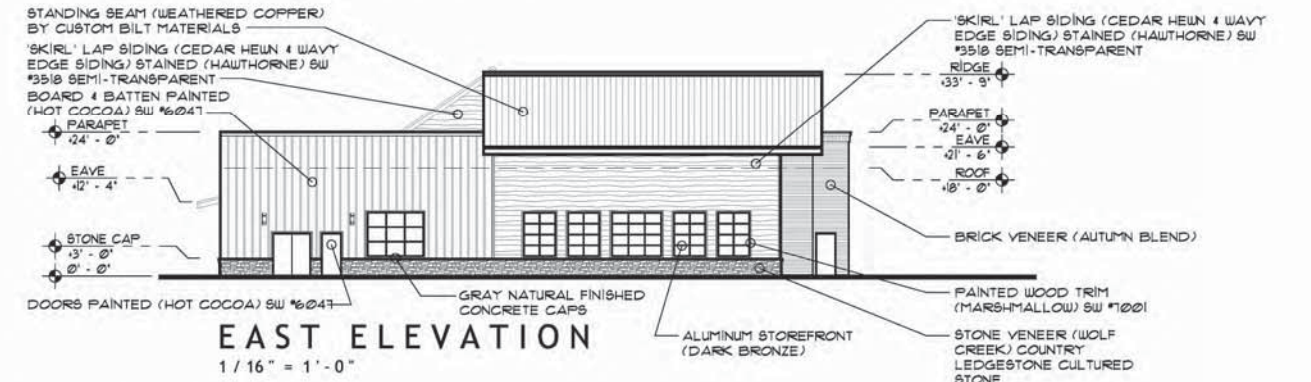
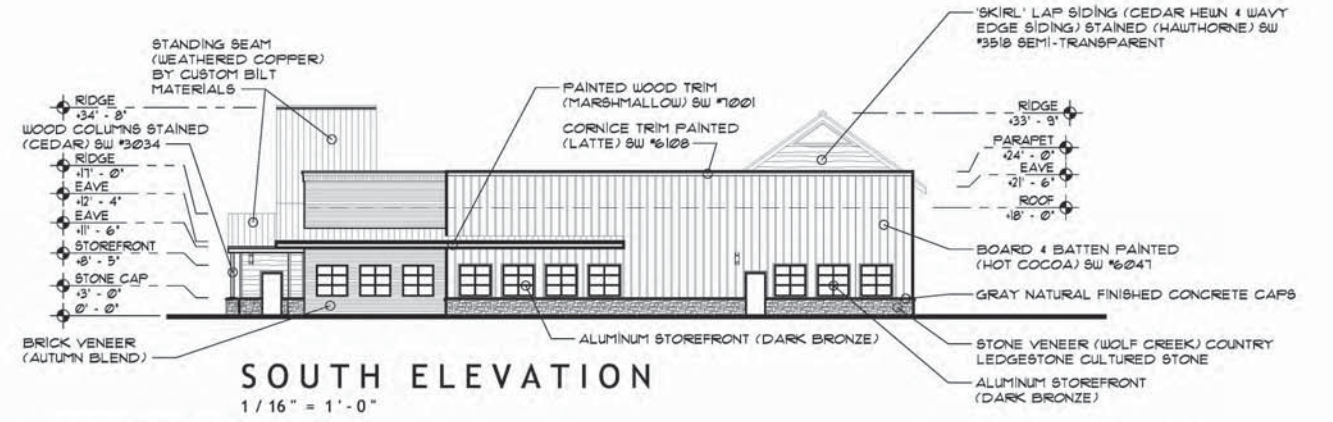
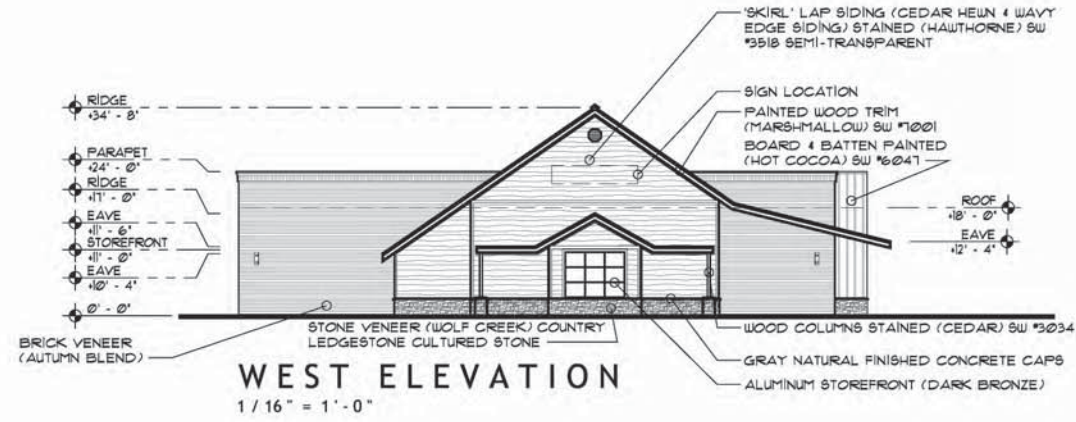
FLOOR AND PLAZA PLAN
1 / 16" = 1' - 0"

BUILDING C

07-14-2017

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC

RET 2.3



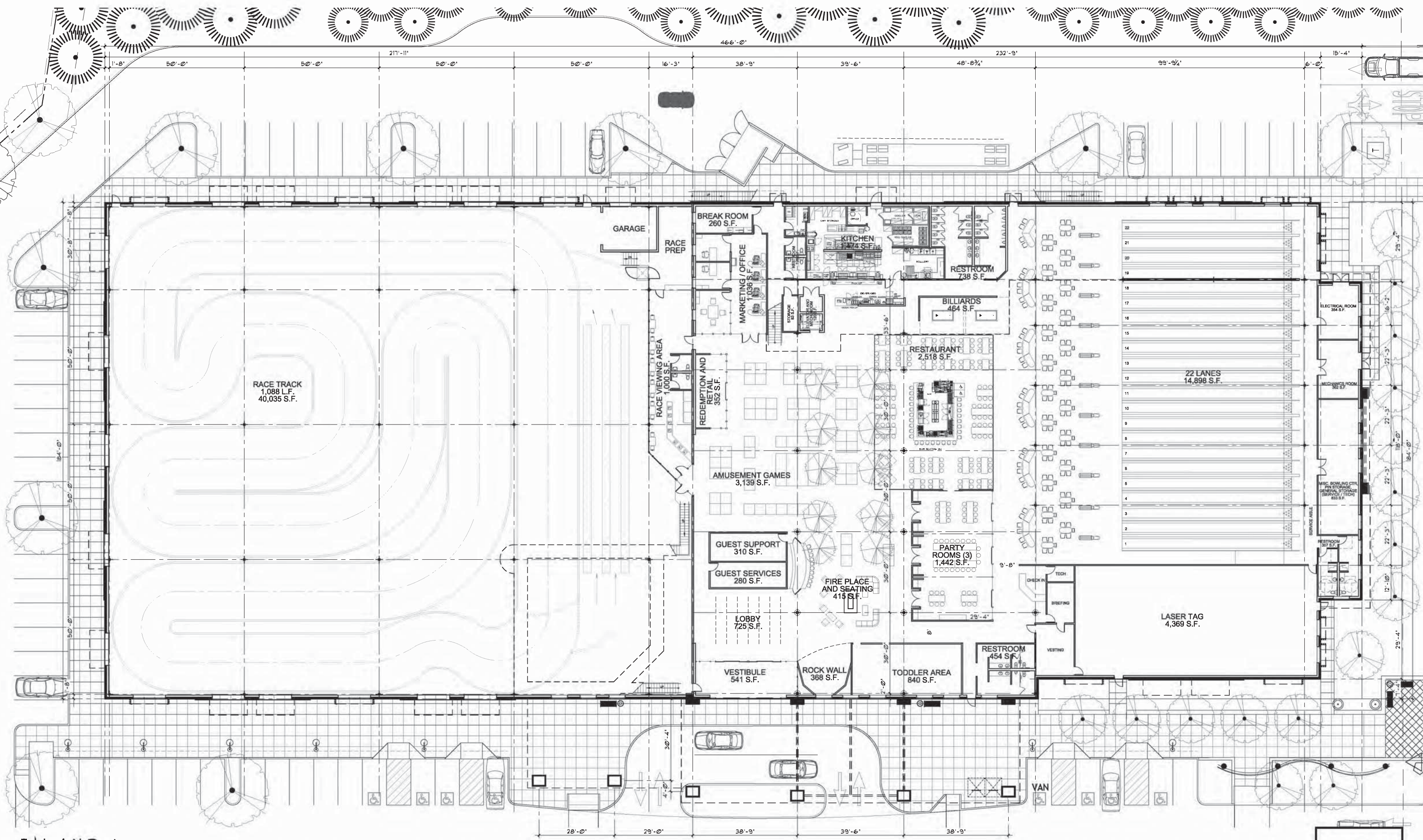
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FLOOR AND PLAZA PLAN
1/16" = 1'-0"

PAD A
07-14-2017

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC

PAD
1.1



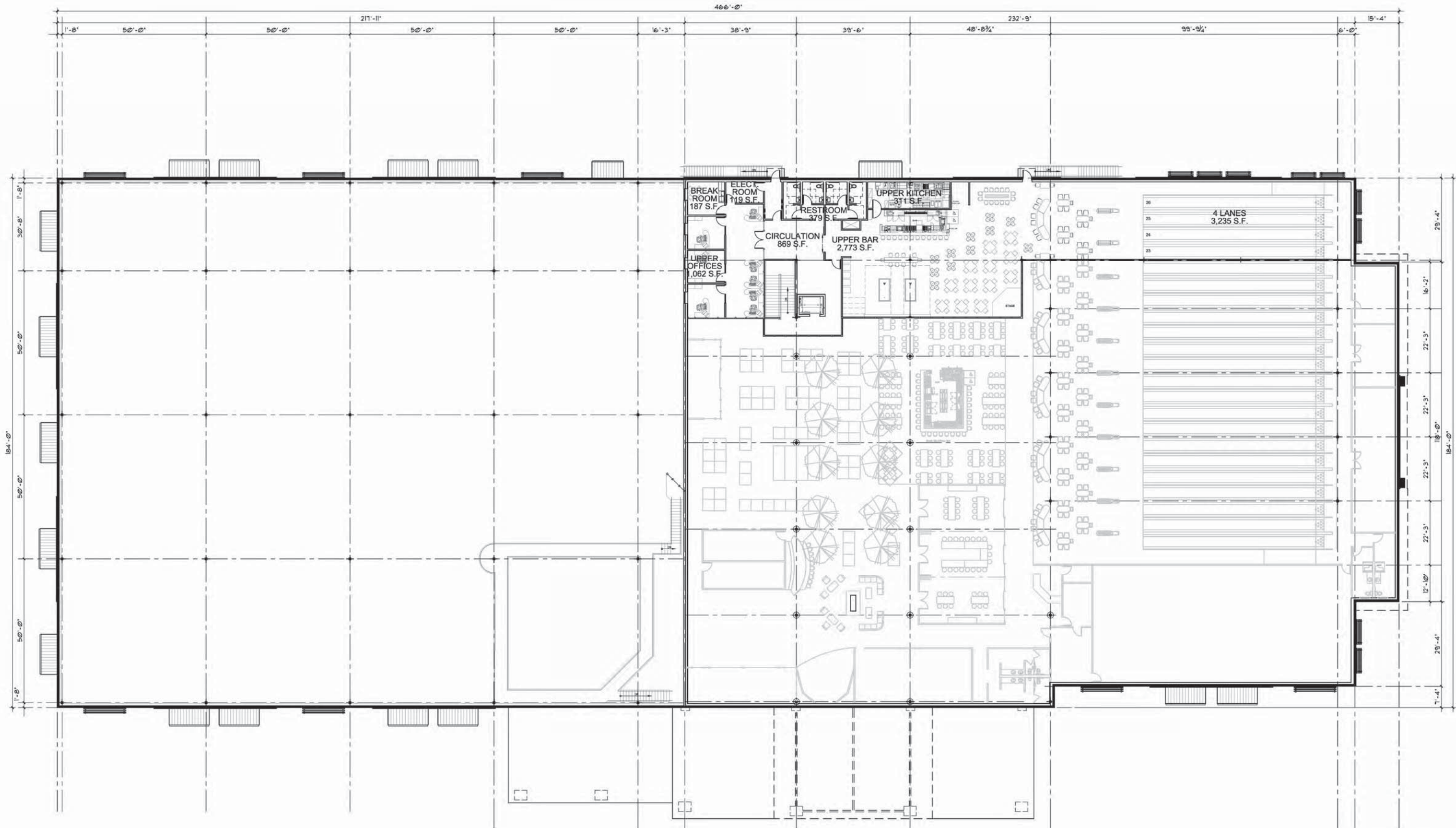
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FIRST FLOOR PLAN
07-14-2017 1/16" = 1'-0" 83,964 S.F.

FAMILY FUN CENTER
LANGER FAMILY LLC



FEC
2.1



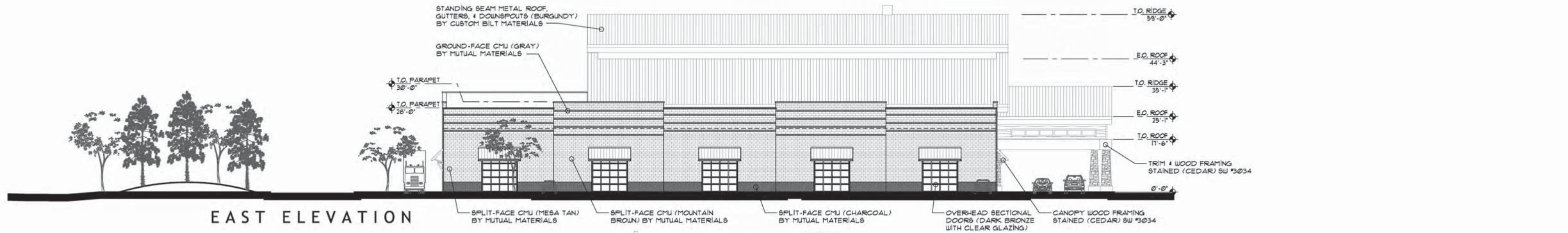
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SUITE 200
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MEZZANINE FLOOR PLAN
07-14-2017 1/16" = 1'-0" 8,935 S.F.

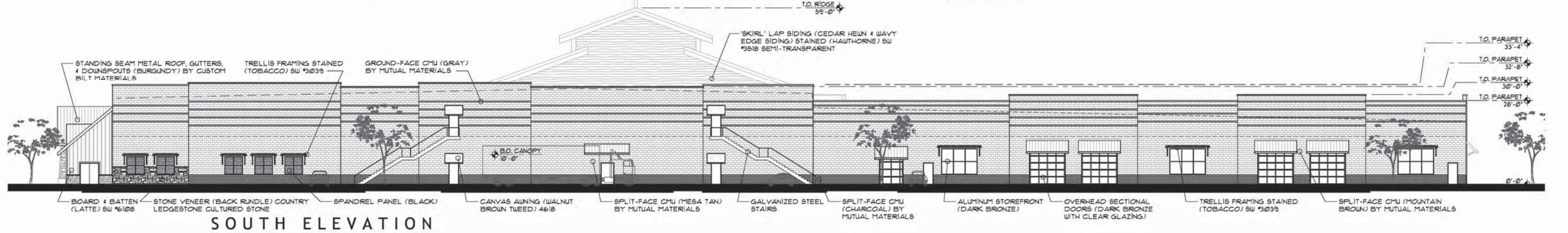
FAMILY FUN CENTER
LANGER FAMILY LLC



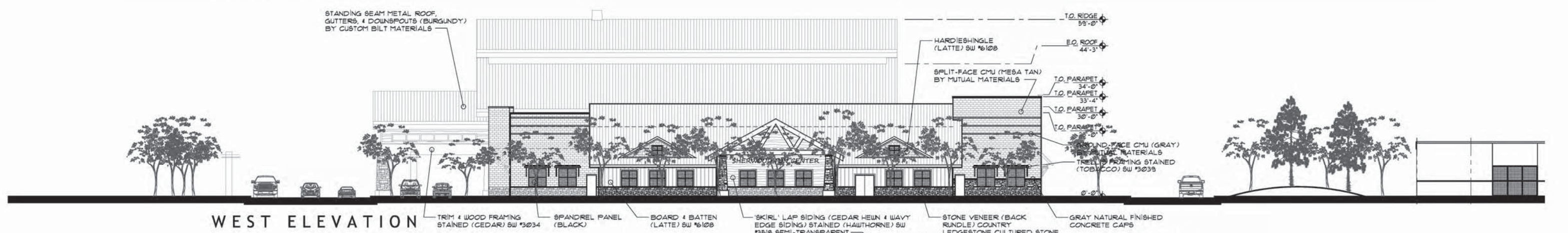
FEC
2.2



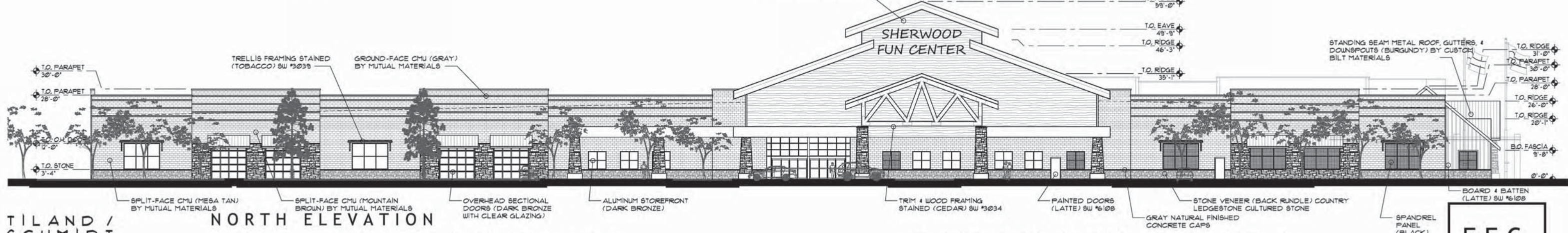
EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION

EXTERIOR ELEVATIONS

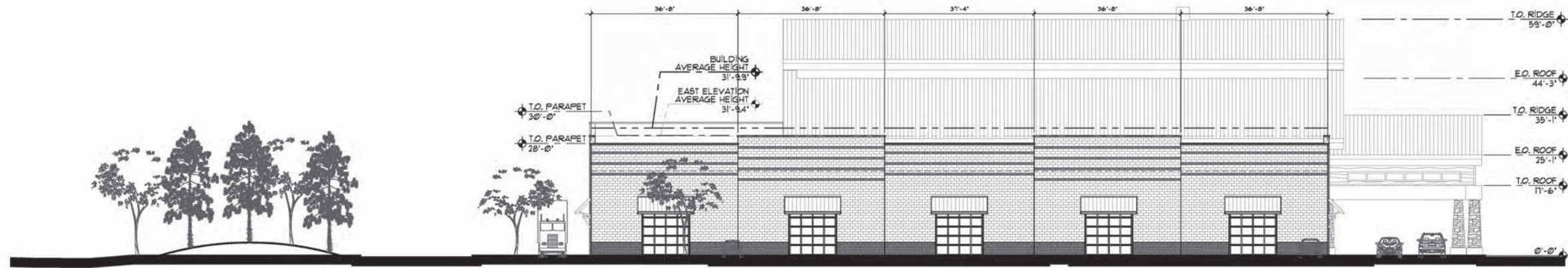
FAMILY FUN CENTER

LANGER FAMILY LLC

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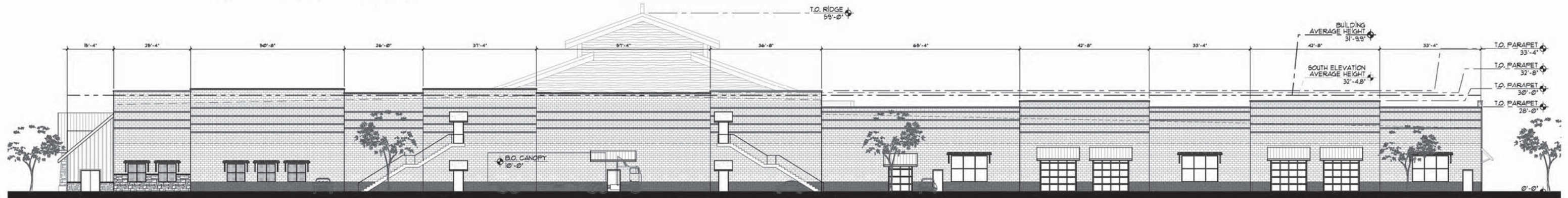
07-14-2017 1/16" = 1'-0"

FEC
6.0

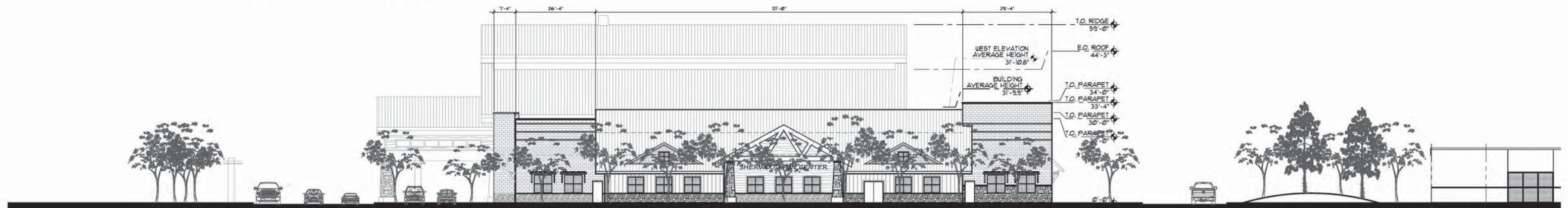


EAST ELEVATION

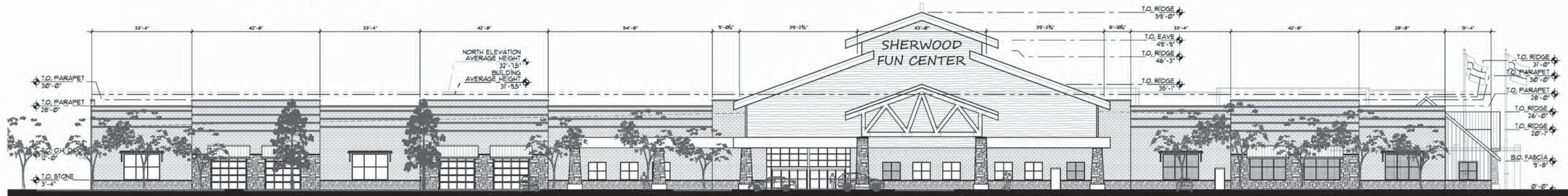
ELEVATION FACE	AVERAGE HEIGHT
EAST ELEVATION:	29'-9.6"
SOUTH ELEVATION:	31'-9.4"
WEST ELEVATION:	31'-10.8"
NORTH ELEVATION:	32'-7.5"
OVERALL BUILDING:	31'-9.9"



SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION

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AVERAGE EXTERIOR ELEVATION HEIGHT EXHIBIT FAMILY FUN CENTER
07-14-2017 1/16" = 1'-0" LANGER FAMILY LLC

FEC
6.0A

SITE DATA
SEE: CITY OF SHERWOOD MUNICIPAL CODE - SECTION 16.94.020, FOR PARKING RATIOS.

BUILDING	AREA	PARKING RATIO (PER 1,000 S.F.)		PARKING STALLS			BICYCLE PARKING (TABLE 4)
		MIN	MAX	MIN	5 PER	MAX	
FUN CENTER:	52,864 S.F.	4.3	5.4	228	265	286	16
FIRST FLOOR:	43,929 S.F.						
SECOND FLOOR:	8,935 S.F.						
RACING:	40,035 S.F.	ASSUMED 40		40	40	40	2
COMBINED FUN CENTER AND RACING:	92,899 S.F.	4.3	5.4	268	305	326	18
BUILDING A - RETAIL:	6,086 S.F.	4.1	5.1	25	31	32	2
BUILDING B - RETAIL:	10,445 S.F.	4.1	5.1	43	53	54	3
BUILDING C - RETAIL:	5,877 S.F.	4.1	5.1	25	30	30	2
PAD A:	10,000 S.F.	4.1	5.1	41	50	51	3
COFFEE KIOSK:	392 S.F.	1 PER 101 S.F.	4	4	4	1	1
TOTAL BUILDING AREA:	125,699 S.F.	PARKING TOTALS:		406	473	497	TOTAL: 29
BUILDING COVERAGE, OVERALL (116,764 S.F.):	22.32%	OVERALL RATIO:		3.23	3.76	3.95	PROVIDED: 56
PARKING, FUN CENTER:	352 STALLS	3.8 PER 1,000 S.F.	(92,899 S.F.) - GROSS				
PARKING, RETAIL:	135 STALLS	4.1 PER 1,000 S.F.	(32,800 S.F.)				
PARKING, TOTAL:	487 STALLS	3.9 PER 1,000 S.F.	(125,699 S.F.)				



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07-14-2017

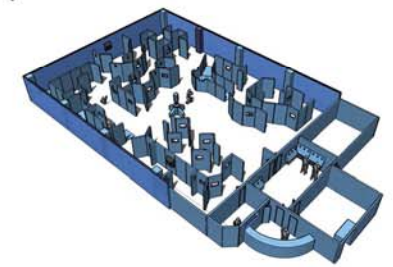
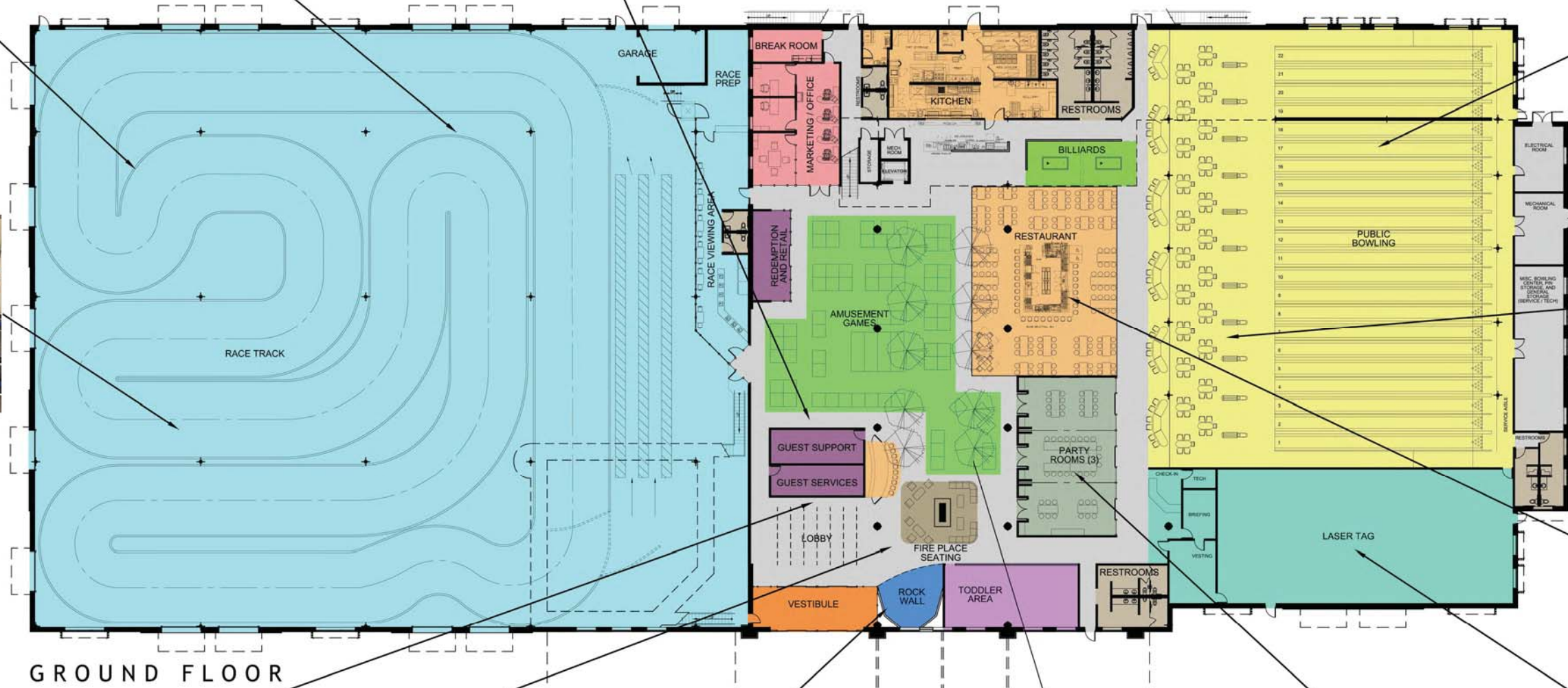
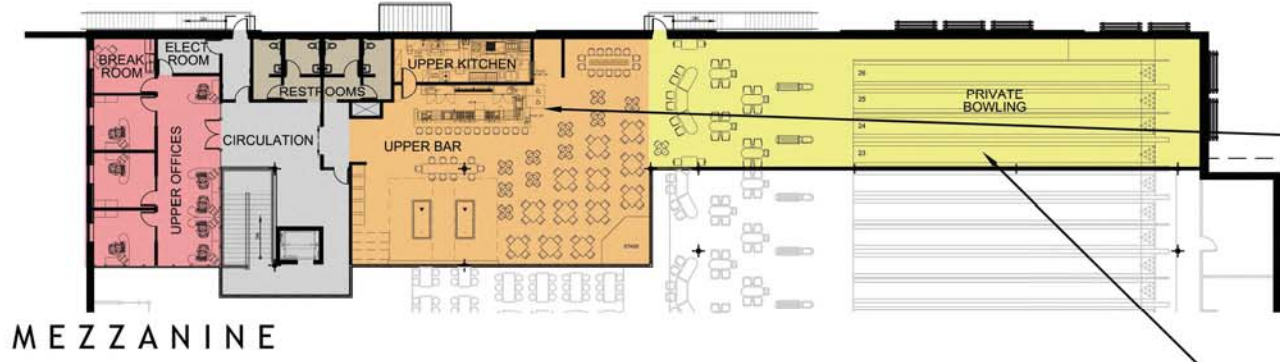
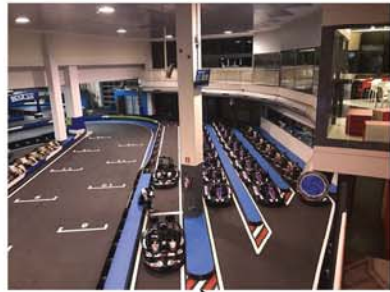
PARKWAY VILLAGE SOUTH - SITE PLAN

TILAND/SCHMIDT ARCHITECTS, P.C.

LANGER FAMILY LLC



1 C

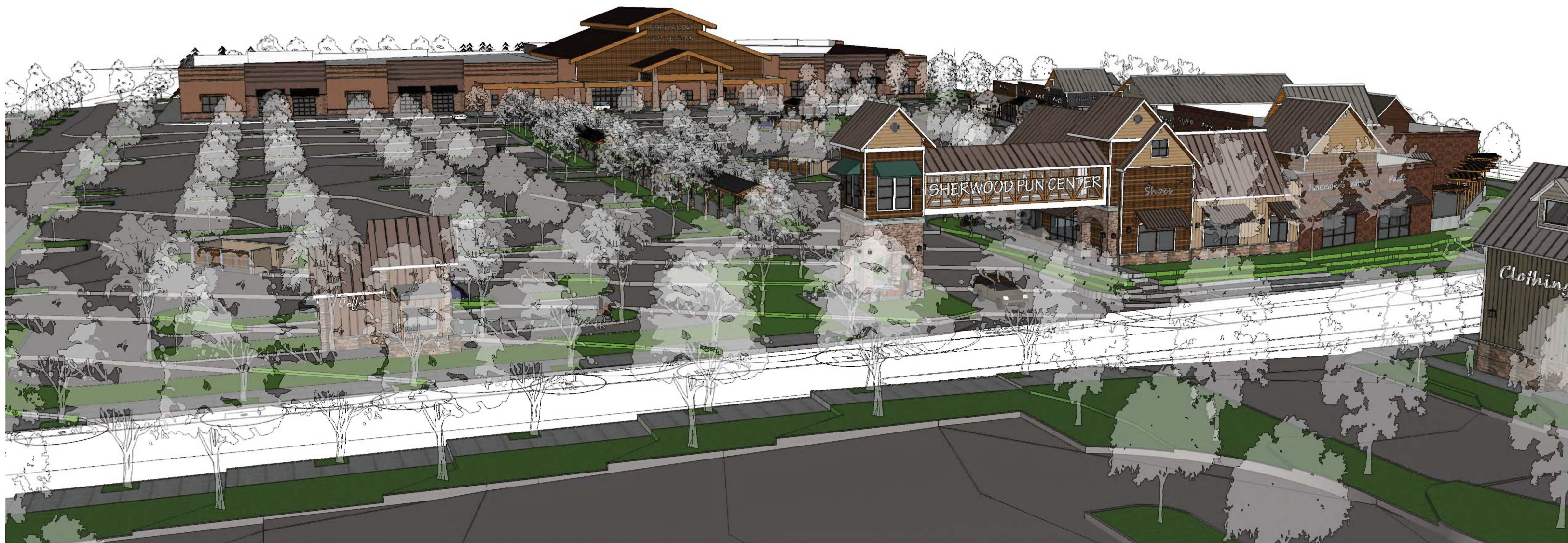


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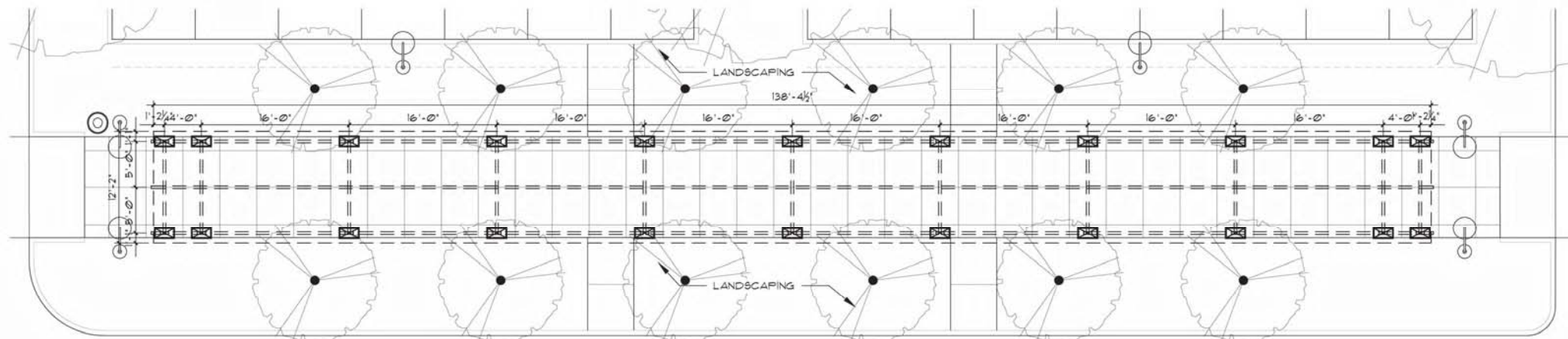
FLOOR PLANS
 07-14-2017

FAMILY FUN CENTER
 LANGER FAMILY LLC

2 C



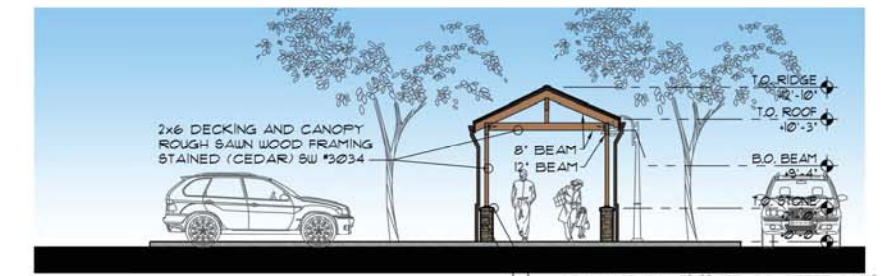




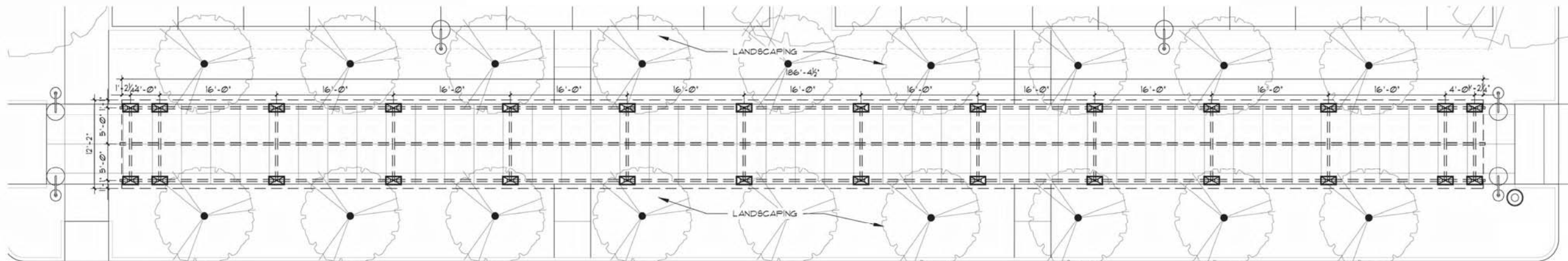
BREEZEWAY 'A' PLAN
1/8" = 1'-0"
← NORTH



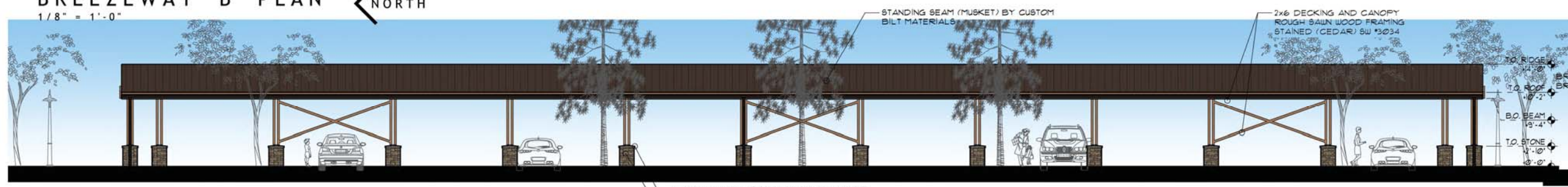
SIDE BREEZEWAY 'A' ELEVATION
1/8" = 1'-0"



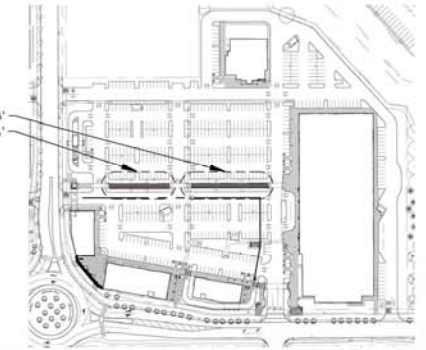
FRONT BREEZEWAY ELEVATION
1/8" = 1'-0"



BREEZEWAY 'B' PLAN
1/8" = 1'-0"
← NORTH



SIDE BREEZEWAY 'B' ELEVATION
1/8" = 1'-0"



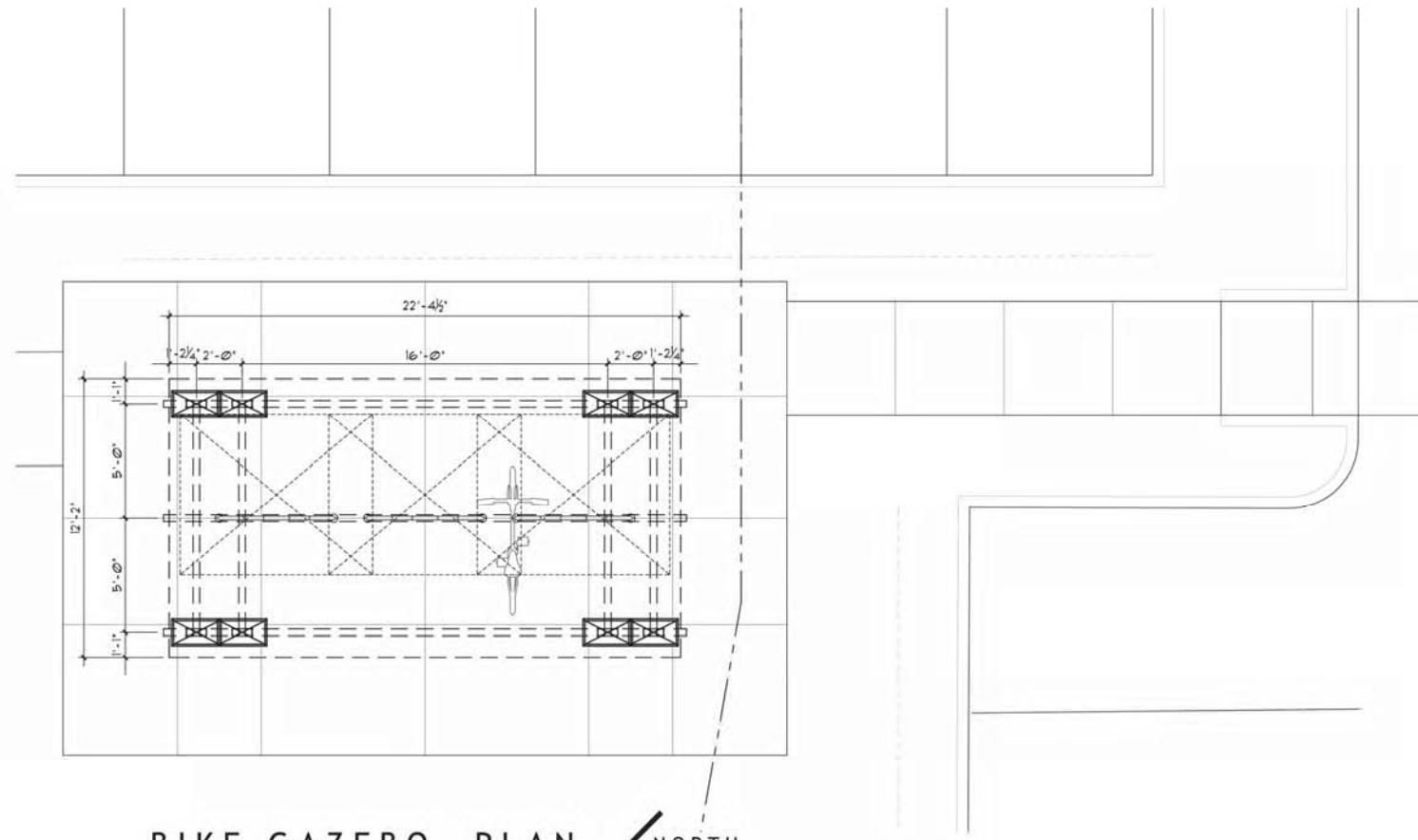
SITE KEY PLAN
N.T.S.
← NORTH

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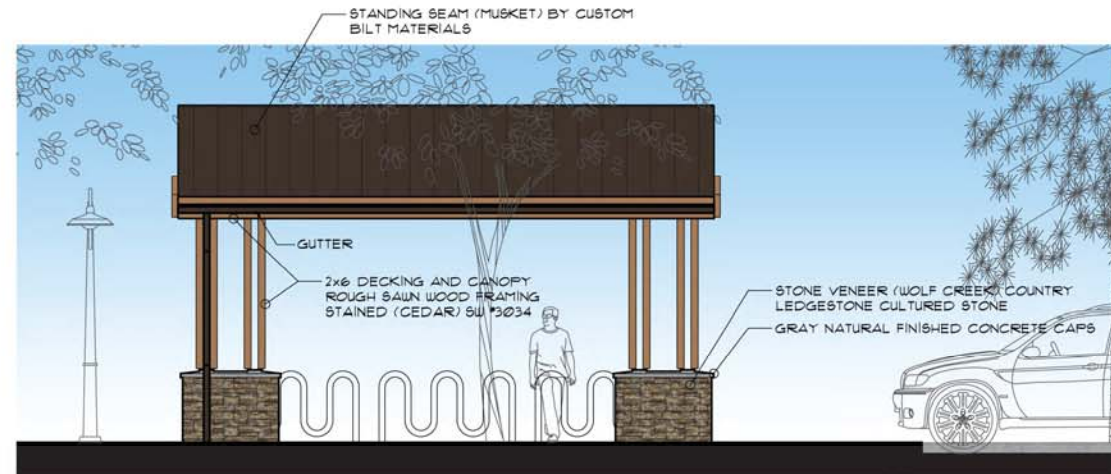
BREEZEWAYS
07-14-2017

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC

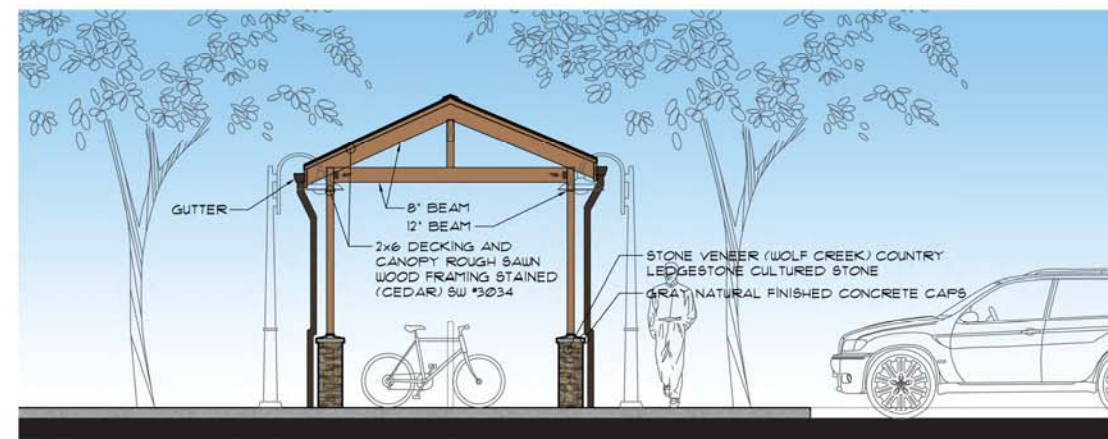
BR
1.1C



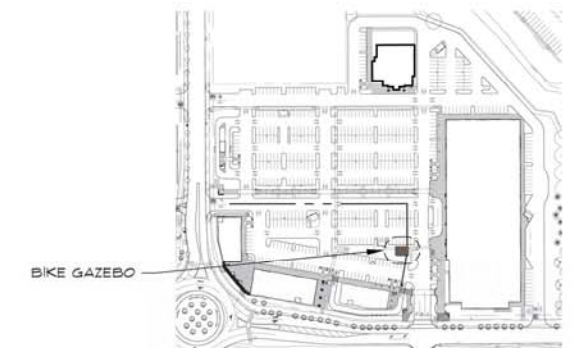
BIKE GAZEBO PLAN ← NORTH
1/4" = 1'-0"



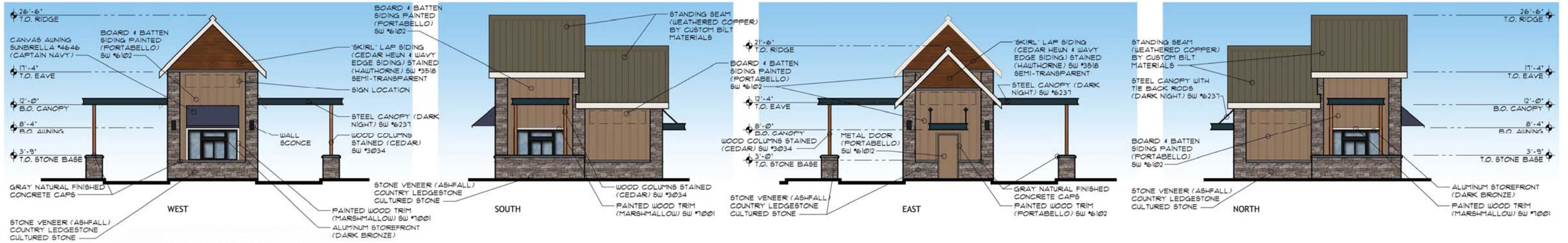
SIDE ELEVATION
1/8" = 1'-0"



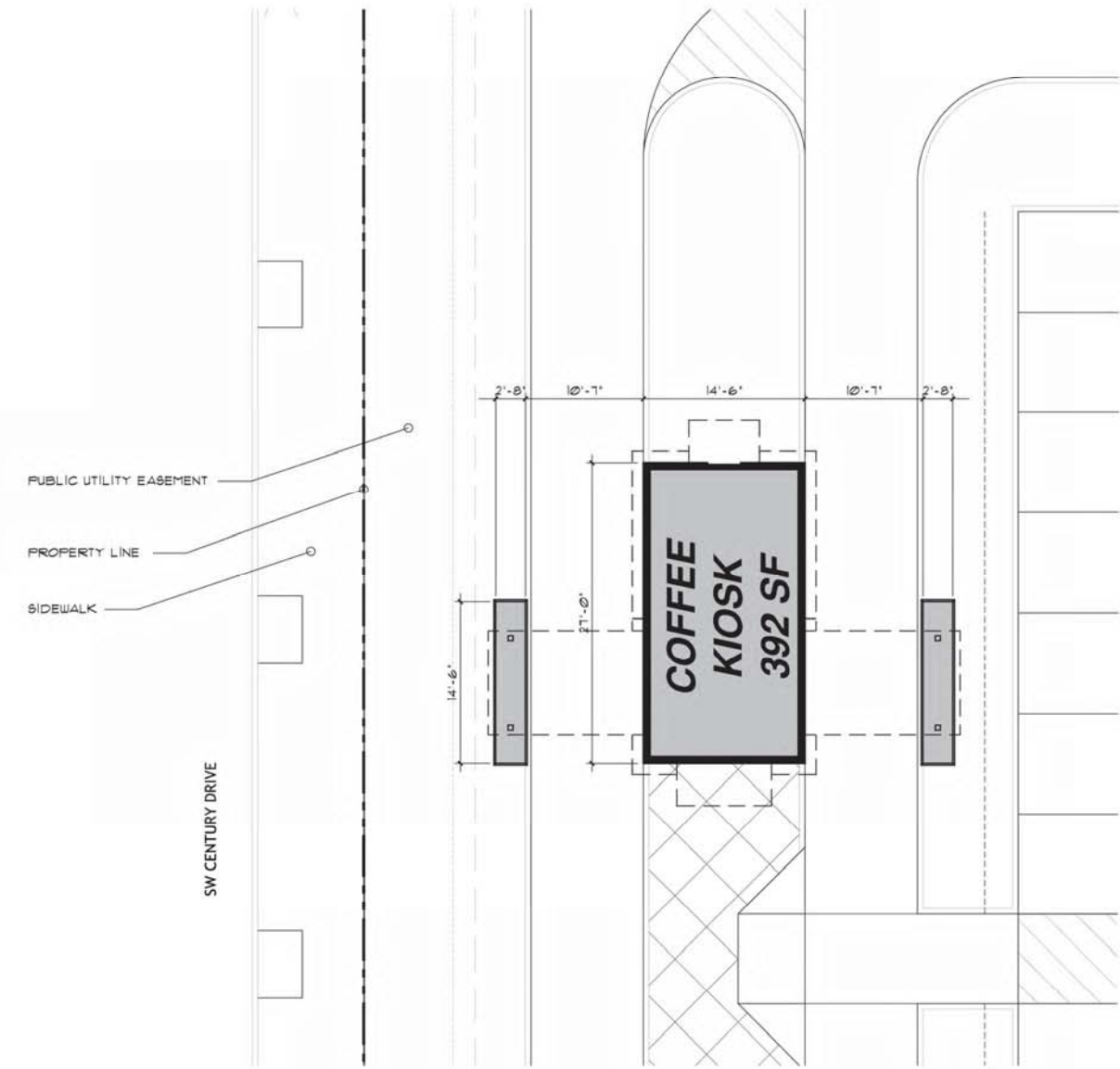
END ELEVATION
1/8" = 1'-0"



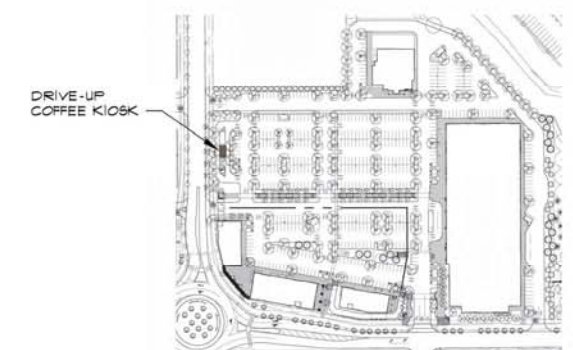
SITE KEY PLAN ← NORTH
N.T.S.



ELEVATIONS



FLOOR AND PLAZA PLAN NORTH



SITE KEY PLAN NORTH N.T.S.

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DRIVE-UP COFFEE KIOSK
 07-14-2017 1/8" = 1'-0"

PARKWAY VILLAGE SOUTH
 LANGER FAMILY LLC

COF
 1.1C



NORTH ELEVATION

3 / 32" = 1' - 0"



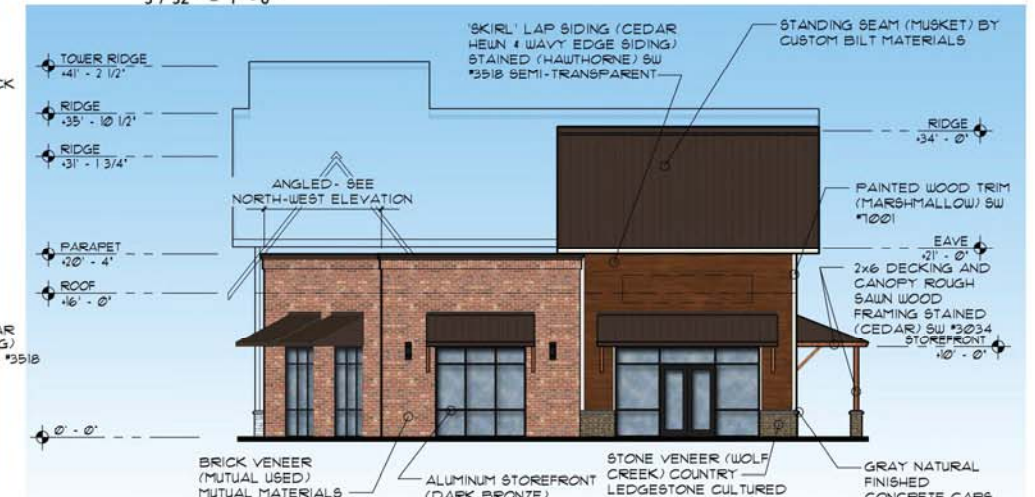
EAST ELEVATION

3 / 32" = 1' - 0"



SOUTH ELEVATION

3 / 32" = 1' - 0"



WEST ELEVATION

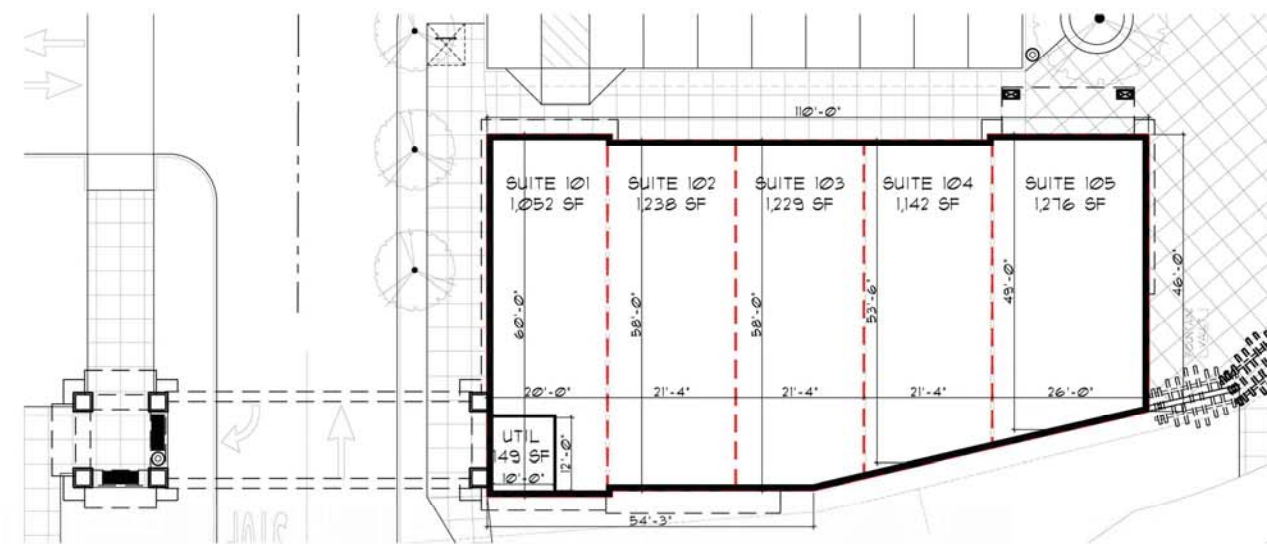
3 / 32" = 1' - 0"



NORTH-WEST ELEVATION

3 / 32" = 1' - 0"

GROSS AREA:	6,086 SF.
UTILITY ROOM:	149 SF.
NET AREA:	5,937 SF.
SUITE 101:	1,052 SF. TENANT
SUITE 102:	1,238 SF. TENANT
SUITE 103:	1,229 SF. TENANT
SUITE 104:	1,142 SF. TENANT
SUITE 105:	1,276 SF. TENANT



FLOOR AND PLAZA PLAN

1 / 16" = 1' - 0"

BUILDING A

07-14-2017



SITE KEY PLAN
N.T.S.

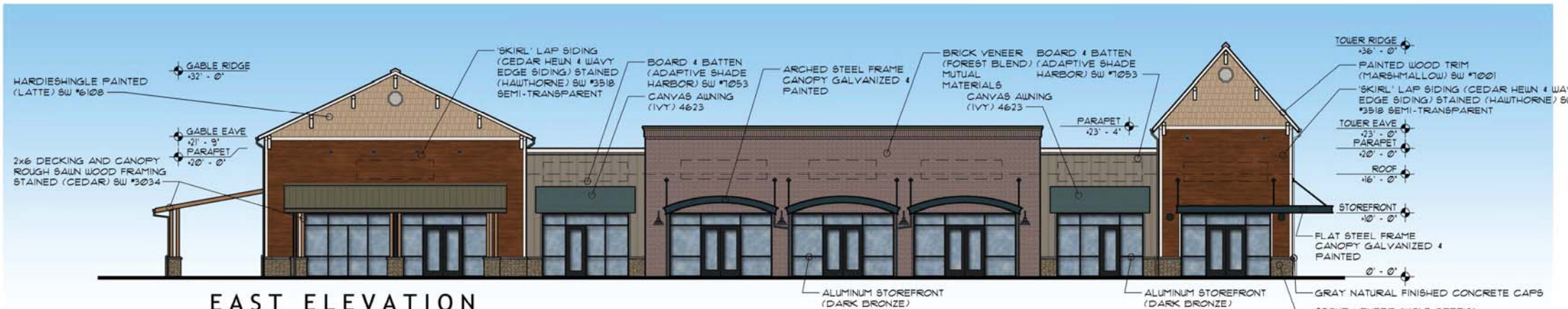
NORTH

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PORTLAND, OR 97239
(503) 220-8511
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PARKWAY VILLAGE SOUTH

LANGER FAMILY LLC

RET 2.1C



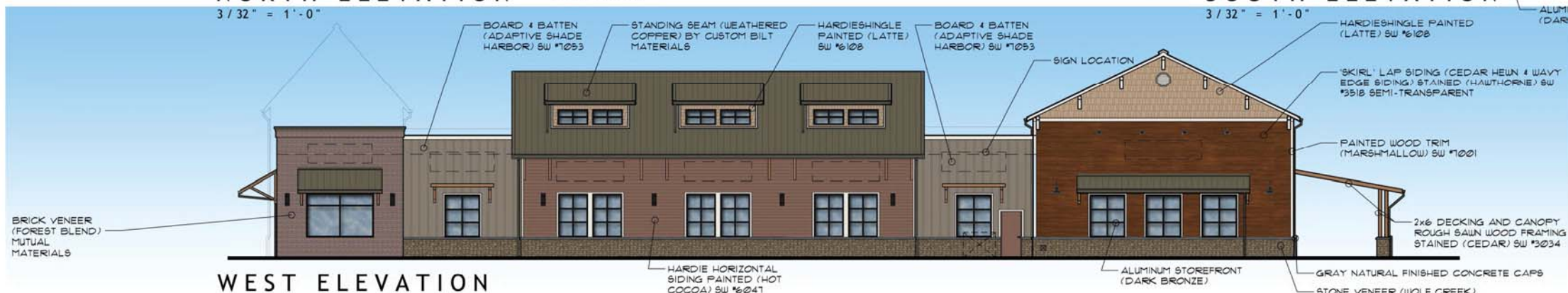
EAST ELEVATION



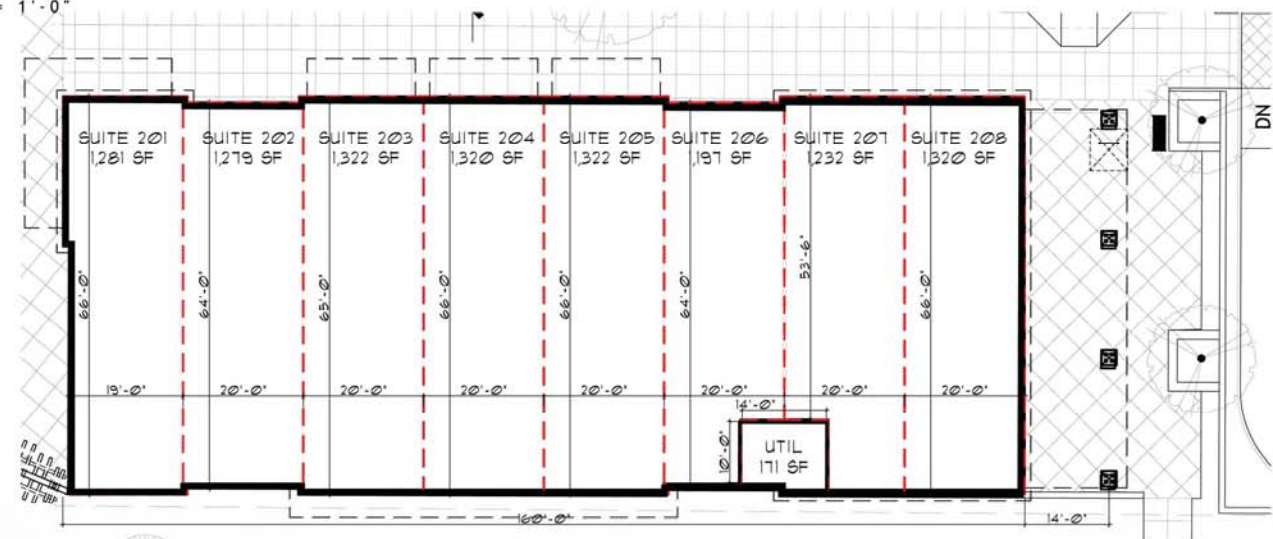
NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION

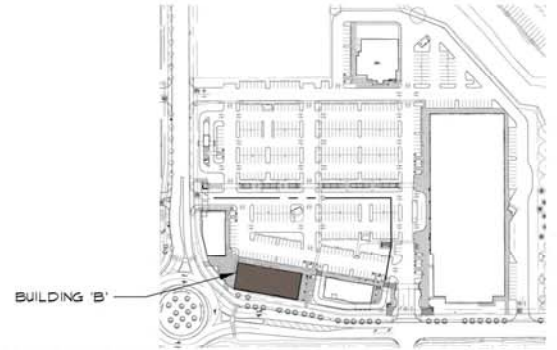


FLOOR AND PLAZA PLAN

BUILDING B

07-14-2017

GROSS AREA:	10,445 SF.
UTILITY ROOM:	171 SF.
NET AREA:	10,274 SF.
SUITE 201:	1,281 SF. TENANT
SUITE 202:	1,279 SF. TENANT
SUITE 203:	1,322 SF. TENANT
SUITE 204:	1,320 SF. TENANT
SUITE 205:	1,322 SF. TENANT
SUITE 206:	1,191 SF. TENANT
SUITE 207:	1,232 SF. TENANT
SUITE 208:	1,320 SF. TENANT



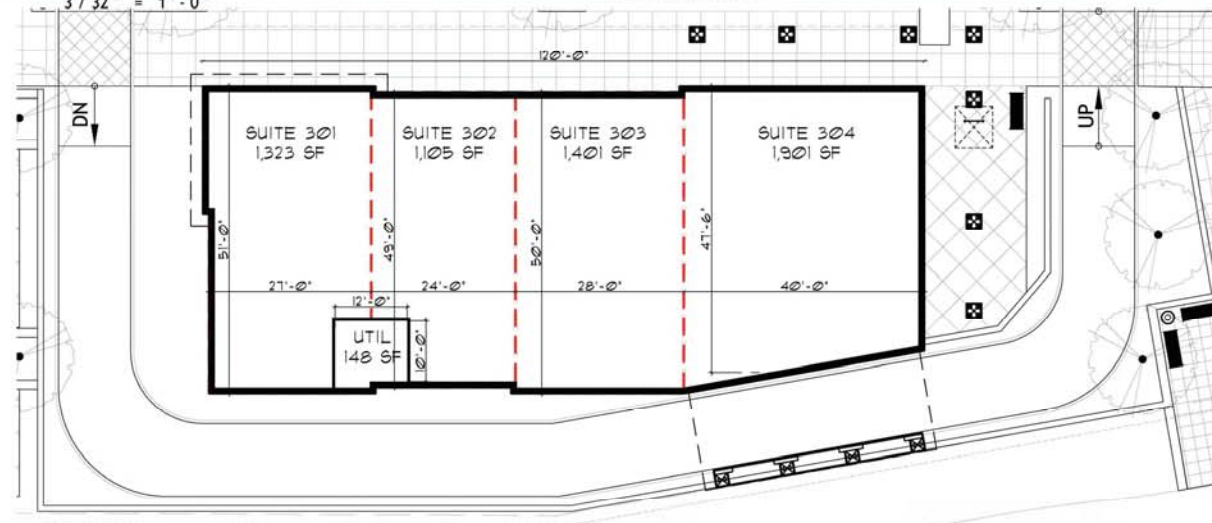
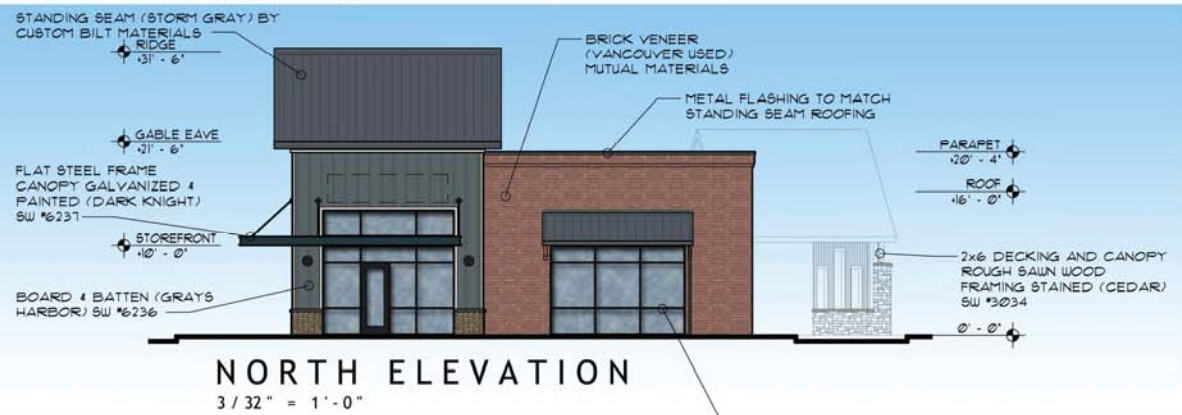
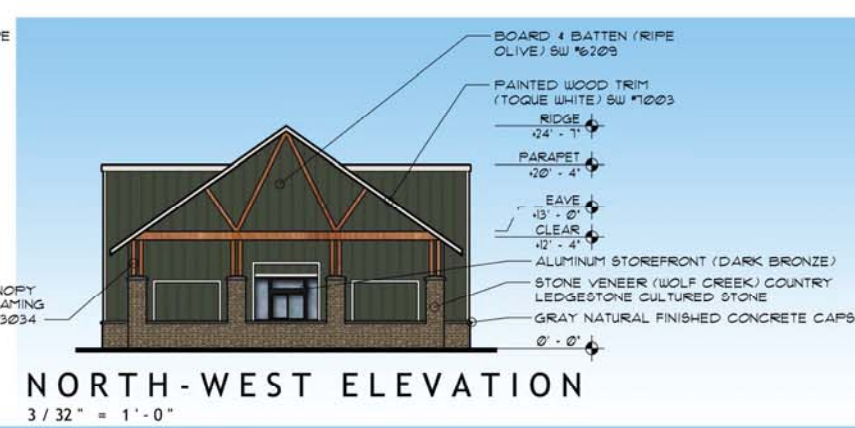
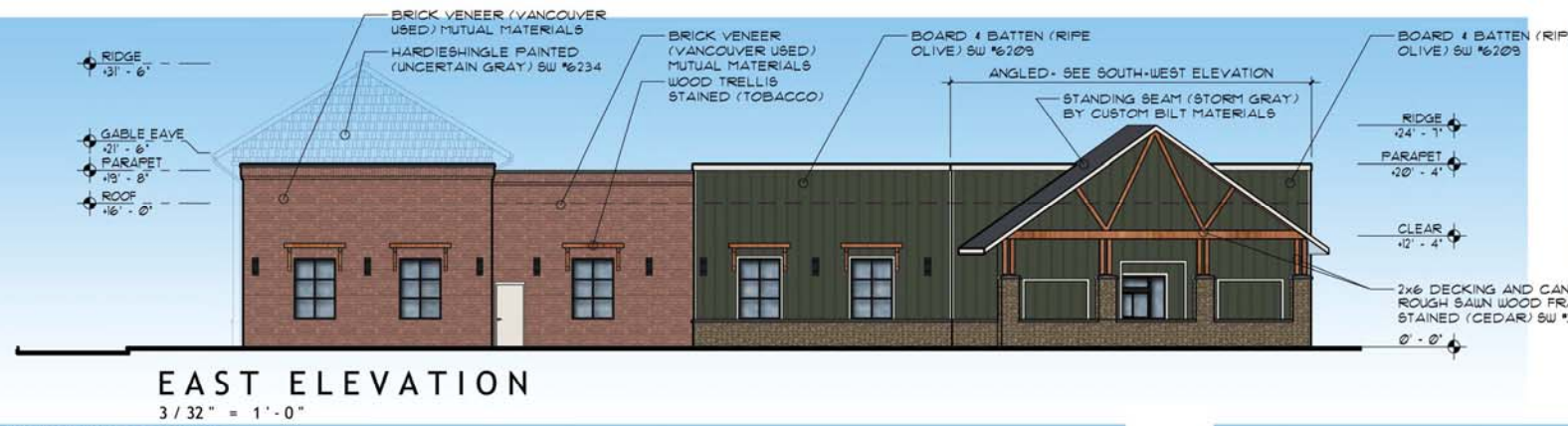
SITE KEY PLAN
N.T.S.

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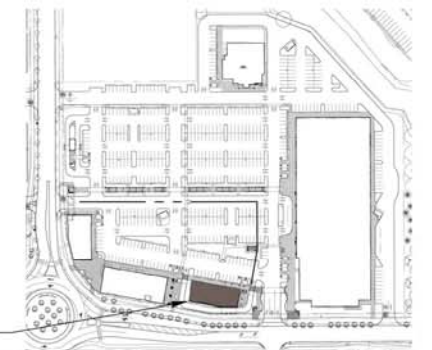
PARKWAY VILLAGE SOUTH

LANGER FAMILY LLC

RET 2.2C



GROSS AREA:	5,811 SF.
UTILITY ROOM:	141 SF.
NET AREA:	5,130 SF.
SUITE 301:	1,323 SF. TENANT
SUITE 302:	1,105 SF. TENANT
SUITE 303:	1,401 SF. TENANT
SUITE 304:	1,301 SF. TENANT

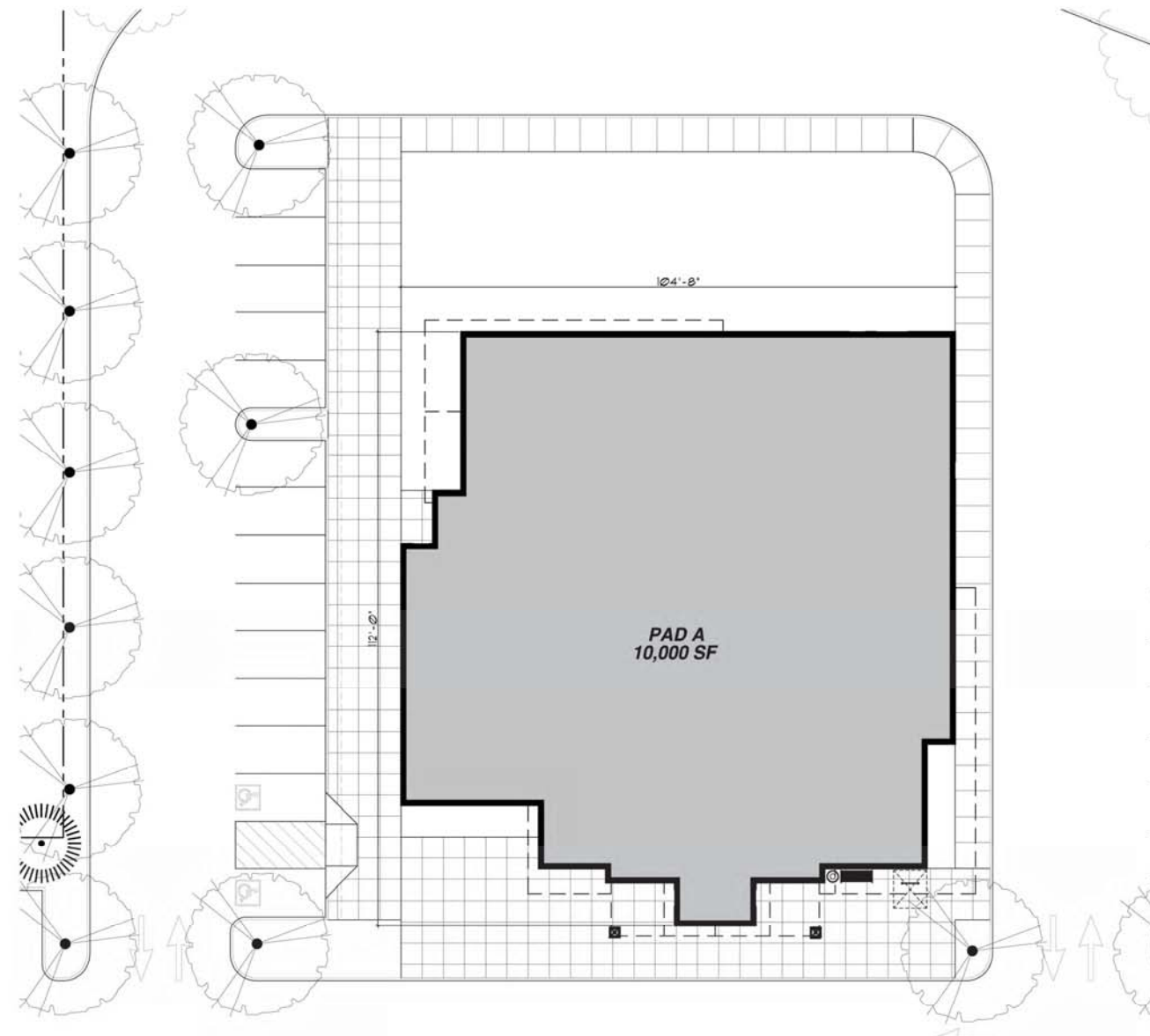
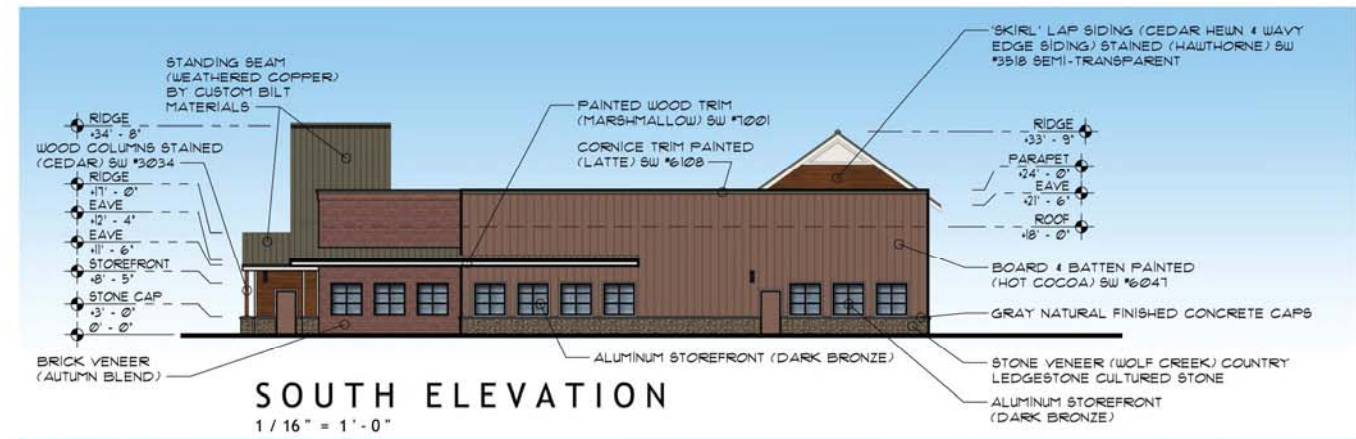


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FLOOR AND PLAZA PLAN
1 / 16" = 1'-0"
BUILDING C
07-14-2017

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC

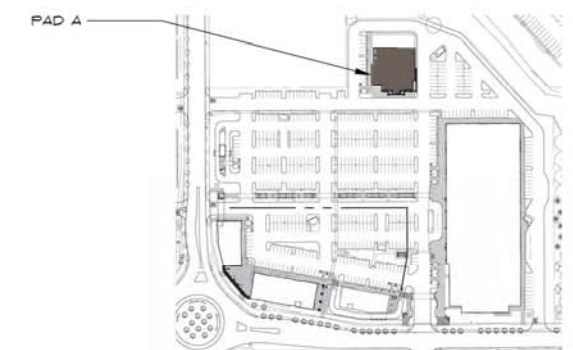
RET
2.3C



FLOOR AND PLAZA PLAN NORTH
1/16" = 1'-0"

PAD A

07-14-2017



SITE KEY PLAN
N.T.S.

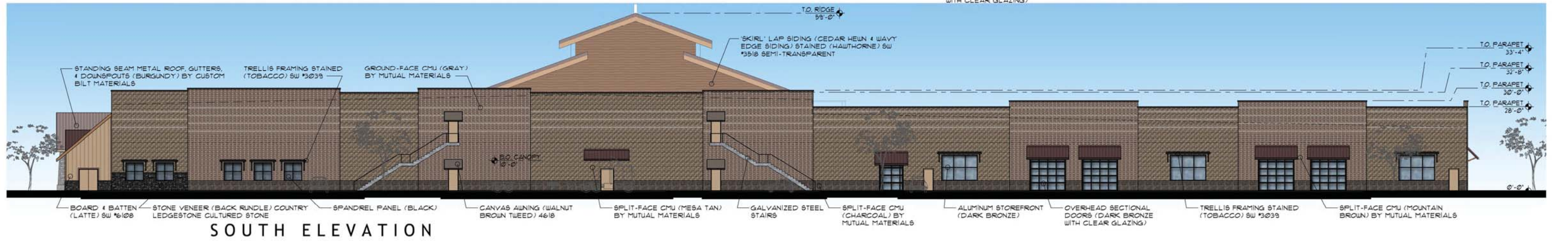
PARKWAY VILLAGE SOUTH

LANGER FAMILY LLC

**PAD
1.1C**



EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION

EXTERIOR ELEVATIONS

FAMILY FUN CENTER

LANGER FAMILY LLC

TILAND / SCHMIDT ARCHITECTS, P.C.
3611 SW HOOD AVE.
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(503) 220-8517
FAX (503) 220-8518

07-14-2017 1/16" = 1'-0"

FEC
6.0C

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

T I L A N D /
S C H M I D T
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
SUITE 200
PORTLAND, OR 97239
PHONE (503) 220-8517

BASE MATERIALS:

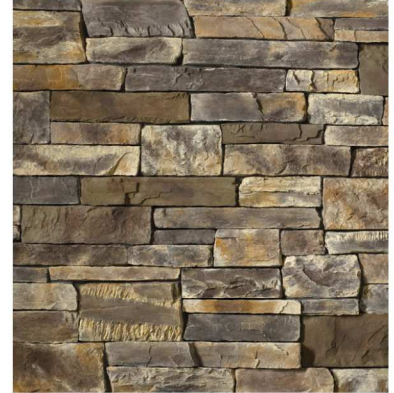
STONE & CONCRETE:



CULTURED STONE:
COUNTRY LEDGESTONE
- BLACK RUNDLE
'FUN CENTER'



CULTURED STONE:
COUNTRY LEDGESTONE
- ASHFALL
'COFFEE'



CULTURED STONE:
COUNTRY LEDGESTONE
- WOLF CREEK
'BUILDING A, B, C,
PAD A, BIKE GAZEBO,
AND BREEZE WAYS'



CONCRETE:
BOARD FORMED

BASIS OF
DESIGN:

BORAL
AMERICA

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

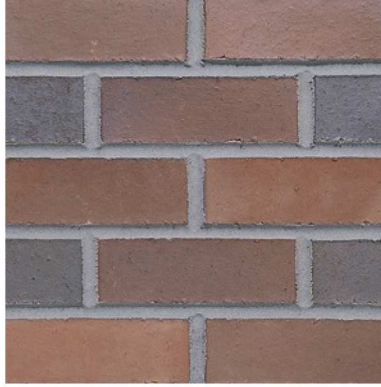
T I L A N D /
S C H M I D T
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
SUITE 200
PORTLAND, OR 97239
PHONE (503) 220-8517

FACE BRICK:

MISSION TEXTURE:



AUTUMN BLEND
PAD 'A'



FOREST BLEND
BUILDING 'B'

TUMBLER USED TEXTURE:



VANCOUVER USED
BUILDING 'C'



MUTUAL USED
BUILDING 'A'

BASIS OF
DESIGN:

MUTUAL
MATERIALS

ALL MORTAR TO
HAVE 2% TO 5%
COLOR ADDED
-NO GRAY
MORTAR-

MB-2

7.14.17

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

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S C H M I D T
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
SUITE 200
PORTLAND, OR 97239
PHONE (503) 220-8517

CONCRETE MASONRY UNITS (CMU):
FUN CENTER BUILDING



SPLIT FACE -
MOUNTAIN BROWN



SPLIT FACE -
MESA TAN



SPLIT FACE -
CHARCOAL



GROUND FACE -
NATURAL



GROUND FACE -
CASTLE WHITE
-TRASH ENCLOSURE-

*BASIS OF
DESIGN:*

MUTUAL MATERIALS

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

TILAND /
SCHMIDT
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
SUITE 200
PORTLAND, OR 97239
PHONE (503) 220-8517

WALL MATERIALS:

SEE COLOR PALETTE FOR PAINT COLORS:

BASIS OF
DESIGN:

JAMES HARDIE
COMPANY



HARDIEPLANK -
ARTISAN LAP SIDING



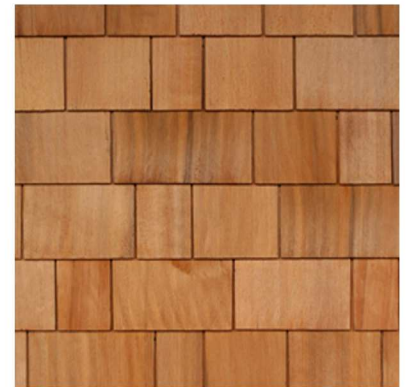
HARDIEPANEL - FIBER
CEMENT BOARD & BATTEN



HARDIESHINGLES
(EVEN CUT)



HARDIESHINGLES
(RANDOM CUT)



CEDAR SHINGLES
(EVEN CUT) CLEAR
TRANSPARENT STAIN



HORIZONTAL SIDING
STAINED SW 3518
"HAWTHORNE"



WOOD FRAMING
OPAQUE WOOD STAIN
CEDAR SW 3034
"HEAVY BODY STAIN"



TRELLIS
SW 3039 "TOBACCO"
"HEAVY BODY STAIN"

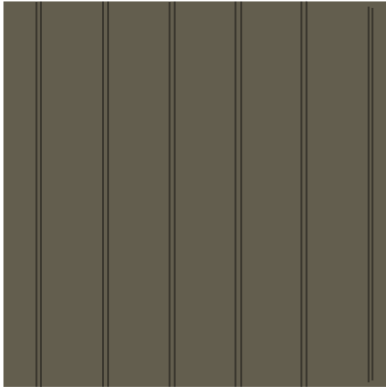
MB-4
7.14.17

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

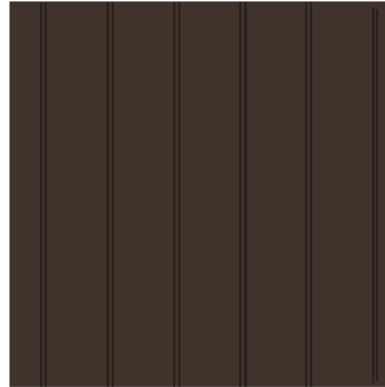
T I L A N D /
S C H M I D T
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
SUITE 200
PORTLAND, OR 97239
PHONE (503) 220-8517

ROOFING:

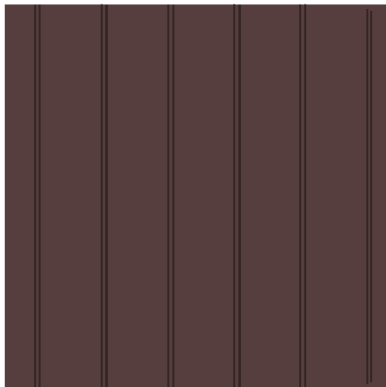
STANDING SEAM & METAL FLASHING:



WEATHERED
COPPER



MUSKET



BURGUNDY



STORM
GRAY

BASIS OF
DESIGN:

*CUSTOM BILT
METALS*

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

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S C H M I D T
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
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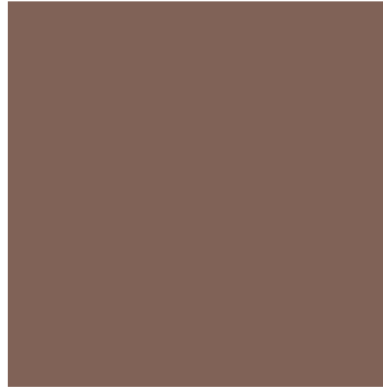
COLOR PALETTE:

PAINT:

BASIS OF DESIGN: *SHERWIN WILLIAMS*



GRAYS HARBOR
SW 6236
BUILDING 'B'



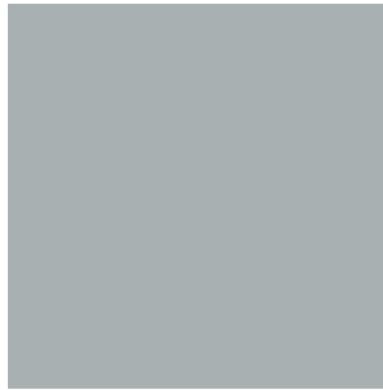
HOT COCOA
SW 6047
PAD 'B'



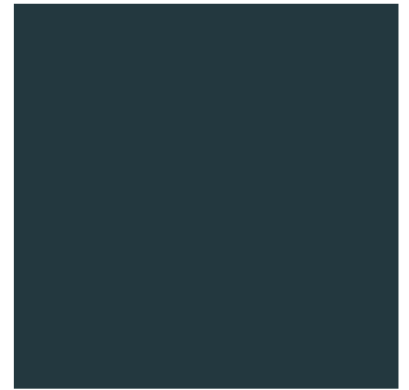
PORTABELLO
SW 6102
'COFFEE'



ADAPTIVE SHADE
SW 7053
BUILDING 'B'



UNCERTAIN GRAY
SW 6234
BUILDING 'B'



DARK KNIGHT
SW 6237
BLDG 'B' & 'COFFEE'

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

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S C H M I D T
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
SUITE 200
PORTLAND, OR 97239
PHONE (503) 220-8517

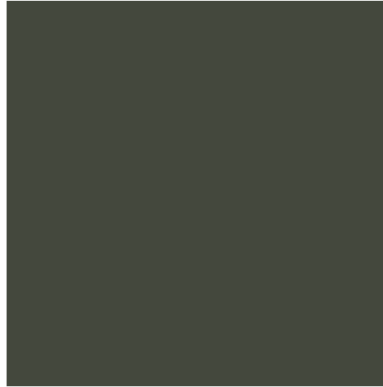
COLOR PALETTE:

PAINT:

BASIS OF DESIGN: *SHERWIN WILLIAMS*



TOQUE WHITE
SW 7003
BUILDING 'C'



RIPE OLIVE
SW 6209
BUILDING 'C'



MARSHMALLOW
SW 7001
(OVER MOST)



KILM BEIGE
SW 6106
BUILDING 'A'



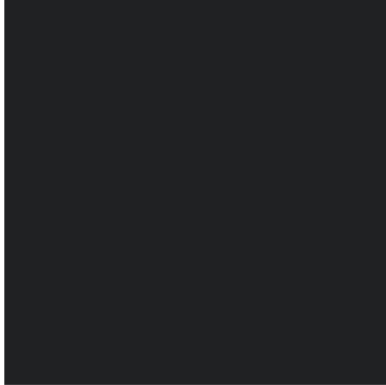
LATTE
SW 6108
PAD 'A'

PARKWAY VILLAGE SOUTH
COLORS & MATERIALS:

TILAND /
SCHMIDT
ARCHITECTS P.C.
3611 S.W. HOOD AVE.
SUITE 200
PORTLAND, OR 97239
PHONE (503) 220-8517

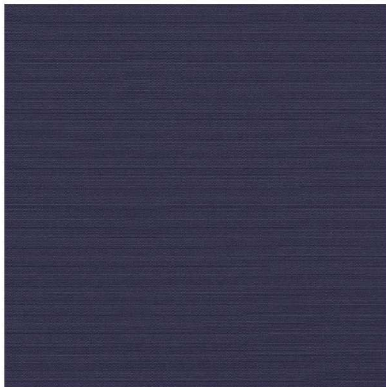
ACCENT & CANOPY COLORS:

STOREFRONT, CANOPIES & RAILINGS:



DARK BRONZE

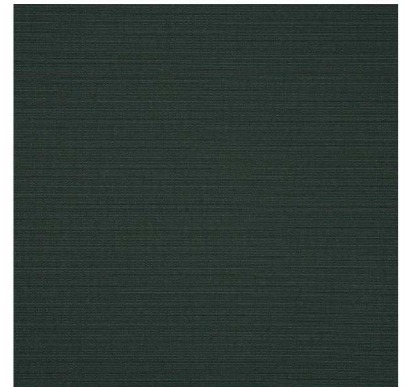
AWNINGS:



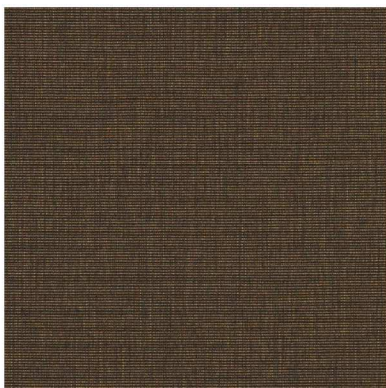
CAPTAIN NAVY
#4646 'COFFEE'



BLACK CHERRY
#4640 BUILDING 'A'



NY #4632
BUILDING 'B'



WALNUT BROWN TWEED
#4632 'FUN CENTER'

BASIS OF
DESIGN:

SUNBRELLA



Exhibit C: Neighborhood Meeting Documentation

May 23, 2017

Neighborhood Meeting Minutes: South Parkway Village
Subdivision and Site Plan Review

Meeting Date: May 15, 2017

Time: 6:00 PM

Location: Sherwood Middle School, 21970 SW Sherwood Boulevard, Sherwood, OR 97140

In preparation for the submission of a land use application for a subdivision and site plan review of the subject property, the applicant conducted a neighborhood meeting in accordance with applicable City regulations. John Christiansen and Joey Shearer from AKS Engineering & Forestry and Frank Schmidt and Kevin Mohr from Tiland-Schmidt Architects were present. The meeting began with a presentation by Frank Schmidt, during which an overview of the project location, planned building, and intended uses was provided. Sign-in sheets and business cards were provided and five neighbors/community members signed in.

Following the presentation, attendees asked questions and/or provided general comments about the project. The audience steered the discussion around the following topics:

- Need for activities for kids/families
- Parking
- Planned landscaping
- Location of buildings, building height, setbacks
- Planned exterior lighting, problems with existing street lights
- Questions about the planned fun center
- Questions about potential retail uses/ businesses
- Concerns about traffic and congestion
- Concerns about safety, crime, litter, drugs
- Concerns about headlights from buses and cars hitting nearby homes
- Concerns about increased noise from new buildings
- Concerns regarding vehicles currently speeding on SW Langer Farms Parkway
- Desire to have more stop signs installed in area
- Pedestrian improvements including crosswalks and sidewalks

The meeting concluded at approximately 6:45 p.m.

Sincerely,

AKS ENGINEERING & FORESTRY, LLC



Joey Shearer , Land Use Planner



AKS ENGINEERING & FORESTRY, LLC
 12965 SW Herman Road, Suite 100, Tualatin, OR 97062
 P: (503) 563-6151 F: (503) 563-6152

OFFICES IN: TUALATIN, OR - VANCOUVER, WA - SALEM-KEIZER, OR

21650 SW Langer Farms Parkway
 May 15, 2017
 6:00 p.m.

Sherwood Middle School
 21970 SW Sherwood Boulevard, Sherwood, OR 97140

PLEASE PRINT CLEARLY

Printed Name	Full Mailing Address	Email Address	Zip Code	Phone #
ROBERT HAHN	15692 FARMER WAY		97140	
Carol King Liz Bacon RANDI TATE	15530 SW Farmer Way		97140	
Theresa Easton	15899 SW Baker Way		97140	
MATT GRADY	15522 SW Farmer Way		97140	
	19767 SW 72ND AVE SUITE 100 TUALATIN, OR			503-245-1976

AFFIDAVIT OF MAILING

STATE OF OREGON)
)ss
COUNTY OF washington)

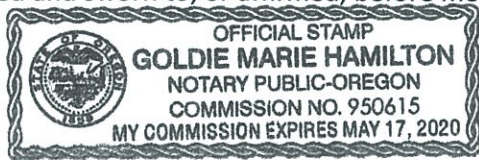
I, Alec Martin, being duly sworn, depose and say that on May 1, 2017, I caused to have mailed to each of the persons on the attached list a notice of a meeting to discuss a proposed development located at 21650 sw Langer Farms Parkway, a copy of which notice so mailed is attached hereto and made a part of hereof.

I further state that said notices were enclosed in envelopes plainly addressed to said persons and were deposited on the date indicated above in the United States Post Office with postage prepaid thereon.

Alec Martin

Signature

Subscribed and sworn to, or affirmed, before me this 1st day of May, 20 17.



Goldie Marie Hamilton

Notary Public for the State of Oregon

My Commission Expires May 17, 2020

May 1, 2017

**RE: Neighborhood Review Meeting
Site Plan Review**

Dear Property Owner/Neighbor:

AKS Engineering & Forestry, LLC is holding a neighborhood meeting regarding a ±15.7-acre property at 21650 SW Langer Farms Parkway, County Assessor's Map 2S129DC, tax lot 100. The attached map shows the specific location. The project includes a site plan review application. We would like to take the opportunity to discuss the project in more detail with you prior to applying to the City of Sherwood.

This meeting provides a forum for surrounding property owners/residents to review and discuss the project before the application is submitted to the City. This meeting gives you the opportunity to share with us any specific information you know about the property. We will focus on answering questions relevant to meeting development standards consistent with City of Sherwood's Zoning and Community Development Code.

Pursuant to Sherwood Zoning and Community Development Code Section 16.70.020, you are invited to attend a meeting on:

**May 15, 2017 at 6:00 p.m.
In the Cafeteria of Sherwood Middle School
21970 SW Sherwood Boulevard, Sherwood, OR 97140**

This will be an informational meeting on focusing preliminary plans. These plans may be altered prior to submittal of the application to the City. You may receive official notice from the City of Sherwood for you to either participate with written comments and/or an opportunity to attend a public hearing depending on the type of land use action required.

I look forward to discussing this project with you. If you have questions, but will be unable to attend, please feel free to call me at 503-563-6151.

Sincerely,
AKS ENGINEERING & FORESTRY, LLC



Chris Goodell, AICP, LEED^{AP}

Attachment: County Assessor's Map



WASHINGTON COUNTY OREGON
 SW 1/4 SE 1/4 SECTION 29 T2S R1W W.M.
 SCALE 1" = 100'

36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	18
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6

FOR ADDITIONAL MAPS VISIT OUR WEBSITE AT
www.co.washington.or.us



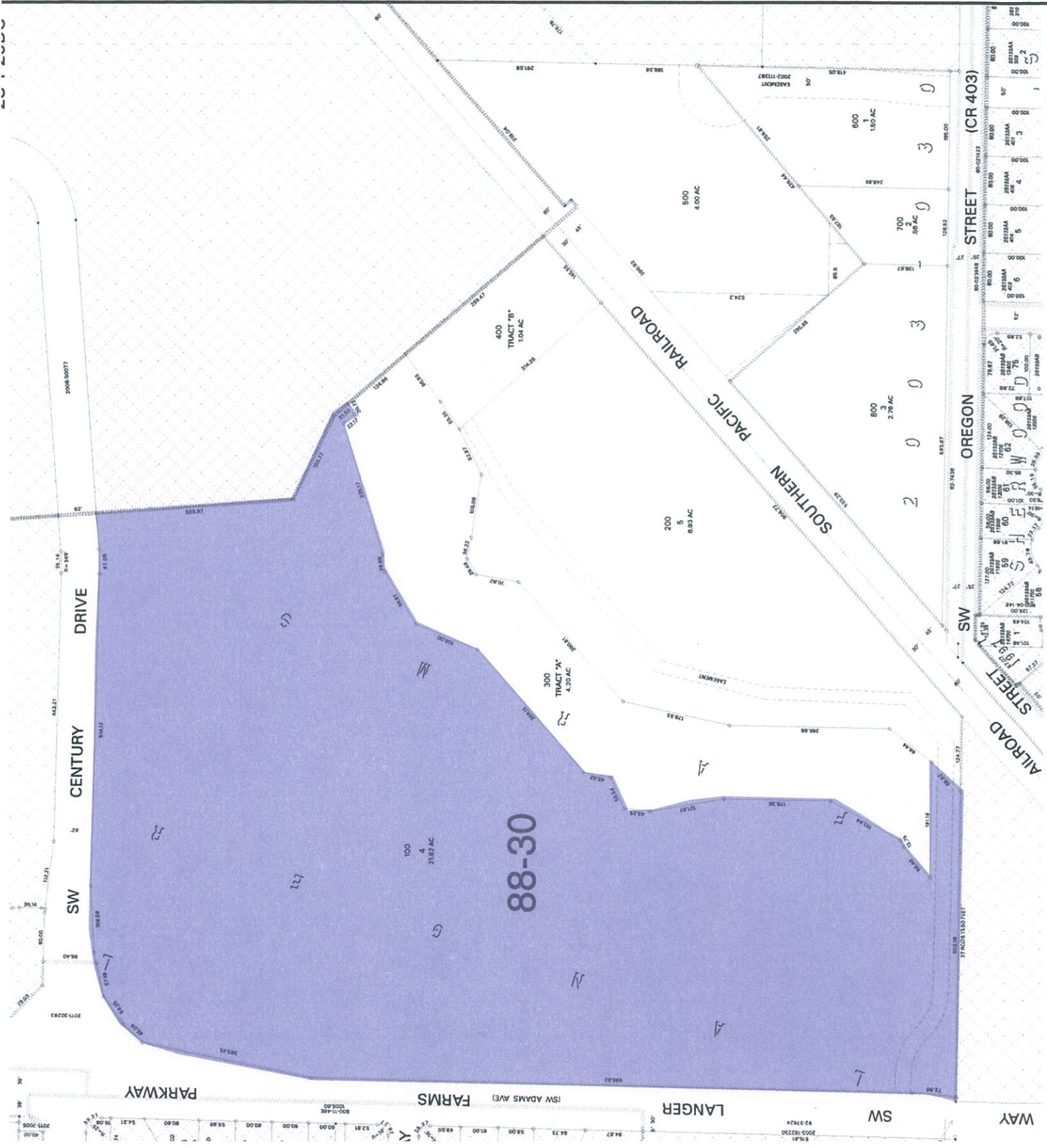
SCALE 1" = 100'

WASHINGTON COUNTY OREGON
 CARTOGRAPHY
 TOPOGATION

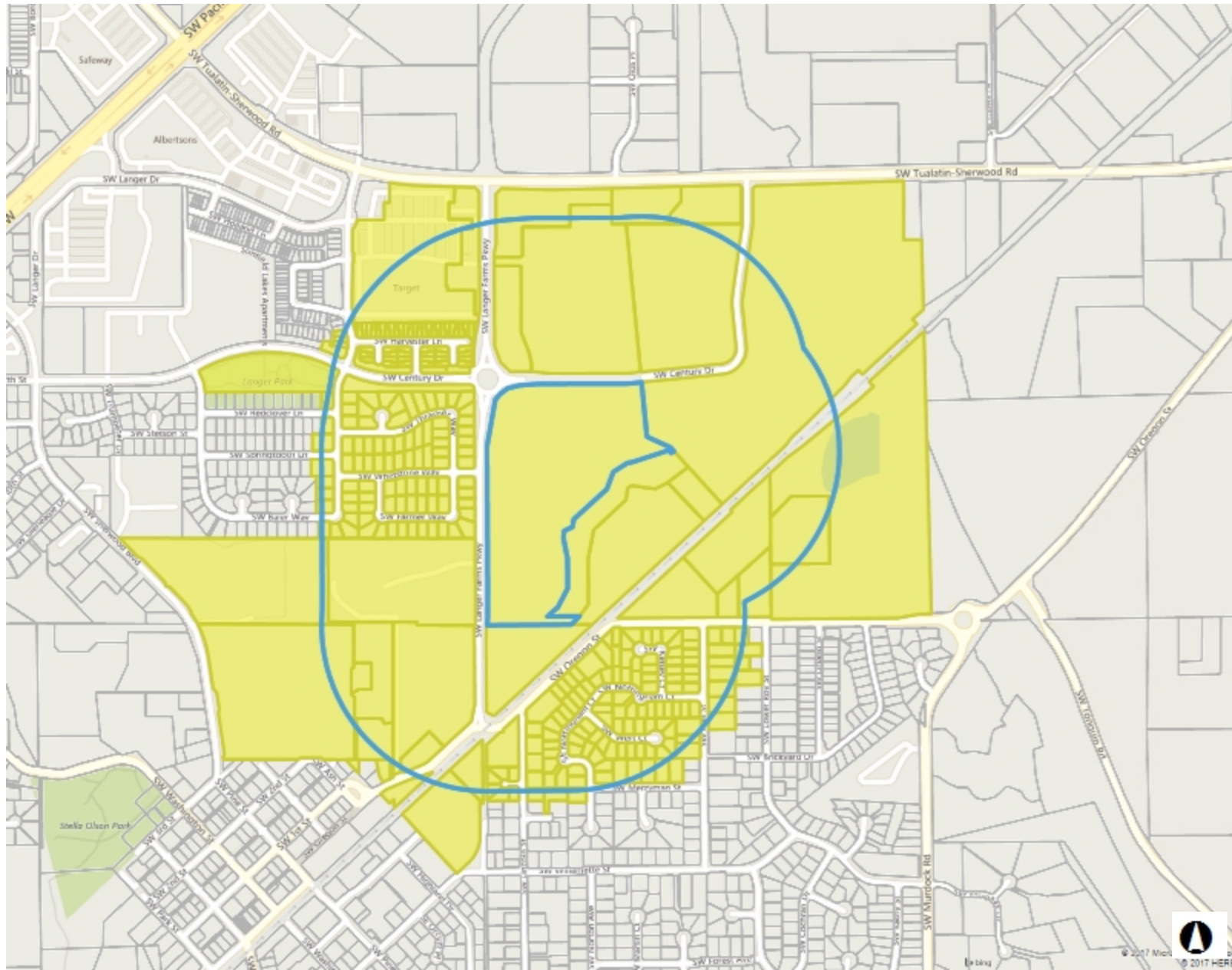
PLOT DATE: April 12, 2013
 FOR ASSESSMENT PURPOSES
 ONLY - DO NOT RELY ON
 FOR OTHER USE

Map areas delineated by either gray shading or a cross-hatched pattern are for reference only and may not indicate the most current property boundaries. Please consult the appropriate map for the most current information.

SHERWOOD



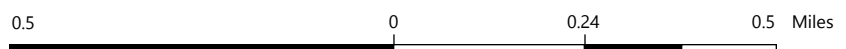
2S129DC00100 - 1000' Radius



- Subject
- Radius
- Radius Properties

4/10/2017

Notes



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2S129CA-15300
21467 (Sw) Fallow Terrace Llc
4130 SE Division St
Portland, OR 97202

2S132AB-14400
Aaron & Jo Atkins
22284 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-05200
Aaron Shields
15821 SW Baler Way
Sherwood, OR 97140

2S129CD-06200
Abdumadzhid Achilov & Galina Achilova
15681 SW Thrasher Way
Sherwood, OR 97140

2S129CA-15400
Ahmed Eisawy
21459 SW Fallow Ter
Sherwood, OR 97140

2S132AB-00703
Alan & Dann Wells
15355 SW Clifford Ct
Sherwood, OR 97140

2S129CD-09000
Aleksandr & Valentina Fursov
15671 SW Whetstone Way
Sherwood, OR 97140

2S132AB-08500
Alfred & Shirlee Musgrove
15183 SW Wert Ct
Sherwood, OR 97140

2S132AB-10000
Alison & Douglas Mcewing
15268 SW Wert Ct
Sherwood, OR 97140

2S129CD-08000
Alison Bingham
15678 SW Thrasher Way
Sherwood, OR 97140

2S129CA-16700
Amy Zahler & Charles Boyle
21426 SW Massey Ter
Sherwood, OR 97140

2S129CD-10800
Andre Hage
15642 SW Farmer Way
Sherwood, OR 97140

2S129CD-09800
Andrew Mcconnell
15679 SW Oriole Ct
Sherwood, OR 97140

2S132AB-14300
Anne Cerling
22268 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14500
Anne Lynas-Adams
15629 SW Harvester Ln
Sherwood, OR 97140

2S132AB-07000
Antony & Wendy Caronna
22331 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-18300
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S129CA-18400
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S129CA-18600
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S129CA-18700
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S132AB-00905
Aron Nelson
15173 SW Merryman St
Sherwood, OR 97140

2S129CA-00900
Aulukista Llc
2015 Business Park Blvd 3000
Anchorage, AK 99503

2S129CD-05700
Barbara Verboort
23905 Butteville Rd NE
Aurora, OR 97002

2S132AB-10800
Bennett Bruce Erik Rev Living Trust
16840 SW Parrett Mountain Rd
Sherwood, OR 97140

2S132AB-08200
Blue Water Holdings Llc
17594 Shepherds Ct
Lake Oswego, OR 97035

2S129CA-12700
Boyd Gregory Matthew Revoc Living Trust
8371 SW Metolius Loop
Wilsonville, OR 97070

2S132AB-09000
Bradford & Rebecca Bertram
22269 SW Hall St
Sherwood, OR 97140

2S129CD-11800
Brannon Yeldell
15534 SW Whetstone Way
Sherwood, OR 97140

2S132AB-10300
Brent Savage
22348 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-08700
Brian & Jessica Craw
15135 SW Wert Ct
Sherwood, OR 97140

2S132AB-08400
Brian & Kori Almquist
15207 SW Wert Ct
Sherwood, OR 97140

2S129CD-08200
Brian Gall
15710 SW Thrasher Way
Sherwood, OR 97140

2S129CA-13800
Bruce & Sara Walker
15687 SW Harvester Ln
Sherwood, OR 97140

2S129CA-13700
Carl & Marie Wright
15695 SW Harvester Ln
Sherwood, OR 97140

2S132AB-11300
Carla Bietz & Donald Jason
22159 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-09700
Carol King
15530 SW Farmer Way
Sherwood, OR 97140

2S129CA-15700
Carolyn Toner
20242 Danny Ct
Oregon City, OR 97045

2S132AB-08000
Carrie Nelson
22293 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14200
Cathleen Drost
15655 SW Harvester Ln
Sherwood, OR 97140

2S132AA-00501
Chad & Heather Sobol
22148 SW Hall St
Sherwood, OR 97140

2S129CD-10900
Chad & Kelsey Wallen
15654 SW Farmer Way
Sherwood, OR 97140

2S129CA-14700
Chad Russell & Taneal White
15609 SW Harvester Ln
Sherwood, OR 97140

2S129CD-04300
Chan Family Trust
19030 SW Chesapeake Dr
Tualatin, OR 97062

2S129CD-05800
Charles & Laura Monson
21525 SW Grainery Pl
Sherwood, OR 97140

2S129CD-09300
Charles & Michelle Spencer
15593 SW Whetstone Way
Sherwood, OR 97140

2S129CA-15500
Charles & Monica Hodge
21451 SW Fallow Ter
Sherwood, OR 97140

2S132AB-12100
Chris & Simone Huff
22134 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-09200
Christi Mccauley
21160 SW 90Th Ave
Tualatin, OR 97062

2S132AB-13400
Christie Burks
22109 SW Hall St
Sherwood, OR 97140

2S132AB-06800
Christopher & Anya Landtiser
22345 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-15600
Christopher & Melanie Vallely
21434 SW Ferguson Ter
Sherwood, OR 97140

2S132AB-12300
Christopher Peet
22148 SW Kelsey Ct
Sherwood, OR 97140

2S132BA-04100
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S132AB-07300
Clarke Elizabeth F & Tmiothy W Clarke
Living
22323 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-07800
Collins & Kimberly Kaholo
22301 SW Nottingham Ct
Sherwood, OR 97140

2S132AA-00500
Coren Tradd
Po Box 623
Sherwood, OR 97140

2S129CD-06100
Cory Bome & Teletha Lori
21584 SW Grainery Pl
Sherwood, OR 97140

2S129CA-12900
Courtney Atwood
15759 SW Harvester Ln
Sherwood, OR 97140

2S132AB-03400
Cross Joanne H Trust
8285 SW 174Th Ter
Beaverton, OR 97007

2S132AB-15300
Cuong & Marisol Nguyen
15149 SW Darla Kay Ct
Sherwood, OR 97140

2S129CD-04900
Cynthia Herring
15863 SW Baler Way
Sherwood, OR 97140

2S132AB-14900
Cynthia Nelson
15404 SW Darla Kay Ct
Sherwood, OR 97140

2S132AB-11500
Dana Hiserote
22113 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-11700
Daniel & Ilona Bobosh
15560 SW Whetstone Way
Sherwood, OR 97140

2S129CD-10600
Daniel & Tami Platt
15618 SW Farmer Way
Sherwood, OR 97140

2S129CD-02900
Dario (Survivors) Trust
Po Box 967
Tualatin, OR 97062

2S129CD-09500
Darla Baldoni
15514 SW Farmer Way
Sherwood, OR 97140

2S129CA-12200
Dave & Danean Canucci
21363 SW Baler Way
Sherwood, OR 97140

2S132AB-00902
David & Cindy Parish
5204 Lake Crest Dr
Mckinney, TX 75071

2S132AA-00602
David & Laura Kaufman
22246 SW Hall St
Sherwood, OR 97140

2S129CA-15000
David & Laura Romine
21484 SW Fallow Ter
Sherwood, OR 97140

2S132AB-11900
David & Oksu Phillips
2108 S Sorrelle
Mesa, AZ 85209

2S129CA-13000
David & Rebecca Wagner
15753 SW Harvester Ln
Sherwood, OR 97140

2S129CA-14400
David & Valerie Baehler
15635 SW Harvester Ln
Sherwood, OR 97140

2S129CD-07600
David Crawford
15544 SW Thrasher Way
Sherwood, OR 97140

2S132AB-10600
Dawn Bambusch
22420 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-11700
Dawna Gnos
22102 SW Kelsey Ct
Sherwood, OR 97140

2S132AB-15200
Deborah Leake
15431 SW Darla Kay Ct
Sherwood, OR 97140

2S132AB-13100
Deborah Lewis
22151 SW Hall St
Sherwood, OR 97140

2S132AB-14500
Dennis & Karen Kern
14701 SW Chickadee Rd
Terrebonne, OR 97760

2S132AB-03800
Dennis & Shirley Finch
15149 SW Merryman St
Sherwood, OR 97140

2S132AB-13500
Derek & Apryl Mires
22206 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-16500
Doan Nguyen
21406 SW Massey Ter
Sherwood, OR 97140

2S129CD-08600
Don & Charlotte Washington
15774 SW Thrasher Way
Sherwood, OR 97140

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Don & Charlotte Washington
15774 SW Thrasher Way
Sherwood, OR 97140

2S129CD-05900
Donaldo Cotoc
21520 SW Grainery Pl
Sherwood, OR 97140

2S129CA-12100
Douglas Rice
17820 SW 111Th Ave
Tualatin, OR 97062

2S129CD-07500
Douglas Rux
15532 SW Thrasher Way
Sherwood, OR 97140

2S129DB-00500
Douglas Seeber
Po Box 965
Newberg, OR 97132

2S129CD-12100
Dustyn Rondema
15585 SW Farmer Way
Sherwood, OR 97140

2S132AB-12800
Eduardo Aragon & Reyes, Valenzuela
22193 SW Hall St
Sherwood, OR 97140

2S129CA-14300
Edward & Linda Wilson
4738 Amherst Ct
Lake Oswego, OR 97035

2S129CD-04600
Elisabeth Bacon
15899 SW Baler Way
Sherwood, OR 97140

2S129CD-09400
Elise Fraser
15567 SW Whetstone Way
Sherwood, OR 97140

2S132AB-13900
Evlyn Turner
Po Box 131
Sherwood, OR 97140

2S129DB-00400
Flrf Llc
204 N Robinson Ave STE 709
Oklahoma City, OK 73102

2S132AB-06300
Francisco & Kelly Catibayan
22385 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-01100
Fre 596 Llc
707 Old County Rd
Belmont, CA 94002

2S132AB-03700
Gabriele Kruger
15117 SW Merryman St
Sherwood, OR 97140

2S132AB-09801
Gary & Janet Thompson
15224 SW Wert Ct
Sherwood, OR 97140

2S132AB-08600
Gaylene Beck
15151 SW Wert Ct
Sherwood, OR 97140

2S132AB-15000
George & Jennifer Lockhart
15416 SW Darla Kay Ct
Sherwood, OR 97140

2S129CD-05300
George & Karina Ramirez
17581 SW Lawton St
Beaverton, OR 97003

2S132AA-14100
George Haliski
22159 SW Lower Roy St
Sherwood, OR 97140

2S132AB-11000
Gerry & Janet Avolio
911 Elliott Rd
Newberg, OR 97132

2S129CA-16200
Gilbert Jue
701 Tender Ln
Foster City, CA 94404

2S129DC-00600
Grabowski Family Trust
Po Box 5678
Ketchum, ID 83340

2S129DC-00700
Grabowski Family Trust
Po Box 5678
Ketchum, ID 83340

2S129CD-05600
Gustavo Cornejo & Graciela Real
21589 SW Grainery Pl
Sherwood, OR 97140

2S129CD-08500
Hansen Esther B Rev Trust
15758 SW Thrasher Way
Sherwood, OR 97140

2S129CD-11500
Harold Bray
15612 SW Whetstone Way
Sherwood, OR 97140

2S132AB-03600
Harold Payne
15083 SW Merryman St
Sherwood, OR 97140

2S129CD-00700
Havel Nelson & Lorita Revoc Living Trust
15819 SW Red Clover Ln
Sherwood, OR 97140

2S129CA-16900
Heather Olander
17149 SW Villa Rd
Sherwood, OR 97140

2S132AB-00906
Housing Authority Of Washington County
111 NE Lincoln St # 200-L
Hillsboro, OR 97124

2S129CA-13400
Isaac & Cecilia Sanabria
15721 SW Harvester Ln
Sherwood, OR 97140

2S129CD-07100
Ismael & Alice Rios
15549 SW Thrasher Way
Sherwood, OR 97140

2S132AB-09700
Jacob & Elizabeth Farmer
15200 SW Wert Ct
Sherwood, OR 97140

2S132AB-08800
Jacob Cooper
15123 SW Wert Ct
Sherwood, OR 97140

2S132BA-04000
James & Jacqui Fisher
23225 NE Dillon Rd
Newberg, OR 97132

2S129CA-13300
James & Janet Gregston
15733 SW Harvester Ln
Sherwood, OR 97140

2S132AB-12600
James & Lindsay Myers
22170 SW Kelsey Ct
Sherwood, OR 97140

2S129CA-16100
James & Rachelle Mccoy
21439 SW Ferguson Ter
Sherwood, OR 97140

2S132AA-00404
James Catron
14960 SW Oregon St
Sherwood, OR 97140

2S132AB-13300
Jamie & Devan Tingley
22123 SW Hall St
Sherwood, OR 97140

2S132AB-15100
Jarrod & Patrice Rogers
15428 SW Darla Kay Ct
Sherwood, OR 97140

2S129CD-06400
Jeannine Matteson
15649 SW Thrasher Way
Sherwood, OR 97140

2S129CD-09900
Jeffery & Nicole Smith
15550 SW Farmer Way
Sherwood, OR 97140

2S132AA-14300
Jeffrey Lee
22145 SW Lower Roy St
Sherwood, OR 97140

2S129CA-16600
Jeli & Associates Llc
29800 SE 32Nd Cir
Washougal, WA 98671

2S129CA-13600
Jennifer & Daniel Standke
15707 SW Harvester Ln
Sherwood, OR 97140

2S129CD-00800
Jered Richter
12350 SW Sussex St
Beaverton, OR 97008

2S129CD-11000
Jerome Witler
11825 SW Greenburg Rd STE 200
Portland, OR 97223

2S132AB-09600
Jiankun Li & Jiayi Wang
15178 SW Wert Ct
Sherwood, OR 97140

2S132AB-10900
Jill & Mark Roberts
22273 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-08900
Joan & Patrick Smith
15105 SW Wert Ct
Sherwood, OR 97140

2S132AB-12000
Joel & Nancy Griffin
22126 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-06300
Joel Theiss & Fred Wiedemann
16627 SW Villa Rd
Sherwood, OR 97140

2S132AB-09400
John & Ulrike Coulliette
15140 SW Wert Ct
Sherwood, OR 97140

2S129CD-11600
John Honeywell
15586 SW Whetstone Way
Sherwood, OR 97140

2S132AB-13800
Jon & Emily Rievley
22228 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-09600
Jon & Theresa Easton
15522 SW Farmer Way
Sherwood, OR 97140

2S129CA-15100
Jonathan Wetter
21490 SW Fallow Ter
Sherwood, OR 97140

2S129CD-10300
Jones Ryan N Revocable Trust
3 Crestwind Dr
Rancho Palos Verdes, CA 90275

2S132AB-12900
Jose Campuzano
22179 SW Hall St
Sherwood, OR 97140

2S129CD-12200
Jose Martinez
15599 SW Farmer Way
Sherwood, OR 97140

2S132AB-07100
Joseph & Imaya Remenak
15352 SW Oregon St
Sherwood, OR 97140

2S129CD-06800
Joseph & Jennifer Domingo
15585 SW Thrasher Way
Sherwood, OR 97140

2S129CD-08300
Joseph & Kelly Cutler
15726 SW Thrasher Way
Sherwood, OR 97140

2S129CD-11300
Joseph & Tana Jewett
15664 SW Whetstone Way
Sherwood, OR 97140

2S132AB-06000
Joshua & Gina Highberger
22435 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-08800
Joshua & Kristin Burnham
15735 SW Whetstone Way
Sherwood, OR 97140

2S129CD-04400
Joshua Fravel
15923 SW Baler Way
Sherwood, OR 97140

2S129CD-12300
Juana Calidonio
15611 SW Farmer Way
Sherwood, OR 97140

2S129CD-04500
Juanita Dicker
15911 SW Baler Way
Sherwood, OR 97140

2S132AB-00901
Julian & Alice Thornton
22324 SW Lincoln St
Sherwood, OR 97140

2S132AB-13700
Julie & Destiny Cowan
Po Box 460
Sherwood, OR 97140

2S132AB-11600
Julie & James Tone
22105 SW Kelsey Ct
Sherwood, OR 97140

2S132AB-03500
Kalen & Donna Garrison
15061 SW Merryman St
Sherwood, OR 97140

2S129CD-12400
Karen Hogue
15623 SW Farmer Way
Sherwood, OR 97140

2S132AB-07700
Katherine Blakeslee
22309 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-06000
Kelly & Jill Johnson
21552 SW Grainery Pl
Sherwood, OR 97140

2S129CA-15200
Kelly Baker
7568 SW 90Th Pl
Portland, OR 97223

2S129CD-04700
Kenneth & Kathleen Kolb
15887 SW Baler Way
Sherwood, OR 97140

2S132AA-00402
Kerry Neill
22112 SW Hall St
Sherwood, OR 97140

2S132AB-00800
Khristina Moore
22282 SW Lincoln St
Sherwood, OR 97140

2S132AB-09900
Kimberly & Randell Rocha-Pearson
15246 SW Wert Ct
Sherwood, OR 97140

2S132AA-00403
Kyle & Traci Rossi
2034 NE Hancock St
Portland, OR 97212

2S132AA-00612
Kyle Rathmanner
22117 SW Lower Roy St
Sherwood, OR 97140

2S129CD-07300
Langer Family Llc
15585 SW Tualatin Sherwood Rd
Sherwood, OR 97140

2S129DC-00100
Langer Family Llc
15585 SW Tualatin Sherwood Rd
Sherwood, OR 97140

2S129DB-00100
Langer Gramor Llc
19767 SW 72Nd Ave STE 100
Tualatin, OR 97062

2S129DB-00300
Langer Gramor Llc
19767 SW 72Nd Ave STE 100
Tualatin, OR 97062

2S129DC-00200
Langer Storage Llc
15585 SW Tualatin Sherwood Rd
Sherwood, OR 97140

2S132AB-14700
Leonard Enterprises Llc
Po Box 1088
Sherwood, OR 97140

2S132AB-14800
Leonard Enterprises Llc
Po Box 1088
Sherwood, OR 97140

2S132AB-11200
Linda Duncan
22165 SW Kelsey Ct
Sherwood, OR 97140

2S129CA-13100
Ling Jiang & Xiaoyu Song
13573 Rogers Rd
Lake Oswego, OR 97035

2S132AB-15400
Lisa & Mohammed Baggia
15407 SW Darla Kay Ct
Sherwood, OR 97140

2S129CA-13200
Lisa Rutledge & Jeffrey Engel
15739 SW Harvester Ln
Sherwood, OR 97140

2S129CA-13900
Long Khuu
15681 SW Harvester Ln
Sherwood, OR 97140

2S129CD-07400
Lori Gallagher
15520 SW Thrasher Way
Sherwood, OR 97140

2S129CD-02800
Louis Schwab
15858 SW Baler Way
Sherwood, OR 97140

2S129CD-07200
Makaela Lipke
15537 SW Thrasher Way
Sherwood, OR 97140

2S132AB-09300
Marcy & John Ratcliff
15118 SW Wert Ct
Sherwood, OR 97140

2S129CD-02000
Mark & Penny Gerstlauer
15845 SW Springtooth Ln
Sherwood, OR 97140

2S132AB-14100
Mary Green-Zwemke & Christopher
Zwemke
22252 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14900
Matthew & Brianne Ellis
21474 SW Fallow Ter
Sherwood, OR 97140

2S129CA-16800
Matthew & Jessica Elliott
21415 SW Massey Ter
Sherwood, OR 97140

2S129CA-14800
Mee Wu
Po Box 3884
Wilsonville, OR 97070

2S129CD-10100
Melissa Chase
15566 SW Farmer Way
Sherwood, OR 97140

2S132AB-11100
Michael & Colette Musselman
22183 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-10500
Michael & Judith Kulland
15606 SW Farmer Way
Sherwood, OR 97140

2S132AB-14600
Michael & Linda Rooke
15240 SW Oregon St
Sherwood, OR 97140

2S132AB-10200
Michael Bates
22340 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-07600
Michael Brazie Jr & Camyll Reel
15294 SW Oregon St
Sherwood, OR 97140

2S129CD-11400
Michael Maddy
15638 SW Whetstone Way
Sherwood, OR 97140

2S129CD-05100
Michael Mckee
15790 SW Thrasher Way
Sherwood, OR 97140

2S132AA-00603
Michael Peterson
22176 SW Hall St
Sherwood, OR 97140

2S132AB-12700
Michele Guthrie
22188 SW Kelsey Ct
Sherwood, OR 97140

2S129CA-13500
Michelle & Benjamin Rakun
15713 SW Harvester Ln
Sherwood, OR 97140

2S129CD-08700
Morteza Aleali & Fatemeh Jannesai
15767 SW Whetstone Way
Sherwood, OR 97140

2S132AB-10500
Nancy Falk
22412 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-00801
Nels & Ruth Martin
22296 SW Lincoln St
Sherwood, OR 97140

2S132BA-00201
New Life Asseblly Of God
Po Box 878
Sherwood, OR 97140

2S129CA-14600
Niall Alboro
15617 SW Harvester Ln
Sherwood, OR 97140

2S129CD-06500
Nolan & Lana Booth
15633 SW Thrasher Way
Sherwood, OR 97140

2S129DC-00500
Oregon Self Storage & Sherwood Llc
8312 W Northview St STE 120
Boise, ID 83704

2S129D0-00150
Orwa Sherwood Llc
8320 NE Highway 99
Vancouver, WA 98665

2S129D0-00151
Orwa Sherwood Llc
8320 NE Highway 99
Vancouver, WA 98665

2S129CA-16000
Pamela Pataroque
2304 Oswego Glen Ct
Lake Oswego, OR 97034

2S132AB-13000
Patricia Cole
22165 SW Hall St
Sherwood, OR 97140

2S132AA-00604
Patrick & Adrienne Bridge
22204 SW Hall St
Sherwood, OR 97140

2S129CA-12600
Patrick Ochs
15779 SW Harvester Ln
Sherwood, OR 97140

2S132AB-06900
Paul & Rayna Graham
22337 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-14000
Paul & Rebecca Mickel
22244 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-15900
Paula Richardson
21456 SW Ferguson Ter
Sherwood, OR 97140

2S129CA-14100
Paula Thomas
15661 SW Harvester Ln
Sherwood, OR 97140

2S132AB-07400
Pedro & Teresa Urzua
22315 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-04800
Philip Lloyd
15875 SW Baler Way
Sherwood, OR 97140

2S129CA-16400
Prasad Anand Rev Liv Trust
48301 Sawleaf St
Fremont, CA 94539

2S132AB-09200
Ralph Klock
15100 SW Wert Ct
Sherwood, OR 97140

2S129CA-12000
Randal Tang & Linh Huynh
21339 SW Baler Way
Sherwood, OR 97140

2S132AB-00702
Randall & Deena Leavitt
22346 SW Lincoln St
Sherwood, OR 97140

2S129DC-00800
Randall & Jui-Mei Killion
11825 SW Katherine St
Portland, OR 97223

2S132AB-10400
Randy & Pamela August
22372 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14000
Rhys Jensen
15669 SW Harvester Ln
Sherwood, OR 97140

2S132AB-07200
Richard & Belinda Orr
15336 SW Oregon St
Sherwood, OR 97140

2S129CD-10700
Richard & Lorena Stevens
15630 SW Farmer Way
Sherwood, OR 97140

2S129CD-11100
Richard Jones & Maria Schmidt
15680 SW Farmer Way
Sherwood, OR 97140

2S129CA-15800
Richard Silva & Christina Fajardo
21450 SW Ferguson Ter
Sherwood, OR 97140

2S132AB-06400
Ricki & Jeanette Godfrey
22377 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-09100
Robert & Amy Rivera
22291 SW Hall St
Sherwood, OR 97140

2S129CD-11200
Robert & Catherine Hahn
15692 SW Farmer Way
Sherwood, OR 97140

2S132AB-10700
Robert Byers
22428 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-02700
Robert McIntyre & Hua Hou
15826 SW Springtooth Ln
Sherwood, OR 97140

2S132AA-00405
Robert White Jr
14938 SW Oregon St
Sherwood, OR 97140

2S132AB-08100
Roger & Wendy Swift
22306 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-06600
Roger Johnson & Maria Ho
1242 Deep Creek Rd
Livermore, CA 94550

2S132AB-14200
Roger Vidal-Roque & Evelyn Castellanos
22260 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-07000
Rosemary Potter
15561 SW Thrasher Way
Sherwood, OR 97140

2S129CD-02600
Ruth Parker
15850 SW Springtooth Ln
Sherwood, OR 97140

2S132AB-13600
Ruthanne Rusnak
22214 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-06200
Sabino & Yeraldy Perez
22393 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-06500
Sara & Terrance Foster
22369 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-05000
Sasha & Matthew Sten
22820 SW Saunders Dr
Sherwood, OR 97140

2S132AB-06100
Scott & Anne Ohman
22401 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-07700
Scott & Gail Whitcomb
12919 SW Morgan Rd
Sherwood, OR 97140

2S129CD-08100
Scott & Stacie Cannon
15694 SW Thrasher Way
Sherwood, OR 97140

2S129CD-10000
Scott & Sydney Fender
15558 SW Farmer Way
Sherwood, OR 97140

2S132AB-00203
Sean & Shelley Roark
22235 SW Hall St
Sherwood, OR 97140

2S129CD-08400
Shannon Myrick
15742 SW Thrasher Way
Sherwood, OR 97140

2S129CA-17000
Sharon & Talaiasi Punivai
21401 SW Massey Ter
Sherwood, OR 97140

2S129CA-12300
Shaun Platz & Erik Griggs
15793 SW Harvester Ln
Sherwood, OR 97140

2S132AB-12200
Shawn & Helen Hegerberg
22140 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-10400
Sheila & David Fisher
15594 SW Farmer Way
Sherwood, OR 97140

2S129CA-00100
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CA-00200
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CA-18500
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CA-18800
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129DC-00300
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129DC-00400
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S132AB-01400
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CC-10600
Sherwood School Dist #88J
23295 SW Main St
Sherwood, OR 97140

2S132BA-00800
Sherwood School Dist #88J
23295 SW Main St
Sherwood, OR 97140

2S129CD-05400
Shields Linda Living Trust
15805 SW Baler Way
Sherwood, OR 97140

2S129CA-12400
Spencer & Adriana Perry
15791 SW Harvester Ln
Sherwood, OR 97140

2S132BA-00400
Springs li At Sherwood Llc
401 NE Evans St
Mcminnville, OR 97128

2S132BA-00600
Springs li At Sherwood Llc
640 NE 3Rd St
Mcminnville, OR 97128

2S132BA-04300
Springs li At Sherwood Llc
401 NE Evans St
Mcminnville, OR 97128

2S132BA-04400
Springs li At Sherwood Llc
640 NE 3Rd St
Mcminnville, OR 97128

2S129CD-12500
St Francis Catholic Church
15651 SW Oregon St
Sherwood, OR 97140

2S132BA-00200
St Francis Catholic Church
15651 SW Oregon St
Sherwood, OR 97140

2S132AB-12400
Stephen & Katie Orsolini
22156 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-06600
Steve Hobson
15617 SW Thrasher Way
Sherwood, OR 97140

2S129CD-06700
Steven & Yesenia Stoddard
15601 SW Thrasher Way
Sherwood, OR 97140

2S129CA-16300
Subhash Gowda & Anitha Subhash
12478 Salmon River Rd
San Diego, CA 92129

2S132AB-11400
Suphawadee Ross
22137 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-11900
Tamarisk Llc
3 Crestwind Dr
Rancho Palos Verdes, CA 90275

2S129CA-01000
Target Corporation
Po Box 9456
Minneapolis, MN 55440

2S129CD-09100
Theresa & Erik Strot
15645 SW Whetstone Way
Sherwood, OR 97140

2S132AB-00904
Therese Nair
22443 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-10100
Thomas & Dawn Ekerson
22334 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-08900
Zhenya & Michelle Tilley
15703 SW Whetstone Way
Sherwood, OR 97140

2S129CD-07900
Timothy & Jasmine Cooper
15662 SW Thrasher Way
Sherwood, OR 97140

2S132AB-08300
Timothy Lebrun & Mari Susan
13275 SW Greenfield Dr
Portland, OR 97223

2S129CD-03000
Todd & Laura Portinga
15882 SW Baler Way
Sherwood, OR 97140

2S132AB-07500
Todd Tebo & Maki Bishop
15310 SW Oregon St
Sherwood, OR 97140

2S132AB-13200
Tom & Carmen Berger
22137 SW Hall St
Sherwood, OR 97140

2S132AB-09500
Travis & Crystal Roberts
15156 SW Wert Ct
Sherwood, OR 97140

2S132AB-11800
Travis & Jill Harper
22112 SW Kelsey Ct
Sherwood, OR 97140

2S132AB-05900
Trisha & Dustin Valdez
22451 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-01200
Tualatin Valley Fire & Rescue
11945 SW 70Th Ave
Portland, OR 97223

2S129CD-02100
Tyler & Xochidawn Reel
15823 SW Springtooth Ln
Sherwood, OR 97140

2S129DB-00200
Wal-Mart Real Estate Business Tr
Po Box 8050
Bentonville, AR 72712

2S129D0-00600
Washington County Facilites Mgmt
169 N 1St Ave # 42
Hillsboro, OR 97124

2S129D0-00602
Washington County Facilites Mgmt
169 N 1St Ave # 42
Hillsboro, OR 97124

2S129CD-07800
Wei & Siska Lin
15564 SW Thrasher Way
Sherwood, OR 97140

2S129CD-06900
Wendi Oliver & Douglas John
15573 SW Thrasher Way
Sherwood, OR 97140

2S132AB-12500
William & Jennifer Walruff
22162 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-12000
William & Marilyn Sykes
15577 SW Farmer Way
Sherwood, OR 97140

2S132AB-06700
Zachary & Crystal Englen
22353 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-12500
Zhixiang Liang & Jin Hou
2106 Mornington Ln
San Ramon, CA 94582

2S129CA-12800
Zhixiang Liang & Jin Hou
2106 Mornington Ln
San Ramon, CA 94582



Exhibit D: CWS Service Provider Letter

**Sensitive Area Pre-Screening
Site Assessment**

CWS File Number
16-001228

Jurisdiction: <u>Sherwood</u>	
Property Information: (example 1S234AB01400) Taxlot ID(s): <u>TL 100 2S129DC</u> Site Address: _____ Nearest Cross Street: <u>SW LANGER FARMS PKWY AND SW CENTURY DRIVE</u>	Owner Information: Name: <u>MATT LANGER</u> Company: <u>LANGER FAMILY LLC</u> Address: <u>15595 SW TUALATIN SHERWOOD RD</u> <u>SHERWOOD, OR 97140</u> Phone/Fax: _____ / _____ E-mail: _____
Development Activity: Check all that apply Addition to Single Family Residence (rooms, deck, garage) <input type="checkbox"/> Lot Line Adjustment <input type="checkbox"/> Minor Land Partition <input checked="" type="checkbox"/> Residential Condominium <input type="checkbox"/> Commercial Condominium <input type="checkbox"/> Residential Subdivision <input type="checkbox"/> Commercial Subdivision <input type="checkbox"/> Single Lot Commercial <input type="checkbox"/> Multi Lot Commercial <input checked="" type="checkbox"/> Other _____	Applicant Information: Name: <u>MATT LANGER</u> Company: <u>LANGER FAMILY LLC</u> Address: <u>15595 SW TUALATIN SHERWOOD RD</u> <u>SHERWOOD, OR 97140</u> Phone/Fax: _____ / _____ E-mail: _____
Will the project involve any off-site work: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Location and description of off-site work: _____	
Additional comments or information that may be needed to understand your project: <u>SPL #12-000162 was issued for site development in 2012.</u> <small>This development will include a 2-parcel partition and the development of a mini-storage facility. No vegetated corridor exists on site.</small>	

This application does NOT replace the need for Grading and Erosion Control Permits, Connection Permits, Building Permits, Site Development Permits, DEQ 1200-C Permit or other permits as issued by the Department of Environmental Quality, Department of State Lands and/or Department of the Army COE. All required permits and approvals must be obtained and completed under applicable local, state, and federal law.

By signing this form, the Owner or Owner's authorized agent or representative, acknowledges and agrees that employees of Clean Water Services have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related to the project site. I certify that I am familiar with the information contained in this document, and to the best of my knowledge and belief, this information is true, complete, and accurate.

Print/Type Name: John Christiansen Print/Type Title: PE
 Signature: _____ Date: 03/24/2016

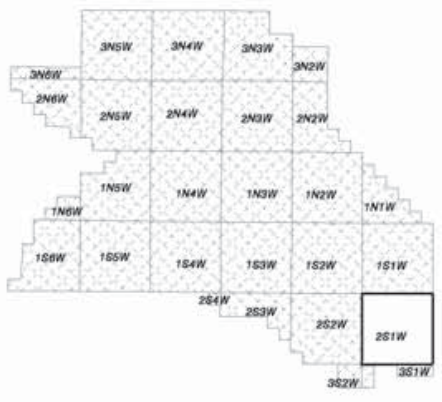
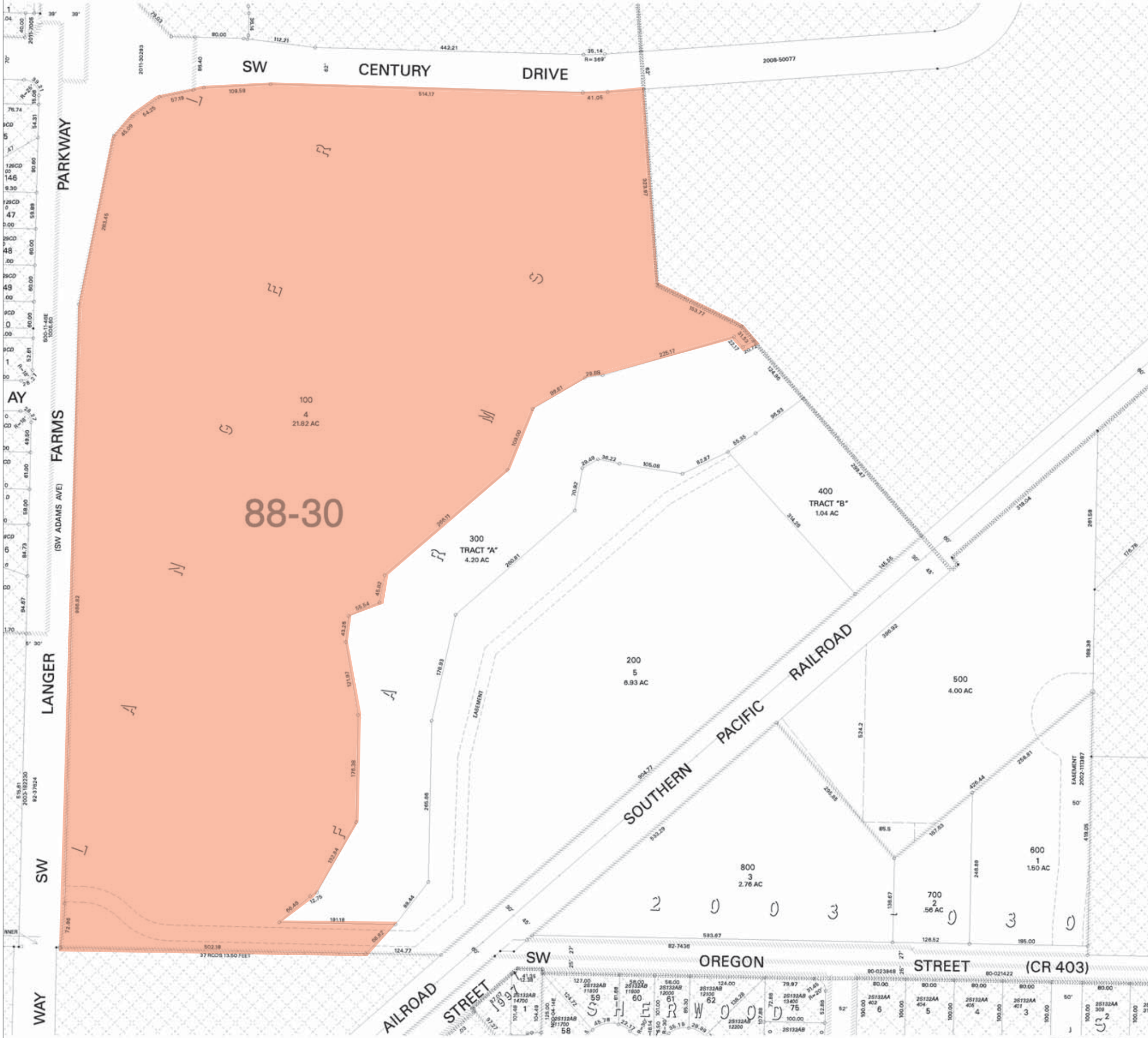
FOR DISTRICT USE ONLY

- Sensitive areas potentially exist on site or within 200' of the site. **THE APPLICANT MUST PERFORM A SITE ASSESSMENT PRIOR TO ISSUANCE OF A SERVICE PROVIDER LETTER.** If Sensitive Areas exist on the site or within 200 feet on adjacent properties, a Natural Resources Assessment Report may also be required.
- Based on review of the submitted materials and best available information Sensitive areas do not appear to exist on site or within 200' of the site. This Sensitive Area Pre-Screening Site Assessment does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider letter as required by Resolution and Order 07-20, Section 3.02.1. All required permits and approvals must be obtained and completed under applicable local, State, and federal law.
- Based on review of the submitted materials and best available information the above referenced project will not significantly impact the existing or potentially sensitive area(s) found near the site. This **Sensitive Area Pre-Screening Site Assessment** does **NOT** eliminate the need to evaluate and protect additional water quality sensitive areas if they are subsequently discovered. This document will serve as your Service Provider letter as required by Resolution and Order 07-20, Section 3.02.1. All required permits and approvals must be obtained and completed under applicable local, state, and federal law.
- This Service Provider Letter is not valid unless _____ CWS approved site plan(s) are attached.
- The proposed activity does not meet the definition of development or the lot was platted after 9/9/95 ORS 92.040(2). NO SITE ASSESSMENT OR SERVICE PROVIDER LETTER IS REQUIRED.

Reviewed By: Chuck Mitchell Date: 3/30/16



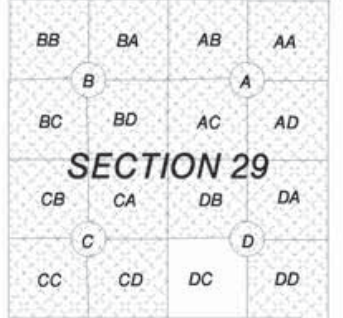
**Exhibit E: County Assessor Map,
Partition Plat 2017-019,
& Preliminary Title Report**



WASHINGTON COUNTY OREGON
 SW1/4 SE1/4 SECTION 29 T2S R1W W.M.
 SCALE 1" = 100'

36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	18
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6

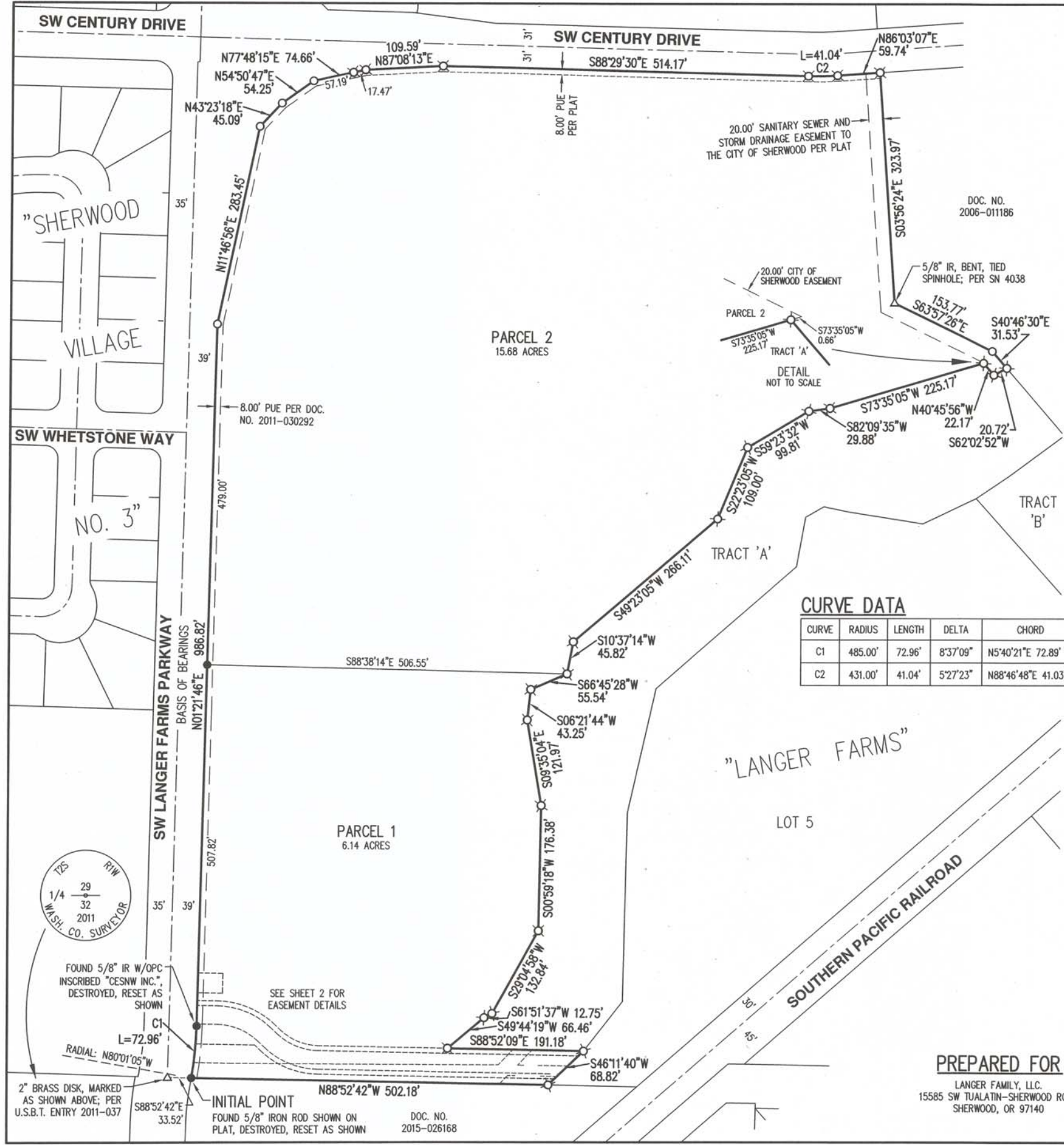
FOR ADDITIONAL MAPS VISIT OUR WEBSITE AT
www.co.washington.or.us



WASHINGTON COUNTY OREGON
Assessment
CARTOGRAPHY
Taxation

PLOT DATE: April 12, 2013
 FOR ASSESSMENT PURPOSES ONLY - DO NOT RELY ON FOR OTHER USE

Map areas delineated by either gray shading or a cross-hatched pattern are for reference only and may not indicate the most current property boundaries. Please consult the appropriate map for the most current information.



PARTITION PLAT NO. 2017-019
 RECORDED AS DOCUMENT NO. 2017050998
 SHEET 1 OF 3

PARTITION PLAT

A REPLAT OF LOT 4, "LANGER FARMS",
 LOCATED IN THE SOUTHEAST 1/4 OF SECTION 29,
 TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN,
 CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON
 JUNE 7, 2017

SHEET INDEX

- SHEET 1 BOUNDARY NARRATIVE PARCELS 1 AND 2
- SHEET 2 EASEMENT DETAILS
- SHEET 3 APPROVALS SURVEYOR'S CERTIFICATE NOTES DECLARATION ACKNOWLEDGMENT



CURVE DATA

CURVE	RADIUS	LENGTH	DELTA	CHORD
C1	485.00'	72.96'	8°37'09"	N5°40'21"E 72.89'
C2	431.00'	41.04'	5°27'23"	N88°46'48"E 41.03'

NARRATIVE

THE PURPOSE OF THIS SURVEY IS TO PARTITION THAT TRACT OF LAND DESCRIBED IN THE ACCOMPANYING SURVEYOR'S CERTIFICATE, BEING LOT 4 OF "LANGER FARMS", INTO 2 PARCELS. THE BASIS OF BEARINGS (N01°21'46"E) IS THE EAST RIGHT-OF-WAY LINE OF SW LANGER FARMS PARKWAY PER THE PLAT OF "LANGER FARMS", DOCUMENT NO. 2013-025409, WASHINGTON COUNTY RECORDS. I HELD THE FOUND MONUMENTS AND DATA FROM SAID "LANGER FARMS" PLAT TO ESTABLISH THE BOUNDARIES OF SAID LOT 4.

LEGEND

- SET 5/8" X 30" IRON ROD WITH YELLOW PLASTIC CAP INSCRIBED "AKS ENGR." ON JUNE 7, 2017
- ⊗ FOUND 5/8" IRON ROD WITH YELLOW PLASTIC CAP INSCRIBED "AKS ENGR." PER "LANGER FARMS", HELD
- FOUND 5/8" IRON ROD WITH ORANGE PLASTIC CAP INSCRIBED "CESNW INC." PER SN 31760, HELD
- △ DENOTES FOUND MONUMENT AS NOTED, HELD UNLESS NOTED OTHERWISE
- IR IRON ROD
- W/OPC WITH ORANGE PLASTIC CAP
- DOC. NO. DOCUMENT NUMBER, WASHINGTON COUNTY RECORDS
- SN SURVEY NUMBER, WASHINGTON COUNTY SURVEY RECORDS
- PUE PUBLIC UTILITY EASEMENT
- SF SQUARE FEET
- PLAT LANGER FARMS, WASHINGTON COUNTY PLAT RECORDS
- U.S.B.T. UNITED STATES BEARING TREE

REGISTERED
 PROFESSIONAL
 LAND SURVEYOR

Gary E. Paul

OREGON
 JANUARY 17, 1995
 GARY E. PAUL
 2698
 RENEWAL 12/31/2018

PREPARED FOR
 LANGER FAMILY, LLC.
 15585 SW TUALATIN-SHERWOOD ROAD
 SHERWOOD, OR 97140

JOB NAME:	SENTINEL PHS2
JOB NUMBER:	4668
DRAWN BY:	GEP
CHECKED BY:	JOH
DRAWING NO.:	4668CPLAT

AKS ENGINEERING AND FORESTRY, LLC
 12965 SW HERMAN RD
 SUITE 100
 TUALATIN, OR 97062
 PHONE: 503.563.6151
 FAX: 503.563.6152

AKS

ENGINEERING · PLANNING · SURVEYING
 FORESTRY · LANDSCAPE ARCHITECTURE



2" BRASS DISK, MARKED AS SHOWN ABOVE; PER U.S.B.T. ENTRY 2011-037

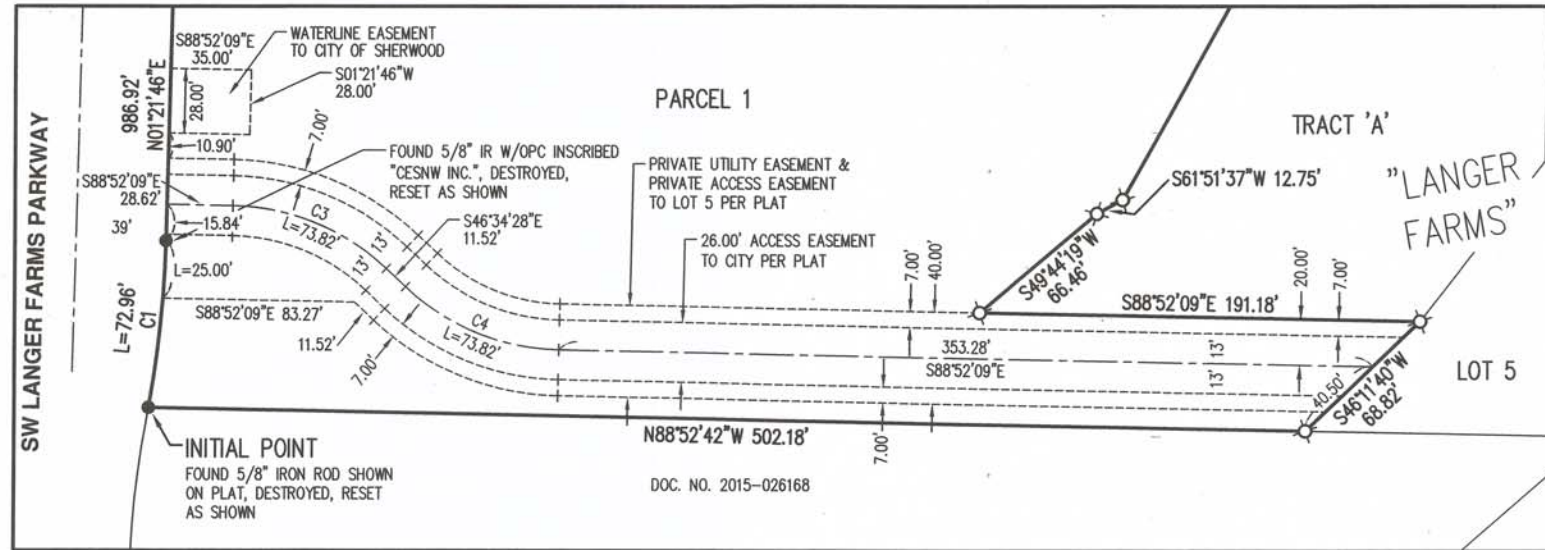
FOUND 5/8" IR W/OPC INSCRIBED "CESNW INC.", DESTROYED, RESET AS SHOWN

SEE SHEET 2 FOR EASEMENT DETAILS

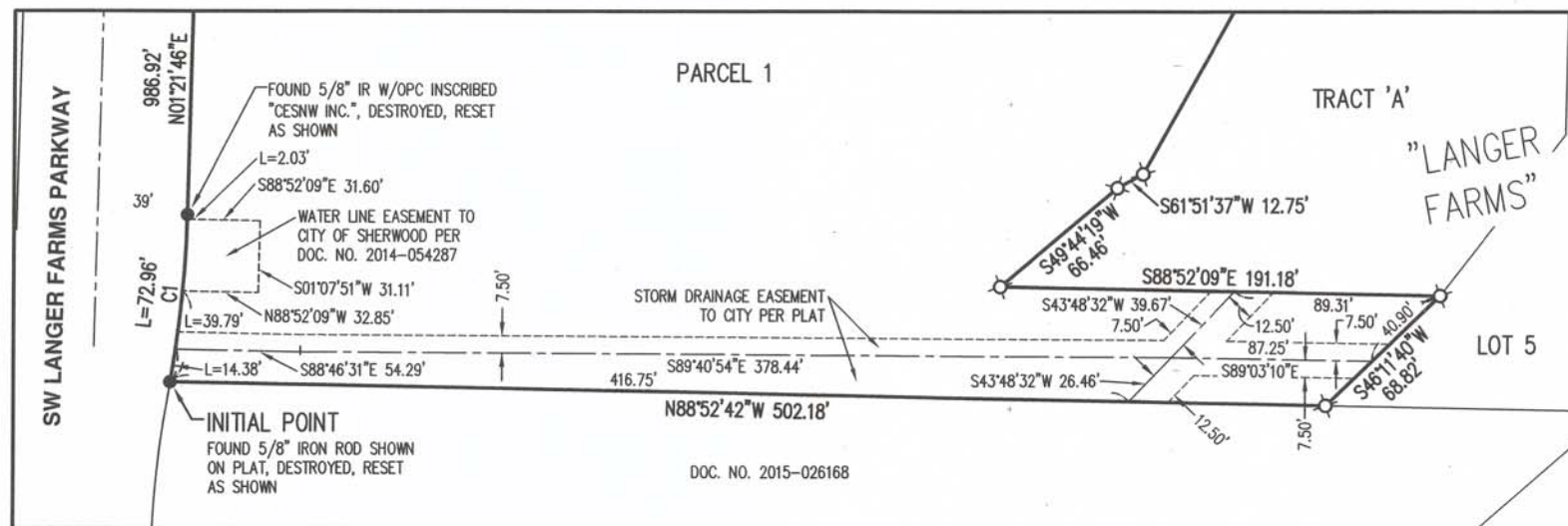
INITIAL POINT
 FOUND 5/8" IRON ROD SHOWN ON PLAT, DESTROYED, RESET AS SHOWN

DOC. NO. 2015-026168

PARTITION PLAT
 A REPLAT OF LOT 4, "LANGER FARMS",
 LOCATED IN THE SOUTHEAST 1/4 OF SECTION 29,
 TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN,
 CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON
 JUNE 7, 2017



DETAIL A
 SCALE: 1"=50'



DETAIL B
 SCALE: 1"=100'

LEGEND

- SET 5/8" X 30" IRON ROD WITH YELLOW PLASTIC CAP INSCRIBED "AKS ENGR." ON JUNE 7, 2017
- △ DENOTES FOUND MONUMENT AS NOTED, HELD UNLESS NOTED OTHERWISE
- IR IRON ROD
- W/OPC WITH ORANGE PLASTIC CAP
- DOC. NO. DOCUMENT NUMBER, WASHINGTON COUNTY RECORDS
- SN SURVEY NUMBER, WASHINGTON COUNTY SURVEY RECORDS
- PUE PUBLIC UTILITY EASEMENT
- SF SQUARE FEET
- CITY CITY OF SHERWOOD
- PLAT "LANGER FARMS", WASHINGTON COUNTY PLAT RECORDS

CURVE DATA

CURVE	RADIUS	LENGTH	DELTA	CHORD
C1	485.00'	72.96'	8°37'09"	N5°40'21"E 72.89'
C3	100.00'	73.82'	42°17'41"	N67°43'19"W 72.15'
C4	100.00'	73.82'	42°17'41"	S67°43'19"E 72.15'

PREPARED FOR
 LANGER FAMILY, LLC.
 15585 SW TUALATIN-SHERWOOD ROAD
 SHERWOOD, OR 97140

JOB NAME:	SENTINEL PHS2
JOB NUMBER:	4668
DRAWN BY:	GEP
CHECKED BY:	JOH
DRAWING NO.:	4668CPLAT

AKS ENGINEERING AND FORESTRY, LLC
 12965 SW HERMAN RD
 SUITE 100
 TUALATIN, OR 97062
 PHONE: 503.563.6151
 FAX: 503.563.6152

REGISTERED PROFESSIONAL LAND SURVEYOR

 OREGON
 JANUARY 17, 1995
 GARY E. PAUL
 2698
 RENEWAL 12/31/2018



ENGINEERING · PLANNING · SURVEYING
 FORESTRY · LANDSCAPE ARCHITECTURE

PARTITION PLAT
 A REPLAT OF LOT 4, "LANGER FARMS",
 LOCATED IN THE SOUTHEAST 1/4 OF SECTION 29,
 TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN,
 CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON
 JUNE 7, 2017

PARTITION PLAT NO. 2017-019
 RECORDED AS DOCUMENT NO. 2017050998
 SHEET 3 OF 3

DECLARATION

KNOW ALL PERSONS BY THESE PRESENT THAT LANGER FAMILY LLC, AN OREGON LIMITED LIABILITY COMPANY, IS THE OWNER OF THE LAND SHOWN ON THE ANNEXED MAP AND PARTICULARLY DESCRIBED IN THE ACCOMPANYING SURVEYOR'S CERTIFICATE, AND HAS CAUSED THE PARTITION TO BE PREPARED AND THE PROPERTY TO BE PARTITIONED IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 92 OF THE OREGON REVISED STATUTES; AND DOES HEREBY GRANT ALL EASEMENTS AS SHOWN OR NOTED ON SAID PLAT.

LANGER FAMILY LLC, AN OREGON LIMITED LIABILITY COMPANY

Matthew Langer
 MATTHEW LANGER, MANAGER

ACKNOWLEDGMENT

STATE OF OREGON }
 COUNTY OF Washington } ss

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON June 13, 2017
 BY MATTHEW LANGER AS MANAGER OF LANGER FAMILY LLC, AN OREGON LIMITED LIABILITY COMPANY.

Constance E Hansen
 NOTARY SIGNATURE
Constance E Hansen
 NOTARY PUBLIC - OREGON

COMMISSION NO. 478699

MY COMMISSION EXPIRES July 14, 2017

PLAT NOTES

- THIS PLAT IS SUBJECT TO CONDITIONS OF APPROVAL PER CITY OF SHERWOOD PLANNING CASE FILE NO. MLP 16-02 SP 16-06.

SURVEYOR'S CERTIFICATE

I, GARY E. PAUL, HEREBY SAY THAT I HAVE CORRECTLY SURVEYED AND MARKED WITH PROPER MONUMENTS THE LANDS REPRESENTED ON THE ANNEXED PARTITION PLAT, BEING LOT 4 OF "LANGER FARMS", DOCUMENT NO. 2013-025409, WASHINGTON COUNTY RECORDS, AND SITUATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 29, TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON, THAT AT THE INITIAL POINT OF SAID SURVEY I SET A 5/8-INCH X 30-INCH IRON ROD WITH A YELLOW PLASTIC CAP INSCRIBED "AKS ENGR" AT THE SOUTHWEST CORNER OF LOT 4, SAID "LANGER FARMS", AND BEING ON THE EAST RIGHT-OF-WAY LINE OF SW LANGER FARMS PARKWAY AND ALSO BEARING SOUTH 88°52'42" EAST, 33.52 FEET FROM A 2-INCH BRASS DISK AT THE SOUTH ONE-QUARTER CORNER OF SAID SECTION 29; THENCE TRACING SAID EAST RIGHT-OF-WAY LINE ALONG THE FOLLOWING COURSES: NORTHEASTERLY ALONG THE ARC OF A 485.00 FOOT RADIUS CURVE LEFT (THE RADIUS POINT OF WHICH BEARS NORTH 80°01'05" WEST) THROUGH A CENTRAL ANGLE OF 08°37'09", 72.96 FEET (CHORD BEARS NORTH 05°40'21" EAST, 72.89 FEET); THENCE NORTH 01°21'46" EAST, 986.82 FEET; THENCE NORTH 11°46'56" EAST, 283.45 FEET; THENCE NORTH 43°23'18" EAST, 45.09 FEET; THENCE NORTH 54°50'47" EAST, 54.25 FEET; THENCE NORTH 77°48'15" EAST, 74.66 FEET TO THE SOUTH RIGHT-OF-WAY LINE OF SW CENTURY DRIVE; THENCE TRACING SAID SOUTH RIGHT-OF-WAY LINE ALONG THE FOLLOWING COURSES: NORTH 87°08'13" EAST, 109.59 FEET; THENCE SOUTH 88°29'30" EAST, 514.17 FEET TO THE POINT OF CURVE LEFT OF A 431.00 FOOT RADIUS CURVE; THENCE ALONG THE ARC OF SAID CURVE LEFT THROUGH A CENTRAL ANGLE OF 5°27'23", 41.04 FEET (CHORD BEARS NORTH 88°46'48" EAST, 41.03 FEET); THENCE NORTH 86°03'07" EAST, 59.74 FEET TO THE NORTHEAST CORNER OF LOT 4, SAID "LANGER FARMS"; THENCE TRACING THE EAST LINE OF SAID LOT 4 ALONG THE FOLLOWING COURSES: SOUTH 03°56'24" EAST, 323.97 FEET; THENCE SOUTH 63°57'26" EAST, 153.77 FEET; THENCE SOUTH 40°46'30" EAST, 31.53 FEET; THENCE SOUTH 62°02'52" WEST, 20.72 FEET; THENCE NORTH 40°45'56" WEST, 22.17 FEET; THENCE SOUTH 73°35'05" WEST, 225.17 FEET; THENCE SOUTH 82°09'35" WEST, 29.88 FEET; THENCE SOUTH 59°23'32" WEST, 99.81 FEET; THENCE SOUTH 22°23'05" WEST, 109.00 FEET; THENCE SOUTH 49°23'05" WEST, 266.11 FEET; THENCE SOUTH 10°37'14" WEST, 45.82 FEET; THENCE SOUTH 66°45'28" WEST, 55.54 FEET; THENCE SOUTH 06°21'44" WEST, 43.25 FEET; THENCE SOUTH 09°35'04" EAST, 121.97 FEET; THENCE SOUTH 00°59'18" WEST, 176.38 FEET; THENCE SOUTH 29°04'58" WEST, 132.84 FEET; THENCE SOUTH 61°51'37" WEST, 12.75 FEET; THENCE SOUTH 49°44'19" WEST, 66.46 FEET; THENCE SOUTH 88°52'09" EAST, 191.18 FEET; THENCE SOUTH 46°11'40" WEST, 68.82 FEET TO THE SOUTHEAST CORNER OF SAID LOT 4; THENCE NORTH 88°52'42" WEST ALONG THE SOUTH LINE OF SAID LOT 4, 502.18 FEET TO THE INITIAL POINT. CONTAINS 21.82 ACRES, MORE OR LESS.

Gary E Paul
 GARY E. PAUL
 REGISTERED PROFESSIONAL LAND SURVEYOR NO. 2698

APPROVALS

APPROVED THIS 20th DAY OF JUNE, 2017.
 CITY OF SHERWOOD, PLANNING MANAGER

BY: Connie Randall

APPROVED THIS 27th DAY OF JUNE, 2017.
 WASHINGTON COUNTY SURVEYOR

BY: Sean Diger D.C.S.

ALL TAXES, FEES, ASSESSMENTS OR OTHER CHARGES AS PROVIDED BY O.R.S. 92.095 HAVE BEEN PAID AS OF THIS 27th DAY OF JUNE, 2017.

DIRECTOR OF ASSESSMENT AND TAXATION
 (WASHINGTON COUNTY ASSESSOR)

BY: J. J. [Signature]
 DEPUTY

STATE OF OREGON }
 COUNTY OF WASHINGTON } ss

I DO HEREBY CERTIFY THAT THIS PARTITION PLAT WAS RECEIVED FOR RECORD ON THIS 27th DAY OF June, 2017, AT 3:55 O'CLOCK p.m. AND RECORDED IN THE COUNTY CLERK RECORDS.

J. Reed
 DEPUTY COUNTY CLERK

REGISTERED PROFESSIONAL LAND SURVEYOR
Gary E Paul
 OREGON
 JANUARY 17, 1995
 GARY E. PAUL
 2698
 RENEWAL 12/31/2018

PREPARED FOR
 LANGER FAMILY, LLC.
 15585 SW TUALATIN-SHERWOOD ROAD
 SHERWOOD, OR 97140

JOB NAME:	SENTINEL PHS2
JOB NUMBER:	4668
DRAWN BY:	GEP
CHECKED BY:	JOH
DRAWING NO.:	4668CPLAT

AKS ENGINEERING AND FORESTRY, LLC
 12965 SW HERMAN RD
 SUITE 100
 TUALATIN, OR 97062
 PHONE: 503.563.6151
 FAX: 503.563.6152

AKS

ENGINEERING · PLANNING · SURVEYING
 FORESTRY · LANDSCAPE ARCHITECTURE



**PUBLIC RECORD REPORT
FOR NEW SUBDIVISION OR LAND PARTITION**

THIS REPORT IS ISSUED BY THE ABOVE-NAMED COMPANY ("THE COMPANY") FOR THE EXCLUSIVE USE OF:

AKS Engineering & Forestry LLC
12965 SW Herman RD STE 100
Tualatin, OR 97062
Phone: (503)563-6151
Fax: (503)925-8969

Date Prepared : June 19, 2015
Effective Date : 8:00 A.M on June 11, 2015
Order No. : 7019-2471666
Reference :

The information contained in this report is furnished by First American Title Insurance Company of Oregon (the "Company") as an information service based on the records and indices maintained by the Company for the county identified below. This report is not title insurance, is not a preliminary title report for title insurance, and is not a commitment for title insurance. No examination has been made of the Company's records, other than as specifically set forth in this report. Liability for any loss arising from errors and/or omissions is limited to the lesser of the fee paid or the actual loss to the Customer, and the Company will have no greater liability by reason of this report. This report is subject to the Definitions, Conditions and Stipulations contained in it.

REPORT

- A. The Land referred to in this report is located in the County of Washington, State of Oregon, and is described as follows:

As fully set forth on Exhibit "A" attached hereto and by this reference made a part hereof.

- B. As of the Effective Date, the tax account and map references pertinent to the Land are as follows:

As fully set forth on Exhibit "A" attached hereto and by this reference made a part hereof.

- C. As of the Effective Date and according to the Public Records, we find title to the land apparently vested in:

As fully set forth on Exhibit "B" attached hereto and by this reference made a part hereof.

- D. As of the Effective Date and according to the Public Records, the Land is subject to the following liens and encumbrances, which are not necessarily shown in the order of priority:

As fully set forth on Exhibit "C" attached hereto and by this reference made a part hereof.

EXHIBIT "A"
(Land Description Map Tax and Account)

Lot 4, LANGER FARMS, in the City of Sherwood, County of Washington and State of Oregon.

Map No.: 2S129DC-00100
Tax Account No.: R2182368

EXHIBIT "B"
(Vesting)

Langer Family, LLC, an Oregon Limited Liability Company

EXHIBIT "C"
(Liens and Encumbrances)

1. The assessment roll and the tax roll disclose that the within described premises were specially zoned or classified for Farm use. If the land has become or becomes disqualified for such use under the statute, an additional tax or penalty may be imposed.
2. City liens, if any, of the City of Sherwood.
3. Statutory powers and assessments of Clean Water Services.
4. The rights of the public in and to that portion of the premises herein described lying within the limits of streets, roads and highways.
5. Easement, including terms and provisions contained therein:
Recording Information: March 28, 1957 as Book 392, Page 361
In Favor of: United States of America
For: Transmission line
6. Easement, including terms and provisions contained therein:
Recording Information: March 18, 1959 as Book 415, Page 622
In Favor of: Portland General Electric Company, an Oregon Corporation
For: Electric power transmission
7. Easement, including terms and provisions contained therein:
Recording Information: September 02, 1970 as Book 791, Page 149
In Favor of: Portland General Electric Company, an Oregon Corporation
For: Anchor
8. Easement, including terms and provisions contained therein:
Recording Information: April 18, 1978 as Book 999, Page 746
In Favor of: Portland General Electric Company, an Oregon Corporation
For: Anchor
Re-recorded: December 12, 2005 as Fee No. 2005 155850
9. Easement, including terms and provisions contained therein:
Recording Information: June 17, 2004 as Fee No. 2004 069104
In Favor of: City of Sherwood, a Municipal Corporation
For: Purpose of constructing, installing, reconstructing, enlarging, repairing operating and maintaining utility improvements and facilities
10. Stormwater Easement and Maintenance Covenant Agreement and the terms and conditions thereof:
Between: Langer Family, LLC, an Oregon Corporation
And: Target Corporation, a Minnesota Corporation and the City of Sherwood, a Municipal Corporation of the State of Oregon
Recording Information: July 08, 2004 as Fee No. 2004 078681

11. Easement, including terms and provisions contained therein:
Recording Information: April 22, 2011 as Fee No. 2011 030292
In Favor of: The City of Sherwood, an Oregon Municipal Corporation
For: Public Utilities
12. City of Sherwood, Ordinance No. 2011-010 , an Ordinance Renaming SW Adams Avenue to SW Langer Farms Parkway
Recorded: October 21, 2011 as Fee No. 2011 073855
13. Easement as shown on the recorded plat/partition
For: Sanitary Sewer
Affects: See plat map for exact location
14. Easement as shown on the recorded plat/partition
For: Storm Drainage
Affects: See plat map for exact location
15. Easement as shown on the recorded plat/partition
For: Private Utility
Affects: See plat map for exact location
16. Easement as shown on the recorded plat/partition
For: Private Access
Affects: See plat map for exact location
17. Easement as shown on the recorded plat/partition
For: Access
Affects: See plat map for exact location
18. Easement, including terms and provisions contained therein:
Recording Information: August 27, 2014 as Fee No. 2014 054287
In Favor of: The City of Sherwood, an Oregon Municipal Corporation and its successors and assigns
For: Water Line
19. Unrecorded leases or periodic tenancies, if any.

NOTE: Taxes for the year 2014-2015 PAID IN FULL

Tax Amount: \$366.97
Map No.: 2S129DC-00100
Property ID: R2182368
Tax Code No.: 088.30

NOTE: This Public Record Report does not include a search for Financing Statements filed in the Office of the Secretary of State, or in a county other than the county wherein the premises are situated, and no liability is assumed if a Financing Statement is filed in the Office of the County Clerk covering Crops on the premises wherein the lands are described other than by metes and bounds or under the rectangular survey system or by recorded lot and block.

DEFINITIONS, CONDITIONS AND STIPULATIONS

1. **Definitions.** The following terms have the stated meaning when used in this report:
 - (a) "Customer": The person or persons named or shown as the addressee of this report.
 - (b) "Effective Date": The effective date stated in this report.
 - (c) "Land": The land specifically described in this report and improvements affixed thereto which by law constitute real property.
 - (d) "Public Records": Those records which by the laws of the state of Oregon impart constructive notice of matters relating to the Land.

2. **Liability of the Company.**
 - (a) This is not a commitment to issue title insurance and does not constitute a policy of title insurance.
 - (b) The liability of the Company for errors or omissions in this public record report is limited to the amount of the charge paid by the Customer, provided, however, that the Company has no liability in the event of no actual loss to the Customer.
 - (c) No costs (including, without limitation attorney fees and other expenses) of defense, or prosecution of any action, is afforded to the Customer.
 - (d) In any event, the Company assumes no liability for loss or damage by reason of the following:
 - (1) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records.
 - (2) Any facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.
 - (3) Easements, liens or encumbrances, or claims thereof, which are not shown by the Public Records.
 - (4) Discrepancies, encroachments, shortage in area, conflicts in boundary lines or any other facts which a survey would disclose.
 - (5) (i) Unpatented mining claims; (ii) reservations or exceptions in patents or in Acts authorizing the issuance thereof, (iii) water rights or claims or title to water.
 - (6) Any right, title, interest, estate or easement in land beyond the lines of the area specifically described or referred to in this report, or in abutting streets, roads, avenues, alleys, lanes, ways or waterways.
 - (7) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use or enjoyment on the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
 - (8) Any governmental police power not excluded by 2(d)(7) above, except to the extent that notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
 - (9) Defects, liens, encumbrances, adverse claims or other matters created, suffered, assumed, agreed to or actually known by the Customer.

3. **Report Entire Contract.** Any right or action or right of action that the Customer may have or may bring against the Company arising out of the subject matter of this report must be based on the provisions of this report. No provision or condition of this report can be waived or changed except by a writing signed by an authorized officer of the Company. By accepting this form report, the Customer acknowledges and agrees that the Customer has elected to utilize this form of public record report and accepts the limitation of liability of the Company as set forth herein.

4. **Charge.** The charge for this report does not include supplemental reports, updates or other additional services of the Company.

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Tract No. 00-K-36: 38

TRANSMISSION LINE EASEMENT

The GRANTOR, herein so styled whether one or more, **FERDINAND WALLACE LANGER and
LEOLA MAY LANGER, also known as Leola M. Langer, husband and wife,**

for and in consideration of the sum of - **FIVE HUNDRED** -----
-----Dollars (\$ 500.00),

in hand paid by the UNITED STATES OF AMERICA, receipt of which is hereby acknowledged,
hereby grants; bargains, sells, and conveys to the UNITED STATES OF AMERICA and its
assigns, a perpetual easement and right to enter and erect, operate, maintain, repair
rebuild, and patrol one or more electric power transmission lines and appurtenant signal
lines, poles, towers, wires, cables, and appliances necessary in connection therewith,
in, upon, over, under, and across the following-described parcel of land in the County
of **Washington** , in the State of **Oregon** , to wit:

That portion of that part of the ~~N¹/₂~~ of Section 29, Township 2 South, Range 1
West of the Willamette Meridian, Washington County, Oregon, described as: Beginning
at the quarter section corner on the east line of Section 29, Township 2 South, Range 1
West, W.M.; thence West a distance of 1087.9 feet to the northeast corner of that tract
of land conveyed to Joseph Simon by deed as recorded on Page 367, Volume 56; thence
South along the east line of said Simon tract a distance of 288.7 feet to the southeast
corner thereof; thence West along the south line of said Simon tract a distance of 767.2
feet to an iron at the southwest corner thereof; thence North along the west line of
said Simon tract a distance of 288.7 feet to the northwest corner thereof; thence West
a distance of 789.0 feet to the northeast corner of that tract of land conveyed to
Ferdinand Langer by deed as recorded on Page 70, Volume 144 of said records; thence
S. 0°08' E. a distance of 2666.2 feet to an iron pipe at the south quarter corner of
Section 29, Township 2 South, Range 1 West, W.M.; thence N. 89°36' E. along the south
line of Section 29 a distance of 660.5 feet to an iron on the northerly right of way
line of a 60-foot right of way of the Oregon & California Railroad; thence N. 47°26' E.
along the northerly right of way line of a 60-foot right of way of said Railroad a
distance of 2693.9 feet to a point; thence N. 0°01' E. along the east line of Section 29,
Township 2 South, Range 1 West, W.M., a distance of 846.1 feet to the point of beginning,
except the part thereof described as: Beginning at the east quarter section corner of
Section 29, Township 2 South, Range 1 West, W.M., and running thence West a distance of
1087.9 feet to the northeast corner of that tract of land conveyed to Joseph Simon by
deed as recorded on Page 367 of Volume 56 of Washington County, Oregon, Deed Records;
thence South along the East line of said Simon tract a distance of 288.7 feet to the
southeast corner thereof; thence West along the south line of said Simon tract a
distance of 682.8 feet to an iron; thence S. 5°28' E. a distance of 1268.3 feet to an
iron; thence S. 56°26' E. a distance of 153.7 feet to an iron; thence S. 42°23' E. a
distance of 454.9 feet to an iron on the northerly line of a 60-foot right of way of
the Oregon & California Railroad; thence N. 47°26' E. along the northerly line of a
60-foot right of way of the Oregon & California Railroad a distance of 1633.5 feet
to a point on the east line of said Section 29; thence N. 0°01' E. along the east line
of said Section 29 a distance of 846.1 feet to the point of beginning, which lies within
a strip of land 250 feet in width, the boundaries of said strip lying 62.5 feet distant
southerly from, and 187.5 feet distant northerly from and parallel to the survey line
of the Oregon City-Keeler section of the Big Eddy-Keeler transmission line as now located
and staked on the ground over, across, upon and/or adjacent to the above-described property,
said survey line being particularly described as follows:

Beginning at survey station 5335+79.4, a point on the east line of Section 29,
Township 2 South, Range 1 West, W.M., said point being S. 2°31'00" W. a distance of
658.3 feet from the quarter section corner on the east line of said Section 29; thence
N. 86°50'50" W. a distance of 1323.5 feet to survey station 5349+02.9; thence
N. 50°36'20" W. a distance of 1010.6 feet to survey station 5359+13.5, a point on
the East-West quarter section line of said Section 29, said point being N. 88°29'10" W.
a distance of 2132.2 feet from the quarter section corner on the east line of said
Section 29.

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Under the terms of this easement no structure will be erected on the first electric power transmission line to be built.

together with the right to clear said parcel of land and keep the same clear of all brush, timber, structures, and fire hazards, provided however, the words "fire hazards" shall not be interpreted to include growing crops and also the present and future right to top, limb, fell, and remove all growing trees, dead trees or snags (collectively called "danger trees") located on Grantor's land adjacent to said parcel of land, which could fall upon or against said transmission and signal line facilities.

TO HAVE AND TO HOLD said easement and rights unto the UNITED STATES OF AMERICA and its assigns; forever.

The Grantor covenants to and with the UNITED STATES OF AMERICA and its assigns that the title to all brush and timber cut and removed from said parcel of land and also all growing trees, dead trees or snags (collectively called "danger trees") cut and removed from Grantor's land adjacent to said parcel of land, is and shall be vested in the UNITED STATES OF AMERICA and its assigns and that the consideration paid for conveying said easement and rights herein described is accepted as full compensation for all damages incidental to the exercise of any of said rights.

The Grantor also covenants to and with the UNITED STATES OF AMERICA that Grantor is lawfully seized and possessed of the lands aforesaid; has a good and lawful right and power to sell and convey same; that same are free and clear of encumbrances, except as above indicated; and that Grantor will forever warrant and defend the title to said easement and the quiet possession thereof against the lawful claims and demands of all persons whomsoever.

Dated this 19 day of March, 1957.

Ferdinand Wallace Langer
Ferdinand Wallace Langer

Leola May Langer
Leola May Langer

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STATE OF Oregon
COUNTY OF Washington

On the 19 day of March, 1957, personally came before me, a notary public in and for said County and State, the within-named, FERDINAND WALLACE LANGER,

to me personally known to be the identical person described in and who executed the within and foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal the day and year last above written.



M. E. Helman
Notary Public in and for the
State of Oregon
Residing at Portland, Oregon
My commission expires: 9/20/57

STATE OF Oregon
COUNTY OF Washington

On the 20 day of March, 1957, personally came before me, a notary public in and for said County and State, the within-named LEOLA HAY LANGER, to me personally known to be the identical person described in and who executed the within and foregoing instrument and acknowledged to me that she executed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal the day and year last above written.



M. E. Helman
Notary Public in and for the
State of Oregon
Residing at Portland, Oregon
My commission expires: 9/20/57

STATE OF OREGON
COUNTY OF Washington County

I CERTIFY that the within instrument was received for the record on the 28 day of March, 1957, at 2:50 P.M., and recorded in book 392 on page 361, records of Deeds of said County.

Witness my hand and seal of County affixed.

ROGER THOMSEN, County Clerk
By Harold P. Johnson
Deputy.

After recording, please return to:
TITLE SECTION, BRANCH OF LAND
BONNEVILLE POWER ADMINISTRATION
P.O. BOX No. 3537
PORTLAND 8, OREGON

6884

KNOW ALL MEN BY THESE PRESENTS, That Ferdinand Wallace Langer and Leola May Langer,
husband and wife

(hereinafter called "the Grantors," whether one or more than one), for and in consideration of the payment of the sum of Ten and no/100ths Dollars (\$ 10.00), the receipt of which is hereby acknowledged, hereby grant, sell and convey to Portland General Electric Company, an Oregon Corporation, (hereinafter called "the Grantee"), its successors and assigns, a perpetual easement and right of way over, under and across the following described parcel of land situated in Washington County, Oregon, being a strip of land 30 feet in width, extending 25 feet on each side of a center line more particularly described as follows:

Beginning at a point in the land of the grantor as described on Page 286 of Book 378 of Deed Records of Washington County, Oregon, and being situate in the SE 1/4 of Section 29, T2S, R1W, W4, said county, said point being in the east line of the lands of the grantor and the west line of the lands conveyed to Ted B. Wright by Ferdinand Wallace Langer, et al., by deed recorded February 18, 1957, on Page 68 of Book 391, Deed Records of said county, said point being S 5° 28' E along said line a distance of 114.13 feet from an iron pin at the most westerly northwest corner of said Wright lands; THENCE, from said beginning point, over, under and across the lands of the grantor, N 50° 36' 20" W, 25 feet from and parallel to the southerly boundary of that certain easement for transmission line granted to the U.S.A. by recorded instrument dated May 19, 1957, a distance of 621.20 feet to a point on the south line of S. W. Rock Creek Road (County Road No. 1070) said last mentioned point being east 395.67 feet along said south line from an iron pin at the northwest corner of the aforementioned described lands of the grantor. Said center line is shown colored red on the map attached hereto, which by reference thereto is made a part hereof.

No transmission line structures shall be located on the easement and right-of-way area west of the grantor's private access road which adjoins the west line of the Dorothy Grooman property.

TO HAVE AND TO HOLD the above described easement and right of way unto the Grantee, its successors and assigns, together with the present and future right to top, limb or fell all growing and dead trees and snags (said trees and snags hereinafter collectively called "danger trees") located on land owned by the Grantors, adjacent to the above described right of way, which danger trees will be determined by the Grantee. The consideration paid for this easement includes the value of all trees on the right of way and all danger trees adjacent to said right of way. The Grantee shall pay the person who is the owner of future danger trees at the date of their cutting (in addition to the purchase price herein agreed to) the market value of said future danger trees at the date of their cutting under authority of the Grantee, such payment to be made within a reasonable period of time after they have been so cut.

Said easement and right of way shall be for the following purposes, namely: the perpetual right to enter upon and to erect, maintain, repair, rebuild, operate and patrol one line(s) of electric power transmission structures and appurtenant signal lines, including the right to erect such poles, towers, transmission structures, wires, cables, guys, supports and appurtenances as are necessary thereto, together with the present and future right to clear said right of way and keep the same clear of brush, timber, structures and fire hazards, provided that fire hazards shall not be interpreted to include any growing crops other than trees.

It is hereby agreed by the Grantors that, (1) title to all brush, timber, or structures existing upon the right of way and to all present danger trees shall vest immediately in the Grantee; (2) all future danger trees cut pursuant to the terms hereof shall remain the property of the owner thereof on the date of their cutting.

The Grantors hereby acknowledge that the purchase price named herein is accepted by the Grantors as full compensation for all damages incidental to the exercise of any of said easements, loss of growing crops on right of way during construction, for guys and anchors extending beyond the right of way and danger trees rights, except payment for any additional danger trees as defined hereinabove which may be cut under authority of the Grantee as provided hereinabove.

If the Grantee, its successors and assigns, shall fail to use said right of way for the purposes above mentioned for a continuous period of five years after construction of said power lines, then and in that event this right of way and easement shall terminate and all rights and privileges granted hereunder shall revert to the Grantors, their heirs and assigns.

The Grantors hereby warrant that they are possessed of a marketable title to the property covered by this easement, and have the right to grant the same.

The Grantors, for themselves and their heirs and assigns, covenant to and with the Grantee, its successors and assigns, that the Grantee, its successors and assigns, shall peaceably enjoy the rights and privileges herein granted.

IN WITNESS WHEREOF, the Grantors have caused this easement to be executed this 18 day of

March 1957

Ferdinand Wallace Langer (SEAL)

Leola May Langer (SEAL)

(SEAL)

(SEAL)

BOOK 415 PAGE 622

6884-2

BOOK 415 PAGE 623

STATE OF OREGON,

County of Washington

On this 18 day of March 1957, before me, the undersigned, a Notary Public in and for said County and State, personally appeared Ferdinand Wallace Spence and Yvonne May Lencer

whom I know to be the individuals described in and who executed the same freely and voluntarily for the purposes and uses aforementioned.

In testimony whereof, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.

My commission expires: My Commission Expires Aug. 7, 1962
Notary Public for Oregon
Samuel P. King

STATE OF OREGON,

County of _____

On this _____ day of _____, 19____, before me, the undersigned, a Notary Public in and for said County and State, personally appeared _____

to me known to be the individuals described in and who executed the same freely and voluntarily for the purposes and uses aforementioned.

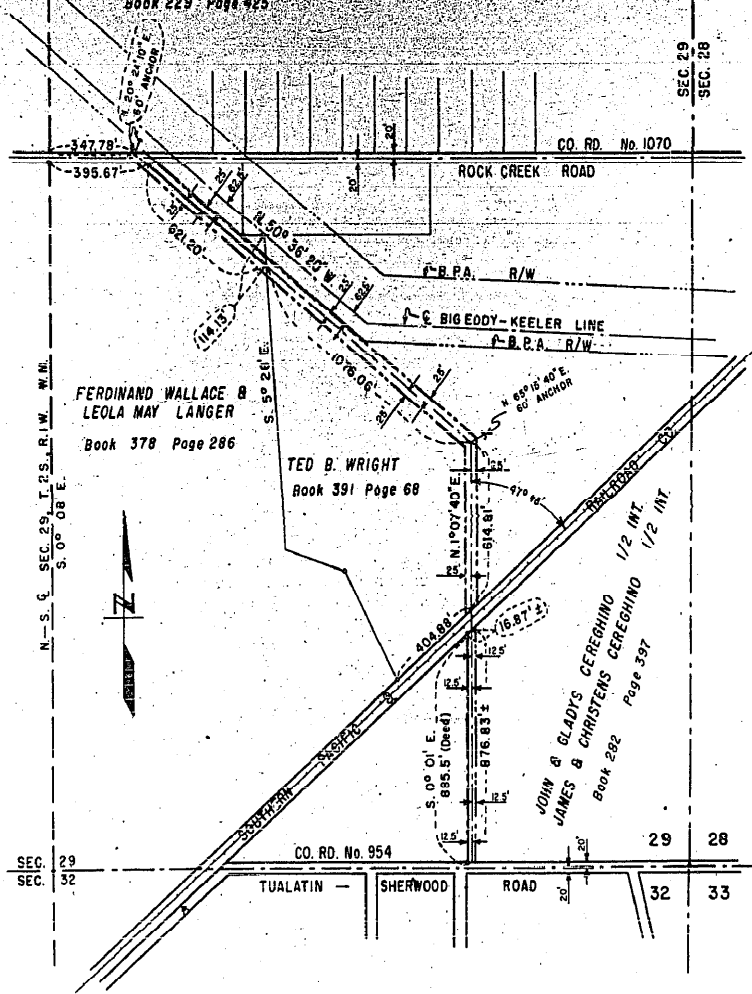
IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.

My commission expires: _____
Notary Public for Oregon

BOOK 415 PAGE 623

6884-3

WILLIAM A. EDNA OLDBERG
Book 229 Page 425



• Denotes Iron Pipe or Rod Found

Filed for record *March 24 1959* ¹⁵ ₄₋₁₁ P. M.
 LOREN THOMSEN, County Clerk
 By *Dupberg Hansen* Deputy

BOOK 415 PAGE 624

PORTLAND GENERAL ELECTRIC CO.
PORTLAND, OREGON

TO ACCOMPANY TRANSMISSION LINE EASEMENT
OREGON CITY TO SIX CORNERS
CEREGHINO, WRIGHT, LANGER & OLDENBERG
SEC. 29, T. 2 S., R. 1 W., W. 4 E., W. 4 S. CO.

SCALE 1" = 400' DATE 2-3-59
 DRAWN BY _____ TRACKED BY _____ CHECKED _____
 R. W. S. _____
 APPROVED _____ APPROVED _____
 DRG. NO. EB 4071

9902 ANCHOR EASEMENT

KNOW ALL MEN BY THESE PRESENTS, That FERDINAND WALLACE LANGER and LEOLA MAY LANGER, husband and wife

(hereinafter called "the Grantors" whether one or more than one), for and in consideration of the payment of the sum of Ten and no/100ths Dollars (\$10.00), the receipt of which is hereby acknowledged, do hereby grant, sell and convey to Portland General Electric Company, an Oregon Corporation, hereinafter called the Grantee, its successors and assigns,

perpetual easement over, under, upon and across the following described parcel of land situated in Washington

County, State of Oregon, being a strip of land six (6) feet in width, extending three (3) feet on each side of a center

line more particularly described as follows:

Beginning at a point on the south line of S. W. Rock Creek Road, said point being east 655.0 feet from the west line of the southeast quarter of Sec. 29, T. 2S., R. 1W., W. M.; running thence S. 7° 38' E. 40 feet.

Said easement shall be for the perpetual right to install, maintain, extend and locate anchor and guy wire over, under, upon and across the above described land of the Grantors to support electric power transmission line structures, poles, and towers.

The Grantors hereby acknowledge that the purchase price named herein is accepted by the Grantors as full compensation for all damages incidental to the exercise of said easement, namely for guy and anchor extending over, under, upon and across the land of the Grantors.

If the Grantee, its successors and assigns shall fail to use said easement for the purpose above mentioned for a continuous period of five years after the construction of said power transmission facilities, then and in that event, this easement shall terminate and all rights and privileges granted hereinunder shall revert to the Grantors, their heirs and assigns.

The Grantors hereby warrant that they are possessed of a marketable title to the property covered by this easement and have the right to grant the same.

The Grantors for themselves and their heirs and assigns, covenant to and with the Grantee, its successors and assigns, that the Grantee, its successors and assigns shall peaceably enjoy the rights and privileges herein granted.

IN WITNESS WHEREOF, the Grantors have caused this easement to be executed this 22nd day of July, 1970

Ferdinand Wallace Langer (SEAL)
Leola May Langer (SEAL)
(SEAL)
(SEAL)

STATE OF OREGON
County of Washington ss.

On this 22 day of July, 1970, before me, the undersigned, Notary Public in and for said County and State, personally appeared Ferdinand Wallace Langer and Leola May Langer

to me known to be the individuals described in the foregoing instrument and who executed the foregoing instrument, and acknowledged that they executed the same freely and voluntarily.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.



Notary Public for Oregon

My commission expires April 8, 1974
BOOK 791 PAGE 149

Filed for record SEP 2 1970 at 8:57 AM
ROGER THOMSSON, Director of Records & Statistics
Deputy

9-11-445
7-11-1960

7701

ANCHOR EASEMENT

KNOW ALL MEN BY THESE PRESENTS, That FERDINAND WALLACE LANGER AND

LEOLA MAY LANGER, husband and wife
(hereinafter called "the Grantors" whether one or more than one), for and in consideration of the payment of the sum of Ten and no/100ths Dollars (\$10.00), the receipt of which is hereby acknowledged, do hereby grant, sell and convey to Portland General Electric Company, an Oregon Corporation, hereinafter called the Grantee, its successors and assigns,

perpetual easement over, under, upon and across the following described parcel of land situated in Washington County, State of Oregon, being a strip of land six (6) feet in width, extending three (3) feet on each side of a center line more particularly described as follows:

Beginning at a point in the South line of EDY ROAD, in the Southeast one-quarter of Section 29, Township 2 South, Range 1 East, Willamette Meridian, said point being East, along said South line, 393 feet from the West line of said Southeast one-quarter; Running thence South 7° 02' East 40 feet.

This anchor is to be placed the same distance South of EDY ROAD (Rock Creek Road) as the existing anchor approximately 260 feet East of this location and for which an easement for said existing anchor was granted on the 22nd day of July 1970.

Said easement shall be for the perpetual right to install, maintain, extend and locate anchor and and guy wire and over, under, upon and across the above described land of the Grantors to support electric power transmission line structures, poles, and towers.

The Grantors hereby acknowledge that the purchase price named herein is accepted by the Grantors as full compensation for all damages incidental to the exercise of said easement, namely for guy and and anchor and extending over, under, upon and across the land of the Grantors.

If the Grantee, its successors and assigns shall fail to use said easement for the purpose above mentioned for a continuous period of five years after the construction of said power transmission facilities, then and in that event, this easement shall terminate and all rights and privileges granted hereinafter shall revert to the Grantors, their heirs and assigns.

The Grantors hereby warrant that they are possessed of a marketable title to the property covered by this easement and have the right to grant the same.

The Grantors for themselves and their heirs and assigns, covenant to and with the Grantee, its successors and assigns, that the Grantee, its successors and assigns shall peaceably enjoy the rights and privileges herein granted.

IN WITNESS WHEREOF, the Grantors have caused this easement to be executed this 25 day

of April, 1974.

Ferdinand Wallace Langer (SEAL)

Leola May Langer (SEAL)

(SEAL)

(SEAL)



STATE OF OREGON

County of Washington

INDEXED

Filed for record 4-7 1974 at 1:54 P.M.

ROGER THOMSEN, Director of Records & Elections

By A. Clinton Deputy

On this 25 day of April, 1974, before me, the undersigned, Notary Public in and for said

County and State, personally appeared Ferdinand Wallace Langer and Leola May Langer

to me known to be the individuals described in the foregoing instrument and who executed the foregoing instrument, and acknowledged that they executed the same freely and voluntarily.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.

Roger P. Thomsen
Notary Public for Oregon

My commission expires April 18, 1978

BOOK 999 PAGE 746



00879985200501558500040043

I, Jerry Hanson, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.



Jerry R. Hanson, Director of Assessment and Taxation, Ex-Officio County Clerk

20 After Recording Return to:
6
11
C Portland General Electric Co
ATTN: Property Services
121 SW Salmon St 1WTC-04
Portland, OR 97204

ANCHOR EASEMENT

11300.00

KNOW ALL MEN BY THESE PRESENTS, That.....FERDINAND WALLACE LANGER AND.....

LEOLA MAY LANGER, husband and wife

(hereinafter called "the Grantors" whether one or more than one), for and in consideration of the payment of the sum of Ten and no/100ths Dollars (\$10.00), the receipt of which is hereby acknowledged, do hereby grant, sell and convey to Portland General Electric Company, an Oregon Corporation, hereinafter called the Grantee, its successors and assigns,

perpetual easement over, under, upon and across the following described parcel of land situated in Washington.....

County, State of Oregon, being a strip of land six (6) feet in width, extending three (3) feet on each side of a center

line more particularly described as follows:

Beginning at a point in the South line of EDY ROAD, in ^{West} the Southeast one-quarter of Section 29, Township 2 South, Range 1 ~~East~~, Willamette Meridian, said point being East, along said South line, 393 feet from the West line of said Southeast one-quarter; Running thence South 7° 02' East 40 feet.

This anchor is to be placed the same distance South of EDY ROAD (Rock Creek Road) as the existing anchor approximately 260 feet East of this location and for which an easement for said existing anchor was granted on the 22nd day of July 1970.

*Re-recorded to correct description (RANGE)
PREVIOUSLY RECORDED AS BOOK 999 PAGE 746*

Said easement shall be for the perpetual right to install, maintain, extend and locate anchor^S... and guy wire^S... over, under, upon and across the above described land of the Grantors to support electric power transmission line structures, poles, and towers.

The Grantors hereby acknowledge that the purchase price named herein is accepted by the Grantors as full compensation for all damages incidental to the exercise of said easement, namely for guy^S... and anchor^S... extending over, under, upon and across the land of the Grantors.

If the Grantee, its successors and assigns shall fail to use said easement for the purpose above mentioned for a continuous period of five years after the construction of said power transmission facilities, then and in that event, this easement shall terminate and all rights and privileges granted hereinunder shall revert to the Grantors, their heirs and assigns.

The Grantors hereby warrant that they are possessed of a marketable title to the property covered by this easement and have the right to grant the same.

The Grantors for themselves and their heirs and assigns, covenant to and with the Grantee, its successors and assigns, that the Grantee, its successors and assigns shall peaceably enjoy the rights and privileges herein granted.

IN WITNESS WHEREOF, the Grantors have caused this easement to be executed this 25.....day of April....., 1974....



Ferdinand Wallace Langer (SEAL)

Leola M. Langer (SEAL)

..... (SEAL)

..... (SEAL)

INDEXED
Filed for record 11-7 1974 at 2:34 P.M.
ROGER THOMSEN, Director of Records & Elections
By: A. Claitor Deputy

STATE OF OREGON
County of Washington

} ss.

On this 25 day of April, 1974, before me, the undersigned, Notary Public in and for said

County and State, personally appeared Ferdinand Wallace Langer and Leola May Langer

to me known to be the individuals described in the foregoing instrument and who executed the foregoing instrument, and acknowledged that they executed the same freely and voluntarily.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.

Roger P. Shap
Notary Public for Oregon

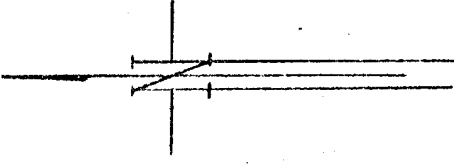
My commission expires April 18, 1978



BOOK 999 PAGE 746



2005-155850



SEC 29, T2S, R11W, 1/4M

FEDT ROAD

(50)

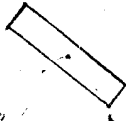
262.75

BPA

BPA
PGE

R/W

PGE
R/W



392

392

20

21.7

322.2

BLM
MAD 74



2005-155850

0652-009-3
18005204



5000077283

Portland General Electric Co.
621 S. W. Alder St.
Portland, Oregon 97205
c/o Permit Section

204

AUDIT NO. 28300
 DATE APR 25, 1974
 NAME LINSEER, FERDINAND
 LOCATION WALLACE AND 1604 MAY
 SECTION 29 T. 25 R. 14
 COUNTY WASHINGTON
 DOCUMENT COVERS AVC. EQUIT.
 RENTAL _____
 EXPIRES _____

(28300)

7701

INDEXED *duke*
 STATE OF OREGON }
 County of Washington } ss
 I, Roger Thomssen, Director of Records and Elections and Ex-Officio Recorder of Conveyances for said county, do hereby certify that the within instrument of writing was received and recorded in book of records No. _____ of said County.
 Witness my hand and seal affixed.
 ROGER THOMSEN, Director of Records & Elections
R. Thomssen
 Deputy
 Nov 7 2 54 PM '74

CHICAGO (W)

264458

500014664 CE

Washington County, Oregon 2004-069104
06/17/2004 04:25:24 PM
D-E Cnt=1 Stn=4 A DUYCK
\$25.00 \$6.00 \$11.00 - Total = \$42.00



00603024200400691040050054

I, Jerry Hanson, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Jerry Hanson

Jerry R. Hanson, Director of Assessment and Taxation, Ex-Officio County Clerk



EASEMENT

DATED: June 16, 2004

AFTER RECORDING RETURN TO:

City of Sherwood
Engineering Division
400 SE Willamette St.
Sherwood, OR. 97140

BETWEEN:

Grantor:
Langer Family, LLC
15585 SW Tualatin Sherwood Rd
Sherwood, OR 97140

Grantee:
City of Sherwood
20 NW Washington St.
Sherwood, OR. 97140

KNOW ALL MEN BY THESE PRESENTS, that LANGER FAMILY, LLC, an Oregon limited liability company, hereinafter referred to as "Grantor", for the consideration hereinafter stated, does grant unto the CITY OF SHERWOOD, a municipal corporation, hereinafter referred to as "Grantee", a permanent public utility easement (the "Easement") under, through, across and along the full width and length of the premises described as follows, to wit:

1. Legal description is set forth in EXHIBIT "A", Page 1 attached hereto, and incorporated by reference herein.
2. A map of the above legal description is set forth in EXHIBIT "B", Page 2 and incorporated by reference herein.

This easement is granted for the purpose of constructing, installing, reconstructing, enlarging, repairing, operating and maintaining utility improvements and facilities.

The true and actual consideration paid for this transfer, stated in terms of dollars is \$0.00.

TO HAVE AND TO HOLD the above described Easement unto said Grantee in accordance with the conditions and covenants as follows:

1. The Easement shall include the right, privilege, and authority, to Grantee, to excavate for, and to construct, install, reconstruct, enlarge, repair, operate, and maintain utility improvements and facilities, with all appurtenances incident thereto or necessary therewith, across the Easement, and to cut and remove from said right-of-way any vegetation and other obstructions which may endanger the safety or interfere with the use of said utility



improvements, facilities and appurtenances attached to or connected therewith. No building shall be constructed over the easement right-of-way.

2. Grantee, its agents, assigns and contractors will indemnify and hold harmless the Grantor, its successors and/or assigns from claims for injury to person or property as a result of the negligence of the Grantee, its agents or employees in the construction, operation, or maintenance of said Easement.
3. The Grantee, upon the initial installation, and upon each and every occasion that the same be repaired, replaced, renewed, enlarged, or removed, shall restore the Easement, and any improvements disturbed by the Grantee, to as good condition as they were prior to any such-work, including, but not limited to, the restoration of any asphalt, concrete, base, curbing, topsoil, lawn and nursery stock of like kind and quality subject to reasonable substitution as may be necessitated by obstruction of interference with the use granted herein. Grantee, its agents, assigns and contractors shall perform such work in a timely manner.
4. Grantor may, at its option and expense, relocate the Easement and associated utility improvements, facilities and appurtenances and titles, provided such relocation is accepted by Grantee as complying with applicable codes and standards, land use laws and regulations.
5. Grantor reserves the right to use the easement to construct driveways, paving, landscaping, and fill, provided that Grantor shall not construct or maintain any building or structure which would interfere with the rights herein granted. Any above ground utility equipment appurtenance shall be positioned in a location approved by Grantor.

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FREE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LOSS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930.

IN WITNESS WHEREOF, the undersigned grantor has executed this easement this 11 day of 6, 2004.

GRANTOR:

LANGER FAMILY, LLC,
an Oregon limited liability company

By: *Clarence Langer*
Managing Member



STATE OF OREGON)
)ss
County of Washington)

On this 11 day of June 2004, before me, a notary public in and for said County and State, personally appeared Clarence Langer known to me to be their person whose names subscribed to the within instrument and acknowledged that they executed the same for the purposes therein contained.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal on the day and year above written.

Kristin Farrell
NOTARY PUBLIC FOR OREGON
My Commission Expires: May 19, 2006



GRANTEE:

Accepted on behalf of The City of Sherwood.

This 16th day June of, 2004.

Terry Keyes
Terry Keyes/City Engineer

Ross E. Schultz
Ross Schultz/City Manager

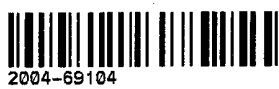


EXHIBIT "A"

JUNE 08, 2004
SHEET 1 OF 1
PUBLIC UTILITY EASEMENT

AN 8.00 FOOT WIDE STRIP OF LAND BEING A PORTION OF THAT CERTAIN TRACT OF LAND CONVEYED TO LANGER FAMILY LLC, AN OREGON LIMITED LIABILITY COMPANY, RECORDED MARCH 24, 2004 AS DOCUMENT NO. 2003-044212, WASHINGTON COUNTY DEED RECORDS, LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 29, TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID "LANGER" TRACT, SAID POINT ALSO BEING AT THE INTERSECTION OF THE SOUTH RIGHT-OF-WAY LINE OF SW TUALATIN-SHERWOOD ROAD (37.00 FEET FROM THE CENTERLINE THEREOF, MEASURED PERPENDICULAR THERETO), AND THE EAST RIGHT-OF-WAY LINE OF SW ADAMS AVENUE (VARIABLE WIDTH), AS DEDICATED IN THE PLAT OF "LANGER MARKETPLACE", RECORDED AS DOCUMENT NO. 2004005052, WASHINGTON COUNTY PLAT RECORDS; THENCE LEAVING SAID SOUTH RIGHT-OF-WAY LINE ALONG SAID EAST RIGHT-OF-WAY LINE SOUTH 01°47'42" WEST, 12.00 FEET TO AN ANGLE POINT IN SAID EAST RIGHT-OF-WAY LINE; THENCE CONTINUING ALONG SAID EAST RIGHT-OF-WAY LINE SOUTH 45°43'36" WEST, 11.11 FEET TO THE TRUE POINT OF BEGINNING; THENCE LEAVING SAID EAST RIGHT-OF-WAY LINE, 20.00 FEET DISTANT AND PARALLEL WITH SAID SOUTH RIGHT-OF-WAY LINE OF SOUTHWEST TUALATIN-SHERWOOD ROAD SOUTH 88°12'18" EAST, 211.18 FEET TO A POINT OF CURVATURE; THENCE ALONG THE ARC OF A 4057.00 FOOT RADIUS CURVE CONCAVE TO THE NORTH THROUGH A CENTRAL ANGLE OF 01°58'36" (THE CHORD OF WHICH BEARS SOUTH 89°11'36" EAST, 139.96 FEET) AN ARC DISTANCE OF 139.97 FEET TO A POINT OF NON-TANGENCY, SAID POINT BEING ON THE WESTERLY LINE OF A BONNEVILLE POWER ADMINISTRATION EASEMENT RECORDED MARCH 24, 1959 IN DEED BOOK 415, PAGE 622, WASHINGTON COUNTY DEED RECORDS; THENCE ALONG SAID WESTERLY LINE SOUTH 52°18'35" EAST, 13.01 FEET TO A POINT OF CUSP; THENCE LEAVING SAID WESTERLY LINE, 28.00 FEET DISTANT AND PARALLEL WITH SAID SOUTH RIGHT-OF-WAY LINE, ALONG THE ARC OF A 4065.00 FOOT RADIUS CURVE CONCAVE TO THE NORTH THROUGH A CENTRAL ANGLE OF 02°07'17" (THE CHORD OF WHICH BEARS NORTH 89°15'56" WEST, 150.51 FEET) AN ARC DISTANCE OF 150.52 FEET TO A POINT OF TANGENCY; THENCE NORTH 88°12'18" WEST, 218.89 FEET TO A POINT ON SAID EAST RIGHT-OF-WAY LINE OF SOUTHWEST ADAMS AVENUE (VARIABLE WIDTH); THENCE ALONG SAID EAST RIGHT-OF-WAY LINE NORTH 45°43'36" EAST, 11.11 FEET TO THE TRUE POINT OF BEGINNING.

CONTAINS 2,882 SQUARE FEET OR 0.066 ACRES, MORE OR LESS.

**REGISTERED
PROFESSIONAL
LAND SURVEYOR**

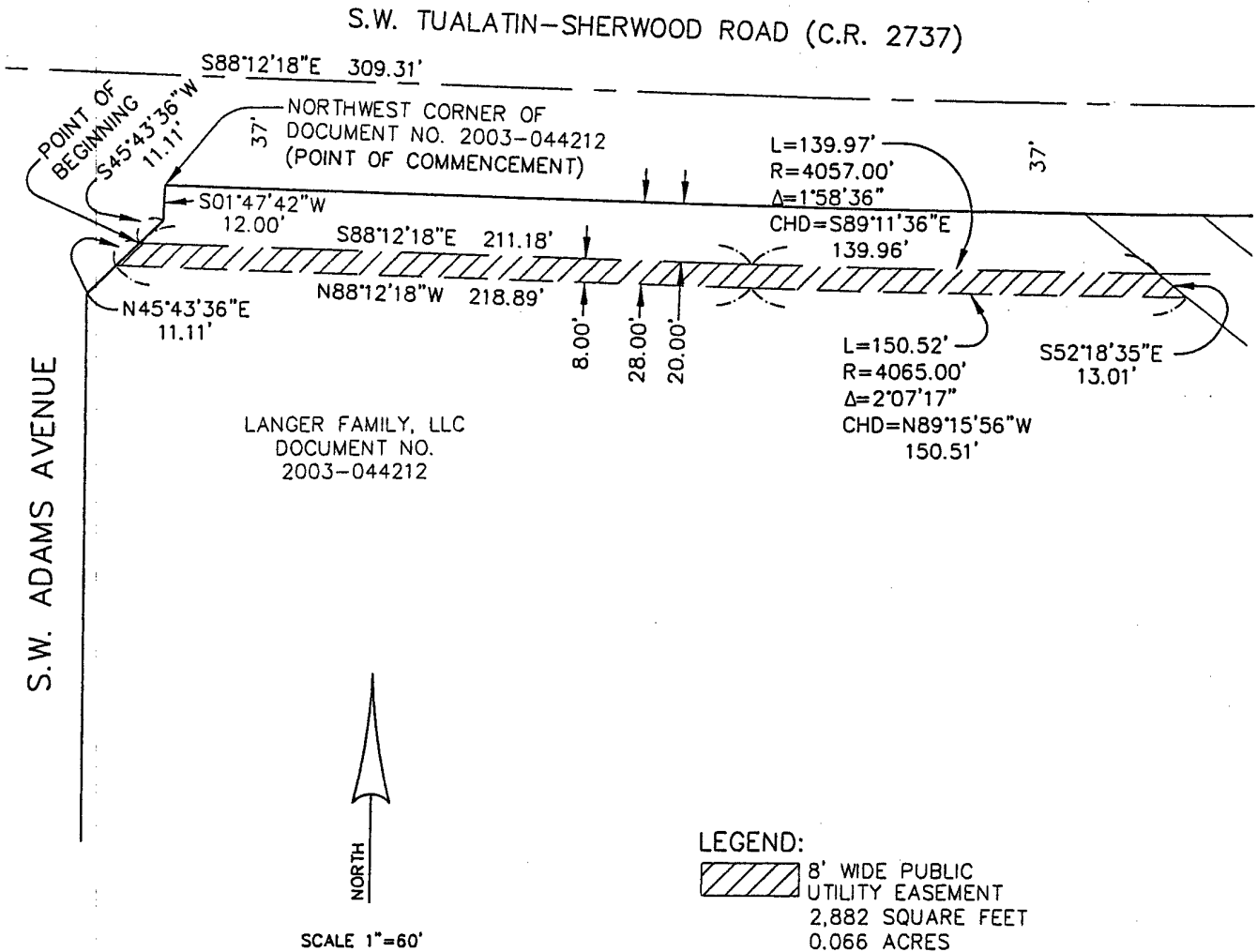
OREGON
NOV. 18, 1998
MICHAEL D. FRANK
53854


RENEWAL: 12/31/05



EXHIBIT MAP

FOR AN 8' WIDE PUBLIC UTILITY EASEMENT
LOCATED IN THE SOUTHEAST 1/4 OF SECTION 29 TOWNSHIP 2
SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN CITY OF
SHERWOOD WASHINGTON COUNTY, OREGON
JUNE 8, 2004



LEGEND:
 8' WIDE PUBLIC UTILITY EASEMENT
 2,882 SQUARE FEET
 0.066 ACRES

SCALE 1"=60'

W R G
DESIGN INC.

5415 SW Westgate Dr, Ste 100 Portland, OR 97221
Tel. 503.419.2500 Fax. 503.419.2600

PLANNERS • ENGINEERS • LANDSCAPE ARCHITECTS • SURVEYORS

EXHIBIT "B" PUBLIC UTILITY EASEMENT

CITY OF SHERWOOD, STATE OF OREGON

PROJECT NO. TAR2947
DATE: 06/08/04
BY: MF
SCALE: 1"=60'
SHEET NO. 1 OF 1

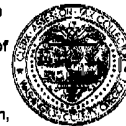


00615961200400786810140140

I, Jerry Hanson, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Jerry Hanson

Jerry R. Hanson, Director of Assessment and Taxation, Ex-Officio County Clerk



70
16000
50000

After Recording Return to:

City Engineer
City of Sherwood
400 SE Willamette Street
Sherwood, OR 97140

Until requested otherwise, send
all tax statements to:

Target Corporation
1000 Nicollet Mall
Minneapolis, MN 55403
Attn: Property Administration

Chicago Title 271471

SPACE RESERVED FOR
RECORDER'S USE

**STORMWATER EASEMENT
AND MAINTENANCE COVENANT**

THIS STORMWATER EASEMENT AND MAINTENANCE COVENANT ("Agreement") is made on the last day signed below between Langer Family, LLC, an Oregon corporation ("Grantor"), Target Corporation, a Minnesota corporation ("Grantee") and the CITY OF SHERWOOD, a municipal corporation of the State of Oregon (the "City").

RECITALS

A. Grantor is the holder of title to certain real property located in the City of Sherwood, Washington County, Oregon, legally described on Exhibit A attached hereto ("Serviant Estate").

B. Grantee is the holder of title to certain real property adjacent to the Serviant Estate in the City of Sherwood, Washington County, Oregon legally described in Exhibit B attached hereto ("Dominant Estate").

C. City Council for the City of Sherwood approved with conditions the modifications to the site plan for development of the Dominant Estate commonly referred to as Langer Marketplace ("Development") on November 12, 2002. File No. SP 00-22.

D. The City Engineer for the City of Sherwood approved construction plans submitted for the Development as provided by the City Engineer dated September 16, 2003.



The Development contains off-site stormwater facilities (as described in the approved construction plans) that, together with any other stormwater facilities that may hereafter be constructed for the Development, are the "Stormwater Facilities". Stormwater Facilities subject to this agreement include all off-site improvements located on the Servient Estate such as the storm water facility and all appurtenances thereto as provided in the approved construction plans and as may be required for long-term operation and maintenance of the Stormwater Facilities.

E. To provide adequate Stormwater Facilities to serve the Development, the City pursuant to condition #7 of the Development approval required an easement from the Grantor to the Grantee as a condition of approval.

AGREEMENT

NOW, THEREFORE, in consideration of the granting of land use approvals and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Grantor, Grantee and the City of Sherwood agree as follows:

1. **Easement.** Grantor, its heirs, successors, and assigns hereby does bargain, sell, grant, convey, transfer and deliver unto Grantee for the benefit of the Dominant Estate a permanent non-exclusive stormwater easement including the perpetual right to enter upon the real estate hereinafter described as the Easement Area at any time that Grantee or its agents may see fit for the following purposes:

Said easement shall be for the purpose of constructing, installing, operating, maintaining, and upgrading within, through and under said easement areas underground storm sewer pipelines and facilities and surface storm drainage facilities to convey, transport, retain and filtrate storm water drainage flows and ground water inflows over, across, through, within and under the land herein described together with the right to excavate and refill ditches, trenches, and areas for the location of said storm sewer/drainage pipelines and facilities with the further right to remove trees, bushes, grasses, undergrowth, soils or other obstructions interfering with the location, operation, maintenance and upgrade of said storm sewer/drainage pipelines and facilities which may be located in the hereinafter described easement area.

Grantor, its heirs, successors, and assigns further grants to the City, its employees, independent contractors and designees a nonexclusive easement for egress over, across, and under the Easement Area for the purposes described in Section 3 below at reasonable times at the City's sole discretion to inspect, clean, repair, sample, and/or monitor components of the Stormwater Facilities and discharges therefrom. Grantor may specify and relocate from time to time an access location for easement purposes in the Stormwater Facilities Maintenance Plan provided in Section 3.

From time to time, Grantor (with prior notice to the Grantee) may expand the Stormwater Facilities to provide additional capacity for development of the Servient Estate and other

properties consistent with any applicable state and local rules, regulations, and guidelines, including but not limited to those adopted from time to time by the City Council for the City of Sherwood and the Clean Water Services Design and Construction Standards and as approved by the City provided such improvement does not interfere with the use and enjoyment of the easement area for the purposes articulated herein. Any such expansion shall be constructed at Grantor's sole cost and expense, and shall not adversely affect the ability of the Stormwater Facilities to service the Dominant Estate. Following any such expansion, Grantor (and its heirs, successors and assigns) shall pay to Grantee, promptly upon demand, Grantor's proportionate share of maintenance expenses for the expanded Stormwater Facilities incurred by Grantee pursuant to paragraph 3 hereof, and shall confirm its agreement to pay such amount in a recordable instrument. Grantor's proportionate share of maintenance costs shall be determined based upon the total acreage of property being served by the Stormwater Facility.

2. **Easement Area.** The land affected by the grant of this easement and right-of-way is located in the County of Washington, City of Sherwood, State of Oregon and is more particularly described in Exhibit C (referred to herein as "Easement Area").

3. **Covenant to Maintain and Repair.** At Grantee's sole expense, Grantee or Grantee's qualified independent contractors as approved by the City shall at all times maintain the Stormwater Facilities in good working order, condition and repair, clear of all debris, and in compliance with all applicable state and local rules, regulations, and guidelines, including but not limited to those adopted from time to time by the City Council for the City of Sherwood and the Clean Water Services Design and Construction Standards. In general, maintenance may consist of cleaning, repairing, replacing, and removing contaminated soil, removing sediment that reduces detention/retention basin capacity, providing erosion correction and prevention on detention/retention basin side slopes, and replacing biofiltration materials to return Stormwater Facilities to their original condition and standards. In addition, Grantee shall meet the specific provisions of the Stormwater Facilities Maintenance Plan, attached as Exhibit D. Grantee shall notify the City Engineer in writing of the person responsible for compliance with Grantee's obligations under this covenant. Grantee's designee shall have the authority to bind Grantee, its successors and assigns with respect to matters described in this Agreement.

4. **Failure to Perform Covenant.** If the City determines that Grantee is not in compliance with the covenant described in Section 3, except in case of emergency, the City or its designee shall give Grantee's designee written notice to perform the maintenance and/or repair work specified in the notice. If Grantee does not respond to the notice by either a) performing the maintenance or repairs as required within thirty (30) days of such notice, or b) by providing information satisfactory to the City that the maintenance or repair is being undertaken in good faith, then the City may enter the Easement Area to perform the necessary work. Grantor hereby grants the City, its employees, independent contractors and designees the right to enter the Easement Area to perform any and all work required to bring the Stormwater Facilities into compliance with Section 3.



If the City determines that Grantee is not in compliance with the covenant in Section 3 and determines that there exists or will likely exist an emergency on or about the Easement Area with respect to the Stormwater Facilities, Grantor hereby grants to the City, its employees, independent contractors and designees the right to enter the Easement Area to perform any and all work required to bring the Stormwater Facilities into compliance with Section 3, and in such case the City shall use reasonable efforts to notify the Grantee designee prior to entering the Easement Area. Notwithstanding the above, the work performed shall consist only of cleaning and repairing the Stormwater Facilities to their original condition and standards.

5. **Limitation of Duty.** Grantor and Grantee, for itself and its successors and assigns, agrees that the City, its employees, independent contractors and/or designees shall not have any obligation to exercise Grantee's rights and duties under Section 3 of this agreement or to perform any maintenance or repair of the Stormwater Facilities. The City shall not have any responsibility to Grantor or any of Grantor's successors or assigns (including owners of lots on the Servient Estate) or to Grantee or Grantee's successors or assigns (including owners of lots on the Dominant Estate) in connection with the exercise or non-exercise of such rights or duties, the maintenance or repair of the Stormwater Facilities, or the failure to perform the same.

6. **Reimbursement.** If the City exercises its right to enter the Easement Area pursuant to Section 4, including but not limited to the purposes of inspection, cleaning, repairing, sampling, and/or monitoring, Grantee its heirs, successors or assigns shall reimburse the City for all of its costs and expenses incurred in connection therewith within thirty (30) days after receipt of an invoice with any supporting documentation. If Grantee its heirs, successors or assigns fails to pay the invoiced amount within such period, such amount shall thereafter accrue interest at a per annum rate equal to the prime rate of U.S. Bank (or its successor) plus five percent (5%). Such amount, together with interest, shall be a lien on the Dominant Estate (and each of the lots contained therein if any) which may be foreclosed in accordance with ORS Chapter 88. If the Dominant Estate is owned by more than one person (i.e. multiple lot owners), each such owner shall be jointly and severally liable for payment of the amounts provided for in this Section.

7. **Indemnification.** Grantee agrees to indemnify, defend, and hold the City, its employees, independent contractors and designees harmless from and against any liability, losses, costs, and expenses, including reasonable attorney fees, from claims or suits arising from Grantee's failure to perform its obligations under this Agreement, or arising under the exercise of the City's use of the easement under Section 4 by the City, its employees, independent contractors or designees. This duty to indemnify and hold the City harmless does not extend to any claims or suits arising from or caused by City's negligence or willful act or omission.

8. **Runs with the Land.** The parties' rights and obligations contained herein shall run with the land. This easement and covenant is intended to be a property interest that would benefit the Dominant Estate and transfer by operation of law to a subsequent



purchaser of Grantee's property or portion thereof and such easement and covenant shall encumber the Servient Estate and transfer by operation of law to a subsequent purchaser of Grantor's property.

9. **Attorney Fees.** If legal action is commenced in connection with this Agreement, the prevailing party in such action shall be entitled to recover its reasonable attorney fees and costs incurred in the trial court and in the appeal therefrom. The term "action" shall be deemed to include action commenced in the bankruptcy courts of the United States and any other court of general or limited jurisdiction.

10. **Assignment.** The obligations of Grantee shall run with and bind the owner from time to time of the Dominant Estate, and the City shall have the right to enforce such obligations against the owner from time to time of the Dominant Estate.

11. **Authority.** If Grantee is an entity, the individual executing the Agreement on behalf of the entity represents and warrants to the City and Grantor that he or she has the full power and authority to do so and that Grantee has full right and authority to enter into this Agreement and perform its obligations under this Agreement.

IN WITNESS WHEREOF, Grantor, Grantee and the City have executed this instrument on the 19 day of December, 2003.



GRANTOR:

Langer Family, LLC

By: Clarence Langer

Its: Manager

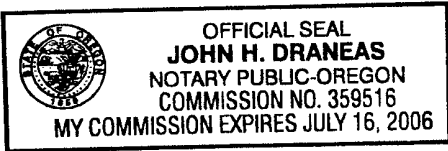
Date: 10-23-03

STATE OF OREGON)
County of Washington) ss

This instrument was acknowledged before me on the 23rd day of October, 2003, by Clarence D. Langer, Sr as Manager of Langer Family, LLC, an Oregon limited liability company, on behalf of the limited liability company.

[Signature]

Notary Public for Oregon
My Commission Expires: _____





GRANTEE

Target Corporation

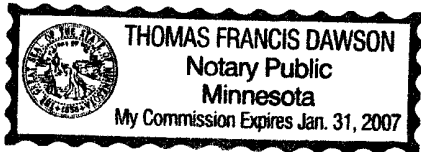
By: *Scott A. Nelson*

Its: Scott A. Nelson
Vice President
Target Stores

Date: 10/21/03

STATE OF MINNESOTA)
) ss
County of Hennepin)

This instrument was acknowledged before me on the 21st day of October, 2003, by Scott A. Nelson as Vice President of Target Corporation, a Minnesota corporation, on behalf of the corporation.



Thomas Francis Dawson
Notary Public for Oregon
My Commission Expires: 1/31/07

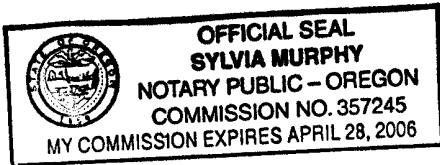


CITY OF SHERWOOD:

By: Wm E. Schultz
Its: City Manager
Date: 12-19-03

STATE OF OREGON)
) ss
County of Washington)

This instrument was acknowledged before me on the 19 day of December, 2003, by ~~Terry Keyes~~ as ~~City Engineer~~ of the City of Sherwood. ROSS Schultz Sr. City Manager Sr.



Sylvia Murphy
Notary Public for Oregon
My Commission Expires: 4.28.06

APPROVED AS TO FORM
this 1st day of December, 2003.

Jean Skelby, Beery + Elsner LLP
~~Christopher A. Gilmore, Assistant City Attorney~~
City of Sherwood, Oregon

APPROVED AS TO LEGAL DESCRIPTION
this 19th day of December, 2003.

Terry Keyes
Terry Keyes, P.E., City Engineer
City of Sherwood, Oregon

M1:1038920.05



Exhibit A

LEGAL DESCRIPTION – SERVIANT ESTATE

A TRACT OF LAND BEING A PORTION OF THAT TRACT DESCRIBED IN DEED TO LANGER FAMILY LLC, IN DEED DOCUMENT NO. 98094905, RECORDED AUGUST 27, 1998, WASHINGTON COUNTY DEED RECORDS, SITUATED IN THE SOUTH ONE-HALF OF SECTION 29 IN TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN AND LOCATED IN THE CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON, BEING DESCRIBED MORE SPECIFICALLY AS FOLLOWS:

ALL OF DEED DOCUMENT NO. 98094905, EXCEPTING THE FOLLOWING DESCRIBED TRACT:

BEGINNING AT THE MOST SOUTHERLY SOUTHEAST CORNER OF SAID PARTITION PLAT NO. 1996-009;

THENCE ALONG THE EAST LINE OF SAID PARCEL 3 OF PARTITION PLAT NO. 1996-009 NORTH 00°20'31" WEST, 1084.85 FEET TO THE NORTHEAST CORNER OF SAID PARCEL 3, ALSO BEING A POINT ON THE SOUTH RIGHT-OF-WAY LINE OF S.W. TUALATIN-SHERWOOD ROAD (C.R. 2737)(37.00 FEET FROM THE CENTERLINE THEREOF);

THENCE ALONG SAID SOUTH RIGHT-OF-WAY LINE SOUTH 88°12'18" EAST, 104.45 FEET TO A POINT;

THENCE LEAVING SAID RIGHT-OF-WAY LINE SOUTH 01°47'42" WEST, 12.00 FEET TO A POINT;

THENCE SOUTH 45°43'36" WEST, 36.01 FEET TO A POINT 78.00 FEET EASTERLY, WHEN MEASURED AT RIGHT ANGLES, FROM SAID EAST LINE OF PARCEL 3;

THENCE PARALLEL WITH SAID EAST LINE SOUTH 00°20'31" EAST, 665.35 FEET TO A POINT OF TANGENT CURVE;

THENCE ALONG A 692.00 FOOT RADIUS CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 13°30'55" (THE LONG CHORD OF WHICH BEARS SOUTH 06°24'57" WEST, 162.85 FEET), AN ARC DISTANCE OF 163.23 FEET TO A POINT OF REVERSE CURVATURE;

THENCE ALONG A 608.00 FOOT RADIUS CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 13°30'55" (THE LONG CHORD OF WHICH BEARS SOUTH 06°24'57" WEST, 143.09 FEET), AN ARC DISTANCE OF 143.42 FEET TO A POINT OF TANGENCY 42.00 FEET EASTERLY, WHEN MEASURED AT RIGHT ANGLES, FROM SAID EAST LINE OF PARCEL 3;

THENCE PARALLEL WITH SAID EAST LINE, OR THE SOUTHERLY PROJECTION THEREOF, SOUTH 00°20'31" EAST, 170.08 FEET TO A POINT;

THENCE LEAVING SAID PARALLEL LINE SOUTH 89°48'23" WEST, 42.00 FEET TO A POINT ON THE SOUTHERLY PROJECTION OF SAID EAST LINE;

THENCE ALONG SAID SOUTHERLY LINE PROJECTION NORTH 00°20'31" WEST, 95.16 FEET TO THE **POINT OF BEGINNING**.

CONTAINS 57.744 ACRES, MORE OR LESS.

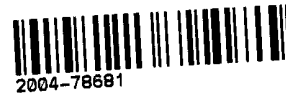


Exhibit B

LEGAL DESCRIPTION – DOMINANT ESTATE

A PORTION OF PARCEL 3 OF PARTITION PLAT NO. 1996-003, WASHINGTON COUNTY PLAT RECORDS, LOCATED IN THE SOUTHWEST ONE-QUARTER OF SECTION 29, TOWNSHIP 2 SOUTH, RANGE 1 WEST, OF THE WILLAMETTE MERIDIAN, CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY LINE OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 29, SAID POINT BEARS NORTH 00°20'31" WEST, 2570.62 FEET FROM A 2" BRASS DISK MARKING THE SOUTH ONE-QUARTER CORNER OF SAID SECTION 29; THENCE SOUTHERLY ALONG SAID EASTERLY LINE SOUTH 00°20'31" EAST, 670.13 FEET TO THE BEGINNING OF A TANGENT CURVE; THENCE LEAVING SAID EASTERLY LINE, ALONG THE ARC OF A 614.00 FOOT RADIUS CURVE CONCAVE WESTERLY, THROUGH A CENTRAL ANGLE OF 9°37'25", (THE LONG CHORD BEARS SOUTH 04°28'12" WEST, 103.01 FEET) AN ARC DISTANCE OF 103.13 FEET TO A POINT OF NON-TANGENCY; THENCE SOUTH 89°39'29" WEST, 743.99 FEET TO THE BEGINNING OF A NON-TANGENT CURVE; THENCE ALONG THE ARC OF A 225.00 FOOT RADIUS CURVE CONCAVE EASTERLY, THROUGH A CENTRAL ANGLE OF 2°24'26", (THE LONG CHORD BEARS NORTH 11°41'11" WEST, 9.45 FEET) AN ARC DISTANCE OF 9.45 FEET TO A POINT OF NON-TANGENCY; THENCE ALONG THE FOLLOWING COURSES: NORTH 38°39'22" EAST, 8.72 FEET; NORTH 00°20'31" WEST, 59.39 FEET; NORTH 45°20'31" WEST, 12.73 FEET; NORTH 00°20'31" WEST, 81.72 FEET; NORTH 01°34'02" EAST, 150.08 FEET; NORTH 00°20'31" WEST, 36.58 FEET; NORTH 44°39'29" EAST, 7.78 FEET; NORTH 00°20'31" WEST, 56.21 FEET; NORTH 45°20'31" WEST, 7.78 FEET; NORTH 00°20'31" WEST, 129.39 FEET; NORTH 29°39'29" EAST, 52.00 FEET; NORTH 00°20'31" WEST, 52.18 FEET; NORTH 25°06'43" WEST, 30.01 FEET TO THE BEGINNING OF A NON-TANGENT CURVE; THENCE ALONG THE ARC OF A 592.00 FOOT RADIUS CURVE CONCAVE EASTERLY, THROUGH A CENTRAL ANGLE OF 7°37'17", (THE LONG CHORD BEARS NORTH 11°14'00" EAST, 78.69 FEET) AN ARC DISTANCE OF 78.75 FEET TO A POINT OF TANGENCY; THENCE NORTH 15°02'39" EAST, 92.15 FEET; THENCE NORTH 34°07'52" EAST, 6.47 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF S.W. TUALATIN-SHERWOOD ROAD, BEING OF VARIABLE WIDTH FROM THE CENTERLINE THEREOF; THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE NORTH 89°49'02" EAST, 72.34 FEET TO THE BEGINNING OF A NON-TANGENT CURVE; THENCE LEAVING SAID SOUTHERLY RIGHT-OF-WAY LINE, ALONG THE ARC OF A 1749.00 FOOT RADIUS CURVE CONCAVE NORTHERLY, THROUGH A CENTRAL ANGLE OF 9°38'46", (THE LONG CHORD BEARS SOUTH 83°22'55" EAST, 294.10 FEET) AN ARC DISTANCE OF 294.45 FEET TO A POINT OF TANGENCY; THENCE SOUTH 88°12'18" EAST, 307.55 FEET; THENCE SOUTH 44°16'24" EAST, 34.69 FEET TO THE **POINT OF BEGINNING**.

CONTAINS 13.947 ACRES, MORE OR LESS.

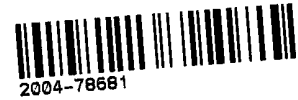


Exhibit C

LEGAL DESCRIPTION – EASEMENT AREA

A PORTION OF THAT TRACT OF LAND DESCRIBED IN DEED DOCUMENT NO. 2003-044212, RECORDED MARCH 24, 2003, WASHINGTON COUNTY DEED RECORDS, LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 29, TOWNSHIP 2 SOUTH, RANGE 1 WEST, OF THE WILLAMETTE MERIDIAN, CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND 2" BRASS DISK, MARKING THE SOUTH ONE-QUARTER CORNER OF SAID SECTION 29; THENCE NORTHERLY ALONG THE WEST LINE OF THE SOUTHEAST ONE-QUARTER OF SAID SECTION 29 NORTH 00°20'31" WEST, 2606.71 FEET TO THE SOUTHERLY RIGHT-OF-WAY LINE OF S.W. TUALATIN - SHERWOOD ROAD, BEING 37.00 FEET SOUTHERLY OF THE CENTERLINE THEREOF, WHEN MEASURED PERPENDICULAR THERETO; THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE SOUTH 88°12'18" EAST, 307.93 FEET TO THE BEGINNING OF A TANGENT CURVE; THENCE ALONG THE ARC OF A 4037.00 FOOT RADIUS CURVE CONCAVE NORTHERLY, THROUGH A CENTRAL ANGLE OF 1°36'37", (THE LONG CHORD BEARS SOUTH 89°00'36" EAST, 113.45 FEET) AN ARC DISTANCE OF 113.46 FEET TO THE TRUE POINT OF BEGINNING; THENCE LEAVING SAID SOUTHERLY RIGHT-OF-WAY LINE SOUTH 52°18'35" EAST, 230.07 FEET; THENCE NORTH 73°49'12" EAST, 193.56 FEET TO THE EASTERLY LINE OF SAID DEED DOCUMENT NO. 2003-044212; THENCE ALONG SAID EASTERLY LINE NORTH 00°11 '19" WEST, 94.78 FEET TO SAID SOUTHERLY RIGHT-OF-WAY LINE OF S.W. TUALATIN - SHERWOOD ROAD; THENCE ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE SOUTH 88°27'33" WEST, 246.16 FEET TO THE BEGINNING OF A TANGENT CURVE; THENCE ALONG THE ARC OF A 4037.00 FOOT RADIUS CURVE CONCAVE NORTHERLY, THROUGH A CENTRAL ANGLE OF 1°43'33", (THE LONG CHORD BEARS SOUTH 89°19'19" WEST, 121.58 FEET) AN ARC DISTANCE OF 121.58 FEET TO THE POINT OF BEGINNING.

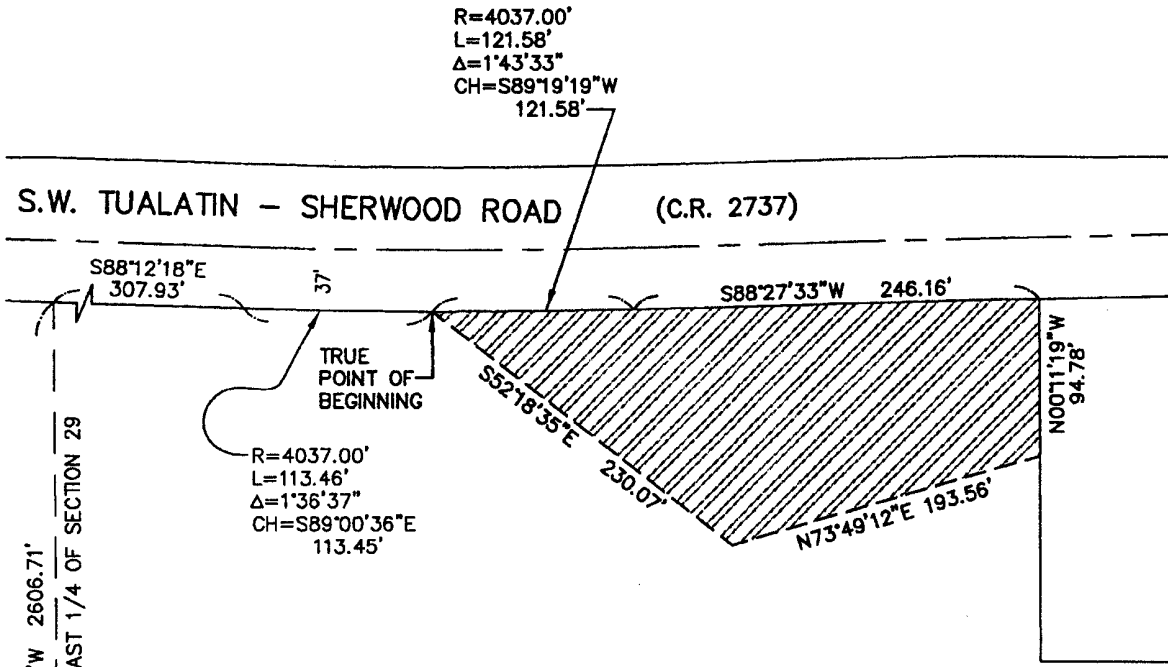
CONTAINS 35,146 SQUARE FEET, MORE OR LESS.

AS SHOWN ON THE MAP ATTACHED HERETO.



EXHIBIT MAP

SURFACE WATER EASEMENT
LOCATED IN THE S.E. ONE-QUARTER OF SECTION 29
TOWNSHIP 2 SOUTH, RANGE 1 WEST, W.M.
CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON
DATE: AUGUST 13, 2003




DEED DOCUMENT
NO. 2003-044212



SCALE: 1" = 100'

LEGEND

-  - SURFACE WATER EASEMENT
35,146 SQUARE FEET
0.807 ACRES

JOB NO. TAR2947



5415 SW WESTGATE DR., PORTLAND, OREGON 97221

(503) 419-2500

FAX: (503) 419-2600

PLANNERS • ENGINEERS • LANDSCAPE ARCHITECTS • SURVEYORS



Exhibit D

STORMWATER FACILITIES MAINTENANCE PLAN

Target - Sherwood
Name of Development

Facility Operator _____
Telephone _____
Mailing Address _____

Property Owner Langer LLC
Telephone (503) 625-7070
Mailing Address 15585 SW Tualatin Sherwood Hwy

Location
Tax Lot 2S1 29D 00300
Street Address None

Facilities to be maintained

- Trapped Catch Basin(s)
- Pollution control manhole(s)
- Outlet control manhole(s)
- Detention pond(s) ___[tank(s) ___] (check one or both.)
- Pipe and outlet structures
- Other facilities as described Water Quality Pond

Acknowledgment

- The Facility Operator will maintain the above private storm drainage facilities annually. All oils, sediment and debris will be removed and deposited in an approved dumpsite. Any damaged equipment will be repaired promptly.
- Particular attention will be given to sedimentation and pollution control manholes, and detention outlet structures. All debris will be removed to assure proper functioning.
- The grates of all catch basins will be kept free of debris and leaves.
- The detention system's outlet structure will be checked to assure that sediment accumulation has not encroached on the required detention volume. Sediment will be removed as necessary to maintain that required volume.
- The outlet control manhole will be inspected to assure that all parts are intact and the orifice is free of any debris that could cause malfunction.



The above maintenance activities will be documented annually by sending a report of what was completed to the City of Sherwood at the mailing address below. **The Annual Maintenance Report must be submitted no later than May 1 each year.**

City Engineer
City of Sherwood
400 SE Willamette Street
Sherwood, OR 97140

I hereby certify the stormwater facilities described above will be maintained according to this schedule and that I have authority to make this agreement.

Facility Operator (print name)

On behalf of (Company)

Facility Operator's Signature

Date

STATE OF OREGON)
) ss
County of _____)

This instrument was acknowledged before me on this ___ day of _____, 20___, by _____, to be the free act and deed of said corporation/individual.

Notary Public for _____

My Commission Expires: _____

M1:1038920.06

Please send tax statements to:
After recording, please return to:
City of Sherwood
Engineering Department
22560 SW Pine Street
Sherwood, OR 97140

Washington County, Oregon 2011-030292
04/22/2011 08:32:33 AM
D-E Cnt=1 Stn=21 RECORDS1
\$30.00 \$5.00 \$11.00 \$15.00 - Total = \$61.00



0159186020110030292006064
I, Richard Hobernicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.
Richard Hobernicht, Director of Assessment and Taxation, Ex-Officio County Clerk



PERMANENT EASEMENT FOR PUBLIC UTILITIES

LANGER FAMILY LLC, an Oregon limited liability company (hereinafter GRANTOR), in consideration of previous agreements and other good and valuable consideration received, does on behalf of itself, its heirs, successors and assigns hereby grant to the CITY OF SHERWOOD, an Oregon municipal corporation (hereinafter GRANTEE), the following permanent, nonexclusive easement in certain real property situated in the City of Sherwood as described in Exhibit "A" (Legal Description) and shown on Exhibit "B" (Location Map), attached hereto and by this reference incorporated herein.

This document is intended to and does establish a permanent easement on the property described for the purpose of providing public utility service(s). The easement granted shall not prevent GRANTOR from use of said property provided, however, that such use shall not interfere with the easement rights herein granted. GRANTOR shall not be permitted to endanger or adversely impact any facilities constructed, installed or located within the easement granted herein, or affect the installation, repair, replacement, removal or modification of the utilities.

GRANTOR hereby covenants to and with GRANTEE that they are the owner of said property, that it is free from all encumbrances (except for easements, conditions and restrictions of record) and will warrant and defend the easement rights herein granted from all persons who may claim the same, except as stated herein.

GRANTEE (and other public or private entities or persons GRANTEE deems in its sole discretion as appropriate) shall have the right to use the property to install, construct, operate, maintain, repair, replace, remove or reconstruct utilities, including but not limited to water, wastewater, drainage, electric, fiber optic, telephone and cable, as Grantee may deem necessary over, across, through, in and under the property described in Exhibits "A" and "B", hereinafter called "Public Utility Easement."

// // .
// //
// //

IN WITNESS WHEREOF, the above named Grantor has caused this instrument to be signed.

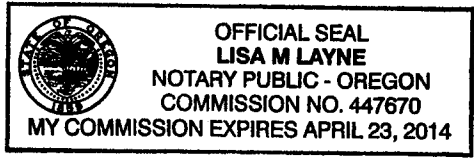
DATED this 18th day of April, 2011.

Clarence D. Langer Jr.
Clarence Langer Jr., Manager, Langer Family LLC

STATE OF OREGON)
) ss.
County of Washington)

This instrument was acknowledged before me this 18th day of April, 2011, by Clarence Langer Jr. who, being sworn, stated that he is Manager of the Langer Family LLC, an Oregon limited liability company and this instrument was voluntarily signed on behalf of the LLC and its members. Before Me:

(stamp) Lisa M Layne Notary Public (Signature)



Accepted on behalf of the City of Sherwood, Oregon,

By: [Signature]
Title: City Manager

Dated this 18 day of April, 2011.



Exhibit "A"
Legal Description
Public Utility Easement – Langer Family, LLC

Public Utility Easement

Being a strip of land located in the Southeast One-Quarter of Section 29, Township 2 South, Range 1 West, Willamette Meridian, City of Sherwood, Washington County, Oregon and being a portion of that property conveyed to "Langer Family, LLC", by Deed Document Number 98094905 in the Washington County Deed Records, said parcel being more particularly described as follows:

Commencing at a Brass Cap marking the South One-Quarter Corner of Section 29, Township 2 South, Range 1 West, Willamette Meridian;

Thence along the South line of said Section 29, North 89°29'31" East, 33.52 feet to True Point of Beginning;

Thence along said South line, North 89°29'31" East, 8.09 feet to the beginning of a 493.00 foot radius non-tangent curve to the left;

Thence leaving said South line along said non-tangent curve to the left, through a central angle of 08°28'50" (chord bears North 03°53'54" East, 72.90 feet) 72.97 feet;

Thence North 00°20'31" West, 986.09 feet to an angle point;

Thence North 10°04'39" East, 280.45 feet to an angle point;

Thence North 41°41'01" East, 42.03 feet to an angle point;

Thence North 53°08'30" East, 51.82 feet to an angle point;

Thence North 76°05'58" East, 55.56 feet to an angle point;

Thence North 13°54'02" West, 8.00 feet to an angle point, herein denoted as "Point A";

Thence South 76°05'58" West, 57.19 feet to an angle point;

Thence South 53°08'30" West, 54.25 feet to an angle point;

Thence South 41°41'01" West, 45.09 feet to an angle point;

Thence South 10°04'39" West, 283.45 feet to an angle point;

Thence South 00°20'31" East, 986.82 feet to the beginning of 485.00 foot radius curve to the right;

Thence along said curve to the right, through a central angle of 08°37'28" (chord bears South 03°58'13" West, 72.94 feet) 73.00 feet to the Southerly line of said Section 29, and the True Point of Beginning.

Containing 11,955 square feet±

ALSO TOGETHER WITH the following described strip of land:

Commencing at the aforementioned "Point A";

Thence North 00°11'37" West 86.40 feet to the True Point of Beginning;

Thence North 00°11'37" West 8.00 feet to an angle point;

Thence South 89°48'23" West, 37.19 feet to an angle point;

Thence North 47°27'18" West, 71.00 feet to an angle point;

Thence North 20°12'59" West, 102.01 feet to an angle point;

Thence North 00°20'31" West, 519.08 feet to the beginning of a 273.85 foot radius curve to the right;

Thence along said curve to the right, through a central angle of 17°01'28" (chord bears North 08°10'13" East, 81.07 feet) 81.37 feet to an angle point;

Thence North 00°20'31" West, 308.29 feet to an angle point;

Thence South 44°26'13" West, 11.36 feet to an angle point;

Thence South 00°20'31" East, 299.04 feet to a 281.85 foot radius non-tangent curve to the left;

Thence along said non-tangent curve to the left, through a central angle of 16°46'46" (chord bears South 08°02'52" West, 82.25 feet) 82.54 feet to a point of tangency;

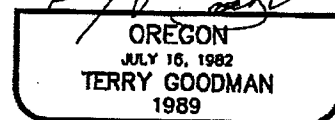
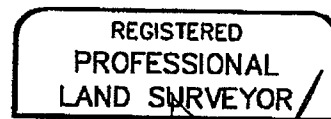
Thence South 00°20'31" East, 520.48 feet to an angle point;

Thence South 20°12'59" East, 103.04 feet to an angle point;

Thence South 47°17'52" East, 79.03 feet to an angle point;

Thence North 89°48'23" East, 39.08 feet to the True Point of Beginning.

Containing 8,898 square feet more or less.



RENEWAL DATE: 7-01-11

EXHIBIT "B"

S.W. CENTURY DR

LOCATED IN THE SE 1/4 OF SECTION 29,
TOWNSHIP 2 SOUTH, RANGE 1 WEST,
WILLAMETTE MERIDIAN, WASHINGTON
COUNTY, OR

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD	CHORD DIRECTION
C1	72.97'	493.00	8°28'50"	72.90'	N03°53'54"E
C2	73.00'	485.00	8°37'28"	72.94'	S03°58'13"W

S.W. WHETSTONE
WAY

LINE TABLE

LINE	LENGTH	BEARING
L1	33.52	N89°29'31"E
L2	8.09	N89°29'31"E
L3	986.09	N00°20'31"W
L4	280.45	N10°04'39"E
L5	42.03	N41°41'01"E
L6	51.82	N53°08'30"E
L7	55.56	N76°05'58"E
L8	8.00	N13°54'02"W
L9	57.19	S76°05'58"W
L10	54.25	S53°08'30"W
L11	45.09	S41°41'01"W
L12	283.45	S10°04'39"W
L13	986.82	S00°20'31"E
L14	86.40	N00°11'37"W
L15	8.00	N00°11'37"W
L16	37.19	S89°48'23"W
L17	71.00	N47°27'18"W
L18	102.01	N20°12'59"W
L19	912.49	N00°20'31"W
L20	11.36	S44°26'13"W
L21	905.83	S00°20'31"E
L22	103.04	S20°12'59"E
L23	79.03	S47°17'52"E
L24	39.08	N89°48'23"E

LANGER FAMILY, LLC.
DEED. #98094905

SW ADAMS AVENUE

UTILITY EASEMENT
AREA



= 20,852 SQ. FT.

S 1/4 SEC. 29

TRUE POINT
OF BEGINNING

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 16, 1982
TERRY GOODMAN
1989

RENEWAL DATE: 7-01-11



HDJ PLLC
DESIGN GROUP

engineers landscape architects planners surveyors

300 W 15th Street
Vancouver, WA 98660-2927
360/695-3488
503/924-4005
360/695-8767 fax

DRAWN BY: MCW

SCALE: 1"=200'

DATE: 10/20/2010

CHECKED BY: TLG

JOB NO.: 2336-00

SHEET 1 OF 2

EXHIBIT "B"

LOCATED IN THE SE 1/4 OF SECTION 29, TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, WASHINGTON COUNTY, OR

LINE TABLE		
LINE	LENGTH	BEARING
L1	33.52	N89°29'31"E
L2	8.09	N89°29'31"E
L3	986.09	N00°20'31"W
L4	280.45	N10°04'39"E
L5	42.03	N41°41'01"E
L6	51.82	N53°08'30"E
L7	55.56	N76°05'58"E
L8	8.00	N13°54'02"W
L9	57.19	S76°05'58"W
L10	54.25	S53°08'30"W
L11	45.09	S41°41'01"W
L12	283.45	S10°04'39"W
L13	986.82	S00°20'31"E
L14	86.40	N00°11'37"W
L15	8.00	N00°11'37"W
L16	37.19	S89°48'23"W
L17	71.00	N47°27'18"W
L18	102.01	N20°12'59"W
L19	519.08	N00°20'31"W
L20	308.29	N00°20'31"W
L21	11.36	S44°26'13"W
L22	299.04	S00°20'31"E
L23	520.48	S00°20'31"E
L24	103.04	S20°12'59"E
L25	79.03	S47°17'52"E
L26	39.08	N89°48'23"E

TUALATIN - SHERWOOD ROAD

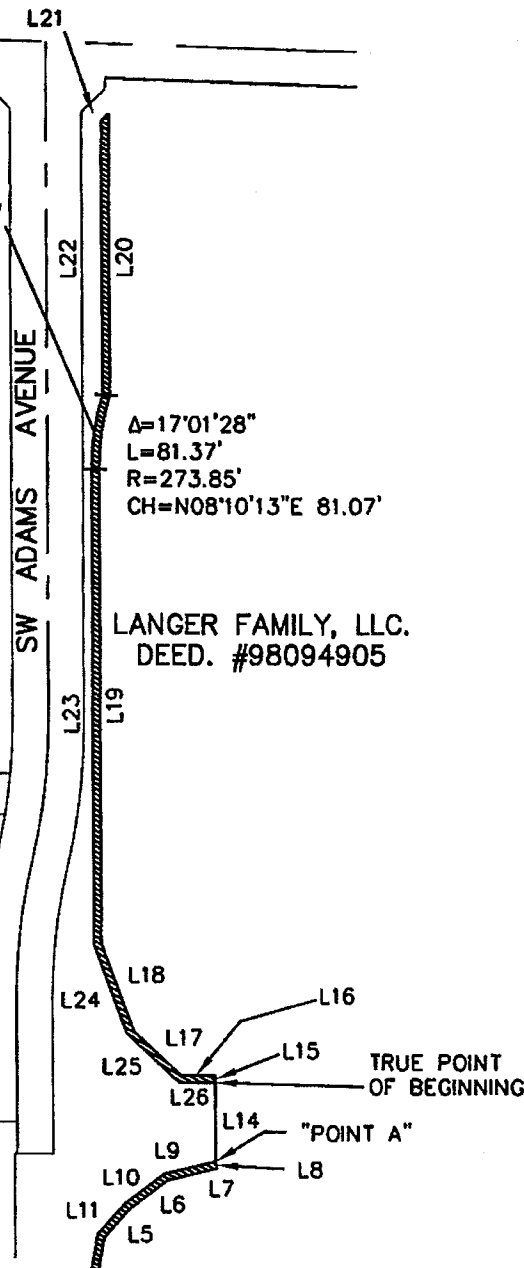
$\Delta=16^{\circ}46'46''$
 $L=82.54'$
 $R=281.85'$
 $CH=S08^{\circ}02'52''W$
 $82.25'$

$\Delta=17^{\circ}01'28''$
 $L=81.37'$
 $R=273.85'$
 $CH=N08^{\circ}10'13''E$ 81.07'

LANGER FAMILY, LLC.
 DEED. #98094905

UTILITY EASEMENT AREA = 20,852 SQ. FT.

S.W. CENTURY DR



REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON
 JULY 16, 1982
 TERRY GOODMAN
 1989

RENEWAL DATE: 7-01-11

HDJ PLLC
DESIGN GROUP
 engineers landscape architects planners surveyors

300 W 15th Street
 Vancouver, WA 98660-2927
 360/695-3488
 503/924-4005
 360/695-8767 fax

DRAWN BY: MCW	SCALE: 1"=200'	DATE: 10/21/2010
CHECKED BY: TLG	JOB NO.: 2336-00	SHEET 2 OF 2

Return to City of Sherwood
ATTN: Michelle Miller
22560 SW Pine St
Sherwood OR
97140



Washington County, Oregon
10/21/2011 04:23:31 PM
D-NSR Cnt=1 Stn=21 RECORDS1
\$10.00 \$5.00 \$11.00 \$15.00 - Total = \$41.00



01641792201100738550020025

I, Richard Hobernicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Richard Hobernicht
Richard Hobernicht, Director of Assessment and Taxation, Ex-Officio County Clerk



ORDINANCE 2011-010

AN ORDINANCE RENAMING SW ADAMS AVENUE TO SW LANGER FARMS PARKWAY

WHEREAS, a petition was received from representatives of the Langer Family Trust to rename SW Adams Avenue to SW Langer Farms Parkway; and

WHEREAS, the petition proposed the change to SW Langer Farms Parkway in order to recognize the Langers as longtime residents of Sherwood who farmed in the area, and included the names of those property owners abutting the road to be renamed and signatures of owners at least 60% of the land abutting the subject road; and

WHEREAS, Section 16.108.010.5, provides that the street names, whenever practicable shall be based on historical factors including naming streets after long-time residents of Sherwood and;

WHEREAS, the Council recognizes that the Langers are long-time residents of Sherwood and the roadway is adjacent to the property where the Langer family had farmed for many years; and

WHEREAS, although the City has existing streets named SW Langer Drive and SW Farmers Way, emergency dispatchers have indicated that they would be able to respond without confusion to an emergency located on any one of these streets because of the distinction between Parkway and Drive would be sufficient to differentiate the streets and the address numbering would be able to assist in finding the appropriate location; and

WHEREAS, Section 16.108.010.4.B. provides the classifications (suffixes) that shall be utilized in the assignment of all street names and "Parkway" is listed as a broad landscaped collector or arterial; and

WHEREAS, notice of the public hearing was duly noticed per Section 16.108.010.C.3 by mailing notice to all affected property owners on August 3, 2011, posting on the street on August 4, 2011 and publishing in The Times on August 11, 2011; and

WHEREAS, the applicant will be responsible for all costs, City fees and expenses attributed to the renaming of the street; and

WHEREAS, the Council held a public hearing on August 16, 2011 and based upon the evidence, findings and testimony presented at the public, the Council finds it is in the public interest of the residents of the City and determined that the proposed street renaming satisfied the Development Code criteria and continued to be consistent with regional and state standards.

NOW, THEREFORE, THE CITY OF SHERWOOD ORDAINS AS FOLLOWS:

Ordinance 2011-010
August 16, 2011
Page 1 of 2

Section 1. Findings. After full and due consideration of Executive Summary, the record, findings, and of the evidence presented at the public hearing, the Council finds that the street should be renamed to SW Langer Farms Parkway.

Section 2. Approval. The proposed street renaming of SW Langer Farms Parkway is hereby **APPROVED**.

Section 3. Manager Authorized. The Planning Department is hereby directed to provide notification of this name change to Washington County Assessment and Taxation and to any other necessary entities.

Section 4. Effective Date. This ordinance shall become effective the 30th day after its enactment by the City Council and approval by the Mayor.

Duly passed by the City Council this 16th day of August 2011.


Keith S. Mays, Mayor

Attest:


Sylvia Murphy, CMC, City Recorder

I certify this is a true and correct
photocopy of the original document.


Sylvia Murphy, City Recorder

	<u>AYE</u>	<u>NAY</u>
Clark	<u>Absent</u>	_____
Langer	<u>Recuse</u>	_____
Butterfield	<u>Absent</u>	_____
Folsom	✓	_____
Henderson	✓	_____
Grant	✓	_____
Mays	✓	_____

Washington County, Oregon **2014-054287**
D-E
Stn=3 | REED **08/27/2014 04:08:18 PM**
\$25.00 \$11.00 \$5.00 \$20.00 **\$61.00**

I, Richard Hobernicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Richard Hobernicht, Director of
Assessment and Taxation, Ex-Officio

WATER LINE EASEMENT

DATED: August 4, 2014

AFTER RECORDING RETURN TO:

City of Sherwood
Engineering Department
22560 SW Pine Street
Sherwood, OR 97140

Until requested otherwise, send all tax statements to Grantee at the address below.

BETWEEN:

Grantor:
Langer Family LLC
15585 SW Tualatin-Sherwood Road
Sherwood, OR 97140

Grantee:
City of Sherwood
22560 SW Pine Street
Sherwood, OR 97140

THIS GRANT OF A PERMANENT, NONEXCLUSIVE WATER LINE EASEMENT is made by and between Langer Family LLC, an Oregon limited liability company and its successors and assigns ("Grantor"), and the City of Sherwood, an Oregon municipal corporation and its successors and assigns ("Grantee" or "City"), for the consideration hereinafter stated. The permanent public, nonexclusive water line easement exists over, under, through, across and along the full width and length of the premises described as follows, ("Easement Area") to wit:

1. A legal description is set forth in EXHIBIT "A," attached and incorporated by reference.
2. A map of the above legal description is set forth in EXHIBIT "B," attached and incorporated by reference.

The true and actual consideration paid for this transfer is \$0.00 and other good and valuable consideration, the receipt of which is acknowledged by Grantor. This document is intended to establish a permanent easement on the property described, not to convey fee title or any interest in the underlying property except as expressly stated herein.

TO HAVE AND TO HOLD the above described permanent easement unto City in accordance with the conditions and covenants as follows:

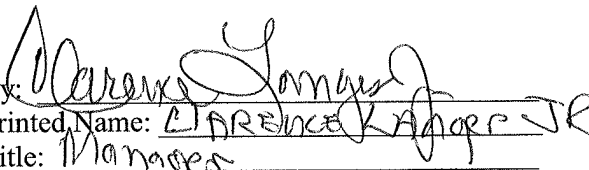
1. The permanent water line easement includes the right, privilege, and authority granted to the City to excavate for, and to construct, build, install, lay, patrol, operate,

maintain, and repair a water line system, with all appurtenances incident thereto or necessary therewith, and across the Easement Area, and to cut and remove from it any trees and other obstructions which may endanger the safety or interfere with the use of said pipelines and any appurtenances attached to or connected therewith.

2. City upon the initial installation (as applicable) and upon each and every occasion that the same be repaired, replaced, renewed, added to, or removed, will restore the premises of the Grantor, and any improvements disturbed by the City, to as good condition as they were prior to any such installation work, including, but not limited to, the restoration of any topsoil, lawn and nursery stock of like kind and quality subject to reasonable substitution as may be necessitated by obstruction or interference with the use granted herein.
3. Grantor may, at its option and expense, relocate the easement and associated public appurtenances, provided City consents in writing in advance to the relocation, which consent shall not be unreasonably withheld, and the City determines the relocation will comply with applicable codes and standards, land use laws and regulations.
4. Grantor will not obstruct or permit anyone else to obstruct the Easement Area. Grantor will not construct or permit anyone else to construct any building or structure of any kind in the Easement Area without City's prior written consent. Grantor will not perform or permit anyone else to perform any fill or excavation activities within the Easement Area without the City's prior written consent. Grantor will not endanger or permit anyone else to endanger the lateral support of any facilities constructed within the Easement Area.
5. Grantor hereby covenants that Grantor is the owner of said property, which is free from all encumbrances, except for easements, conditions and restrictions of record, and that Grantor will warrant and defend the easement rights herein granted from all claims whatsoever.

IN WITNESS WHEREOF, the undersigned grantor has executed this easement this 4th day of AUGUST, 2014.

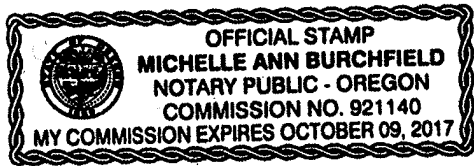
GRANTOR: LANGER FAMILY LLC, an Oregon limited liability company

By: 
Printed Name: CLARENCE LANGER JR
Title: Manager

STATE OF OR)
)ss
County of washington)

On this 4th day of August, 2014, the above-named Clarence Langer as the manager and the authorized representative of Langer Family LLC, an Oregon limited liability company, personally appeared before me and acknowledged the foregoing instrument to be his voluntary act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal on the day and year above written.



Michelle Burchfield
NOTARY PUBLIC FOR Oregon
My Commission Expires: 10-9-17

GRANTEE:

Accepted on behalf of The City of Sherwood.

This 5th day of August, 2014

Robert J. Galati
Robert J. Galati, P.E., City Engineer

Joseph Gall
Joseph Gall, ICMA-CM, City Manager

**ENGINEERING PLANNING
FORESTRY**

13910 S.W. Galbreath Dr., Suite 100
Sherwood, Oregon 97140
Phone: (503) 925-8799
Fax: (503) 925-8969



**LANDSCAPE ARCHITECTURE
SURVEYING**

AKS Group of Companies:
SHERWOOD, OREGON
SALEM, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

Job #3048

EXHIBIT A
Easement Description

A portion of Lot 4 of the plat "Langer Farms" located in the Southeast One-Quarter of Section 29, Township 2 South, Range 1 West, Willamette Meridian, City of Sherwood, Washington County, Oregon and being more particularly described as follows:

Beginning at a 5/8 inch iron rod at the southwest corner of Lot 4 of the plat "Langer Farms", being a point on the east right-of-way line of SW Langer Farms Parkway; thence along said east right-of-way line along a non-tangent curve to the left (Radial: North 80°01'05" West) with a Radius of 485.00 feet, a Delta of 04°42'02", a Length of 39.79 feet, a Chord of North 07°37'55" East 39.78 feet to the True Point of Beginning; thence continuing along said east right-of-way line along a curve to the left with a Radius of 485.00 feet, a Delta of 03°40'44", a Length of 31.14 feet, and a Chord of North 03°26'32" East 31.14 feet to a point; thence leaving said east right-of-way line South 88°52'09" East 31.60 feet to a point; thence South 01°07'51" West 31.11 feet to a point; thence North 88°52'09" West 32.85 feet to the True Point of Beginning.

The above described tract contains 997 square feet, more or less.



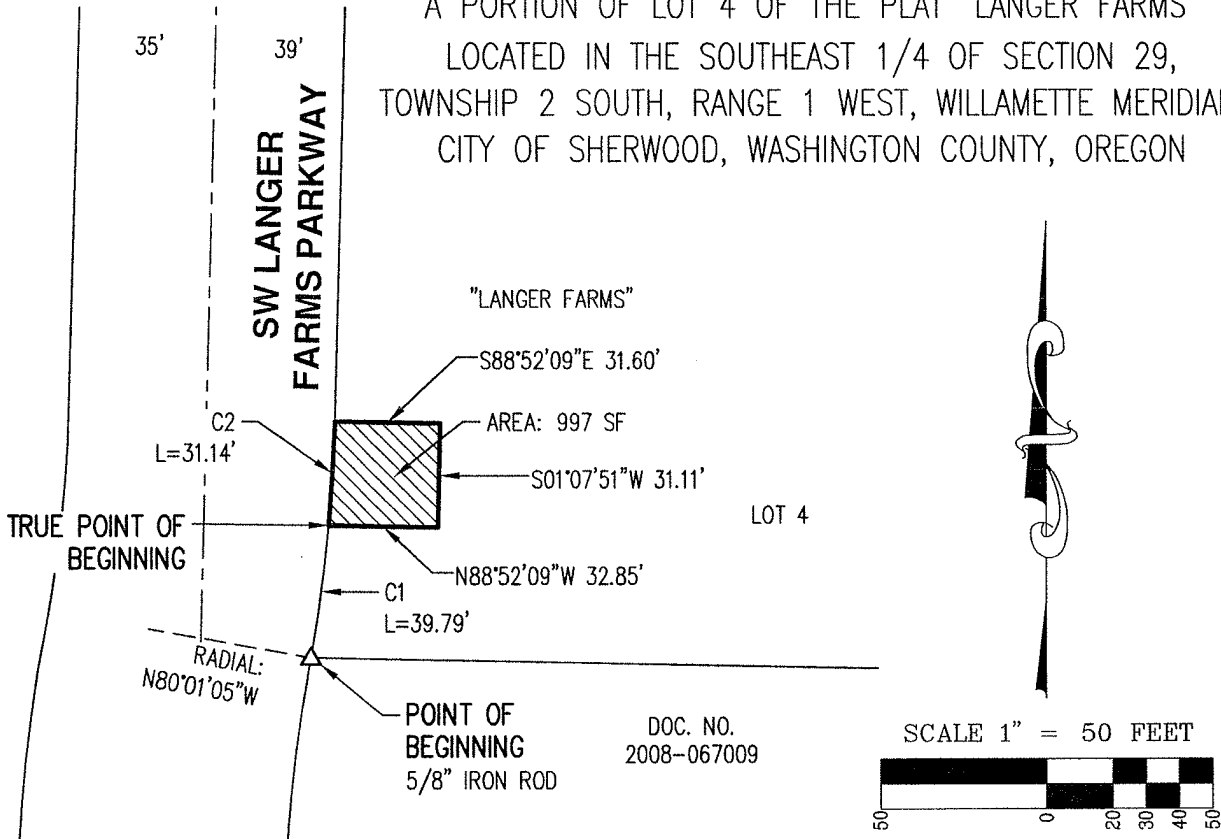
PREPARED FOR:

LANGER GRAMOR, LLC.
19767 SW 72ND AVE, SUITE 100
TUALATIN, OR 97062

EXHIBIT B

MAP OF EASEMENT

A PORTION OF LOT 4 OF THE PLAT "LANGER FARMS"
LOCATED IN THE SOUTHEAST 1/4 OF SECTION 29,
TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN,
CITY OF SHERWOOD, WASHINGTON COUNTY, OREGON



DOC. NO.
2008-067009

SCALE 1" = 50 FEET



LEGEND

- △ DENOTES FOUND MONUMENT AS NOTED
- DOC. NO. DOCUMENT NUMBER PER WASHINGTON COUNTY DEED RECORDS
- SF SQUARE FEET

CURVE TABLE

CURVE	RADIUS	DELTA	LENGTH	CHORD
C1	485.00'	04°42'02"	39.79'	N07°37'55"E 39.78'
C2	485.00'	03°40'44"	31.14'	N03°26'32"E 31.14'

2-17-14

REGISTERED
PROFESSIONAL
LAND SURVEYOR

[Signature]

OREGON
JANUARY 11, 2005
ROBERT D. RETTIG
60124LS

RENEWS: 12/31/14

JOB NAME: LANGER
JOB NUMBER: 3048
DRAWN BY: JOH
CHECKED BY: RDR
DWG NO.: 3048 121113 EXB

AKS ENGINEERING AND FORESTRY, LLC
13910 SW GALBREATH DR
SUITE 100
SHERWOOD, OR 97140
PHONE: 503.925.8799
FAX: 503.925.8969



ENGINEERING · PLANNING · SURVEYING
FORESTRY · LANDSCAPE ARCHITECTURE



First American

First American Title Company of Oregon

121 SW Morrison St, FL 3

Portland, OR 97204

Phone: (503)222-3651 / Fax: (877)242-3513

PR: NWEST

Ofc: 7019 (1011)

Final Invoice

To: AKS Engineering & Forestry LLC
12965 SW Herman RD STE 100
Tualatin, OR 97062

Invoice No.: 1011 - 7019129110

Date: 06/30/2015

Our File No.: 7019-2471666

Title Officer: Dona Cramer

Escrow Officer:

Customer ID: 994563

Attention: Jim Hannon

Your Reference No.:

RE: Property:
Not Yet Assigned, Sherwood, OR 97140

Liability Amounts

Owners:

Lenders:

Buyers:

Sellers: Langer Family LLC

Description of Charge	Invoice Amount
Guarantee: Subdivision/Plat Certificate	\$275.00

INVOICE TOTAL **\$275.00**

Comments:

Thank you for your business!

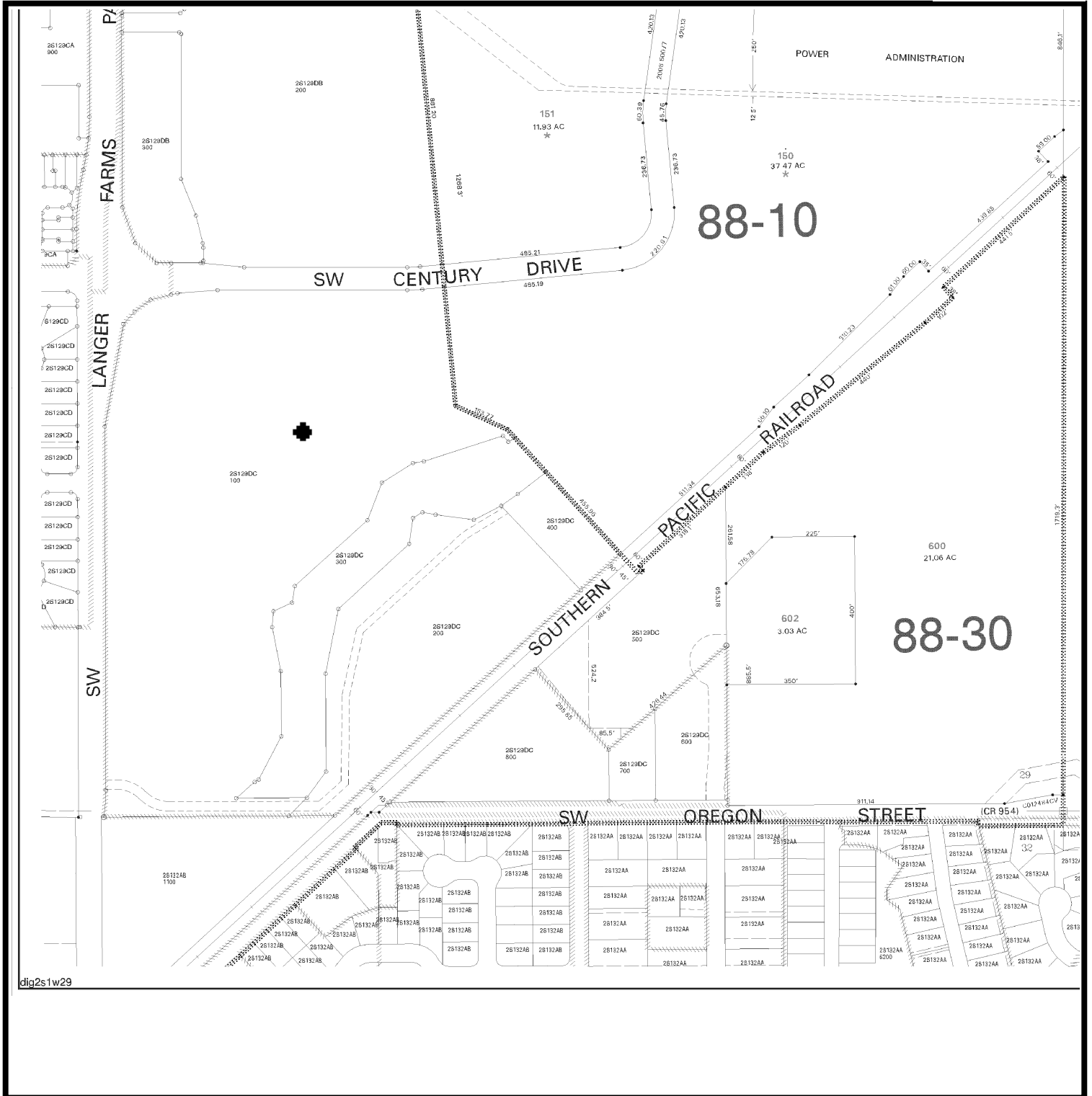
To assure proper credit, please send a copy of this Invoice and Payment to:

Attention: Accounts Receivable Department

First American Title Co of Oregon, 24508 Network Place

Chicago, IL 60673-1245

Reference Parcel #: 2S129DC 00100



dlq2s1w29



**First American
Title Company of Oregon**

Customer Service Department
121 SW Morrison Street Suite 300 Portland, OR 97204
Phone: 503.219.TRIO (8746) Fax: 503.790.7872
Email: cs.portland@firstam.com

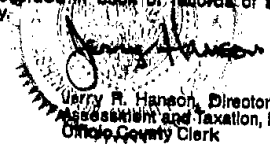
THIS MAP IS PROVIDED AS A CONVENIENCE IN LOCATING PROPERTY. FIRST AMERICAN TITLE COMPANY OF OREGON ASSUMES NO LIABILITY FOR ANY VARIATIONS AS MAY BE DISCLOSED BY AN ACTUAL SURVEY

AUG 27 1998

15
6
20
M

STATE OF OREGON } SS
County of Washington }

I, Jerry R. Hanson, Director of Assessment and Taxation and Ex-Officio County Clerk for said county, do hereby certify that the within instrument of writing was received and recorded in book of records of said county.



Jerry R. Hanson, Director of Assessment and Taxation, Ex-Officio County Clerk

After recording return to:
John H. Draneas
222 SW Columbia St., #1625
Portland, OR 97201-6618

Send tax statements to:
Clarence D. Langer, Jr., Co-Trustee
15585 SW Tualatin Sherwood Rd.
Sherwood, OR 97140

Doc : 98094905
Rect: 215807 41.00
08/27/1998 03:46:57pm

BARGAIN AND SALE DEED

F. WALLACE LANGER and CLARENCE D. LANGER, JR., CO-TRUSTEES OF THE LANGER FARM REVOCABLE TRUST U/A/D 07/10/91 ("Grantor"), conveys to LANGER FAMILY LLC, an Oregon limited liability company ("Grantee") the following described real property situated in Washington County, Oregon:

Property tax account: No. 548143 2S129D-00300

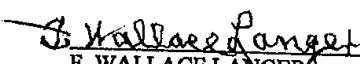
Street Address: None

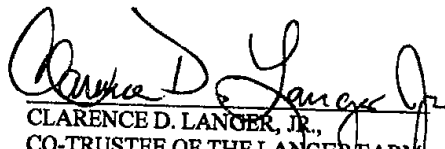
Legal: See Exhibit "A" attached hereto

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES.

The true consideration for this conveyance is none.

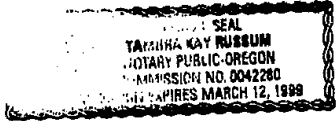
DATED this 17 day of August, 1998.


F. WALLACE LANGER,
CO-TRUSTEE OF THE LANGER FARM
REVOCABLE TRUST U/A/D 07/10/91

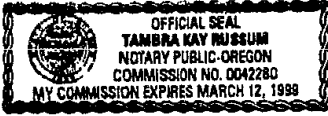

CLARENCE D. LANGER, JR.,
CO-TRUSTEE OF THE LANGER FARM
REVOCABLE TRUST U/A/D 07/10/91

STATE OF OREGON)
County of Washington) ss.

Personally appeared before me on this 17th day of August, 1998, the above named F. WALLACE LANGER, CO-TRUSTEE, and acknowledged the foregoing instrument to be his voluntary act and deed.



Tambra Kay Russell
Notary Public for Oregon



STATE OF OREGON)
County of Washington) ss.

Personally appeared before me on this 17th day of August, 1998, the above named CLARENCE D. LANGER, JR., CO-TRUSTEE, and acknowledged the foregoing instrument to be his voluntary act and deed.



Tambra Kay Russell
Notary Public for Oregon

P:\clients\Langer\Deed to 59.59 Acres

EXHIBIT "A"

A portion of Section 29, Township 2 South, Range 1 West of the Willamette Meridian in the County of Washington and State of Oregon, described as follows:

Beginning at the East one-quarter corner of Section 29, Township 2 South, Range 1 West, Willamette Meridian, and running thence West a distance of 1087.9 feet to the Northeast corner of that tract of land conveyed to Joseph Simon by deed as recorded on Page 367 of Volume 56 of Washington County, Oregon, Deed Records; thence South along the East line of said Simon tract a distance of 288.7 feet to the Southeast corner thereof; thence West along the South line of said Simon tract a distance of 767.2 feet to an iron at the Southwest corner thereof; thence North along the West line of said Simon tract a distance of 288.7 feet to the Northwest corner thereof; thence West of 789.0 feet to the Northeast corner of that tract of land conveyed to Ferdinand Langer by deed as recorded on page 70 of volume 144 of said deed records; thence South 0° 08' East a distance of 2666.2 feet to an iron pipe at the South one-quarter corner of Section 29, Township 2 South Range 1 West, Willamette Meridian, thence North 89° 36' East along the South line of Section 29 a distance of 660.5 feet to an iron pipe on the Northerly right of way line of a 60 foot right of way of the Oregon and California Railroad; thence North 47° 26' East along the Northerly right of way line of a 60 foot right of way of said railroad a distance of 2683.9 feet to a point; thence North 0° 01' East along the East line of Section 29, Township 2 South, Range 1 West, Willamette Meridian, a distance of 846.1 feet to the place of beginning EXCEPTING therefrom the following described tracts:

All of that portion lying Easterly of the West and Westerly lines of a tract described in a deed from Ferdinand Wallace Langer and Leola M. Langer, husband and wife to Ted B. Wright recorded February 18, 1957 in Book 391 page 68, Deed Records.

That certain tract known as Parcel 1 as described in a deed from Ferdinand Wallace Langer to Washington County, a political subdivision of the State of Oregon recorded February 12, 1991, Fee No. 91 007387.

END OF EXHIBIT "A"

Exhibit F: Traffic Study

Parkway Village South – Transportation Impact Study

Date: July 18, 2017

Project #: 21487

To: Bob Galati, City of Sherwood
22560 SW Pine Street
Sherwood, OR 97140

From: Brian J. Dunn, PE, Krista Purser, & Caitlin Mildner

CC: Joey Shearer & John Christiansen – AKS Engineering & Forestry



Project: PAC 16-08 Parkway Village South (SW Langer Farms Parkway) – Sherwood, Oregon

Subject: Transportation Impact Study

This memorandum presents the transportation impact analysis completed for the proposed Parkway Village South recreational and commercial development located on SW Century Drive/SW Langer Farms Parkway in Sherwood, Oregon. Based on the results of this transportation impact analysis, the proposed Parkway Village South project can be developed while maintaining acceptable levels of mobility and safety at the study intersections, assuming provision of the recommended mitigation measures. The primary findings and recommendations of this study are summarized below.

FINDINGS

Based on the analysis herein, the following findings and recommendations are associated with the proposed development of the Parkway Village South project:

Year 2017 Existing Conditions

- All study intersections operate acceptably during the weekday AM and PM peak hours.
- The intersections of 99W/SW Tualatin-Sherwood Road and SW Langer Farms Parkway/SW Tualatin-Sherwood Road are on Washington County's 2011-2013 SPIS List.

Year 2019 Background Traffic Conditions

- The year 2019 background traffic volumes were developed by applying a 2.0 percent annual growth rate to the existing volumes during the weekday AM and PM peak hours and by adding the trips generated by the in-process developments.

- During the year 2019 weekday AM and PM peak hour background traffic conditions, all of the study intersections are forecast to operate acceptably and meet jurisdictional mobility standards during the weekday AM and PM peak hours.

Proposed Development Plan

- The proposed development is estimated to generate 5,723 net new weekday daily trips; including 284 net new trips (179 inbound, 105 outbound) during the weekday AM peak hour and 348 net new trips (169 inbound, 178 outbound) during the weekday PM peak hour.
- A trip distribution pattern for the proposed development was developed based on the surrounding roadway characteristics, surrounding land uses, and proposed site uses, as documented within the scoping memorandum. Trip patterns were further confirmed with traffic count data collection.

Year 2019 Total Traffic Conditions

- Site-generated traffic was assigned to the study area roadways based on the assumed trip distribution pattern.
- All of the study intersections are forecast to operate acceptably and meet the mobility standards of the governing agency during the weekday AM and PM peak hours.
- The proposed development is forecasted to provide adequate storage at site driveways based on 95th percentile queues lengths.

Recommendations

Based on the analysis provided and documented herein, the proposed development can be constructed while meeting the traffic mobility and safety standards established for the surrounding transportation system, assuming provision of the following mitigation measures:

- Sidewalk facilities, as indicated in the site plan (see Figure 2), should be provided along the project frontages. Sidewalk facilities do not currently exist along the south side of SW Century Drive along the project frontage, lacking connectivity between SW Langer Farms Parkway/SW Century Drive and properties to the east of the proposed site.
- Shrubbery and landscaping, as well as above ground utilities and signage near the site access points should be located and maintained to ensure adequate sight distance.

INTRODUCTION

Langer Family, LLC proposes to construct a retail and recreational development on the southeast quadrant of SW Langer Farms Parkway/SW Century Drive in Sherwood, Oregon. The site is currently vacant and is bordered by SW Century Drive and shopping centers to the north, industrial land uses and

an industrial office center to the south and east, and SW Langer Farms Parkway and residential neighborhoods to the west.

The proposed development includes 30,608 square feet of retail space, 1,800 square feet of space for a fast food restaurant with drive through window¹, 92,899 square feet of space for a recreational center, and a 392 square foot coffee stand. Access to the development is proposed via two full-access driveways on SW Langer Farms Parkway, one full-access driveway on SW Century Drive, and one right-in/right-out driveway on SW Century Drive. The site location and overall vicinity are shown in Figure 1. A conceptual site plan is shown in Figure 2.

Scope Of The Report

This analysis identifies the transportation-related impacts associated with the proposed Parkway Village South development and was prepared in accordance with City of Sherwood Development Code Section 16.106.080. The following study intersections were identified within a pre-application meeting with the City of Sherwood:

- SW Tualatin-Sherwood Road/SW Langer Farms Parkway
- SW Tualatin-Sherwood Road/SW Century Drive
- SW Langer Farms Parkway/SW Oregon Street
- SW Langer Farms Parkway/SW Century Drive
- SW Langer Farms Parkway/Site Driveways
- SW Century Drive/Site Driveways

Based on anticipated trip generation and trip distribution patterns, the following intersections were added for analysis in this study:

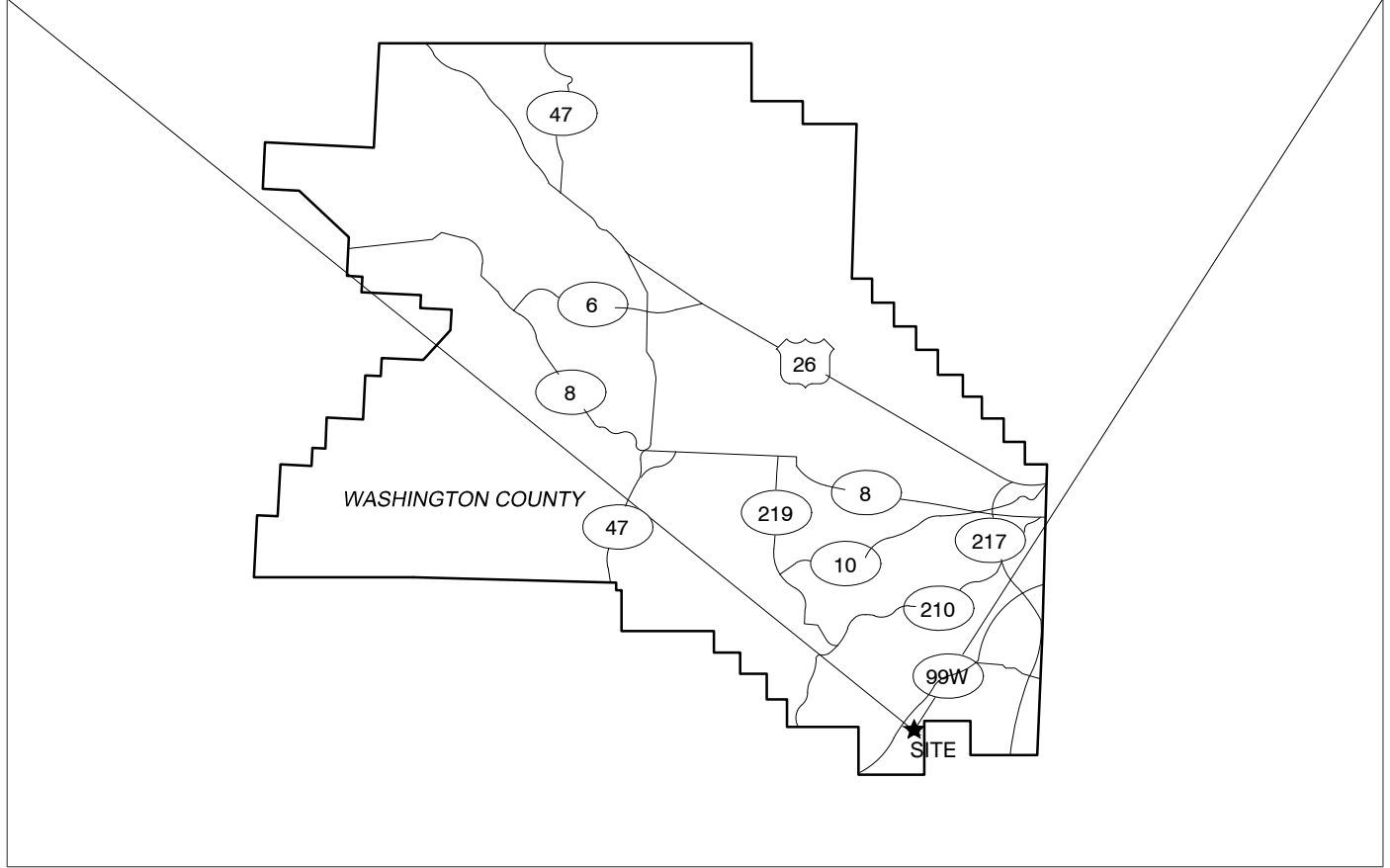
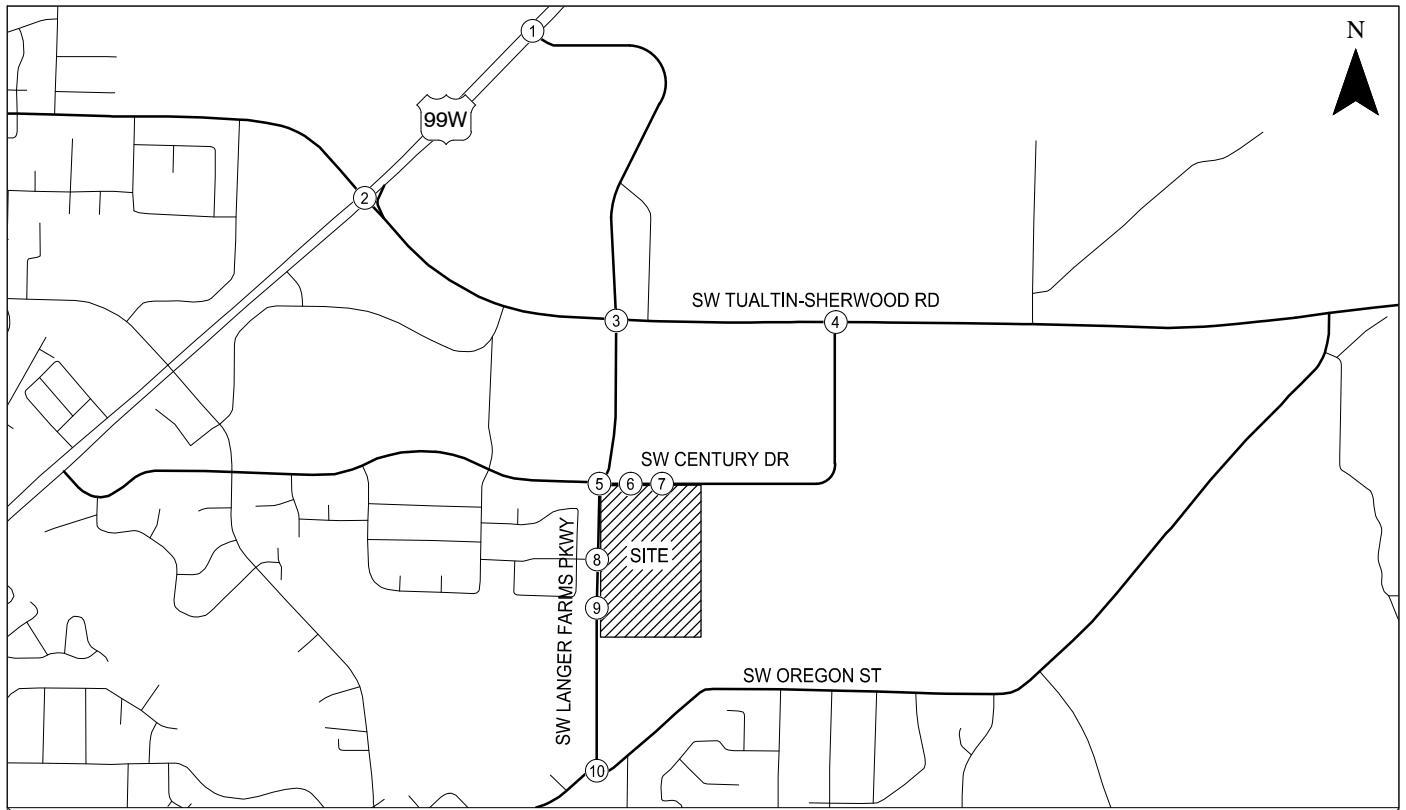
- OR-99W/SW Langer Farms Parkway
- OR-99W/SW Tualatin-Sherwood Road

This study evaluates transportation conditions for the following scenarios:

- Year 2017 existing traffic conditions within the study area during the weekday AM and PM peak hours;
- Year 2019 background traffic conditions (without the proposed development) during the weekday AM and PM peak hours.
- Trip generation and distribution estimates for the proposed development;
- Year 2019 total traffic operations and queuing conditions (with full build-out of the proposed development) during the weekday AM and PM peak hours; and
- Intersection sight distance at the site driveways on SW Langer Farms Parkway and SW Century Drive.

Appendix "A" contains the transportation scoping memorandum prepared for this analysis.

¹ A fast-food restaurant is a potential land use, and was selected to generate a conservative estimate of vehicle trips.



- Study Intersections

Site Vicinity Map
Sherwood, Oregon

Figure
1

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SITE PLAN PROVIDED BY AKS ENGINEERING 7/18/2017

**Proposed Site Plan
Sherwood, Oregon**

Figure
2

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EXISTING TRAFFIC CONDITIONS

This section summarizes the existing characteristics of the transportation system and adjacent land uses in the vicinity of the proposed development, including an inventory of the existing multi-modal transportation facilities, an evaluation of existing intersection operations for motor vehicles at the study intersections, and a summary of recent crash history.

The site vicinity was visited and inventoried in June 2017. At that time, site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area were collected. Figure 3 illustrates the existing lane configurations and traffic control devices at each of the study intersections.

Site Conditions and Adjacent Land Uses

The proposed site is located within the City of Sherwood, and is currently vacant and zoned as a Light Industrial Planned Urban Development (LI PUD). The site is bordered by SW Century Drive and shopping centers to the north, industrial land uses and an industrial office center to the south and east, and SW Langer Farms Parkway and residential neighborhoods to the west. Table 1 summarizes the attributes of the key transportation facilities in the site vicinity.

Table 1. Existing Transportation Facilities and Roadway Designations

Roadway	Functional Classification ¹	Number of Lanes	Posted Speed (mph ²)	Sidewalks	Bicycle Lanes	On-Street Parking
OR-99W	Principal Arterial	4-6	45	No	Yes	No
SW Tualatin-Sherwood Road	Arterial	2-4/5	35	Yes	Yes	No
SW Langer Farms Parkway	Collector	3	25	Yes	No	No
SW Century Drive	Collector	3	25	Partial ³	No	No
SW Oregon Street	Collector	2	25	Yes	No	No

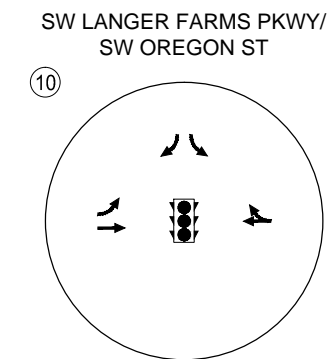
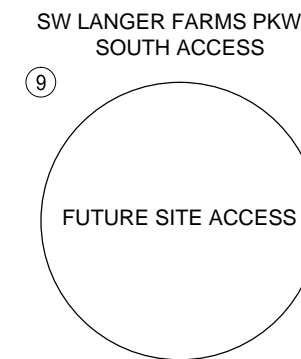
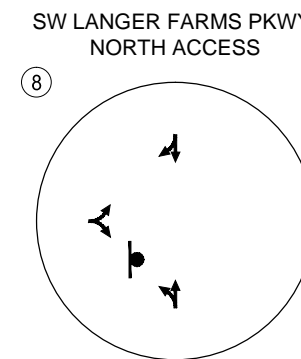
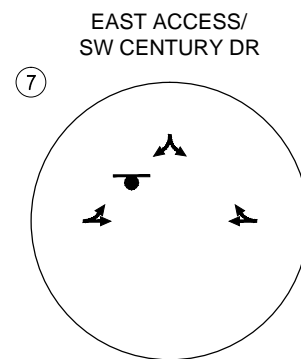
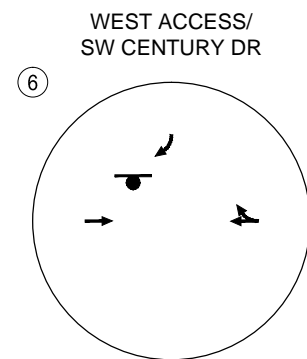
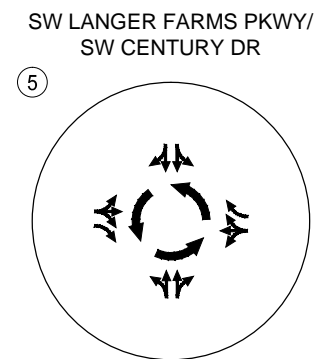
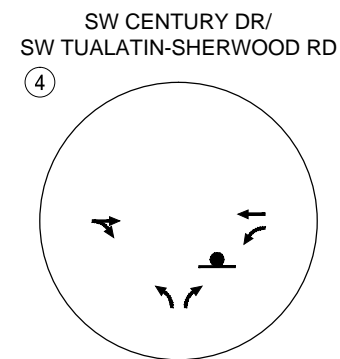
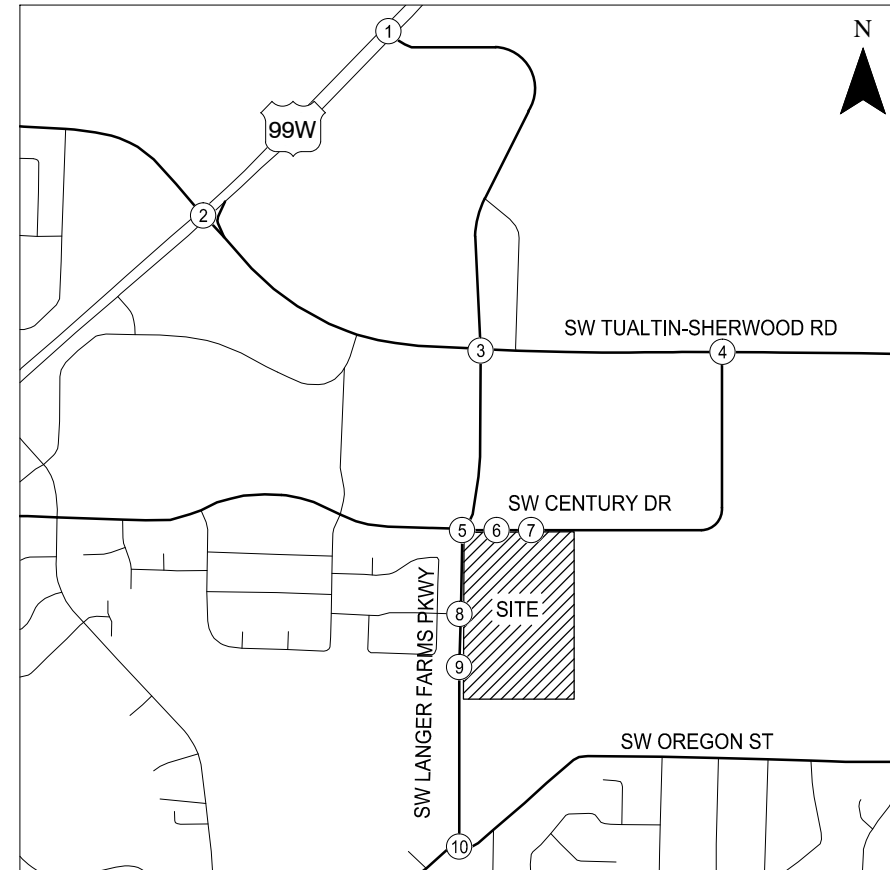
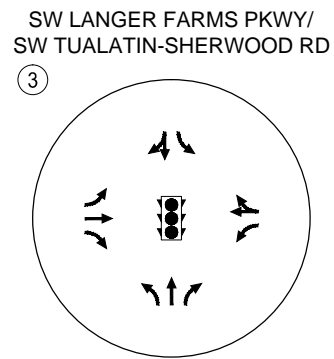
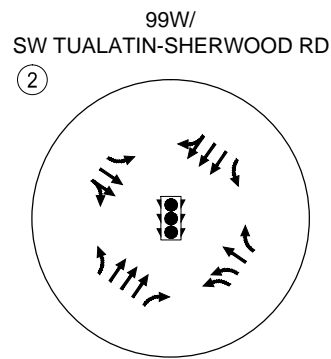
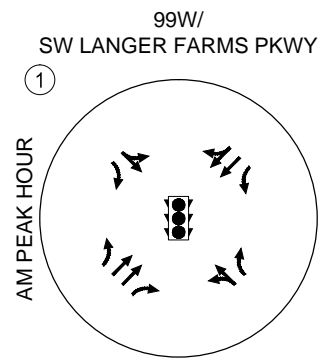
¹ Per City of Sherwood Transportation System Plan (Reference 1)

² MPH: miles per hour

³ Sidewalks are present on the north side of SW Century Drive, but not on the south side immediately east of the SW Langer Farms Parkway/SW Century Drive intersection.

Pedestrian Facilities

As shown in Table 1, SW Tualatin-Sherwood Road, SW Langer Farms Parkway, and SW Oregon Street have sidewalks within the site vicinity. Sidewalks are provided on the north side on SW Century Drive immediately east of its intersection with SW Langer Farms Parkway, but not on the south side along the proposed project site’s frontage. All the signalized study intersections and the roundabout have marked crosswalks. The intersection at SW Century Drive/SW Tualatin-Sherwood Road has curb ramps on the south side but no marked crossings.



- ROUNDABOUT
- STOP SIGN
- TRAFFIC SIGNAL

**Existing Lane Configurations & Traffic Control Devices
Sherwood, Oregon**

**Figure
3**

Bicycle Facilities

Bicycle access within the study area is primarily provided with on-street bicycle lanes. The bicycle lanes on 99W are provided continuously within the City of Sherwood. In addition, SW Tualatin-Sherwood Road has buffered bicycle lanes. SW Langer Farms Parkway, SW Century Drive, and SW Oregon Street do not have bicycle lanes present. The City of Sherwood Transportation System Plan (TSP) identifies a shared-use path on the south/east side of SW Century Drive as a short-term priority conservatively funded project. Due to the conservatively funded status, this project will not be assumed to be in-place by 2019.

Transit Facilities

Local transit service is currently provided within the site vicinity by TriMet. TriMet Line 97 provides service between Sherwood and the Tualatin WES Station via SW Tualatin-Sherwood Road, Monday through Friday from 6:20 AM to 9:30 AM and 3:10 PM to 7:00 PM on 30 minute headways. TriMet Line 93 provides service between Sherwood and the Tigard Transit Center via SW Sherwood Boulevard, SW Langer Drive, SW Baler Way, and SW Tualatin-Sherwood Road (west of SW Baler Way) Monday through Sunday from 4:15 AM to 1:00 AM on 30 to 60 minute headways. TriMet Line 94 operates Monday through Friday between Sherwood and downtown Portland from 5:45 AM to 7:00 PM on 20 to 40 minute headways except from 6:30 AM to 8:30 AM where it operates with 5 to 10 minutes headways. The closest transit stop is currently located at the intersection of SW Langer Drive and the driveway at the west edge of the proposed development site.

Traffic Safety

The reported crash history at the study intersections was reviewed to identify potential safety issues. The Oregon Department of Transportation (ODOT) provided crash records for the study intersections for the most recently available five-year period, from January 1, 2011 through December 31, 2015. Table 2 summarizes the reported crash data at the study intersections over the five-year period and shows the calculated crash rates per million entering vehicles for each study intersection. *Appendix "B" contains the crash data obtain from ODOT.*

Table 2: Intersection Crash History (January 1, 2011 – December 31, 2015)

#	Intersection	Collision Type				Severity			Total Crashes	Crash Rate (per MEV ²)
		Rear-End	Turning Movement	Angle	Other	PDO ¹	Injury	Fatal		
1	SW Langer Farms Parkway/99W	1	0	0	0	0	1	0	1	0.02
2	SW Tualatin-Sherwood Road/99W	35	8	5	5	31	22	0	53	0.85
3	SW Langer Farms Parkway/SW Tualatin-Sherwood Road	6	2	0	0	6	2	0	8	0.25
4	SW Century Drive/SW Tualatin-Sherwood Road	0	0	0	0	0	0	0	0	0
5	SW Langer Farms Parkway/SW Century Drive	0	0	0	2	1	1	0	2	0.13
10	SW Langer Farms Parkway/SW Oregon Street	0	0	0	0	0	0	0	0	0

¹ PDO = Property Damage Only

² MEV = Million Entering Vehicles

Table 3 summarizes a comparison between the calculated crash rates for each intersection and the published 90th percentile crash rates from the *Assessment of Statewide Intersection Safety Performance* (Reference 2) per ODOT methodology as described in the *Analysis Procedure Manual* (Reference 3). The results indicate that none of the study intersections exceeded the 90th percentile crash rate.

Table 3: Intersection Crash Rate Assessment

#	Intersection	Total Crashes	90th Percentile Crash Rate	Observed Crash Rate at Intersection	Observed Crash Rate > 90th Percentile Crash Rate?
1	SW Langer Farms Parkway/99W	0	0.86	0.02	No
2	SW Tualatin-Sherwood Road/99W	0	0.86	0.85	No
3	SW Langer Farms Parkway/SW Tualatin-Sherwood Road	8	0.86	0.25	No
4	SW Century Drive/SW Tualatin-Sherwood Road	0	0.293	0.00	No
5	SW Langer Farms Parkway/SW Century Drive ¹	2	0.408	0.13	No
10	SW Langer Farms Parkway/SW Oregon Street	0	0.509	0.00	No

¹ Compared to 4-leg stop-control rates.

ODOT and Washington County maintain a Safety Priority Index System (SPIS) list to identify existing hazardous intersections for potential safety improvements. Intersections are included in the SPIS list if they have three or more crashes or if they have one or more severe injury or fatal crashes within three consecutive years. The intersection at Oregon 99W and SW Tualatin-Sherwood Road is identified in the 2011-2013 Washington County SPIS List with a SPIS score of 66.0 out of 100. The intersection at SW Langer Farms Parkway and SW Tualatin-Sherwood Road is also identified with a SPIS score of 29.89 out of 100. The SPIS score is calculated based on three factors:

- Frequency of crashes (25% of the SPIS score)
- Rate of crashes (25% of the SPIS score)
- Severity of crashes (50% of the SPIS score)

Analysis Methodology

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the *2000 Highway Capacity Manual (HCM)* (Reference 4). The peak 15-minute flow rates were used in the evaluation of all intersection level-of-service (LOS) and volume-to-capacity (V/C) ratios. For this reason, the analyses reflect conditions that are only likely to occur for 15 minutes out of each average peak hour. Traffic conditions during typical weekday hours are expected to operate with lower levels of delay than those described in this report. The signalized and stop-controlled intersection operations analyses presented in this report were completed using Synchro 9 software. The roundabout intersection operations analyses were completed using SIDRA 7 software. *A description of level-of-service criteria is contained in Appendix "C".*

Operating Standards

Section 8 of The City of Sherwood's Transportation System Plan (Reference 1) sets operating standards for signalized, all-way stop-controlled (AWSC), two-way stop-controlled (TWSC) and roundabout intersections. For streets owned by Washington County or city-owned streets on the Arterial or Throughway network and inside of the Town Center (such as SW Tualatin-Sherwood Road) the standard is a V/C ratio of 0.99. For city-owned streets not on the Arterial or Throughway network and outside of the Town Center, the standards require signalized intersections, AWSC intersections, and roundabouts to meet LOS "D" or better or a V/C ratio less than 0.85. Mobility targets for TWSC intersections are LOS "E" or better or a V/C ratio of less than 0.90. For all intersection types, the level-of-service standard is assessed first and, if it is not met, the V/C target is considered.

The 99W/SW Langer Farms Parkway and 99W/SW Tualatin-Sherwood Road intersections are owned by ODOT and located within the Metro region. ODOT uses the v/c ratio to evaluate intersection performance. According to the *Oregon Highway Plan* (Reference 5), 99W is classified as a Statewide Urban Highway. The 99W/SW Langer Farms Parkway intersection is located in a corridor that requires a maximum v/c ratio of 0.99 as designated in the *2040 Growth Concept Plan* (Reference 6). Per the *2040 Growth Concept Plan*, the 99W/SW Tualatin-Sherwood Road study intersection is located in a town center area that has a maximum a v/c ratio of 1.1.

Existing Traffic Operations

Intersection turning-movement counts were conducted at the study intersections when schools were in session in June 2017. All the weekday counts were conducted on a typical mid-week day during the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak time periods. The weekday AM peak hour occurs from 7:10 to 8:10 AM and the PM peak hour occurs from 4:35 to 5:35 PM. *Appendix "D" contains the traffic count worksheets used in this study.*

Table 4 and Figure 4 summarize the operational analysis for the study intersections under the weekday AM and PM peak hour existing traffic conditions. As shown, all of the study intersections currently operate acceptably. *Appendix "E" contains the year 2017 existing traffic level-of-service worksheets.*

Table 4: Existing Conditions Operational Analysis Results

#	Intersection	LOS ¹		V/C ²		Jurisdiction ³	Standard	Met?
		AM	PM	AM	PM			
1	SW Langer Farms Parkway/99W	B (12.9)	B (17.8)	0.72	0.70	ODOT	V/C of 0.99	Yes
2	SW Tualatin-Sherwood Road/99W	D (51.1)	E (67.8)	0.92	1.03	ODOT	V/C of 1.1	Yes
3	SW Langer Farms Parkway/SW Tualatin-Sherwood Road	B (17.6)	C (27.7)	0.68	0.77	Regional	V/C of 0.99	Yes
4	SW Century Drive/SW Tualatin-Sherwood Road	C (20.1)	C (17.0)	0.17 (NB)	0.11 (NB)	Regional	V/C of 0.99	Yes
5	SW Langer Farms Parkway/SW Century Drive	A (4.4)	A (5.0)	0.17	0.29	City of Sherwood	LOS "D"	Yes
6	SW Century Drive/ West Site Driveway	A (8.7)	B (10.9)	0.03 (SB)	0.15 (SB)	City of Sherwood	LOS "E"	Yes
7	SW Century Drive/ East Site Driveway	A (9.3)	B (12.0)	0.07 (SB)	0.29 (SB)	City of Sherwood	LOS "E"	Yes
8	SW Langer Farms Parkway/North Site Driveway	B (13.2)	C (15.7)	0.23 (EB)	0.38 (EB)	City of Sherwood	LOS "E"	Yes
9	SW Langer Farms Parkway/South Site Driveway	Future Site Access						
10	SW Langer Farms Parkway/SW Oregon Street	B (16.8)	B (17.5)	0.56	0.59	Washington County	V/C of 0.99	Yes

¹ HCM 2000 Level-of-Service and average per vehicle delay in seconds

² HCM 2000 Volume-to-Capacity ratio. For TWSC intersections, the critical movement is shown.

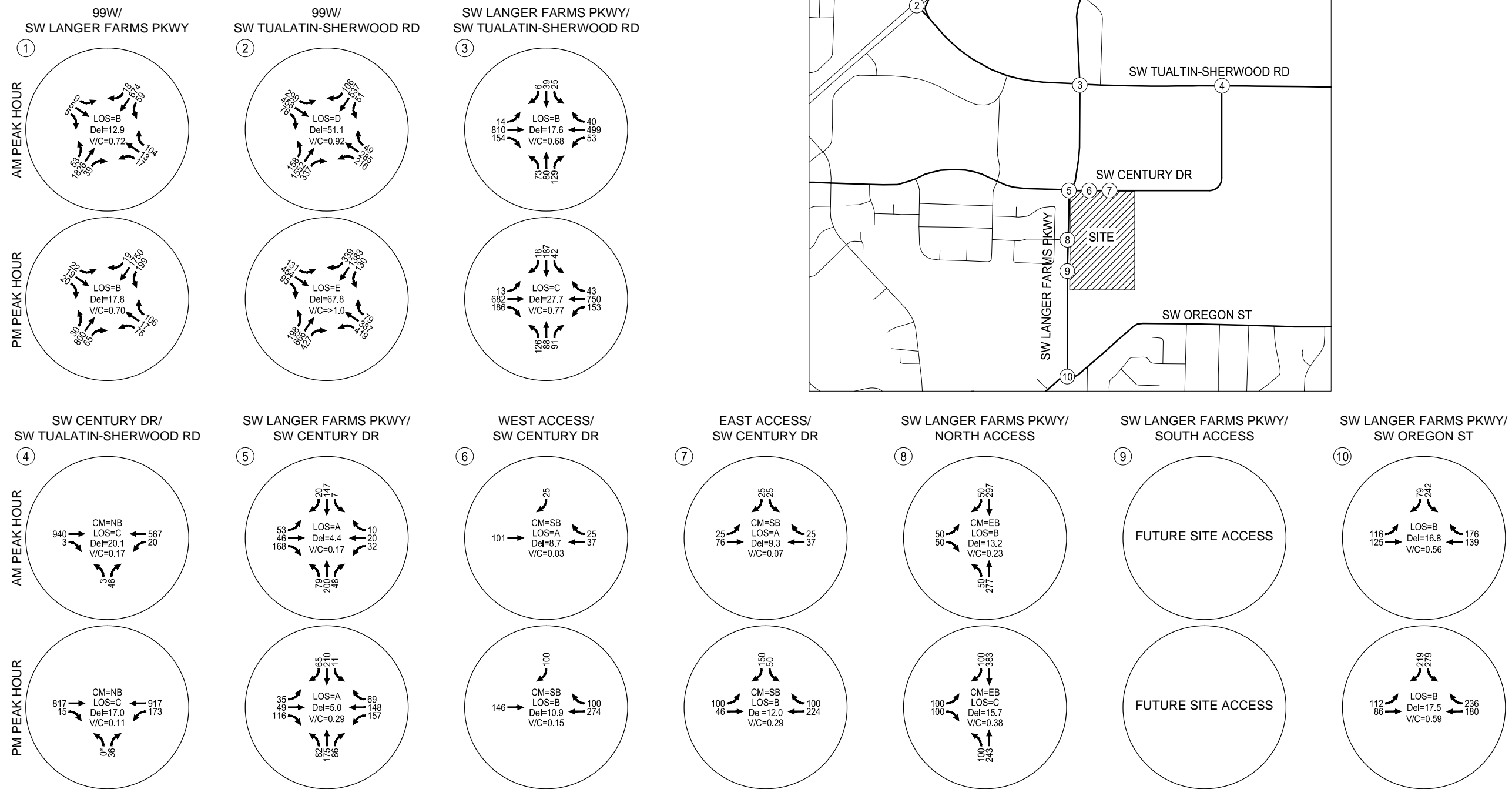
³ Regional jurisdiction is governed by the Regional Transportation Functional Plan (RTFP)

Planned Transportation Improvements

Washington County and the City of Sherwood have proposed future improvements for SW Tualatin-Sherwood Road between Langer Farms Parkway and Borchers Drive, including:

- Widening SW Tualatin-Sherwood Road to include two westbound through lanes between SW Langer Farms Parkway and Borchers Drive,
- Widening east of SW Langer Farms Parkway to include an additional eastbound through lane,
- Signal timing improvements for the 99W/SW Tualatin-Sherwood Road intersection, and
- Addition of bike facilities on both sides of SW Tualatin-Sherwood Road.

The project will be funded through the County's Major Streets Transportation Improvement Program (MSTIP). The project is estimated to be completed by December 2020. As these improvements will not be in-place before site build-out, they were not included within the analysis.



CM = CRITICAL MOVEMENT (UNSIGNALIZED)
 LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
 V/C = CRITICAL CRITICAL VOLUME-TO-CAPACITY RATIO

*VOLUME CHANGED TO 1 IN SYNCHRO.
 SYNCHRO DOES NOT PROCESS UNLESS VOLUMES ARE PRESENT FOR NBL MOVEMENT.

**2017 Existing Traffic Conditions
 Weekday AM and PM Peak Hours
 Sherwood, Oregon**

Figure
4

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TRAFFIC IMPACT ANALYSIS

The future conditions analysis identifies how the transportation facilities within the study area will operate in the proposed project completion year of 2019. The following elements were analyzed to account for the impacts of the proposed development:

- Year 2019 background traffic conditions (without the proposed development) were analyzed at each of the study intersections during the weekday AM and PM peak hours.
 - Planned improvements widening of westbound SW Tualatin-Sherwood Road to two through lanes were incorporated into the traffic operations study.
 - Background traffic volumes, including traffic from in-process developments and applying a 2.0 percent annual growth rate to existing traffic volumes to account for traffic growth in the site vicinity between the years 2017 and 2019.
- Trips generated by the proposed development
- Year 2019 total traffic conditions, assuming full build-out and occupancy of the proposed development.

Year 2019 Background Traffic Conditions

The year 2019 background traffic conditions analysis identifies how the study area's transportation system will operate without the proposed development. This analysis includes trips from traffic attributed to general growth in the region, but does not include traffic from the proposed development. No in-process developments were identified in the vicinity of the proposed development.

Background Growth

An annual growth rate for background traffic of 2.0 percent was assumed for the analysis.

Level-of-Service Analysis

The weekday AM and PM peak-hour turning-movement volumes and operational results in Figure 5 show the results of the year 2019 background traffic analysis. As indicated by the respective figure and shown in Table 5, the background traffic analysis determined that all of the study intersections are forecast to operate at levels which meet the mobility standards of the governing agency during both weekday AM and PM peak hours. *Appendix "F" contains the year 2019 background traffic level-of-service worksheets.*

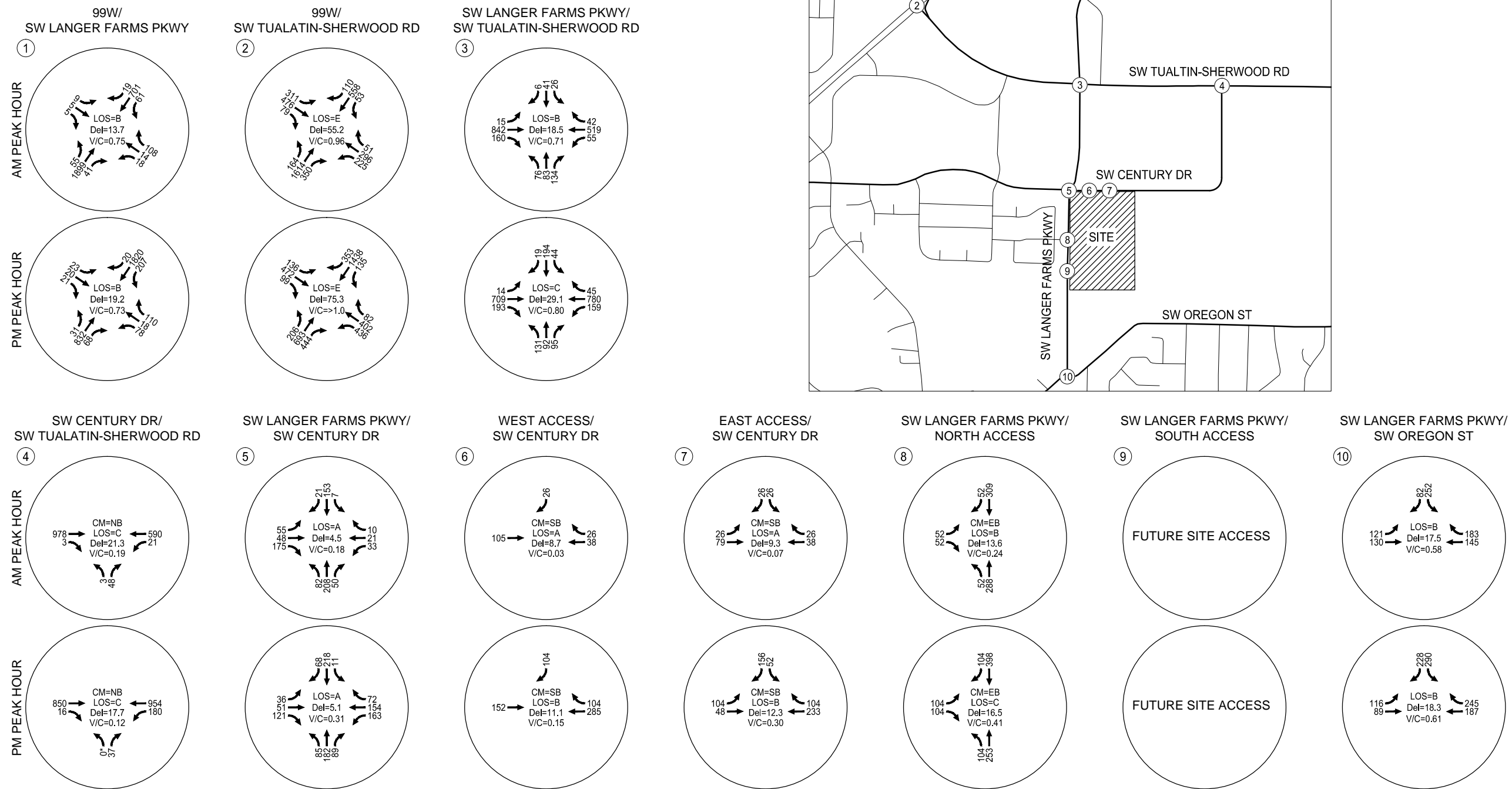
Table 5: 2019 Background Conditions Operational Analysis Results

#	Intersection	LOS ¹		V/C ²		Jurisdiction ³	Standard	Met?
		AM	PM	AM	PM			
1	SW Langer Farms Parkway/99W	B (13.7)	B (19.2)	0.75	0.73	ODOT	V/C of 0.99	Yes
2	SW Tualatin-Sherwood Road/99W	E (55.2)	E (75.3)	0.96	1.07	ODOT	V/C of 1.1	Yes
3	SW Langer Farms Parkway/SW Tualatin-Sherwood Road	B (18.5)	C (29.1)	0.71	0.80	Regional	V/C of 0.99	Yes
4	SW Century Drive/SW Tualatin-Sherwood Road	C (21.3)	C (17.7)	0.19 (NB)	0.12 (NB)	Regional	V/C of 0.99	Yes
5	SW Langer Farms Parkway/SW Century Drive	A (4.5)	A (5.1)	0.18	0.31	City of Sherwood	LOS "D"	Yes
6	SW Century Drive/ West Site Driveway	A (8.7)	B (11.1)	0.03 (SB)	0.15 (SB)	City of Sherwood	LOS "E"	Yes
7	SW Century Drive/ East Site Driveway	A (9.3)	B (12.3)	0.07 (SB)	0.30 (SB)	City of Sherwood	LOS "E"	Yes
8	SW Langer Farms Parkway/North Site Driveway	B (13.6)	C (16.5)	0.24 (EB)	0.41 (EB)	City of Sherwood	LOS "E"	Yes
9	SW Langer Farms Parkway/South Site Driveway	Future Site Access						
10	SW Langer Farms Parkway/SW Oregon Street	B (17.5)	B (18.3)	0.58	0.61	Washington County	V/C of 0.99	Yes

¹ HCM 2000 Level-of-Service and average per vehicle delay in seconds

² HCM 2000 Volume-to-Capacity ratio. For TWSC intersections, the critical movement is shown.

³ Regional jurisdiction is governed by the Regional Transportation Functional Plan (RTFP)



CM = CRITICAL MOVEMENT (UNSIGNALIZED)
 LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
 V/C = CRITICAL CRITICAL VOLUME-TO-CAPACITY RATIO

*VOLUME CHANGED TO 1 IN SYNCHRO.
 SYNCHRO DOES NOT PROCESS UNLESS VOLUMES ARE PRESENT FOR NBL MOVEMENT.

**2019 Background Traffic Conditions
 Weekday AM and PM Peak Hours
 Sherwood, Oregon**

Figure
5

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Proposed Development Plan

The proposed development includes 30,608 square feet of retail, 1,800 square feet of fast food restaurant with drive through window², 92,899 square feet of a recreational center, and a 392 square foot coffee stand. Access to the development is proposed via two full-access driveways on SW Langer Farms Parkway, one full-access driveway on SW Century Drive, and one right-in/right-out driveway on SW Century Drive as shown in Figure 2.

Trip Generation

Trip generation estimates for the proposed development were prepared based on the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 9th Edition (Reference 7). Trip internalization rates between the coffee shop, drive-through restaurant, recreational center, and shops were developed based on guidance in the *Trip Generation Handbook*, 3rd Edition (Reference 8) through the OTISS Traffic software, using ITE's *Trip General Manual*, 9th Edition and ITE's *Trip Generation Handbook*, 3rd Edition rates and methodologies. Pass-by rates were drawn from the *Trip Generation Handbook*. Where internalization or pass-by rates were not available for daily patterns, the weekday AM and weekday PM reductions were summed to reflect a conservative minimum reduction. Therefore, daily internalization and pass-by reductions are likely to be higher than the reductions shown, resulting in fewer daily trips.

Based on our review of all possible recreational land use categories defined in the ITE Trip Generation Manual, it is our professional opinion that ITE Code 495 (Recreational Community Center) best reflects the intended use and trip generation characteristics of the "Fun Center" building shown in Figure 2. There are several reasons to support this position.

1. The primary reason is that Recreational Community Centers, by ITE definition, facilitate a variety of sporting activities and supporting services that cater to adults and children, all within a single building. Based on a recent "Similar Use Interpretation" letter prepared by the City of Sherwood (Reference 9), a variety of sporting and entertainment activities are allowed for the "Fun Center" building, including bowling, an arcade, laser tag, an obstacle course, an electric Go Kart track, and a rope course. Other complimentary services are also allowed such as retail/pro shop, concessions, restaurant, party/event space, and a toddler play area. Taken together, these activities and services, while entertaining, are also sports-related. They are also family-oriented, and will occur within a single building.
2. There is sufficient empirical data available for ITE's Recreational Community Center land use. The weekday AM and PM peak hour trip generation rates for this land use category were developed from at least 6 or 7 studies, whereas other possible ITE land use categories, such as

² A fast food restaurant is a potential use, and was selected to generate a conservative estimate of site vehicle trips.

Multipurpose Recreational Facilities (ITE Code 435), have very limited or unreliable data sets (3 or less studies).

- The size of the proposed “Fun Center” building, at around 92,899 SF, fits within the range of building sizes of the empirical data in ITE for a Recreational Community Center. It does not fit within the range of building sizes for a Multipurpose Recreational Facility.

In conclusion, while the proposed “Fun Center” may better fit the description of a Multipurpose Recreational Facility (ITE Code 435), the Recreational Community Center (ITE Code 495) land use is a more reliable and accurate choice, due to ample data sets and a compatible land use description.

Table 6 displays the estimated trip generation for the proposed site development. *Appendix “G” includes the OTISS trip internalization calculations.*

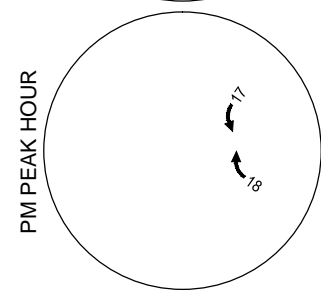
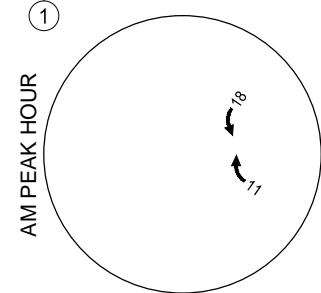
Table 6: Proposed Parkway Village South Development Trip Generation Estimate

Land Use Category	ITE Code	Size (SF)	Total Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Coffee/Donut Shop Drive Through, No Indoor Seating	938	392	706	119	60	59	29	15	14
<i>Less Internal Trips (7% AM, 38% PM)</i>			-19	-8	-4	-4	-11	-4	-7
<i>Less Pass-By Trips (83% Daily, AM, and PM)</i>			-570	-92	-46	-46	-15	-9	-6
Shopping Center (Retail A + Retail B+ 70% of Retail C + Pad A)	820	30,608	3,146	76	47	29	271	130	141
<i>Less Internal Trips (21% AM, 14% PM)</i>			-57	-16	-8	-8	-41	-22	-19
<i>Less Pass-By Trips (34% Daily and AM, 62% PM)</i>			-1050	-20	-13	-7	-143	-67	-76
Fast-Food Restaurant with Drive Through (30% of Retail C)	934	1,800	893	82	42	40	59	31	28
<i>Less Internal Trips (10% AM, 39% PM)</i>			-31	-8	-4	-4	-23	-10	-13
<i>Less Pass-By Trips (49% Daily, 49% AM, 50% PM)</i>			-422	-39	-20	-19	-18	-11	-8
Recreational Community Center	495	92,899	3,142	190	125	65	255	125	130
<i>Less Internal Trips (0% AM, 6% PM)</i>			-15	0	0	0	-15	-9	-6
<i>Less Pass-By Trips (0%)</i>			0	0	0	0	0	0	0
Total Trips			7,887	467	274	193	614	301	313
<i>Less Internal Trips</i>			-122	-32	-16	-16	-90	-45	-45
<i>Less Pass-by Trips</i>			-2042	-151	-79	-72	-176	-87	-90
Net New Primary Trips			5,723	284	179	105	348	169	178

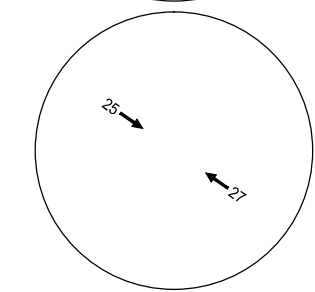
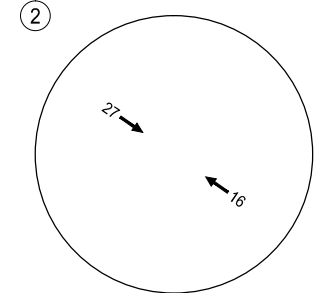
Trip Distribution

The distribution of site-generated trips onto the study area roadway system was estimated based on a review of surrounding roadway characteristics, existing land uses, proposed uses for the site, and current traffic count patterns. It should be emphasized that while the recreational community center element of this project is expected to draw customers both from the local population of Sherwood as well as nearby cities, the remaining retail elements, which generate more traffic, are expected to primarily draw from the local population. Figure 6 illustrates the proposed trip distribution patterns for site build-out.

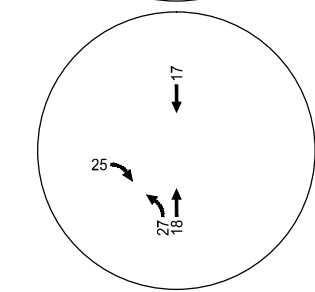
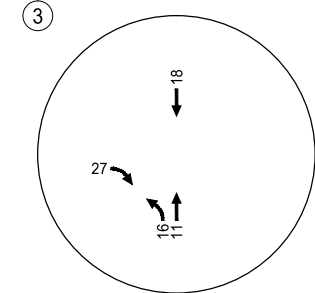
① 99W/
SW LANGER FARMS PKWY



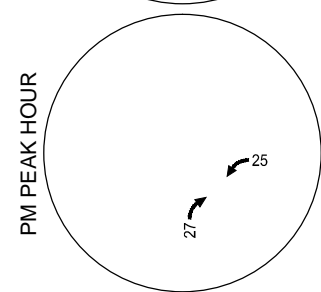
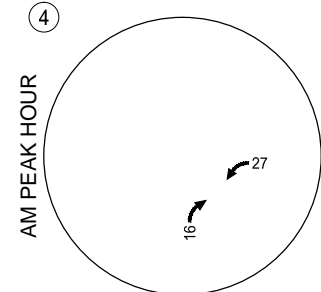
② 99W/
SW TUALATIN-SHERWOOD RD



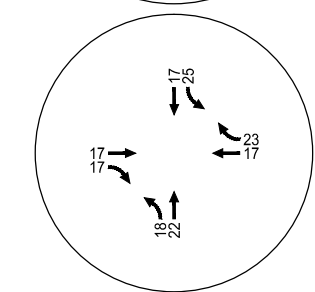
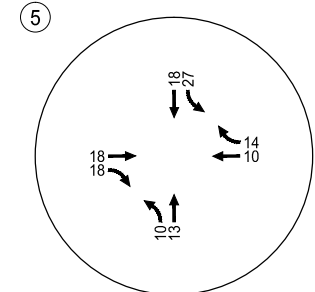
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SW TUALATIN-SHERWOOD RD



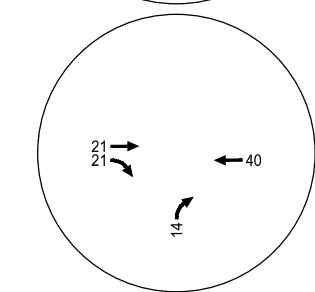
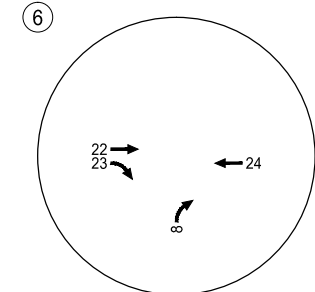
④ SW CENTURY DR/
SW TUALATIN-SHERWOOD RD



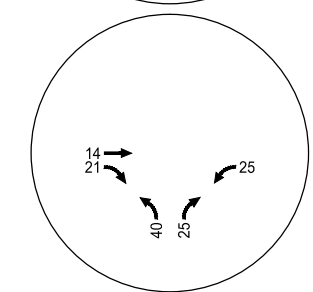
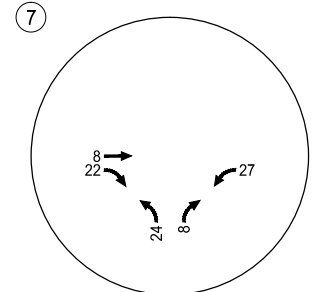
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SW CENTURY DR



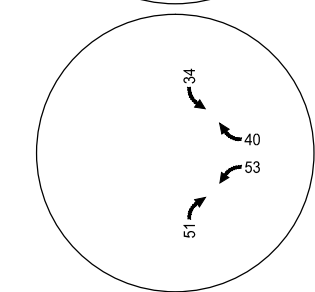
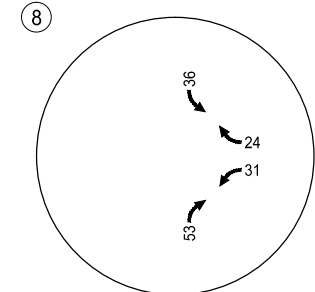
⑥ WEST ACCESS/
SW CENTURY DR



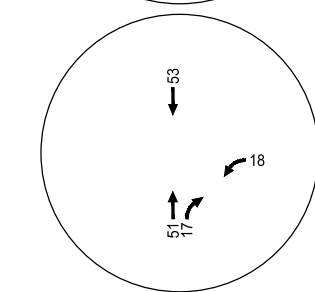
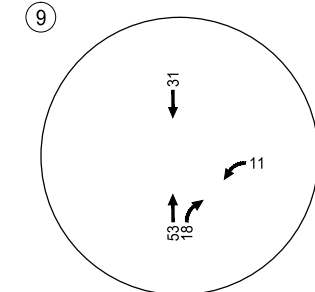
⑦ EAST ACCESS/
SW CENTURY DR



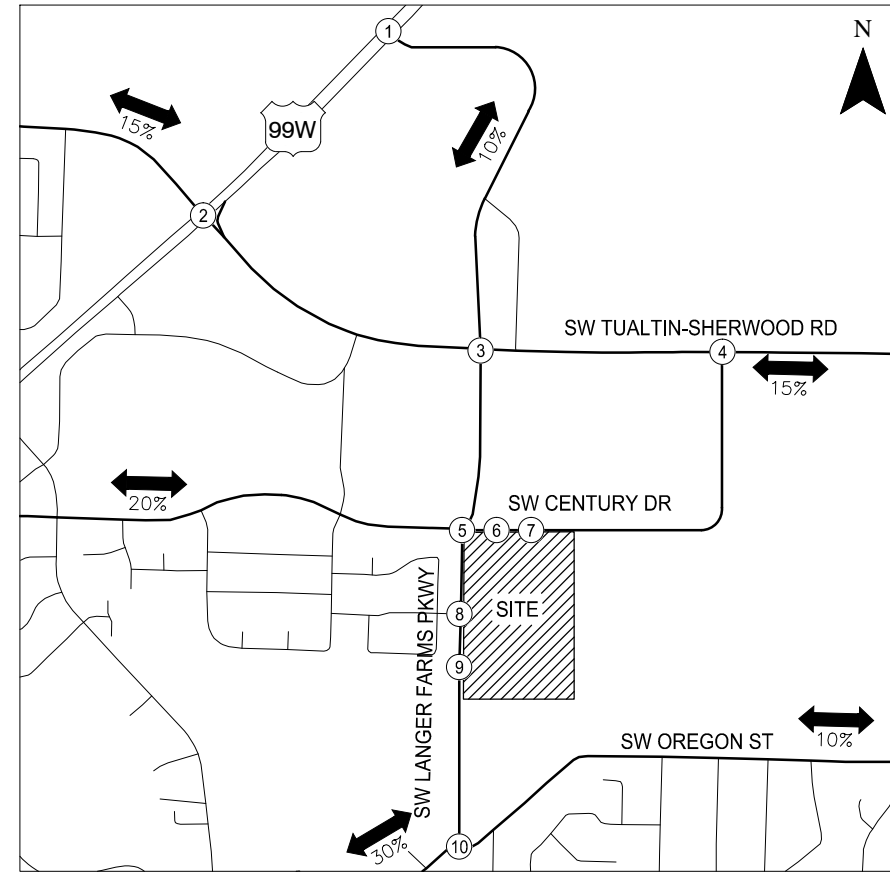
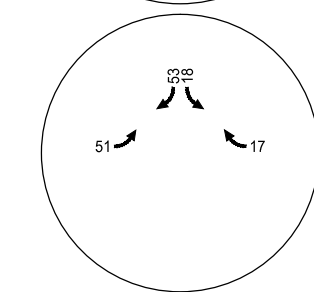
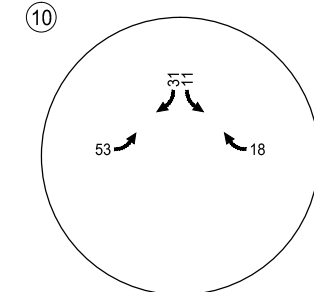
⑧ SW LANGER FARMS PKWY/
NORTH ACCESS



⑨ SW LANGER FARMS PKWY/
SOUTH ACCESS

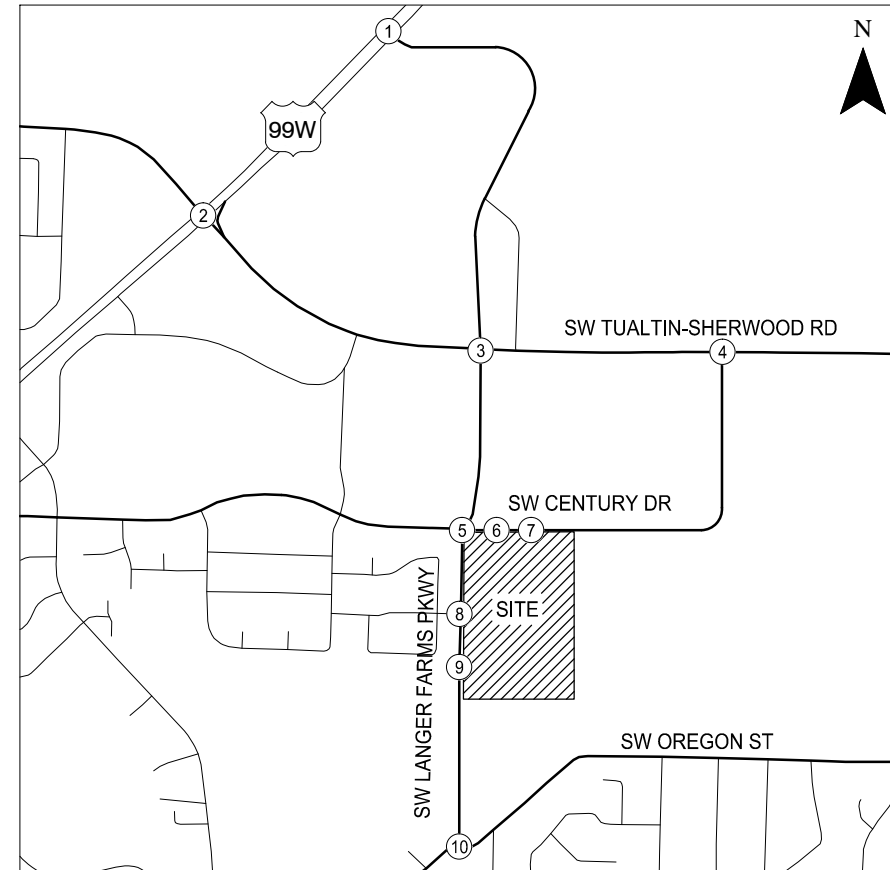
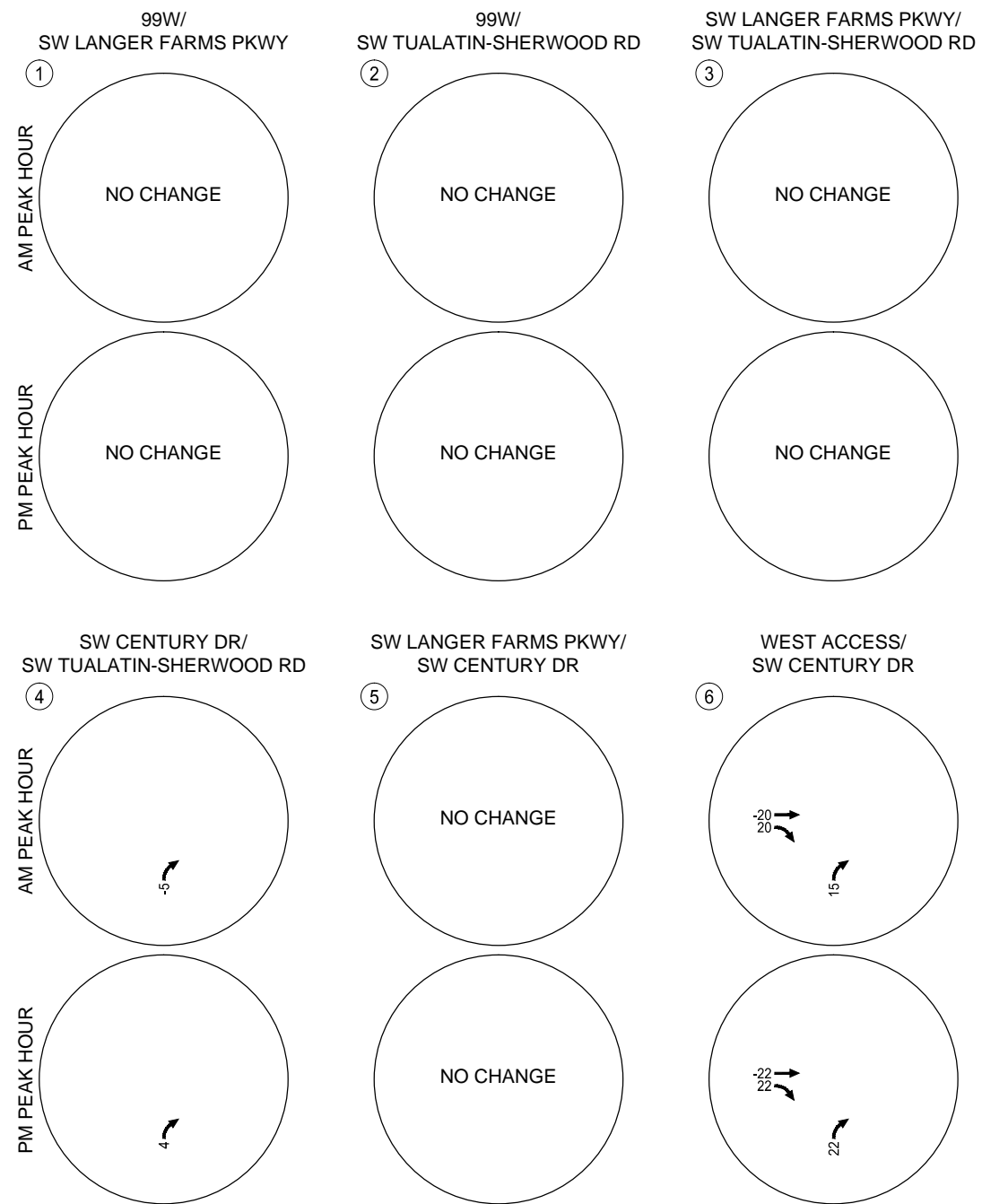


⑩ SW LANGER FARMS PKWY/
SW OREGON ST



Estimated Net New Trip Distribution and Assignment
Weekday AM and PM Peak Hours
Sherwood, Oregon

Figure
6



**Rerouted Traffic Volumes
Weekday AM and PM Peak Hours
Sherwood, Oregon**

**Figure
7**

Trip Assignment

In addition to the trip distribution patterns shown in Figure 6, the figure also shows the AM and PM peak hour assignments of net new trips for the site development. Figure 7 shows the rerouted pass-by trips for the proposed development.

Year 2019 Total Traffic Conditions

The total traffic conditions analysis forecasts how the study area’s transportation system will operate with the traffic generated by the proposed development. The net new site-generated traffic and rerouted pass-by traffic shown in Figure 6 and 7 were added to the year 2019 background traffic volumes for the weekday AM and PM peak hours shown in Figure 5 to arrive at the total traffic volumes shown in Figure 8.

Level-of-Service Analysis

The weekday AM and PM peak-hour turning-movement volumes and operational results in Figure 8 show the results of the year 2019 total traffic analysis. As indicated by the respective figure and shown in Table 7, the total traffic analysis determined that all of the study intersections and site driveways are forecast to operate at levels which meet the mobility standards of the governing agency during both weekday AM and PM peak-hours. *Appendix “H” contains the year 2019 total traffic level-of-service worksheets.*

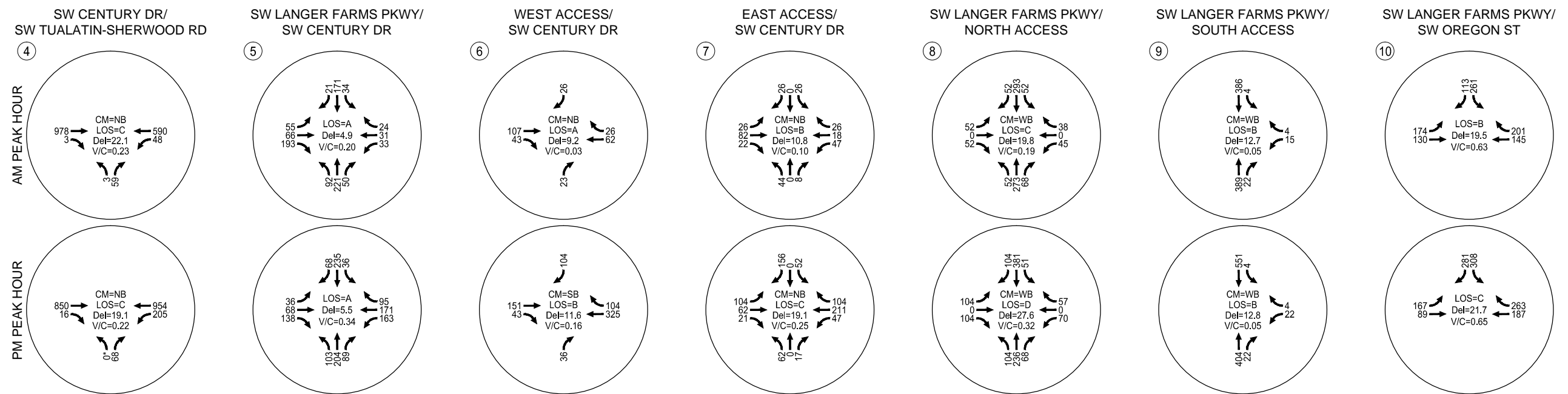
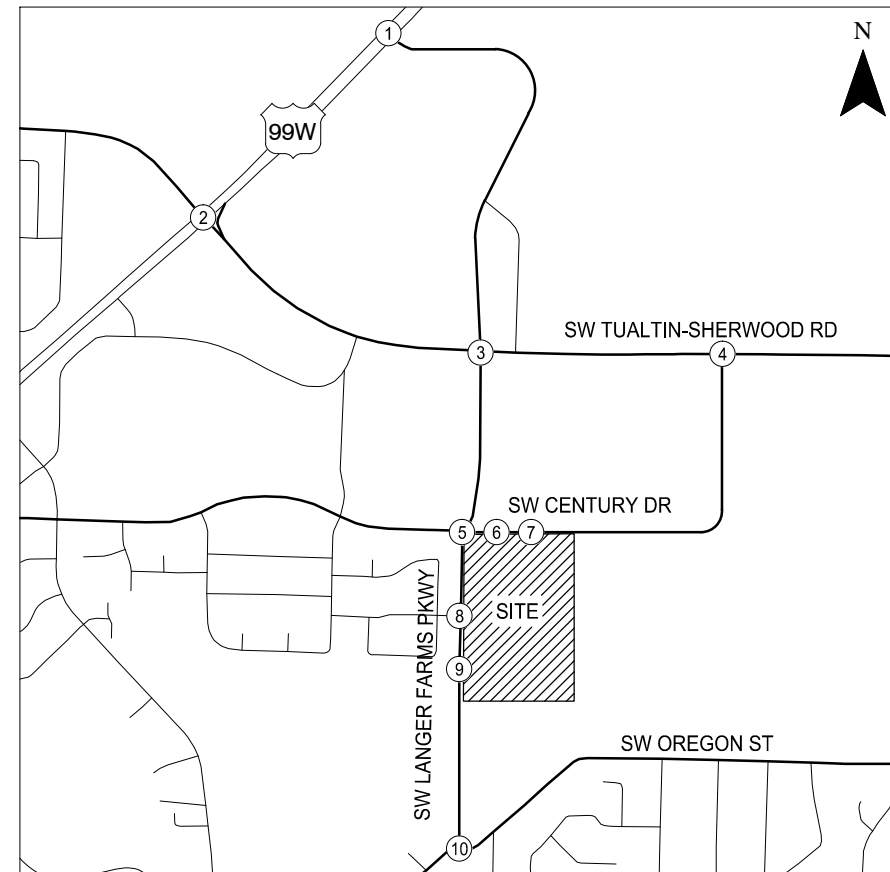
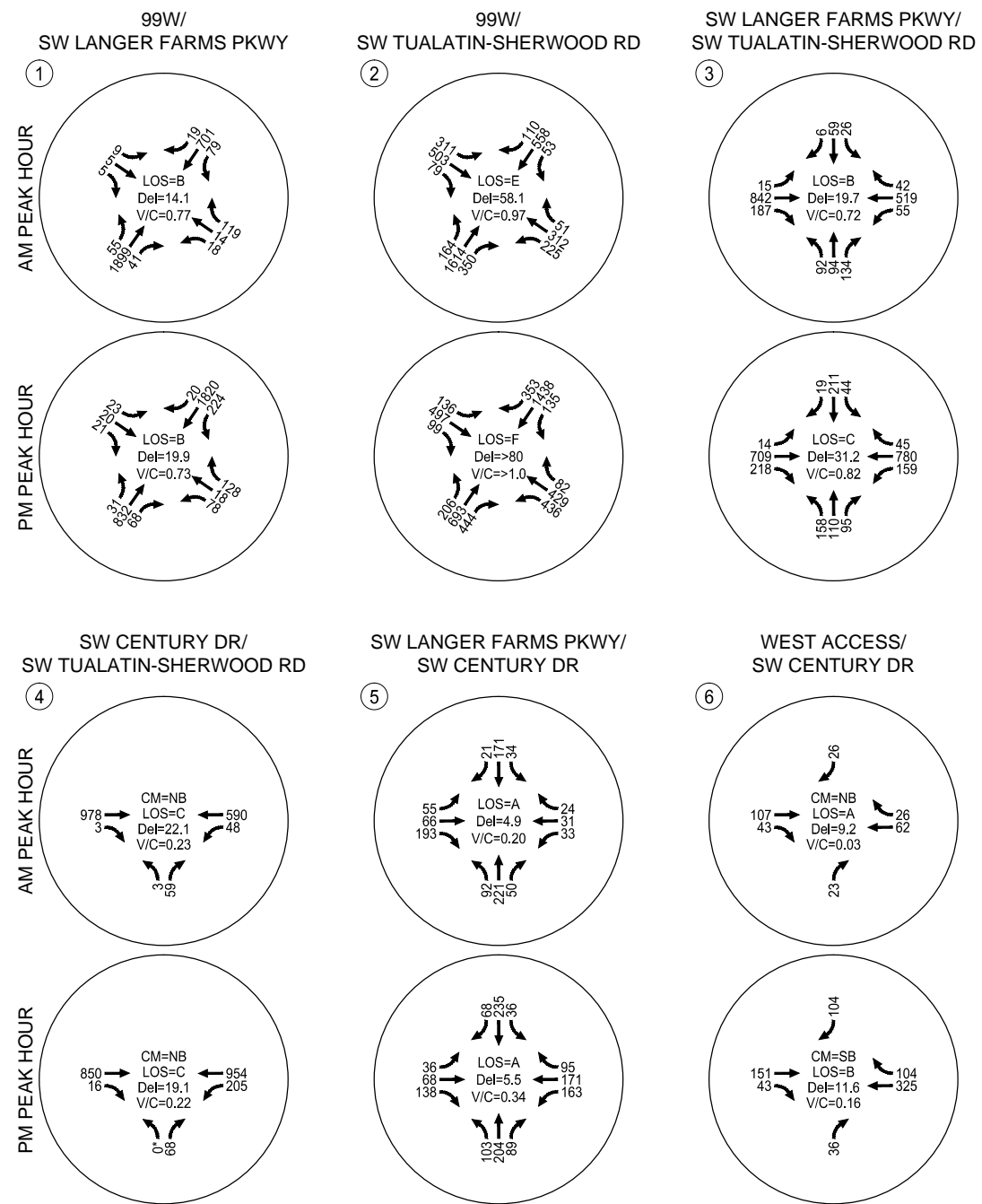
Table 7: 2019 Total Traffic Conditions Operational Analysis Results

#	Intersection	LOS ¹		V/C ²		Jurisdiction ³	Standard	Met?
		AM	PM	AM	PM			
1	SW Langer Farms Parkway/99W	B (14.1)	B (19.9)	0.77	0.73	ODOT	V/C of 0.99	Yes
2	SW Tualatin-Sherwood Road/99W	E (58.1)	F (80.0)	0.97	1.09	ODOT	V/C of 1.1	Yes
3	SW Langer Farms Parkway/SW Tualatin-Sherwood Road	B (19.7)	C (31.2)	0.72	0.82	Regional	V/C of 0.99	Yes
4	SW Century Drive/SW Tualatin-Sherwood Road	C (22.1)	C (19.1)	0.23 (NB)	0.22 (NB)	Regional	V/C of 0.99	Yes
5	SW Langer Farms Parkway/SW Century Drive	A (4.9)	A (5.5)	0.20	0.34	City of Sherwood	LOS “D”	Yes
6	SW Century Drive/ West Site Driveway	A (9.2)	B (11.6)	0.03 (SB)	0.16 (SB)	City of Sherwood	LOS “E”	Yes
7	SW Century Drive/ East Site Driveway	B (10.8)	C (19.1)	0.10 (NB)	0.25 (NB)	City of Sherwood	LOS “E”	Yes
8	SW Langer Farms Parkway/North Site Driveway	B (19.8)	D (27.6)	0.19 (WB)	0.32 (WB)	City of Sherwood	LOS “E”	Yes
9	SW Langer Farms Parkway/South Site Driveway	B (12.7)	B (12.8)	0.05 (WB)	0.05 (WB)	City of Sherwood	LOS “E”	Yes
10	SW Langer Farms Parkway/SW Oregon Street	B (19.5)	C (21.7)	0.63	0.65	Washington County	V/C of 0.99	Yes

¹ HCM 2000 Level-of-Service and average per vehicle delay in seconds

² HCM 2000 Volume-to-Capacity ratio. For TWSC intersections, the critical movement is shown.

³ Regional jurisdiction is governed by the Regional Transportation Functional Plan (RTFP)



CM = CRITICAL MOVEMENT (UNSIGNALIZED)
 LOS = CRITICAL MOVEMENT LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
 V/C = CRITICAL CRITICAL VOLUME-TO-CAPACITY RATIO

*VOLUME CHANGED TO 1 IN SYNCHRO.
 SYNCHRO DOES NOT PROCESS UNLESS VOLUMES ARE PRESENT FOR NBL MOVEMENT.

**2019 Total Traffic Conditions
 Weekday AM and PM Peak Hours
 Sherwood, Oregon**

Figure
8

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Queuing Analysis

This traffic analysis includes a review of 95th percentile queuing conditions during the weekday AM and PM peak hours at the proposed site driveways, with results shown in Table 8 for year 2019 site build-out conditions. The results indicate that forecast 95th percentile queue lengths would be able to be adequately accommodated.

Table 8: 95th Percentile Queuing Analysis

Intersection	Movement	95th Percentile Queue Length (feet)		Available Storage (feet)
		Weekday AM Peak Hour (Total Traffic)	Weekday PM Peak Hour (Total Traffic)	
SW Century Drive/ West Site Driveway	NBR	25	25	50
SW Century Drive/ East Site Driveway	NB LTR	25	25	50
	SB LTR	25	50	100
SW Langer Farms Parkway/North Site Driveway	EB LTR	50	75	100
	WBL	25	50	50
SW Langer Farms Parkway/South Site Driveway	EB LR	25	25	50

All 95th percentile queue lengths rounded up to the nearest 25 feet.
 EB: Eastbound, WB: Westbound, NB: Northbound, SB: Southbound
 R: Right, L: Left, T: Through

Site Access and Sight Distance

The development would have four site driveways, with two site driveways on SW Century Drive and two site driveways on SW Langer Farms Parkway. A right-in right-out site driveway is located about 200 feet east of the SW Langer Farms Parkway/SW Century Drive roundabout. A full-access driveway is located about 450 feet east of the SW Langer Farms Parkway/SW Century Drive roundabout is opposite an existing Parkway Village at Sherwood driveway. The two site driveways on SW Langer Farms Parkway are full-access, with one site driveway approximately 480 feet south of the SW Langer Farms Parkway/SW Century Drive roundabout and opposite SW Whetstone Way and one site driveway approximately 780 feet south of the SW Langer Farms Parkway/SW Century Drive roundabout.

According to the City of Sherwood standard, sight distance at an intersection or a driveway must meet guidelines from the American Association of State Highway and Transportation Officials, *A Policy of Geometric Design of Highways and Streets 2004*, Fifth Edition, as described in Section 210.5 of the City of Sherwood Engineering Design Manual (Reference 10). Sight distance was measured in accordance with these guidelines, 15 feet from the near edge of the nearest lane of the intersecting street. Table 9 shows the field-measured sight distance at the access point.

Intersection sight distance met the established guidelines. However, new vegetation along SW Langer Farms Parkway could reduce sight distance without maintenance. Vegetation should be maintained to ensure adequate sight distance.

Table 9: Estimated Intersection Sight Distance

Intersection	Measured Sight Distance - Facing Left (feet)	Measured Sight Distance - Facing Right (feet)	Speed (MPH) ¹	Minimum Intersection Sight Distance (feet) ²	Adequate?
SW Century Drive/ West Site Driveway	450	>500	25	280	Yes
SW Century Drive/ East Site Driveway	300	>500	25	280	Yes
SW Langer Farms Parkway/North Site Driveway	>500	>500	25	280	Yes
SW Langer Farms Parkway/South Site Driveway	>500	>500	25	280	Yes

¹ MPH = miles per hour

² Desired minimum sight distance based on AASHTO *A Policy on Geometric Design of Highways and Streets, 5th Edition* (based on AASHTO Case B2 and B3)

RECOMMENDATIONS

In accordance with the City of Sherwood Zoning and Community Development Code 16.90.030.D.6, the results of this study indicate that the proposed development can be developed while maintaining acceptable traffic operations and safety at the study intersections. The recommendation of this analysis and our recommendations are discussed below.

The following are the recommendations as part of this proposed development.

- Shrubbery and landscaping, as well as above ground utilities and signage near the site access points should be located and maintained to ensure adequate sight distance.
- Sidewalk facilities, as indicated in the site plan in Figure 2, should be provided along the project frontages. Sidewalk facilities do not currently exist along the south side of SW Century Drive along the project frontage, lacking connectivity between SW Langer Farms Parkway/SW Century Drive and properties to the east of the proposed site.

REFERENCES

1. City of Sherwood. *Transportation System Plan*. 2014
2. Oregon Department of Transportation. *SPR 667 Assessment of Statewide Intersection Safety Performance*. June 2011.
3. Oregon Department of Transportation. *Analysis Procedure Manual, Version 2*. February 2017.
4. Transportation Research Board. *2000 Highway Capacity Manual*. 2000.
5. Oregon Department of Transportation. *Oregon Highway Plan*. May 2015.
6. Metro. *2040 Growth Concept Plan*. 2014.
7. Institute of Transportation Engineers. *Trip Generation, 9th Edition*. 2012.
8. Institute of Transportation Engineers. *Trip Generation Handbook, 3rd Edition*. 2014.
9. City of Sherwood. *"Similar Use Interpretation for Lager Farms Proposed Fun Center Use"*. April 18, 2017.
10. City of Sherwood. *Engineering Design and Standard Detail Manual*. April 23, 2010

APPENDICES

- A. Scoping Memorandum
- B. Crash Data
- C. Level-of-Service Concept
- D. Traffic Counts
- E. Existing Conditions Worksheets
- F. 2019 Background Conditions Worksheets
- G. OTISS Internalization Calculations
- H. 2019 Total Traffic Conditions Worksheets

Appendix A Scoping Memorandum

SCOPING MEMORANDUM

Date: June 23, 2017

Project #: 21487

To: Bob Galati, City of Sherwood

From: Brian Dunn, PE, Krista Purser, & Caitlin Mildner

Project: PAC 16-08 South Parkway Village (SW Langer Farms Parkway)

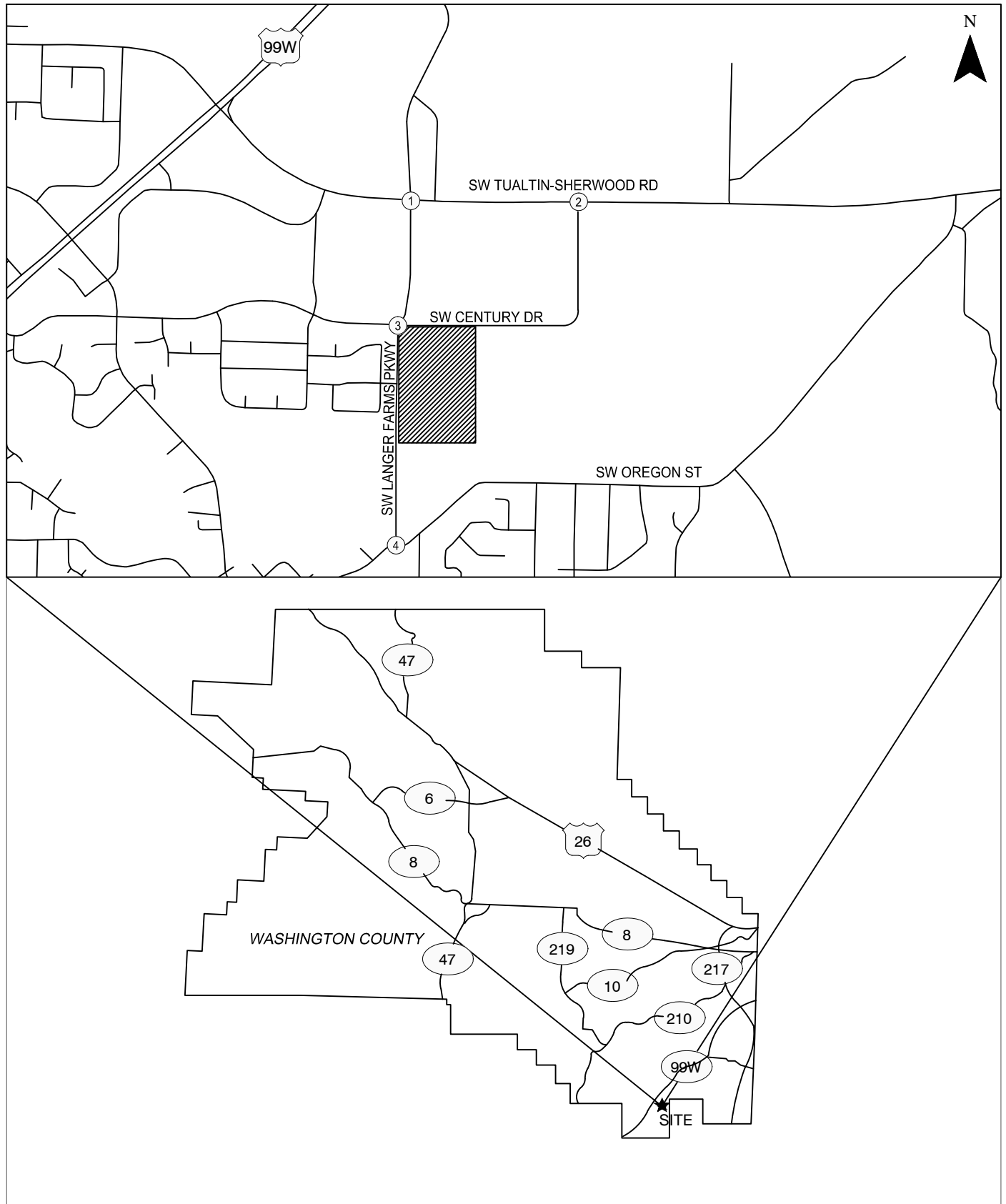
Subject: Traffic Impact Study Scoping Memorandum

This memorandum represents a scoping needs assessment for preparing the Traffic Impact Study (TIS) associated with the proposed South Parkway Village development located on the southeast corner of the SW Century Drive/SW Langer Farms Parkway intersection in Sherwood, OR. The assumptions for scoping the TIS are based on a preapplication meeting and discussions between the City of Sherwood and the Applicant, our review of a conceptual site plan, and our working knowledge of the transportation policies of the City of Sherwood.

Proposed Development

The Applicant, Langer Family, LLC, is in the process of preparing an application to develop 91,277 square feet of recreational community center, 30,608 square feet of shopping center, 1,800 square feet of fast-food restaurant with drive through window, and a 382 square foot coffee shop with drive through window and no indoor seating on the subject property. The site is currently vacant and is bordered by SW Century Drive and shopping centers to the north, industrial land uses and an industrial office center to the south and east, and SW Langer Farms Parkway and residential neighborhoods to the west.

Figure 1 displays a site vicinity map and Figure 2 displays the proposed site plan. As shown, the site development will be accessed via two full access driveways to SW Langer Farms Parkway and separate right-in/right-out and full access driveways on SW Century Drive.



- Study Intersections

Site Vicinity Map
Sherwood, Oregon

Figure
1

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SITE PLAN PROVIDED BY AKS ENGINEERING 5/24/2017

**Proposed Site Plan
Sherwood, Oregon**

**Figure
2**

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Trip Generation

Preliminary trip generation estimates for the proposed development were prepared based on the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 9th Edition (Reference 1). Table 1 displays the preliminary trip generation for the proposed site. Trip internalization rates between the coffee shop, drive-through restaurant, recreational center, and shops were developed based on guidance in *Trip Generation Handbook*, 3rd Edition (Reference 2) through the OTISS Traffic software, using ITE's *Trip General Manual*, 9th Edition and ITE's *Trip Generation Handbook*, 3rd Edition rates and methodologies. Pass-by rates were drawn from the *Trip Generation Handbook*. Where internalization or pass-by rates were not available for daily patterns, the weekday AM and weekday PM reductions were summed to reflect a conservative minimum reduction. Therefore, daily internalization and pass-by reductions are likely to be higher than the reductions shown, resulting in fewer daily trips. The trip internalization calculations are attached to this memorandum.

Table 1. Preliminary Trip Generation Estimate

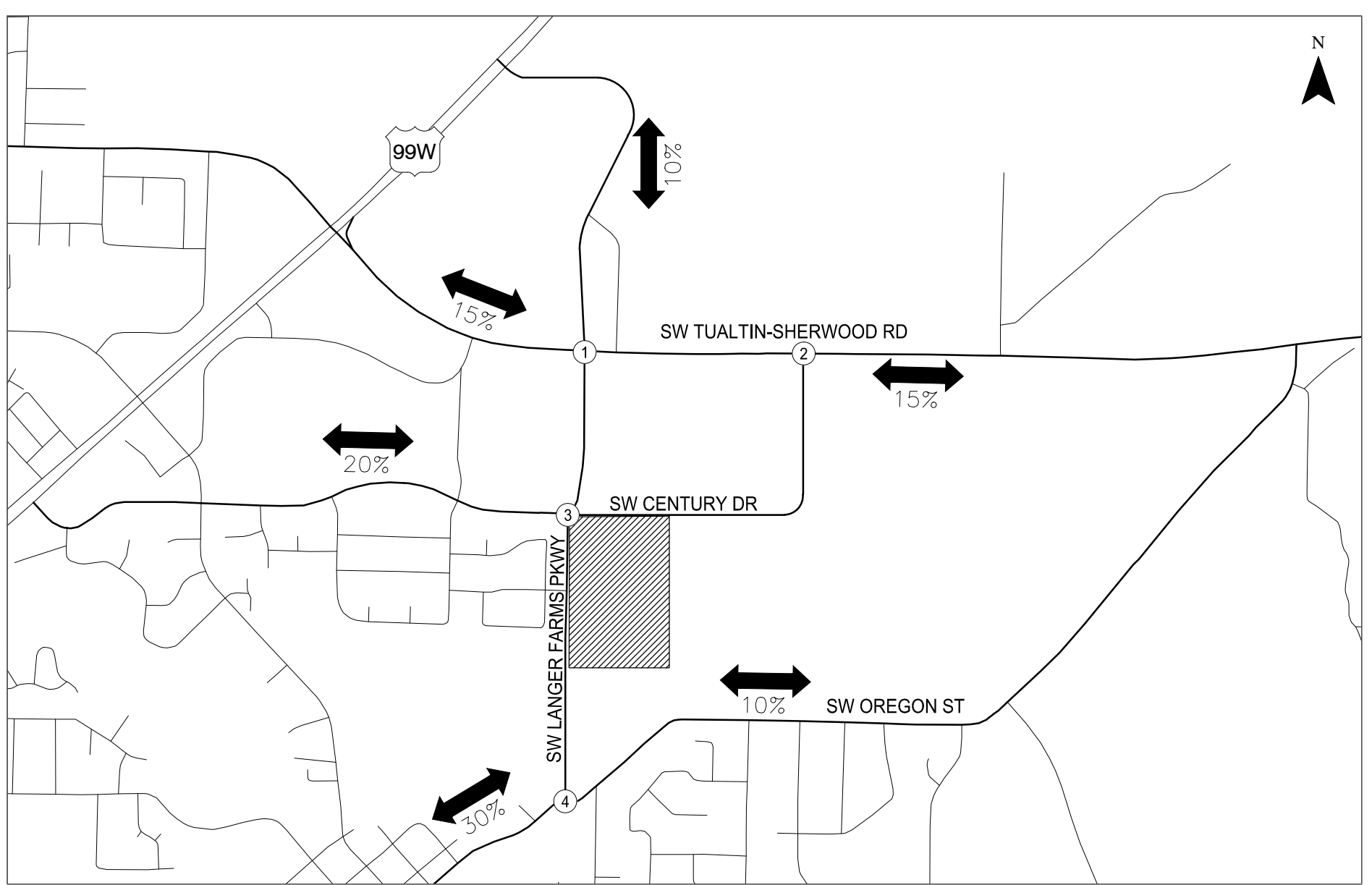
Land Use Category	ITE Code	Size (SF)	Total Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Coffee/Donut Shop Drive Through, No Indoor Seating	938	382	688	116	58	58	29	15	14
<i>Less Internal Trips (5% AM, 38% PM)</i>			-19	-8	-4	-4	-11	-4	-7
<i>Less Pass-By Trips (83% Daily, AM, and PM)</i>			-555	-90	-45	-45	-15	-9	-6
Shopping Center (Retail A + Retail B+ 70% of Retail C)	820	30,608	3,146	76	47	29	271	130	141
<i>Less Internal Trips (20% AM, 18% PM)</i>			-57	-16	-8	-8	-41	-22	-19
<i>Less Pass-By Trips (34% Daily and AM, 62% PM)</i>			-1,050	-20	-13	-7	-143	-67	-76
Fast-Food Restaurant with Drive Through (30% of Retail C)	934	1,800	893	82	42	40	59	31	28
<i>Less Internal Trips (7% AM, 39% PM)</i>			-31	-8	-4	-4	-23	-10	-13
<i>Less Pass-By Trips (49% Daily, 49% AM, 50% PM)</i>			-422	-39	-20	-19	-18	-11	-8
Recreational Community Center	495	91,277	3,087	187	123	64	250	123	127
<i>Less Internal Trips (0% AM, 29% PM)</i>			-15	0	0	0	-15	-9	-6
<i>Less Pass-By Trips (0%)</i>			0	0	0	0	0	0	0
Total Trips			7,814	461	270	191	609	299	310
<i>Less Internal Trips</i>			-122	-32	-16	-16	-90	-45	-45
<i>Less Pass-by Trips</i>			-2,027	-149	-78	-71	-176	-87	-90
Net New Primary Trips			5,665	280	176	104	343	167	175

Trip Distribution

Based on a review of general traffic patterns in the region, the proposed land use and external site access patterns, and prior history of our firm's involvement on other development projects in the City of Sherwood, the following site trip distribution is proposed:

- 10 percent to/from the north via SW Langer Farms Parkway,
- 15 percent to/from the west via SW Tualatin-Sherwood Road,
- 20 percent to/from the west via SW Century Drive,
- 30 percent to/from the south via SW Oregon Street,
- 10 percent to/from the east via SW Oregon Street,
- 15 percent to/from the east via SW Tualatin-Sherwood Road.

The preliminary trip distribution pattern is displayed in Figure 3 for informational purposes. The estimated patterns shown in this figure represent our best guess and are subject to change pending collection of new traffic counts and technical analysis needed to prepare the TIS.



**Estimated Trip Distribution Pattern
Sherwood, Oregon**

**Figure
3**

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Study Area and Intersections

Based on the estimated trip generation and assignment patterns, the following intersections and accesses are proposed for analysis:

- SW Tualatin-Sherwood Road/SW Langer Farms Parkway
- SW Tualatin-Sherwood Road/SW Century Drive
- SW Langer Farms Parkway/SW Oregon Street
- SW Langer Farms Parkway/SW Century Drive
- SW Langer Farms Parkway/Site Accesses
- SW Century Drive/Site Accesses

Time Periods for Analysis

Existing and estimated build-out year 2019 operating conditions at the identified study intersections will be analyzed using Synchro/SimTraffic Version 9 software. The weekday AM (7:00 AM to 9:00 AM) and weekday PM (4:00 PM to 6:00 PM) peak hours will be assessed.

In-process Developments and Planned Transportation Improvements

We anticipate a two percent annual growth rate can be applied to existing traffic to generate future background traffic volumes on the surrounding street network before any trips associated with approved in-process developments are added to the background traffic volumes. We request that the City of Sherwood provide the trip estimates and assignments for any developments in the site vicinity to be included as in-process.

The City of Sherwood Transportation System Plan (TSP) identifies a shared-use path on the south/east side of Century Drive and widening of Tualatin-Sherwood Road to five lanes between Borchers Drive and Baler Way as short-term priority conservatively funded projects. Due to their conservatively funded status, these projects will not be assumed to be in-place by 2019. No other funded transportation improvements have been identified or are anticipated in the study within the development timeline of this project.

Crash Analysis

The most recent five years of reported crash data at the study intersections will be requested from ODOT and reviewed in detail. The ODOT Statewide Priority Index System (SPIS) will also be reviewed to identify any sites where safety issues may encourage further investigation.

Signal Timing

We request the City of Sherwood provide the latest signal timing and phasing information for the two signalized intersections at SW Tualatin-Sherwood Road/SW Langer Farms Parkway and SW Langer Farms Parkway/SW Oregon Street.

Next Steps

We trust this memorandum provides adequate documentation of the proposed land use action, estimated site trip generation and distribution patterns, and specific study intersections and analysis periods to address in the TIS. We formally request that the City of Sherwood provide written confirmation and/or questions regarding the proposed methodology and project TIS assumptions as soon as possible so that we may proceed with our analysis. If you have any questions, please give us a call at (503) 228-5230.

REFERENCES

1. Institute of Transportation Engineers. *Trip Generation Manual, 9th Edition*. 2012.
2. Institute of Transportation Engineers. *Trip Generation Handbook, 3rd Edition*. 2014.

OTISS Internalization Calculations

PERIOD SETTING

Analysis Name : Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Project Name : Parkway Village South Trip Generation **No :** 21487

Date: 6/8/2017 **City:**

State/Province: **Zip/Postal Code:**

Country: **Client Name:**

Analyst's Name: **Edition:** ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
495 - Recreational Community Center	1000 Sq. Feet Gross Floor Area	91.28	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 2.05	123 66%	64 34%	187
820 - Shopping Center	1000 Sq. Feet Gross Leasable Area	30.61	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LOG) $\ln(T) = 0.61\ln(X) + 2.24$	47 62%	29 38%	76
934 - Fast-Food Restaurant with Drive-Through Window	1000 Sq. Feet Gross Floor Area	1.8	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 45.42	42 51%	40 49%	82
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	1000 Sq. Feet Gross Floor Area	0.38 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 303.33	58 50%	57 50%	115

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
495 - Recreational Community Center	<input type="text" value="0"/> %	123	<input type="text" value="0"/> %	64
820 - Shopping Center	<input type="text" value="0"/> %	47	<input type="text" value="0"/> %	29
934 - Fast-Food Restaurant with Drive-Through Window	<input type="text" value="0"/> %	42	<input type="text" value="0"/> %	40
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	<input type="text" value="0"/> %	58	<input type="text" value="0"/> %	57

INTERNAL TRIPS

495 - Recreational Community Center

Exit 64 Demand Exit: % (0) Balanced: 0
 Entry 123 Demand Entry: % (0) Balanced: 0

820 - Shopping Center

Demand Entry: % (0) Entry 47
 Demand Exit: % (0) Exit 29

495 - Recreational Community Center

Exit 64 Demand Exit: % (0) Balanced: 0
 Entry 123 Demand Entry: % (0) Balanced: 0

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (0) Entry 42
 Demand Exit: % (0) Exit 40

495 - Recreational Community Center

Exit 64 Demand Exit: % (0) Balanced: 0
 Entry 123 Demand Entry: % (0) Balanced: 0

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 58
 Demand Exit: % (0) Exit 57

820 - Shopping Center

Exit 29 Demand Exit: % (4) Balanced: 4
 Entry 47 Demand Entry: % (4) Balanced: 4

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (21) Entry 42
 Demand Exit: % (6) Exit 40

820 - Shopping Center

Exit 29 Demand Exit: % (4) Balanced: 4
 Entry 47 Demand Entry: % (4) Balanced: 4

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (29) Entry 58
 Demand Exit: % (8) Exit 57

934 - Fast-Food Restaurant with Drive-Through Window

Exit 40 Demand Exit: % (0) Balanced: 0
 Entry 42 Demand Entry: % (0) Balanced: 0

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 58
 Demand Exit: % (0) Exit 57

495 - Recreational Community Center

	Total Trips	Internal Trips			Total	External Trips
		820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	123 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	123 (100%)
Exit	64 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	64 (100%)
Total	187 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	187 (100%)

820 - Shopping Center

	Total Trips	Internal Trips				External Trips
		495 - Recreational Community Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	Total	
Entry	47 (100%)	0 (0%)	4 (9%)	4 (9%)	8 (17%)	39 (83%)
Exit	29 (100%)	0 (0%)	4 (14%)	4 (14%)	8 (28%)	21 (72%)
Total	76 (100%)	0 (0%)	8 (11%)	8 (11%)	16 (21%)	60 (79%)

934 - Fast-Food Restaurant with Drive-Through Window

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	42 (100%)	0 (0%)	4 (10%)	0 (0%)	4 (10%)	38 (90%)
Exit	40 (100%)	0 (0%)	4 (10%)	0 (0%)	4 (10%)	36 (90%)
Total	82 (100%)	0 (0%)	8 (10%)	0 (0%)	8 (10%)	74 (90%)

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window		
Entry	58 (100%)	0 (0%)	4 (7%)	0 (0%)	4 (7%)	54 (93%)
Exit	57 (100%)	0 (0%)	4 (7%)	0 (0%)	4 (7%)	53 (93%)
Total	115 (100%)	0 (0%)	8 (7%)	0 (0%)	8 (7%)	107 (93%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
495 - Recreational Community Center	187	<input type="text" value="0"/> %	0	187
820 - Shopping Center	60	<input type="text" value="0"/> %	0	60
934 - Fast-Food Restaurant with Drive-Through Window	74	<input type="text" value="0"/> %	0	74
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	107	<input type="text" value="0"/> %	0	107

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Landuse	No deviations from ITE.
Methods	No deviations from ITE.
External Trips	<p>495 - Recreational Community Center ITE does not recommend a particular pass-by% for this case.</p> <p>820 - Shopping Center ITE does not recommend a particular pass-by% for this case.</p> <p>934 - Fast-Food Restaurant with Drive-Through Window The chosen pass-by% (0) is not provided by ITE. ITE recommends 49.</p> <p>938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating ITE does not recommend a particular pass-by% for this case.</p>

SUMMARY

Total Entering	270
Total Exiting	190
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	16
Total Exiting Internal Capture Reduction	16
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	254
Total Exiting Non-Pass-by Trips	174

PERIOD SETTING

Analysis Name : Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Project Name : Parkway Village South Trip Generation **No :** 21487

Date: 6/8/2017 **City:**

State/Province: **Zip/Postal Code:**

Country: **Client Name:**

Analyst's Name: **Edition:** ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
495 - Recreational Community Center	1000 Sq. Feet Gross Floor Area	91.28	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 2.74	123 49%	127 51%	250
820 - Shopping Center	1000 Sq. Feet Gross Leasable Area	30.61	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) Ln(T) = 0.67Ln(X) +3.31	130 48%	141 52%	271
934 - Fast-Food Restaurant with Drive-Through Window	1000 Sq. Feet Gross Floor Area	1.8	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 32.65	31 53%	28 47%	59
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	1000 Sq. Feet Gross Floor Area	0.38 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 75	15 ⁽¹⁾ 52%	14 ⁽¹⁾ 48%	29 ⁽¹⁾

(0) indicates size out of range.
 (1) indicates small sample size, use carefully.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
495 - Recreational Community Center	<input type="text" value="0"/> %	123	<input type="text" value="0"/> %	127
820 - Shopping Center	<input type="text" value="0"/> %	130	<input type="text" value="0"/> %	141
934 - Fast-Food Restaurant with Drive-Through Window	<input type="text" value="0"/> %	31	<input type="text" value="0"/> %	28
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	<input type="text" value="0"/> %	15	<input type="text" value="0"/> %	14

INTERNAL TRIPS

495 - Recreational Community Center

Exit 127 Demand Exit: % (27) Balanced: 5
 Entry 123 Demand Entry: % (32) Balanced: 6

820 - Shopping Center

Demand Entry: % (5) Entry 130
 Demand Exit: % (6) Exit 141

495 - Recreational Community Center

Exit 127 Demand Exit: % (39) Balanced: 1
 Entry 123 Demand Entry: % (39) Balanced: 2

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (1) Entry 31
 Demand Exit: % (2) Exit 28

495 - Recreational Community Center

Exit 127 Demand Exit: % (39) Balanced: 0
 Entry 123 Demand Entry: % (39) Balanced: 1

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 15
 Demand Exit: % (1) Exit 14

820 - Shopping Center

Exit 141 Demand Exit: % (41) Balanced: 9
 Entry 130 Demand Entry: % (65) Balanced: 11

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (9) Entry 31
 Demand Exit: % (11) Exit 28

820 - Shopping Center

Exit 141 Demand Exit: % (41) Balanced: 4
 Entry 130 Demand Entry: % (65) Balanced: 6

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (4) Entry 15
 Demand Exit: % (6) Exit 14

934 - Fast-Food Restaurant with Drive-Through Window

Exit 28 Demand Exit: % (0) Balanced: 0
 Entry 31 Demand Entry: % (0) Balanced: 0

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 15
 Demand Exit: % (0) Exit 14

495 - Recreational Community Center

	Total Trips	Internal Trips			Total	External Trips
		820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	123 (100%)	6 (5%)	2 (2%)	1 (1%)	9 (7%)	114 (93%)
Exit	127 (100%)	5 (4%)	1 (1%)	0 (0%)	6 (5%)	121 (95%)
Total	250 (100%)	11 (4%)	3 (1%)	1 (0%)	15 (6%)	235 (94%)

820 - Shopping Center

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	130 (100%)	5 (4%)	11 (8%)	6 (5%)	22 (17%)	108 (83%)
Exit	141 (100%)	6 (4%)	9 (6%)	4 (3%)	19 (13%)	122 (87%)
Total	271 (100%)	11 (4%)	20 (7%)	10 (4%)	41 (15%)	230 (85%)

934 - Fast-Food Restaurant with Drive-Through Window

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	31 (100%)	1 (3%)	9 (29%)	0 (0%)	10 (32%)	21 (68%)
Exit	28 (100%)	2 (7%)	11 (39%)	0 (0%)	13 (46%)	15 (54%)
Total	59 (100%)	3 (5%)	20 (34%)	0 (0%)	23 (39%)	36 (61%)

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window		
Entry	15 (100%)	0 (0%)	4 (27%)	0 (0%)	4 (27%)	11 (73%)
Exit	14 (100%)	1 (7%)	6 (43%)	0 (0%)	7 (50%)	7 (50%)
Total	29 (100%)	1 (3%)	10 (34%)	0 (0%)	11 (38%)	18 (62%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
495 - Recreational Community Center	235	<input type="text" value="0"/> %	0	235
820 - Shopping Center	230	<input type="text" value="0"/> %	0	230
934 - Fast-Food Restaurant with Drive-Through Window	36	<input type="text" value="0"/> %	0	36
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	18	<input type="text" value="0"/> %	0	18

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 495 - Recreational Community Center
ITE does not recommend a particular pass-by% for this case.

820 - Shopping Center
The chosen pass-by% (0) is not provided by ITE. ITE recommends 55.

934 - Fast-Food Restaurant with Drive-Through Window
The chosen pass-by% (0) is not provided by ITE. ITE recommends 50.

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	299
Total Exiting	310
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	45
Total Exiting Internal Capture Reduction	45
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	254
Total Exiting Non-Pass-by Trips	265

Appendix B Crash Data

Appendix C Description of LOS

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE
 OR 99W Pacific Highway West (091) & Langer Farms Pkwy
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
REAR-END	0	1	0	1	0	1	0	0	1	0	1	1	0	0
2015 TOTAL	0	1	0	1	0	1	0	0	1	0	1	1	0	0
FINAL TOTAL	0	1	0	1	0	1	0	0	1	0	1	1	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNTD FROM WRONG LANE
007	TO WRONG	TURNTD INTO WRONG LANE
008	ILLEG U	U-TURNTD ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PNNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHIC
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

OR 99W Pacific Highway West (091) & SW Tualatin-Sherwood Rd / SW Roy Rogers Rd
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
ANGLE	0	0	3	3	0	0	0	3	0	0	3	3	0	0
REAR-END	0	3	4	7	0	5	0	5	2	6	1	7	0	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	3	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	4	0	0	1	1	0	1	0	0
2015 TOTAL	0	5	7	12	0	12	0	9	3	8	4	12	0	0
YEAR: 2014														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	1	0	1
REAR-END	0	1	7	8	0	1	0	7	1	4	4	8	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2014 TOTAL	0	1	10	11	0	1	0	10	1	5	6	11	0	1
YEAR: 2013														
REAR-END	0	5	3	8	0	6	0	8	0	5	3	8	0	0
TURNING MOVEMENTS	0	2	0	2	0	2	0	2	0	1	1	2	0	0
2013 TOTAL	0	7	3	10	0	8	0	10	0	6	4	10	0	0
YEAR: 2012														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
REAR-END	0	5	4	9	0	5	1	8	1	8	1	9	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	2	2	4	0	2	0	3	1	3	1	4	0	0
2012 TOTAL	0	7	8	15	0	7	2	12	3	13	2	15	0	0
YEAR: 2011														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	1	0	1	0	1
REAR-END	0	2	1	3	0	3	0	2	1	2	1	3	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	0	1	0	1	0	0
2011 TOTAL	0	2	3	5	0	3	0	2	2	4	1	5	0	1
FINAL TOTAL	0	22	31	53	0	31	2	43	9	36	17	53	0	2

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CONTINUOUS SYSTEM CRASH LISTING

091 PACIFIC HIGHWAY WEST

OR 99W Pacific Highway West (091) & SW Tualatin-Sherwood Rd / SW Roy Rogers Rd
 January 1, 2011 through December 31, 2015

SER#	UNLOC?	E D C S L K	A U C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP			SPCL USE			MOVE	A S	E X	LICNS	PED	LOC	ERROR	ACTN	EVENT	CAUSE
									CMPT/MLG	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD										
INVEST		L G H R		DAY/TIME	CITY	MILEPNT		SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	VEH TYPE									
		D C S L K		LAT/LONG	URBAN AREA	LRs		INTERSECTION SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#									
06541	N N N			11/02/2012	WASHINGTON	2	14		INTER	CROSS	N	N	FOG	S-OTHER	01	NONE	0	TURN-R						
NONE		Fri	8A		SHERWOOD	MN	0	SW PACIFIC HY 99W	E		YIELD	N	DRY	TURN		PRVTE	E NE					000	00	
					PORTLAND UA	15.00		SW TUALATIN-SHERWOOD 09		1		N	DAY	PDO		PSNGR	CAR					014,026	088	10
No		45	22	11.76	-122 50 35.20	009100200S00				1														

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

091 PACIFIC HIGHWAY WEST

OR 99W Pacific Highway West (091) & SW Tualatin-Sherwood Rd / SW Roy Rogers Rd
January 1, 2011 through December 31, 2015

Table with columns: SER#, INVEST, UNLOC?, E, D, A, U, C, O, DATE, COUNTY, CITY, URBAN AREA, RD#, FC, CONN #, CMPT/MLG, FIRST STREET, MILEPNT, SECOND STREET, LRS, INTERSECTION SEQ#, RD CHAR, DIRECT, LOCTN, INT-TYP, INT-REL, LEGS, TRAF-CNTL, OFFRD, WTHR, RNDBT, SURF, CRASH TYP, COLL TYP, SVRTY, SPCL USE, TRLR QTY, MOVE, OWNER, FROM, TO, PRTC, INJ, TYPE, SVRITY, A, S, G, E, LICNS, PED, X, RES, LOC, ERROR, ACTN, EVENT, CAUSE.

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUIING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNTD FROM WRONG LANE
007	TO WRONG	TURNTD INTO WRONG LANE
008	ILLEG U	U-TURNTD ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PNNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHIC
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE
 SW Tualatin-Sherwood Rd & SW Langer Farms Pkwy
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
REAR-END	0	0	3	3	0	0	0	2	1	2	1	3	0	0
2015 TOTAL	0	0	3	3	0	0	0	2	1	2	1	3	0	0
YEAR: 2014														
REAR-END	0	0	2	2	0	0	0	1	1	2	0	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2014 TOTAL	0	1	2	3	0	2	0	2	1	3	0	3	0	0
YEAR: 2013														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	1
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2013 TOTAL	0	1	1	2	0	2	0	2	0	2	0	2	0	1
FINAL TOTAL	0	2	6	8	0	4	0	6	2	7	1	8	0	1

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUIING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNTD FROM WRONG LANE
007	TO WRONG	TURNTD INTO WRONG LANE
008	ILLEG U	U-TURNTD ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PNNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHI
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFPCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Tualatin-Sherwood Rd & SW Century Dr
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
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YEAR:

TOTAL

FINAL TOTAL

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Langer Farms Pkwy & SW Century Dr
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2014														
PEDESTRIAN	0	1	0	1	0	1	0	0	1	0	1	1	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2014 TOTAL	0	1	1	2	0	1	0	1	1	0	2	2	0	0
FINAL TOTAL	0	1	1	2	0	1	0	1	1	0	2	2	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF SHERWOOD, WASHINGTON COUNTY

SW Langer Farms Pkwy & SW Century Dr
January 1, 2011 through December 31, 2015

SER#	INVEST	UNLOC?	S P E D	D R A U C O	DATE	FC	CITY STREET FIRST STREET SECOND STREET INTERSECTION SEQ #	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CONTL	OFF-RD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A S		PED LOC	ERROR	ACTN	EVENT	CAUSE	
																			G	E						LICNS
06015	N N N				10/14/2014	17	LANGER FARM PKWY CENTURY DR	INTER E	CROSS YIELD	N		N RAIN Y WET	PED PED	01 NONE PRVTE	0 STRGHT W E											02,19 00
No	45	21	52.27		-122 50	9.12	1	05	0			N DLIT	INJ	PSNGR CAR		01	DRVR	NONE	21	M	OR-Y OR<25	029		000	000	02
																						01	000		034	19
06895	N N N				11/15/2014	17	LANGER FARM PKWY CENTURY DR	INTER CN	CROSS YIELD	N		N CLR Y DRY	S-STRGHT SS-O	01 UNKN UNKN	0 STRGHT N S											13 00
NONE					Sat 9P	0						N DLIT	PDO	UNKNOWN		01	DRVR	NONE	00	M	UNK UNK	045		000	000	13
No	45	21	52.47		-122 50	11.39	1	03	0																000	00
																									000	00
																									000	00

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING
055	SPRAY	BLINDED BY WATER SPRAY

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNTD FROM WRONG LANE
007	TO WRONG	TURNTD INTO WRONG LANE
008	ILLEG U	U-TURNTD ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PNNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHI
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

PEDESTRIAN LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFPCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SW Langer Farms Pkwy & SW Oregon St
January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
----------------	------------------	--------------------------	----------------------------	------------------	------------------	-------------------	--------	-------------	-------------	-----	------	-------------------	------------------------------	--------------

YEAR:

TOTAL

FINAL TOTAL

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

APPENDIX C LEVEL-OF-SERVICE CONCEPT

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from “A” to “F”.

SIGNALIZED INTERSECTIONS

The six level-of-service grades are described qualitatively for signalized intersections in Table C1. Additionally, Table C2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service “D” is generally considered to represent the minimum acceptable design standard.

Table C1 Level-of-Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

1 Most of the material in this appendix is adapted from the *2010 Highway Capacity Manual*, published by the Transportation Research Board in 2010.

Table C2 Level-of-Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

UNSIGNALIZED INTERSECTIONS

The automobile LOS criteria for unsignalized intersections are different than the criteria used for signalized intersections, reflecting driver expectations that vary with different levels of performance from different types of transportation facilities. Driver expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections more tolerable than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections compared to signalized intersections. For these reasons, the control delay threshold for any given level of service is lower for an unsignalized intersection than for a signalized intersection. Individual types of unsignalized intersections are defined in the 2010 HCM as described below.

TWO-WAY STOP CONTROLLED INTERSECTIONS

The 2010 HCM provides models for estimating control delay at two-way stop controlled (TWSC) intersections and defines LOS by control delay. Motor vehicle LOS is determined for each minor-street movement as well as for major street left-turns using the criteria shown in Table C3.

Table C3 Level-of-Service Criteria for Two-way Stop Controlled Intersections

Control Delay (Seconds per Vehicle)	LOS by Volume-to-Capacity Ratio*	
	v/c < 1.0	v/c > 1.0
<10.0	A	F
>10.0 and ≤ 15.0	B	F
>15.0 and ≤ 25.0	C	F
>25.0 and ≤ 35.0	D	F
>35.0 and ≤ 50.0	E	F
>50.0	F	F

Note: *For approaches and intersectionwide assessment, LOS is defined solely by control delay

As noted in Table

C3, the 2010

HCM assigns LOS F to any movement whose v/c ratio exceeds 1.0 regardless of the control delay.

The 2010 HCM does not define LOS for intersections as a whole or for the major street approaches because:

- Major-street through movements are assumed to experience no delay;
- The large number of major street through movements at typical TWSC intersections skews averaging of overall delay for all vehicles; and
- Overall intersection delay measures have the potential to mask minor movement deficiencies.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOEs) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

ALL-WAY STOP CONTROLLED INTERSECTIONS

The LOS for all-way stop controlled intersections is computed for each approach and, unlike TWSC intersections, for the intersection. Table C4 summarizes the AWSC LOS criteria defined in the 2010 HCM.

Table C4 Level-of-Service Criteria for Two-way Stop Controlled Intersections

Control Delay (Seconds per Vehicle)	LOS by Volume-to-Capacity Ratio*	
	v/c < 1.0	v/c > 1.0
<10.0	A	F
>10.0 and ≤ 15.0	B	F
>15.0 and ≤ 25.0	C	F
>25.0 and ≤ 35.0	D	F
>35.0 and ≤ 50.0	E	F
>50.0	F	F

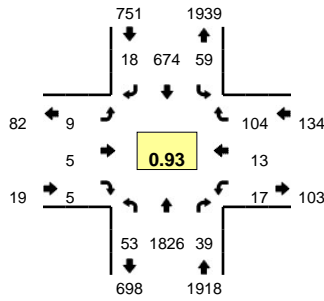
Note: *For approaches and intersectionwide assessment, LOS is defined solely by control delay

As Table C4 notes, LOS F is assigned if the volume-to-capacity ratio (v/c) ratio of a lane exceeds 1.0, regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

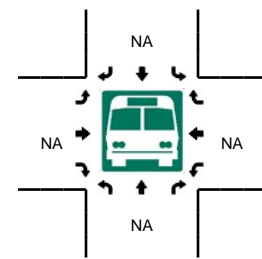
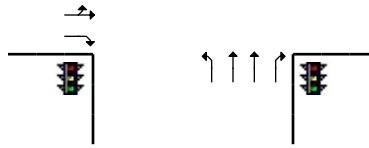
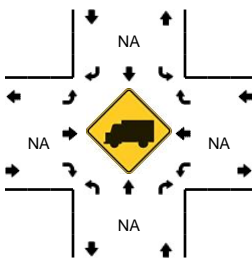
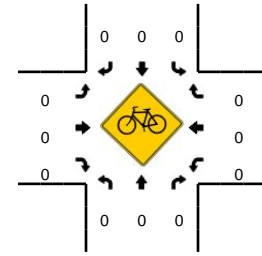
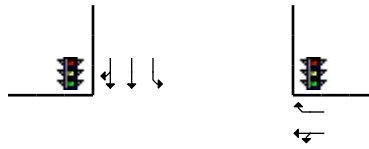
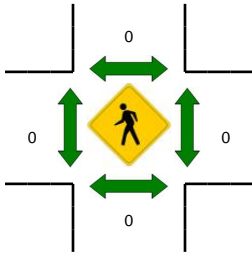
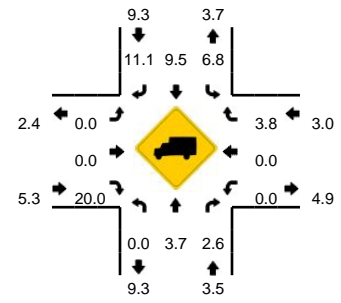
Appendix D Traffic Counts

LOCATION: OR-99W -- SW Langer Farms Pkwy
CITY/STATE: Sherwood, OR

QC JOB #: 14439201
DATE: Thu, Jun 08 2017



Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

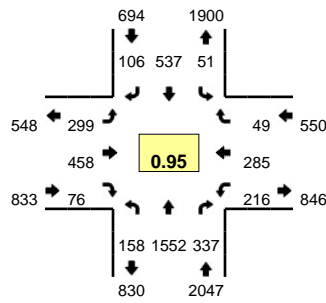


5-Min Count Period Beginning At	OR-99W (Northbound)				OR-99W (Southbound)				SW Langer Farms Pkwy (Eastbound)				SW Langer Farms Pkwy (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	2	169	1	0	1	57	1	0	0	0	0	0	0	0	6	0	237		
7:05 AM	3	122	2	0	2	51	0	0	0	1	0	0	0	1	0	8	0	190	
7:10 AM	1	161	3	0	1	35	0	0	1	1	1	0	1	1	0	8	0	213	
7:15 AM	3	134	3	1	2	67	0	0	0	1	0	0	0	2	3	7	0	223	
7:20 AM	6	174	2	0	2	47	0	0	1	1	0	0	0	3	1	8	0	245	
7:25 AM	4	151	1	0	4	64	0	0	2	0	0	0	0	1	0	5	0	232	
7:30 AM	1	169	3	0	5	57	0	0	1	0	0	0	0	2	1	5	0	244	
7:35 AM	4	142	2	0	8	49	2	0	1	0	0	0	0	0	2	9	0	219	
7:40 AM	9	175	0	0	7	38	0	0	0	0	0	0	0	0	1	10	0	240	
7:45 AM	4	141	6	0	7	98	7	0	0	2	0	0	0	2	2	9	0	278	
7:50 AM	7	152	6	1	2	55	2	0	0	0	2	0	0	0	1	9	0	237	
7:55 AM	2	122	6	0	7	60	4	0	1	0	1	0	0	2	0	11	0	216	2774
8:00 AM	3	155	5	0	8	59	1	0	1	0	1	0	0	1	1	12	0	247	2784
8:05 AM	7	150	2	0	6	45	2	0	1	0	0	0	0	3	1	11	0	228	2822
8:10 AM	3	158	8	0	5	53	1	0	2	2	0	0	0	3	3	22	0	260	2869
8:15 AM	2	106	5	0	9	53	3	0	0	1	0	0	0	2	0	10	0	191	2837
8:20 AM	3	130	8	0	4	49	0	0	0	0	0	0	0	4	1	2	0	201	2793
8:25 AM	2	81	5	2	6	68	0	0	0	0	2	0	0	3	1	9	0	179	2740
8:30 AM	1	115	3	0	2	58	2	0	0	0	2	0	0	2	0	11	0	196	2692
8:35 AM	4	91	1	0	6	48	1	0	0	0	0	0	0	1	1	5	0	158	2631
8:40 AM	7	93	4	0	5	48	1	0	0	0	0	0	0	6	0	8	0	172	2563
8:45 AM	4	113	9	2	3	59	1	0	1	0	1	0	0	8	1	4	0	206	2491
8:50 AM	5	86	6	0	3	56	2	0	2	0	0	0	0	4	1	6	0	171	2425
8:55 AM	6	83	5	0	8	59	1	0	2	1	3	0	0	4	0	12	0	184	2393
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	80	1872	48	4	64	764	36	0	0	8	8	0	8	16	112	0	3020		
Heavy Trucks	0	64	4		4	68	4		0	0	4		0	0	8		156		
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Railroad																			
Stopped Buses																			

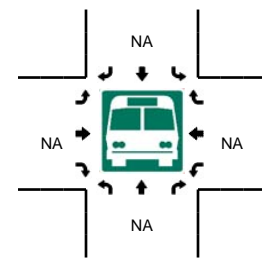
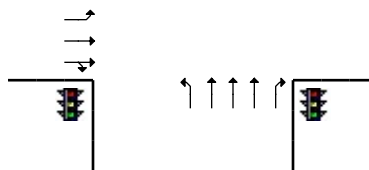
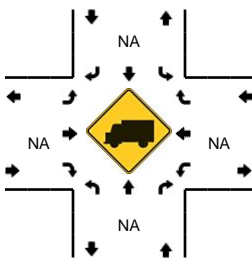
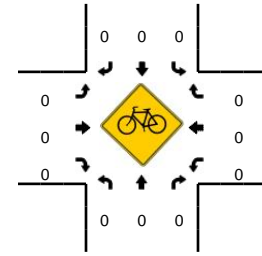
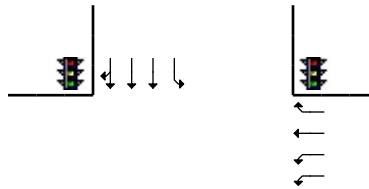
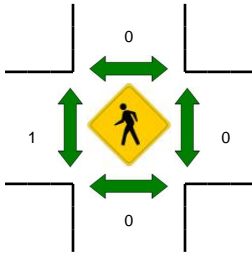
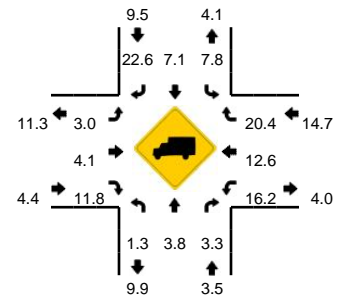
Comments:

LOCATION: OR-99W -- SW Tualatin-Sherwood Rd
CITY/STATE: Sherwood, OR

QC JOB #: 14439203
DATE: Thu, Jun 08 2017



Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

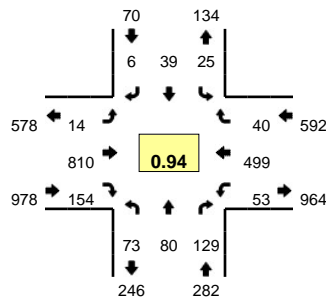


5-Min Count Period Beginning At	OR-99W (Northbound)				OR-99W (Southbound)				SW Tualatin-Sherwood Rd (Eastbound)				SW Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	15	125	43	0	3	38	4	0	20	30	4	0	17	27	5	0	331	
7:05 AM	7	141	35	0	5	48	4	0	20	55	9	0	16	15	5	0	360	
7:10 AM	18	111	23	0	2	23	11	0	16	34	6	0	16	19	0	0	279	
7:15 AM	12	130	25	0	7	52	4	0	28	36	12	0	8	22	6	0	342	
7:20 AM	16	123	37	0	3	36	8	0	21	35	7	0	31	37	10	0	364	
7:25 AM	7	146	36	0	3	65	6	0	34	42	9	0	12	19	3	0	382	
7:30 AM	8	124	18	0	2	34	9	0	29	38	4	0	31	24	2	0	323	
7:35 AM	12	143	25	1	5	41	8	0	25	39	7	0	16	15	2	0	339	
7:40 AM	9	126	34	0	0	25	7	0	32	57	5	0	23	20	3	0	341	
7:45 AM	18	145	27	0	3	78	12	0	25	37	4	0	15	22	6	0	392	
7:50 AM	17	104	30	0	6	30	11	0	23	37	9	0	16	36	5	0	324	
7:55 AM	16	125	25	0	9	56	8	0	30	43	3	0	19	26	0	0	360	4137
8:00 AM	14	124	27	0	4	37	10	0	19	30	3	0	19	26	4	0	317	4123
8:05 AM	10	151	30	0	7	60	12	0	17	30	7	0	10	19	8	0	361	4124
8:10 AM	14	108	23	0	4	28	11	0	21	24	6	0	30	31	5	0	305	4150
8:15 AM	8	106	25	0	3	57	16	0	22	28	15	0	13	20	8	0	321	4129
8:20 AM	17	89	28	0	5	36	14	0	20	37	7	0	21	22	7	0	303	4068
8:25 AM	11	79	28	0	6	50	9	0	17	29	4	0	10	23	6	0	272	3958
8:30 AM	14	83	28	0	9	29	13	0	12	29	10	0	37	31	2	0	297	3932
8:35 AM	10	88	30	0	5	39	6	0	24	32	8	0	23	17	3	0	285	3878
8:40 AM	10	59	27	0	6	46	9	0	21	40	5	0	27	25	4	0	279	3816
8:45 AM	8	97	40	0	3	49	8	0	18	33	5	0	14	16	11	0	302	3726
8:50 AM	10	71	33	0	5	51	9	0	13	39	3	0	32	22	7	0	295	3697
8:55 AM	7	84	25	0	6	54	13	0	12	35	8	0	15	21	7	0	287	3624
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	140	1596	392	0	52	612	72	0	332	452	112	0	204	312	76	0	4352	
Heavy Trucks	0	44	12		0	36	20		24	16	4		32	44	20		252	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

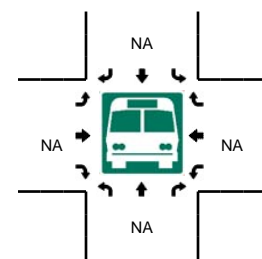
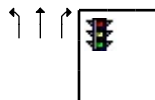
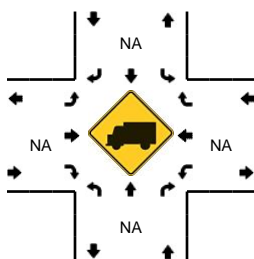
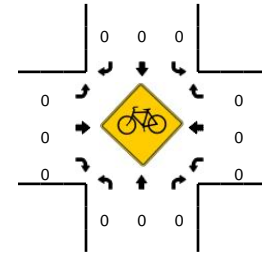
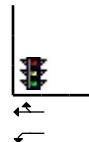
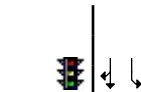
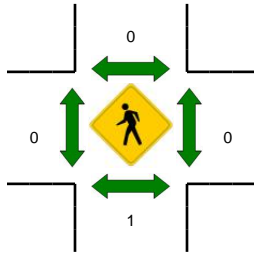
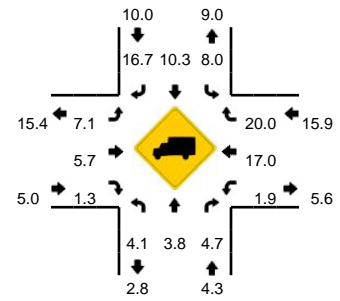
Comments:

LOCATION: SW Langer Farms Pkwy -- SW Tualatin-Sherwood Rd
CITY/STATE: Sherwood, OR

QC JOB #: 14439205
DATE: Thu, Jun 08 2017



Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

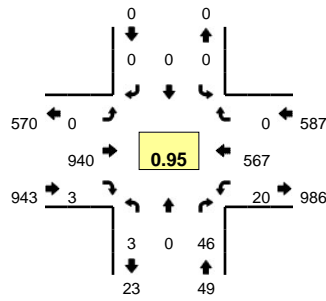


5-Min Count Period Beginning At	SW Langer Farms Pkwy (Northbound)				SW Langer Farms Pkwy (Southbound)				SW Tualatin-Sherwood Rd (Eastbound)				SW Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	11	7	2	0	2	1	0	0	0	82	11	0	2	23	3	0	144	
7:05 AM	3	2	7	0	2	0	0	0	1	82	17	0	3	36	2	0	155	
7:10 AM	6	7	15	0	1	2	1	0	2	76	12	0	8	46	1	0	177	
7:15 AM	9	9	8	0	1	1	0	0	4	57	6	0	1	31	4	0	131	
7:20 AM	6	5	13	0	3	2	0	0	0	72	15	0	3	51	3	0	173	
7:25 AM	8	4	5	0	2	0	1	0	0	64	12	0	1	33	4	0	134	
7:30 AM	2	3	13	0	1	2	1	0	1	67	11	0	3	48	5	0	157	
7:35 AM	4	7	9	0	5	5	0	0	1	61	13	0	4	35	5	0	149	
7:40 AM	6	6	11	0	2	0	2	0	0	85	20	0	5	41	5	0	183	
7:45 AM	8	7	10	0	4	6	0	0	1	67	13	0	4	37	4	0	161	
7:50 AM	10	7	9	0	1	3	0	0	1	55	12	0	7	38	1	0	144	
7:55 AM	3	6	21	0	4	6	1	0	2	71	12	0	4	52	0	0	182	1890
8:00 AM	7	13	13	0	0	8	0	0	0	70	15	0	6	34	2	0	168	1914
8:05 AM	4	6	2	0	1	4	0	0	2	65	13	0	7	53	6	0	163	1922
8:10 AM	7	8	8	0	1	3	0	0	1	59	14	0	8	34	4	0	147	1892
8:15 AM	9	9	9	0	2	5	0	0	1	43	8	0	5	43	3	0	137	1898
8:20 AM	5	6	10	0	1	5	0	0	0	61	11	0	10	45	4	0	158	1883
8:25 AM	8	9	10	0	1	5	0	0	0	64	6	0	7	35	3	0	148	1897
8:30 AM	7	3	8	0	5	2	0	0	0	72	8	0	7	52	3	0	167	1907
8:35 AM	8	5	11	0	2	4	1	0	0	55	11	0	6	39	6	0	148	1906
8:40 AM	4	3	6	0	5	0	0	0	1	77	11	0	8	52	2	0	169	1892
8:45 AM	7	11	4	0	2	1	0	0	0	52	5	0	6	43	1	0	132	1863
8:50 AM	6	4	3	0	2	0	0	0	0	69	15	0	7	51	5	0	162	1881
8:55 AM	10	10	7	0	5	5	0	1	0	40	5	0	6	47	0	0	136	1835
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	100	144	0	20	72	4	0	16	824	160	0	68	556	32	0	2052	
Heavy Trucks	8	8	4		0	12	0		0	52	4		0	96	8		192	
Pedestrians		0				0				0				0			0	
Bicycles		0	0			0	0			0	0			0	0		0	
Railroad																	0	
Stopped Buses																	0	

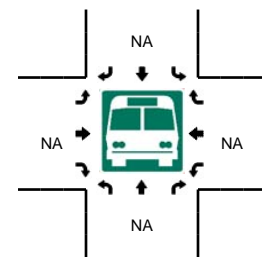
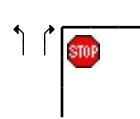
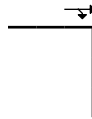
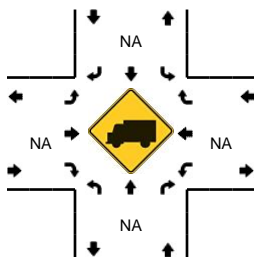
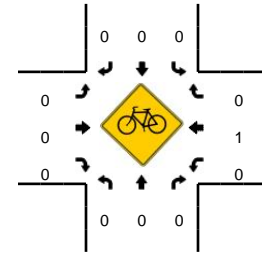
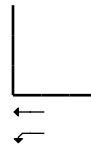
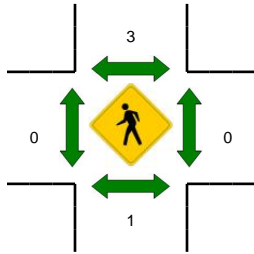
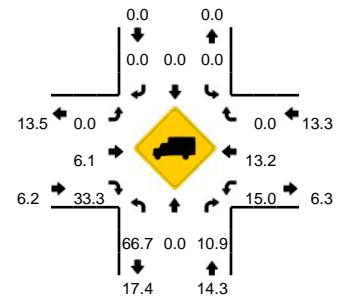
Comments:

LOCATION: SW Century Dr -- SW Tualatin-Sherwood Rd
CITY/STATE: Sherwood, OR

QC JOB #: 14439207
DATE: Thu, Jun 08 2017



Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

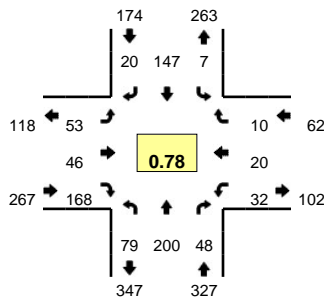


5-Min Count Period Beginning At	SW Century Dr (Northbound)				SW Century Dr (Southbound)				SW Tualatin-Sherwood Rd (Eastbound)				SW Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	78	0	0	2	36	0	0	118	
7:05 AM	0	0	8	0	0	0	0	0	0	83	0	0	0	33	0	0	124	
7:10 AM	0	0	1	0	0	0	0	0	0	93	1	0	4	52	0	0	151	
7:15 AM	0	0	6	0	0	0	0	0	0	66	0	0	1	44	0	0	117	
7:20 AM	0	0	3	0	0	0	0	0	0	88	0	0	0	46	0	0	137	
7:25 AM	0	0	2	0	0	0	0	0	0	76	0	0	3	39	0	0	120	
7:30 AM	1	0	4	0	0	0	0	0	0	74	0	0	1	51	0	0	131	
7:35 AM	0	0	5	0	0	0	0	0	0	78	0	0	0	46	0	0	129	
7:40 AM	1	0	2	0	0	0	0	0	0	83	0	0	2	43	0	0	131	
7:45 AM	0	0	2	0	0	0	0	0	0	83	0	0	3	38	0	0	126	
7:50 AM	0	0	6	0	0	0	0	0	0	72	0	0	2	60	0	0	140	
7:55 AM	0	0	2	0	0	0	0	0	0	83	0	0	2	47	0	0	134	1558
8:00 AM	0	0	6	0	0	0	0	0	0	83	1	0	0	52	0	0	142	1582
8:05 AM	1	0	7	0	0	0	0	0	0	61	1	0	2	49	0	0	121	1579
8:10 AM	1	0	2	0	0	0	0	0	0	62	1	0	2	40	0	0	108	1536
8:15 AM	0	0	4	0	0	0	0	0	0	56	1	0	1	57	0	0	119	1538
8:20 AM	0	0	1	0	0	0	0	0	0	71	0	0	2	54	0	0	128	1529
8:25 AM	1	0	5	0	0	0	0	0	0	66	0	0	1	59	0	0	132	1541
8:30 AM	0	0	2	0	0	0	0	0	0	72	0	0	0	52	0	0	126	1536
8:35 AM	0	0	2	0	0	0	0	0	0	78	0	0	2	60	0	0	142	1549
8:40 AM	0	0	5	0	0	0	0	0	0	85	0	0	1	54	0	0	145	1563
8:45 AM	1	0	6	0	0	0	0	0	0	69	0	0	2	52	0	0	130	1567
8:50 AM	0	0	5	0	0	0	0	0	0	72	0	0	0	55	0	0	132	1559
8:55 AM	0	0	2	0	0	0	0	0	0	53	0	0	2	55	0	0	112	1537
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	56	0	0	0	0	0	0	952	4	0	16	636	0	0	1664	
Heavy Trucks	0	0	0	0	0	0	0	0	0	36	0	0	0	88	0	0	124	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

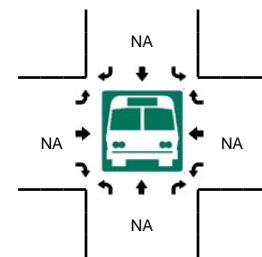
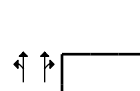
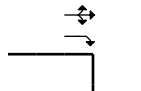
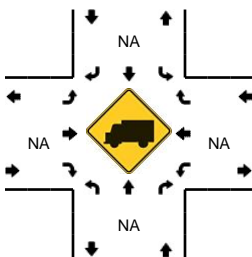
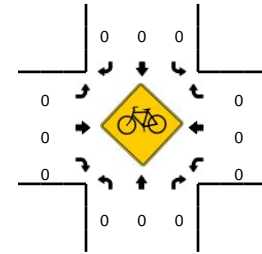
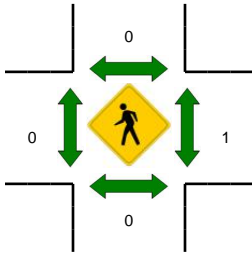
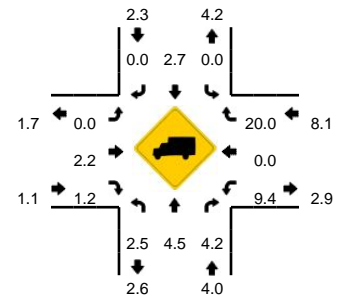
Comments:

LOCATION: SW Langer Farms Pkwy -- SW Century Dr
CITY/STATE: Sherwood, OR

QC JOB #: 14439209
DATE: Thu, Jun 08 2017



Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

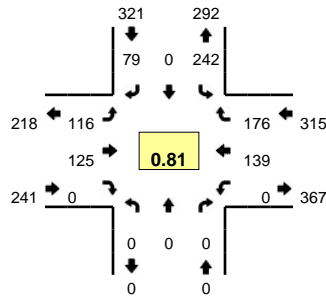


5-Min Count Period Beginning At	SW Langer Farms Pkwy (Northbound)				SW Langer Farms Pkwy (Southbound)				SW Century Dr (Eastbound)				SW Century Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	11	6	0	0	10	0	0	2	3	6	0	1	2	0	0	45	
7:05 AM	2	11	3	0	1	9	0	0	0	4	4	0	4	1	0	0	39	
7:10 AM	6	17	4	0	0	9	0	0	4	2	10	0	0	3	0	0	55	
7:15 AM	5	16	1	0	0	7	2	0	3	7	6	0	2	1	0	0	50	
7:20 AM	7	16	4	0	1	11	1	0	4	1	5	0	2	2	0	0	54	
7:25 AM	3	12	1	0	0	14	0	0	5	0	7	0	3	1	0	0	46	
7:30 AM	3	11	1	0	0	10	2	0	3	11	18	0	5	0	0	0	64	
7:35 AM	7	14	5	0	1	15	1	0	2	5	14	0	1	1	0	0	66	
7:40 AM	10	18	4	0	1	12	4	0	3	2	12	0	3	3	4	0	76	
7:45 AM	11	12	1	1	1	11	1	0	3	5	27	0	2	2	1	0	78	
7:50 AM	8	23	3	0	1	12	1	0	6	5	18	0	3	3	3	0	86	
7:55 AM	9	23	9	0	0	13	2	0	9	1	18	0	3	2	0	1	90	749
8:00 AM	4	21	5	0	1	19	0	0	9	6	22	0	3	1	0	0	91	795
8:05 AM	5	17	10	0	1	14	6	0	2	1	11	0	4	1	2	0	74	830
8:10 AM	11	20	7	0	0	15	2	0	1	2	5	0	7	1	1	0	72	847
8:15 AM	4	15	3	0	0	9	0	0	2	2	3	0	4	1	0	0	43	840
8:20 AM	4	13	2	0	2	5	3	0	1	1	5	0	3	5	1	0	45	831
8:25 AM	5	18	1	0	0	6	3	0	1	2	3	0	5	3	0	0	47	832
8:30 AM	5	13	2	0	1	7	3	1	4	2	7	0	0	2	0	1	48	816
8:35 AM	1	8	3	0	2	8	2	0	0	3	5	0	2	2	1	0	37	787
8:40 AM	5	9	4	0	2	9	2	0	1	4	4	0	3	1	1	0	45	756
8:45 AM	6	15	7	0	0	7	4	0	4	4	5	0	3	3	1	0	59	737
8:50 AM	1	17	5	0	2	6	1	0	2	3	5	0	1	1	2	0	46	697
8:55 AM	1	15	1	0	0	12	3	0	2	3	1	0	0	3	2	0	43	650
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	84	268	68	0	8	176	12	0	96	48	232	0	36	24	12	4	1068	
Heavy Trucks	0	8	4	0	0	16	0	0	0	0	8	0	0	0	0	0	36	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

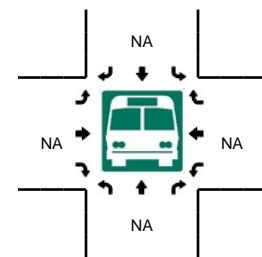
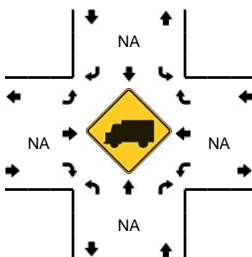
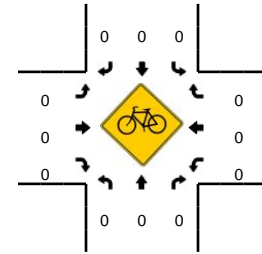
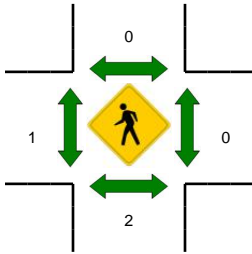
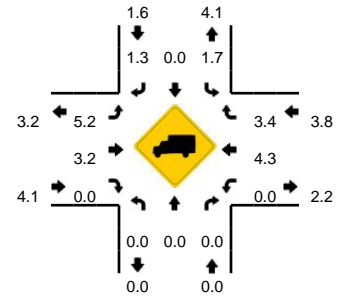
Comments:

LOCATION: SW Langer Farms Pkwy -- SW Oregon St
CITY/STATE: Sherwood, OR

QC JOB #: 14439211
DATE: Thu, Jun 08 2017



Peak-Hour: 7:10 AM -- 8:10 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

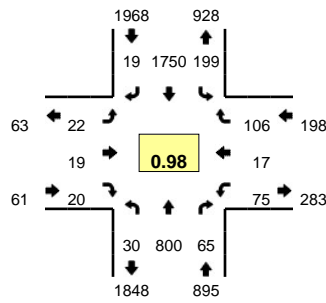


5-Min Count Period Beginning At	SW Langer Farms Pkwy (Northbound)				SW Langer Farms Pkwy (Southbound)				SW Oregon St (Eastbound)				SW Oregon St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	10	0	2	0	3	2	0	0	0	2	15	0	34	
7:05 AM	0	0	0	0	13	0	6	0	5	5	0	0	0	6	8	0	43	
7:10 AM	0	0	0	0	18	0	3	0	6	14	0	0	0	12	23	0	76	
7:15 AM	0	0	0	0	8	0	8	0	8	7	0	0	0	10	16	0	57	
7:20 AM	0	0	0	0	16	0	2	0	10	12	0	0	0	8	9	0	57	
7:25 AM	0	0	0	0	15	0	7	0	7	13	0	0	0	9	12	0	63	
7:30 AM	0	0	0	0	17	0	8	0	6	5	0	0	0	13	6	0	55	
7:35 AM	0	0	0	0	28	0	2	0	11	9	0	0	0	16	20	0	86	
7:40 AM	0	0	0	0	22	0	4	0	6	15	0	0	0	20	22	0	89	
7:45 AM	0	0	0	0	22	0	10	0	14	15	0	0	0	7	13	0	81	
7:50 AM	0	0	0	0	28	0	12	0	14	11	0	0	0	16	18	0	99	
7:55 AM	0	0	0	0	23	0	15	0	18	9	0	0	0	9	18	0	92	832
8:00 AM	0	0	0	0	30	0	2	0	10	9	0	0	0	4	8	0	63	861
8:05 AM	0	0	0	0	15	0	6	0	6	6	0	0	0	15	11	0	59	877
8:10 AM	0	0	0	0	18	0	1	0	9	10	0	0	0	4	14	0	56	857
8:15 AM	0	0	0	0	13	0	7	0	4	5	0	0	0	8	13	0	50	850
8:20 AM	0	0	0	0	7	0	4	0	7	6	0	0	0	8	15	0	47	840
8:25 AM	0	0	0	0	8	0	6	0	9	4	0	0	0	6	10	0	43	820
8:30 AM	0	0	0	0	9	0	9	0	7	6	0	0	0	5	13	0	49	814
8:35 AM	0	0	0	0	10	0	4	0	4	8	0	0	0	3	8	0	37	765
8:40 AM	0	0	0	0	15	0	4	0	8	8	0	0	0	2	12	0	49	725
8:45 AM	0	0	0	0	8	0	6	0	7	6	0	0	0	5	18	0	50	694
8:50 AM	0	0	0	0	8	0	3	0	7	7	0	0	0	4	8	0	37	632
8:55 AM	0	0	0	0	3	0	6	0	6	9	0	0	0	8	15	0	47	587
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	292	0	148	0	184	140	0	0	0	128	196	0	1088	
Heavy Trucks	0	0	0	0	12	0	4	0	4	4	0	0	0	0	12	0	36	
Pedestrians		4			0				0				0				4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																		

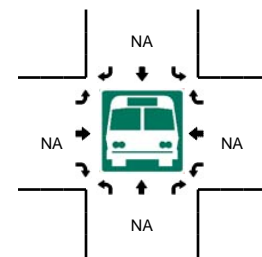
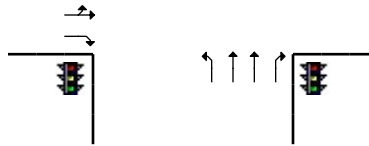
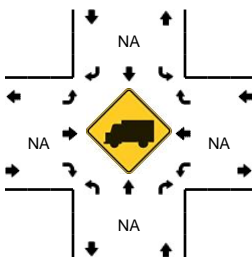
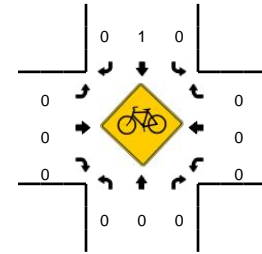
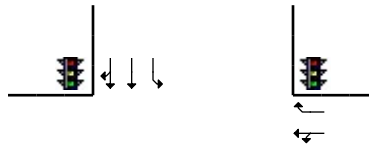
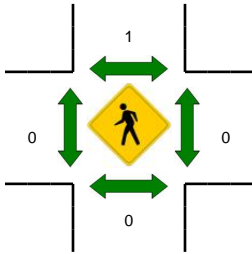
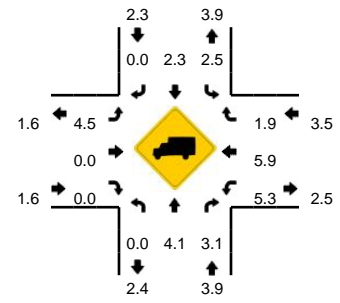
Comments:

LOCATION: OR-99W -- SW Langer Farms Pkwy
CITY/STATE: Sherwood, OR

QC JOB #: 14439202
DATE: Thu, Jun 08 2017



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 4:50 PM -- 5:05 PM

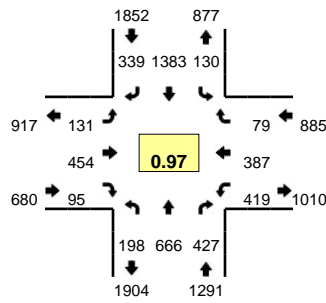


5-Min Count Period Beginning At	OR-99W (Northbound)				OR-99W (Southbound)				SW Langer Farms Pkwy (Eastbound)				SW Langer Farms Pkwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	77	2	0	11	108	2	0	2	2	1	0	10	1	16	0	236	
4:05 PM	1	82	10	0	23	193	3	0	1	2	0	0	4	0	7	0	326	
4:10 PM	0	65	3	0	7	156	0	0	3	0	3	0	4	0	15	0	256	
4:15 PM	3	53	4	0	17	123	1	0	1	2	1	0	7	1	10	0	223	
4:20 PM	2	81	7	0	15	155	0	0	0	0	0	0	4	1	11	0	276	
4:25 PM	1	85	5	0	16	134	1	0	0	0	3	0	5	0	6	0	256	
4:30 PM	0	45	7	0	25	139	1	0	1	2	5	0	3	0	12	0	240	
4:35 PM	2	76	12	0	11	148	2	0	2	3	5	0	6	1	12	0	280	
4:40 PM	1	88	4	0	15	140	2	0	2	1	1	0	2	2	6	0	264	
4:45 PM	2	63	3	1	11	132	1	0	5	1	2	0	8	6	7	0	242	
4:50 PM	1	63	6	1	17	164	3	0	0	1	0	0	8	1	9	0	274	
4:55 PM	3	79	4	0	16	152	6	0	3	1	1	0	4	0	7	0	276	3149
5:00 PM	5	60	9	0	16	124	1	0	4	0	5	0	9	1	10	0	244	3157
5:05 PM	2	40	3	1	27	140	1	0	1	2	4	0	5	0	10	0	236	3067
5:10 PM	1	65	3	0	19	151	0	0	1	4	1	0	6	2	9	0	262	3073
5:15 PM	3	67	7	0	14	162	2	0	1	1	1	0	3	0	11	0	272	3122
5:20 PM	1	54	8	0	16	127	1	0	3	1	0	0	17	1	13	0	242	3088
5:25 PM	1	76	1	0	22	159	0	0	0	2	0	0	4	2	6	0	273	3105
5:30 PM	5	69	5	0	15	151	0	0	0	2	0	0	3	1	6	0	257	3122
5:35 PM	0	61	5	1	18	130	3	0	3	1	3	0	8	0	7	0	240	3082
5:40 PM	0	73	3	0	24	144	2	0	0	1	1	0	5	0	5	0	258	3076
5:45 PM	1	65	7	0	15	151	2	0	1	0	4	0	1	1	10	0	258	3092
5:50 PM	4	67	7	0	12	144	2	1	1	0	1	0	3	0	14	0	256	3074
5:55 PM	0	57	3	2	15	133	1	0	1	1	2	0	2	0	6	0	223	3021
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	808	76	4	196	1760	40	0	28	8	24	0	84	8	104	0	3176	
Heavy Trucks	0	32	4		4	40	0		0	0	0		0	0	0		80	
Pedestrians		0				0				0				0				0
Bicycles		0	0			0	0			0	0			0	0			0
Railroad																		0
Stopped Buses																		0

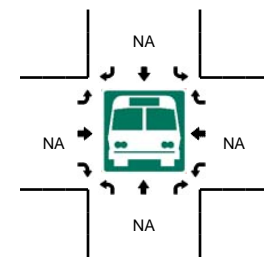
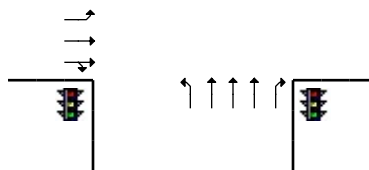
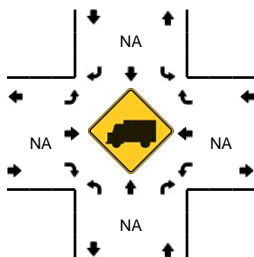
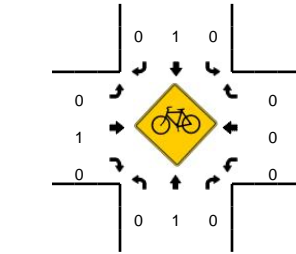
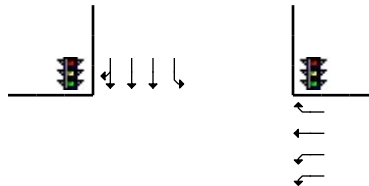
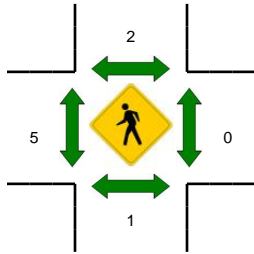
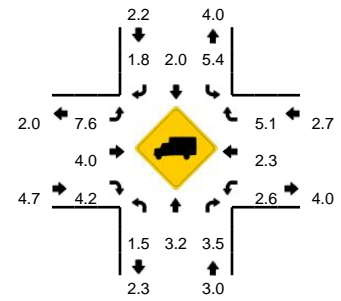
Comments:

LOCATION: OR-99W -- SW Tualatin-Sherwood Rd
CITY/STATE: Sherwood, OR

QC JOB #: 14439204
DATE: Thu, Jun 08 2017



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

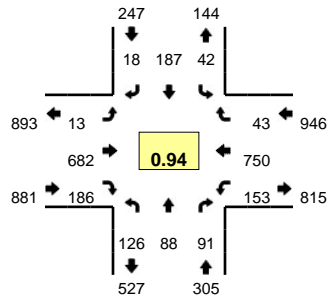


5-Min Count Period Beginning At	OR-99W (Northbound)				OR-99W (Southbound)				SW Tualatin-Sherwood Rd (Eastbound)				SW Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	59	28	1	8	91	26	0	19	44	14	0	31	28	7	0	367	
4:05 PM	17	59	25	0	14	116	32	0	13	27	6	0	31	29	9	0	378	
4:10 PM	13	45	31	0	17	132	39	0	9	25	7	0	26	27	7	0	378	
4:15 PM	15	42	38	0	13	81	32	0	11	30	3	0	50	42	5	0	362	
4:20 PM	21	79	27	1	8	100	24	0	8	41	11	0	25	24	6	0	375	
4:25 PM	14	63	39	0	12	125	32	0	6	32	7	0	25	26	5	0	386	
4:30 PM	17	34	29	0	9	100	29	0	9	36	6	0	34	40	8	0	351	
4:35 PM	22	75	30	2	8	87	31	0	17	51	11	0	30	27	8	0	399	
4:40 PM	16	71	33	0	3	135	34	0	6	26	5	0	36	28	5	0	398	
4:45 PM	13	45	45	1	8	110	31	0	5	31	8	0	59	43	7	0	406	
4:50 PM	12	47	46	0	13	111	28	0	21	43	8	0	32	33	8	0	402	
4:55 PM	22	70	28	0	7	123	28	0	10	31	6	0	40	28	9	0	402	4604
5:00 PM	13	39	27	2	8	116	33	0	12	36	5	0	41	31	6	0	369	4606
5:05 PM	13	32	22	0	9	98	33	0	11	48	6	0	53	41	9	0	375	4603
5:10 PM	18	56	37	0	15	128	21	1	8	36	9	0	24	25	3	0	381	4606
5:15 PM	15	50	43	1	17	122	40	0	8	31	12	0	17	29	8	0	393	4637
5:20 PM	11	43	44	1	12	108	17	0	16	46	5	0	34	44	4	0	385	4647
5:25 PM	22	73	41	0	11	96	16	0	8	40	15	0	34	29	8	0	393	4654
5:30 PM	14	65	31	0	18	149	27	0	9	35	5	0	19	29	4	0	405	4708
5:35 PM	12	46	46	0	5	100	31	0	12	32	7	0	48	47	7	0	393	4702
5:40 PM	21	69	24	0	7	90	31	0	14	47	11	0	35	28	8	0	385	4689
5:45 PM	8	47	37	0	10	145	32	1	3	32	5	0	32	26	6	0	384	4667
5:50 PM	11	53	39	0	12	107	17	0	9	31	3	0	50	43	12	0	387	4652
5:55 PM	17	46	27	0	11	97	23	0	15	45	9	0	47	33	8	0	378	4628
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	188	648	476	4	112	1376	348	0	144	420	88	0	524	416	96	0	4840	
Heavy Trucks	4	36	16		4	20	4		8	32	8		4	8	4		148	
Pedestrians		0				0				0				0				0
Bicycles	0	1	0		0	0	0		0	1	0		0	0	0			2
Railroad																		
Stopped Buses																		

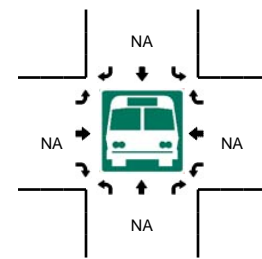
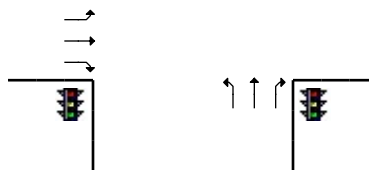
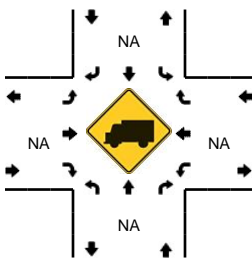
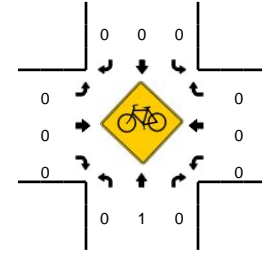
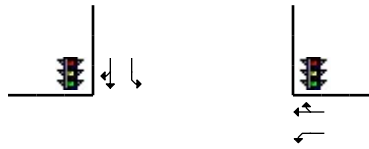
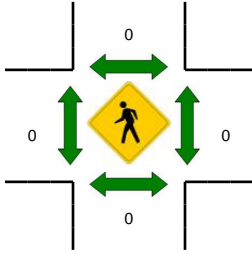
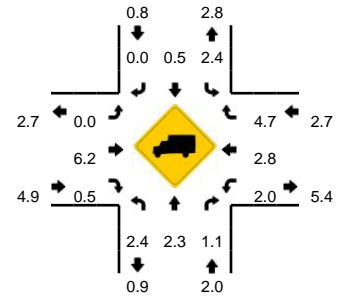
Comments:

LOCATION: SW Langer Farms Pkwy -- SW Tualatin-Sherwood Rd
CITY/STATE: Sherwood, OR

QC JOB #: 14439206
DATE: Thu, Jun 08 2017



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

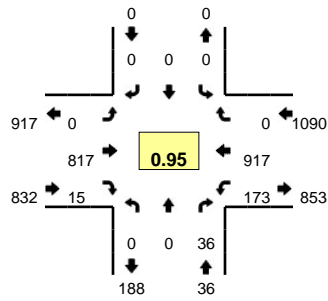


5-Min Count Period Beginning At	SW Langer Farms Pkwy (Northbound)				SW Langer Farms Pkwy (Southbound)				SW Tualatin-Sherwood Rd (Eastbound)				SW Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	6	4	0	0	5	3	0	2	54	14	0	5	71	3	0	176	
4:05 PM	8	8	8	0	8	13	2	0	1	51	15	0	11	52	1	0	178	
4:10 PM	8	8	7	0	3	11	1	0	1	46	15	0	16	83	2	0	201	
4:15 PM	10	11	10	0	3	10	1	0	0	41	10	0	8	60	4	0	168	
4:20 PM	12	8	5	0	1	16	0	0	3	60	16	0	18	61	4	0	204	
4:25 PM	9	3	7	1	2	11	0	0	2	64	11	0	11	74	2	0	197	
4:30 PM	11	6	11	0	4	11	3	0	1	58	14	0	18	62	4	0	203	
4:35 PM	18	8	5	0	7	18	1	0	3	54	7	0	12	44	5	0	182	
4:40 PM	13	5	15	0	4	12	3	0	2	68	9	0	8	53	4	0	196	
4:45 PM	9	9	8	0	3	15	1	0	0	68	15	0	12	79	3	0	222	
4:50 PM	12	18	11	0	5	8	2	0	1	46	16	0	14	69	8	0	210	
4:55 PM	7	8	8	0	3	19	3	0	1	60	18	0	17	57	2	0	203	2340
5:00 PM	5	3	5	1	1	13	0	0	2	60	14	0	9	80	3	0	196	2360
5:05 PM	12	8	6	0	5	21	4	0	1	39	15	0	16	65	3	0	195	2377
5:10 PM	7	10	2	0	3	17	0	0	1	66	16	0	13	77	5	0	217	2393
5:15 PM	4	4	6	0	3	15	0	0	0	61	17	0	17	55	4	0	186	2411
5:20 PM	20	10	8	0	5	20	3	0	1	44	12	0	9	50	2	0	184	2391
5:25 PM	9	3	6	0	1	15	1	0	0	69	32	0	14	64	1	0	215	2409
5:30 PM	9	2	11	0	2	14	0	0	1	47	15	0	12	57	3	0	173	2379
5:35 PM	12	5	7	0	4	13	3	0	1	58	19	0	15	54	0	0	191	2388
5:40 PM	8	6	9	0	1	21	3	0	0	48	14	0	20	67	1	0	198	2390
5:45 PM	11	8	8	0	3	16	1	0	1	65	17	0	13	70	5	0	218	2386
5:50 PM	13	8	6	0	1	13	0	0	2	43	16	0	14	66	4	0	186	2362
5:55 PM	7	4	5	0	3	15	0	0	1	55	17	0	11	56	2	0	176	2335
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	112	140	108	0	44	168	24	0	8	696	196	0	172	820	52	0	2540	
Heavy Trucks	4	8	0		0	0	0		0	56	4		0	4	0		76	
Pedestrians		0			0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

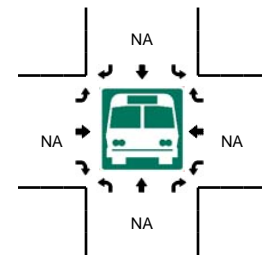
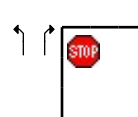
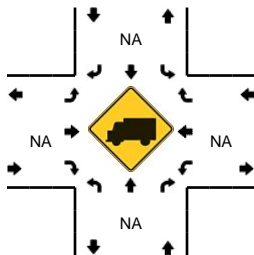
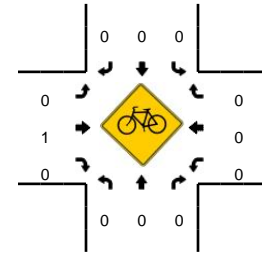
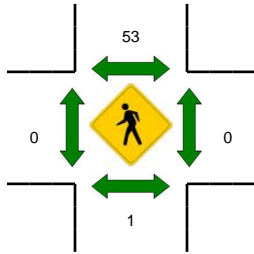
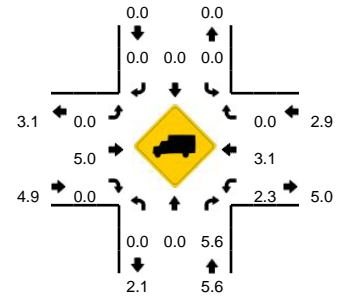
Comments:

LOCATION: SW Century Dr -- SW Tualatin-Sherwood Rd
CITY/STATE: Sherwood, OR

QC JOB #: 14439208
DATE: Thu, Jun 08 2017



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

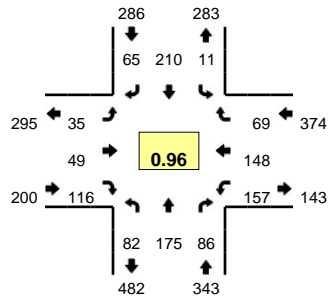


5-Min Count Period Beginning At	SW Century Dr (Northbound)				SW Century Dr (Southbound)				SW Tualatin-Sherwood Rd (Eastbound)				SW Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	2	0	0	0	0	0	0	52	1	0	6	78	0	0	139	
4:05 PM	0	0	5	0	0	0	0	0	0	64	0	0	7	79	0	0	155	
4:10 PM	0	0	5	0	0	0	0	0	0	59	1	0	10	88	0	0	163	
4:15 PM	0	0	5	0	0	0	0	0	0	59	0	0	11	85	0	0	160	
4:20 PM	0	0	2	0	0	0	0	0	0	64	0	0	9	81	0	0	156	
4:25 PM	0	0	1	0	0	0	0	0	0	60	2	0	15	88	0	0	166	
4:30 PM	0	0	3	0	0	0	0	0	0	78	0	0	13	81	0	0	175	
4:35 PM	0	0	3	0	0	0	0	0	0	70	2	0	23	75	0	0	173	
4:40 PM	0	0	4	0	0	0	0	0	0	69	2	0	19	63	0	0	157	
4:45 PM	0	0	3	0	0	0	0	0	0	78	1	0	12	82	0	0	176	
4:50 PM	0	0	5	0	0	0	0	0	0	76	0	0	17	84	0	0	182	
4:55 PM	0	0	6	0	0	0	0	0	0	61	1	0	14	75	0	0	157	1959
5:00 PM	0	0	2	0	0	0	0	0	0	67	0	0	10	88	0	0	167	1987
5:05 PM	0	0	5	0	0	0	0	0	0	63	3	0	7	96	0	0	174	2006
5:10 PM	0	0	1	0	0	0	0	0	0	67	3	0	14	76	0	0	161	2004
5:15 PM	0	0	2	0	0	0	0	0	0	68	1	0	12	73	0	0	156	2000
5:20 PM	0	0	0	0	0	0	0	0	0	66	0	0	10	63	0	0	139	1983
5:25 PM	0	0	1	0	0	0	0	0	0	68	0	0	14	68	0	0	151	1968
5:30 PM	0	0	4	0	0	0	0	0	0	64	2	0	21	74	0	0	165	1958
5:35 PM	2	0	4	0	0	0	0	0	0	77	2	0	18	61	0	0	164	1949
5:40 PM	0	0	1	0	0	0	0	0	0	57	0	0	18	84	0	0	160	1952
5:45 PM	0	0	2	0	0	0	0	0	0	63	1	0	8	82	0	0	156	1932
5:50 PM	0	0	3	0	0	0	0	0	0	55	1	0	16	72	0	0	147	1897
5:55 PM	0	0	1	0	0	0	0	0	0	67	0	0	9	63	0	0	140	1880
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	48	0	0	0	0	0	0	892	12	0	192	916	0	0	2060	
Heavy Trucks	0	0	4	0	0	0	0	0	0	60	0	0	12	12	0	0	88	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

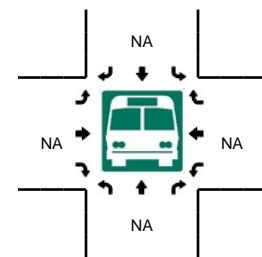
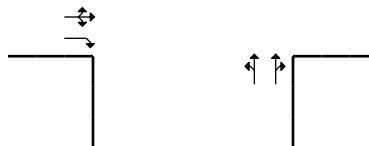
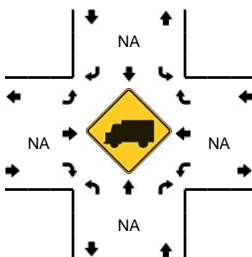
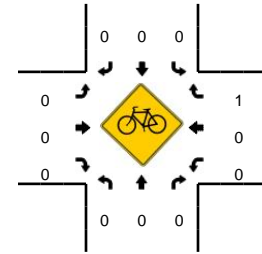
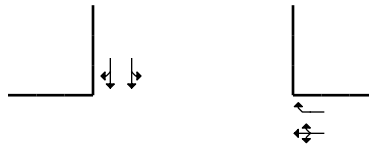
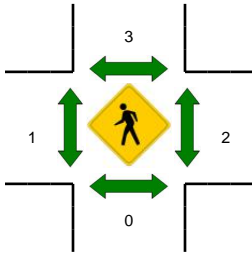
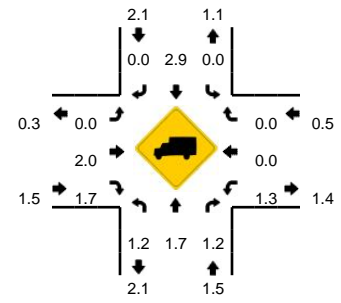
Comments:

LOCATION: SW Langer Farms Pkwy -- SW Century Dr
CITY/STATE: Sherwood, OR

QC JOB #: 14439210
DATE: Thu, Jun 08 2017



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

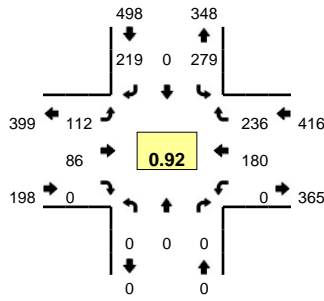


5-Min Count Period Beginning At	SW Langer Farms Pkwy (Northbound)				SW Langer Farms Pkwy (Southbound)				SW Century Dr (Eastbound)				SW Century Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	8	6	0	0	15	3	0	2	5	13	0	11	8	2	0	80	
4:05 PM	3	13	8	0	1	14	7	1	4	3	12	0	6	10	3	0	85	
4:10 PM	7	13	7	0	2	22	3	0	3	6	4	0	11	14	5	0	97	
4:15 PM	12	8	6	0	1	16	4	0	1	4	5	0	18	8	3	0	86	
4:20 PM	6	12	6	0	1	15	4	1	1	3	6	0	17	10	3	0	85	
4:25 PM	11	18	7	0	0	16	2	1	3	4	3	0	11	9	3	0	88	
4:30 PM	7	12	7	0	1	19	4	0	2	5	11	0	14	11	4	0	97	
4:35 PM	13	15	5	0	0	12	7	0	3	3	14	0	13	15	11	0	111	
4:40 PM	2	15	1	0	2	16	3	1	8	2	13	0	10	14	5	1	93	
4:45 PM	6	13	11	0	1	16	5	0	3	3	8	0	13	14	8	0	101	
4:50 PM	8	20	12	0	1	15	2	0	2	8	7	0	17	17	10	0	119	
4:55 PM	3	13	9	0	0	17	5	0	2	4	6	0	9	6	2	0	76	1118
5:00 PM	6	17	5	0	1	17	6	0	3	6	13	0	23	12	3	0	112	1150
5:05 PM	6	11	8	0	0	22	2	1	1	3	10	0	11	14	9	0	98	1163
5:10 PM	6	9	6	0	0	19	7	0	2	6	6	0	11	11	6	0	89	1155
5:15 PM	7	15	4	0	1	24	11	1	2	1	11	0	12	8	1	0	98	1167
5:20 PM	9	19	12	0	0	18	9	1	3	4	14	0	7	12	6	0	114	1196
5:25 PM	11	13	6	0	0	15	4	0	2	4	9	0	10	9	4	0	87	1195
5:30 PM	5	15	7	0	1	19	4	0	4	5	5	0	20	16	4	0	105	1203
5:35 PM	12	12	8	0	1	22	3	0	4	7	8	0	11	20	3	0	111	1203
5:40 PM	8	11	7	0	2	18	4	0	2	4	13	0	9	20	6	0	104	1214
5:45 PM	7	17	9	0	2	29	7	0	2	6	9	0	18	10	4	0	120	1233
5:50 PM	4	14	11	0	0	18	7	0	1	6	7	0	13	15	6	0	102	1216
5:55 PM	10	13	10	0	2	18	5	0	1	7	15	0	11	12	6	0	110	1250
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	64	192	96	0	16	188	40	4	52	52	112	0	160	180	92	4	1252	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	4	0	4	0	0	0	16	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

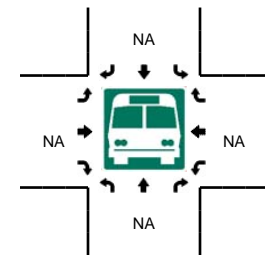
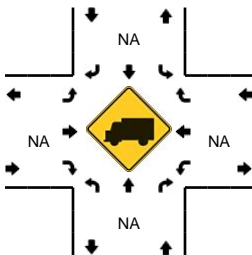
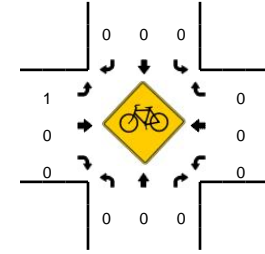
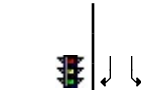
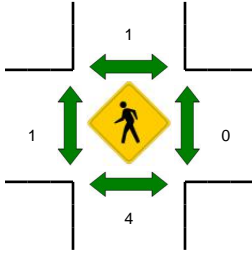
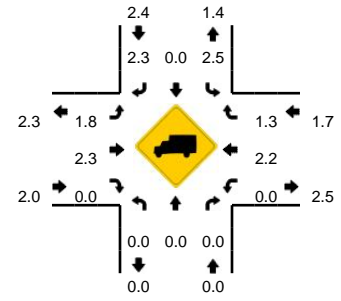
Comments:

LOCATION: SW Langer Farms Pkwy -- SW Oregon St
CITY/STATE: Sherwood, OR

QC JOB #: 14439212
DATE: Thu, Jun 08 2017



Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



5-Min Count Period Beginning At	SW Langer Farms Pkwy (Northbound)				SW Langer Farms Pkwy (Southbound)				SW Oregon St (Eastbound)				SW Oregon St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	27	0	10	0	8	10	0	0	0	20	18	0	93	
4:05 PM	0	0	0	0	20	0	13	0	12	9	0	0	0	20	15	0	89	
4:10 PM	0	0	0	0	20	0	13	0	6	14	0	0	0	13	19	0	85	
4:15 PM	0	0	0	0	20	0	17	0	6	8	0	0	0	11	18	0	80	
4:20 PM	0	0	0	0	20	0	19	0	6	5	0	0	0	14	20	0	84	
4:25 PM	0	0	0	0	19	0	9	0	7	10	0	0	0	17	29	0	91	
4:30 PM	0	0	0	0	24	0	11	0	8	6	0	0	0	15	18	0	82	
4:35 PM	0	0	0	0	23	0	21	0	12	5	0	0	0	16	17	0	94	
4:40 PM	0	0	0	0	23	0	17	0	7	5	0	0	0	12	14	0	78	
4:45 PM	0	0	0	0	27	0	10	0	11	4	0	0	0	17	24	0	93	
4:50 PM	0	0	0	0	22	0	19	0	11	10	0	0	0	14	26	0	102	
4:55 PM	0	0	0	0	23	0	15	0	10	5	0	0	0	16	16	0	85	1056
5:00 PM	0	0	0	0	24	0	22	0	10	2	0	0	0	15	13	0	86	1049
5:05 PM	0	0	0	0	26	0	17	0	8	11	0	0	0	12	17	0	91	1051
5:10 PM	0	0	0	0	19	0	15	0	4	13	0	0	0	16	21	0	88	1054
5:15 PM	0	0	0	0	24	0	25	0	12	11	0	0	0	9	24	0	105	1079
5:20 PM	0	0	0	0	30	0	23	0	13	5	0	0	0	18	19	0	108	1103
5:25 PM	0	0	0	0	22	0	13	0	7	7	0	0	0	16	25	0	90	1102
5:30 PM	0	0	0	0	16	0	22	0	7	8	0	0	0	19	20	0	92	1112
5:35 PM	0	0	0	0	30	0	17	0	9	10	0	0	0	14	18	0	98	1116
5:40 PM	0	0	0	0	25	0	16	0	10	1	0	0	0	16	20	0	88	1126
5:45 PM	0	0	0	0	31	0	24	0	7	6	0	0	0	20	20	0	108	1141
5:50 PM	0	0	0	0	17	0	18	0	11	10	0	0	0	14	17	0	87	1126
5:55 PM	0	0	0	0	29	0	16	0	11	10	0	0	0	13	20	0	99	1140
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	304	0	244	0	128	92	0	0	0	172	272	0	1212	
Heavy Trucks	0	0	0	0	12	0	8	0	4	4	0	0	0	4	4	0	36	
Pedestrians		8			0				0				0				8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																	0	
Stopped Buses																		

Comments:

Appendix E Existing Traffic Conditions



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	5	32	112	57	1963	42	63	744
v/c Ratio	0.16	0.03	0.32	0.55	0.45	0.77	0.04	0.49	0.30
Control Delay	55.6	0.2	61.4	19.9	73.7	10.4	0.0	65.1	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	0.2	61.4	19.9	73.7	10.4	0.0	65.1	6.2
Queue Length 50th (ft)	11	0	24	0	47	238	0	48	91
Queue Length 95th (ft)	33	0	56	56	m56	m405	m0	92	148
Internal Link Dist (ft)	247		943			1665			776
Turn Bay Length (ft)		50		200	275		275	500	
Base Capacity (vph)	296	356	310	400	383	2561	1174	217	2450
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.10	0.28	0.15	0.77	0.04	0.29	0.30























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	9	5	5	17	13	104	53	1826	39	59	674	18	
Future Volume (vph)	9	5	5	17	13	104	53	1826	39	59	674	18	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Fr _t		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Fl _t Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1839	1346		1848	1553	1805	3471	1568	1687	3298		
Fl _t Permitted		0.78	1.00		0.82	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1482	1346		1553	1553	1805	3471	1568	1687	3298		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	10	5	5	18	14	112	57	1963	42	63	725	19	
RTOR Reduction (vph)	0	0	5	0	0	105	0	0	11	0	1	0	
Lane Group Flow (vph)	0	15	0	0	32	7	57	1963	31	63	743	0	
Heavy Vehicles (%)	0%	0%	20%	0%	0%	4%	0%	4%	3%	7%	9%	11%	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4		4	8		8			2				
Actuated Green, G (s)		7.7	7.7		7.7	7.7	7.5	87.7	87.7	8.1	88.3		
Effective Green, g (s)		7.7	7.7		7.7	7.7	7.5	87.7	87.7	8.1	88.3		
Actuated g/C Ratio		0.06	0.06		0.06	0.06	0.06	0.73	0.73	0.07	0.74		
Clearance Time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.5	4.5	2.3	4.5		
Lane Grp Cap (vph)		95	86		99	99	112	2536	1145	113	2426		
v/s Ratio Prot							0.03	c0.57		c0.04	0.23		
v/s Ratio Perm		0.01	0.00		c0.02	0.00			0.02				
v/c Ratio		0.16	0.00		0.32	0.07	0.51	0.77	0.03	0.56	0.31		
Uniform Delay, d1		53.1	52.6		53.7	52.8	54.5	10.0	4.4	54.2	5.4		
Progression Factor		1.00	1.00		1.00	1.00	1.29	0.81	0.00	1.00	1.00		
Incremental Delay, d2		0.6	0.0		1.4	0.2	1.1	1.2	0.0	4.2	0.3		
Delay (s)		53.7	52.6		55.0	53.0	71.3	9.3	0.0	58.4	5.7		
Level of Service		D	D		E	D	E	A	A	E	A		
Approach Delay (s)		53.4			53.5			10.8			9.8		
Approach LOS		D			D			B			A		
Intersection Summary													
HCM 2000 Control Delay			12.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.72										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			76.9%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	315	562	227	300	52	166	1634	355	54	677
v/c Ratio	1.01	0.92	0.38	0.91	0.13	0.72	0.87	0.35	0.42	0.47
Control Delay	101.9	68.3	43.6	78.2	0.7	67.8	42.0	3.2	56.1	46.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.9	68.3	43.6	78.2	0.7	67.8	42.0	3.2	56.1	46.5
Queue Length 50th (ft)	~248	222	78	226	0	125	446	20	40	157
Queue Length 95th (ft)	#437	#327	117	#379	0	193	#594	47	83	243
Internal Link Dist (ft)		853		1925			1489			1665
Turn Bay Length (ft)	225		225		175	650		275	275	
Base Capacity (vph)	313	613	628	350	413	297	1882	1023	194	1439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.92	0.36	0.86	0.13	0.56	0.87	0.35	0.28	0.47

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Parkway Village South
2: OR-99W & SW Tualatin-Sherwood Rd

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	458	76	216	285	49	158	1552	337	51	537	106
Future Volume (vph)	299	458	76	216	285	49	158	1552	337	51	537	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3360		3019	1681	1346	1787	4988	1568	1671	4597	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3360		3019	1681	1346	1787	4988	1568	1671	4597	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	315	482	80	227	300	52	166	1634	355	54	565	112
RTOR Reduction (vph)	0	11	0	0	0	42	0	0	111	0	23	0
Lane Group Flow (vph)	315	551	0	227	300	10	166	1634	244	54	654	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	3%	4%	12%	16%	13%	20%	1%	4%	3%	8%	7%	23%
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	7		8	8		5	2	8	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	21.5	21.5		23.6	23.6	23.6	15.4	44.3	67.9	8.1	37.0	
Effective Green, g (s)	21.5	21.5		23.6	23.6	23.6	15.4	44.3	67.9	8.1	37.0	
Actuated g/C Ratio	0.18	0.18		0.20	0.20	0.20	0.13	0.37	0.57	0.07	0.31	
Clearance Time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.4	2.3	3.0	4.4	
Lane Grp Cap (vph)	313	602		593	330	264	229	1841	887	112	1417	
v/s Ratio Prot	c0.18	0.16		0.08	c0.18		c0.09	c0.33	0.05	0.03	0.14	
v/s Ratio Perm						0.01			0.10			
v/c Ratio	1.01	0.91		0.38	0.91	0.04	0.72	0.89	0.28	0.48	0.46	
Uniform Delay, d1	49.2	48.3		41.9	47.2	39.0	50.3	35.5	13.4	53.9	33.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.37	
Incremental Delay, d2	52.5	18.4		0.2	27.2	0.0	9.8	6.8	0.1	3.2	1.1	
Delay (s)	101.7	66.7		42.1	74.4	39.1	60.1	42.3	13.5	51.4	47.0	
Level of Service	F	E		D	E	D	E	D	B	D	D	
Approach Delay (s)		79.3			58.6			38.9			47.4	
Approach LOS		E			E			D			D	

Intersection Summary

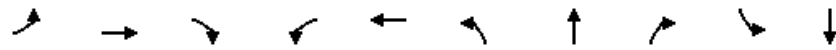
HCM 2000 Control Delay	51.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Parkway Village South
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	862	164	56	574	78	85	137	27	47
v/c Ratio	0.03	0.75	0.14	0.17	0.53	0.35	0.40	0.46	0.15	0.35
Control Delay	4.9	19.8	2.1	5.9	11.9	37.3	46.8	12.8	33.7	47.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.9	19.8	2.1	5.9	11.9	37.3	46.8	12.8	33.7	47.6
Queue Length 50th (ft)	2	364	10	8	139	41	51	0	14	25
Queue Length 95th (ft)	9	#666	29	23	345	82	102	55	37	64
Internal Link Dist (ft)		1925			1487		1085			1682
Turn Bay Length (ft)	100		150	100				350	125	
Base Capacity (vph)	664	1148	1292	477	1093	314	389	435	322	362
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.75	0.13	0.12	0.53	0.25	0.22	0.31	0.08	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Parkway Village South 2017 Existing Conditions, Weekday AM Peak Hour
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd 06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	810	154	53	499	40	73	80	129	25	39	6
Future Volume (vph)	14	810	154	53	499	40	73	80	129	25	39	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	1792	1580	1770	1603		1736	1827	1538	1671	1681	
Flt Permitted	0.39	1.00	1.00	0.18	1.00		0.45	1.00	1.00	0.70	1.00	
Satd. Flow (perm)	689	1792	1580	338	1603		826	1827	1538	1235	1681	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	862	164	56	531	43	78	85	137	27	41	6
RTOR Reduction (vph)	0	0	27	0	1	0	0	0	122	0	5	0
Lane Group Flow (vph)	15	862	137	56	573	0	78	85	15	27	42	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	6%	1%	2%	17%	20%	4%	4%	5%	8%	10%	17%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)	64.4	62.5	70.5	68.8	64.7		18.6	11.1	11.1	10.1	6.6	
Effective Green, g (s)	64.4	62.5	70.5	68.8	64.7		18.6	11.1	11.1	10.1	6.6	
Actuated g/C Ratio	0.65	0.63	0.71	0.69	0.65		0.19	0.11	0.11	0.10	0.07	
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	466	1129	1122	293	1045		228	204	172	141	111	
v/s Ratio Prot	0.00	c0.48	0.01	c0.01	0.36		c0.03	c0.05		0.01	0.03	
v/s Ratio Perm	0.02		0.08	0.12			0.04		0.01	0.01		
v/c Ratio	0.03	0.76	0.12	0.19	0.55		0.34	0.42	0.09	0.19	0.38	
Uniform Delay, d1	6.5	13.1	4.5	9.9	9.3		34.4	41.0	39.5	40.7	44.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	3.2	0.0	0.1	0.7		0.3	0.5	0.1	0.2	0.8	
Delay (s)	6.5	16.3	4.6	10.0	10.0		34.7	41.5	39.6	40.9	45.1	
Level of Service	A	B	A	B	A		C	D	D	D	D	
Approach Delay (s)		14.3			10.0			38.9			43.6	
Approach LOS		B			A			D			D	

Intersection Summary		
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio	0.68	
Actuated Cycle Length (s)	99.2	Sum of lost time (s) 18.0
Intersection Capacity Utilization	66.5%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Parkway Village South
4: SW Century Dr & SW Tualatin-Sherwood Rd

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (veh/h)	940	3	20	567	3	46
Future Volume (Veh/h)	940	3	20	567	3	46
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	989	3	21	597	3	48
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						8
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			993		1630	992
vC1, stage 1 conf vol					992	
vC2, stage 2 conf vol					639	
vCu, unblocked vol			993		1630	992
tC, single (s)			4.2		7.1	6.3
tC, 2 stage (s)					6.1	
tF (s)			2.3		4.1	3.4
p0 queue free %			97		99	83
cM capacity (veh/h)			647		233	287
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	992	618	51			
Volume Left	0	21	3			
Volume Right	3	0	48			
cSH	1700	647	305			
Volume to Capacity	0.58	0.03	0.17			
Queue Length 95th (ft)	0	3	15			
Control Delay (s)	0.0	0.9	20.1			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.9	20.1			
Approach LOS			C			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			59.7%		ICU Level of Service	B
Analysis Period (min)			15			

MOVEMENT SUMMARY

 Site: 101 [Existing AM SW Langer Farms Pkwy/SW Century Drive]

Existing Traffic Conditions - Weekday AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SW Langer Farms Parkway											
3	L2	101	3.0	0.174	4.5	LOS A	0.7	19.2	0.28	0.15	34.3
8	T1	256	4.0	0.174	4.5	LOS A	0.7	19.2	0.28	0.15	34.9
18	R2	62	4.0	0.174	4.5	LOS A	0.7	19.2	0.28	0.15	34.3
Approach		419	3.8	0.174	4.5	LOS A	0.7	19.2	0.28	0.15	34.7
East: SW Century Drive											
1	L2	41	9.0	0.072	4.5	LOS A	0.2	6.5	0.43	0.34	33.7
6	T1	26	0.0	0.072	4.5	LOS A	0.2	6.5	0.43	0.34	33.9
16	R2	13	20.0	0.017	5.0	LOS A	0.1	1.5	0.44	0.30	33.6
Approach		79	7.9	0.072	4.6	LOS A	0.2	6.5	0.43	0.33	33.8
North: SW Langer Farms Parkway											
7	L2	9	0.0	0.096	4.0	LOS A	0.4	9.5	0.29	0.17	35.8
4	T1	188	3.0	0.096	3.9	LOS A	0.4	9.5	0.29	0.17	35.7
14	R2	26	0.0	0.096	3.8	LOS A	0.4	9.3	0.28	0.16	34.8
Approach		223	2.5	0.096	3.9	LOS A	0.4	9.5	0.28	0.17	35.6
West: SW Century Drive											
5	L2	68	0.0	0.155	4.8	LOS A	0.6	16.0	0.37	0.26	34.4
2	T1	59	2.0	0.155	4.8	LOS A	0.6	16.0	0.37	0.26	34.2
12	R2	215	1.0	0.155	4.6	LOS A	0.6	16.0	0.36	0.24	34.1
Approach		342	1.0	0.155	4.6	LOS A	0.6	16.0	0.36	0.25	34.2
All Vehicles		1064	2.9	0.174	4.4	LOS A	0.7	19.2	0.32	0.20	34.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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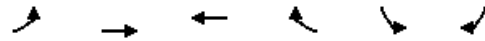
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Parkway Village South
6: SW Century Dr & Century Drive West Access

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Volume (veh/h)	0	101	37	25	0	25
Future Volume (Veh/h)	0	101	37	25	0	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	129	47	32	0	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	79				192	63
vC1, stage 1 conf vol					63	
vC2, stage 2 conf vol					129	
vCu, unblocked vol	79				192	63
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	1532				862	1007

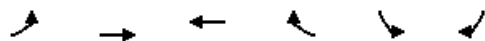
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	129	79	32
Volume Left	0	0	0
Volume Right	0	32	32
cSH	1700	1700	1007
Volume to Capacity	0.08	0.05	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		13.5%	ICU Level of Service
Analysis Period (min)		15	A

Parkway Village South
7: SW Century Dr & Century Drive East Access

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	25	76	37	25	25	25
Future Volume (Veh/h)	25	76	37	25	25	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	32	97	47	32	32	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	None			
Median storage (veh)		2				
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	79				224	63
vC1, stage 1 conf vol					63	
vC2, stage 2 conf vol					161	
vCu, unblocked vol	79				224	63
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				96	97
cM capacity (veh/h)	1532				821	1007
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	129	79	64			
Volume Left	32	0	32			
Volume Right	0	32	32			
cSH	1532	1700	905			
Volume to Capacity	0.02	0.05	0.07			
Queue Length 95th (ft)	2	0	6			
Control Delay (s)	2.0	0.0	9.3			
Lane LOS	A		A			
Approach Delay (s)	2.0	0.0	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization		22.0%		ICU Level of Service	A	
Analysis Period (min)			15			

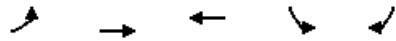
Parkway Village South
8: SW Langer Farms Pkwy & Langer Farms North Access

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	50	50	277	297	50
Future Volume (Veh/h)	50	50	50	277	297	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	64	64	64	355	381	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL	TWLTL		
Median storage (veh)			2	2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	896	413	445			
vC1, stage 1 conf vol	413					
vC2, stage 2 conf vol	483					
vCu, unblocked vol	896	413	445			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	90	94			
cM capacity (veh/h)	502	643	1126			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	128	419	445			
Volume Left	64	64	0			
Volume Right	64	0	64			
cSH	564	1126	1700			
Volume to Capacity	0.23	0.06	0.26			
Queue Length 95th (ft)	22	5	0			
Control Delay (s)	13.2	1.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.2	1.8	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			51.8%	ICU Level of Service	A	
Analysis Period (min)			15			



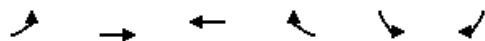
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	143	154	389	299	98
v/c Ratio	0.28	0.15	0.67	0.66	0.21
Control Delay	7.8	7.7	21.9	29.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	7.7	21.9	29.6	6.5
Queue Length 50th (ft)	20	24	93	96	0
Queue Length 95th (ft)	48	54	189	187	27
Internal Link Dist (ft)		1186	843	1186	
Turn Bay Length (ft)	375			375	
Base Capacity (vph)	753	1829	1490	759	725
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.08	0.26	0.39	0.14

Intersection Summary

Parkway Village South
10: SW Oregon St & SW Langer Farms Pkwy

2017 Existing Conditions, Weekday AM Peak Hour

06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	116	125	139	176	242	79
Future Volume (vph)	116	125	139	176	242	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0		5.5	5.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	1845	1698		1770	1563
Flt Permitted	0.32	1.00	1.00		0.95	1.00
Satd. Flow (perm)	575	1845	1698		1770	1563
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	143	154	172	217	299	98
RTOR Reduction (vph)	0	0	51	0	0	73
Lane Group Flow (vph)	143	154	338	0	299	25
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	5%	3%	4%	3%	2%	1%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases	2					7
Actuated Green, G (s)	32.7	32.7	18.9		15.4	15.4
Effective Green, g (s)	32.7	32.7	18.9		15.4	15.4
Actuated g/C Ratio	0.55	0.55	0.32		0.26	0.26
Clearance Time (s)	4.0	6.0	6.0		5.5	5.5
Vehicle Extension (s)	2.0	3.8	3.8		2.0	2.0
Lane Grp Cap (vph)	503	1012	538		457	403
v/s Ratio Prot	c0.05	0.08	c0.20		c0.17	
v/s Ratio Perm	0.11					0.02
v/c Ratio	0.28	0.15	0.63		0.65	0.06
Uniform Delay, d1	7.5	6.6	17.4		19.7	16.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.1	2.5		2.6	0.0
Delay (s)	7.6	6.7	19.9		22.3	16.7
Level of Service	A	A	B		C	B
Approach Delay (s)		7.1	19.9		20.9	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	15.5
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	20	94	108	31	816	66	203	1805
v/c Ratio	0.26	0.09	0.66	0.41	0.32	0.42	0.07	0.55	0.69
Control Delay	55.2	0.8	76.1	13.6	97.3	9.7	2.6	53.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	0.8	76.1	13.6	97.3	9.7	2.6	53.2	12.6
Queue Length 50th (ft)	32	0	77	0	28	260	5	158	423
Queue Length 95th (ft)	66	0	131	53	m62	343	40	240	647
Internal Link Dist (ft)	247		943			1665			776
Turn Bay Length (ft)		50		200	275		275	500	
Base Capacity (vph)	416	504	378	521	159	1926	899	368	2619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.25	0.21	0.19	0.42	0.07	0.55	0.69

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2017 Existing Conditions, Weekday PM Peak Hour

06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	19	20	75	17	106	30	800	65	199	1750	19
Future Volume (vph)	22	19	20	75	17	106	30	800	65	199	1750	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1801	1615		1735	1562	1805	3471	1568	1752	3534	
Flt Permitted		0.79	1.00		0.74	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1465	1615		1330	1562	1805	3471	1568	1752	3534	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	22	19	20	77	17	108	31	816	66	203	1786	19
RTOR Reduction (vph)	0	0	18	0	0	96	0	0	29	0	0	0
Lane Group Flow (vph)	0	41	2	0	94	12	31	816	37	203	1805	0
Confl. Peds. (#/hr)	1					1						
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	5%	0%	0%	5%	6%	2%	0%	4%	3%	3%	2%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8			2			
Actuated Green, G (s)		14.0	14.0		14.0	14.0	4.9	72.1	72.1	27.4	94.6	
Effective Green, g (s)		14.0	14.0		14.0	14.0	4.9	72.1	72.1	27.4	94.6	
Actuated g/C Ratio		0.11	0.11		0.11	0.11	0.04	0.55	0.55	0.21	0.73	
Clearance Time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.5	4.5	2.3	4.5	
Lane Grp Cap (vph)		157	173		143	168	68	1925	869	369	2571	
v/s Ratio Prot							0.02	0.24		c0.12	c0.51	
v/s Ratio Perm		0.03	0.00		c0.07	0.01			0.02			
v/c Ratio		0.26	0.01		0.66	0.07	0.46	0.42	0.04	0.55	0.70	
Uniform Delay, d1		53.3	51.8		55.7	52.1	61.2	16.9	13.2	45.8	9.9	
Progression Factor		1.00	1.00		1.00	1.00	1.52	0.53	0.70	1.00	1.00	
Incremental Delay, d2		0.6	0.0		9.3	0.1	2.7	0.6	0.1	1.3	1.6	
Delay (s)		53.9	51.8		65.0	52.3	96.0	9.5	9.4	47.1	11.5	
Level of Service		D	D		E	D	F	A	A	D	B	
Approach Delay (s)		53.2			58.2			12.5			15.1	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			17.8				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)				16.5	
Intersection Capacity Utilization			78.3%				ICU Level of Service				D	
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	135	566	432	399	81	204	687	440	134	1775
v/c Ratio	0.49	0.99	0.66	1.11	0.21	1.00	0.38	0.49	0.73	1.00
Control Delay	56.1	88.0	54.2	129.9	4.4	120.2	31.8	8.4	62.9	70.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	88.0	54.2	129.9	4.4	120.2	31.8	8.4	62.9	70.8
Queue Length 50th (ft)	105	247	175	~385	0	175	158	76	110	~551
Queue Length 95th (ft)	173	#372	232	#588	21	#338	197	121	m166	#677
Internal Link Dist (ft)		853		1925			1489			1665
Turn Bay Length (ft)	225		225		175	650		275	275	
Base Capacity (vph)	276	571	653	358	381	204	1820	902	211	1768
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.99	0.66	1.11	0.21	1.00	0.38	0.49	0.64	1.00

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
2: OR-99W & SW Tualatin-Sherwood Rd

2017 Existing Conditions, Weekday PM Peak Hour

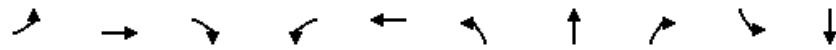
06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	131	454	95	419	387	79	198	666	427	130	1383	339	
Future Volume (vph)	131	454	95	419	387	79	198	666	427	130	1383	339	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0		
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.99	1.00	0.99		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1671	3373		3400	1863	1508	1770	5036	1532	1719	4905		
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1671	3373		3400	1863	1508	1770	5036	1532	1719	4905		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	135	468	98	432	399	81	204	687	440	134	1426	349	
RTOR Reduction (vph)	0	13	0	0	0	65	0	0	54	0	32	0	
Lane Group Flow (vph)	135	553	0	432	399	16	204	687	386	134	1743	0	
Confl. Peds. (#/hr)	2		1	1		2	5					5	
Confl. Bikes (#/hr)			1						1			1	
Heavy Vehicles (%)	8%	4%	4%	3%	2%	5%	2%	3%	4%	5%	2%	2%	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	pm+ov	Prot	NA		
Protected Phases	7	7		8	8		5	2	8	1	6		
Permitted Phases						8			2				
Actuated Green, G (s)	21.5	21.5		25.0	25.0	25.0	15.0	47.0	72.0	14.0	46.0		
Effective Green, g (s)	21.5	21.5		25.0	25.0	25.0	15.0	47.0	72.0	14.0	46.0		
Actuated g/C Ratio	0.17	0.17		0.19	0.19	0.19	0.12	0.36	0.55	0.11	0.35		
Clearance Time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0		
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.4	2.3	3.0	4.4		
Lane Grp Cap (vph)	276	557		653	358	290	204	1820	848	185	1735		
v/s Ratio Prot	0.08	c0.16		0.13	c0.21		c0.12	0.14	0.09	0.08	c0.36		
v/s Ratio Perm						0.01			0.16				
v/c Ratio	0.49	0.99		0.66	1.11	0.05	1.00	0.38	0.45	0.72	1.00		
Uniform Delay, d1	49.3	54.2		48.6	52.5	42.8	57.5	30.7	17.3	56.1	42.0		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.82	1.28		
Incremental Delay, d2	0.8	35.9		2.1	82.2	0.0	63.0	0.6	0.2	10.1	19.8		
Delay (s)	50.1	90.1		50.7	134.7	42.9	120.5	31.3	17.5	56.0	73.6		
Level of Service	D	F		D	F	D	F	C	B	E	E		
Approach Delay (s)		82.4			86.8			40.4			72.4		
Approach LOS		F			F			D			E		
Intersection Summary													
HCM 2000 Control Delay			67.8									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.03										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	22.5
Intersection Capacity Utilization			92.1%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Parkway Village South
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd

2017 Existing Conditions, Weekday PM Peak Hour

06/26/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	726	198	163	844	134	94	97	45	218
v/c Ratio	0.06	0.85	0.19	0.56	0.81	0.48	0.23	0.23	0.14	0.73
Control Delay	9.6	35.0	3.0	16.6	26.8	35.5	39.7	9.7	30.1	58.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	35.0	3.0	16.6	26.8	35.5	39.7	9.7	30.1	58.6
Queue Length 50th (ft)	3	411	13	43	392	69	54	0	22	140
Queue Length 95th (ft)	12	#709	43	83	#791	133	114	47	55	#274
Internal Link Dist (ft)		1925			1487		1085			1682
Turn Bay Length (ft)	100		150	100				350	125	
Base Capacity (vph)	408	1091	1177	397	1167	348	421	428	451	380
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.67	0.17	0.41	0.72	0.39	0.22	0.23	0.10	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Parkway Village South 2017 Existing Conditions, Weekday PM Peak Hour
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd 06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	682	186	153	750	43	126	88	91	42	187	18
Future Volume (vph)	13	682	186	153	750	43	126	88	91	42	187	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1792	1599	1770	1828		1770	1863	1564	1770	1858	
Flt Permitted	0.15	1.00	1.00	0.15	1.00		0.28	1.00	1.00	0.70	1.00	
Satd. Flow (perm)	288	1792	1599	276	1828		529	1863	1564	1297	1858	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	14	726	198	163	798	46	134	94	97	45	199	19
RTOR Reduction (vph)	0	0	60	0	1	0	0	0	76	0	3	0
Lane Group Flow (vph)	14	726	138	163	843	0	134	94	21	45	215	0
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	6%	1%	2%	3%	5%	2%	2%	1%	2%	1%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)	53.9	52.2	62.1	64.5	58.8		31.4	22.4	22.4	22.5	17.5	
Effective Green, g (s)	53.9	52.2	62.1	64.5	58.8		31.4	22.4	22.4	22.5	17.5	
Actuated g/C Ratio	0.51	0.49	0.59	0.61	0.56		0.30	0.21	0.21	0.21	0.17	
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	170	883	937	285	1014		272	394	330	297	307	
v/s Ratio Prot	0.00	0.41	0.01	c0.04	c0.46		c0.05	0.05		0.01	c0.12	
v/s Ratio Perm	0.04		0.07	0.30			0.10		0.01	0.02		
v/c Ratio	0.08	0.82	0.15	0.57	0.83		0.49	0.24	0.06	0.15	0.70	
Uniform Delay, d1	17.1	22.9	9.9	16.3	19.4		29.1	34.7	33.4	33.7	41.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	6.4	0.0	1.7	6.0		0.5	0.1	0.0	0.1	5.8	
Delay (s)	17.1	29.3	9.9	18.0	25.5		29.6	34.8	33.4	33.8	47.6	
Level of Service	B	C	A	B	C		C	C	C	C	D	
Approach Delay (s)		25.0			24.3			32.2			45.2	
Approach LOS		C			C			C			D	

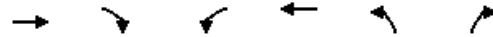
Intersection Summary		
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.77	
Actuated Cycle Length (s)	105.9	Sum of lost time (s) 18.0
Intersection Capacity Utilization	79.2%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

Parkway Village South
4: SW Century Dr & SW Tualatin-Sherwood Rd

2017 Existing Conditions, Weekday PM Peak Hour

06/26/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Traffic Volume (veh/h)	817	15	173	917	1	36
Future Volume (Veh/h)	817	15	173	917	1	36
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	860	16	182	965	1	38
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						8
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			877		2198	869
vC1, stage 1 conf vol					869	
vC2, stage 2 conf vol					1329	
vCu, unblocked vol			877		2198	869
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.4
p0 queue free %			76		99	89
cM capacity (veh/h)			769		170	345

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	876	1147	39
Volume Left	0	182	1
Volume Right	16	0	38
cSH	1700	769	354
Volume to Capacity	0.52	0.24	0.11
Queue Length 95th (ft)	0	23	9
Control Delay (s)	0.0	6.9	17.0
Lane LOS		A	C
Approach Delay (s)	0.0	6.9	17.0
Approach LOS			C

Intersection Summary			
Average Delay		4.2	
Intersection Capacity Utilization		115.1%	ICU Level of Service H
Analysis Period (min)		15	

MOVEMENT SUMMARY

 Site: 101 [Existing PM SW Langer Farms Pkwy/SW Century Drive]

Existing Traffic Conditions - Weekday PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SW Langer Farms Parkway											
3	L2	85	1.0	0.140	4.0	LOS A	0.6	15.2	0.23	0.11	34.6
8	T1	182	2.0	0.140	4.0	LOS A	0.6	15.2	0.23	0.11	35.1
18	R2	90	1.0	0.140	4.0	LOS A	0.6	15.2	0.23	0.11	34.7
Approach		357	1.5	0.140	4.0	LOS A	0.6	15.2	0.23	0.11	34.9
East: SW Century Drive											
1	L2	164	1.0	0.292	6.1	LOS A	1.3	33.0	0.44	0.35	33.4
6	T1	154	0.0	0.292	6.1	LOS A	1.3	33.0	0.44	0.35	33.3
16	R2	72	0.0	0.071	4.2	LOS A	0.3	6.7	0.38	0.27	34.5
Approach		390	0.4	0.292	5.8	LOS A	1.3	33.0	0.43	0.34	33.6
North: SW Langer Farms Parkway											
7	L2	11	0.0	0.157	5.5	LOS A	0.6	15.5	0.46	0.39	35.0
4	T1	219	3.0	0.157	5.3	LOS A	0.6	15.5	0.46	0.38	34.9
14	R2	68	0.0	0.157	5.1	LOS A	0.6	15.3	0.44	0.37	34.1
Approach		298	2.2	0.157	5.3	LOS A	0.6	15.5	0.45	0.38	34.7
West: SW Century Drive											
5	L2	36	0.0	0.109	4.9	LOS A	0.4	10.5	0.45	0.36	34.4
2	T1	51	2.0	0.109	4.9	LOS A	0.4	10.5	0.45	0.36	34.2
12	R2	121	2.0	0.109	4.7	LOS A	0.4	10.5	0.43	0.34	34.1
Approach		208	1.7	0.109	4.8	LOS A	0.4	10.5	0.44	0.35	34.2
All Vehicles		1253	1.4	0.292	5.0	LOS A	1.3	33.0	0.38	0.28	34.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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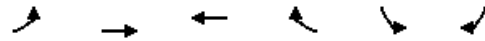
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Parkway Village South
6: SW Century Dr & Century Drive West Access

2017 Existing Conditions, Weekday PM Peak Hour

06/26/2017

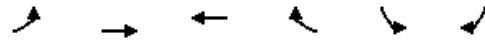


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↔			↘
Traffic Volume (veh/h)	0	146	274	100	0	100
Future Volume (Veh/h)	0	146	274	100	0	100
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	152	285	104	0	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None TWLTL					
Median storage (veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	389				489	337
vC1, stage 1 conf vol					337	
vC2, stage 2 conf vol					152	
vCu, unblocked vol	389				489	337
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	85
cM capacity (veh/h)	1181				681	710
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	152	389	104			
Volume Left	0	0	0			
Volume Right	0	104	104			
cSH	1700	1700	710			
Volume to Capacity	0.09	0.23	0.15			
Queue Length 95th (ft)	0	0	13			
Control Delay (s)	0.0	0.0	10.9			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.9			
Approach LOS			B			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			33.4%	ICU Level of Service		A
Analysis Period (min)			15			

Parkway Village South
7: SW Century Dr & Century Drive East Access

2017 Existing Conditions, Weekday PM Peak Hour

06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	100	46	224	100	50	150
Future Volume (Veh/h)	100	46	224	100	50	150
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	104	48	233	104	52	156
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	None			
Median storage (veh)		2				
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	337				541	285
vC1, stage 1 conf vol					285	
vC2, stage 2 conf vol					256	
vCu, unblocked vol	337				541	285
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	92				92	79
cM capacity (veh/h)	1234				635	759
Direction, Lane #						
	EB 1	WB 1	SB 1			
Volume Total	152	337	208			
Volume Left	104	0	52			
Volume Right	0	104	156			
cSH	1234	1700	724			
Volume to Capacity	0.08	0.20	0.29			
Queue Length 95th (ft)	7	0	30			
Control Delay (s)	5.8	0.0	12.0			
Lane LOS	A		B			
Approach Delay (s)	5.8	0.0	12.0			
Approach LOS			B			
Intersection Summary						
Average Delay			4.8			
Intersection Capacity Utilization			47.8%	ICU Level of Service		A
Analysis Period (min)			15			

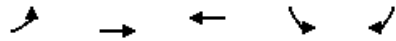
Parkway Village South
8: SW Langer Farms Pkwy & Langer Farms North Access

2017 Existing Conditions, Weekday PM Peak Hour

06/26/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	100	100	100	243	383	100
Future Volume (Veh/h)	100	100	100	243	383	100
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	104	104	104	253	399	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL	TWLTL		
Median storage (veh)			2	2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	912	451	503			
vC1, stage 1 conf vol	451					
vC2, stage 2 conf vol	461					
vCu, unblocked vol	912	451	503			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	83	90			
cM capacity (veh/h)	485	613	1072			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	208	357	503			
Volume Left	104	104	0			
Volume Right	104	0	104			
cSH	541	1072	1700			
Volume to Capacity	0.38	0.10	0.30			
Queue Length 95th (ft)	45	8	0			
Control Delay (s)	15.7	3.2	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.7	3.2	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			66.2%	ICU Level of Service	C	
Analysis Period (min)			15			



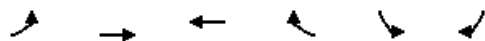
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	122	93	453	303	238
v/c Ratio	0.25	0.10	0.68	0.64	0.40
Control Delay	7.8	7.5	21.7	29.9	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	7.5	21.7	29.9	5.9
Queue Length 50th (ft)	18	15	120	103	0
Queue Length 95th (ft)	48	41	272	229	52
Internal Link Dist (ft)		1186	843	1156	
Turn Bay Length (ft)	375			375	
Base Capacity (vph)	781	1829	1450	764	808
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.05	0.31	0.40	0.29

Intersection Summary

Parkway Village South
10: SW Oregon St & SW Langer Farms Pkwy

2017 Existing Conditions, Weekday PM Peak Hour

06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	86	180	236	279	219
Future Volume (vph)	112	86	180	236	279	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0		5.5	5.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1769	1863	1708		1752	1548
Flt Permitted	0.29	1.00	1.00		0.95	1.00
Satd. Flow (perm)	534	1863	1708		1752	1548
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	93	196	257	303	238
RTOR Reduction (vph)	0	0	49	0	0	174
Lane Group Flow (vph)	122	93	404	0	303	64
Confl. Peds. (#/hr)	1			1		1
Heavy Vehicles (%)	2%	2%	2%	1%	3%	2%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases	2					7
Actuated Green, G (s)	33.7	33.7	22.4		16.8	16.8
Effective Green, g (s)	33.7	33.7	22.4		16.8	16.8
Actuated g/C Ratio	0.54	0.54	0.36		0.27	0.27
Clearance Time (s)	4.0	6.0	6.0		5.5	5.5
Vehicle Extension (s)	2.0	3.8	3.8		2.0	2.0
Lane Grp Cap (vph)	435	1012	617		474	419
v/s Ratio Prot	c0.03	0.05	c0.24		c0.17	
v/s Ratio Perm	0.12					0.04
v/c Ratio	0.28	0.09	0.65		0.64	0.15
Uniform Delay, d1	8.1	6.8	16.6		19.9	17.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.1	2.7		2.1	0.1
Delay (s)	8.3	6.8	19.3		22.0	17.3
Level of Service	A	A	B		C	B
Approach Delay (s)		7.6	19.3		19.9	
Approach LOS		A	B		B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Appendix F 2019 Background Traffic
Conditions



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	5	34	116	59	2042	44	66	774
v/c Ratio	0.15	0.03	0.33	0.55	0.46	0.80	0.04	0.50	0.32
Control Delay	55.2	0.2	61.6	19.7	72.8	11.9	0.0	65.4	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	0.2	61.6	19.7	72.8	11.9	0.0	65.4	6.4
Queue Length 50th (ft)	11	0	26	0	49	273	0	50	97
Queue Length 95th (ft)	33	0	59	57	m55	m448	m0	94	158
Internal Link Dist (ft)	247		943			1665			776
Turn Bay Length (ft)		50		200	275		275	500	
Base Capacity (vph)	296	356	310	403	383	2551	1170	217	2443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.11	0.29	0.15	0.80	0.04	0.30	0.32























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2019 Background Traffic Conditions, Weekday AM Peak Hour

06/26/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	9	5	5	18	14	108	55	1899	41	61	701	19	
Future Volume (vph)	9	5	5	18	14	108	55	1899	41	61	701	19	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Fr _t		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Fl _t Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1839	1346		1848	1553	1805	3471	1568	1687	3298		
Fl _t Permitted		0.78	1.00		0.82	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1480	1346		1555	1553	1805	3471	1568	1687	3298		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	10	5	5	19	15	116	59	2042	44	66	754	20	
RTOR Reduction (vph)	0	0	5	0	0	108	0	0	12	0	1	0	
Lane Group Flow (vph)	0	15	0	0	34	8	59	2042	32	66	773	0	
Heavy Vehicles (%)	0%	0%	20%	0%	0%	4%	0%	4%	3%	7%	9%	11%	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4		4	8		8			2				
Actuated Green, G (s)		7.9	7.9		7.9	7.9	7.6	87.3	87.3	8.3	88.0		
Effective Green, g (s)		7.9	7.9		7.9	7.9	7.6	87.3	87.3	8.3	88.0		
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.06	0.73	0.73	0.07	0.73		
Clearance Time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.5	4.5	2.3	4.5		
Lane Grp Cap (vph)		97	88		102	102	114	2525	1140	116	2418		
v/s Ratio Prot							0.03	c0.59		c0.04	0.23		
v/s Ratio Perm		0.01	0.00		c0.02	0.00			0.02				
v/c Ratio		0.15	0.00		0.33	0.07	0.52	0.81	0.03	0.57	0.32		
Uniform Delay, d1		52.9	52.4		53.5	52.6	54.4	10.8	4.5	54.1	5.6		
Progression Factor		1.00	1.00		1.00	1.00	1.29	0.85	0.00	1.00	1.00		
Incremental Delay, d2		0.5	0.0		1.4	0.2	1.1	1.3	0.0	4.6	0.3		
Delay (s)		53.4	52.4		54.9	52.8	71.2	10.5	0.0	58.7	5.9		
Level of Service		D	D		D	D	E	B	A	E	A		
Approach Delay (s)		53.2			53.3			12.0			10.1		
Approach LOS		D			D			B			B		
Intersection Summary													
HCM 2000 Control Delay			13.7									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			79.2%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	327	584	237	312	54	173	1699	368	56	703
v/c Ratio	1.04	0.95	0.39	0.93	0.13	0.74	0.91	0.36	0.43	0.50
Control Delay	110.9	74.3	43.5	80.9	0.7	68.4	45.8	3.6	56.2	48.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.9	74.3	43.5	80.9	0.7	68.4	45.8	3.6	56.2	48.1
Queue Length 50th (ft)	~274	233	81	237	0	130	474	25	42	169
Queue Length 95th (ft)	#458	#348	121	#401	0	201	#634	53	85	251
Internal Link Dist (ft)		853		1925			1489			1665
Turn Bay Length (ft)	225		225		175	650		275	275	
Base Capacity (vph)	313	613	628	350	413	297	1858	1014	194	1409
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.95	0.38	0.89	0.13	0.58	0.91	0.36	0.29	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

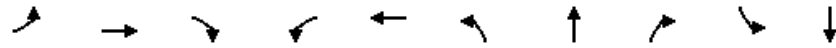
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Parkway Village South 2019 Background Traffic Conditions, Weekday AM Peak Hour
 2: OR-99W & SW Tualatin-Sherwood Rd 06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	476	79	225	296	51	164	1614	350	53	558	110
Future Volume (vph)	311	476	79	225	296	51	164	1614	350	53	558	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3360		3019	1681	1346	1787	4988	1568	1671	4597	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3360		3019	1681	1346	1787	4988	1568	1671	4597	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	327	501	83	237	312	54	173	1699	368	56	587	116
RTOR Reduction (vph)	0	11	0	0	0	43	0	0	107	0	23	0
Lane Group Flow (vph)	327	573	0	237	312	11	173	1699	261	56	680	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	3%	4%	12%	16%	13%	20%	1%	4%	3%	8%	7%	23%
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	7		8	8		5	2	8	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	21.5	21.5		24.1	24.1	24.1	15.7	43.7	67.8	8.2	36.2	
Effective Green, g (s)	21.5	21.5		24.1	24.1	24.1	15.7	43.7	67.8	8.2	36.2	
Actuated g/C Ratio	0.18	0.18		0.20	0.20	0.20	0.13	0.36	0.56	0.07	0.30	
Clearance Time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.4	2.3	3.0	4.4	
Lane Grp Cap (vph)	313	602		606	337	270	233	1816	885	114	1386	
v/s Ratio Prot	c0.19	0.17		0.08	c0.19		c0.10	c0.34	0.06	0.03	0.15	
v/s Ratio Perm						0.01			0.11			
v/c Ratio	1.04	0.95		0.39	0.93	0.04	0.74	0.94	0.29	0.49	0.49	
Uniform Delay, d1	49.2	48.7		41.6	47.1	38.6	50.2	36.8	13.6	53.9	34.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.38	
Incremental Delay, d2	63.0	24.9		0.2	30.3	0.0	11.1	10.6	0.1	3.2	1.2	
Delay (s)	112.3	73.7		41.8	77.3	38.7	61.3	47.3	13.7	51.3	48.8	
Level of Service	F	E		D	E	D	E	D	B	D	D	
Approach Delay (s)		87.5			59.9			42.9			48.9	
Approach LOS		F			E			D			D	

Intersection Summary		
HCM 2000 Control Delay	55.2	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	0.96	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 22.5
Intersection Capacity Utilization	86.5%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	896	170	59	597	81	88	143	28	50
v/c Ratio	0.03	0.78	0.14	0.20	0.55	0.36	0.41	0.47	0.16	0.37
Control Delay	5.1	21.4	2.2	6.3	12.4	37.5	47.0	12.6	33.8	48.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	21.4	2.2	6.3	12.4	37.5	47.0	12.6	33.8	48.7
Queue Length 50th (ft)	2	396	10	9	149	43	53	0	14	27
Queue Length 95th (ft)	10	#786	31	25	372	84	104	56	38	67
Internal Link Dist (ft)		1925			1487		1085			1682
Turn Bay Length (ft)	100		150	100				350	125	
Base Capacity (vph)	647	1150	1289	452	1095	311	381	434	319	355
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.78	0.13	0.13	0.55	0.26	0.23	0.33	0.09	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

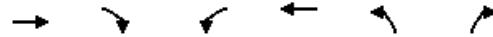
Parkway Village South 2019 Background Traffic Conditions, Weekday AM Peak Hour
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd 06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	842	160	55	519	42	76	83	134	26	41	6
Future Volume (vph)	15	842	160	55	519	42	76	83	134	26	41	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	1792	1580	1770	1602		1736	1827	1538	1671	1683	
Flt Permitted	0.37	1.00	1.00	0.16	1.00		0.45	1.00	1.00	0.70	1.00	
Satd. Flow (perm)	663	1792	1580	304	1602		829	1827	1538	1231	1683	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	896	170	59	552	45	81	88	143	28	44	6
RTOR Reduction (vph)	0	0	27	0	1	0	0	0	127	0	5	0
Lane Group Flow (vph)	16	896	143	59	596	0	81	88	16	28	45	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	6%	1%	2%	17%	20%	4%	4%	5%	8%	10%	17%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)	65.5	63.6	71.8	70.1	65.9		18.9	11.4	11.4	10.2	6.7	
Effective Green, g (s)	65.5	63.6	71.8	70.1	65.9		18.9	11.4	11.4	10.2	6.7	
Actuated g/C Ratio	0.65	0.63	0.71	0.70	0.65		0.19	0.11	0.11	0.10	0.07	
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	450	1131	1126	272	1048		229	206	174	139	111	
v/s Ratio Prot	0.00	c0.50	0.01	c0.01	0.37		c0.03	c0.05		0.01	0.03	
v/s Ratio Perm	0.02		0.08	0.14			0.04		0.01	0.01		
v/c Ratio	0.04	0.79	0.13	0.22	0.57		0.35	0.43	0.09	0.20	0.41	
Uniform Delay, d1	6.7	13.7	4.6	11.0	9.6		34.9	41.6	40.0	41.4	45.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	4.0	0.0	0.1	0.8		0.3	0.5	0.1	0.3	0.9	
Delay (s)	6.7	17.7	4.6	11.1	10.3		35.3	42.1	40.1	41.6	46.0	
Level of Service	A	B	A	B	B		D	D	D	D	D	
Approach Delay (s)		15.5			10.4			39.4			44.4	
Approach LOS		B			B			D			D	

Intersection Summary		
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.71	B
Actuated Cycle Length (s)	100.7	Sum of lost time (s)
Intersection Capacity Utilization	68.4%	18.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Parkway Village South 2019 Background Traffic Conditions, Weekday AM Peak Hour
 4: SW Century Dr & SW Tualatin-Sherwood Rd 06/26/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (veh/h)	978	3	21	590	3	48
Future Volume (Veh/h)	978	3	21	590	3	48
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1029	3	22	621	3	51
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						8
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1033		1696	1032
vC1, stage 1 conf vol					1032	
vC2, stage 2 conf vol					665	
vCu, unblocked vol			1033		1696	1032
tC, single (s)			4.2		7.1	6.3
tC, 2 stage (s)					6.1	
tF (s)			2.3		4.1	3.4
p0 queue free %			96		99	81
cM capacity (veh/h)			624		221	272

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	1032	643	54
Volume Left	0	22	3
Volume Right	3	0	51
cSH	1700	624	288
Volume to Capacity	0.61	0.04	0.19
Queue Length 95th (ft)	0	3	17
Control Delay (s)	0.0	1.0	21.3
Lane LOS		A	C
Approach Delay (s)	0.0	1.0	21.3
Approach LOS			C

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		61.7%	ICU Level of Service B
Analysis Period (min)		15	

MOVEMENT SUMMARY

 Site: 101 [BG AM SW Langer Farms Pkwy/SW Century Drive]

2019 Background Traffic Conditions - Weekday AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SW Langer Farms Parkway											
3	L2	105	3.0	0.181	4.6	LOS A	0.8	20.2	0.29	0.16	34.2
8	T1	267	4.0	0.181	4.6	LOS A	0.8	20.2	0.29	0.16	34.9
18	R2	64	4.0	0.181	4.6	LOS A	0.8	20.2	0.29	0.16	34.3
Approach		436	3.8	0.181	4.6	LOS A	0.8	20.2	0.29	0.16	34.6
East: SW Century Drive											
1	L2	42	9.0	0.076	4.6	LOS A	0.3	6.8	0.44	0.35	33.7
6	T1	27	0.0	0.076	4.6	LOS A	0.3	6.8	0.44	0.35	33.8
16	R2	13	20.0	0.017	5.0	LOS A	0.1	1.5	0.44	0.31	33.6
Approach		82	7.8	0.076	4.7	LOS A	0.3	6.8	0.44	0.34	33.7
North: SW Langer Farms Parkway											
7	L2	9	0.0	0.101	4.1	LOS A	0.4	10.0	0.30	0.18	35.7
4	T1	196	3.0	0.101	4.0	LOS A	0.4	10.0	0.29	0.17	35.7
14	R2	27	0.0	0.101	3.9	LOS A	0.4	9.7	0.28	0.17	34.8
Approach		232	2.5	0.101	4.0	LOS A	0.4	10.0	0.29	0.17	35.6
West: SW Century Drive											
5	L2	71	0.0	0.163	4.9	LOS A	0.7	16.9	0.38	0.27	34.3
2	T1	62	2.0	0.163	4.9	LOS A	0.7	16.9	0.38	0.27	34.1
12	R2	224	1.0	0.163	4.7	LOS A	0.7	16.9	0.36	0.26	34.0
Approach		356	1.0	0.163	4.8	LOS A	0.7	16.9	0.37	0.26	34.1
All Vehicles		1106	2.9	0.181	4.5	LOS A	0.8	20.2	0.33	0.21	34.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

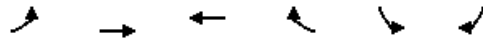
Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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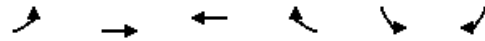


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↔			↘
Traffic Volume (veh/h)	0	105	38	26	0	26
Future Volume (Veh/h)	0	105	38	26	0	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	135	49	33	0	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	82				200	66
vC1, stage 1 conf vol					66	
vC2, stage 2 conf vol					135	
vCu, unblocked vol	82				200	66
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	1528				856	1004

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	135	82	33
Volume Left	0	0	0
Volume Right	0	33	33
cSH	1700	1700	1004
Volume to Capacity	0.08	0.05	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		13.6%	ICU Level of Service A
Analysis Period (min)		15	

Parkway Village South 2019 Background Traffic Conditions, Weekday AM Peak Hour
 7: SW Century Dr & Century Drive East Access 06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	26	79	38	26	26	26
Future Volume (Veh/h)	26	79	38	26	26	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	33	101	49	33	33	33
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	None			
Median storage (veh)		2				
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	82				232	66
vC1, stage 1 conf vol					66	
vC2, stage 2 conf vol					167	
vCu, unblocked vol	82				232	66
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	98				96	97
cM capacity (veh/h)	1528				815	1004

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	134	82	66
Volume Left	33	0	33
Volume Right	0	33	33
cSH	1528	1700	900
Volume to Capacity	0.02	0.05	0.07
Queue Length 95th (ft)	2	0	6
Control Delay (s)	2.0	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	2.0	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay		3.1	
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Parkway Village South 2019 Background Traffic Conditions, Weekday AM Peak Hour
 8: SW Langer Farms Pkwy & Langer Farms North Access 06/26/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	52	52	52	288	309	52
Future Volume (Veh/h)	52	52	52	288	309	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	67	67	67	369	396	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type TWLTL TWLTL						
Median storage veh 2 2						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	932	430	463			
vC1, stage 1 conf vol	430					
vC2, stage 2 conf vol	503					
vCu, unblocked vol	932	430	463			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	89	94			
cM capacity (veh/h)	488	630	1109			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	134	436	463			
Volume Left	67	67	0			
Volume Right	67	0	67			
cSH	550	1109	1700			
Volume to Capacity	0.24	0.06	0.27			
Queue Length 95th (ft)	24	5	0			
Control Delay (s)	13.6	1.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.6	1.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization		53.5%		ICU Level of Service		A
Analysis Period (min)			15			

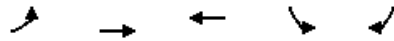
Parkway Village South 2019 Background Traffic Conditions, Weekday AM Peak Hour
 9: SW Langer Farms Pkwy & Langer Farms South Access 06/26/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			R
Traffic Volume (veh/h)	0	0	340	0	0	361
Future Volume (Veh/h)	0	0	340	0	0	361
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	0	436	0	0	463
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage (veh)			2			2
Upstream signal (ft)			1266			
pX, platoon unblocked						
vC, conflicting volume	899	436			436	
vC1, stage 1 conf vol	436					
vC2, stage 2 conf vol	463					
vCu, unblocked vol	899	436			436	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	522	625			1134	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	436	463
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1134
Volume to Capacity	0.00	0.26	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	149	160	405	311	101
v/c Ratio	0.30	0.16	0.69	0.67	0.21
Control Delay	8.2	8.0	23.2	30.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	8.0	23.2	30.4	6.5
Queue Length 50th (ft)	22	26	104	104	0
Queue Length 95th (ft)	51	57	204	200	27
Internal Link Dist (ft)		1186	843	1186	
Turn Bay Length (ft)	375			375	
Base Capacity (vph)	731	1817	1463	734	706
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.09	0.28	0.42	0.14

Intersection Summary

Parkway Village South 2019 Background Traffic Conditions, Weekday AM Peak Hour
 10: SW Oregon St & SW Langer Farms Pkwy 06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	↗
Traffic Volume (vph)	121	130	145	183	252	82
Future Volume (vph)	121	130	145	183	252	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0		5.5	5.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	1845	1698		1770	1563
Flt Permitted	0.30	1.00	1.00		0.95	1.00
Satd. Flow (perm)	542	1845	1698		1770	1563
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	149	160	179	226	311	101
RTOR Reduction (vph)	0	0	51	0	0	74
Lane Group Flow (vph)	149	160	354	0	311	27
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	5%	3%	4%	3%	2%	1%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases	2					7
Actuated Green, G (s)	33.9	33.9	19.8		16.4	16.4
Effective Green, g (s)	33.9	33.9	19.8		16.4	16.4
Actuated g/C Ratio	0.55	0.55	0.32		0.27	0.27
Clearance Time (s)	4.0	6.0	6.0		5.5	5.5
Vehicle Extension (s)	2.0	3.8	3.8		2.0	2.0
Lane Grp Cap (vph)	489	1012	544		469	414
v/s Ratio Prot	c0.05	0.09	c0.21		c0.18	
v/s Ratio Perm	0.12					0.02
v/c Ratio	0.30	0.16	0.65		0.66	0.06
Uniform Delay, d1	7.9	6.9	18.0		20.2	17.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.1	3.0		2.7	0.0
Delay (s)	8.0	7.0	21.0		23.0	17.0
Level of Service	A	A	C		C	B
Approach Delay (s)		7.5	21.0		21.5	
Approach LOS		A	C		C	

Intersection Summary			
HCM 2000 Control Delay		17.5	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio		0.58	
Actuated Cycle Length (s)		61.8	Sum of lost time (s) 15.5
Intersection Capacity Utilization		52.4%	ICU Level of Service A
Analysis Period (min)		15	

c Critical Lane Group

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2019 Background Traffic Conditions, Weekday PM Peak Hour

06/26/2017



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	43	21	98	112	32	849	69	211	1877
v/c Ratio	0.27	0.09	0.67	0.41	0.33	0.45	0.08	0.55	0.72
Control Delay	54.8	0.8	75.8	13.2	98.3	12.9	3.4	52.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	0.8	75.8	13.2	98.3	12.9	3.4	52.0	13.8
Queue Length 50th (ft)	34	0	81	0	29	278	7	163	467
Queue Length 95th (ft)	69	0	136	54	m65	363	46	248	716
Internal Link Dist (ft)	247		943			1665			776
Turn Bay Length (ft)		50		200	275		275	500	
Base Capacity (vph)	416	504	378	524	159	1876	879	387	2605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.26	0.21	0.20	0.45	0.08	0.55	0.72























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2019 Background Traffic Conditions, Weekday PM Peak Hour

06/26/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	23	20	21	78	18	110	31	832	68	207	1820	20	
Future Volume (vph)	23	20	21	78	18	110	31	832	68	207	1820	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00		
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected		0.97	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1801	1615		1736	1562	1805	3471	1568	1752	3534		
Flt Permitted		0.79	1.00		0.74	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1463	1615		1329	1562	1805	3471	1568	1752	3534		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	23	20	21	80	18	112	32	849	69	211	1857	20	
RTOR Reduction (vph)	0	0	19	0	0	100	0	0	32	0	0	0	
Lane Group Flow (vph)	0	43	2	0	98	12	32	849	37	211	1877	0	
Confl. Peds. (#/hr)	1					1							
Confl. Bikes (#/hr)												1	
Heavy Vehicles (%)	5%	0%	0%	5%	6%	2%	0%	4%	3%	3%	2%	0%	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4		4	8		8			2				
Actuated Green, G (s)		14.4	14.4		14.4	14.4	5.0	70.3	70.3	28.8	94.1		
Effective Green, g (s)		14.4	14.4		14.4	14.4	5.0	70.3	70.3	28.8	94.1		
Actuated g/C Ratio		0.11	0.11		0.11	0.11	0.04	0.54	0.54	0.22	0.72		
Clearance Time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.5	4.5	2.3	4.5		
Lane Grp Cap (vph)		162	178		147	173	69	1877	847	388	2558		
v/s Ratio Prot							0.02	0.24		c0.12	c0.53		
v/s Ratio Perm		0.03	0.00		c0.07	0.01			0.02				
v/c Ratio		0.27	0.01		0.67	0.07	0.46	0.45	0.04	0.54	0.73		
Uniform Delay, d1		53.0	51.5		55.5	51.8	61.2	18.1	14.0	44.8	10.6		
Progression Factor		1.00	1.00		1.00	1.00	1.54	0.66	0.89	1.00	1.00		
Incremental Delay, d2		0.6	0.0		9.8	0.1	2.7	0.7	0.1	1.1	1.9		
Delay (s)		53.6	51.5		65.3	51.9	96.9	12.7	12.6	45.9	12.5		
Level of Service		D	D		E	D	F	B	B	D	B		
Approach Delay (s)		52.9			58.2			15.5			15.9		
Approach LOS		D			E			B			B		
Intersection Summary													
HCM 2000 Control Delay			19.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			80.4%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													


























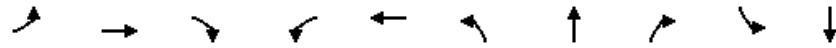
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	140	589	449	414	85	212	714	458	139	1846
v/c Ratio	0.51	1.03	0.69	1.16	0.22	1.04	0.39	0.51	0.74	1.05
Control Delay	56.7	97.2	55.1	143.5	4.8	128.8	32.2	9.0	62.2	81.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	97.2	55.1	143.5	4.8	128.8	32.2	9.0	62.2	81.4
Queue Length 50th (ft)	109	~273	183	~411	0	~192	167	85	114	~604
Queue Length 95th (ft)	178	#395	242	#616	25	#353	205	132	m158	#724
Internal Link Dist (ft)		853		1925			1489			1665
Turn Bay Length (ft)	225		225		175	650		275	275	
Base Capacity (vph)	276	571	653	358	381	204	1810	896	211	1766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	1.03	0.69	1.16	0.22	1.04	0.39	0.51	0.66	1.05

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South 2019 Background Traffic Conditions, Weekday PM Peak Hour
 2: OR-99W & SW Tualatin-Sherwood Rd 06/26/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	136	472	99	436	402	82	206	693	444	135	1438	353	
Future Volume (vph)	136	472	99	436	402	82	206	693	444	135	1438	353	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0		
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.99	1.00	0.99		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1671	3372		3400	1863	1508	1770	5036	1532	1719	4904		
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1671	3372		3400	1863	1508	1770	5036	1532	1719	4904		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	140	487	102	449	414	85	212	714	458	139	1482	364	
RTOR Reduction (vph)	0	13	0	0	0	69	0	0	51	0	32	0	
Lane Group Flow (vph)	140	576	0	449	414	16	212	714	407	139	1814	0	
Confl. Peds. (#/hr)	2		1	1		2	5					5	
Confl. Bikes (#/hr)			1						1			1	
Heavy Vehicles (%)	8%	4%	4%	3%	2%	5%	2%	3%	4%	5%	2%	2%	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	pm+ov	Prot	NA		
Protected Phases	7	7		8	8		5	2	8	1	6		
Permitted Phases						8			2				
Actuated Green, G (s)	21.5	21.5		25.0	25.0	25.0	15.0	46.7	71.7	14.3	46.0		
Effective Green, g (s)	21.5	21.5		25.0	25.0	25.0	15.0	46.7	71.7	14.3	46.0		
Actuated g/C Ratio	0.17	0.17		0.19	0.19	0.19	0.12	0.36	0.55	0.11	0.35		
Clearance Time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0		
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.4	2.3	3.0	4.4		
Lane Grp Cap (vph)	276	557		653	358	290	204	1809	844	189	1735		
v/s Ratio Prot	0.08	c0.17		0.13	c0.22		c0.12	0.14	0.09	0.08	c0.37		
v/s Ratio Perm						0.01			0.17				
v/c Ratio	0.51	1.03		0.69	1.16	0.06	1.04	0.39	0.48	0.74	1.05		
Uniform Delay, d1	49.4	54.2		48.9	52.5	42.9	57.5	31.1	17.8	56.0	42.0		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.81	1.29		
Incremental Delay, d2	0.9	47.0		2.6	97.3	0.0	73.7	0.6	0.3	10.2	31.5		
Delay (s)	50.3	101.3		51.5	149.8	42.9	131.2	31.7	18.1	55.3	85.6		
Level of Service	D	F		D	F	D	F	C	B	E	F		
Approach Delay (s)		91.5			93.6			42.4			83.5		
Approach LOS		F			F			D			F		
Intersection Summary													
HCM 2000 Control Delay			75.3									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.07										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	22.5
Intersection Capacity Utilization			95.0%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	754	205	169	878	139	98	101	47	226
v/c Ratio	0.07	0.83	0.19	0.57	0.81	0.55	0.25	0.25	0.15	0.79
Control Delay	9.8	34.8	3.3	16.6	26.9	39.7	41.3	9.6	31.6	66.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	34.8	3.3	16.6	26.9	39.7	41.3	9.6	31.6	66.3
Queue Length 50th (ft)	4	453	15	47	440	77	61	0	25	156
Queue Length 95th (ft)	13	#816	49	85	#901	142	121	48	58	#298
Internal Link Dist (ft)		1925			1487		1085			1682
Turn Bay Length (ft)	100		150	100				350	125	
Base Capacity (vph)	387	990	1149	381	1088	311	395	410	426	344
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.76	0.18	0.44	0.81	0.45	0.25	0.25	0.11	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Parkway Village South 2019 Background Traffic Conditions, Weekday PM Peak Hour
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd 06/26/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	709	193	159	780	45	131	92	95	44	194	19
Future Volume (vph)	14	709	193	159	780	45	131	92	95	44	194	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1792	1599	1770	1828		1770	1863	1564	1770	1858	
Flt Permitted	0.15	1.00	1.00	0.15	1.00		0.24	1.00	1.00	0.69	1.00	
Satd. Flow (perm)	279	1792	1599	273	1828		447	1863	1564	1292	1858	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	754	205	169	830	48	139	98	101	47	206	20
RTOR Reduction (vph)	0	0	57	0	1	0	0	0	81	0	3	0
Lane Group Flow (vph)	15	754	148	169	877	0	139	98	20	47	223	0
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	6%	1%	2%	3%	5%	2%	2%	1%	2%	1%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)	60.2	58.4	68.9	71.4	65.6		32.2	23.0	23.0	22.9	17.7	
Effective Green, g (s)	60.2	58.4	68.9	71.4	65.6		32.2	23.0	23.0	22.9	17.7	
Actuated g/C Ratio	0.53	0.51	0.61	0.63	0.58		0.28	0.20	0.20	0.20	0.16	
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	172	921	969	290	1055		248	377	316	282	289	
v/s Ratio Prot	0.00	0.42	0.01	c0.05	c0.48		c0.05	0.05		0.01	c0.12	
v/s Ratio Perm	0.04		0.08	0.32			0.11		0.01	0.03		
v/c Ratio	0.09	0.82	0.15	0.58	0.83		0.56	0.26	0.06	0.17	0.77	
Uniform Delay, d1	17.6	23.2	9.7	17.1	19.5		32.5	38.1	36.6	37.2	46.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	5.9	0.0	1.9	5.8		1.7	0.1	0.0	0.1	11.1	
Delay (s)	17.6	29.1	9.7	19.1	25.3		34.3	38.3	36.6	37.3	57.1	
Level of Service	B	C	A	B	C		C	D	D	D	E	
Approach Delay (s)		24.8			24.3			36.1			53.7	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.80	
Actuated Cycle Length (s)	113.6	Sum of lost time (s) 18.0
Intersection Capacity Utilization	81.6%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (veh/h)	850	16	180	954	1	37
Future Volume (Veh/h)	850	16	180	954	1	37
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	895	17	189	1004	1	39
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						8
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			913		2286	904
vC1, stage 1 conf vol					904	
vC2, stage 2 conf vol					1382	
vCu, unblocked vol			913		2286	904
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.4
p0 queue free %			75		99	88
cM capacity (veh/h)			746		158	329
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	912	1193	40			
Volume Left	0	189	1			
Volume Right	17	0	39			
cSH	1700	746	338			
Volume to Capacity	0.54	0.25	0.12			
Queue Length 95th (ft)	0	25	10			
Control Delay (s)	0.0	7.8	17.7			
Lane LOS		A	C			
Approach Delay (s)	0.0	7.8	17.7			
Approach LOS			C			
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			119.2%	ICU Level of Service	H	
Analysis Period (min)			15			

MOVEMENT SUMMARY

 Site: 101 [BG PM SW Langer Farms Pkwy/SW Century Drive]

2019 Background Traffic Conditions - Weekday PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SW Langer Farms Parkway											
3	L2	89	1.0	0.146	4.0	LOS A	0.6	15.9	0.23	0.11	34.6
8	T1	190	2.0	0.146	4.0	LOS A	0.6	15.9	0.23	0.11	35.1
18	R2	93	1.0	0.146	4.0	LOS A	0.6	15.9	0.23	0.11	34.6
Approach		371	1.5	0.146	4.0	LOS A	0.6	15.9	0.23	0.11	34.8
East: SW Century Drive											
1	L2	170	1.0	0.307	6.4	LOS A	1.4	35.0	0.46	0.37	33.3
6	T1	160	0.0	0.307	6.4	LOS A	1.4	35.0	0.46	0.37	33.2
16	R2	75	0.0	0.075	4.2	LOS A	0.3	7.1	0.39	0.28	34.5
Approach		405	0.4	0.307	6.0	LOS A	1.4	35.0	0.45	0.35	33.5
North: SW Langer Farms Parkway											
7	L2	11	0.0	0.166	5.7	LOS A	0.6	16.4	0.48	0.40	34.9
4	T1	227	3.0	0.166	5.5	LOS A	0.6	16.4	0.47	0.39	34.9
14	R2	71	0.0	0.166	5.2	LOS A	0.6	16.2	0.46	0.38	34.0
Approach		309	2.2	0.166	5.4	LOS A	0.6	16.4	0.46	0.39	34.7
West: SW Century Drive											
5	L2	38	0.0	0.115	5.1	LOS A	0.4	11.0	0.46	0.37	34.4
2	T1	53	2.0	0.115	5.1	LOS A	0.4	11.0	0.46	0.37	34.2
12	R2	126	2.0	0.115	4.8	LOS A	0.4	11.0	0.44	0.35	34.0
Approach		217	1.7	0.115	4.9	LOS A	0.4	11.0	0.45	0.36	34.1
All Vehicles		1302	1.4	0.307	5.1	LOS A	1.4	35.0	0.39	0.30	34.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

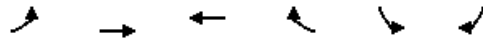
Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: H:\21\21487 - Langer Family Fun Center\sidra\21487_LangerFarms_Century.sip7

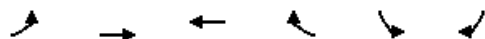


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↔			↘
Traffic Volume (veh/h)	0	152	285	104	0	104
Future Volume (Veh/h)	0	152	285	104	0	104
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	158	297	108	0	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None TWLTL					
Median storage (veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	405				509	351
vC1, stage 1 conf vol					351	
vC2, stage 2 conf vol					158	
vCu, unblocked vol	405				509	351
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	85
cM capacity (veh/h)	1165				670	697

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	158	405	108
Volume Left	0	0	0
Volume Right	0	108	108
cSH	1700	1700	697
Volume to Capacity	0.09	0.24	0.15
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization		34.4%	ICU Level of Service A
Analysis Period (min)		15	

Parkway Village South 2019 Background Traffic Conditions, Weekday PM Peak Hour
 7: SW Century Dr & Century Drive East Access 06/26/2017

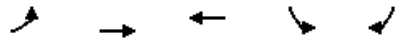


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	104	48	233	104	52	156
Future Volume (Veh/h)	104	48	233	104	52	156
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	108	50	243	108	54	163
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	None			
Median storage (veh)		2				
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	351				563	297
vC1, stage 1 conf vol					297	
vC2, stage 2 conf vol					266	
vCu, unblocked vol	351				563	297
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	91				91	78
cM capacity (veh/h)	1219				623	747
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	158	351	217			
Volume Left	108	0	54			
Volume Right	0	108	163			
cSH	1219	1700	712			
Volume to Capacity	0.09	0.21	0.30			
Queue Length 95th (ft)	7	0	32			
Control Delay (s)	5.9	0.0	12.3			
Lane LOS	A		B			
Approach Delay (s)	5.9	0.0	12.3			
Approach LOS			B			
Intersection Summary						
Average Delay			4.9			
Intersection Capacity Utilization		49.4%		ICU Level of Service	A	
Analysis Period (min)			15			

Parkway Village South 2019 Background Traffic Conditions, Weekday PM Peak Hour
 8: SW Langer Farms Pkwy & Langer Farms North Access 06/26/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Volume (veh/h)	104	104	104	253	398	104
Future Volume (Veh/h)	104	104	104	253	398	104
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	108	108	108	264	415	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type TWLTL TWLTL						
Median storage veh 2 2						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	949	469	523			
vC1, stage 1 conf vol	469					
vC2, stage 2 conf vol	480					
vCu, unblocked vol	949	469	523			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	82	90			
cM capacity (veh/h)	471	598	1054			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	216	372	523			
Volume Left	108	108	0			
Volume Right	108	0	108			
cSH	527	1054	1700			
Volume to Capacity	0.41	0.10	0.31			
Queue Length 95th (ft)	50	9	0			
Control Delay (s)	16.5	3.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.5	3.3	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization		68.5%		ICU Level of Service		C
Analysis Period (min)			15			



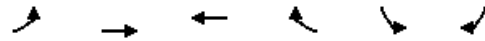
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	126	97	469	315	248
v/c Ratio	0.27	0.10	0.70	0.65	0.41
Control Delay	8.1	7.6	22.7	30.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	7.6	22.7	30.8	5.9
Queue Length 50th (ft)	20	16	132	111	0
Queue Length 95th (ft)	49	41	288	251	55
Internal Link Dist (ft)		1186	843	1156	
Turn Bay Length (ft)	375			375	
Base Capacity (vph)	753	1817	1410	733	791
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.05	0.33	0.43	0.31

Intersection Summary

Parkway Village South
10: SW Oregon St & SW Langer Farms Pkwy

2019 Background Traffic Conditions, Weekday PM Peak Hour

06/26/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	116	89	187	245	290	228
Future Volume (vph)	116	89	187	245	290	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0		5.5	5.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1769	1863	1708		1752	1548
Flt Permitted	0.27	1.00	1.00		0.95	1.00
Satd. Flow (perm)	504	1863	1708		1752	1548
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	97	203	266	315	248
RTOR Reduction (vph)	0	0	49	0	0	179
Lane Group Flow (vph)	126	97	420	0	315	69
Confl. Peds. (#/hr)	1			1		1
Heavy Vehicles (%)	2%	2%	2%	1%	3%	2%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases	2					7
Actuated Green, G (s)	35.1	35.1	23.5		17.9	17.9
Effective Green, g (s)	35.1	35.1	23.5		17.9	17.9
Actuated g/C Ratio	0.54	0.54	0.36		0.28	0.28
Clearance Time (s)	4.0	6.0	6.0		5.5	5.5
Vehicle Extension (s)	2.0	3.8	3.8		2.0	2.0
Lane Grp Cap (vph)	423	1013	622		486	429
v/s Ratio Prot	c0.04	0.05	c0.25		c0.18	
v/s Ratio Perm	0.13					0.04
v/c Ratio	0.30	0.10	0.68		0.65	0.16
Uniform Delay, d1	8.6	7.1	17.3		20.5	17.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.1	3.1		2.2	0.1
Delay (s)	8.8	7.1	20.4		22.8	17.7
Level of Service	A	A	C		C	B
Approach Delay (s)		8.0	20.4		20.5	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Appendix G OTISS Internalization
Calculations

PERIOD SETTING

Analysis Name : Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Project Name : Parkway Village South Trip Generation **No :** 21487

Date: 6/8/2017 **City:**

State/Province: **Zip/Postal Code:**

Country: **Client Name:**

Analyst's Name: **Edition:** ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
495 - Recreational Community Center	1000 Sq. Feet Gross Floor Area	92.9	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 2.05	125 66%	65 34%	190
820 - Shopping Center	1000 Sq. Feet Gross Leasable Area	30.61	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Best Fit (LOG) Ln(T) = 0.61Ln(X) + 2.24	47 62%	29 38%	76
934 - Fast-Food Restaurant with Drive-Through Window	1000 Sq. Feet Gross Floor Area	1.8	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 45.42	42 51%	40 49%	82
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	1000 Sq. Feet Gross Floor Area	0.39 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.	Average 303.33	59 50%	59 50%	118

(0) indicates size out of range.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
495 - Recreational Community Center	<input type="text" value="0"/> %	125	<input type="text" value="0"/> %	65
820 - Shopping Center	<input type="text" value="0"/> %	47	<input type="text" value="0"/> %	29
934 - Fast-Food Restaurant with Drive-Through Window	<input type="text" value="0"/> %	42	<input type="text" value="0"/> %	40
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	<input type="text" value="0"/> %	59	<input type="text" value="0"/> %	59

INTERNAL TRIPS

495 - Recreational Community Center

Exit 65 Demand Exit: % (0) Balanced: 0
 Entry 125 Demand Entry: % (0) Balanced: 0

820 - Shopping Center

Demand Entry: % (0) Entry 47
 Demand Exit: % (0) Exit 29

495 - Recreational Community Center

Exit 65 Demand Exit: % (0) Balanced: 0
 Entry 125 Demand Entry: % (0) Balanced: 0

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (0) Entry 42
 Demand Exit: % (0) Exit 40

495 - Recreational Community Center

Exit 65 Demand Exit: % (0) Balanced: 0
 Entry 125 Demand Entry: % (0) Balanced: 0

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 59
 Demand Exit: % (0) Exit 59

820 - Shopping Center

Exit 29 Demand Exit: % (4) Balanced: 4
 Entry 47 Demand Entry: % (4) Balanced: 4

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (21) Entry 42
 Demand Exit: % (6) Exit 40

820 - Shopping Center

Exit 29 Demand Exit: % (4) Balanced: 4
 Entry 47 Demand Entry: % (4) Balanced: 4

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (30) Entry 59
 Demand Exit: % (8) Exit 59

934 - Fast-Food Restaurant with Drive-Through Window

Exit 40 Demand Exit: % (0) Balanced: 0
 Entry 42 Demand Entry: % (0) Balanced: 0

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 59
 Demand Exit: % (0) Exit 59

495 - Recreational Community Center

	Total Trips	Internal Trips			Total	External Trips
		820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	125 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	125 (100%)
Exit	65 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	65 (100%)
Total	190 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	190 (100%)

820 - Shopping Center

	Total Trips	Internal Trips				External Trips
		495 - Recreational Community Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	Total	
Entry	47 (100%)	0 (0%)	4 (9%)	4 (9%)	8 (17%)	39 (83%)
Exit	29 (100%)	0 (0%)	4 (14%)	4 (14%)	8 (28%)	21 (72%)
Total	76 (100%)	0 (0%)	8 (11%)	8 (11%)	16 (21%)	60 (79%)

934 - Fast-Food Restaurant with Drive-Through Window

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	42 (100%)	0 (0%)	4 (10%)	0 (0%)	4 (10%)	38 (90%)
Exit	40 (100%)	0 (0%)	4 (10%)	0 (0%)	4 (10%)	36 (90%)
Total	82 (100%)	0 (0%)	8 (10%)	0 (0%)	8 (10%)	74 (90%)

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window		
Entry	59 (100%)	0 (0%)	4 (7%)	0 (0%)	4 (7%)	55 (93%)
Exit	59 (100%)	0 (0%)	4 (7%)	0 (0%)	4 (7%)	55 (93%)
Total	118 (100%)	0 (0%)	8 (7%)	0 (0%)	8 (7%)	110 (93%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
495 - Recreational Community Center	190	<input type="text" value="0"/> %	0	190
820 - Shopping Center	60	<input type="text" value="0"/> %	0	60
934 - Fast-Food Restaurant with Drive-Through Window	74	<input type="text" value="0"/> %	0	74
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	110	<input type="text" value="0"/> %	0	110

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Landuse	No deviations from ITE.
Methods	No deviations from ITE.
External Trips	<p>495 - Recreational Community Center ITE does not recommend a particular pass-by% for this case.</p> <p>820 - Shopping Center ITE does not recommend a particular pass-by% for this case.</p> <p>934 - Fast-Food Restaurant with Drive-Through Window The chosen pass-by% (0) is not provided by ITE. ITE recommends 49.</p> <p>938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating ITE does not recommend a particular pass-by% for this case.</p>

SUMMARY

Total Entering	273
Total Exiting	193
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	16
Total Exiting Internal Capture Reduction	16
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	257
Total Exiting Non-Pass-by Trips	177

PERIOD SETTING

Analysis Name : Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.
Project Name : Parkway Village South Trip Generation **No :** 21487
Date: 6/8/2017 **City:**
State/Province: **Zip/Postal Code:**
Country: **Client Name:**
Analyst's Name: **Edition:** ITE-TGM 9th Edition

Land Use	Independent Variable	Size	Time Period	Method	Entry	Exit	Total
495 - Recreational Community Center	1000 Sq. Feet Gross Floor Area	92.9	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 2.74	125 49%	130 51%	255
820 - Shopping Center	1000 Sq. Feet Gross Leasable Area	30.61	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Best Fit (LOG) Ln(T) = 0.67Ln(X) +3.31	130 48%	141 52%	271
934 - Fast-Food Restaurant with Drive-Through Window	1000 Sq. Feet Gross Floor Area	1.8	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 32.65	31 53%	28 47%	59
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	1000 Sq. Feet Gross Floor Area	0.39 ⁽⁰⁾	Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.	Average 75	15 ⁽¹⁾ 52%	14 ⁽¹⁾ 48%	29 ⁽¹⁾

(0) indicates size out of range.
 (1) indicates small sample size, use carefully.

TRAFFIC REDUCTIONS

Land Use	Entry Reduction	Adjusted Entry	Exit Reduction	Adjusted Exit
495 - Recreational Community Center	<input type="text" value="0"/> %	125	<input type="text" value="0"/> %	130
820 - Shopping Center	<input type="text" value="0"/> %	130	<input type="text" value="0"/> %	141
934 - Fast-Food Restaurant with Drive-Through Window	<input type="text" value="0"/> %	31	<input type="text" value="0"/> %	28
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	<input type="text" value="0"/> %	15	<input type="text" value="0"/> %	14

INTERNAL TRIPS

495 - Recreational Community Center

Exit 130 Demand Exit: % (27) Balanced: 5
 Entry 125 Demand Entry: % (33) Balanced: 6

820 - Shopping Center

Demand Entry: % (5) Entry 130
 Demand Exit: % (6) Exit 141

495 - Recreational Community Center

Exit 130 Demand Exit: % (40) Balanced: 1
 Entry 125 Demand Entry: % (40) Balanced: 2

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (1) Entry 31
 Demand Exit: % (2) Exit 28

495 - Recreational Community Center

Exit 130 Demand Exit: % (40) Balanced: 0
 Entry 125 Demand Entry: % (40) Balanced: 1

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 15
 Demand Exit: % (1) Exit 14

820 - Shopping Center

Exit 141 Demand Exit: % (41) Balanced: 9
 Entry 130 Demand Entry: % (65) Balanced: 11

934 - Fast-Food Restaurant with Drive-Through Window

Demand Entry: % (9) Entry 31
 Demand Exit: % (11) Exit 28

820 - Shopping Center

Exit 141 Demand Exit: % (41) Balanced: 4
 Entry 130 Demand Entry: % (65) Balanced: 6

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (4) Entry 15
 Demand Exit: % (6) Exit 14

934 - Fast-Food Restaurant with Drive-Through Window

Exit 28 Demand Exit: % (0) Balanced: 0
 Entry 31 Demand Entry: % (0) Balanced: 0

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

Demand Entry: % (0) Entry 15
 Demand Exit: % (0) Exit 14

495 - Recreational Community Center

	Total Trips	Internal Trips			Total	External Trips
		820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	125 (100%)	6 (5%)	2 (2%)	1 (1%)	9 (7%)	116 (93%)
Exit	130 (100%)	5 (4%)	1 (1%)	0 (0%)	6 (5%)	124 (95%)
Total	255 (100%)	11 (4%)	3 (1%)	1 (0%)	15 (6%)	240 (94%)

820 - Shopping Center

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	934 - Fast-Food Restaurant with Drive-Through Window	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	130 (100%)	5 (4%)	11 (8%)	6 (5%)	22 (17%)	108 (83%)
Exit	141 (100%)	6 (4%)	9 (6%)	4 (3%)	19 (13%)	122 (87%)
Total	271 (100%)	11 (4%)	20 (7%)	10 (4%)	41 (15%)	230 (85%)

934 - Fast-Food Restaurant with Drive-Through Window

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating		
Entry	31 (100%)	1 (3%)	9 (29%)	0 (0%)	10 (32%)	21 (68%)
Exit	28 (100%)	2 (7%)	11 (39%)	0 (0%)	13 (46%)	15 (54%)
Total	59 (100%)	3 (5%)	20 (34%)	0 (0%)	23 (39%)	36 (61%)

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating

	Total Trips	Internal Trips			Total	External Trips
		495 - Recreational Community Center	820 - Shopping Center	934 - Fast-Food Restaurant with Drive-Through Window		
Entry	15 (100%)	0 (0%)	4 (27%)	0 (0%)	4 (27%)	11 (73%)
Exit	14 (100%)	1 (7%)	6 (43%)	0 (0%)	7 (50%)	7 (50%)
Total	29 (100%)	1 (3%)	10 (34%)	0 (0%)	11 (38%)	18 (62%)

EXTERNAL TRIPS

Land Use	External Trips	Pass-by%	Pass-by Trips	Non-pass-by Trips
495 - Recreational Community Center	240	<input type="text" value="0"/> %	0	240
820 - Shopping Center	230	<input type="text" value="0"/> %	0	230
934 - Fast-Food Restaurant with Drive-Through Window	36	<input type="text" value="0"/> %	0	36
938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating	18	<input type="text" value="0"/> %	0	18

ITE DEVIATION DETAILS

Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Landuse No deviations from ITE.

Methods No deviations from ITE.

External Trips 495 - Recreational Community Center
ITE does not recommend a particular pass-by% for this case.

820 - Shopping Center
The chosen pass-by% (0) is not provided by ITE. ITE recommends 55.

934 - Fast-Food Restaurant with Drive-Through Window
The chosen pass-by% (0) is not provided by ITE. ITE recommends 50.

938 - Coffee/Donut Shop with Drive-Through Window and No Indoor Seating
ITE does not recommend a particular pass-by% for this case.

SUMMARY

Total Entering	301
Total Exiting	313
Total Entering Reduction	0
Total Exiting Reduction	0
Total Entering Internal Capture Reduction	45
Total Exiting Internal Capture Reduction	45
Total Entering Pass-by Reduction	0
Total Exiting Pass-by Reduction	0
Total Entering Non-Pass-by Trips	256
Total Exiting Non-Pass-by Trips	268

Appendix H 2019 Total Traffic Conditions

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	5	34	128	59	2042	44	85	774
v/c Ratio	0.15	0.03	0.33	0.58	0.46	0.81	0.04	0.57	0.32
Control Delay	55.1	0.2	61.4	19.6	72.7	11.9	0.0	66.3	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	0.2	61.4	19.6	72.7	11.9	0.0	66.3	6.5
Queue Length 50th (ft)	11	0	26	0	49	273	0	64	97
Queue Length 95th (ft)	33	0	59	59	m54	m448	m0	114	159
Internal Link Dist (ft)	247		943			1665			776
Turn Bay Length (ft)		50		200	275		275	500	
Base Capacity (vph)	296	356	310	413	383	2516	1155	217	2441
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.11	0.31	0.15	0.81	0.04	0.39	0.32























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	9	5	5	18	14	119	55	1899	41	79	701	19	
Future Volume (vph)	9	5	5	18	14	119	55	1899	41	79	701	19	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Fr _t		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Fl _t Protected		0.97	1.00		0.97	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1839	1346		1848	1553	1805	3471	1568	1687	3298		
Fl _t Permitted		0.78	1.00		0.82	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1480	1346		1555	1553	1805	3471	1568	1687	3298		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	10	5	5	19	15	128	59	2042	44	85	754	20	
RTOR Reduction (vph)	0	0	5	0	0	120	0	0	12	0	1	0	
Lane Group Flow (vph)	0	15	0	0	34	8	59	2042	32	85	773	0	
Heavy Vehicles (%)	0%	0%	20%	0%	0%	4%	0%	4%	3%	7%	9%	11%	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4		4	8		8			2				
Actuated Green, G (s)		7.9	7.9		7.9	7.9	7.6	86.1	86.1	9.5	88.0		
Effective Green, g (s)		7.9	7.9		7.9	7.9	7.6	86.1	86.1	9.5	88.0		
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.06	0.72	0.72	0.08	0.73		
Clearance Time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.5	4.5	2.3	4.5		
Lane Grp Cap (vph)		97	88		102	102	114	2490	1125	133	2418		
v/s Ratio Prot							0.03	c0.59		c0.05	0.23		
v/s Ratio Perm		0.01	0.00		c0.02	0.01			0.02				
v/c Ratio		0.15	0.00		0.33	0.08	0.52	0.82	0.03	0.64	0.32		
Uniform Delay, d1		52.9	52.4		53.5	52.6	54.4	11.6	4.9	53.6	5.6		
Progression Factor		1.00	1.00		1.00	1.00	1.29	0.77	0.00	1.00	1.00		
Incremental Delay, d2		0.5	0.0		1.4	0.3	1.0	1.4	0.0	8.0	0.3		
Delay (s)		53.4	52.4		54.9	52.9	71.2	10.4	0.0	61.6	5.9		
Level of Service		D	D		D	D	E	B	A	E	A		
Approach Delay (s)		53.2			53.3			11.8			11.4		
Approach LOS		D			D			B			B		
Intersection Summary													
HCM 2000 Control Delay			14.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			79.9%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	327	612	237	328	54	173	1699	368	56	703
v/c Ratio	1.04	1.00	0.38	0.95	0.13	0.74	0.93	0.36	0.43	0.51
Control Delay	110.9	84.4	43.1	85.6	0.7	68.4	47.0	3.7	56.1	48.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.9	84.4	43.1	85.6	0.7	68.4	47.0	3.7	56.1	48.4
Queue Length 50th (ft)	~274	247	81	252	0	130	474	25	42	169
Queue Length 95th (ft)	#458	#374	121	#430	0	201	#634	54	85	251
Internal Link Dist (ft)		853		1925			1489			1665
Turn Bay Length (ft)	225		225		175	650		275	275	
Base Capacity (vph)	313	613	628	350	413	297	1836	1007	194	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	1.00	0.38	0.94	0.13	0.58	0.93	0.37	0.29	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Parkway Village South
2: OR-99W & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	503	79	225	312	51	164	1614	350	53	558	110
Future Volume (vph)	311	503	79	225	312	51	164	1614	350	53	558	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3365		3019	1681	1346	1787	4988	1568	1671	4597	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3365		3019	1681	1346	1787	4988	1568	1671	4597	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	327	529	83	237	328	54	173	1699	368	56	587	116
RTOR Reduction (vph)	0	11	0	0	0	43	0	0	106	0	23	0
Lane Group Flow (vph)	327	601	0	237	328	11	173	1699	262	56	680	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	3%	4%	12%	16%	13%	20%	1%	4%	3%	8%	7%	23%
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	7		8	8		5	2	8	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	21.5	21.5		24.6	24.6	24.6	15.7	43.2	67.8	8.2	35.7	
Effective Green, g (s)	21.5	21.5		24.6	24.6	24.6	15.7	43.2	67.8	8.2	35.7	
Actuated g/C Ratio	0.18	0.18		0.21	0.21	0.21	0.13	0.36	0.56	0.07	0.30	
Clearance Time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.4	2.3	3.0	4.4	
Lane Grp Cap (vph)	313	602		618	344	275	233	1795	885	114	1367	
v/s Ratio Prot	c0.19	0.18		0.08	c0.20		c0.10	c0.34	0.06	0.03	0.15	
v/s Ratio Perm						0.01			0.11			
v/c Ratio	1.04	1.00		0.38	0.95	0.04	0.74	0.95	0.30	0.49	0.50	
Uniform Delay, d1	49.2	49.2		41.2	47.1	38.2	50.2	37.3	13.6	53.9	34.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.38	
Incremental Delay, d2	63.0	36.1		0.2	36.1	0.0	11.1	11.9	0.1	3.2	1.3	
Delay (s)	112.3	85.3		41.4	83.2	38.3	61.3	49.2	13.7	51.3	49.2	
Level of Service	F	F		D	F	D	E	D	B	D	D	
Approach Delay (s)		94.7			63.3			44.3			49.4	
Approach LOS		F			E			D			D	

Intersection Summary

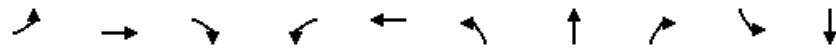
HCM 2000 Control Delay	58.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Parkway Village South
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	896	199	59	597	98	100	143	28	69
v/c Ratio	0.03	0.80	0.17	0.21	0.56	0.40	0.41	0.43	0.15	0.46
Control Delay	5.9	23.5	2.4	7.3	13.7	37.3	45.5	11.4	32.9	53.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.9	23.5	2.4	7.3	13.7	37.3	45.5	11.4	32.9	53.1
Queue Length 50th (ft)	3	422	13	10	164	52	61	0	14	41
Queue Length 95th (ft)	11	#830	38	28	400	99	115	55	38	88
Internal Link Dist (ft)		1925			1487		1085			1682
Turn Bay Length (ft)	100		150	100				350	125	
Base Capacity (vph)	630	1126	1270	435	1073	325	379	432	335	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.80	0.16	0.14	0.56	0.30	0.26	0.33	0.08	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Parkway Village South
3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	842	187	55	519	42	92	94	134	26	59	6
Future Volume (vph)	15	842	187	55	519	42	92	94	134	26	59	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1687	1792	1581	1770	1602		1736	1827	1538	1671	1695	
Flt Permitted	0.37	1.00	1.00	0.15	1.00		0.47	1.00	1.00	0.69	1.00	
Satd. Flow (perm)	653	1792	1581	283	1602		856	1827	1538	1218	1695	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	896	199	59	552	45	98	100	143	28	63	6
RTOR Reduction (vph)	0	0	32	0	1	0	0	0	125	0	3	0
Lane Group Flow (vph)	16	896	167	59	596	0	98	100	18	28	66	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	7%	6%	1%	2%	17%	20%	4%	4%	5%	8%	10%	17%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)	64.6	62.8	71.7	69.4	65.2		20.6	13.1	13.1	11.2	7.7	
Effective Green, g (s)	64.6	62.8	71.7	69.4	65.2		20.6	13.1	13.1	11.2	7.7	
Actuated g/C Ratio	0.64	0.62	0.71	0.68	0.64		0.20	0.13	0.13	0.11	0.08	
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	433	1107	1115	254	1028		250	235	198	149	128	
v/s Ratio Prot	0.00	c0.50	0.01	c0.01	0.37		c0.03	c0.05		0.01	0.04	
v/s Ratio Perm	0.02		0.09	0.15			0.05		0.01	0.01		
v/c Ratio	0.04	0.81	0.15	0.23	0.58		0.39	0.43	0.09	0.19	0.52	
Uniform Delay, d1	7.3	14.8	4.9	12.1	10.4		34.3	40.8	39.0	40.9	45.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	4.6	0.0	0.2	0.9		0.4	0.5	0.1	0.2	1.5	
Delay (s)	7.3	19.4	4.9	12.3	11.2		34.7	41.2	39.1	41.1	46.6	
Level of Service	A	B	A	B	B		C	D	D	D	D	
Approach Delay (s)		16.6			11.3			38.4			45.0	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			19.7			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			101.6			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			68.4%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

Parkway Village South
4: SW Century Dr & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	978	3	48	590	3	59
Future Volume (Veh/h)	978	3	48	590	3	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1029	3	51	621	3	62
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						8
Median type	TWLTL		TWLTL			
Median storage (veh)	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1033		1754	1032
vC1, stage 1 conf vol					1032	
vC2, stage 2 conf vol					723	
vCu, unblocked vol			1033		1754	1032
tC, single (s)			4.2		7.1	6.3
tC, 2 stage (s)					6.1	
tF (s)			2.3		4.1	3.4
p0 queue free %			92		99	77
cM capacity (veh/h)			624		212	272
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1032	672	65			
Volume Left	0	51	3			
Volume Right	3	0	62			
cSH	1700	624	285			
Volume to Capacity	0.61	0.08	0.23			
Queue Length 95th (ft)	0	7	22			
Control Delay (s)	0.0	2.2	22.1			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.2	22.1			
Approach LOS			C			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			80.7%	ICU Level of Service	D	
Analysis Period (min)			15			

MOVEMENT SUMMARY

 Site: 101 [TT AM SW Langer Farms Pkwy/SW Century Drive]

2019 Total Traffic Conditions - Weekday AM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SW Langer Farms Parkway											
3	L2	118	3.0	0.204	5.0	LOS A	0.9	22.9	0.35	0.23	33.9
8	T1	283	4.0	0.204	5.0	LOS A	0.9	22.9	0.35	0.23	34.6
18	R2	64	4.0	0.204	5.0	LOS A	0.9	22.8	0.35	0.23	34.1
Approach		465	3.7	0.204	5.0	LOS A	0.9	22.9	0.35	0.23	34.4
East: SW Century Drive											
1	L2	42	9.0	0.091	4.9	LOS A	0.3	8.3	0.46	0.38	33.8
6	T1	40	0.0	0.091	4.9	LOS A	0.3	8.3	0.46	0.38	34.0
16	R2	31	20.0	0.043	5.4	LOS A	0.1	3.7	0.46	0.36	33.4
Approach		113	8.8	0.091	5.0	LOS A	0.3	8.3	0.46	0.37	33.8
North: SW Langer Farms Parkway											
7	L2	44	0.0	0.128	4.4	LOS A	0.5	13.0	0.33	0.21	34.9
4	T1	219	3.0	0.128	4.3	LOS A	0.5	13.0	0.32	0.20	35.2
14	R2	27	0.0	0.128	4.2	LOS A	0.5	12.7	0.31	0.20	34.6
Approach		290	2.3	0.128	4.3	LOS A	0.5	13.0	0.32	0.20	35.1
West: SW Century Drive											
5	L2	71	0.0	0.194	5.4	LOS A	0.8	20.3	0.43	0.34	34.2
2	T1	85	2.0	0.194	5.4	LOS A	0.8	20.3	0.43	0.34	34.0
12	R2	247	1.0	0.194	5.2	LOS A	0.8	20.3	0.41	0.32	33.8
Approach		403	1.0	0.194	5.3	LOS A	0.8	20.3	0.42	0.32	33.9
All Vehicles		1271	3.0	0.204	4.9	LOS A	0.9	22.9	0.37	0.27	34.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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














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










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Parkway Village South
6: Century Drive West Access & SW Century Dr

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	107	43	0	62	26	0	0	23	0	0	26
Future Volume (Veh/h)	0	107	43	0	62	26	0	0	23	0	0	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	0	137	55	0	79	33	0	0	29	0	0	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				TWLTL							
Median storage (veh)	2											
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	112			192			293	276	164	289	288	96
vC1, stage 1 conf vol							164	164		96	96	
vC2, stage 2 conf vol							128	112		194	192	
vCu, unblocked vol	112			192			293	276	164	289	288	96
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	97	100	100	97
cM capacity (veh/h)	1478			1381			755	712	880	742	702	961
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	192	112	29	33								
Volume Left	0	0	0	0								
Volume Right	55	33	29	33								
cSH	1700	1700	880	961								
Volume to Capacity	0.11	0.07	0.03	0.03								
Queue Length 95th (ft)	0	0	3	3								
Control Delay (s)	0.0	0.0	9.2	8.9								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	9.2	8.9								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			18.2%	ICU Level of Service						A		
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	26	82	22	47	18	26	44	0	8	26	0	26
Future Volume (Veh/h)	26	82	22	47	18	26	44	0	8	26	0	26
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	33	105	28	60	23	33	56	0	10	33	0	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	TWLTL				None							
Median storage (veh)	2											
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	56			133			378	361	119	354	358	40
vC1, stage 1 conf vol							185	185		160	160	
vC2, stage 2 conf vol							192	176		195	199	
vCu, unblocked vol	56			133			378	361	119	354	358	40
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			96			92	100	99	95	100	97
cM capacity (veh/h)	1549			1452			661	633	933	674	620	1032
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	166	116	66	66								
Volume Left	33	60	56	33								
Volume Right	28	33	10	33								
cSH	1549	1452	692	815								
Volume to Capacity	0.02	0.04	0.10	0.08								
Queue Length 95th (ft)	2	3	8	7								
Control Delay (s)	1.6	4.1	10.8	9.8								
Lane LOS	A	A	B	A								
Approach Delay (s)	1.6	4.1	10.8	9.8								
Approach LOS			B	A								
Intersection Summary												
Average Delay				5.1								
Intersection Capacity Utilization				22.7%	ICU Level of Service	A						
Analysis Period (min)				15								

Parkway Village South
8: SW Langer Farms Pkwy & Langer Farms North Access

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	0	52	45	0	38	52	273	68	52	293	52
Future Volume (Veh/h)	52	0	52	45	0	38	52	273	68	52	293	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	67	0	67	58	0	49	67	350	87	67	376	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1120	1114	410	1138	1104	394	443			437		
vC1, stage 1 conf vol	544	544		528	528							
vC2, stage 2 conf vol	576	571		610	577							
vCu, unblocked vol	1120	1114	410	1138	1104	394	443			437		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	100	90	81	100	93	94			94		
cM capacity (veh/h)	319	346	642	300	347	655	1117			1123		
Direction, Lane #												
	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total	134	58	49	504	510							
Volume Left	67	58	0	67	67							
Volume Right	67	0	49	87	67							
cSH	427	300	655	1117	1123							
Volume to Capacity	0.31	0.19	0.07	0.06	0.06							
Queue Length 95th (ft)	33	18	6	5	5							
Control Delay (s)	17.3	19.8	10.9	1.7	1.7							
Lane LOS	C	C	B	A	A							
Approach Delay (s)	17.3	15.8		1.7	1.7							
Approach LOS	C	C										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			48.0%	ICU Level of Service	A							
Analysis Period (min)			15									

Parkway Village South
 9: SW Langer Farms Pkwy & Langer Farms South Access

2019 Total Traffic Conditions, Weekday AM Peak Hour

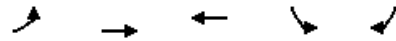
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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y			Y
Traffic Volume (veh/h)	15	4	389	22	4	386
Future Volume (Veh/h)	15	4	389	22	4	386
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	19	5	499	28	5	495
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)			1266			
pX, platoon unblocked						
vC, conflicting volume	1018	513			527	
vC1, stage 1 conf vol	513					
vC2, stage 2 conf vol	505					
vCu, unblocked vol	1018	513			527	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			100	
cM capacity (veh/h)	477	561			1040	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	24	527	500
Volume Left	19	0	5
Volume Right	5	28	0
cSH	492	1700	1040
Volume to Capacity	0.05	0.31	0.00
Queue Length 95th (ft)	4	0	0
Control Delay (s)	12.7	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	12.7	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		33.5%	ICU Level of Service A
Analysis Period (min)		15	



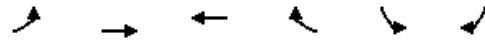
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	215	160	427	322	140
v/c Ratio	0.41	0.15	0.74	0.70	0.28
Control Delay	9.2	7.7	26.7	34.6	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	7.7	26.7	34.6	6.6
Queue Length 50th (ft)	37	29	126	121	0
Queue Length 95th (ft)	70	56	234	232	33
Internal Link Dist (ft)		1186	843	1186	
Turn Bay Length (ft)	375			375	
Base Capacity (vph)	686	1788	1373	670	678
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.09	0.31	0.48	0.21

Intersection Summary

Parkway Village South
10: SW Oregon St & SW Langer Farms Pkwy

2019 Total Traffic Conditions, Weekday AM Peak Hour

07/18/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	174	130	145	201	261	113
Future Volume (vph)	174	130	145	201	261	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0		5.5	5.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	1845	1693		1770	1563
Flt Permitted	0.26	1.00	1.00		0.95	1.00
Satd. Flow (perm)	473	1845	1693		1770	1563
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	215	160	179	248	322	140
RTOR Reduction (vph)	0	0	56	0	0	104
Lane Group Flow (vph)	215	160	371	0	322	36
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	5%	3%	4%	3%	2%	1%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases	2					7
Actuated Green, G (s)	38.7	38.7	21.4		17.7	17.7
Effective Green, g (s)	38.7	38.7	21.4		17.7	17.7
Actuated g/C Ratio	0.57	0.57	0.32		0.26	0.26
Clearance Time (s)	4.0	6.0	6.0		5.5	5.5
Vehicle Extension (s)	2.0	3.8	3.8		2.0	2.0
Lane Grp Cap (vph)	513	1051	533		461	407
v/s Ratio Prot	c0.08	0.09	c0.22		c0.18	
v/s Ratio Perm	0.16					0.02
v/c Ratio	0.42	0.15	0.70		0.70	0.09
Uniform Delay, d1	8.7	6.9	20.4		22.7	19.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.1	4.2		3.7	0.0
Delay (s)	8.9	7.0	24.6		26.4	19.0
Level of Service	A	A	C		C	B
Approach Delay (s)		8.1	24.6		24.2	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	15.5
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	43	21	98	131	32	849	69	229	1877
v/c Ratio	0.27	0.09	0.67	0.45	0.33	0.47	0.08	0.55	0.72
Control Delay	54.8	0.8	75.8	13.2	98.3	14.6	4.1	50.4	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	0.8	75.8	13.2	98.3	14.6	4.1	50.4	13.8
Queue Length 50th (ft)	34	0	81	0	29	285	13	175	467
Queue Length 95th (ft)	69	0	136	57	m65	366	50	267	716
Internal Link Dist (ft)	247		943			1665			776
Turn Bay Length (ft)		50		200	275		275	500	
Base Capacity (vph)	416	504	378	538	159	1815	852	418	2605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.04	0.26	0.24	0.20	0.47	0.08	0.55	0.72

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
1: OR-99W & SW Langer Farms Pkwy

2019 Total Traffic Conditions, Weekday PM Peak Hour

07/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	23	20	21	78	18	128	31	832	68	224	1820	20	
Future Volume (vph)	23	20	21	78	18	128	31	832	68	224	1820	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00		
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected		0.97	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1801	1615		1736	1562	1805	3471	1568	1752	3534		
Flt Permitted		0.79	1.00		0.74	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1463	1615		1329	1562	1805	3471	1568	1752	3534		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	23	20	21	80	18	131	32	849	69	229	1857	20	
RTOR Reduction (vph)	0	0	19	0	0	116	0	0	33	0	0	0	
Lane Group Flow (vph)	0	43	2	0	98	15	32	849	36	229	1877	0	
Confl. Peds. (#/hr)	1					1							
Confl. Bikes (#/hr)												1	
Heavy Vehicles (%)	5%	0%	0%	5%	6%	2%	0%	4%	3%	3%	2%	0%	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases		4			8		5	2		1	6		
Permitted Phases	4		4	8		8			2				
Actuated Green, G (s)		14.4	14.4		14.4	14.4	5.0	68.0	68.0	31.1	94.1		
Effective Green, g (s)		14.4	14.4		14.4	14.4	5.0	68.0	68.0	31.1	94.1		
Actuated g/C Ratio		0.11	0.11		0.11	0.11	0.04	0.52	0.52	0.24	0.72		
Clearance Time (s)		6.0	6.0		6.0	6.0	4.5	6.0	6.0	4.5	6.0		
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.5	4.5	2.3	4.5		
Lane Grp Cap (vph)		162	178		147	173	69	1815	820	419	2558		
v/s Ratio Prot							0.02	0.24		c0.13	c0.53		
v/s Ratio Perm		0.03	0.00		c0.07	0.01			0.02				
v/c Ratio		0.27	0.01		0.67	0.08	0.46	0.47	0.04	0.55	0.73		
Uniform Delay, d1		53.0	51.5		55.5	51.9	61.2	19.6	15.1	43.3	10.6		
Progression Factor		1.00	1.00		1.00	1.00	1.54	0.70	1.07	1.00	1.00		
Incremental Delay, d2		0.6	0.0		9.8	0.2	2.7	0.8	0.1	1.0	1.9		
Delay (s)		53.6	51.5		65.3	52.0	96.9	14.4	16.2	44.3	12.5		
Level of Service		D	D		E	D	F	B	B	D	B		
Approach Delay (s)		52.9			57.7			17.4			15.9		
Approach LOS		D			E			B			B		
Intersection Summary													
HCM 2000 Control Delay			19.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			80.4%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	140	614	449	442	85	212	714	458	139	1846
v/c Ratio	0.51	1.08	0.69	1.23	0.22	1.04	0.39	0.51	0.74	1.05
Control Delay	56.7	109.5	55.1	171.1	4.8	128.8	32.2	9.1	62.2	81.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	109.5	55.1	171.1	4.8	128.8	32.2	9.1	62.2	81.4
Queue Length 50th (ft)	109	~297	183	~460	0	~192	167	86	114	~604
Queue Length 95th (ft)	178	#421	242	#670	25	#353	205	133	m158	#724
Internal Link Dist (ft)		853		1925			1489			1665
Turn Bay Length (ft)	225		225		175	650		275	275	
Base Capacity (vph)	276	570	653	358	381	204	1810	895	211	1766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	1.08	0.69	1.23	0.22	1.04	0.39	0.51	0.66	1.05

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Parkway Village South
2: OR-99W & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday PM Peak Hour

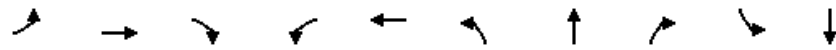
07/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	136	497	99	436	429	82	206	693	444	135	1438	353	
Future Volume (vph)	136	497	99	436	429	82	206	693	444	135	1438	353	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0		
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	0.91	1.00	1.00	0.91		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.99	1.00	0.99		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1671	3377		3400	1863	1508	1770	5036	1532	1719	4904		
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1671	3377		3400	1863	1508	1770	5036	1532	1719	4904		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	140	512	102	449	442	85	212	714	458	139	1482	364	
RTOR Reduction (vph)	0	13	0	0	0	69	0	0	50	0	32	0	
Lane Group Flow (vph)	140	601	0	449	442	16	212	714	408	139	1814	0	
Confl. Peds. (#/hr)	2		1	1		2	5					5	
Confl. Bikes (#/hr)			1						1			1	
Heavy Vehicles (%)	8%	4%	4%	3%	2%	5%	2%	3%	4%	5%	2%	2%	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	pm+ov	Prot	NA		
Protected Phases	7	7		8	8		5	2	8	1	6		
Permitted Phases						8			2				
Actuated Green, G (s)	21.5	21.5		25.0	25.0	25.0	15.0	46.7	71.7	14.3	46.0		
Effective Green, g (s)	21.5	21.5		25.0	25.0	25.0	15.0	46.7	71.7	14.3	46.0		
Actuated g/C Ratio	0.17	0.17		0.19	0.19	0.19	0.12	0.36	0.55	0.11	0.35		
Clearance Time (s)	5.5	5.5		6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0		
Vehicle Extension (s)	2.3	2.3		2.3	2.3	2.3	2.3	4.4	2.3	3.0	4.4		
Lane Grp Cap (vph)	276	558		653	358	290	204	1809	844	189	1735		
v/s Ratio Prot	0.08	c0.18		0.13	c0.24		c0.12	0.14	0.09	0.08	c0.37		
v/s Ratio Perm						0.01			0.17				
v/c Ratio	0.51	1.08		0.69	1.23	0.06	1.04	0.39	0.48	0.74	1.05		
Uniform Delay, d1	49.4	54.2		48.9	52.5	42.9	57.5	31.1	17.8	56.0	42.0		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.81	1.29		
Incremental Delay, d2	0.9	60.8		2.6	127.5	0.0	73.7	0.6	0.3	10.2	31.5		
Delay (s)	50.3	115.1		51.5	180.0	42.9	131.2	31.7	18.1	55.3	85.6		
Level of Service	D	F		D	F	D	F	C	B	E	F		
Approach Delay (s)		103.0			108.9			42.5			83.5		
Approach LOS		F			F			D			F		
Intersection Summary													
HCM 2000 Control Delay			80.1									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.09										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	22.5
Intersection Capacity Utilization			96.0%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Parkway Village South
 3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday PM Peak Hour

07/18/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	15	754	232	169	878	168	117	101	47	244
v/c Ratio	0.07	0.85	0.21	0.60	0.82	0.65	0.28	0.24	0.15	0.83
Control Delay	10.1	36.9	3.3	18.5	28.6	43.5	41.4	9.4	31.5	70.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	36.9	3.3	18.5	28.6	43.5	41.4	9.4	31.5	70.3
Queue Length 50th (ft)	4	481	18	51	474	98	75	0	26	179
Queue Length 95th (ft)	13	#816	53	85	#901	169	141	48	58	#335
Internal Link Dist (ft)		1925			1487		1085			1682
Turn Bay Length (ft)	100		150	100				350	125	
Base Capacity (vph)	369	966	1131	364	1070	304	414	426	430	337
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.78	0.21	0.46	0.82	0.55	0.28	0.24	0.11	0.72
























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Parkway Village South
3: SW Langer Farms Pkwy & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday PM Peak Hour

07/18/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	709	218	159	780	45	158	110	95	44	211	19
Future Volume (vph)	14	709	218	159	780	45	158	110	95	44	211	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1792	1599	1770	1828		1770	1863	1564	1770	1860	
Flt Permitted	0.14	1.00	1.00	0.14	1.00		0.21	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	261	1792	1599	256	1828		395	1863	1564	1270	1860	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	754	232	169	830	48	168	117	101	47	224	20
RTOR Reduction (vph)	0	0	64	0	1	0	0	0	79	0	3	0
Lane Group Flow (vph)	15	754	168	169	877	0	168	117	22	47	241	0
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	6%	1%	2%	3%	5%	2%	2%	1%	2%	1%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8		8	4		
Actuated Green, G (s)	60.4	58.6	70.2	71.8	66.0		34.3	25.1	25.1	23.9	18.7	
Effective Green, g (s)	60.4	58.6	70.2	71.8	66.0		34.3	25.1	25.1	23.9	18.7	
Actuated g/C Ratio	0.52	0.50	0.60	0.62	0.57		0.30	0.22	0.22	0.21	0.16	
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5		4.0	4.5	4.5	4.0	4.5	
Vehicle Extension (s)	1.5	3.5	1.5	1.5	3.5		1.5	2.0	2.0	1.5	2.0	
Lane Grp Cap (vph)	159	904	966	278	1039		254	402	338	283	299	
v/s Ratio Prot	0.00	0.42	0.02	c0.05	c0.48		c0.07	0.06		0.01	c0.13	
v/s Ratio Perm	0.05		0.09	0.33			0.13		0.01	0.03		
v/c Ratio	0.09	0.83	0.17	0.61	0.84		0.66	0.29	0.06	0.17	0.81	
Uniform Delay, d1	18.8	24.6	10.1	18.4	20.8		32.9	38.1	36.2	37.6	47.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	6.9	0.0	2.6	6.5		4.9	0.1	0.0	0.1	13.9	
Delay (s)	18.9	31.4	10.2	20.9	27.3		37.9	38.2	36.2	37.7	60.9	
Level of Service	B	C	B	C	C		D	D	D	D	E	
Approach Delay (s)		26.3			26.3			37.5			57.2	
Approach LOS		C			C			D			E	

Intersection Summary

HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	116.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Parkway Village South
4: SW Century Dr & SW Tualatin-Sherwood Rd

2019 Total Traffic Conditions, Weekday PM Peak Hour

07/18/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	↗
Traffic Volume (veh/h)	850	16	205	954	1	68
Future Volume (Veh/h)	850	16	205	954	1	68
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	895	17	216	1004	1	72
Pedestrians						1
Lane Width (ft)						12.0
Walking Speed (ft/s)						4.0
Percent Blockage						0
Right turn flare (veh)						8
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			913		2340	904
vC1, stage 1 conf vol					904	
vC2, stage 2 conf vol					1436	
vCu, unblocked vol			913		2340	904
tC, single (s)			4.1		6.4	6.3
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.4
p0 queue free %			71		99	78
cM capacity (veh/h)			746		143	329
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	912	1220	73			
Volume Left	0	216	1			
Volume Right	17	0	72			
cSH	1700	746	334			
Volume to Capacity	0.54	0.29	0.22			
Queue Length 95th (ft)	0	30	20			
Control Delay (s)	0.0	8.9	19.1			
Lane LOS		A	C			
Approach Delay (s)	0.0	8.9	19.1			
Approach LOS			C			
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization			120.6%	ICU Level of Service	H	
Analysis Period (min)			15			

MOVEMENT SUMMARY

 Site: 101 [TT PM SW Langer Farms Pkwy/SW Century Drive]

2019 Total Traffic Conditions - Weekday PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SW Langer Farms Parkway											
3	L2	107	1.0	0.169	4.4	LOS A	0.7	18.7	0.29	0.16	34.3
8	T1	213	2.0	0.169	4.4	LOS A	0.7	18.7	0.29	0.16	34.9
18	R2	93	1.0	0.169	4.4	LOS A	0.7	18.6	0.29	0.16	34.5
Approach		413	1.5	0.169	4.4	LOS A	0.7	18.7	0.29	0.16	34.6
East: SW Century Drive											
1	L2	170	1.0	0.335	6.9	LOS A	1.5	38.7	0.50	0.42	33.1
6	T1	178	0.0	0.335	6.9	LOS A	1.5	38.7	0.50	0.42	33.0
16	R2	99	0.0	0.102	4.7	LOS A	0.4	9.9	0.42	0.33	34.3
Approach		447	0.4	0.335	6.4	LOS A	1.5	38.7	0.48	0.40	33.3
North: SW Langer Farms Parkway											
7	L2	38	0.0	0.195	6.1	LOS A	0.8	19.6	0.50	0.45	34.2
4	T1	245	3.0	0.195	5.9	LOS A	0.8	19.6	0.49	0.44	34.4
14	R2	71	0.0	0.195	5.7	LOS A	0.8	19.3	0.48	0.42	33.8
Approach		353	2.1	0.195	5.9	LOS A	0.8	19.6	0.49	0.43	34.3
West: SW Century Drive											
5	L2	38	0.0	0.139	5.5	LOS A	0.5	13.5	0.48	0.42	34.3
2	T1	71	2.0	0.139	5.5	LOS A	0.5	13.5	0.48	0.42	34.1
12	R2	144	2.0	0.139	5.2	LOS A	0.5	13.5	0.47	0.40	33.9
Approach		252	1.7	0.139	5.3	LOS A	0.5	13.5	0.47	0.41	34.0
All Vehicles		1465	1.3	0.335	5.5	LOS A	1.5	38.7	0.43	0.34	34.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Users\kpurser\Desktop\21487_LangerFarms_Century.sip7

Parkway Village South
6: Century Drive West Access & SW Century Dr

2019 Total Traffic Conditions, Weekday PM Peak Hour

07/18/2017


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	151	43	0	325	104	0	0	36	0	0	104
Future Volume (Veh/h)	0	151	43	0	325	104	0	0	36	0	0	104
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	157	45	0	339	108	0	0	38	0	0	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			TWLTL							
Median storage (veh)					2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	447			202			680	626	180	610	595	393
vC1, stage 1 conf vol							180	180		393	393	
vC2, stage 2 conf vol							501	447		218	202	
vCu, unblocked vol	447			202			680	626	180	610	595	393
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	84
cM capacity (veh/h)	1113			1370			440	536	863	566	558	656
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	202	447	38	108								
Volume Left	0	0	0	0								
Volume Right	45	108	38	108								
cSH	1700	1700	863	656								
Volume to Capacity	0.12	0.26	0.04	0.16								
Queue Length 95th (ft)	0	0	3	15								
Control Delay (s)	0.0	0.0	9.4	11.6								
Lane LOS			A	B								
Approach Delay (s)	0.0	0.0	9.4	11.6								
Approach LOS			A	B								
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			36.5%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	104	62	21	47	211	104	62	0	17	52	0	156
Future Volume (Veh/h)	104	62	21	47	211	104	62	0	17	52	0	156
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	108	65	22	49	220	108	65	0	18	54	0	163
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	TWLTL				None							
Median storage (veh)	2											
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	328			87			827	718	76	682	675	274
vC1, stage 1 conf vol							292	292		372	372	
vC2, stage 2 conf vol							535	426		310	303	
vCu, unblocked vol	328			87			827	718	76	682	675	274
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			97			77	100	98	89	100	79
cM capacity (veh/h)	1232			1509			285	428	985	496	482	765
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	195	377	83	217								
Volume Left	108	49	65	54								
Volume Right	22	108	18	163								
cSH	1232	1509	337	674								
Volume to Capacity	0.09	0.03	0.25	0.32								
Queue Length 95th (ft)	7	3	24	35								
Control Delay (s)	4.9	1.2	19.1	12.9								
Lane LOS	A	A	C	B								
Approach Delay (s)	4.9	1.2	19.1	12.9								
Approach LOS			C	B								
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utilization			50.0%	ICU Level of Service	A							
Analysis Period (min)			15									

Parkway Village South
8: SW Langer Farms Pkwy & Langer Farms North Access

2019 Total Traffic Conditions, Weekday PM Peak Hour

07/18/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	0	104	70	0	57	104	236	68	51	381	104
Future Volume (Veh/h)	104	0	104	70	0	57	104	236	68	51	381	104
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	108	0	108	73	0	59	108	246	71	53	397	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1114	1090	451	1162	1108	282	505			317		
vC1, stage 1 conf vol	557	557		498	498							
vC2, stage 2 conf vol	556	533		665	611							
vCu, unblocked vol	1114	1090	451	1162	1108	282	505			317		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	66	100	82	68	100	92	90			96		
cM capacity (veh/h)	321	352	608	231	318	757	1060			1243		
Direction, Lane #												
	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total	216	73	59	425	558							
Volume Left	108	73	0	108	53							
Volume Right	108	0	59	71	108							
cSH	420	231	757	1060	1243							
Volume to Capacity	0.51	0.32	0.08	0.10	0.04							
Queue Length 95th (ft)	71	32	6	8	3							
Control Delay (s)	22.3	27.6	10.2	3.1	1.2							
Lane LOS	C	D	B	A	A							
Approach Delay (s)	22.3	19.8		3.1	1.2							
Approach LOS	C	C										
Intersection Summary												
Average Delay			7.1									
Intersection Capacity Utilization			70.5%		ICU Level of Service					C		
Analysis Period (min)			15									

Parkway Village South
 9: SW Langer Farms Pkwy & Langer Farms South Access

2019 Total Traffic Conditions, Weekday PM Peak Hour

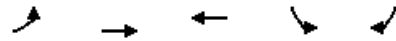
07/18/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		B			Y
Traffic Volume (veh/h)	22	4	404	22	4	551
Future Volume (Veh/h)	22	4	404	22	4	551
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	23	4	421	23	4	574
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage (veh)			2			2
Upstream signal (ft)			1236			
pX, platoon unblocked						
vC, conflicting volume	1014	432			444	
vC1, stage 1 conf vol	432					
vC2, stage 2 conf vol	582					
vCu, unblocked vol	1014	432			444	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			100	
cM capacity (veh/h)	474	623			1116	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	27	444	578
Volume Left	23	0	4
Volume Right	4	23	0
cSH	491	1700	1116
Volume to Capacity	0.05	0.26	0.00
Queue Length 95th (ft)	4	0	0
Control Delay (s)	12.8	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	12.8	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		42.2%	ICU Level of Service
Analysis Period (min)		15	A



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	182	97	489	335	305
v/c Ratio	0.39	0.09	0.77	0.71	0.48
Control Delay	9.3	7.6	28.0	36.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	7.6	28.0	36.2	6.3
Queue Length 50th (ft)	34	18	160	132	0
Queue Length 95th (ft)	66	41	327	#320	64
Internal Link Dist (ft)		1186	843	1156	
Turn Bay Length (ft)	375			375	
Base Capacity (vph)	657	1771	1317	621	745
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.05	0.37	0.54	0.41

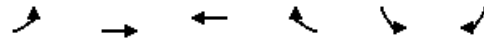
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Parkway Village South
10: SW Oregon St & SW Langer Farms Pkwy

2019 Total Traffic Conditions, Weekday PM Peak Hour

07/18/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	167	89	187	263	308	281
Future Volume (vph)	167	89	187	263	308	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0		5.5	5.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1769	1863	1703		1752	1547
Flt Permitted	0.22	1.00	1.00		0.95	1.00
Satd. Flow (perm)	415	1863	1703		1752	1547
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	182	97	203	286	335	305
RTOR Reduction (vph)	0	0	54	0	0	222
Lane Group Flow (vph)	182	97	435	0	335	83
Confl. Peds. (#/hr)	1			1		1
Heavy Vehicles (%)	2%	2%	2%	1%	3%	2%
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		7	
Permitted Phases	2					7
Actuated Green, G (s)	41.2	41.2	25.0		19.7	19.7
Effective Green, g (s)	41.2	41.2	25.0		19.7	19.7
Actuated g/C Ratio	0.57	0.57	0.35		0.27	0.27
Clearance Time (s)	4.0	6.0	6.0		5.5	5.5
Vehicle Extension (s)	2.0	3.8	3.8		2.0	2.0
Lane Grp Cap (vph)	464	1060	588		476	420
v/s Ratio Prot	c0.07	0.05	c0.26		c0.19	
v/s Ratio Perm	0.16					0.05
v/c Ratio	0.39	0.09	0.74		0.70	0.20
Uniform Delay, d1	9.6	7.1	20.8		23.7	20.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.0	5.1		3.8	0.1
Delay (s)	9.8	7.1	25.9		27.6	20.4
Level of Service	A	A	C		C	C
Approach Delay (s)		8.9	25.9		24.1	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	15.5
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Exhibit G: Preliminary Stormwater Report

*Parkway Village South
Sherwood, Oregon*

**Preliminary Stormwater
Report**

Date: July 2017

Client: Langer Family LLC
15555 SW Tualatin-Sherwood Road
Sherwood, OR 97140

Engineering Contact: John Christiansen, PE
johnc@aks-eng.com

Engineering Firm: AKS Engineering & Forestry, LLC



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Parkway Village South Sherwood, Oregon

Preliminary Stormwater Report

Date: July 2017

Client: Langer Family, LLC
15555 SW Tualatin-Sherwood Road
Sherwood, OR 97140

Engineering Contact: John Christiansen, PE
johnc@aks-eng.com

Engineering Firm: AKS Engineering & Forestry, LLC

7/17/2017



RENEWAL DATE: 12/31/17



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Exhibits

- EXHIBIT A:** Vicinity Map
- EXHIBIT B:** Overall Post-Developed Stormwater Catchment Map
- EXHIBIT C:** Post-Developed Site Stormwater Catchment Map

Appendices

- APPENDIX A:** Post-Developed Catchment Basins Map from *Regional Facility Report*, prepared by AKS Engineering (with annotations)
 - APPENDIX B:** Post-Developed Peak Flow Calculations – HydroCAD Analysis
 - APPENDIX C:** TR-55 Runoff Curve Numbers
 - APPENDIX D:** USDA-NRCS Soil Resource Report
-

Preliminary Stormwater Report

PARKWAY VILLAGE SOUTH SHERWOOD, OREGON

1.0 Purpose of Report

The purpose of this report is to analyze the effects the proposed development will have on the existing stormwater conveyance system; document the criteria, methodology, and informational sources used to design the proposed stormwater system; and present the results of the hydraulic analysis.

2.0 Project Location/Description

The Parkway Village South project is located at Tax Lot 100, Washington County Tax Map 2S 1 29DC, Sherwood, Oregon. The development will occur on Parcel 2 (subject site) of the replat of Lot 4 (City of Sherwood Case File No. MLP 16-02) of the Langer Farms Planned Unit Development (PUD). Improvements will include the construction of retail and recreational buildings, paved site access, and public and private underground utilities. The development will add approximately 13.145 acres of impervious area to the existing site.

A drainage report, titled *Langer Farms Regional Stormwater Facility Final Stormwater Report (Regional Facility Report)* and dated May of 2013 by AKS Engineering, LLC (AKS), was prepared for the Langer Farms Regional Stormwater Facility (Regional Facility) constructed during the summer of 2013. Based on the information provided in the report, the subject site was included within the planning area of the Regional Facility. The previous report includes an exhibit titled *Post-Development Catchment Basins Map* that shows the “Area to be Treated by Proposed Regional Stormwater Facility.” An annotated version of this exhibit highlighting the subject site is included in Appendix A of this report.

In addition, the existing public storm drainage system downstream of the subject site was reanalyzed during the Sentinel Storage Annex Phase II (Sentinel Phase II) development. This was warranted because the drainage areas of the subject site and Sentinel Phase II had changed from the assumed post-development conditions listed in the *Regional Facility Report*. It was validated in the *Sentinel Storage Annex Phase II Final Stormwater Report (Sentinel Phase II Report)* that the existing public storm drain could serve the subject site as originally intended. Therefore, the Parkway Village South development will use the existing Regional Facility for stormwater quality and quantity management.

3.0 Regulatory Design Criteria

3.1 STORMWATER QUALITY

Per Clean Water Services’ (CWS) *Design and Construction Standards for Sanitary Sewer and Surface Water Management (Resolution and Order [R&O] 17-05)*, Section 4.05 – Water Quality Treatment Requirements, owners of new development and other activities are required to implement or fund permanent water quality approaches to reduce contaminants entering the storm and surface water system when the development and other activities:

1. *Create or modify 1,000 square feet or greater of impervious surfaces.*
2. *Increase the amount of stormwater runoff or pollution leaving the site.*

The Parkway Village South project will create 13.145 acres of impervious area; thus, increasing the amount of stormwater runoff leaving the site. Stormwater quality management for this project will be

met by utilizing an existing off-site regional stormwater facility (Regional Facility). Further description of the facility is provided in Section 6.2 of this report.

3.2 STORMWATER QUANTITY

Per CWS R&O 17-05, Section 4.03 – Water Quantity Control Requirements, on-site detention facilities are required when any of the following conditions exist:

1. *There is an identified downstream deficiency, and the District or City determines that detention rather than conveyance system enlargement is the more effective solution.*
2. *There is an identified regional detention site within the boundary of the development.*
3. *Water quantity facilities are required by District-adopted watershed management plans or adopted subbasin master plans.*

Stormwater runoff generated on site will be conveyed to the Regional Facility located approximately 950 feet east-southeast of the subject site. Based on the information provided in the *Regional Facility Report*, additional capacity is allocated for the development of the subject site. Information regarding stormwater detention for the site is discussed in Section 6.3 of this report.

Public storm drains installed during the construction of the Regional Facility were sized to accommodate post-developed 25-year peak flows discharging from the subject site. Therefore, on-site detention is not proposed. Validation of the public storm drain conveyance system between the subject site and the Regional Facility is discussed in Section 6.4 of this report.

4.0 Design Methodology

The Santa Barbara Urban Hydrograph (SBUH) Method was used to analyze stormwater runoff from the site. This method uses the Soil Conservation Service (SCS) Type 1A 24-hour design storm. HydroCAD 10.00 computer software aided in the analysis. Representative Curve Numbers (CNs) were obtained from *Technical Release 55 (TR-55)* and are included in Appendix C.

5.0 Design Parameters

5.1 DESIGN STORMS

Per CWS requirements, the stormwater analysis uses the 24-hour storm event for the evaluation and design of the existing and proposed stormwater facilities. The following 24-hour rainfall intensities are included as the basis for design:

Recurrence Interval (years)	Total Precipitation Depth (inches)
2	2.50
10	3.45
25	3.90

5.2 PRE-DEVELOPED SITE CONDITIONS

5.2.1 Site Topography

Existing grades on site generally slope from west to east with slopes between 2% and 5%. A temporary soil stockpile exists adjacent to Century Drive. Soils in the stockpile will be utilized for the project and the stockpile will be leveled.

5.2.2 Land Use

The property is zoned Light Industrial – Planned Unit Development (LI – PUD). The property is open farmland and contains a temporary soil stockpile.

5.3 SOIL TYPES

Subsurface soils at the subject site are classified as Hillsboro and Quatama loams, according to the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey for Washington County. The following table lists the Hydrologic Soil Group rating for each soil type:

NRCS Map Unit Identification	NRCS Soil Classification	Hydrologic Soil Group Rating
21A	Hillsboro loam	B
37A	Quatama loam	C
37B	Quatama loam	C

A Soil Group Map and additional information can be found in the USDA-NRCS Soil Resource Report included in Appendix D.

5.4 POST-DEVELOPED SITE CONDITIONS

5.4.1 Site Topography

On-site slopes will not change significantly as a result of the development. However, structural fill is required to create flat pads for building construction. An approximately 10 foot tall retaining wall will be constructed buffering the south property line. Overall site topography will continue to gradually fall from west to east with grades between 2% and 5%.

5.4.2 Land Use

The property's zoning will remain LI – PUD. Post-developed site conditions will include retail and recreational buildings, paved site access, and public and private underground utilities.

5.4.3 Post-Developed Input Parameters

Refer to the HydroCAD analysis in Appendix B.

5.4.4 Description of Off-Site Contributing Basins

There are no off-site basins contributing stormwater runoff to the site.

6.0 Calculation Methodology

6.1 PROPOSED STORMWATER CONDUIT SIZING AND INLET SPACING

The proposed stormwater conveyance system will connect to an existing public storm drain manhole installed during construction of the Regional Facility project. The manhole is part of the existing public

storm drain that is routed along the east property line of the site. Conduit sizing of existing public storm drainage infrastructure is provided in the *Regional Facility Report*.

On-site stormwater drainage conduits and inlets will be spaced in accordance with CWS requirements to properly convey stormwater runoff. Storm drainage piping was designed using Manning’s equation and sized to convey peak flows generated by the 25-year design storm event. The on-site stormwater drainage system is designed with the intent to adequately control runoff from the new development without overloading the existing public storm drainage system.

6.2 PROPOSED STORMWATER QUALITY CONTROL FACILITY DESIGN

Stormwater quality treatment for newly-created impervious surfaces will be provided by the existing off-site Regional Facility (vegetated swale). Per Section 6.2 of the *Regional Facility Report*, the vegetated swale was designed to treat stormwater runoff from future impervious surfaces developed within Tax Lot 100, which was formerly part of Tax Lot 300 prior to this development. Per the *Regional Facility Report*, Tax Lot 100 was divided into two subcatchments, 3S and 4S. During the Sentinel Storage Annex Phase II project (City of Sherwood Case File No. SP 16-06), the subcatchment boundary line between 3S and 4S was adjusted as a result of the site development. The adjustment caused the drainage area of 3S to increase and the drainage area of 4S to decrease. The net drainage area between the two subcatchments remained unchanged. A detailed description of the subcatchment boundary line adjustment is described in the *Sentinel Phase II Report*. The subject site is located within the limits of Subcatchment 3S, which remains within the boundary of Tax Lot 100. Therefore, no water quality calculations are required to be included as part of this analysis. See the Post-Development Catchment Basins Map in Appendix A for reference.

The following table summarizes the impervious area on the subject site (Parcel 2) for validation with the *Sentinel Phase II Report*:

Subcatchment	Sentinel Storage Annex Phase II	Post-development Parkway Village South
	Impervious Area (acres)	Impervious Area (acres)
3S	13.229	-
3.01S thru 3.11S ^a	-	13.145

Note:

^a Subcatchment 3S per the *Sentinel Phase II Report* is divided into smaller Subcatchments, 3.01S through 3.11S, for purposes of on-site conduit sizing and analyzing the effects on the existing public storm drain system resulting from the Parkway Village South development.

The Impervious Area Summary table shows that the total post-developed impervious area on the subject site 0.084 acres less than originally anticipated in the *Sentinel Phase II Report*. Subsequently, the reduction of post-developed impervious area results in leftover treatment volume of the Regional Facility. Per Section 4.05.6 of CWS R&O 17-05, the leftover water quality volume (WQV) in the Regional Facility is:

$$WQV = \frac{0.36 \text{ in} * 0.084 \text{ ac} * \left(\frac{43,560 \text{ sf}}{1 \text{ ac}}\right)}{12 \left(\frac{\text{in}}{\text{ft}}\right)} = 110 \text{ cu ft}$$

The treatment volume calculated above can be allocated to a future development project within the limits of the “Area to be Treated by Proposed Regional Stormwater Facility” shown on the Post-Developed Catchment Basins Map referenced in the *Regional Facility Report*.

6.3 PROPOSED STORMWATER QUANTITY CONTROL FACILITY DESIGN

According to the *Regional Facility Report*, the existing off-site stormwater facility was designed to provide detention for future development of the subject site in accordance with CWS R&O 07-20, Section 4.03.4(b). The former detention requirements remain valid under CWS R&O 17-05.

Prior to the Parkway Village South development, stormwater quantity management for the subject site (Parcel 2) was addressed in the *Sentinel Phase II Report* under assumed post-development conditions. The following table summarizes the peak flow rates on the subject site under post-developed conditions for validation with the *Sentinel Phase II Report*:

Table 6-2: Parcel 2 Post-Developed Peak Flow Summary						
NODE	Sentinel Storage Annex Phase II			Parkway Village South		
	2-Year Peak Flow (cfs)	10-Year Peak Flow (cfs)	25-Year Peak Flow (cfs)	2-Year Peak Flow (cfs)	10-Year Peak Flow (cfs)	25-Year Peak Flow (cfs)
Subcatchment 3S	8.04	11.42	13.02	-	-	-
Pond B3.1 ^a	-	-	-	7.86	11.14	12.70

Note:

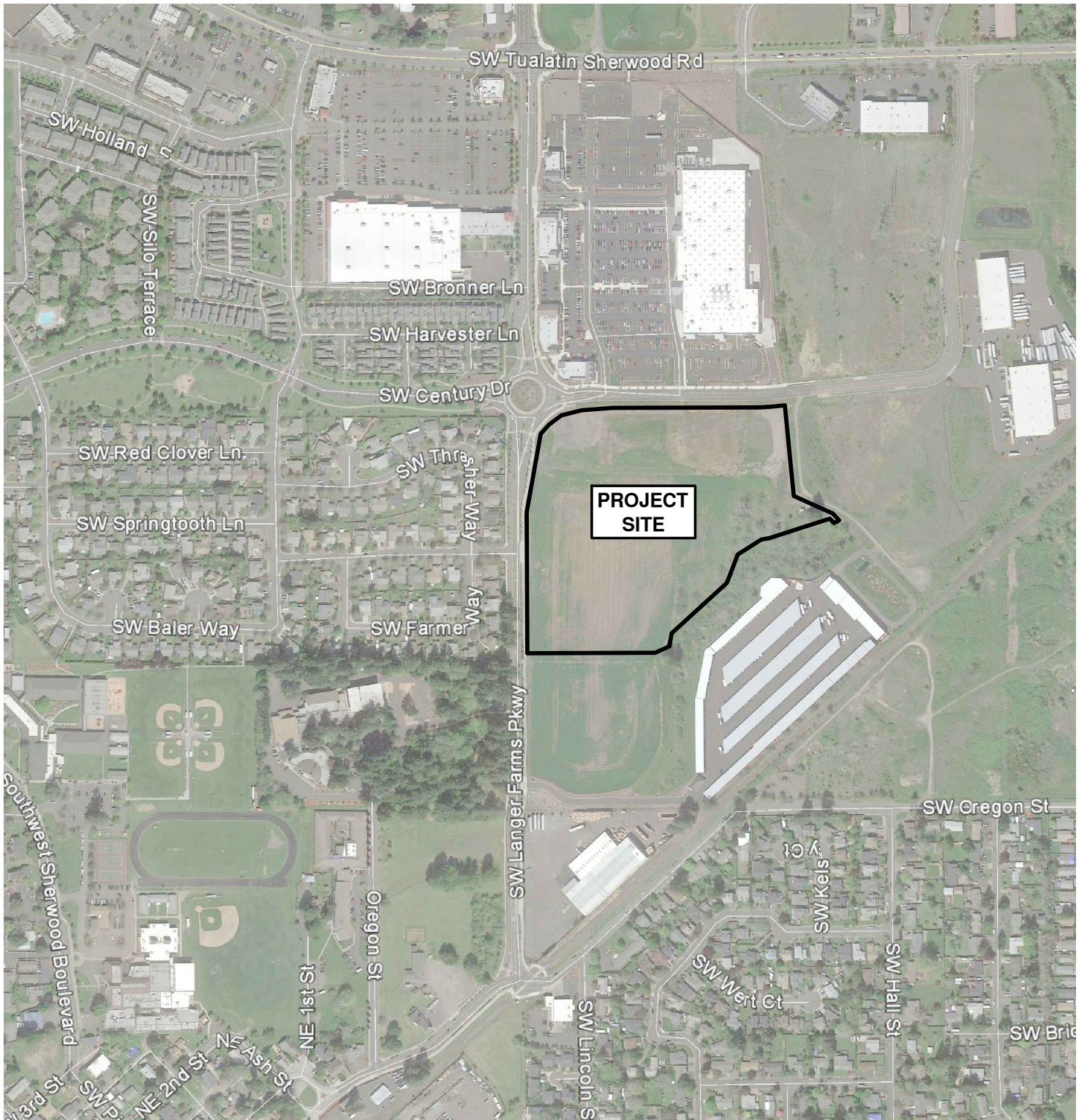
^a Includes future development area within Subcatchment 3.11S (not part of this development). Assumes 10% pervious and 90% impervious area under future post-developed conditions.

Based on the peak flow comparison in the table above, the total peak flow rates on Parcel 2 do not exceed the design flows anticipated in the *Sentinel Phase II Report*. Therefore, public storm drain conduits and the Regional Facility will convey post-developed peak flows for the subject site as originally intended the initial design and on-site detention is not required.

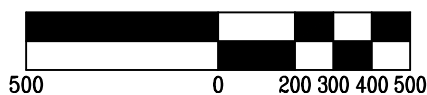
6.4 DOWNSTREAM ANALYSIS

A review of the public storm drain system downstream of Parcel 2 was performed in the *Sentinel Phase II Report*. It was concluded in the *Sentinel Phase II Report* that the drainage model indicated that the existing public storm drain serving Parcel 2 would convey 25-year peak flows while maintaining the minimum freeboard requirement under post-developed conditions. The post-developed peak flows for the subject site do not exceed the peak flows anticipated in the *Sentinel Phase II Report*, as shown in Table 6-2. Therefore, the prior conclusion of the storm drain system downstream of Parcel 2 remains valid.

Exhibit A: Vicinity Map



SCALE 1" = 500 FEET



DATE: 06/28/2017

VICINITY MAP

AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 P: 503.563.6151 F: 503.563.6152 aks-eng.com



EXHIBIT
A

DRWN: JDS
 CHKD: JPC
 AKS JOB:
 5656

Exhibit B: Overall Post-Developed Stormwater Catchment Map

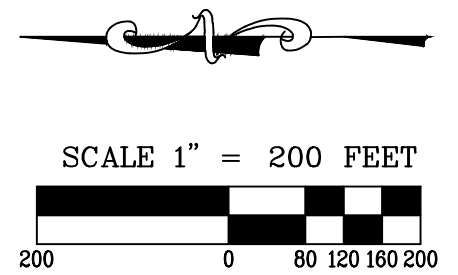
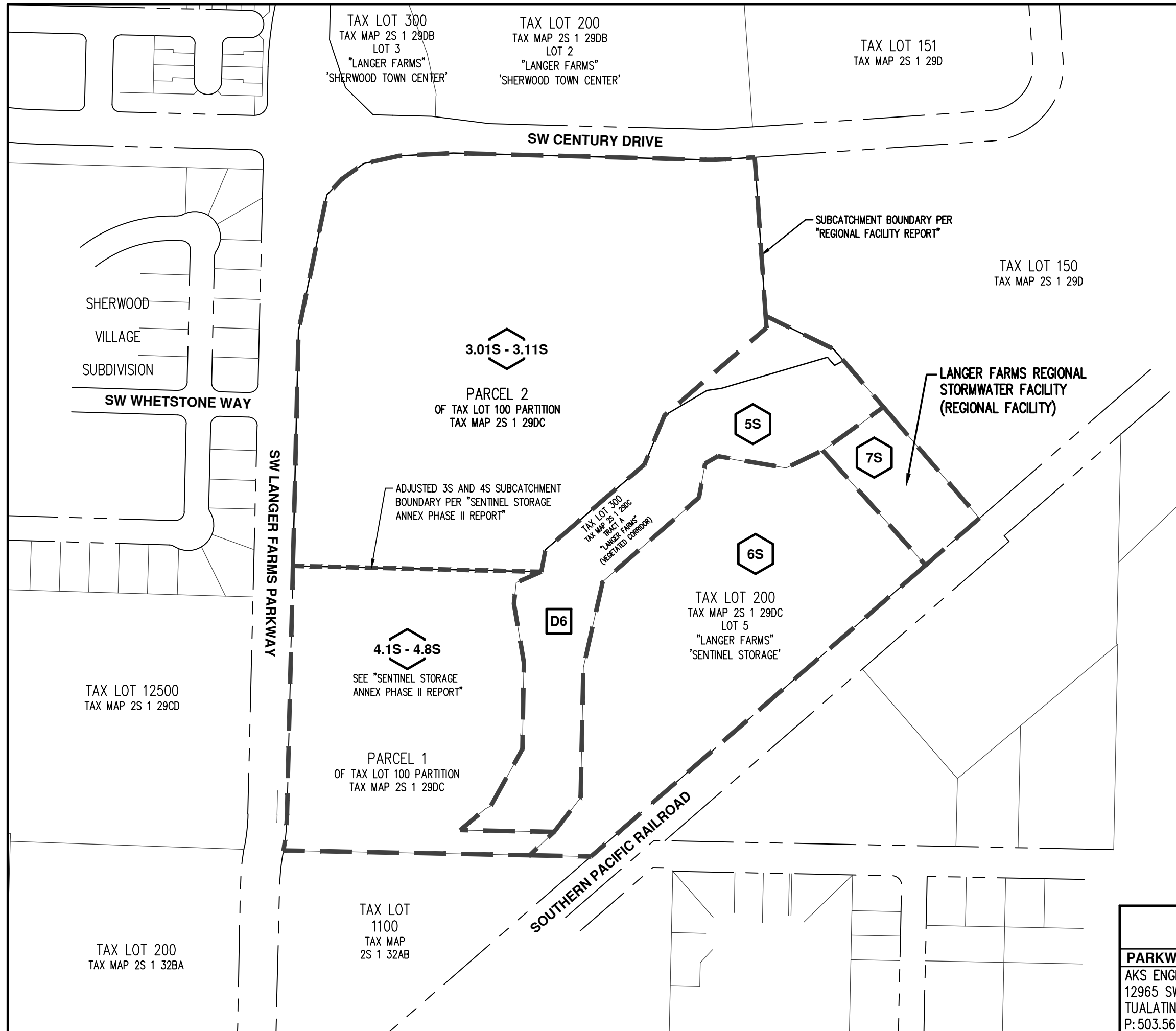
TAX LOT 300
TAX MAP 2S 1 29DB
LOT 3
"LANGER FARMS"
'SHERWOOD TOWN CENTER'

TAX LOT 200
TAX MAP 2S 1 29DB
LOT 2
"LANGER FARMS"
'SHERWOOD TOWN CENTER'

TAX LOT 151
TAX MAP 2S 1 29D

NOTES:

- CATCHMENT AREAS SHOWN ON THIS MAP ARE:
 - SHOWN TO ILLUSTRATE THE CHANGE IN OVERALL CATCHMENT DELINEATION AS A RESULT OF THE PARKWAY VILLAGE SOUTH DEVELOPMENT. REVISED CATCHMENT BOUNDARIES REMAIN WITHIN THE LIMITS OF THE STUDY AREA SHOWN ON THE "REGIONAL FACILITY" POST-DEVELOPED CATCHMENT BASINS MAP.
 - NOT INTENDED FOR A DOWNSTREAM ANALYSIS. A REVIEW OF THE STORM DRAIN SYSTEM DOWNSTREAM OF THE SUBJECT SITE WAS PERFORMED IN THE "SENTINEL STORAGE ANNEX PHASE II FINAL STORMWATER REPORT."
 - NOT INTENDED FOR WATER QUALITY CALCULATIONS. STORMWATER QUANTITY AND QUALITY CRITERIA FOR THIS SITE WERE FORMERLY ADDRESSED IN THE "REGIONAL FACILITY REPORT."

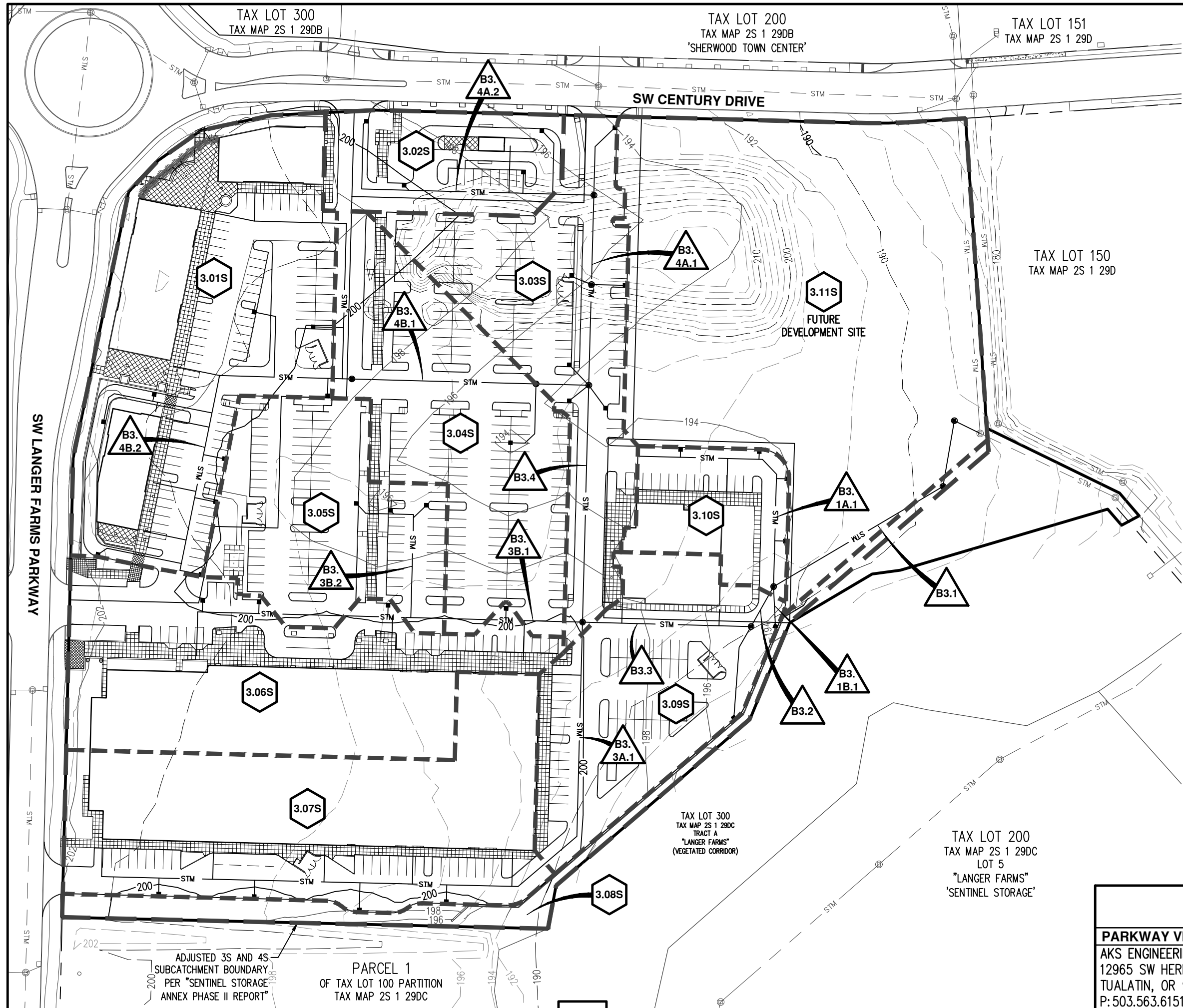


DATE: 06/28/2017

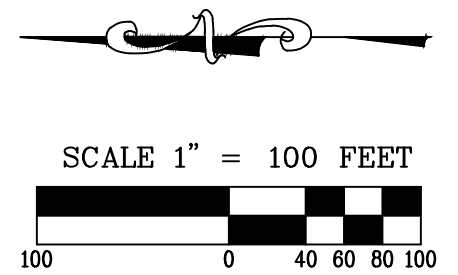
OVERALL POST-DEVELOPED STORMWATER CATCHMENT MAP		EXHIBIT
PARKWAY VILLAGE SOUTH		B
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 P: 503.563.6151 F: 503.563.6152 aks-eng.com		DRWN: JDS CHKD: JPC AKS JOB: 5656



Exhibit C: Post-Developed Site Stormwater Catchment Map



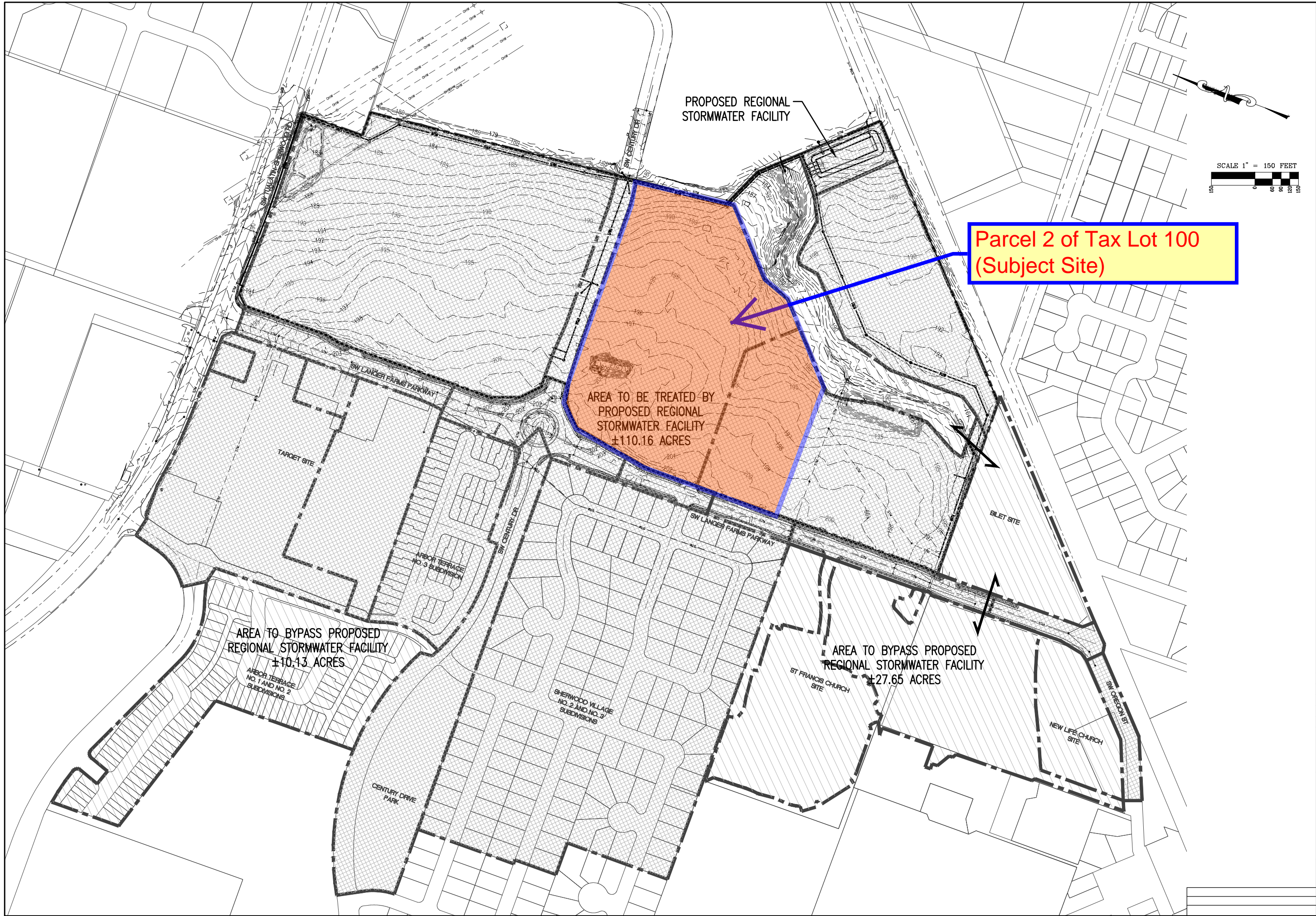
- NOTES:**
- CATCHMENT AREAS SHOWN ON THIS MAP ARE:
 - SUBCATCHMENTS OF CATCHMENT AREA 3S OF THE POST-DEVELOPED PARTITION STORMWATER CATCHMENT MAP IN THE "SENTINEL STORAGE ANNEX PHASE II FINAL STORMWATER REPORT."
 - SHOWN TO ILLUSTRATE THE SUBCATCHMENT DELINEATION AS A RESULT OF THE PARKWAY VILLAGE SOUTH DEVELOPMENT.
 - USED FOR PURPOSES OF CONVEYANCE SIZING FOR THE PARKWAY VILLAGE SOUTH DEVELOPMENT ONLY. A REVIEW OF THE STORM DRAIN SYSTEM DOWNSTREAM OF THE SUBJECT SITE WAS PERFORMED IN THE "SENTINEL STORAGE ANNEX PHASE II FINAL STORMWATER REPORT."
 - NOT INTENDED FOR WATER QUALITY CALCULATIONS. STORMWATER QUALITY CRITERIA FOR THIS SITE WERE FORMERLY ADDRESSED IN THE "LANGER FARMS REGIONAL STORMWATER FACILITY FINAL STORMWATER REPORT."



DATE: 06/28/2017

POST-DEVELOPED SITE STORMWATER CATCHMENT MAP		EXHIBIT
PARKWAY VILLAGE SOUTH		C
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 P: 503.563.6151 F: 503.563.6152 aks-eng.com		DRWN: JDS CHKD: JPC AKS JOB: 5656

**Appendix A: Post-Developed Catchment Basins
Map from *Regional Facility Report*, prepared by
AKS Engineering (with annotations)**



**Parcel 2 of Tax Lot 100
(Subject Site)**

**POST-DEVELOPMENT
CATCHMENT
BASINS MAP**

**LANGER FARM
REGIONAL STORMWATER FACILITY
SHERWOOD OREGON**
WASHINGTON COUNTY TAX MAP 25.1 29D
TAX LOT 300

AKS
ENGINEERING & FORESTRY

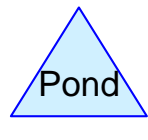
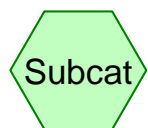
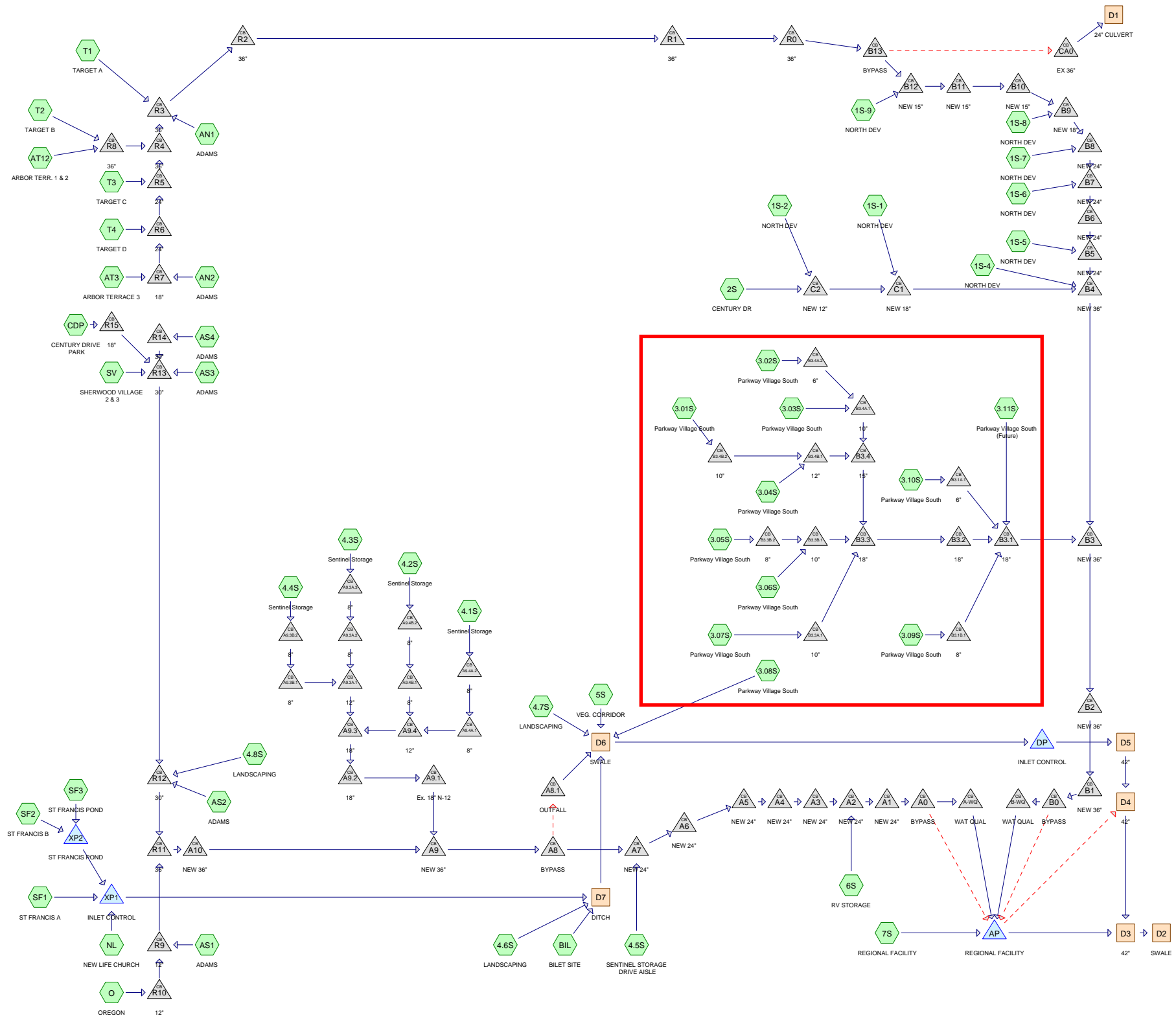
ENGINEERING • PLANNING
SURVEYING • FORESTRY

13910 SW GALBREATH DR.,
SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8869

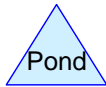
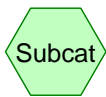
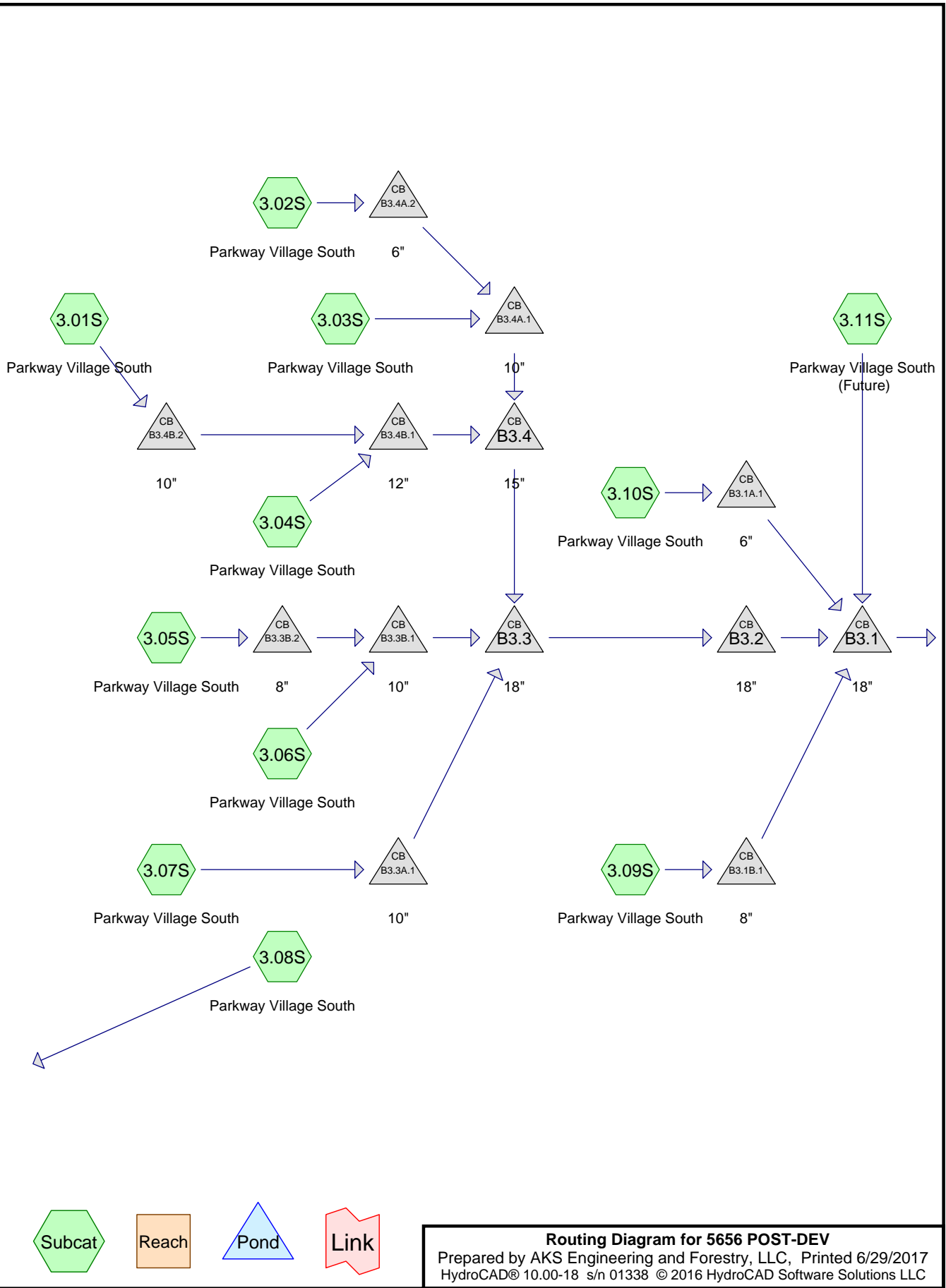
DESIGNED BY: AHH
DRAWN BY: QMP
CHECKED BY: AHH
DRAWING NO.: 2929STM
SCALE: AS NOTED
PREPARED FOR:
TILAND/SCHMIDT ARCHITECTS
3611 SW HOOD AVE, SUITE 200
PORTLAND, OR 97239

DATE:

Appendix B: Post-Developed Peak Flow Calculations – HydroCAD Analysis



Routing Diagram for 5656 POST-DEV
 Prepared by AKS Engineering and Forestry, LLC, Printed 6/29/2017
 HydroCAD® 10.00-18 s/n 01338 © 2016 HydroCAD Software Solutions LLC



Routing Diagram for 5656 POST-DEV
 Prepared by AKS Engineering and Forestry, LLC, Printed 6/29/2017
 HydroCAD® 10.00-18 s/n 01338 © 2016 HydroCAD Software Solutions LLC

Post-Developed 2-yr Storm Event Peak Flow Calculations

Summary for Subcatchment 3.01S: Parkway Village South

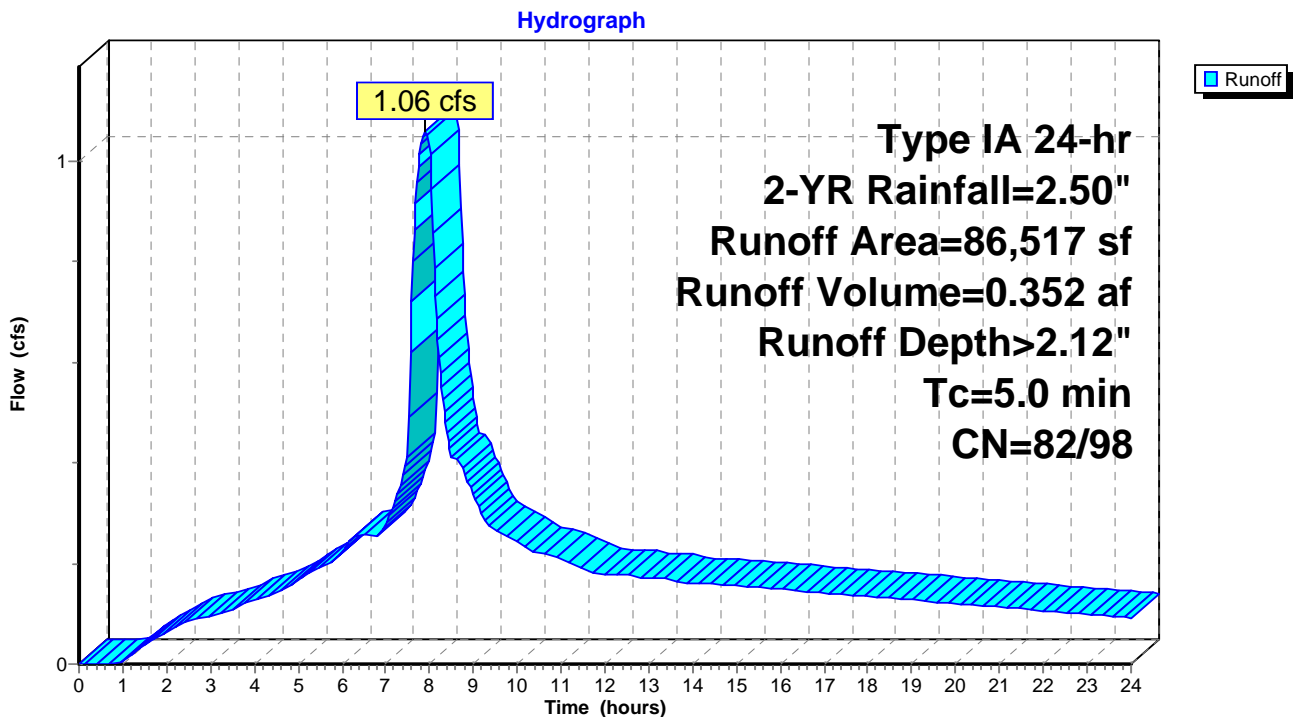
Runoff = 1.06 cfs @ 7.90 hrs, Volume= 0.352 af, Depth> 2.12"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
* 76,812	98	Impervious
* 5,680	79	Landscaping, HSG B
* 4,025	86	Landscaping, HSC C
86,517	96	Weighted Average
9,705		11.22% Pervious Area
76,812		88.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.01S: Parkway Village South



Summary for Subcatchment 3.02S: Parkway Village South

Runoff = 0.27 cfs @ 7.91 hrs, Volume= 0.092 af, Depth> 1.93"

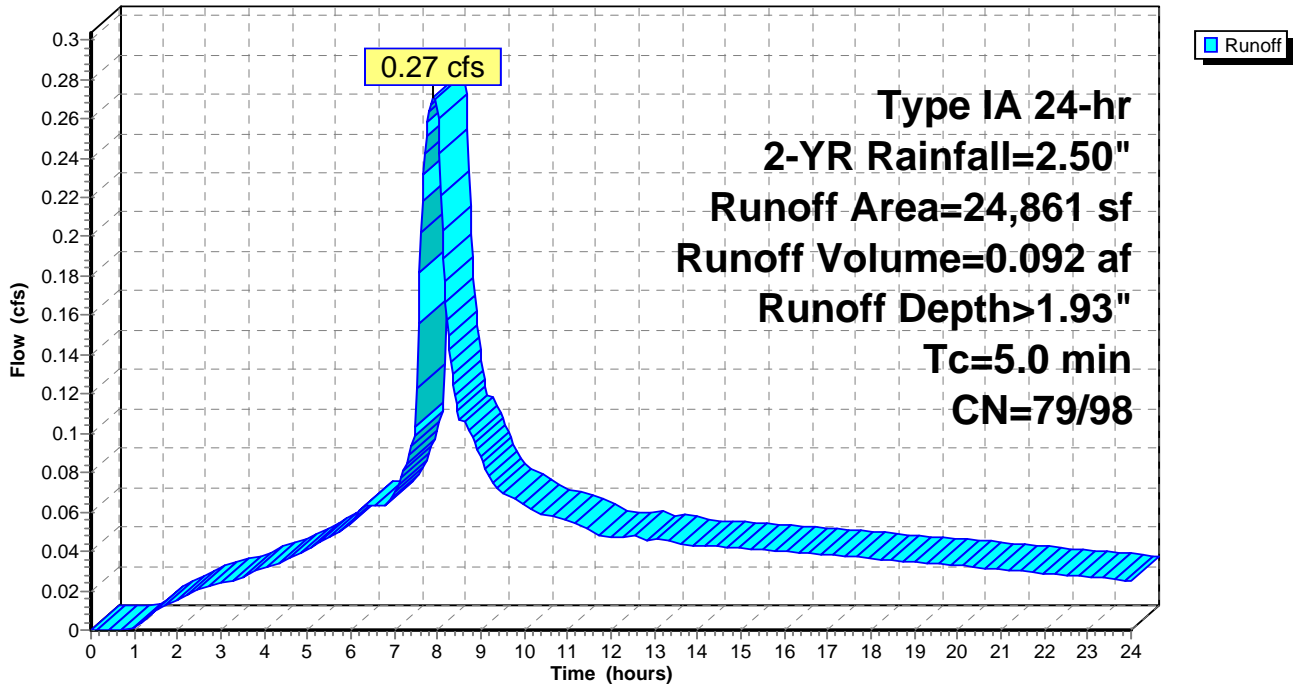
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	18,953	98	Impervious
*	5,870	79	Landscaping, HSG B
*	38	86	Landscaping, HSC C
	24,861	93	Weighted Average
	5,908		23.76% Pervious Area
	18,953		76.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.02S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.03S: Parkway Village South

Runoff = 0.67 cfs @ 7.89 hrs, Volume= 0.220 af, Depth> 2.18"

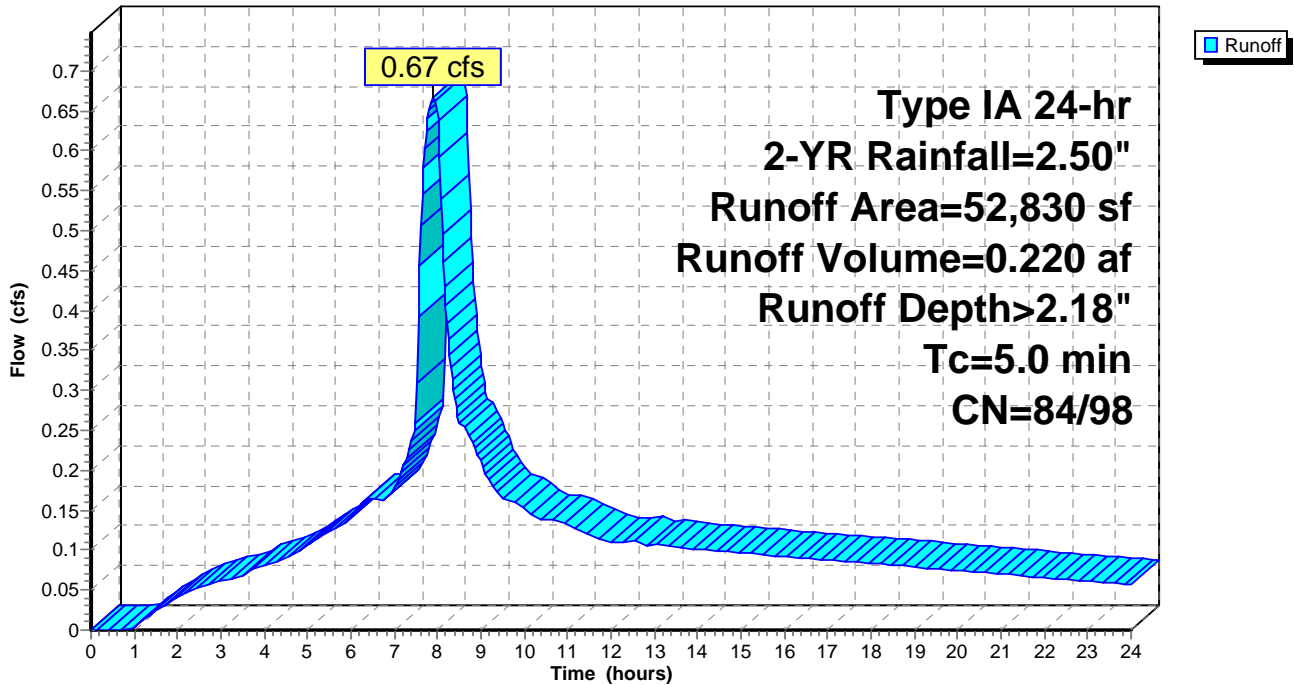
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	48,760	98	Impervious
*	1,026	79	Landscaping, HSG B
*	3,044	86	Landscaping, HSC C
	52,830	97	Weighted Average
	4,070		7.70% Pervious Area
	48,760		92.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.03S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.04S: Parkway Village South

Runoff = 0.76 cfs @ 7.89 hrs, Volume= 0.250 af, Depth> 2.18"

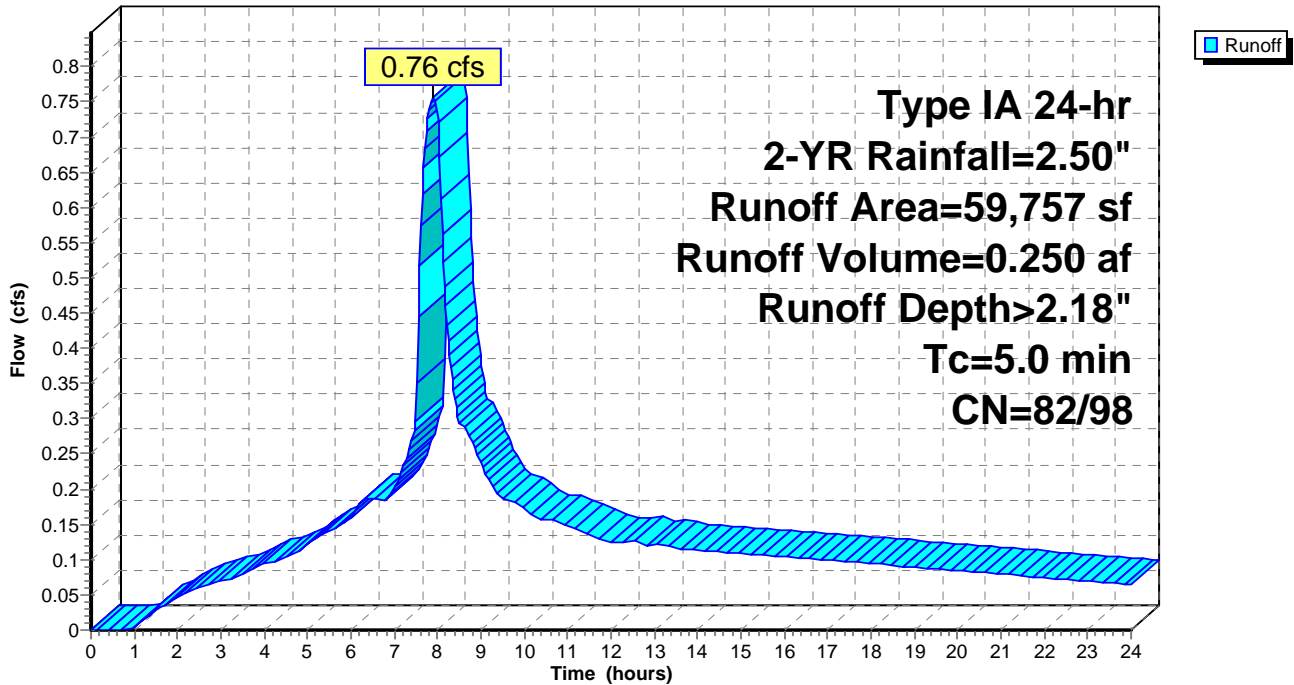
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	55,867	98	Impervious
*	2,196	79	Landscaping, HSG B
*	1,694	86	Landscaping, HSC C
	59,757	97	Weighted Average
	3,890		6.51% Pervious Area
	55,867		93.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.04S: Parkway Village South

Hydrograph



5656 POST-DEV

Prepared by AKS Engineering and Forestry, LLC

HydroCAD® 10.00-18 s/n 01338 © 2016 HydroCAD Software Solutions LLC

Type IA 24-hr 2-YR Rainfall=2.50"

Printed 6/29/2017

Page 6

Summary for Subcatchment 3.05S: Parkway Village South

Runoff = 0.52 cfs @ 7.90 hrs, Volume= 0.173 af, Depth> 2.06"

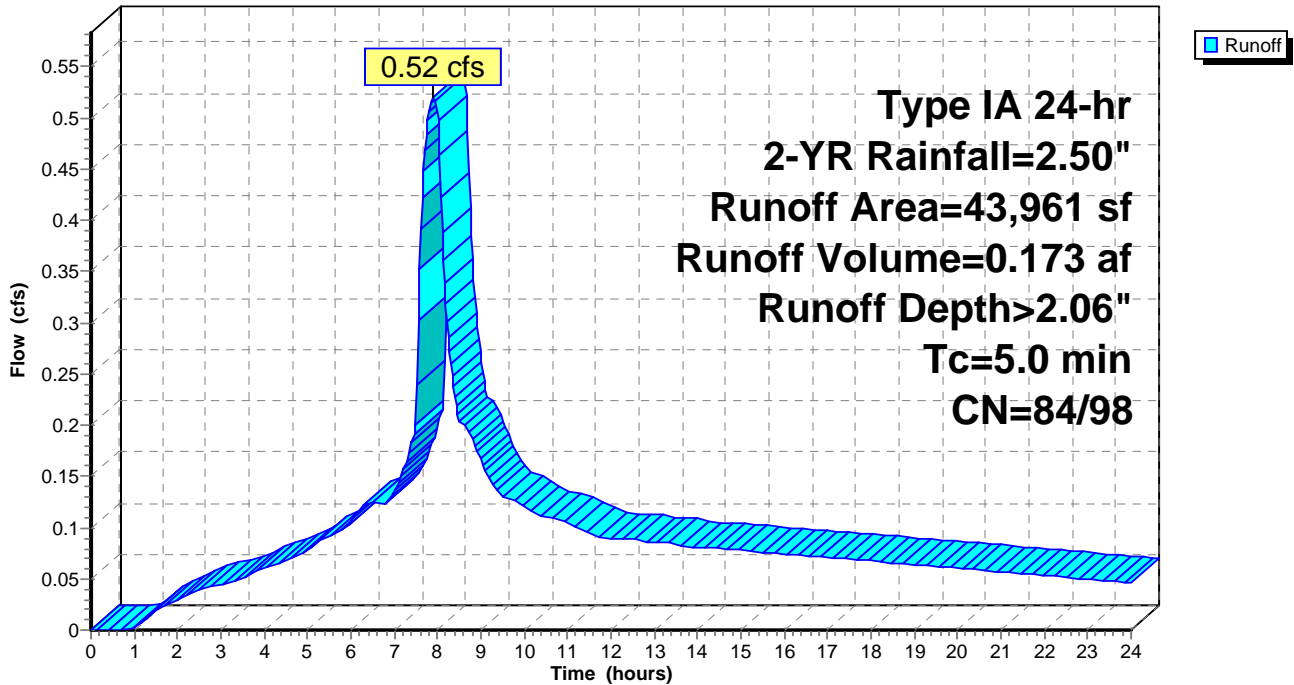
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	36,019	98	Impervious
*	1,718	79	Landscaping, HSG B
*	6,224	86	Landscaping, HSC C
	43,961	96	Weighted Average
	7,942		18.07% Pervious Area
	36,019		81.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.05S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.06S: Parkway Village South

Runoff = 0.89 cfs @ 7.89 hrs, Volume= 0.293 af, Depth> 2.19"

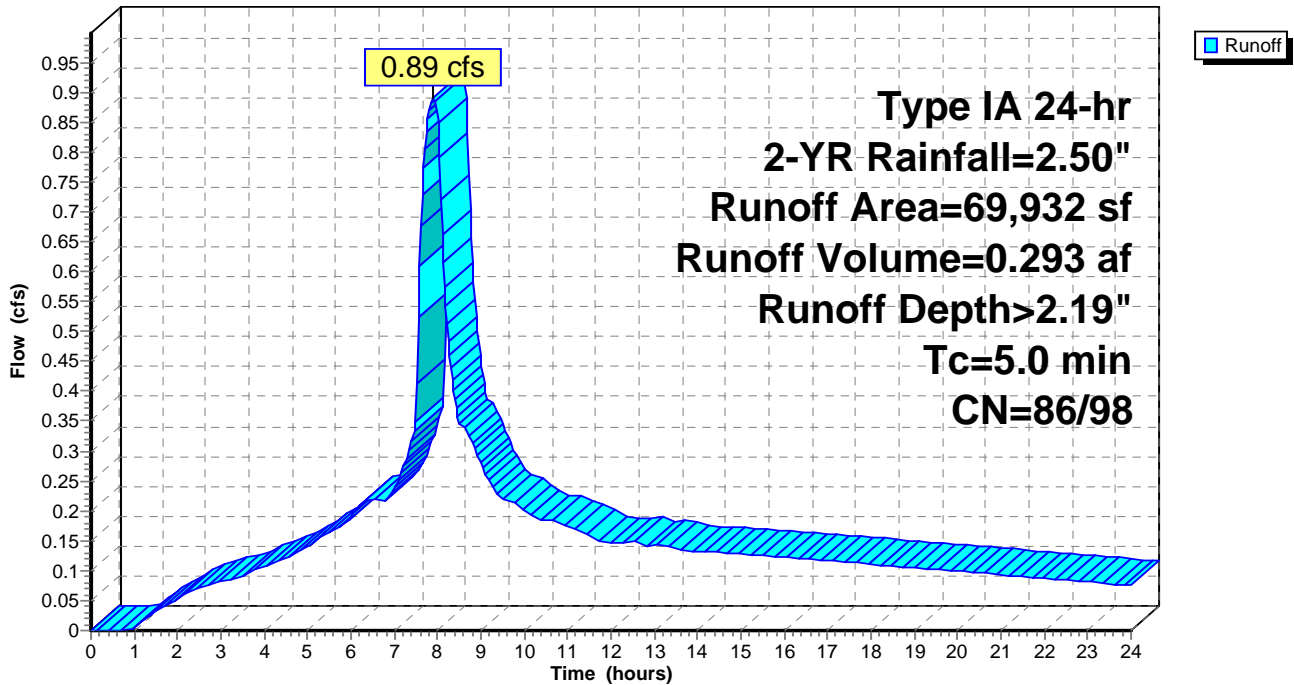
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	64,931	98	Impervious
*	5,001	86	Landscaping, HSC C
	69,932	97	Weighted Average
	5,001		7.15% Pervious Area
	64,931		92.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.06S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.07S: Parkway Village South

Runoff = 1.06 cfs @ 7.89 hrs, Volume= 0.349 af, Depth> 2.23"

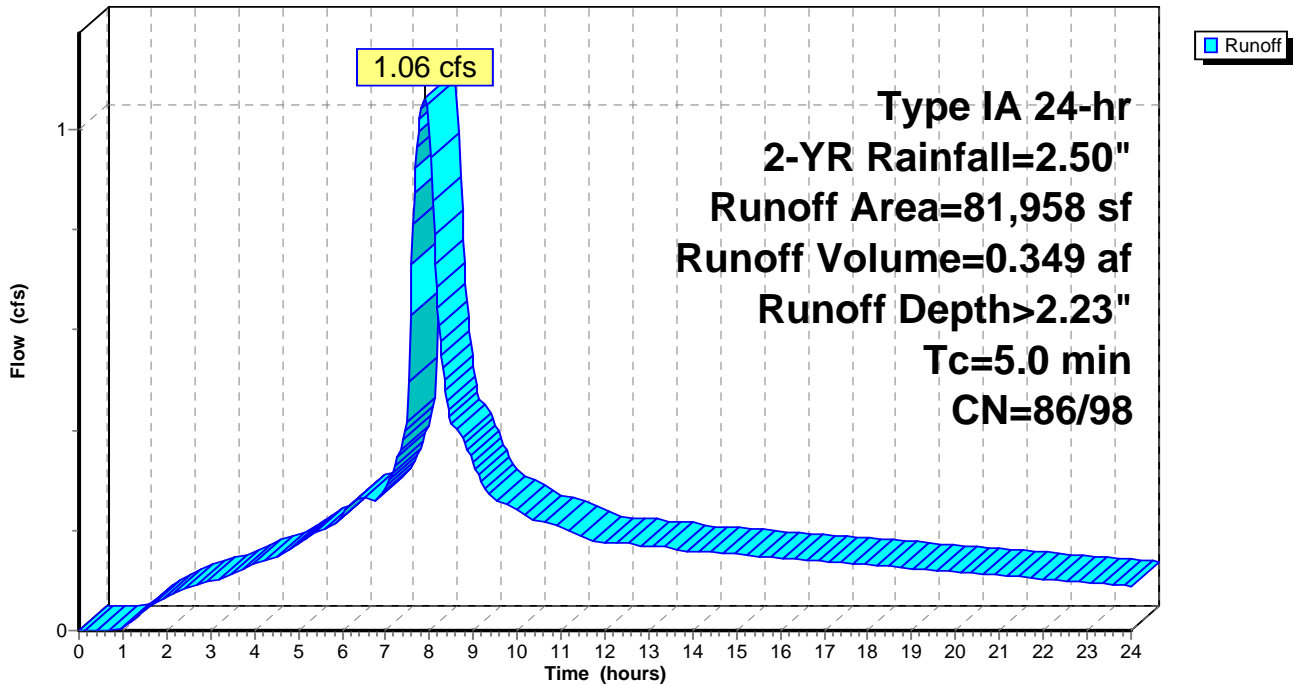
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	78,820	98	Impervious
*	3,138	86	Landscaping, HSC C
	81,958	98	Weighted Average
	3,138		3.83% Pervious Area
	78,820		96.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.07S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.08S: Parkway Village South

Runoff = 0.10 cfs @ 8.01 hrs, Volume= 0.038 af, Depth> 1.29"

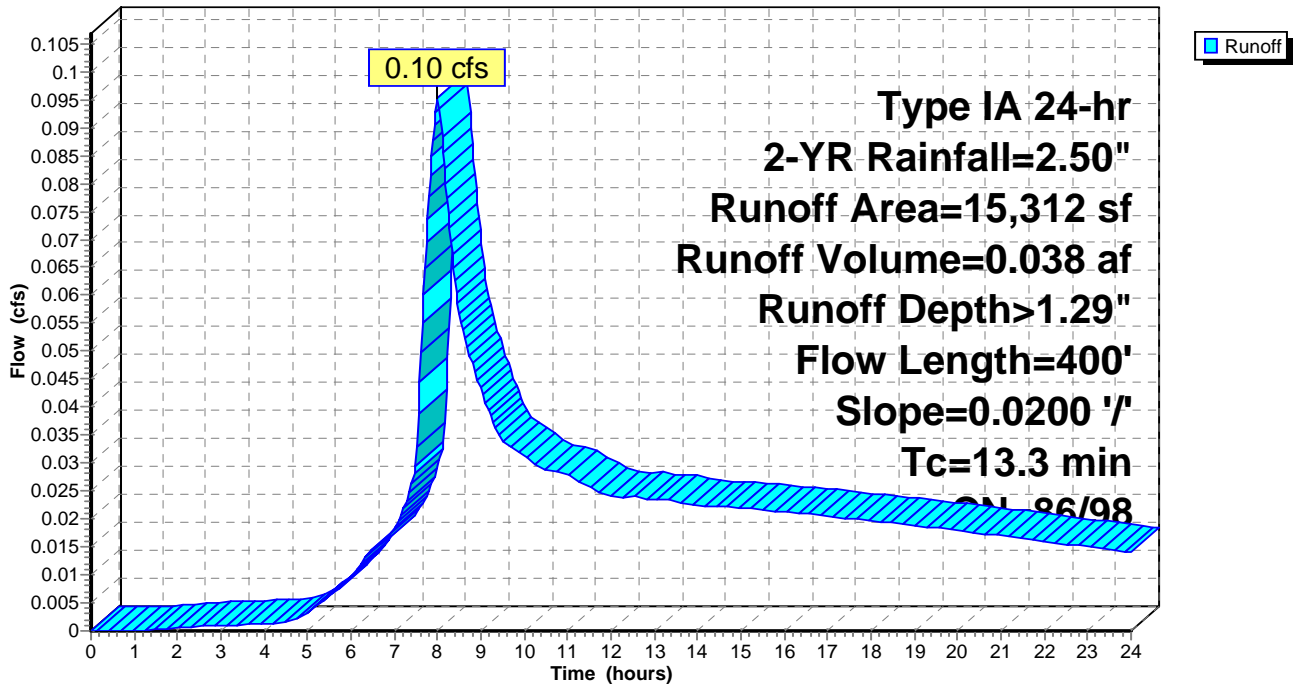
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
* 779	98	Impervious
* 14,533	86	Landscaping, HSC C
15,312	87	Weighted Average
14,533		94.91% Pervious Area
779		5.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
2.2	300	0.0200	2.28		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.3	400	Total			

Subcatchment 3.08S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.09S: Parkway Village South

Runoff = 0.62 cfs @ 7.89 hrs, Volume= 0.205 af, Depth> 2.22"

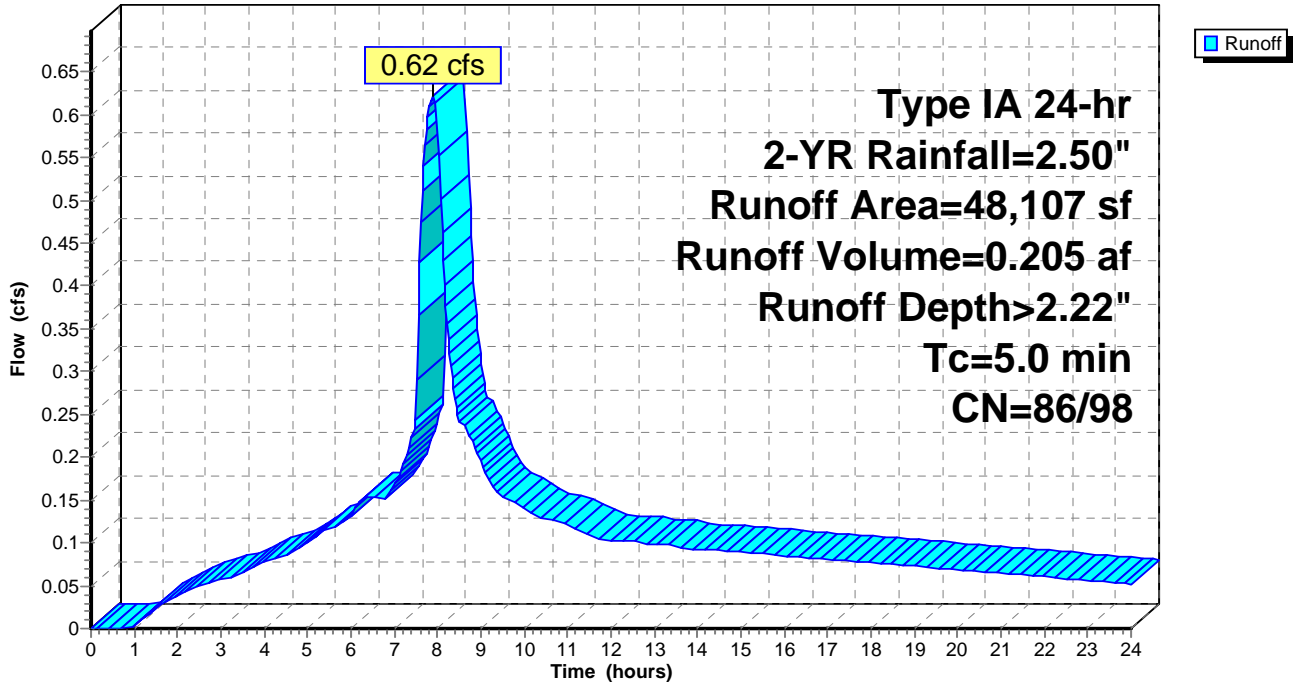
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	46,061	98	Impervious
*	2,046	86	Landscaping, HSC C
	48,107	97	Weighted Average
	2,046		4.25% Pervious Area
	46,061		95.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.09S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.10S: Parkway Village South

Runoff = 0.24 cfs @ 7.90 hrs, Volume= 0.080 af, Depth> 2.14"

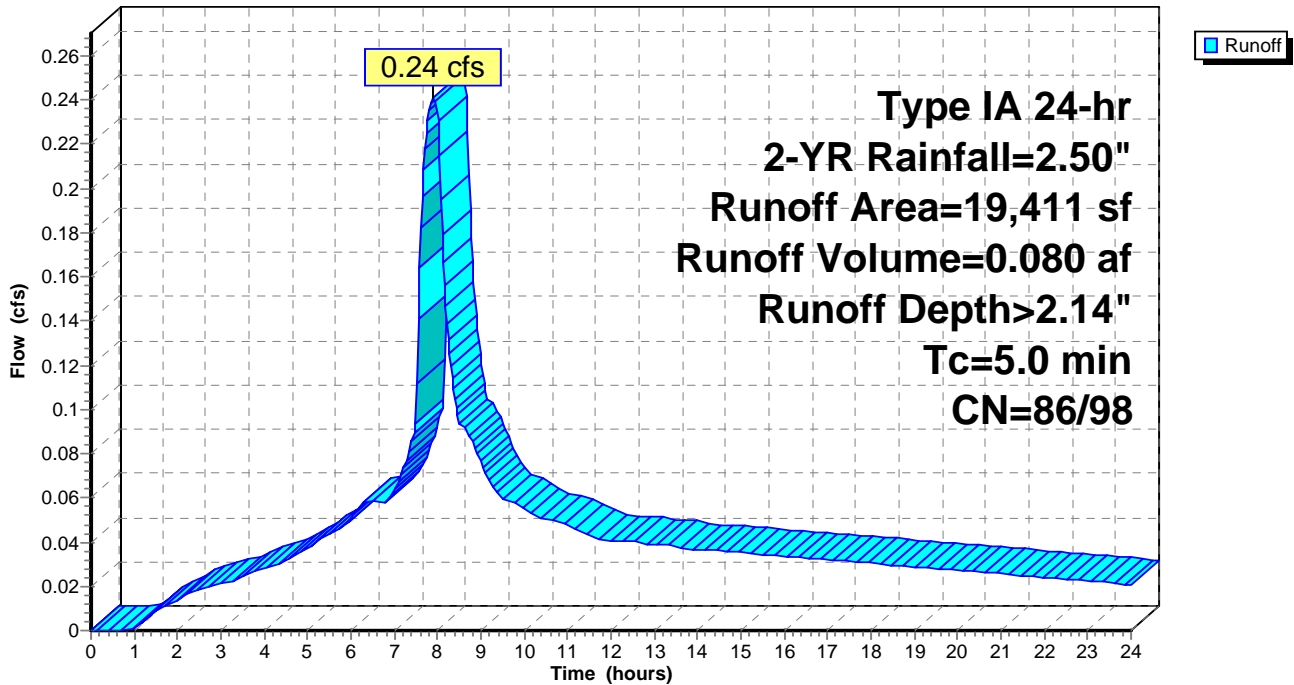
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	17,090	98	Impervious
*	2,321	86	Landscaping, HSC C
	19,411	97	Weighted Average
	2,321		11.96% Pervious Area
	17,090		88.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.10S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.11S: Parkway Village South (Future)

Runoff = 1.76 cfs @ 7.89 hrs, Volume= 0.579 af, Depth> 2.20"

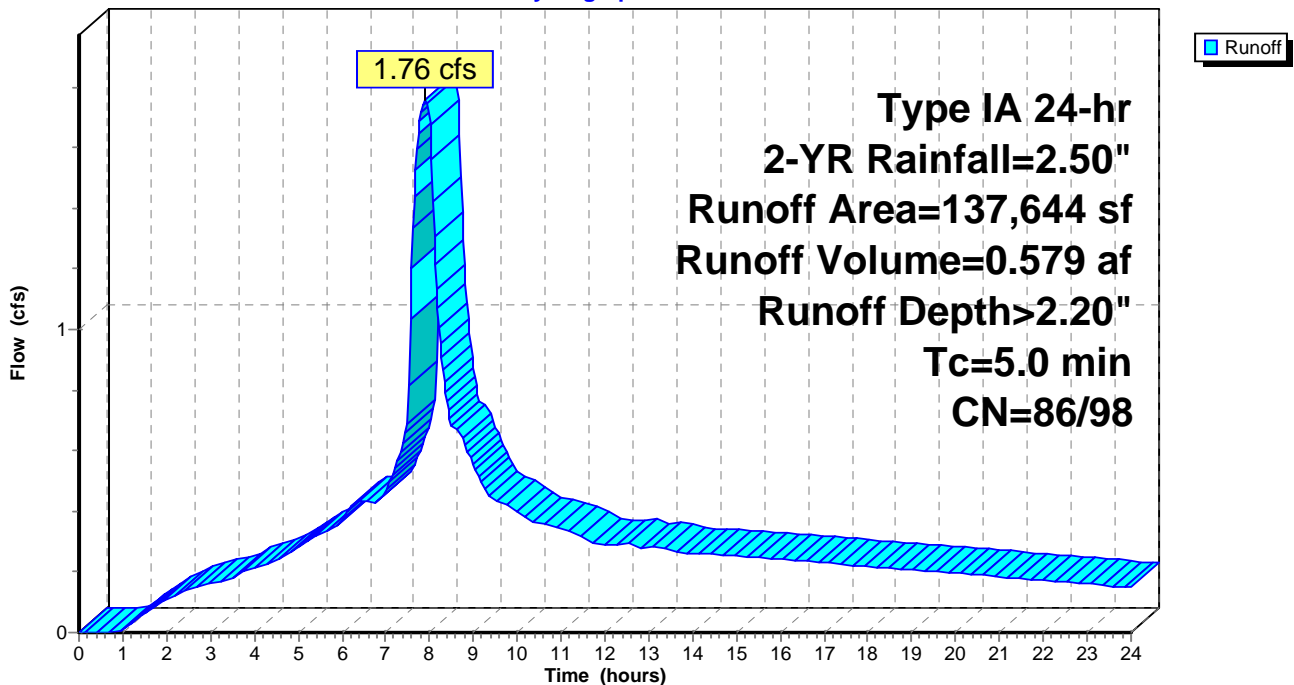
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
* 128,498	98	Impervious
* 9,146	86	Landscaping, HSC C
137,644	97	Weighted Average
9,146		6.64% Pervious Area
128,498		93.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.11S: Parkway Village South (Future)

Hydrograph



Summary for Pond B3.1: 18"

Inflow Area = 14.348 ac, 91.49% Impervious, Inflow Depth > 2.17" for 2-YR event
 Inflow = 7.86 cfs @ 7.89 hrs, Volume= 2.592 af
 Outflow = 7.86 cfs @ 7.89 hrs, Volume= 2.592 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.86 cfs @ 7.89 hrs, Volume= 2.592 af

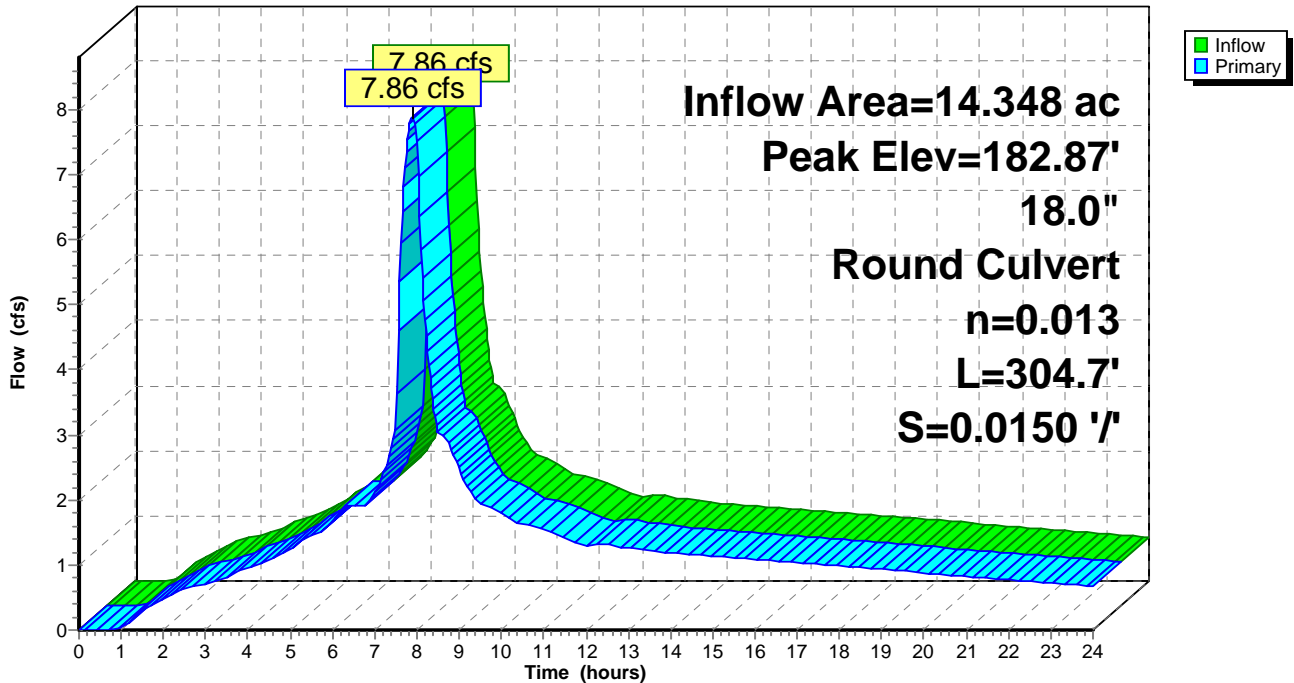
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 182.87' @ 7.89 hrs
 Flood Elev= 194.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	181.27'	18.0" Round Culvert L= 304.7' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 181.27' / 176.70' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=7.85 cfs @ 7.89 hrs HW=182.87' TW=175.60' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 7.85 cfs @ 4.44 fps)

Pond B3.1: 18"

Hydrograph



Summary for Pond B3.1A.1: 6"

Inflow Area = 0.446 ac, 88.04% Impervious, Inflow Depth > 2.14" for 2-YR event
 Inflow = 0.24 cfs @ 7.90 hrs, Volume= 0.080 af
 Outflow = 0.24 cfs @ 7.90 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.24 cfs @ 7.90 hrs, Volume= 0.080 af

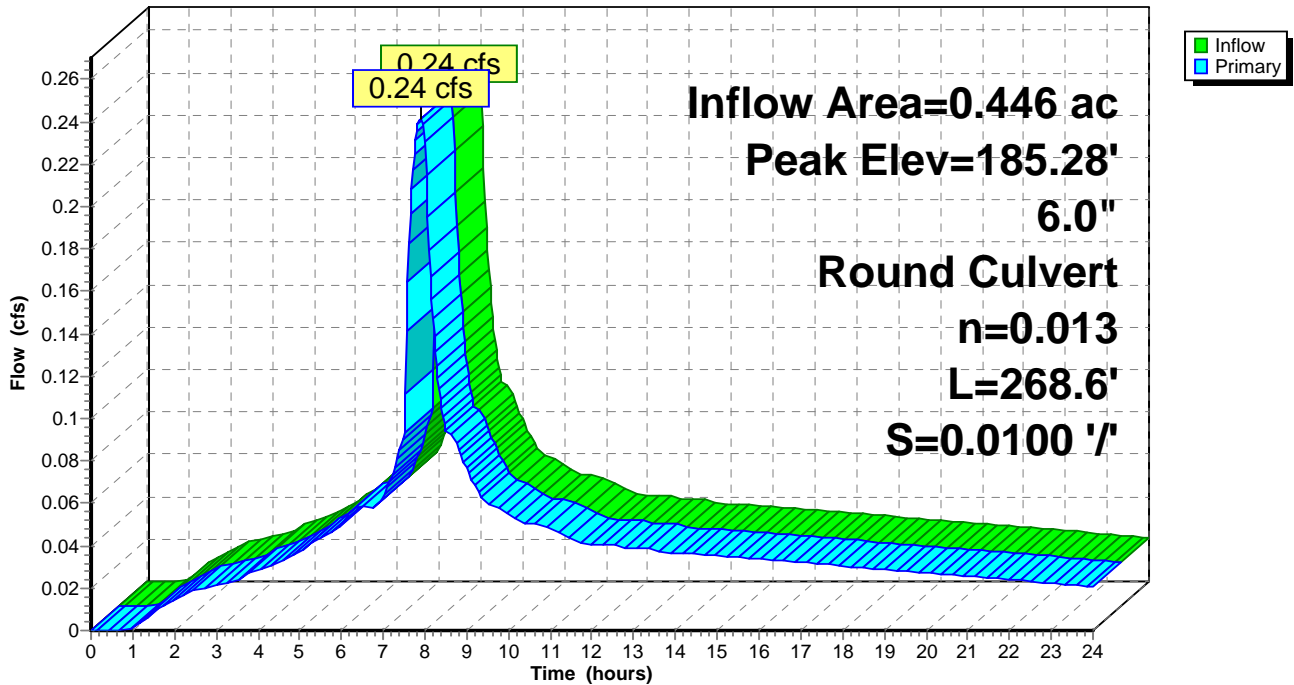
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 185.28' @ 7.90 hrs
 Flood Elev= 194.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	184.96'	6.0" Round Culvert L= 268.6' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 184.96' / 182.27' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.24 cfs @ 7.90 hrs HW=185.28' TW=182.87' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 0.24 cfs @ 2.57 fps)

Pond B3.1A.1: 6"

Hydrograph



Summary for Pond B3.1B.1: 8"

Inflow Area = 1.104 ac, 95.75% Impervious, Inflow Depth > 2.22" for 2-YR event
 Inflow = 0.62 cfs @ 7.89 hrs, Volume= 0.205 af
 Outflow = 0.62 cfs @ 7.89 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.62 cfs @ 7.89 hrs, Volume= 0.205 af

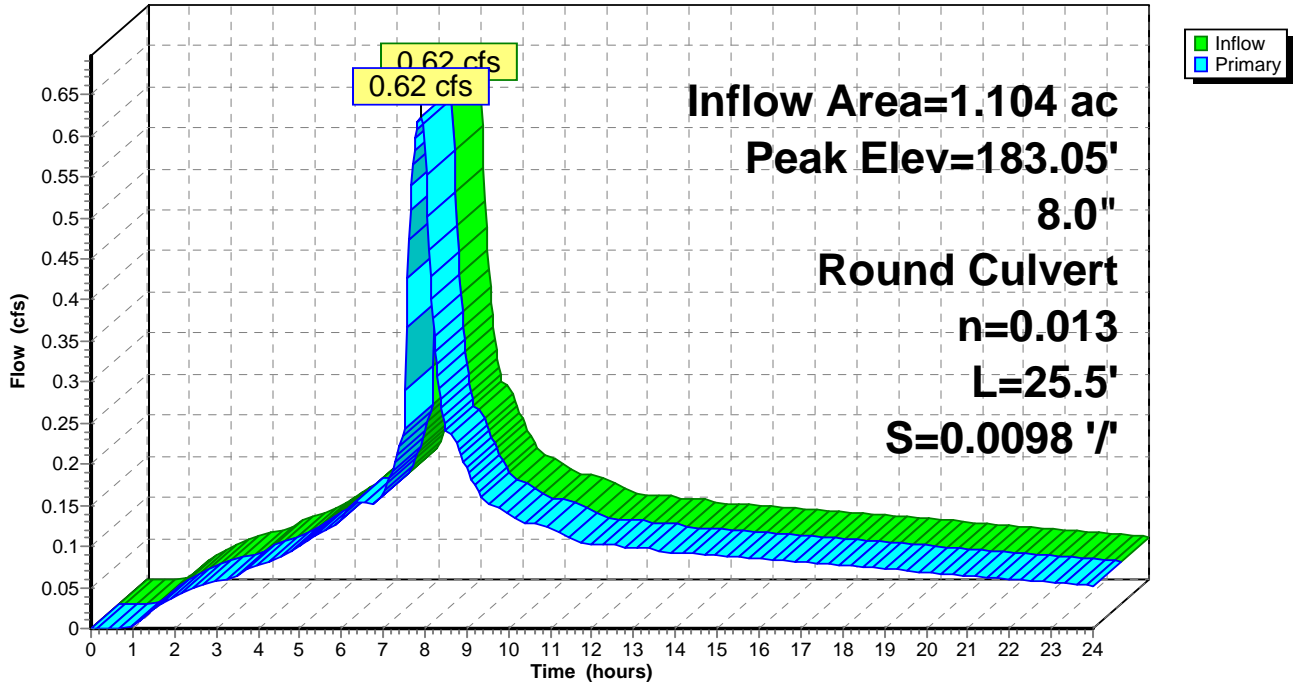
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 183.05' @ 7.89 hrs
 Flood Elev= 193.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	182.35'	8.0" Round Culvert L= 25.5' Ke= 0.500 Inlet / Outlet Invert= 182.35' / 182.10' S= 0.0098 1/ S= 0.0098 1/ Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.62 cfs @ 7.89 hrs HW=183.05' TW=182.87' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 0.62 cfs @ 2.11 fps)

Pond B3.1B.1: 8"

Hydrograph



Summary for Pond B3.2: 18"

Inflow Area = 9.638 ac, 90.55% Impervious, Inflow Depth > 2.15" for 2-YR event
 Inflow = 5.23 cfs @ 7.90 hrs, Volume= 1.729 af
 Outflow = 5.23 cfs @ 7.90 hrs, Volume= 1.729 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.23 cfs @ 7.90 hrs, Volume= 1.729 af

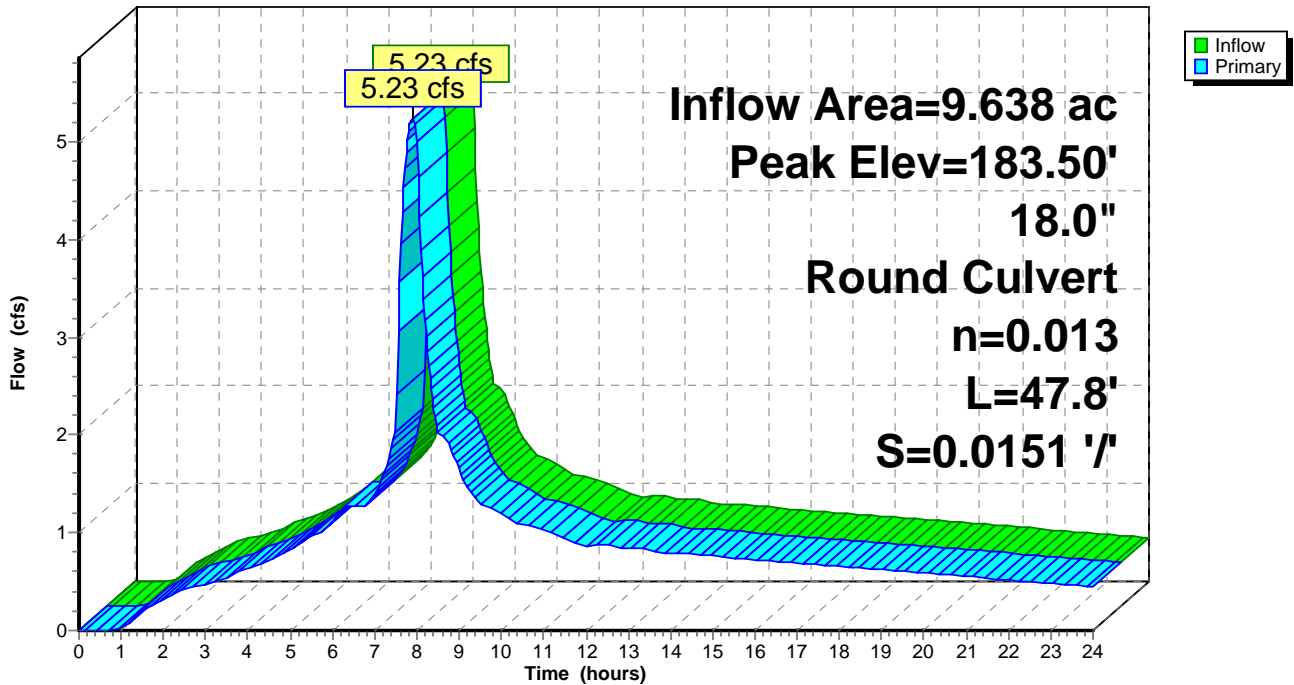
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 183.50' @ 7.90 hrs
 Flood Elev= 194.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	182.19'	18.0" Round Culvert L= 47.8' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 182.19' / 181.47' S= 0.0151 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=5.23 cfs @ 7.90 hrs HW=183.50' TW=182.87' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 5.23 cfs @ 4.27 fps)

Pond B3.2: 18"

Hydrograph



Summary for Pond B3.3: 18"

Inflow Area = 9.638 ac, 90.55% Impervious, Inflow Depth > 2.15" for 2-YR event
 Inflow = 5.23 cfs @ 7.90 hrs, Volume= 1.729 af
 Outflow = 5.23 cfs @ 7.90 hrs, Volume= 1.729 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.23 cfs @ 7.90 hrs, Volume= 1.729 af

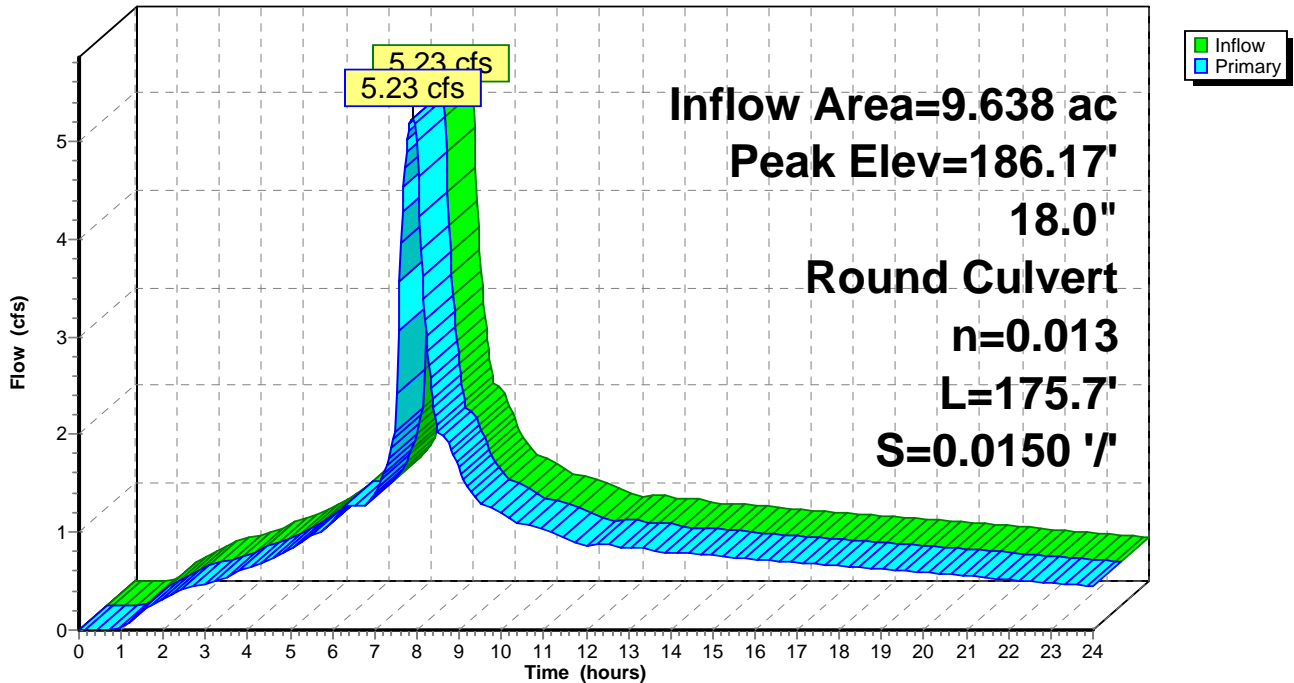
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 186.17' @ 7.90 hrs
 Flood Elev= 199.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	185.03'	18.0" Round Culvert L= 175.7' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 185.03' / 182.39' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=5.23 cfs @ 7.90 hrs HW=186.17' TW=183.50' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 5.23 cfs @ 3.63 fps)

Pond B3.3: 18"

Hydrograph



Summary for Pond B3.3A.1: 10"

Inflow Area = 1.881 ac, 96.17% Impervious, Inflow Depth > 2.23" for 2-YR event
 Inflow = 1.06 cfs @ 7.89 hrs, Volume= 0.349 af
 Outflow = 1.06 cfs @ 7.89 hrs, Volume= 0.349 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.06 cfs @ 7.89 hrs, Volume= 0.349 af

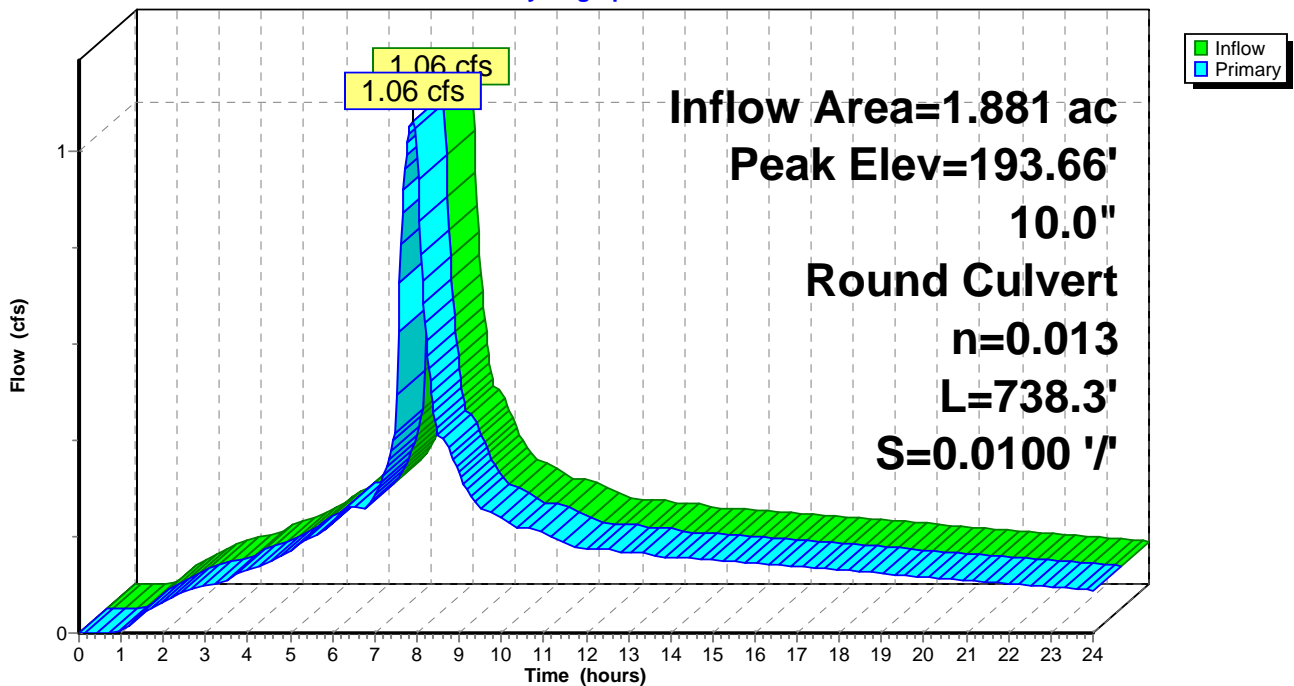
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 193.66' @ 7.89 hrs
 Flood Elev= 199.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	193.08'	10.0" Round Culvert L= 738.3' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 193.08' / 185.70' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.06 cfs @ 7.89 hrs HW=193.66' TW=186.17' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.06 cfs @ 2.60 fps)

Pond B3.3A.1: 10"

Hydrograph



Summary for Pond B3.3B.1: 10"

Inflow Area = 2.615 ac, 88.64% Impervious, Inflow Depth > 2.14" for 2-YR event
 Inflow = 1.41 cfs @ 7.90 hrs, Volume= 0.467 af
 Outflow = 1.41 cfs @ 7.90 hrs, Volume= 0.467 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.41 cfs @ 7.90 hrs, Volume= 0.467 af

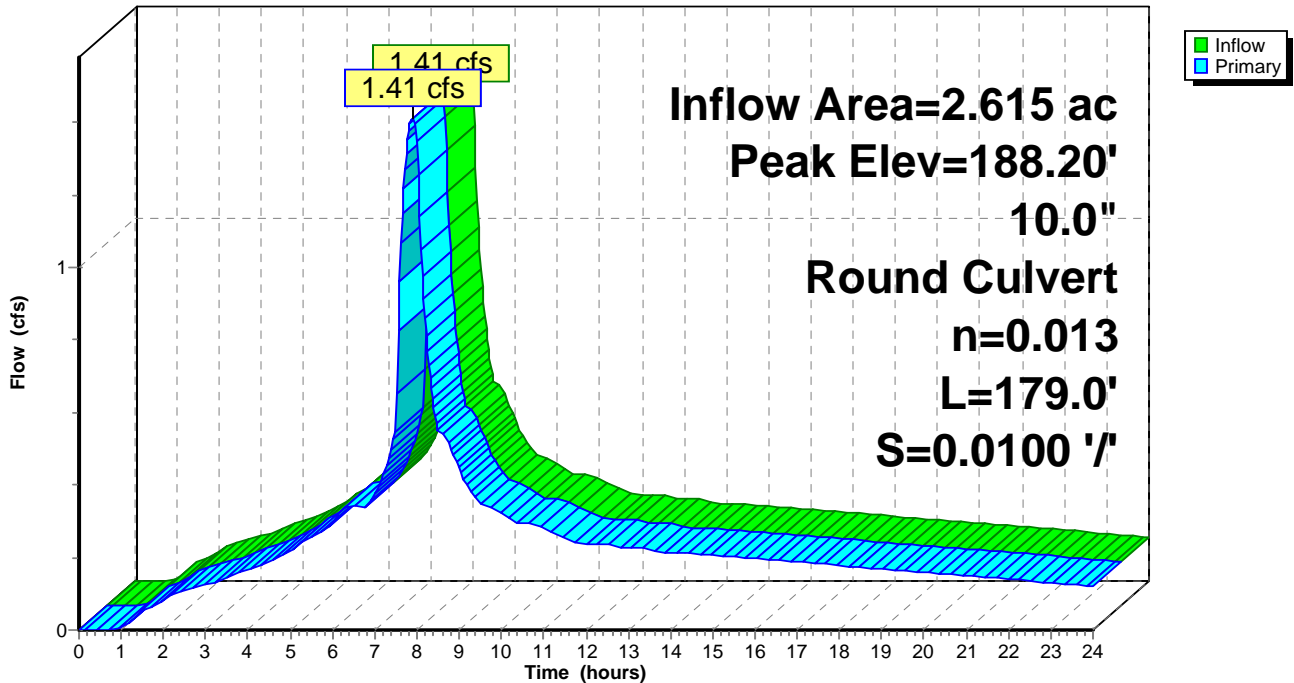
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 188.20' @ 7.90 hrs
 Flood Elev= 199.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.49'	10.0" Round Culvert L= 179.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 187.49' / 185.70' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.41 cfs @ 7.90 hrs HW=188.20' TW=186.17' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.41 cfs @ 2.86 fps)

Pond B3.3B.1: 10"

Hydrograph



Summary for Pond B3.3B.2: 8"

Inflow Area = 1.009 ac, 81.93% Impervious, Inflow Depth > 2.06" for 2-YR event
 Inflow = 0.52 cfs @ 7.90 hrs, Volume= 0.173 af
 Outflow = 0.52 cfs @ 7.90 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.52 cfs @ 7.90 hrs, Volume= 0.173 af

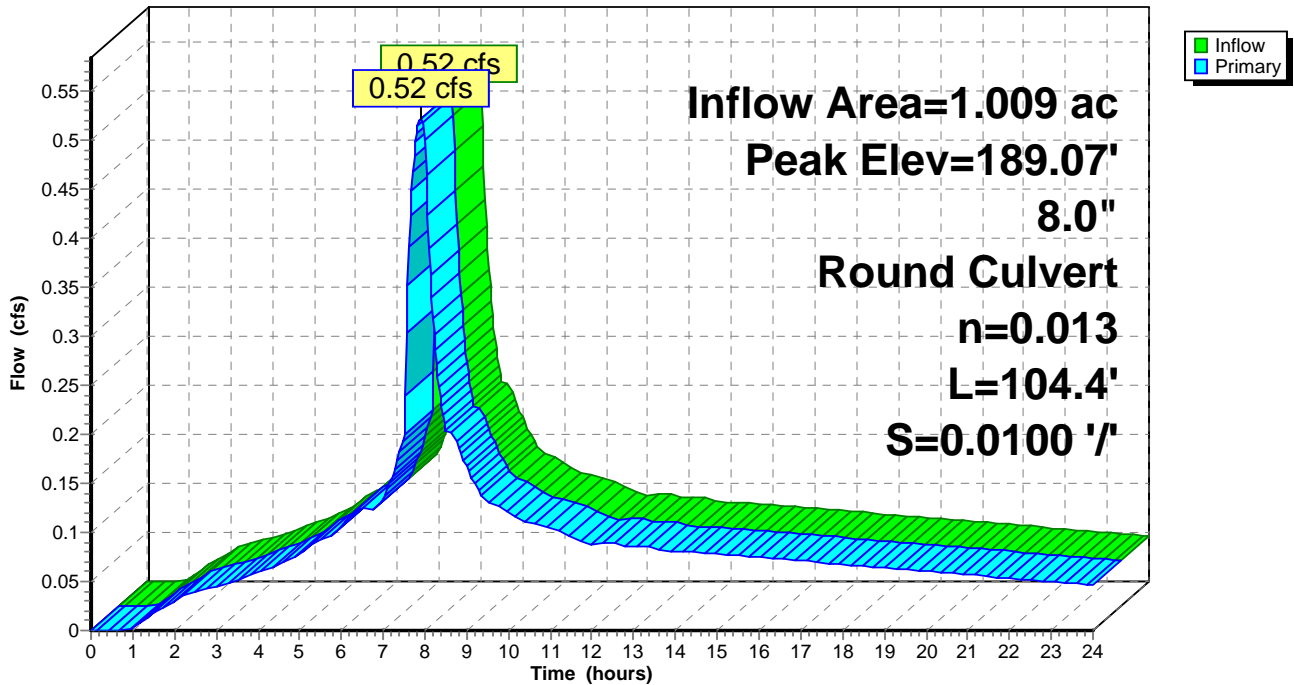
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 189.07' @ 7.90 hrs
 Flood Elev= 195.81'

Device #	Routing	Invert	Outlet Devices
#1	Primary	188.61'	8.0" Round Culvert L= 104.4' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 188.61' / 187.57' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.52 cfs @ 7.90 hrs HW=189.07' TW=188.20' (Dynamic Tailwater)
 ← **1=Culvert** (Outlet Controls 0.52 cfs @ 2.85 fps)

Pond B3.3B.2: 8"

Hydrograph



Summary for Pond B3.4: 15"

Inflow Area = 5.142 ac, 89.47% Impervious, Inflow Depth > 2.13" for 2-YR event
 Inflow = 2.76 cfs @ 7.90 hrs, Volume= 0.913 af
 Outflow = 2.76 cfs @ 7.90 hrs, Volume= 0.913 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.76 cfs @ 7.90 hrs, Volume= 0.913 af

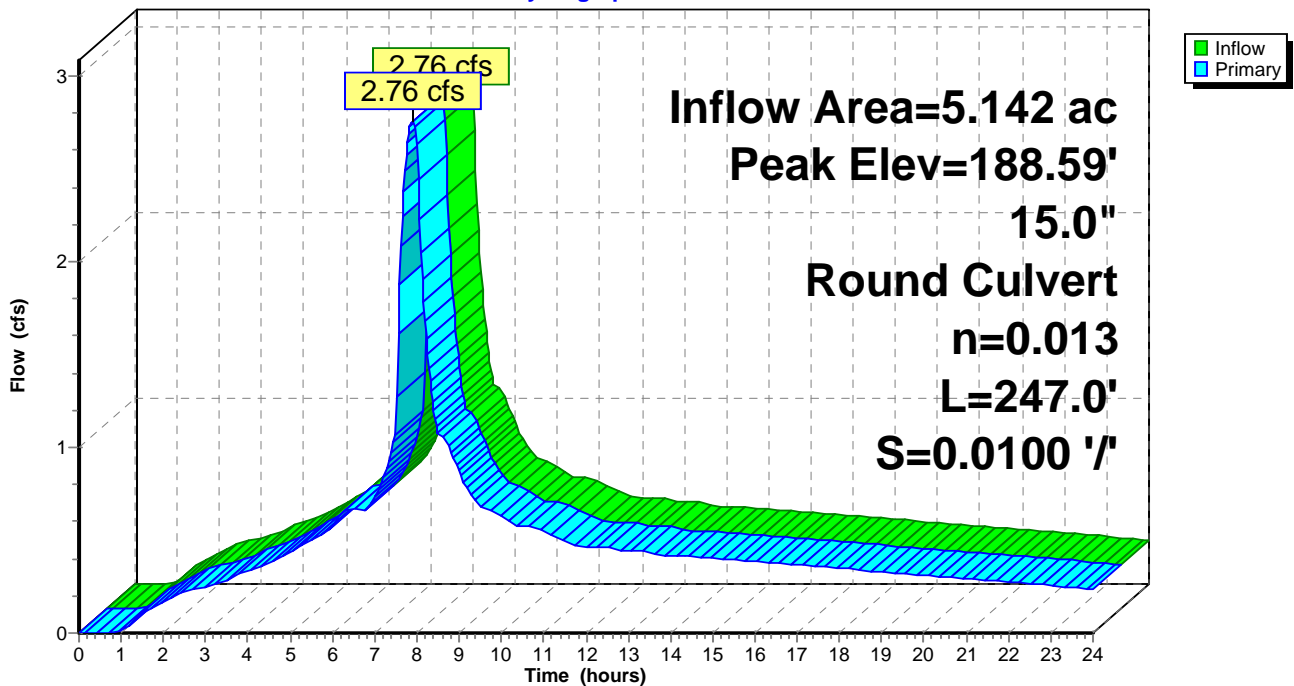
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 188.59' @ 7.90 hrs
 Flood Elev= 192.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.75'	15.0" Round Culvert L= 247.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 187.75' / 185.28' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.76 cfs @ 7.90 hrs HW=188.59' TW=186.17' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 2.76 cfs @ 3.13 fps)

Pond B3.4: 15"

Hydrograph



Summary for Pond B3.4A.1: 10"

Inflow Area = 1.784 ac, 87.16% Impervious, Inflow Depth > 2.10" for 2-YR event
 Inflow = 0.94 cfs @ 7.90 hrs, Volume= 0.312 af
 Outflow = 0.94 cfs @ 7.90 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.94 cfs @ 7.90 hrs, Volume= 0.312 af

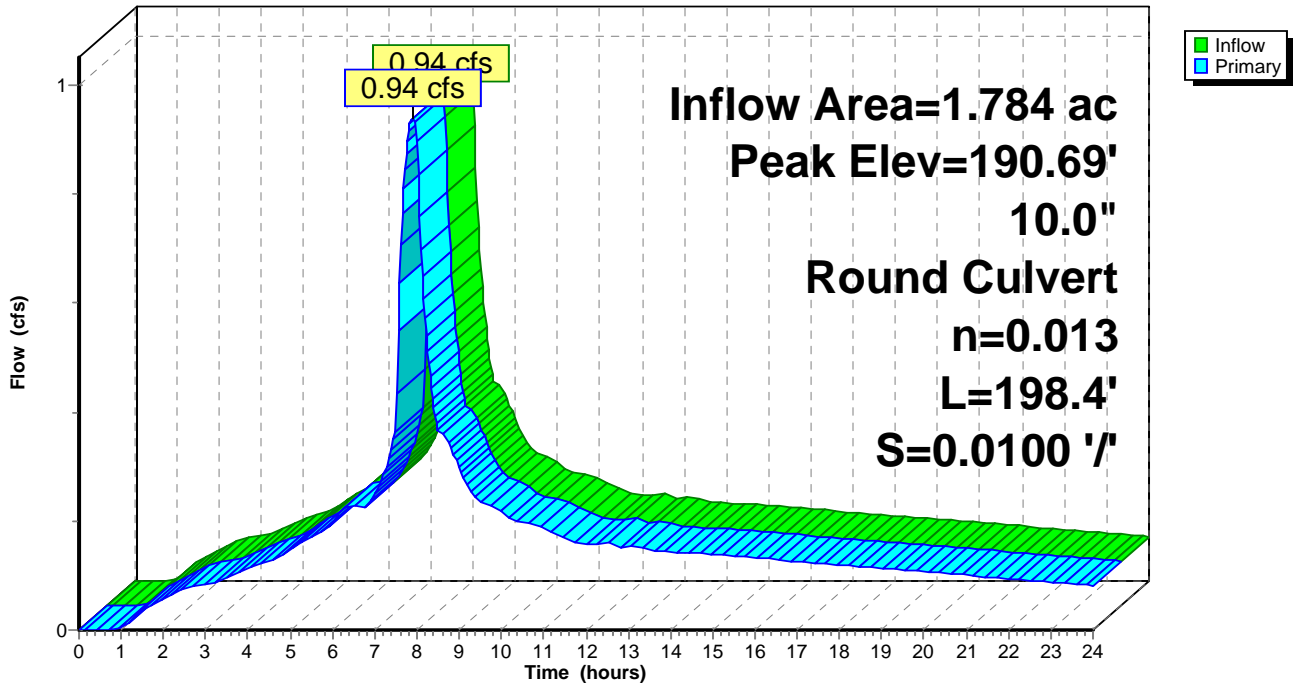
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 190.69' @ 7.90 hrs
 Flood Elev= 196.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.15'	10.0" Round Culvert L= 198.4' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 190.15' / 188.17' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=0.94 cfs @ 7.90 hrs HW=190.69' TW=188.59' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 0.94 cfs @ 2.50 fps)

Pond B3.4A.1: 10"

Hydrograph



Summary for Pond B3.4A.2: 6"

Inflow Area = 0.571 ac, 76.24% Impervious, Inflow Depth > 1.93" for 2-YR event
 Inflow = 0.27 cfs @ 7.91 hrs, Volume= 0.092 af
 Outflow = 0.27 cfs @ 7.91 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.27 cfs @ 7.91 hrs, Volume= 0.092 af

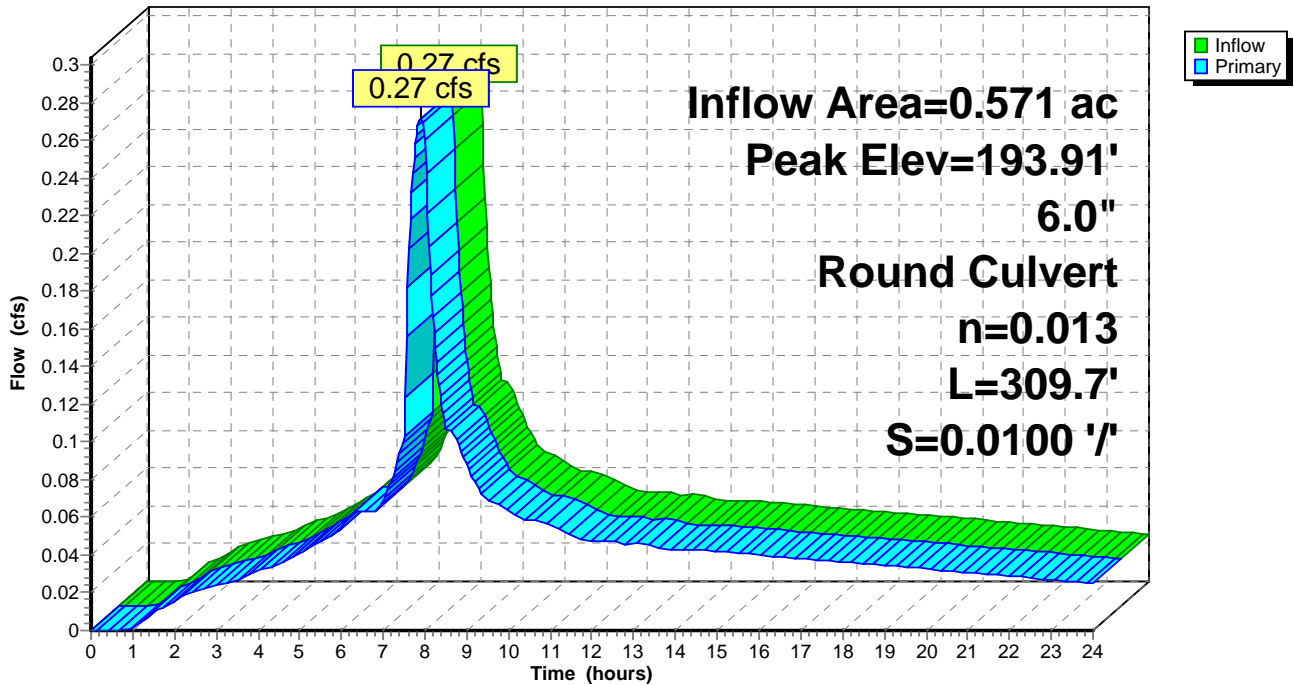
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 193.91' @ 7.91 hrs
 Flood Elev= 198.87'

Device	Routing	Invert	Outlet Devices
#1	Primary	193.58'	6.0" Round Culvert L= 309.7' Ke= 0.500 Inlet / Outlet Invert= 193.58' / 190.48' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.27 cfs @ 7.91 hrs HW=193.91' TW=190.69' (Dynamic Tailwater)
 ↳ **1=Culvert** (Inlet Controls 0.27 cfs @ 1.96 fps)

Pond B3.4A.2: 6"

Hydrograph



Summary for Pond B3.4B.1: 12"

Inflow Area = 3.358 ac, 90.71% Impervious, Inflow Depth > 2.15" for 2-YR event
 Inflow = 1.82 cfs @ 7.90 hrs, Volume= 0.601 af
 Outflow = 1.82 cfs @ 7.90 hrs, Volume= 0.601 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.82 cfs @ 7.90 hrs, Volume= 0.601 af

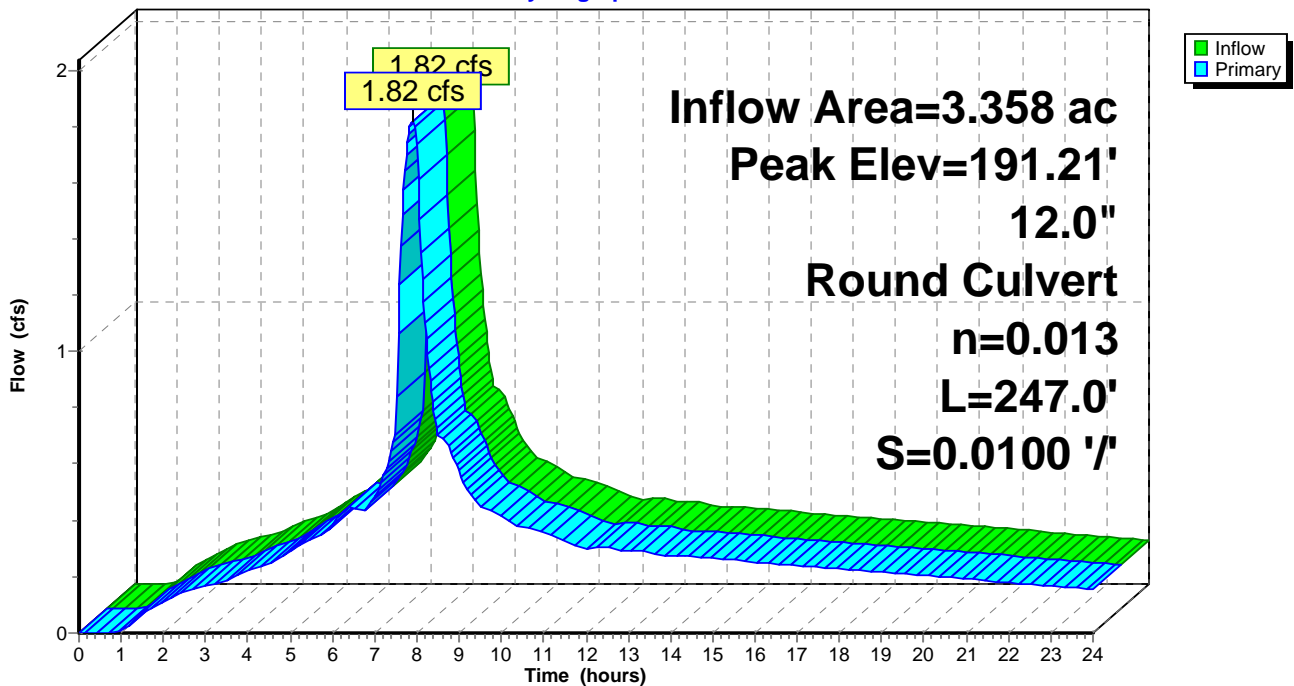
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 191.21' @ 7.90 hrs
 Flood Elev= 198.41'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.47'	12.0" Round Culvert L= 247.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 190.47' / 188.00' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.82 cfs @ 7.90 hrs HW=191.21' TW=188.59' (Dynamic Tailwater)
 ↳ **1=Culvert** (Inlet Controls 1.82 cfs @ 2.93 fps)

Pond B3.4B.1: 12"

Hydrograph



Summary for Pond B3.4B.2: 10"

Inflow Area = 1.986 ac, 88.78% Impervious, Inflow Depth > 2.12" for 2-YR event
 Inflow = 1.06 cfs @ 7.90 hrs, Volume= 0.352 af
 Outflow = 1.06 cfs @ 7.90 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.06 cfs @ 7.90 hrs, Volume= 0.352 af

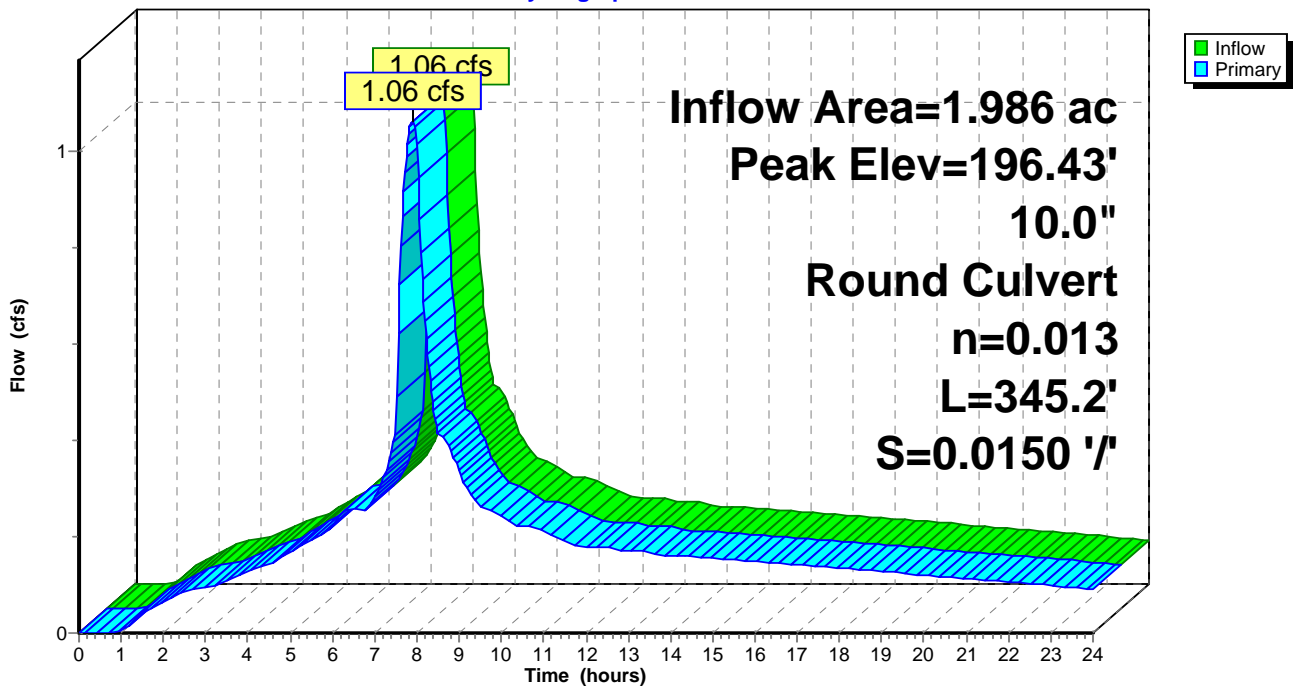
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 196.43' @ 7.90 hrs
 Flood Elev= 199.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	195.85'	10.0" Round Culvert L= 345.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 195.85' / 190.67' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.06 cfs @ 7.90 hrs HW=196.43' TW=191.21' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.06 cfs @ 2.60 fps)

Pond B3.4B.2: 10"

Hydrograph



Post-Developed 10-yr Storm Event Peak Flow Calculations

Summary for Subcatchment 3.01S: Parkway Village South

Runoff = 1.51 cfs @ 7.89 hrs, Volume= 0.504 af, Depth> 3.05"

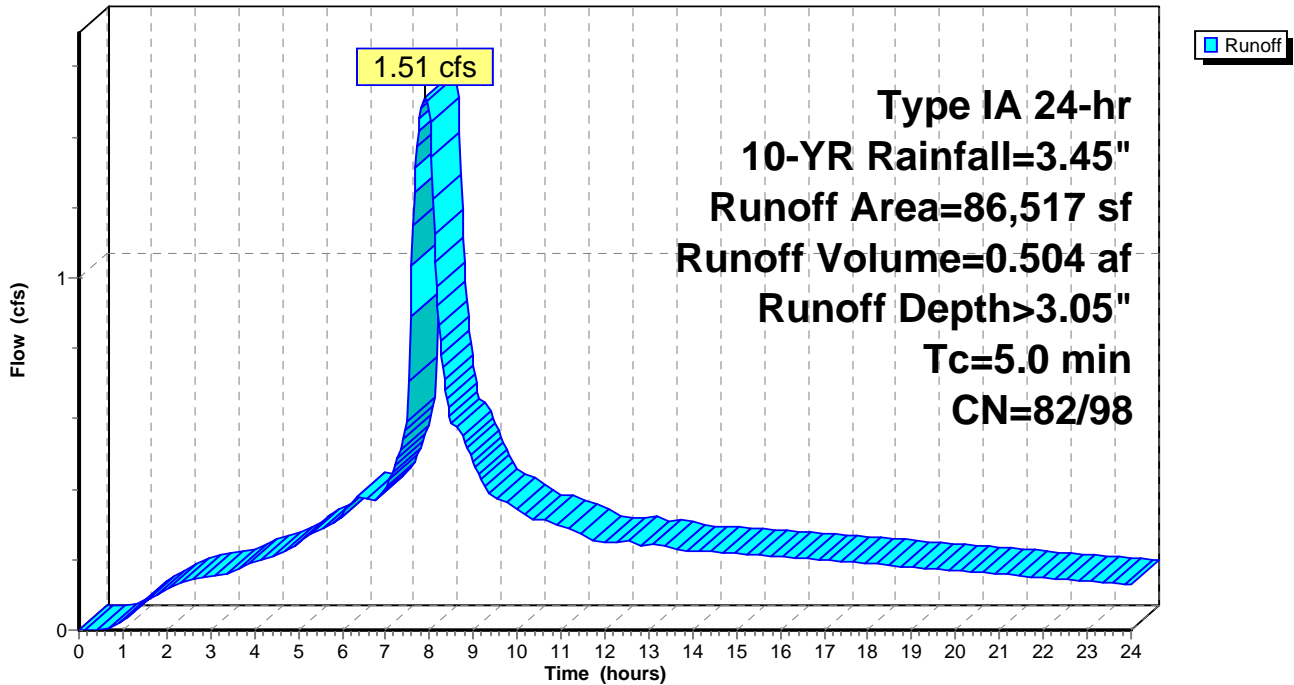
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	76,812	98	Impervious
*	5,680	79	Landscaping, HSG B
*	4,025	86	Landscaping, HSC C
	86,517	96	Weighted Average
	9,705		11.22% Pervious Area
	76,812		88.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.01S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.02S: Parkway Village South

Runoff = 0.40 cfs @ 7.90 hrs, Volume= 0.134 af, Depth> 2.81"

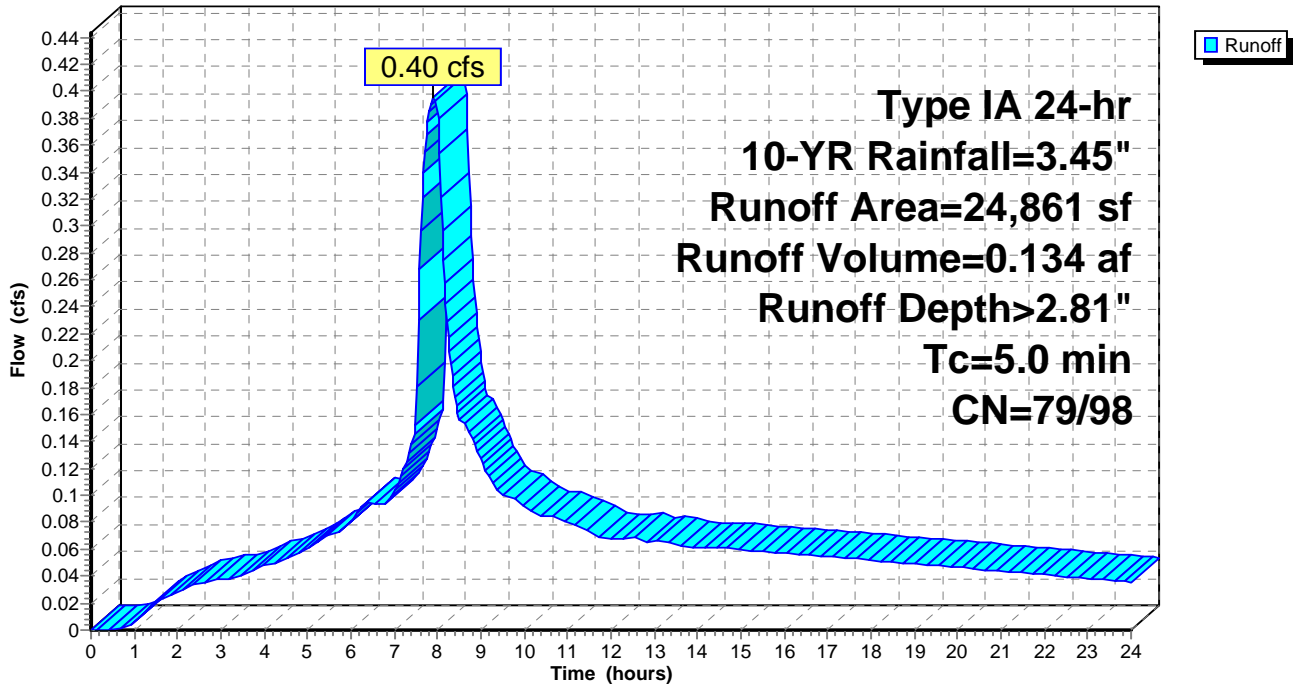
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	18,953	98	Impervious
*	5,870	79	Landscaping, HSG B
*	38	86	Landscaping, HSC C
	24,861	93	Weighted Average
	5,908		23.76% Pervious Area
	18,953		76.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.02S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.03S: Parkway Village South

Runoff = 0.95 cfs @ 7.89 hrs, Volume= 0.314 af, Depth> 3.11"

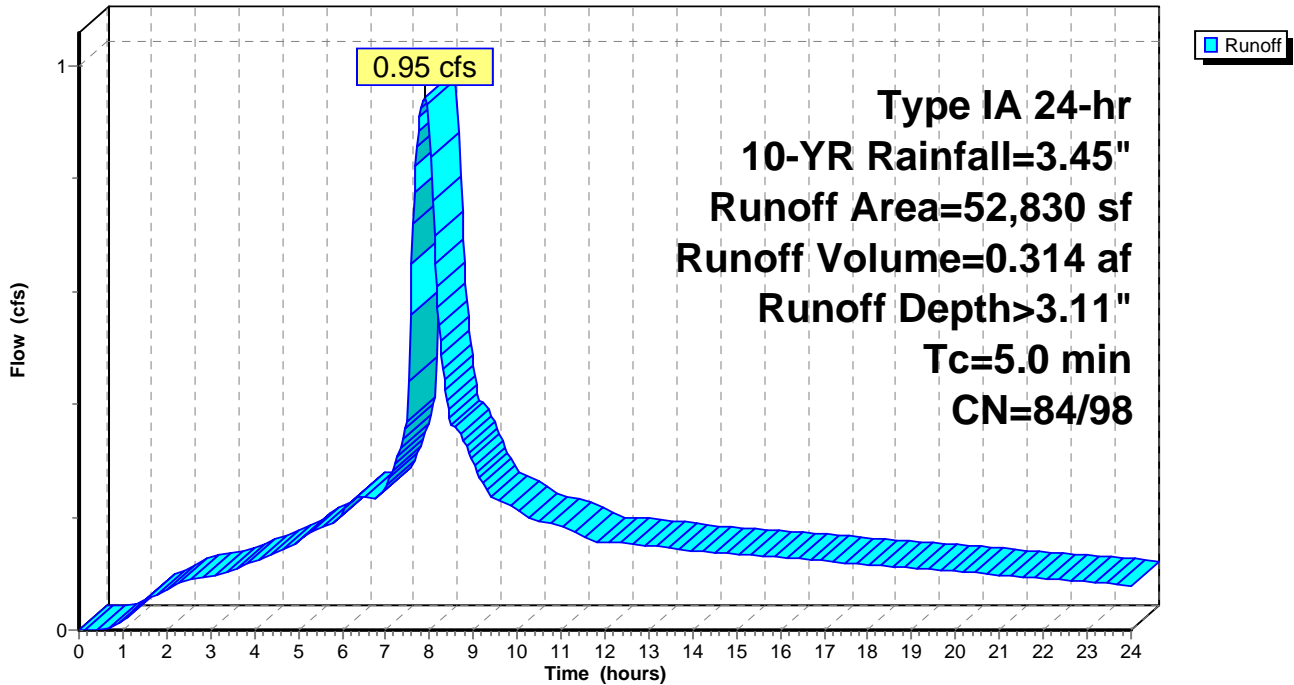
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	48,760	98	Impervious
*	1,026	79	Landscaping, HSG B
*	3,044	86	Landscaping, HSC C
	52,830	97	Weighted Average
	4,070		7.70% Pervious Area
	48,760		92.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.03S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.04S: Parkway Village South

Runoff = 1.07 cfs @ 7.89 hrs, Volume= 0.356 af, Depth> 3.12"

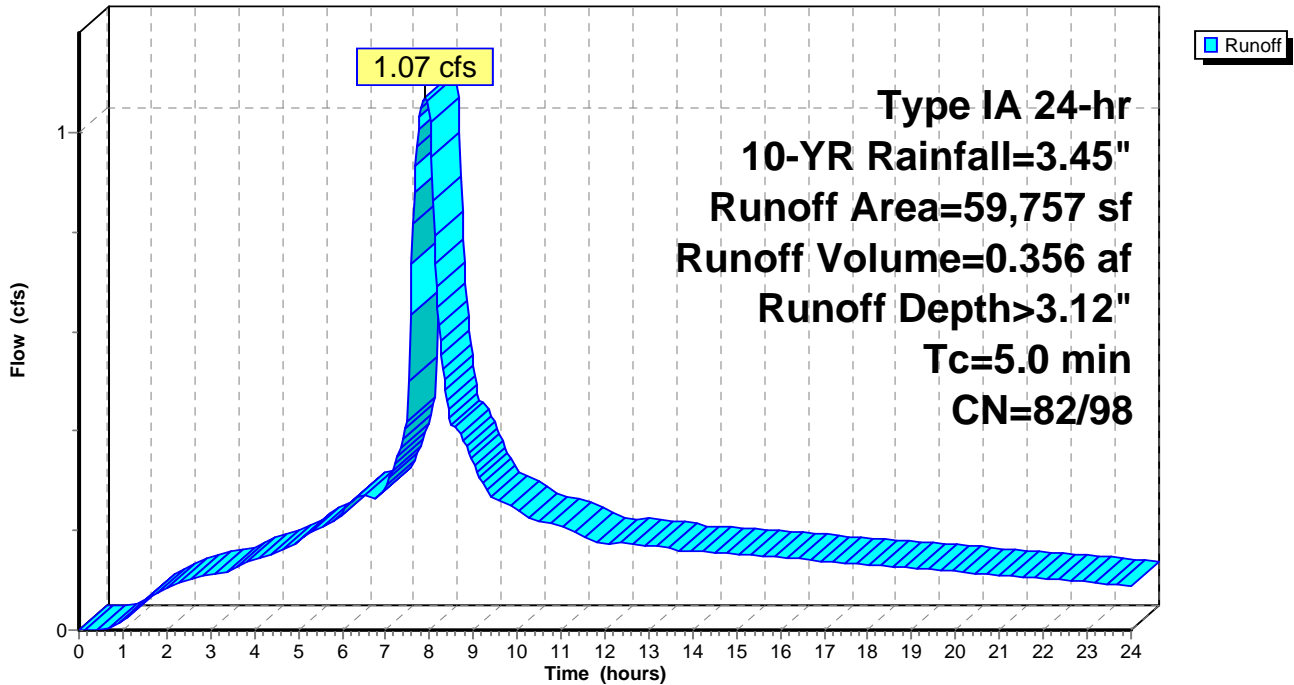
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	55,867	98	Impervious
*	2,196	79	Landscaping, HSG B
*	1,694	86	Landscaping, HSC C
	59,757	97	Weighted Average
	3,890		6.51% Pervious Area
	55,867		93.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.04S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.05S: Parkway Village South

Runoff = 0.75 cfs @ 7.90 hrs, Volume= 0.250 af, Depth> 2.97"

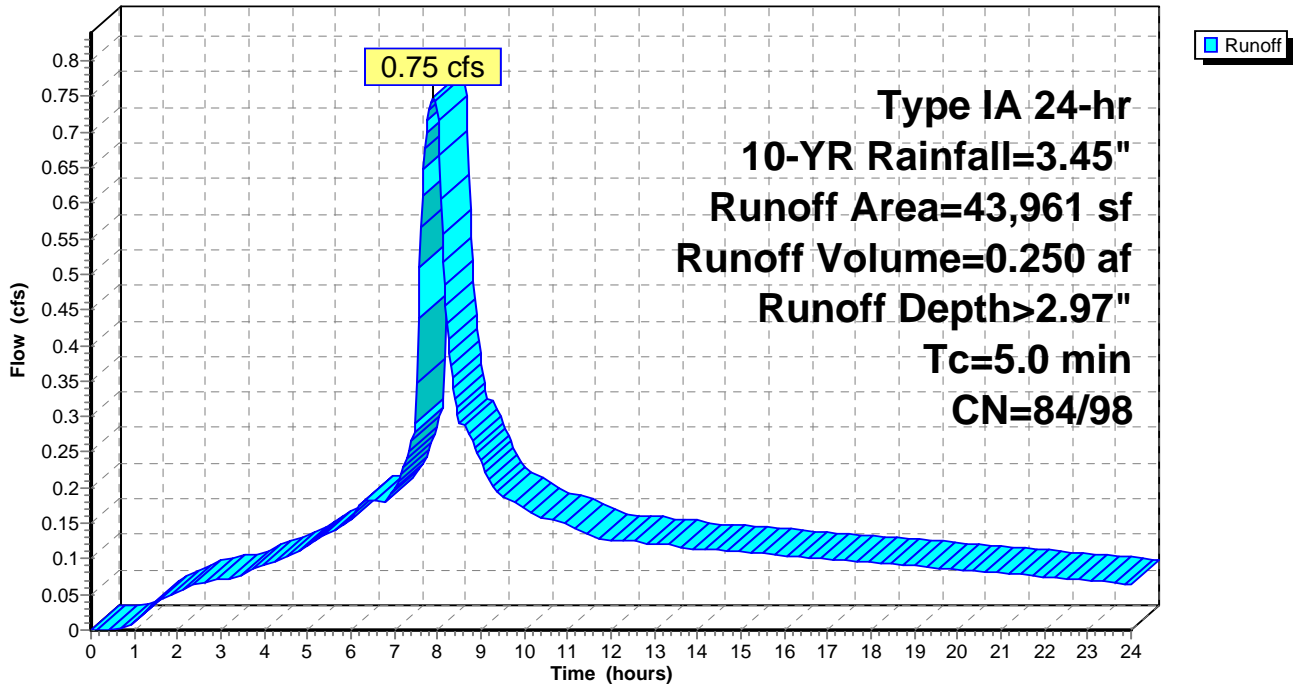
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	36,019	98	Impervious
*	1,718	79	Landscaping, HSG B
*	6,224	86	Landscaping, HSC C
<hr/>			
	43,961	96	Weighted Average
	7,942		18.07% Pervious Area
	36,019		81.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.05S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.06S: Parkway Village South

Runoff = 1.26 cfs @ 7.89 hrs, Volume= 0.418 af, Depth> 3.13"

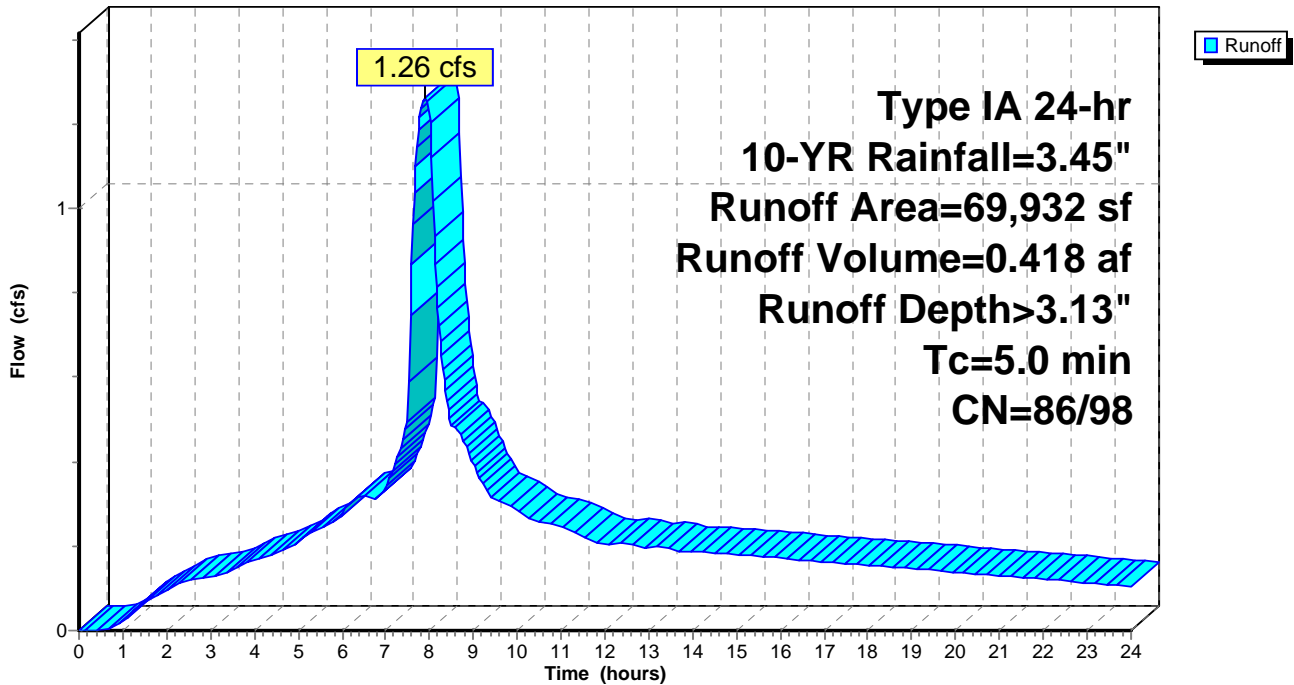
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	64,931	98	Impervious
*	5,001	86	Landscaping, HSC C
	69,932	97	Weighted Average
	5,001		7.15% Pervious Area
	64,931		92.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.06S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.07S: Parkway Village South

Runoff = 1.50 cfs @ 7.89 hrs, Volume= 0.497 af, Depth> 3.17"

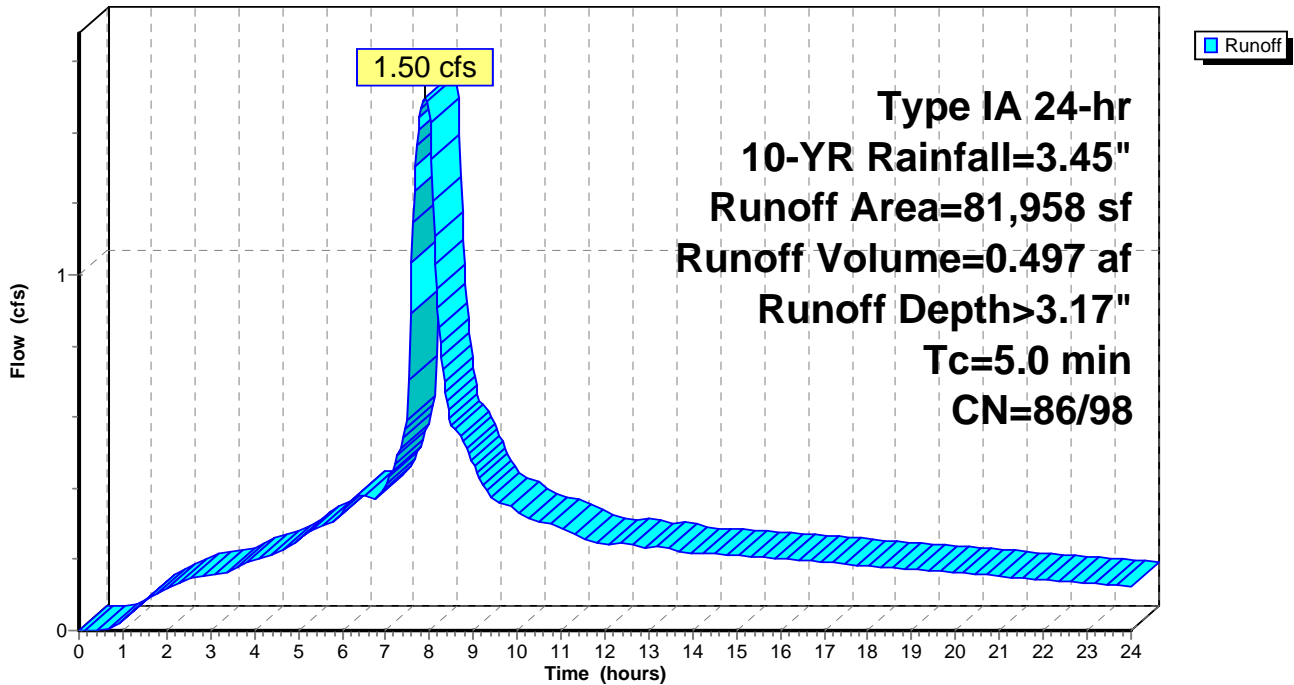
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	78,820	98	Impervious
*	3,138	86	Landscaping, HSC C
	81,958	98	Weighted Average
	3,138		3.83% Pervious Area
	78,820		96.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.07S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.08S: Parkway Village South

Runoff = 0.17 cfs @ 8.00 hrs, Volume= 0.062 af, Depth> 2.10"

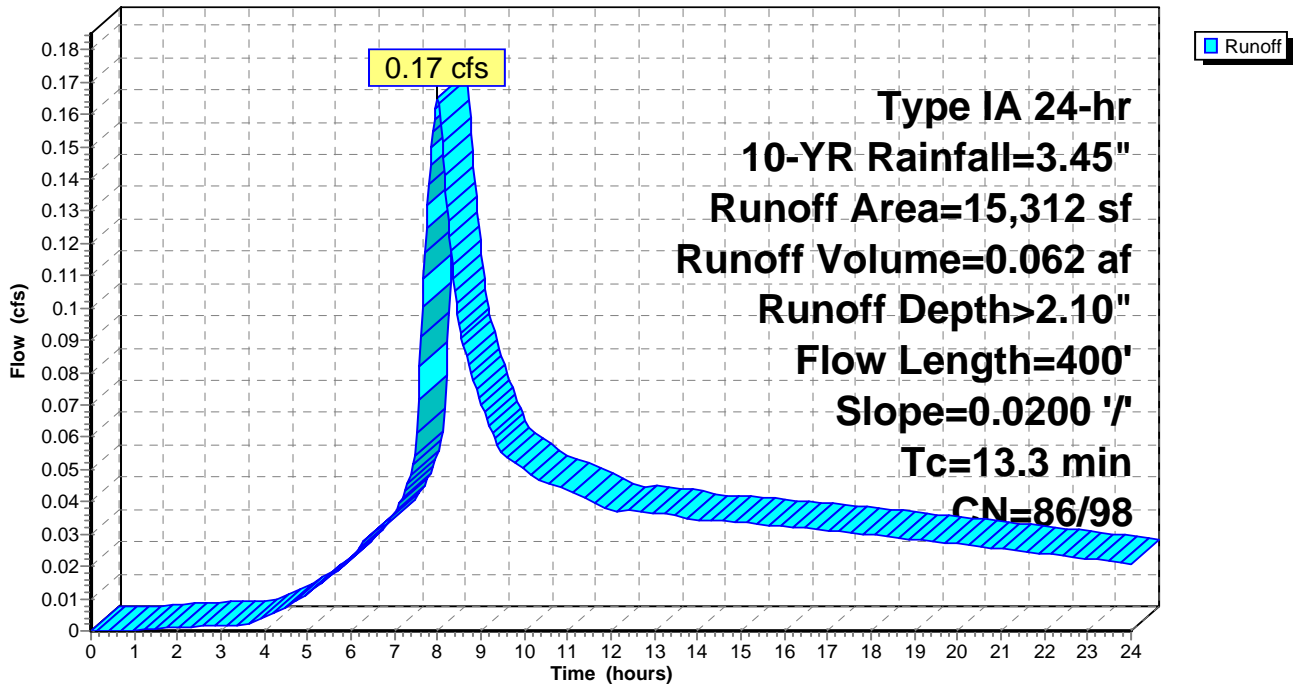
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

Area (sf)	CN	Description
* 779	98	Impervious
* 14,533	86	Landscaping, HSC C
15,312	87	Weighted Average
14,533		94.91% Pervious Area
779		5.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
2.2	300	0.0200	2.28		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.3	400	Total			

Subcatchment 3.08S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.09S: Parkway Village South

Runoff = 0.88 cfs @ 7.89 hrs, Volume= 0.291 af, Depth> 3.16"

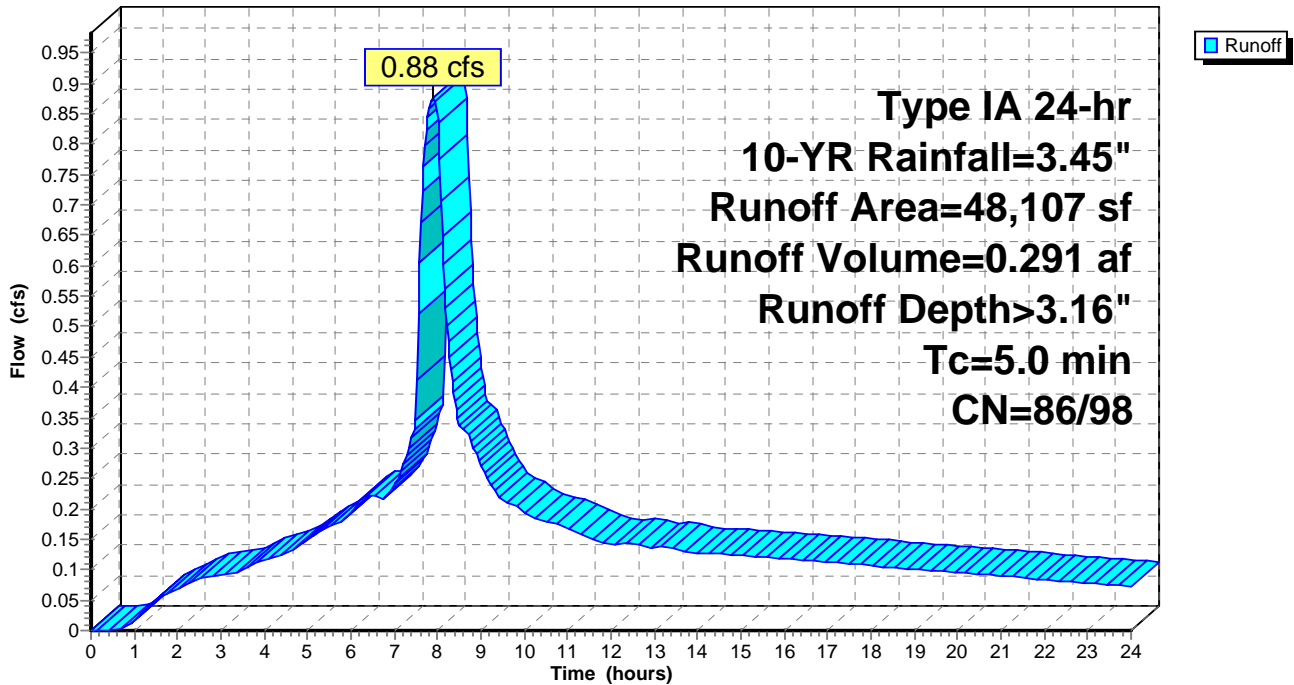
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	46,061	98	Impervious
*	2,046	86	Landscaping, HSC C
	48,107	97	Weighted Average
	2,046		4.25% Pervious Area
	46,061		95.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.09S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.10S: Parkway Village South

Runoff = 0.34 cfs @ 7.89 hrs, Volume= 0.114 af, Depth> 3.07"

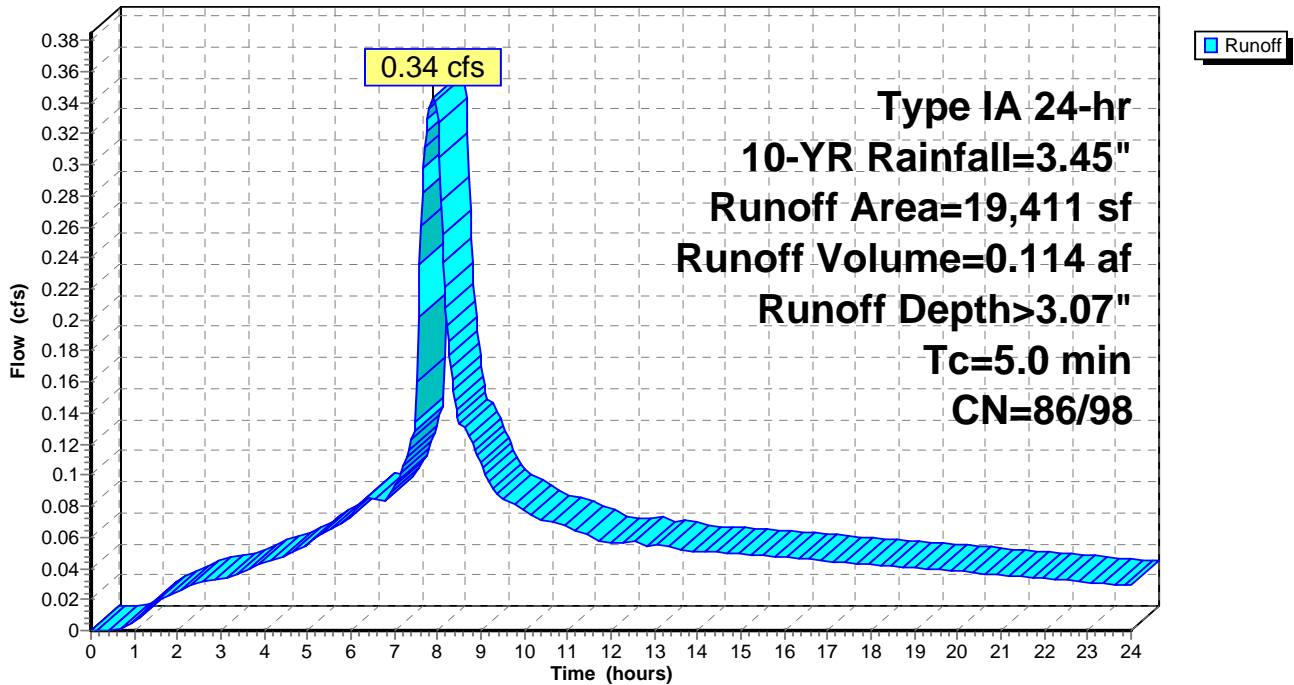
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	17,090	98	Impervious
*	2,321	86	Landscaping, HSC C
	19,411	97	Weighted Average
	2,321		11.96% Pervious Area
	17,090		88.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.10S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.11S: Parkway Village South (Future)

Runoff = 2.49 cfs @ 7.89 hrs, Volume= 0.825 af, Depth> 3.13"

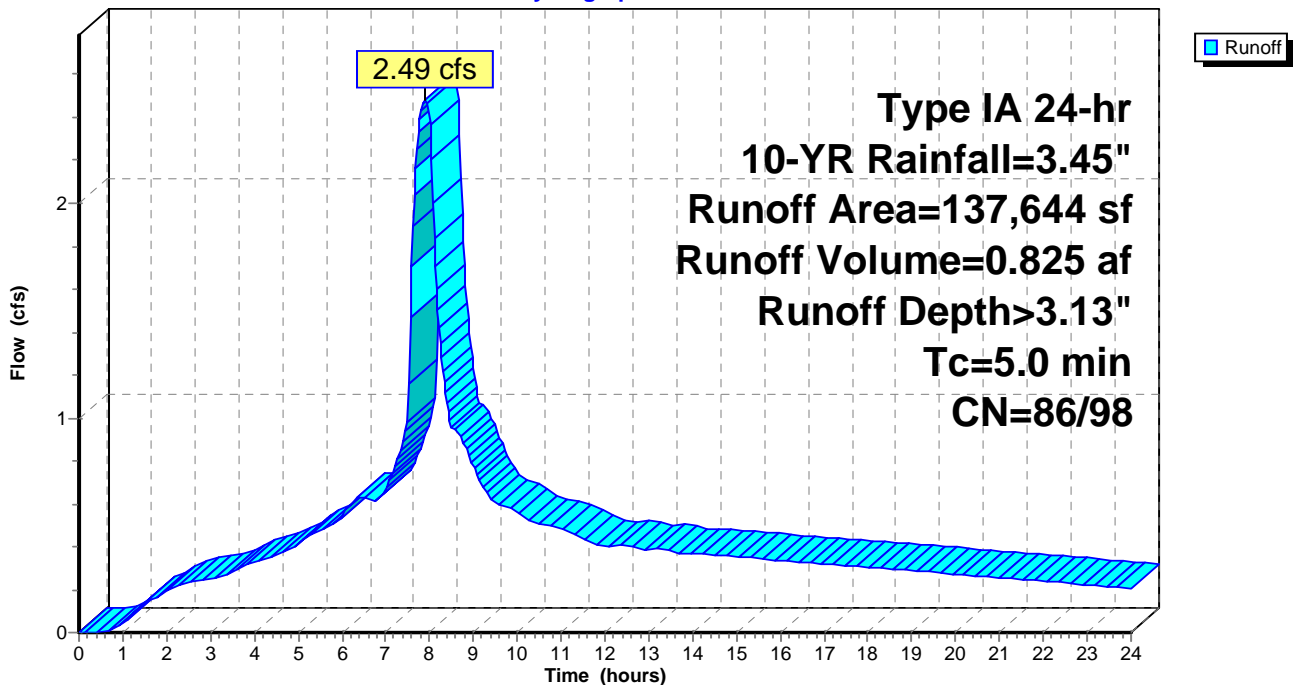
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 10-YR Rainfall=3.45"

	Area (sf)	CN	Description
*	128,498	98	Impervious
*	9,146	86	Landscaping, HSC C
	137,644	97	Weighted Average
	9,146		6.64% Pervious Area
	128,498		93.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.11S: Parkway Village South (Future)

Hydrograph



Summary for Pond B3.1: 18"

Inflow Area = 14.348 ac, 91.49% Impervious, Inflow Depth > 3.10" for 10-YR event
 Inflow = 11.14 cfs @ 7.89 hrs, Volume= 3.703 af
 Outflow = 11.14 cfs @ 7.89 hrs, Volume= 3.703 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.14 cfs @ 7.89 hrs, Volume= 3.703 af

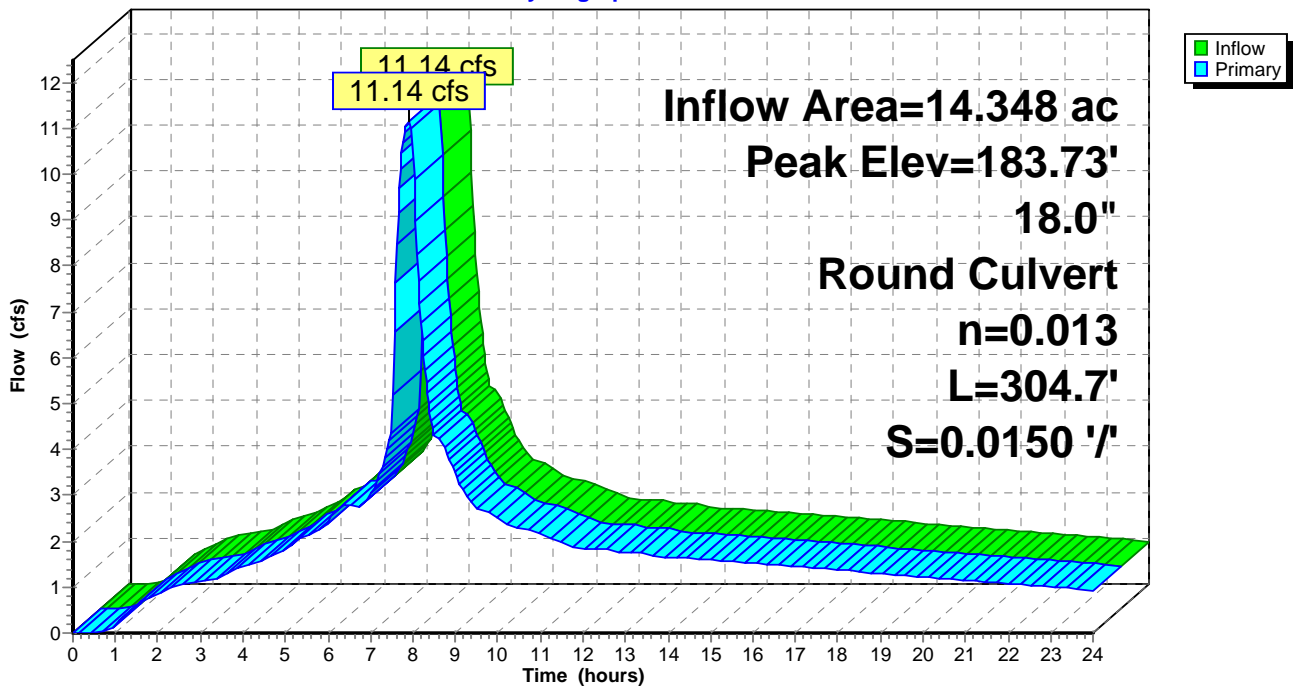
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 183.73' @ 7.89 hrs
 Flood Elev= 194.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	181.27'	18.0" Round Culvert L= 304.7' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 181.27' / 176.70' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=11.14 cfs @ 7.89 hrs HW=183.73' TW=176.40' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 11.14 cfs @ 6.30 fps)

Pond B3.1: 18"

Hydrograph



Summary for Pond B3.1A.1: 6"

Inflow Area = 0.446 ac, 88.04% Impervious, Inflow Depth > 3.07" for 10-YR event
 Inflow = 0.34 cfs @ 7.89 hrs, Volume= 0.114 af
 Outflow = 0.34 cfs @ 7.89 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.34 cfs @ 7.89 hrs, Volume= 0.114 af

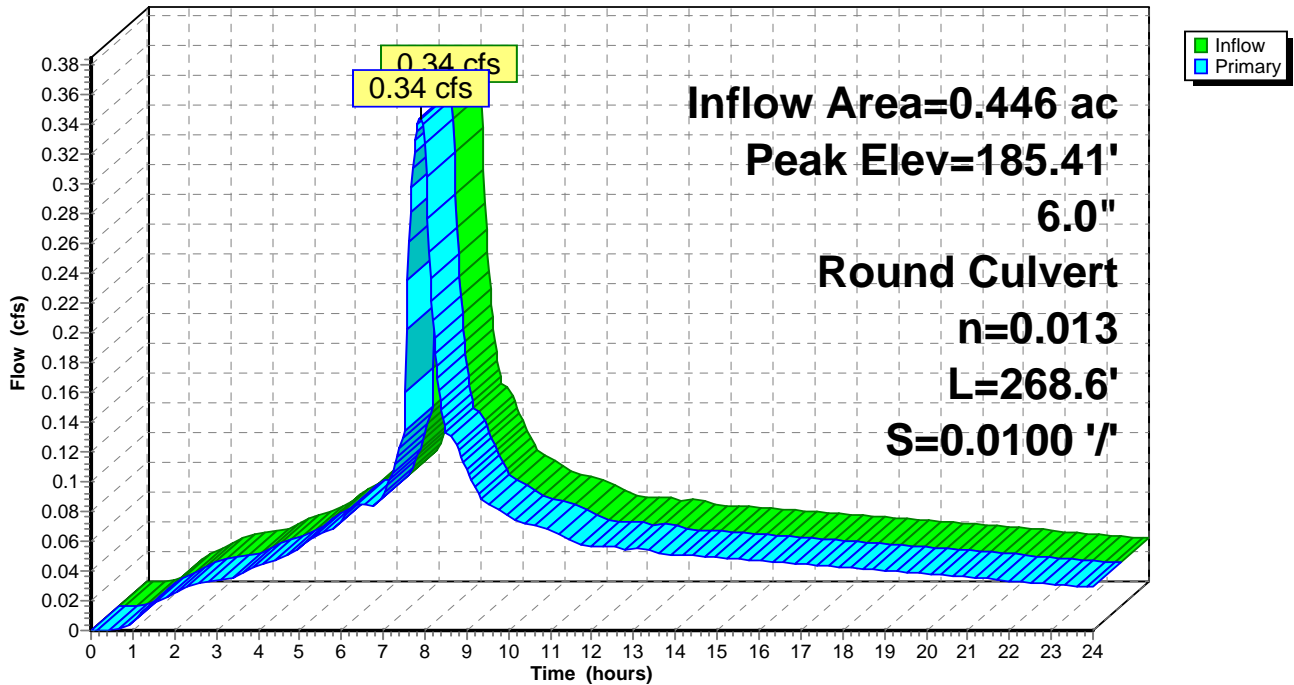
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 185.41' @ 7.89 hrs
 Flood Elev= 194.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	184.96'	6.0" Round Culvert L= 268.6' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 184.96' / 182.27' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.34 cfs @ 7.89 hrs HW=185.41' TW=183.73' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 0.34 cfs @ 2.41 fps)

Pond B3.1A.1: 6"

Hydrograph



Summary for Pond B3.1B.1: 8"

Inflow Area = 1.104 ac, 95.75% Impervious, Inflow Depth > 3.16" for 10-YR event
 Inflow = 0.88 cfs @ 7.89 hrs, Volume= 0.291 af
 Outflow = 0.88 cfs @ 7.89 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.88 cfs @ 7.89 hrs, Volume= 0.291 af

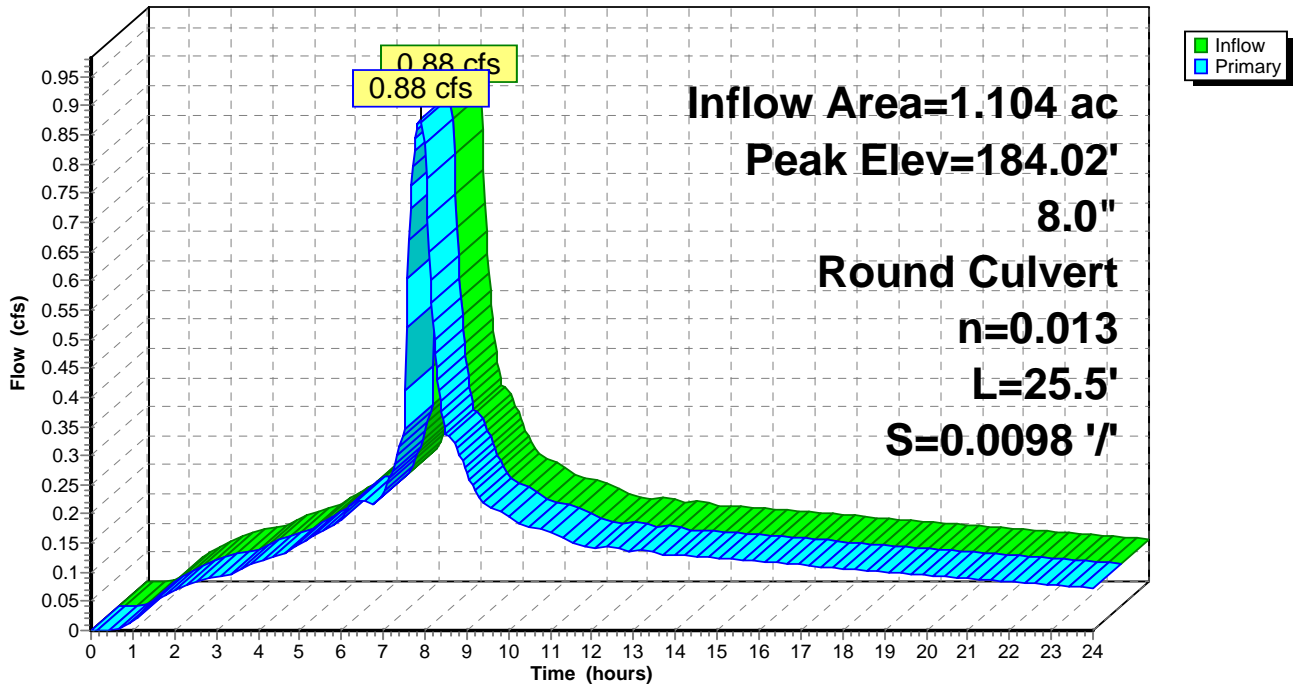
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 184.02' @ 7.89 hrs
 Flood Elev= 193.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	182.35'	8.0" Round Culvert L= 25.5' Ke= 0.500 Inlet / Outlet Invert= 182.35' / 182.10' S= 0.0098 '/ Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.88 cfs @ 7.89 hrs HW=184.02' TW=183.73' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 0.88 cfs @ 2.51 fps)

Pond B3.1B.1: 8"

Hydrograph



Summary for Pond B3.2: 18"

Inflow Area = 9.638 ac, 90.55% Impervious, Inflow Depth > 3.08" for 10-YR event
 Inflow = 7.43 cfs @ 7.89 hrs, Volume= 2.473 af
 Outflow = 7.43 cfs @ 7.89 hrs, Volume= 2.473 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.43 cfs @ 7.89 hrs, Volume= 2.473 af

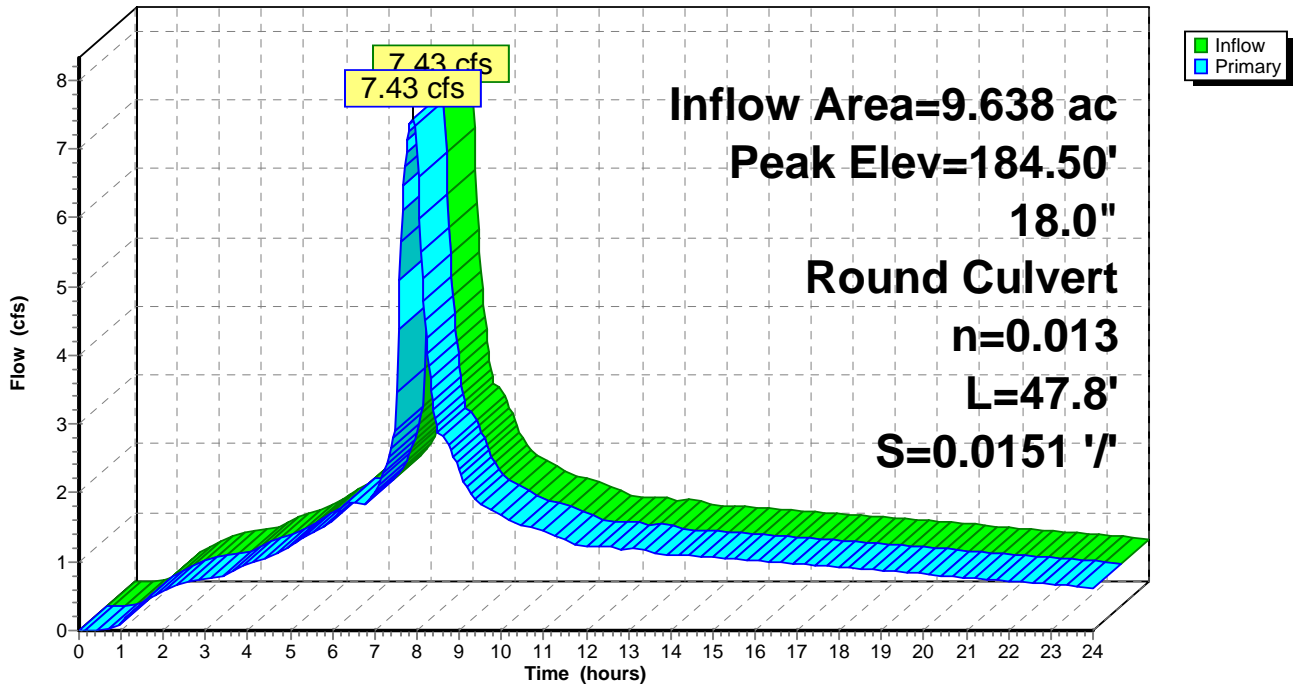
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 184.50' @ 7.89 hrs
 Flood Elev= 194.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	182.19'	18.0" Round Culvert L= 47.8' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 182.19' / 181.47' S= 0.0151 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=7.43 cfs @ 7.89 hrs HW=184.50' TW=183.73' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 7.43 cfs @ 4.21 fps)

Pond B3.2: 18"

Hydrograph



Summary for Pond B3.3: 18"

Inflow Area = 9.638 ac, 90.55% Impervious, Inflow Depth > 3.08" for 10-YR event
 Inflow = 7.43 cfs @ 7.89 hrs, Volume= 2.473 af
 Outflow = 7.43 cfs @ 7.89 hrs, Volume= 2.473 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.43 cfs @ 7.89 hrs, Volume= 2.473 af

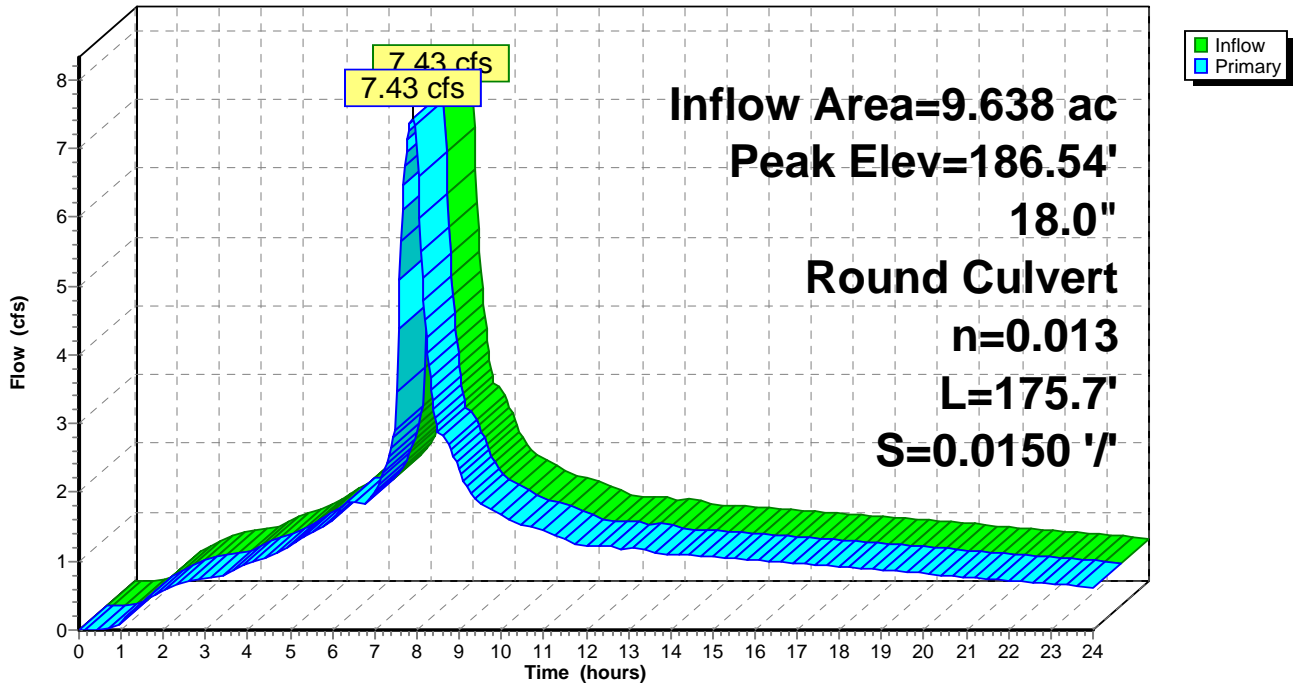
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 186.54' @ 7.89 hrs
 Flood Elev= 199.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	185.03'	18.0" Round Culvert L= 175.7' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 185.03' / 182.39' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=7.43 cfs @ 7.89 hrs HW=186.54' TW=184.50' (Dynamic Tailwater)
 ↳ **1=Culvert** (Inlet Controls 7.43 cfs @ 4.21 fps)

Pond B3.3: 18"

Hydrograph



Summary for Pond B3.3A.1: 10"

Inflow Area = 1.881 ac, 96.17% Impervious, Inflow Depth > 3.17" for 10-YR event
 Inflow = 1.50 cfs @ 7.89 hrs, Volume= 0.497 af
 Outflow = 1.50 cfs @ 7.89 hrs, Volume= 0.497 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.50 cfs @ 7.89 hrs, Volume= 0.497 af

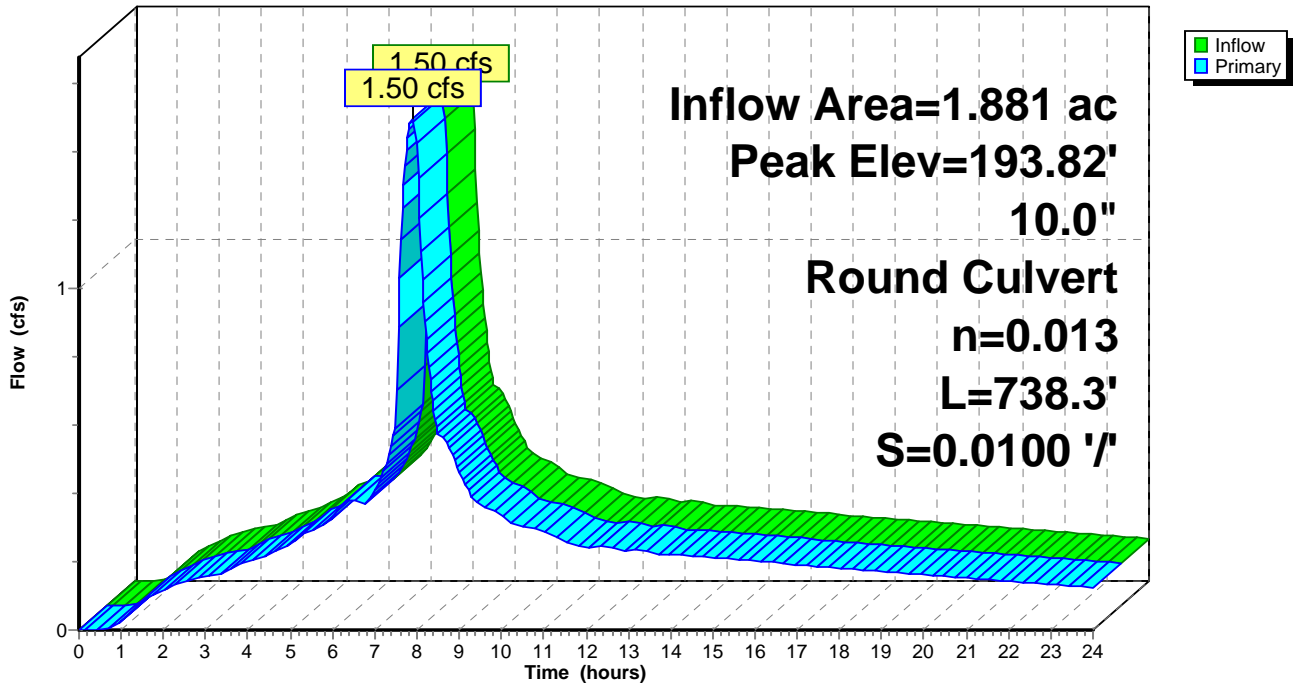
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 193.82' @ 7.89 hrs
 Flood Elev= 199.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	193.08'	10.0" Round Culvert L= 738.3' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 193.08' / 185.70' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.50 cfs @ 7.89 hrs HW=193.82' TW=186.54' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.50 cfs @ 2.93 fps)

Pond B3.3A.1: 10"

Hydrograph



Summary for Pond B3.3B.1: 10"

Inflow Area = 2.615 ac, 88.64% Impervious, Inflow Depth > 3.07" for 10-YR event
 Inflow = 2.01 cfs @ 7.89 hrs, Volume= 0.668 af
 Outflow = 2.01 cfs @ 7.89 hrs, Volume= 0.668 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.01 cfs @ 7.89 hrs, Volume= 0.668 af

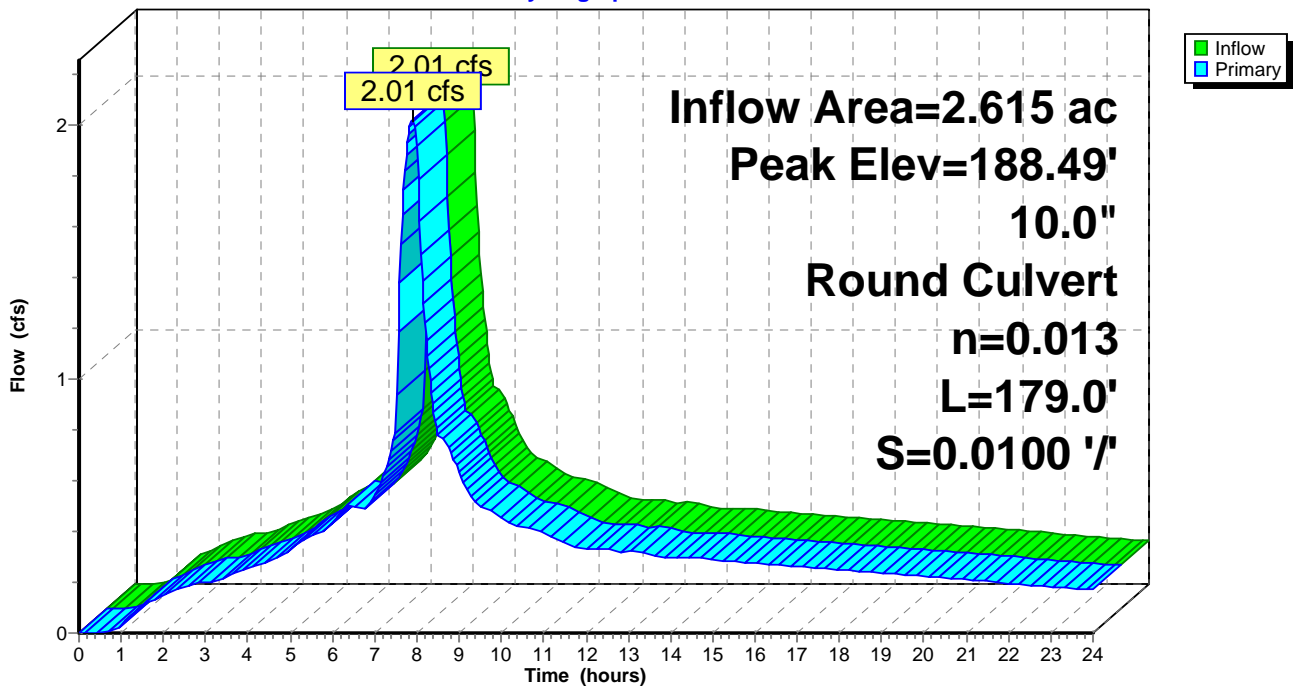
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 188.49' @ 7.89 hrs
 Flood Elev= 199.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.49'	10.0" Round Culvert L= 179.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 187.49' / 185.70' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=2.01 cfs @ 7.89 hrs HW=188.49' TW=186.54' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 2.01 cfs @ 3.69 fps)

Pond B3.3B.1: 10"

Hydrograph



Summary for Pond B3.3B.2: 8"

Inflow Area = 1.009 ac, 81.93% Impervious, Inflow Depth > 2.97" for 10-YR event
 Inflow = 0.75 cfs @ 7.90 hrs, Volume= 0.250 af
 Outflow = 0.75 cfs @ 7.90 hrs, Volume= 0.250 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.75 cfs @ 7.90 hrs, Volume= 0.250 af

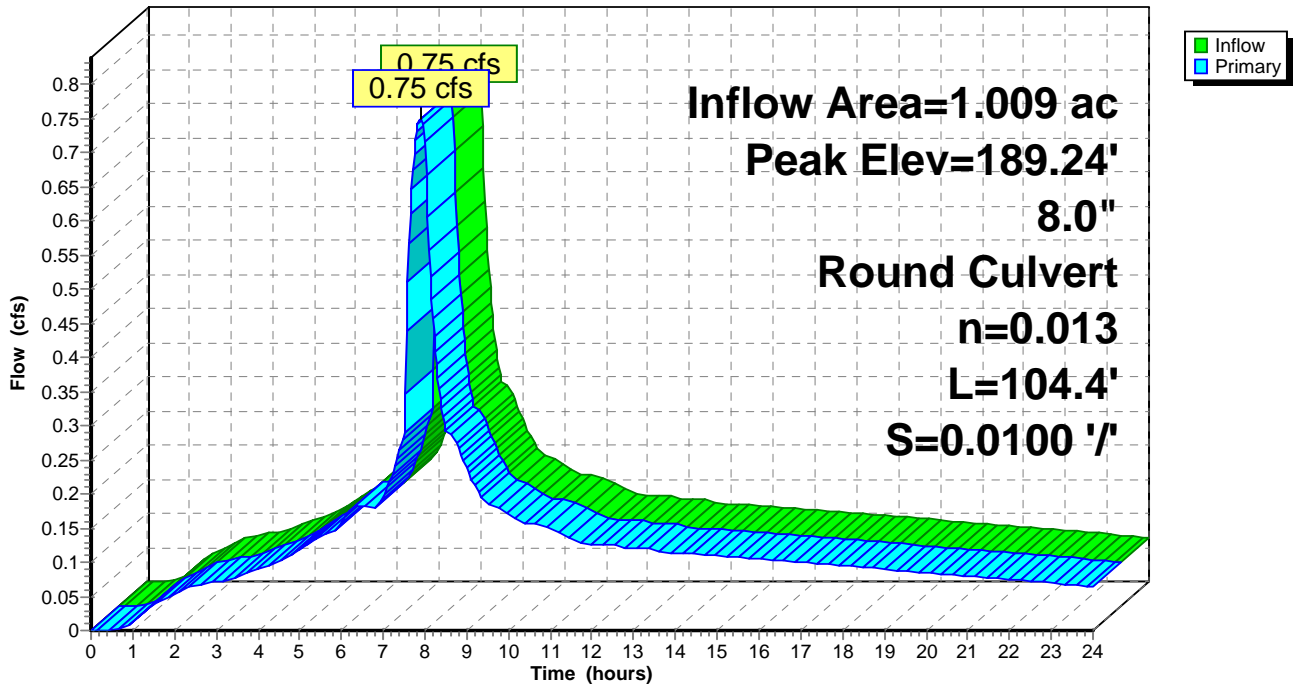
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 189.24' @ 7.89 hrs
 Flood Elev= 195.81'

Device #	Routing	Invert	Outlet Devices
#1	Primary	188.61'	8.0" Round Culvert L= 104.4' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 188.61' / 187.57' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.75 cfs @ 7.90 hrs HW=189.24' TW=188.49' (Dynamic Tailwater)
 ←**1=Culvert** (Outlet Controls 0.75 cfs @ 2.84 fps)

Pond B3.3B.2: 8"

Hydrograph



Summary for Pond B3.4: 15"

Inflow Area = 5.142 ac, 89.47% Impervious, Inflow Depth > 3.05" for 10-YR event
 Inflow = 3.93 cfs @ 7.89 hrs, Volume= 1.308 af
 Outflow = 3.93 cfs @ 7.89 hrs, Volume= 1.308 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.93 cfs @ 7.89 hrs, Volume= 1.308 af

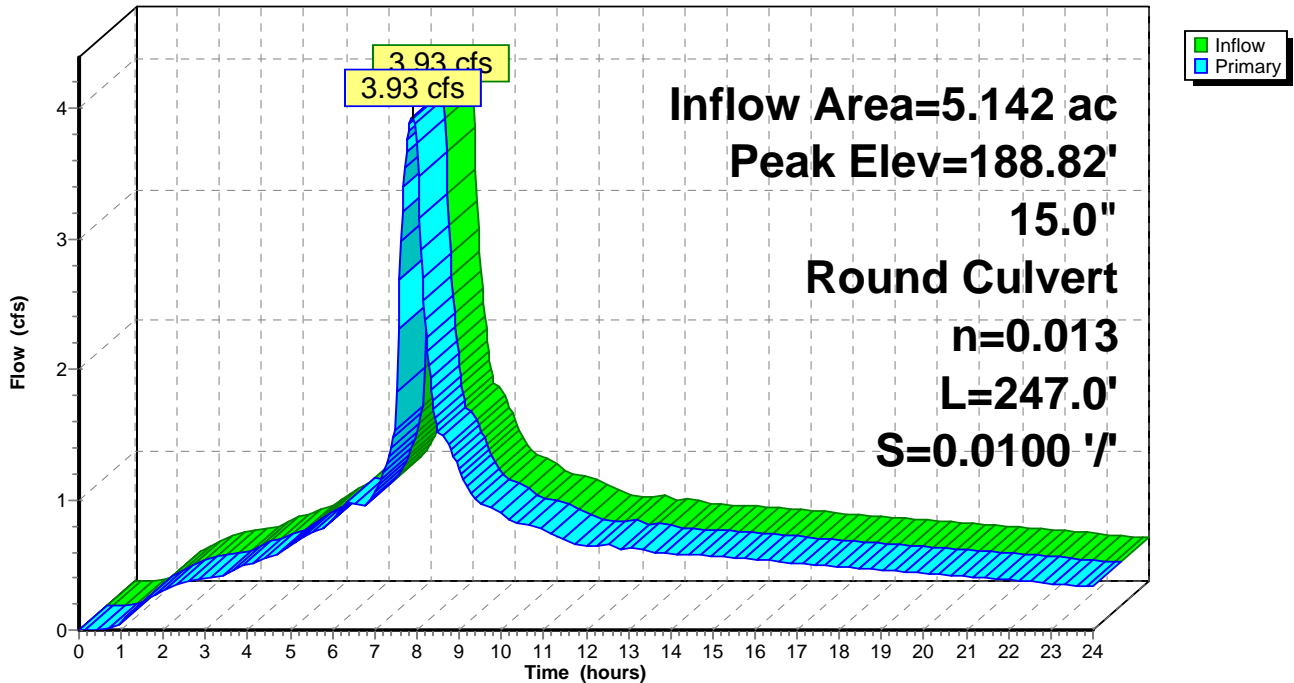
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 188.82' @ 7.89 hrs
 Flood Elev= 192.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.75'	15.0" Round Culvert L= 247.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 187.75' / 185.28' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.92 cfs @ 7.89 hrs HW=188.82' TW=186.54' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 3.92 cfs @ 3.52 fps)

Pond B3.4: 15"

Hydrograph



Summary for Pond B3.4A.1: 10"

Inflow Area = 1.784 ac, 87.16% Impervious, Inflow Depth > 3.01" for 10-YR event
 Inflow = 1.34 cfs @ 7.89 hrs, Volume= 0.448 af
 Outflow = 1.34 cfs @ 7.89 hrs, Volume= 0.448 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.34 cfs @ 7.89 hrs, Volume= 0.448 af

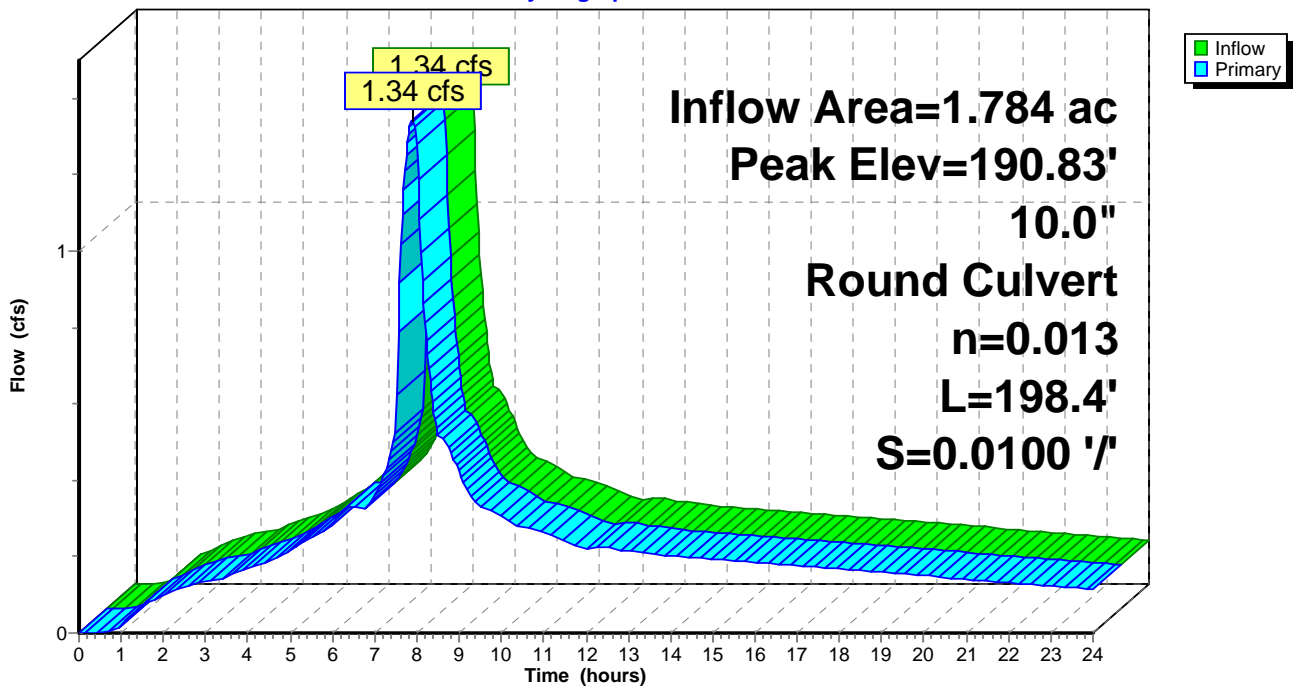
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 190.83' @ 7.89 hrs
 Flood Elev= 196.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.15'	10.0" Round Culvert L= 198.4' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 190.15' / 188.17' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.34 cfs @ 7.89 hrs HW=190.83' TW=188.82' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.34 cfs @ 2.81 fps)

Pond B3.4A.1: 10"

Hydrograph



Summary for Pond B3.4A.2: 6"

Inflow Area = 0.571 ac, 76.24% Impervious, Inflow Depth > 2.81" for 10-YR event
 Inflow = 0.40 cfs @ 7.90 hrs, Volume= 0.134 af
 Outflow = 0.40 cfs @ 7.90 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.40 cfs @ 7.90 hrs, Volume= 0.134 af

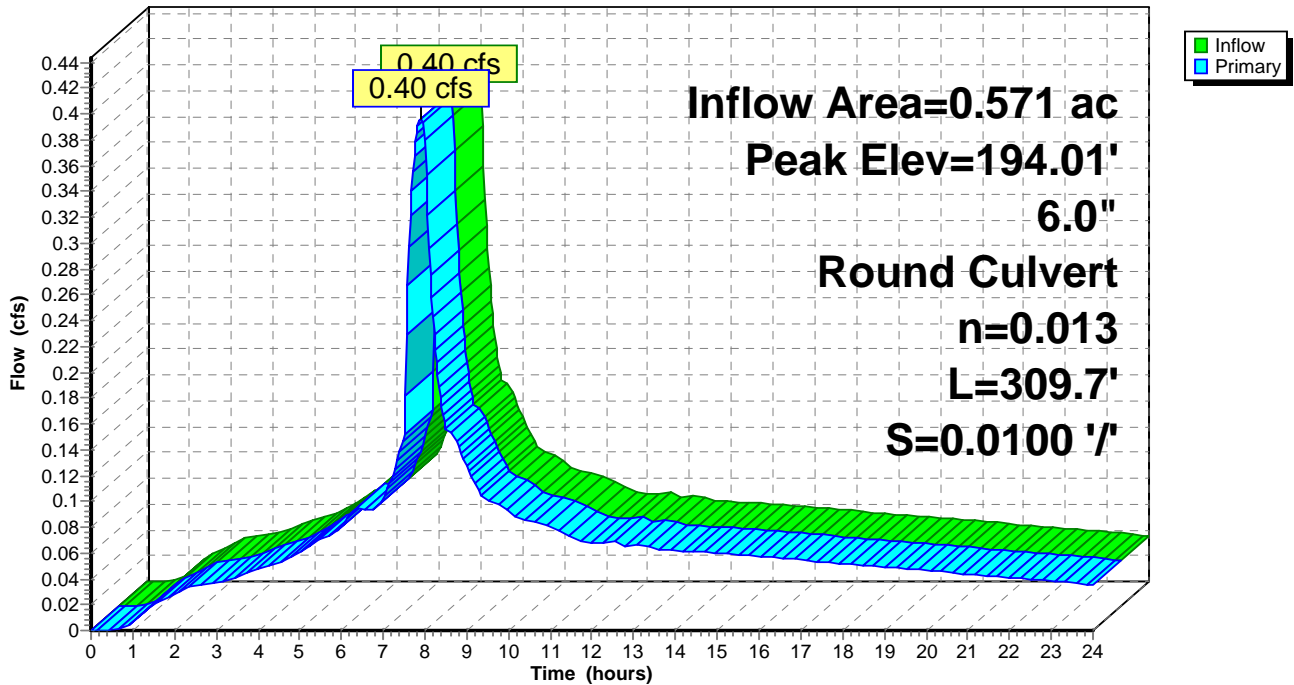
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 194.01' @ 7.90 hrs
 Flood Elev= 198.87'

Device	Routing	Invert	Outlet Devices
#1	Primary	193.58'	6.0" Round Culvert L= 309.7' Ke= 0.500 Inlet / Outlet Invert= 193.58' / 190.48' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.40 cfs @ 7.90 hrs HW=194.01' TW=190.83' (Dynamic Tailwater)
 ←**1=Culvert** (Inlet Controls 0.40 cfs @ 2.22 fps)

Pond B3.4A.2: 6"

Hydrograph



Summary for Pond B3.4B.1: 12"

Inflow Area = 3.358 ac, 90.71% Impervious, Inflow Depth > 3.07" for 10-YR event
 Inflow = 2.58 cfs @ 7.89 hrs, Volume= 0.860 af
 Outflow = 2.58 cfs @ 7.89 hrs, Volume= 0.860 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.58 cfs @ 7.89 hrs, Volume= 0.860 af

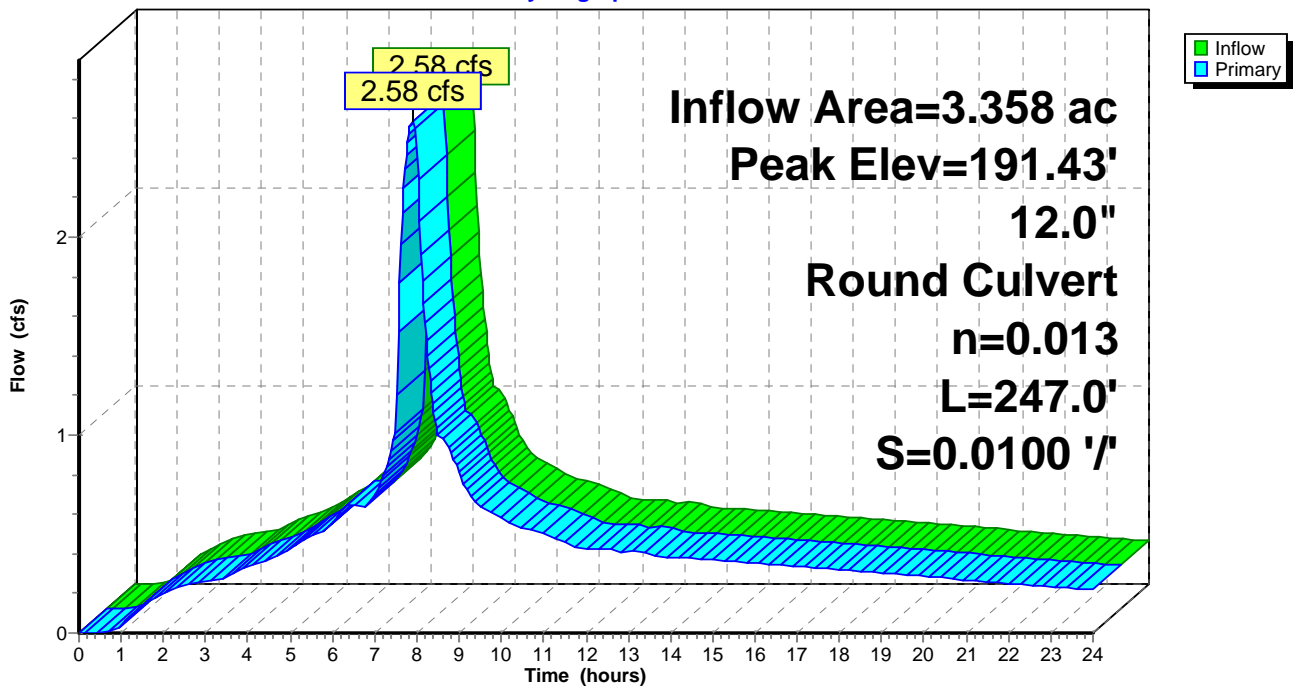
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 191.43' @ 7.89 hrs
 Flood Elev= 198.41'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.47'	12.0" Round Culvert L= 247.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 190.47' / 188.00' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.58 cfs @ 7.89 hrs HW=191.43' TW=188.82' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 2.58 cfs @ 3.33 fps)

Pond B3.4B.1: 12"

Hydrograph



Summary for Pond B3.4B.2: 10"

Inflow Area = 1.986 ac, 88.78% Impervious, Inflow Depth > 3.05" for 10-YR event
 Inflow = 1.51 cfs @ 7.89 hrs, Volume= 0.504 af
 Outflow = 1.51 cfs @ 7.89 hrs, Volume= 0.504 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.51 cfs @ 7.89 hrs, Volume= 0.504 af

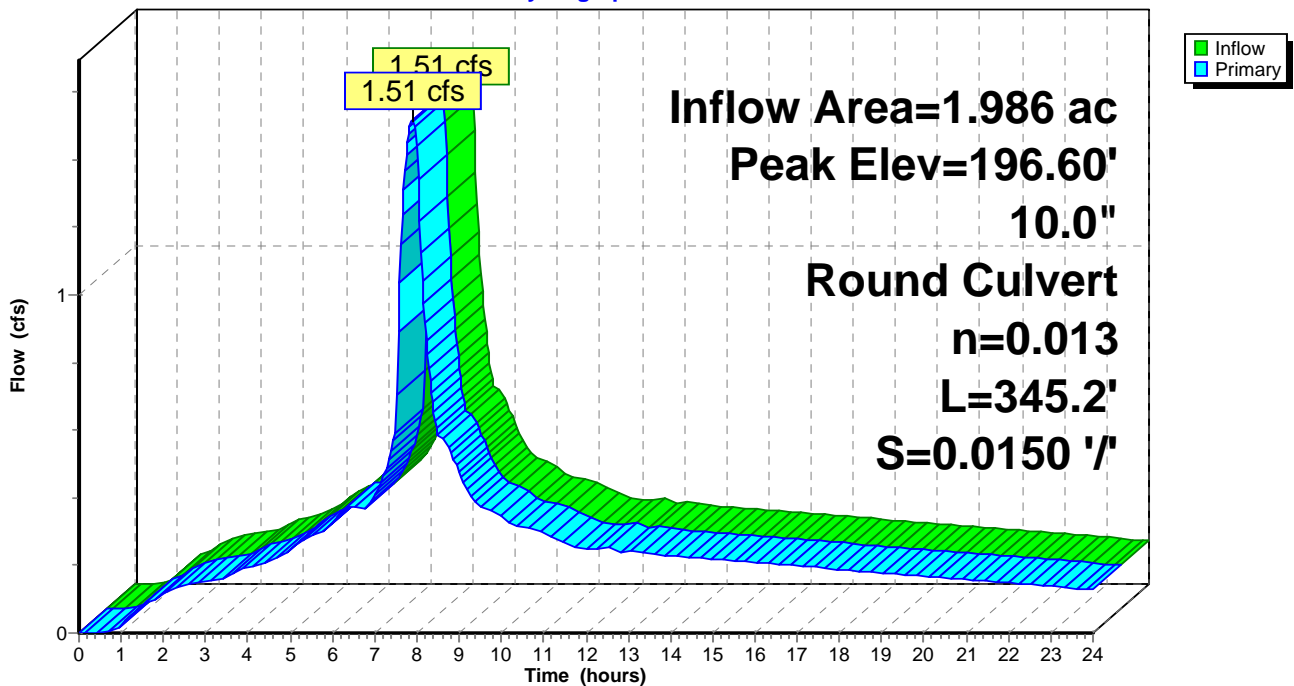
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 196.60' @ 7.89 hrs
 Flood Elev= 199.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	195.85'	10.0" Round Culvert L= 345.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 195.85' / 190.67' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.51 cfs @ 7.89 hrs HW=196.60' TW=191.43' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.51 cfs @ 2.94 fps)

Pond B3.4B.2: 10"

Hydrograph



Post-Developed 25-yr Storm Event Peak Flow Calculations

Summary for Subcatchment 3.01S: Parkway Village South

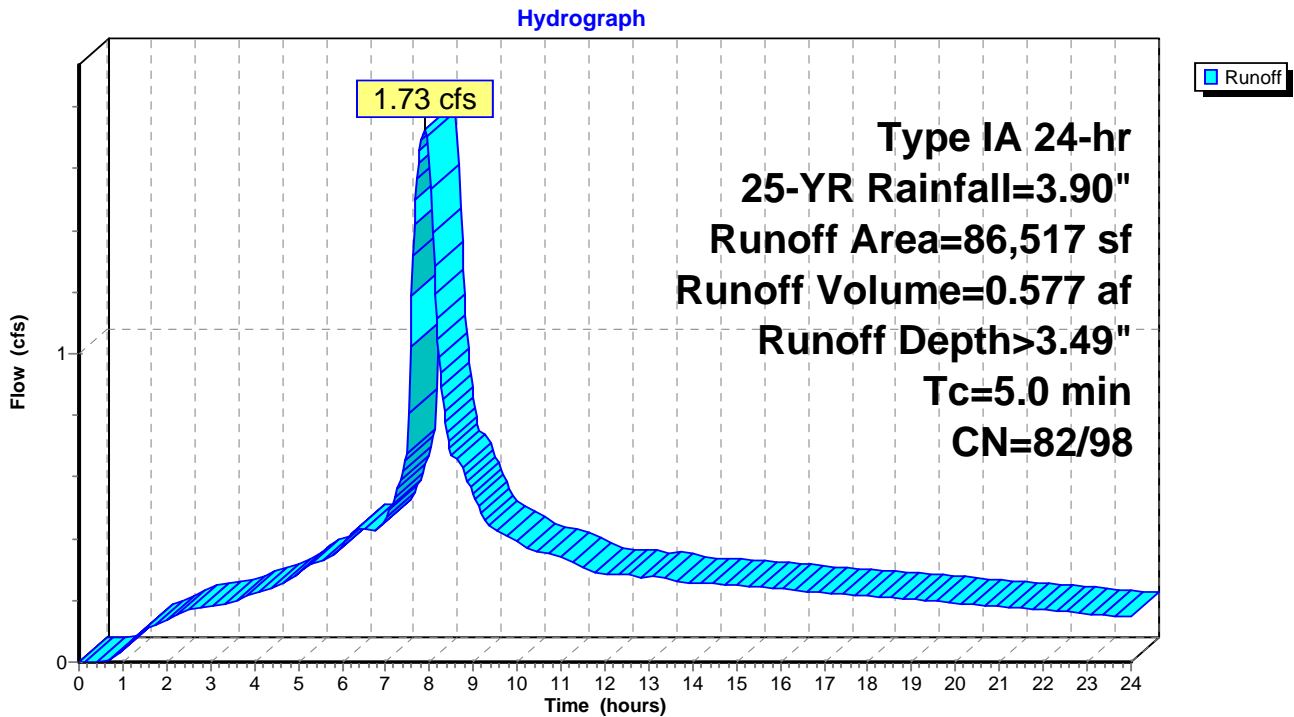
Runoff = 1.73 cfs @ 7.89 hrs, Volume= 0.577 af, Depth> 3.49"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
* 76,812	98	Impervious
* 5,680	79	Landscaping, HSG B
* 4,025	86	Landscaping, HSC C
86,517	96	Weighted Average
9,705		11.22% Pervious Area
76,812		88.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.01S: Parkway Village South



Summary for Subcatchment 3.02S: Parkway Village South

Runoff = 0.46 cfs @ 7.90 hrs, Volume= 0.154 af, Depth> 3.24"

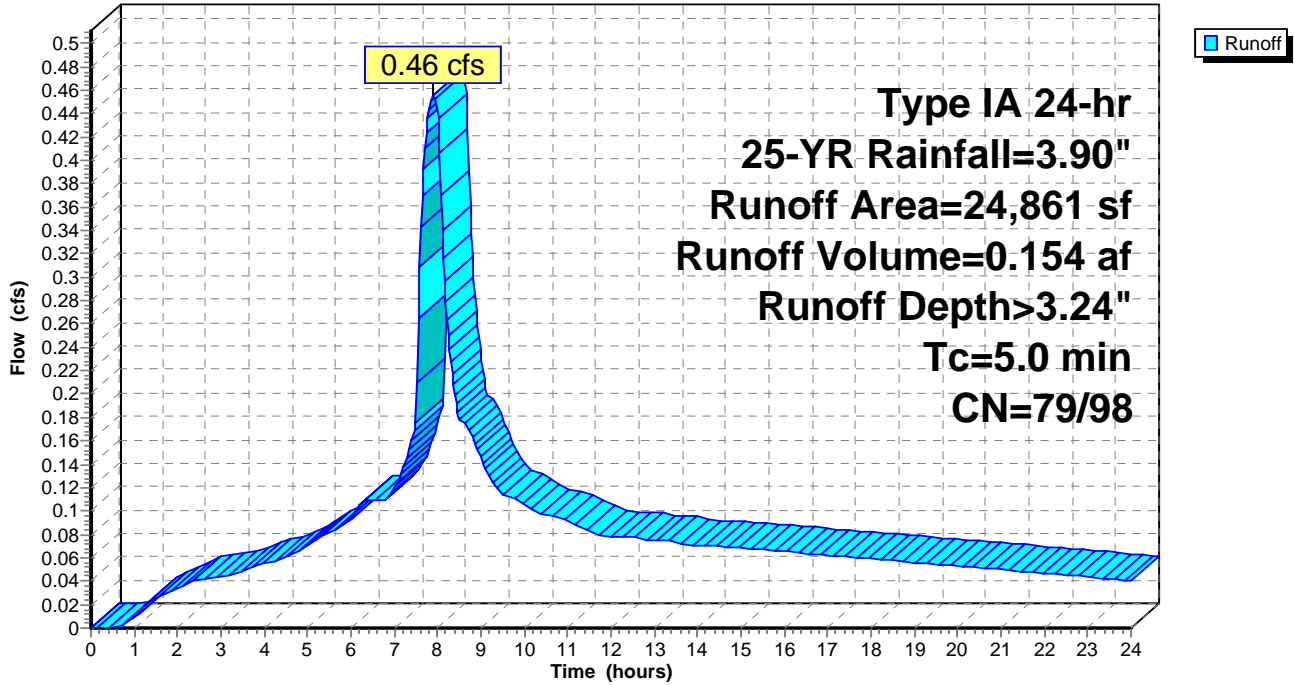
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	18,953	98	Impervious
*	5,870	79	Landscaping, HSG B
*	38	86	Landscaping, HSC C
	24,861	93	Weighted Average
	5,908		23.76% Pervious Area
	18,953		76.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.02S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.03S: Parkway Village South

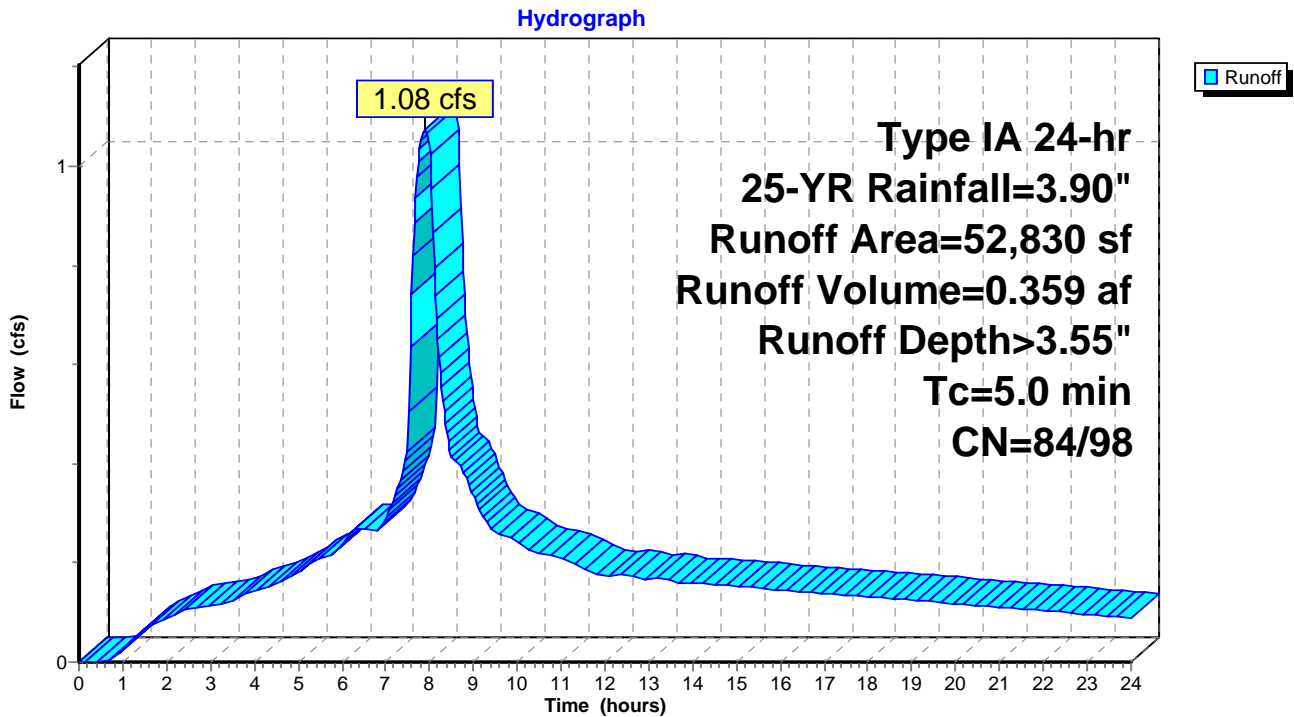
Runoff = 1.08 cfs @ 7.89 hrs, Volume= 0.359 af, Depth> 3.55"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	48,760	98	Impervious
*	1,026	79	Landscaping, HSG B
*	3,044	86	Landscaping, HSC C
	52,830	97	Weighted Average
	4,070		7.70% Pervious Area
	48,760		92.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.03S: Parkway Village South



Summary for Subcatchment 3.04S: Parkway Village South

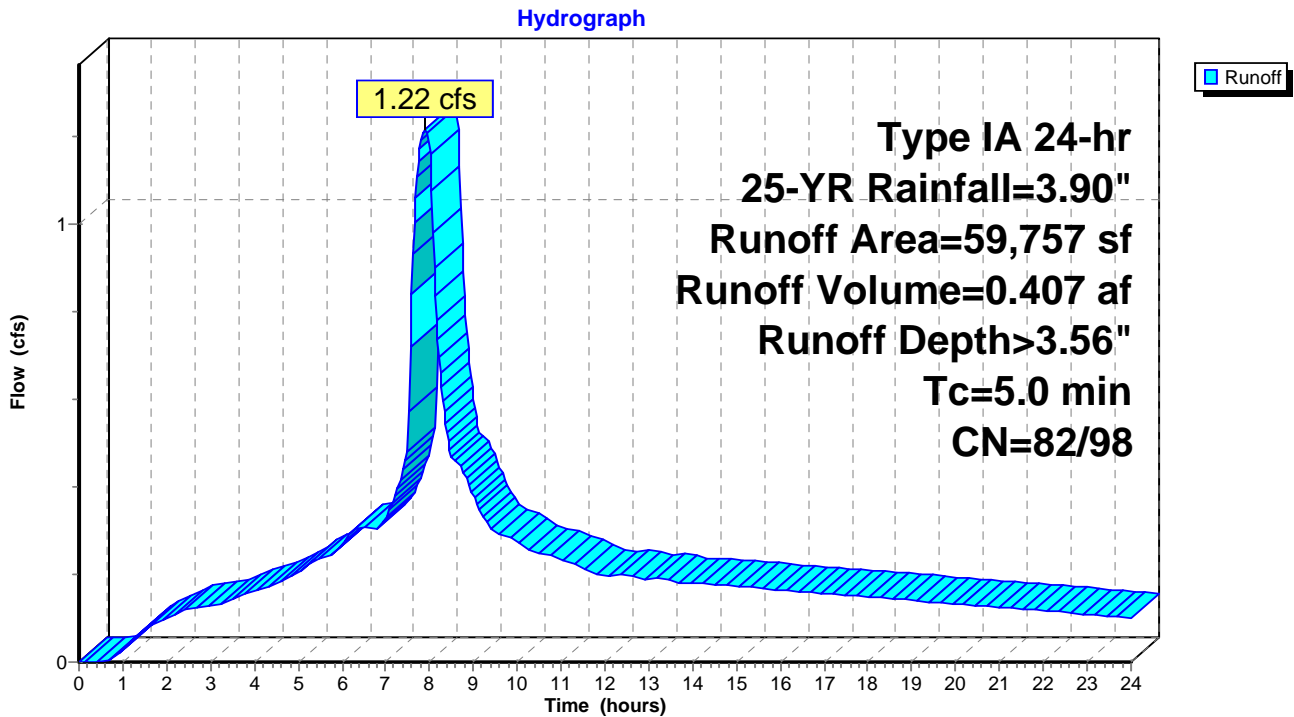
Runoff = 1.22 cfs @ 7.89 hrs, Volume= 0.407 af, Depth> 3.56"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	55,867	98	Impervious
*	2,196	79	Landscaping, HSG B
*	1,694	86	Landscaping, HSC C
	59,757	97	Weighted Average
	3,890		6.51% Pervious Area
	55,867		93.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.04S: Parkway Village South



Summary for Subcatchment 3.05S: Parkway Village South

Runoff = 0.86 cfs @ 7.90 hrs, Volume= 0.287 af, Depth> 3.41"

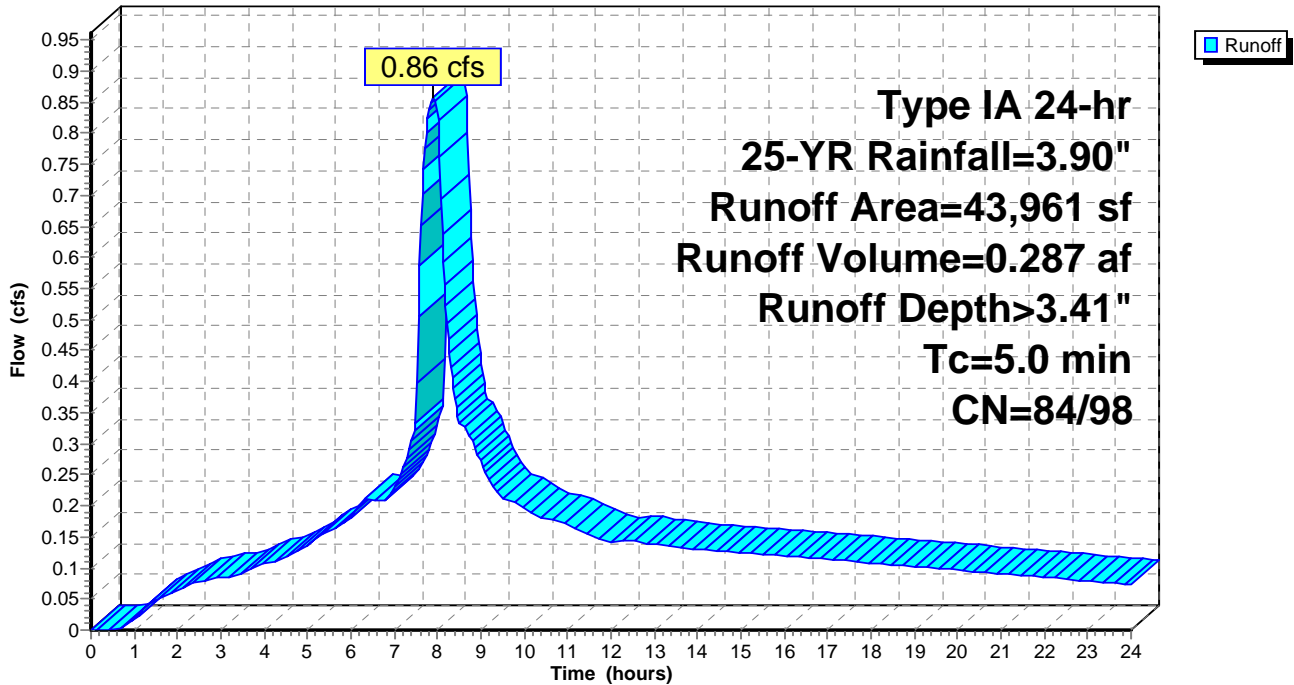
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	36,019	98	Impervious
*	1,718	79	Landscaping, HSG B
*	6,224	86	Landscaping, HSC C
	43,961	96	Weighted Average
	7,942		18.07% Pervious Area
	36,019		81.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.05S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.06S: Parkway Village South

Runoff = 1.44 cfs @ 7.89 hrs, Volume= 0.478 af, Depth> 3.57"

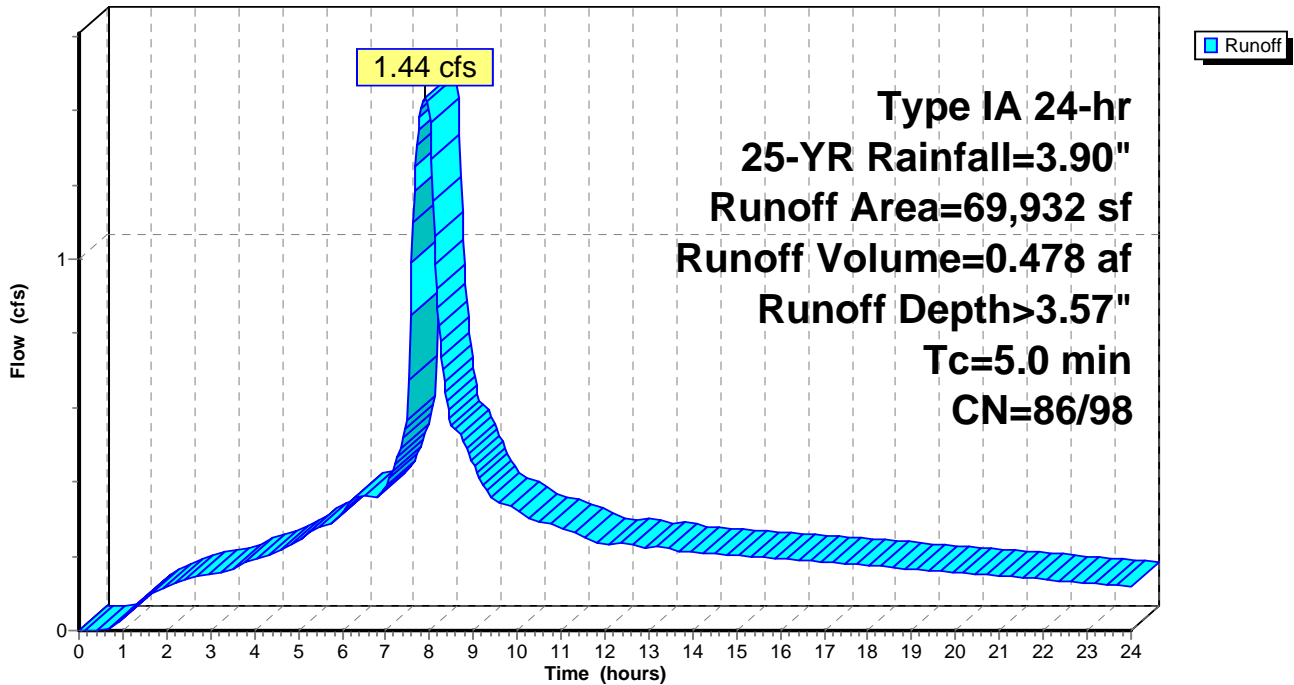
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	64,931	98	Impervious
*	5,001	86	Landscaping, HSC C
	69,932	97	Weighted Average
	5,001		7.15% Pervious Area
	64,931		92.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.06S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.07S: Parkway Village South

Runoff = 1.70 cfs @ 7.89 hrs, Volume= 0.566 af, Depth> 3.61"

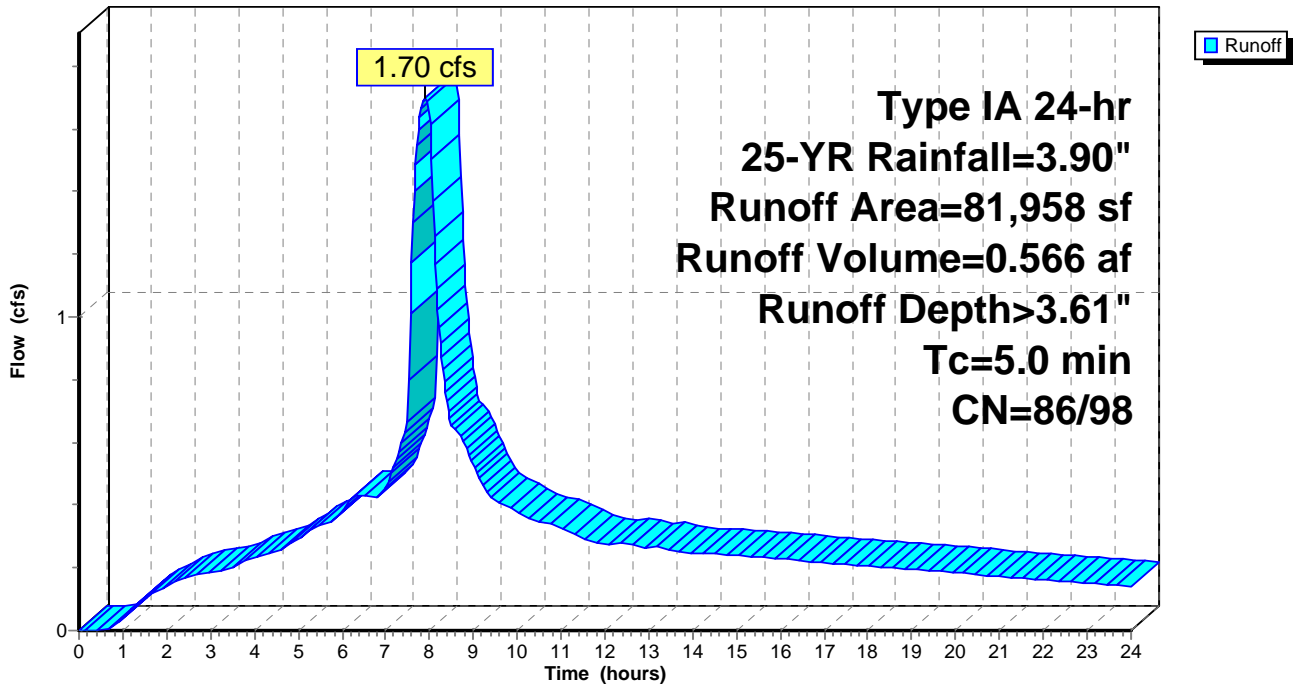
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	78,820	98	Impervious
*	3,138	86	Landscaping, HSC C
	81,958	98	Weighted Average
	3,138		3.83% Pervious Area
	78,820		96.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.07S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.08S: Parkway Village South

Runoff = 0.20 cfs @ 8.00 hrs, Volume= 0.073 af, Depth> 2.50"

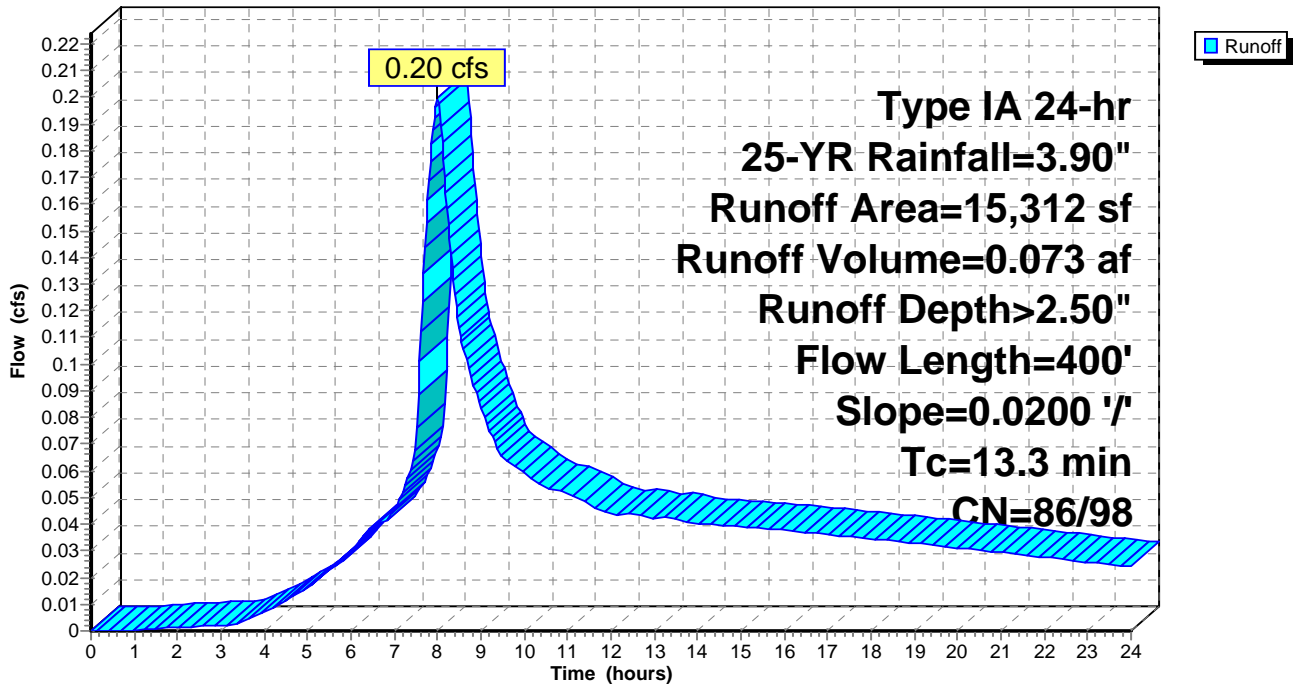
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type IA 24-hr 25-YR Rainfall=3.90"

Area (sf)	CN	Description
* 779	98	Impervious
* 14,533	86	Landscaping, HSC C
15,312	87	Weighted Average
14,533		94.91% Pervious Area
779		5.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
2.2	300	0.0200	2.28		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.3	400	Total			

Subcatchment 3.08S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.09S: Parkway Village South

Runoff = 1.00 cfs @ 7.89 hrs, Volume= 0.332 af, Depth> 3.61"

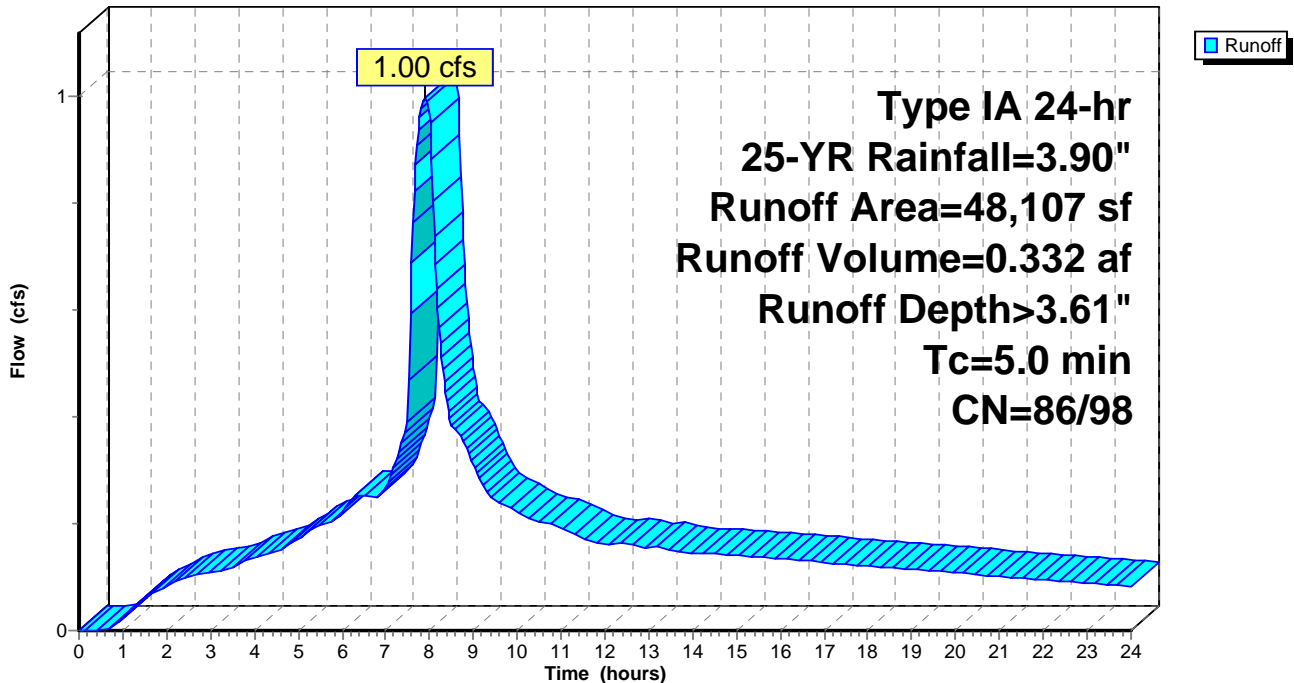
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	46,061	98	Impervious
*	2,046	86	Landscaping, HSC C
	48,107	97	Weighted Average
	2,046		4.25% Pervious Area
	46,061		95.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.09S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.10S: Parkway Village South

Runoff = 0.39 cfs @ 7.89 hrs, Volume= 0.131 af, Depth> 3.51"

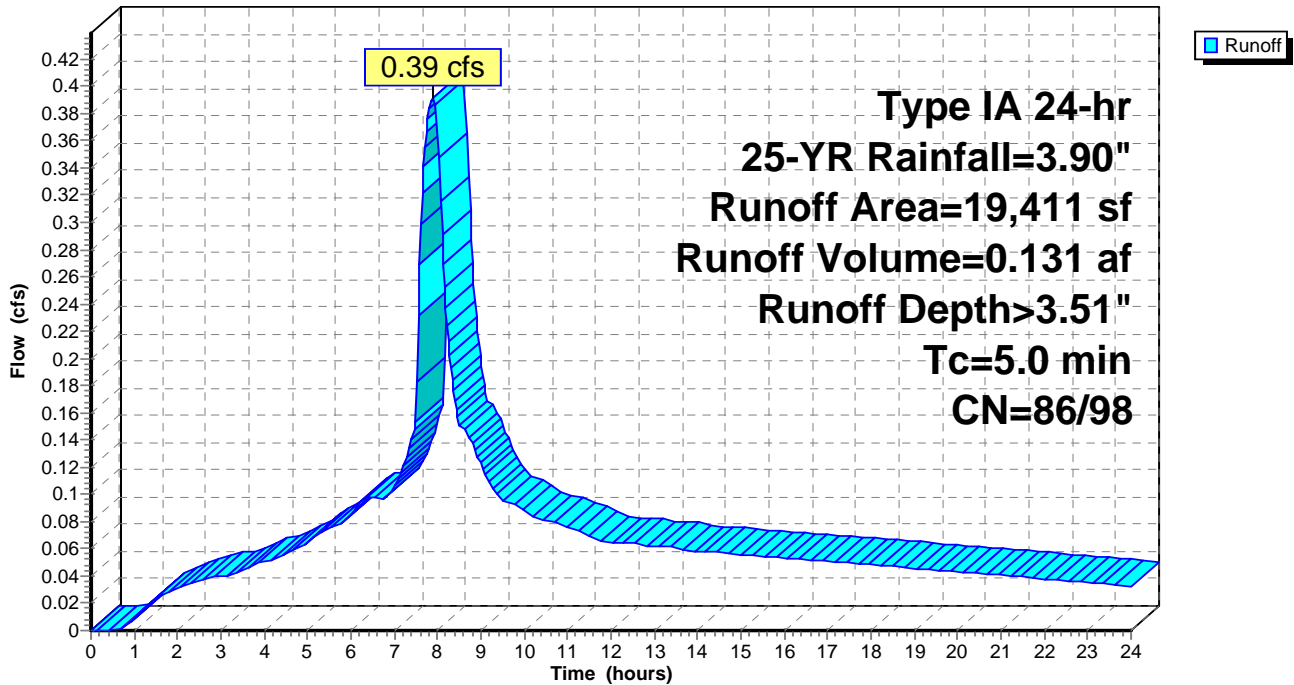
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	17,090	98	Impervious
*	2,321	86	Landscaping, HSC C
	19,411	97	Weighted Average
	2,321		11.96% Pervious Area
	17,090		88.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.10S: Parkway Village South

Hydrograph



Summary for Subcatchment 3.11S: Parkway Village South (Future)

Runoff = 2.83 cfs @ 7.89 hrs, Volume= 0.942 af, Depth> 3.58"

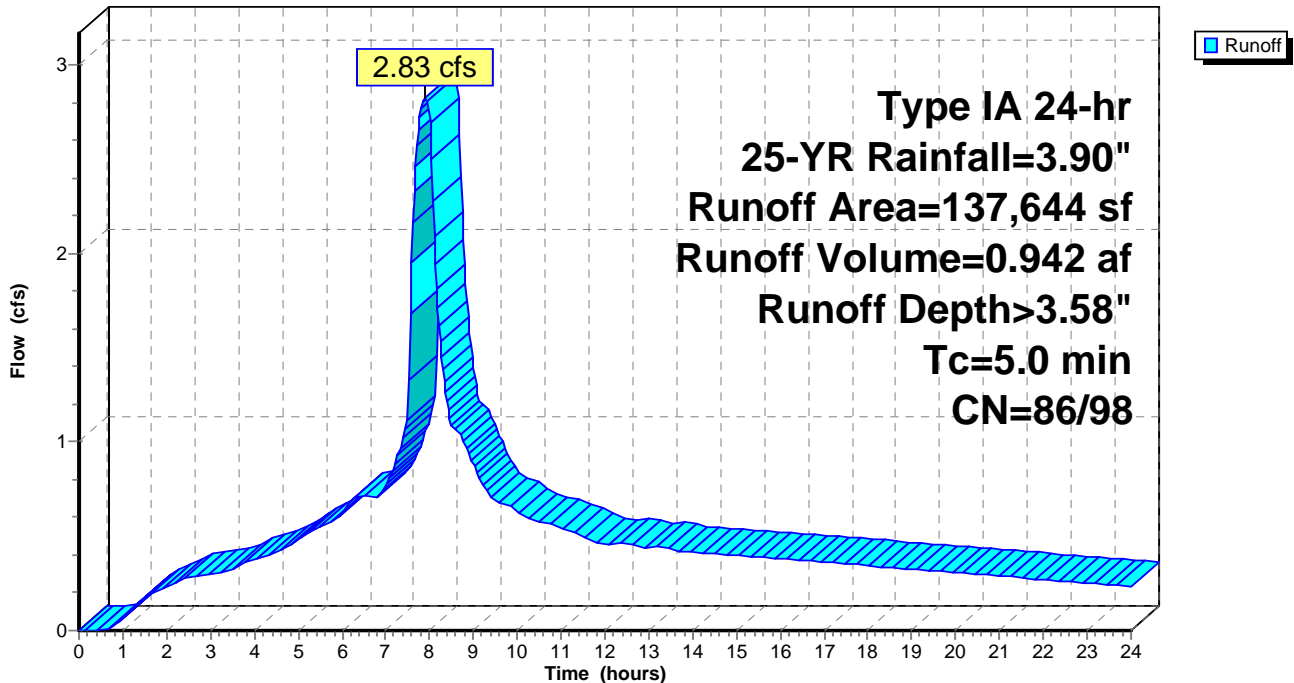
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type IA 24-hr 25-YR Rainfall=3.90"

	Area (sf)	CN	Description
*	128,498	98	Impervious
*	9,146	86	Landscaping, HSC C
	137,644	97	Weighted Average
	9,146		6.64% Pervious Area
	128,498		93.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3.11S: Parkway Village South (Future)

Hydrograph



Summary for Pond B3.1: 18"

Inflow Area = 14.348 ac, 91.49% Impervious, Inflow Depth > 3.54" for 25-YR event
 Inflow = 12.70 cfs @ 7.89 hrs, Volume= 4.233 af
 Outflow = 12.70 cfs @ 7.89 hrs, Volume= 4.233 af, Atten= 0%, Lag= 0.0 min
 Primary = 12.70 cfs @ 7.89 hrs, Volume= 4.233 af

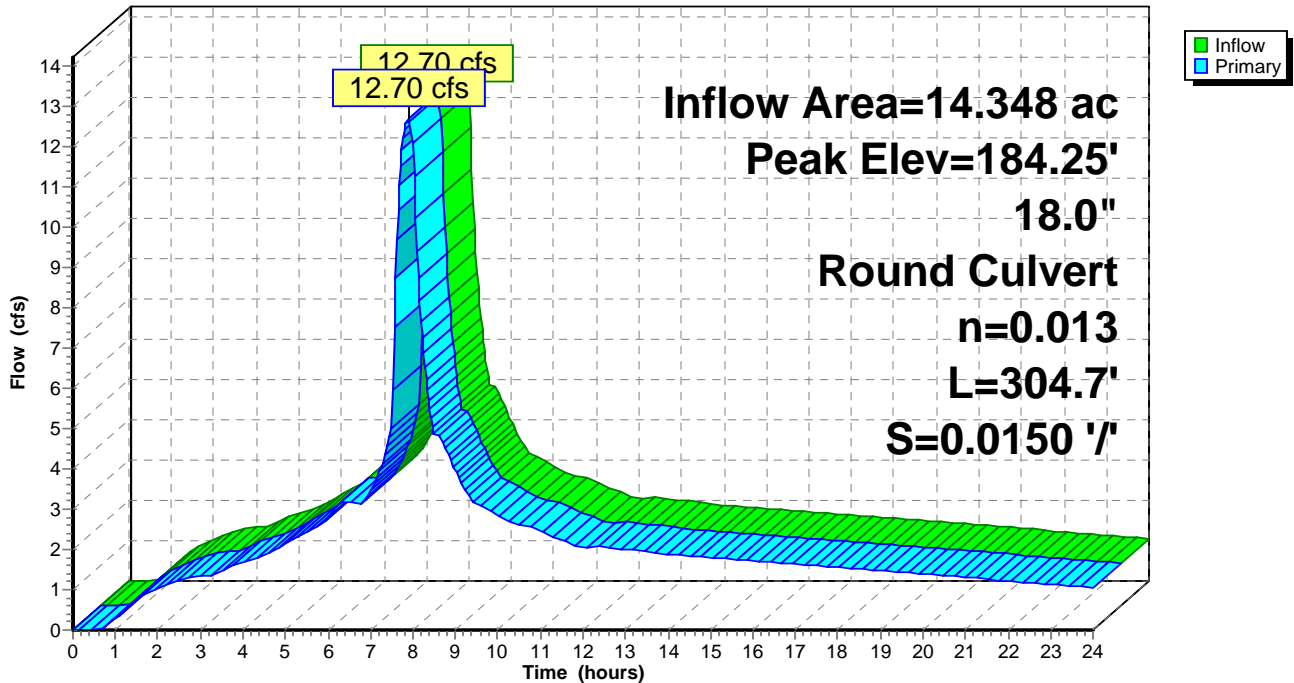
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 184.25' @ 7.89 hrs
 Flood Elev= 194.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	181.27'	18.0" Round Culvert L= 304.7' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 181.27' / 176.70' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=12.70 cfs @ 7.89 hrs HW=184.25' TW=177.19' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 12.70 cfs @ 7.19 fps)

Pond B3.1: 18"

Hydrograph



Summary for Pond B3.1A.1: 6"

Inflow Area = 0.446 ac, 88.04% Impervious, Inflow Depth > 3.51" for 25-YR event
 Inflow = 0.39 cfs @ 7.89 hrs, Volume= 0.131 af
 Outflow = 0.39 cfs @ 7.89 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.39 cfs @ 7.89 hrs, Volume= 0.131 af

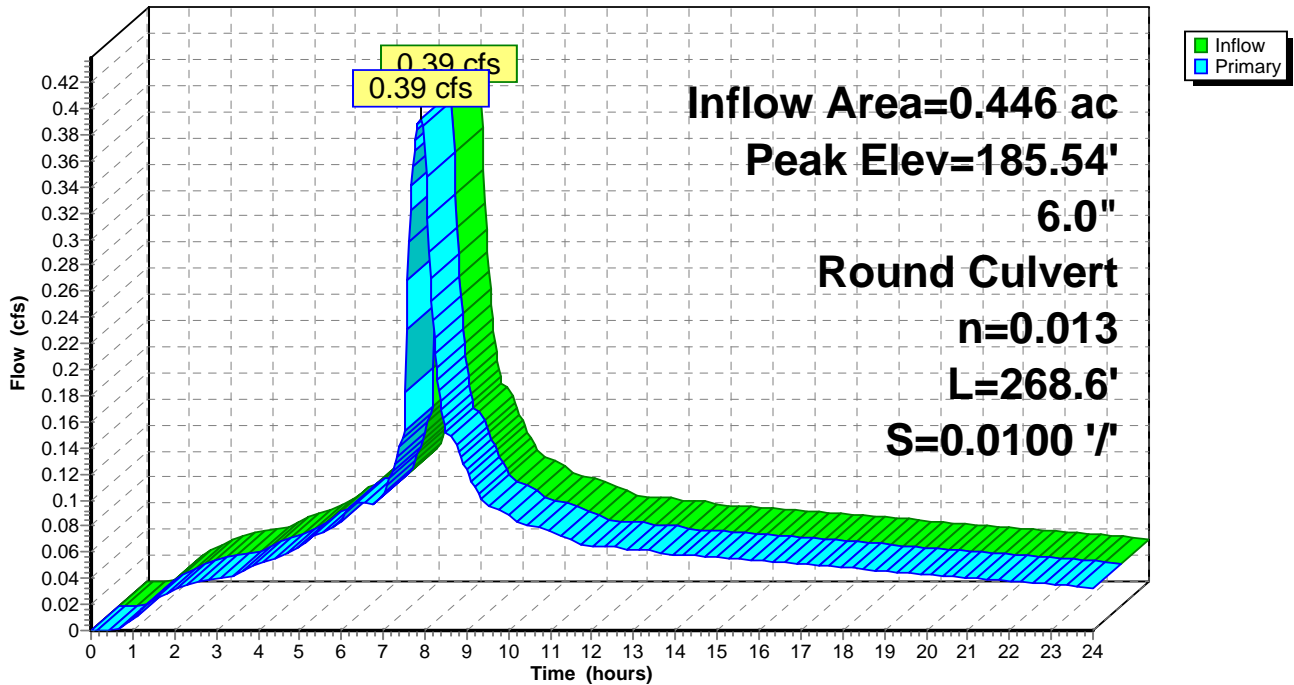
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 185.54' @ 7.89 hrs
 Flood Elev= 194.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	184.96'	6.0" Round Culvert L= 268.6' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 184.96' / 182.27' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.39 cfs @ 7.89 hrs HW=185.54' TW=184.25' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 0.39 cfs @ 2.15 fps)

Pond B3.1A.1: 6"

Hydrograph



Summary for Pond B3.1B.1: 8"

Inflow Area = 1.104 ac, 95.75% Impervious, Inflow Depth > 3.61" for 25-YR event
 Inflow = 1.00 cfs @ 7.89 hrs, Volume= 0.332 af
 Outflow = 1.00 cfs @ 7.89 hrs, Volume= 0.332 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.00 cfs @ 7.89 hrs, Volume= 0.332 af

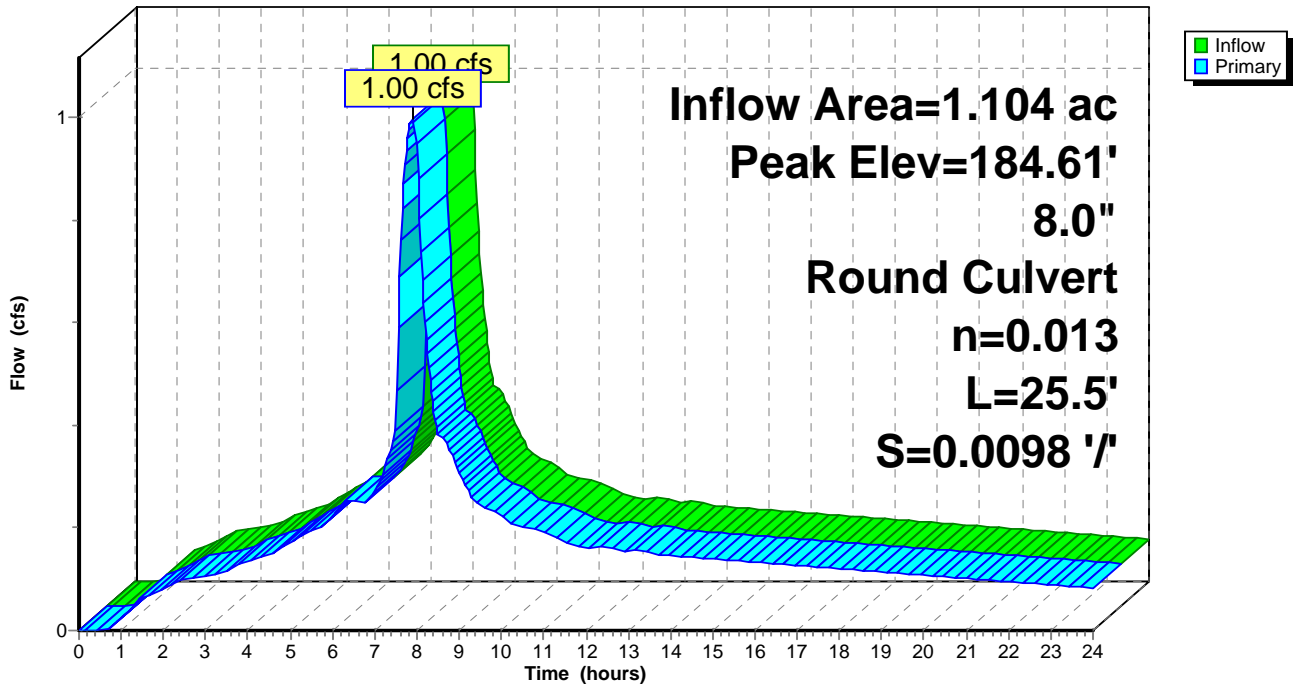
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 184.61' @ 7.89 hrs
 Flood Elev= 193.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	182.35'	8.0" Round Culvert L= 25.5' Ke= 0.500 Inlet / Outlet Invert= 182.35' / 182.10' S= 0.0098 '/ Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=1.00 cfs @ 7.89 hrs HW=184.61' TW=184.25' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 1.00 cfs @ 2.86 fps)

Pond B3.1B.1: 8"

Hydrograph



Summary for Pond B3.2: 18"

Inflow Area = 9.638 ac, 90.55% Impervious, Inflow Depth > 3.52" for 25-YR event
 Inflow = 8.48 cfs @ 7.89 hrs, Volume= 2.828 af
 Outflow = 8.48 cfs @ 7.89 hrs, Volume= 2.828 af, Atten= 0%, Lag= 0.0 min
 Primary = 8.48 cfs @ 7.89 hrs, Volume= 2.828 af

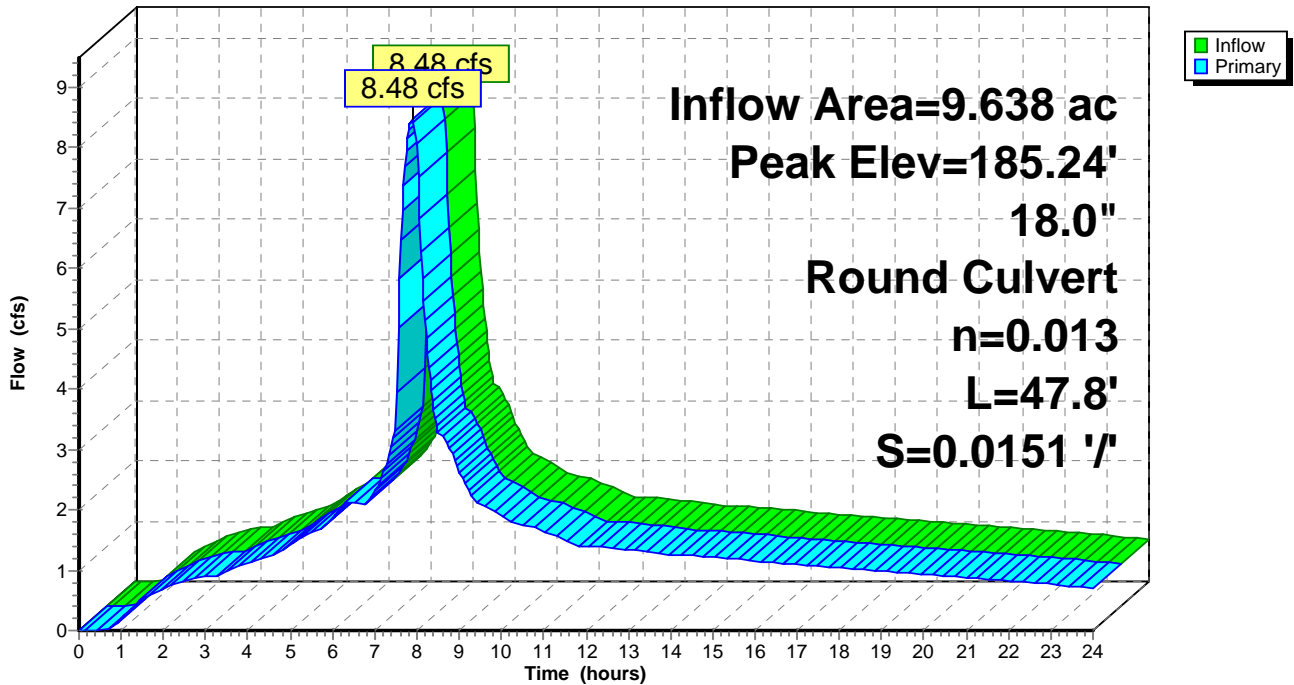
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 185.24' @ 7.89 hrs
 Flood Elev= 194.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	182.19'	18.0" Round Culvert L= 47.8' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 182.19' / 181.47' S= 0.0151 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=8.48 cfs @ 7.89 hrs HW=185.24' TW=184.25' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 8.48 cfs @ 4.80 fps)

Pond B3.2: 18"

Hydrograph



Summary for Pond B3.3: 18"

Inflow Area = 9.638 ac, 90.55% Impervious, Inflow Depth > 3.52" for 25-YR event
 Inflow = 8.48 cfs @ 7.89 hrs, Volume= 2.828 af
 Outflow = 8.48 cfs @ 7.89 hrs, Volume= 2.828 af, Atten= 0%, Lag= 0.0 min
 Primary = 8.48 cfs @ 7.89 hrs, Volume= 2.828 af

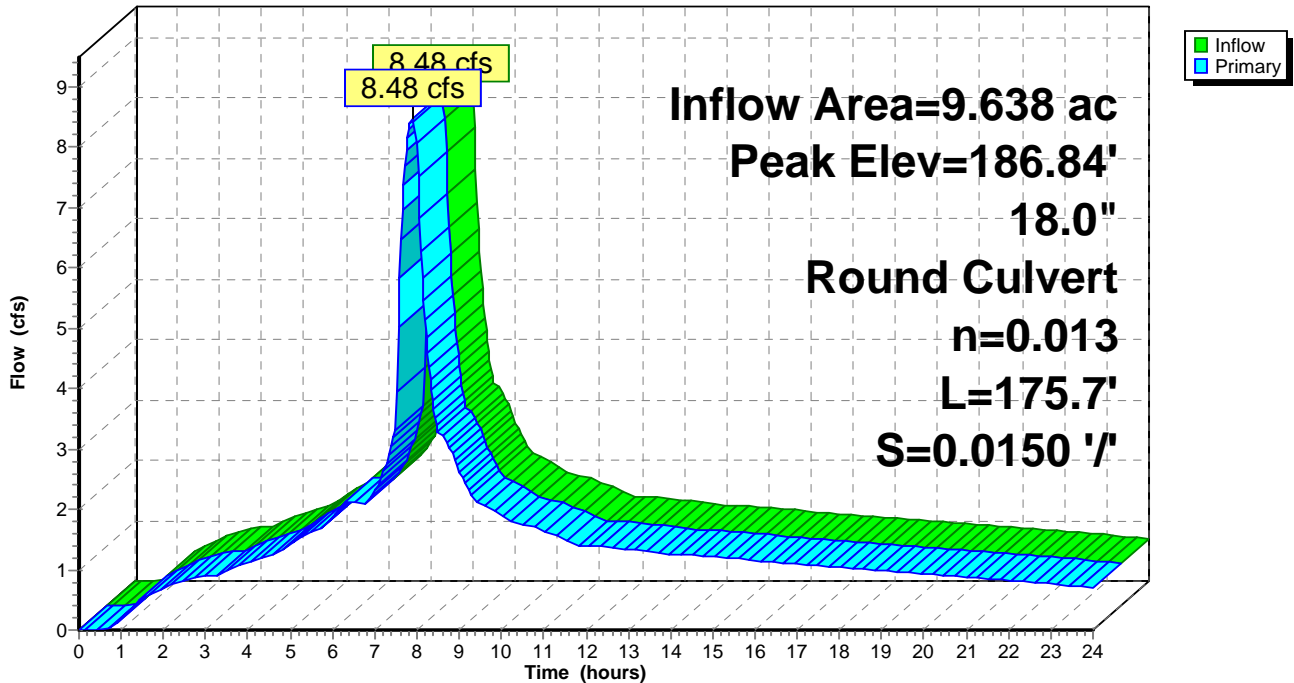
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 186.84' @ 7.90 hrs
 Flood Elev= 199.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	185.03'	18.0" Round Culvert L= 175.7' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 185.03' / 182.39' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=8.45 cfs @ 7.89 hrs HW=186.83' TW=185.24' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 8.45 cfs @ 5.04 fps)

Pond B3.3: 18"

Hydrograph



Summary for Pond B3.3A.1: 10"

Inflow Area = 1.881 ac, 96.17% Impervious, Inflow Depth > 3.61" for 25-YR event
 Inflow = 1.70 cfs @ 7.89 hrs, Volume= 0.566 af
 Outflow = 1.70 cfs @ 7.89 hrs, Volume= 0.566 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.70 cfs @ 7.89 hrs, Volume= 0.566 af

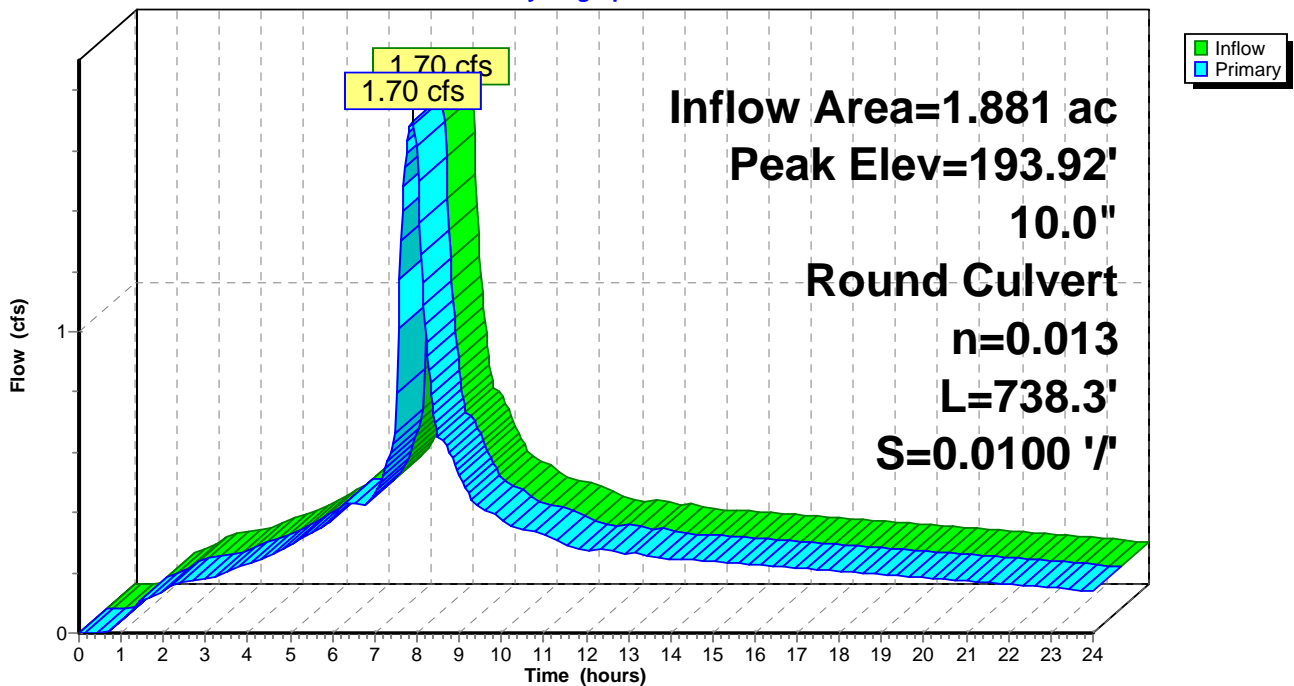
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 193.92' @ 7.89 hrs
 Flood Elev= 199.61'

Device	Routing	Invert	Outlet Devices
#1	Primary	193.08'	10.0" Round Culvert L= 738.3' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 193.08' / 185.70' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.70 cfs @ 7.89 hrs HW=193.92' TW=186.83' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.70 cfs @ 3.12 fps)

Pond B3.3A.1: 10"

Hydrograph



Summary for Pond B3.3B.1: 10"

Inflow Area = 2.615 ac, 88.64% Impervious, Inflow Depth > 3.51" for 25-YR event
 Inflow = 2.29 cfs @ 7.89 hrs, Volume= 0.765 af
 Outflow = 2.29 cfs @ 7.89 hrs, Volume= 0.765 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.29 cfs @ 7.89 hrs, Volume= 0.765 af

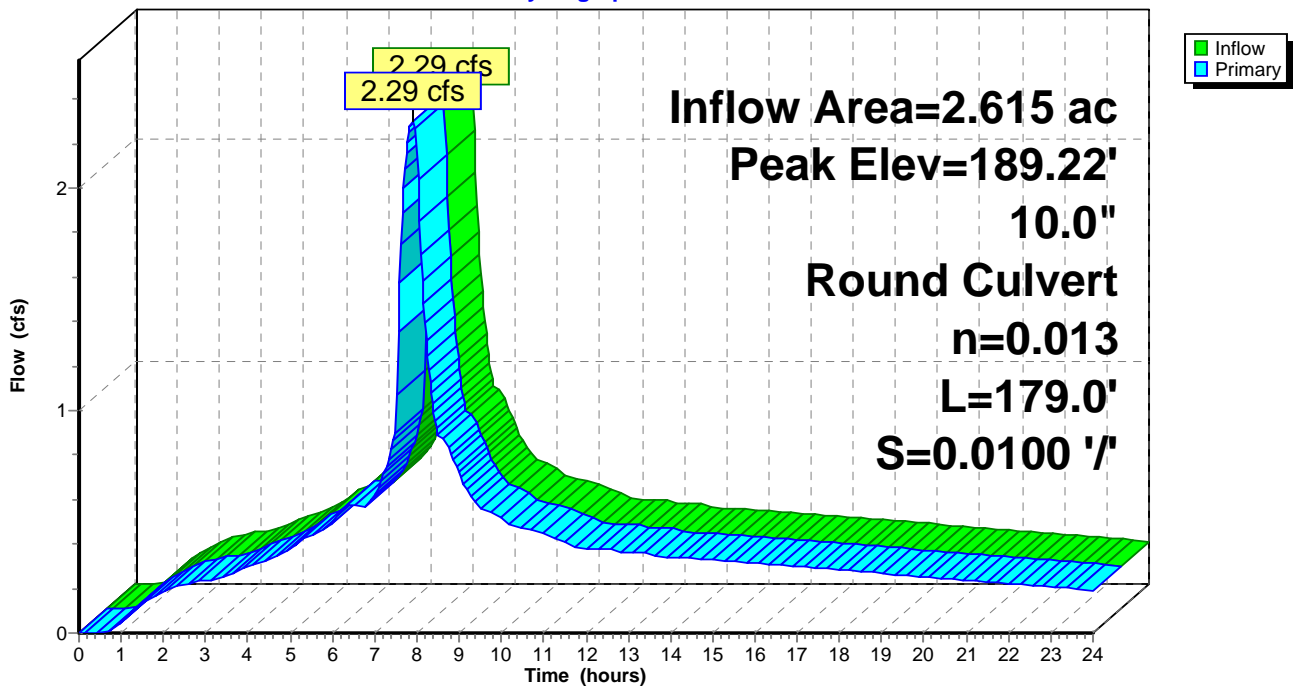
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 189.22' @ 7.90 hrs
 Flood Elev= 199.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.49'	10.0" Round Culvert L= 179.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 187.49' / 185.70' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=2.29 cfs @ 7.89 hrs HW=189.21' TW=186.83' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 2.29 cfs @ 4.20 fps)

Pond B3.3B.1: 10"

Hydrograph



Summary for Pond B3.3B.2: 8"

Inflow Area = 1.009 ac, 81.93% Impervious, Inflow Depth > 3.41" for 25-YR event
 Inflow = 0.86 cfs @ 7.90 hrs, Volume= 0.287 af
 Outflow = 0.86 cfs @ 7.90 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.86 cfs @ 7.90 hrs, Volume= 0.287 af

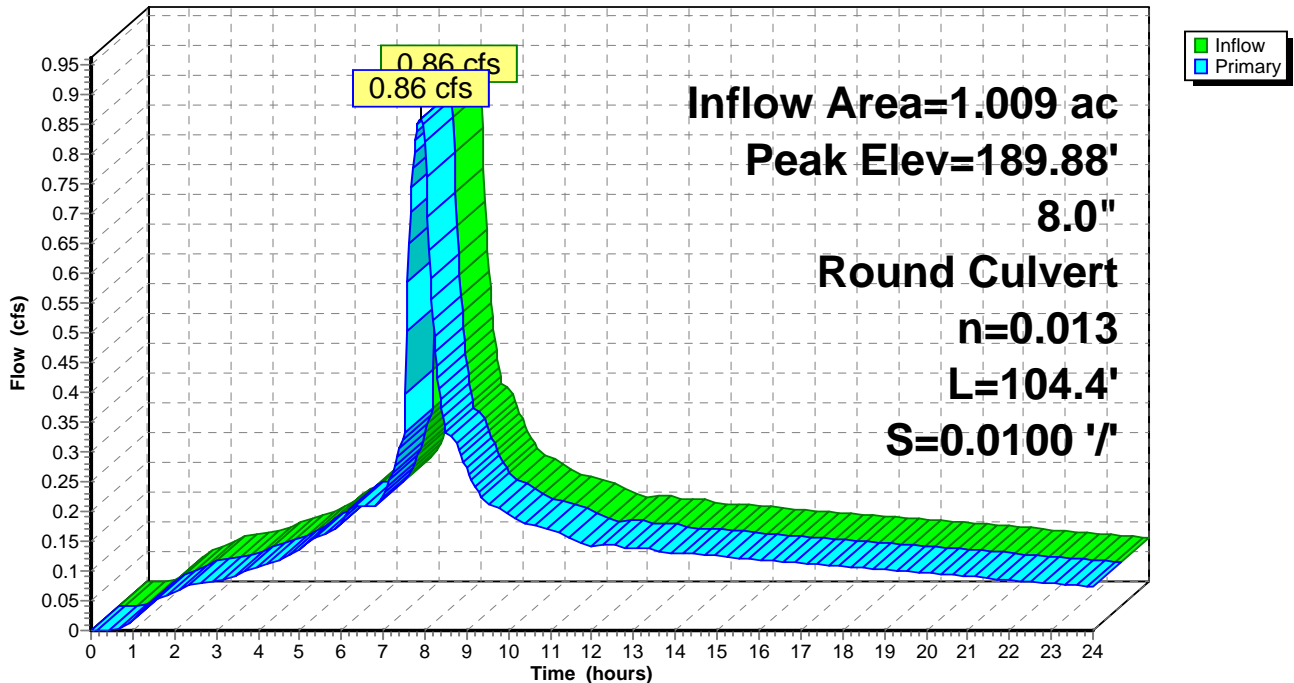
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 189.88' @ 7.91 hrs
 Flood Elev= 195.81'

Device #	Routing	Invert	Outlet Devices
#1	Primary	188.61'	8.0" Round Culvert L= 104.4' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 188.61' / 187.57' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.85 cfs @ 7.90 hrs HW=189.86' TW=189.21' (Dynamic Tailwater)
 ←**1=Culvert** (Outlet Controls 0.85 cfs @ 2.43 fps)

Pond B3.3B.2: 8"

Hydrograph



Summary for Pond B3.4: 15"

Inflow Area = 5.142 ac, 89.47% Impervious, Inflow Depth > 3.49" for 25-YR event
 Inflow = 4.48 cfs @ 7.89 hrs, Volume= 1.497 af
 Outflow = 4.48 cfs @ 7.89 hrs, Volume= 1.497 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.48 cfs @ 7.89 hrs, Volume= 1.497 af

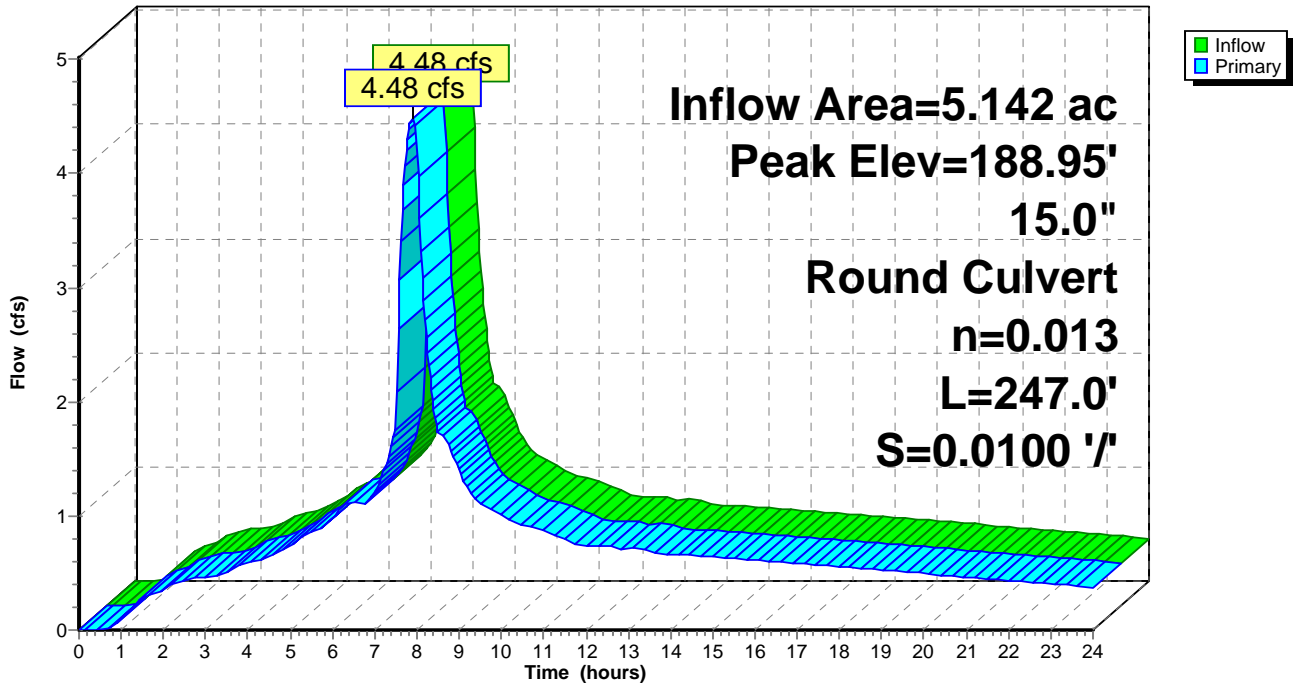
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 188.95' @ 7.90 hrs
 Flood Elev= 192.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	187.75'	15.0" Round Culvert L= 247.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 187.75' / 185.28' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=4.48 cfs @ 7.89 hrs HW=188.95' TW=186.83' (Dynamic Tailwater)
 ←1=Culvert (Outlet Controls 4.48 cfs @ 4.75 fps)

Pond B3.4: 15"

Hydrograph



Summary for Pond B3.4A.1: 10"

Inflow Area = 1.784 ac, 87.16% Impervious, Inflow Depth > 3.45" for 25-YR event
 Inflow = 1.53 cfs @ 7.89 hrs, Volume= 0.513 af
 Outflow = 1.53 cfs @ 7.89 hrs, Volume= 0.513 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.53 cfs @ 7.89 hrs, Volume= 0.513 af

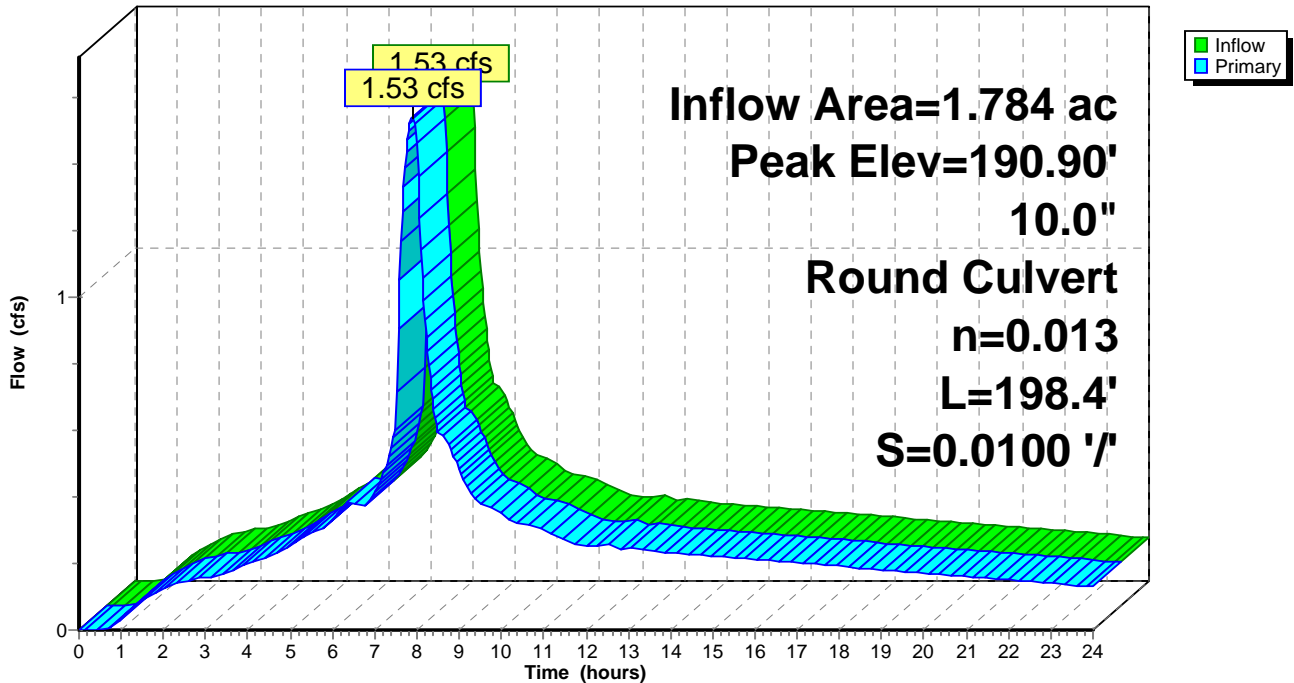
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 190.90' @ 7.89 hrs
 Flood Elev= 196.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.15'	10.0" Round Culvert L= 198.4' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 190.15' / 188.17' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.53 cfs @ 7.89 hrs HW=190.90' TW=188.95' (Dynamic Tailwater)
 ↳ **1=Culvert** (Inlet Controls 1.53 cfs @ 2.96 fps)

Pond B3.4A.1: 10"

Hydrograph



Summary for Pond B3.4A.2: 6"

Inflow Area = 0.571 ac, 76.24% Impervious, Inflow Depth > 3.24" for 25-YR event
 Inflow = 0.46 cfs @ 7.90 hrs, Volume= 0.154 af
 Outflow = 0.46 cfs @ 7.90 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.46 cfs @ 7.90 hrs, Volume= 0.154 af

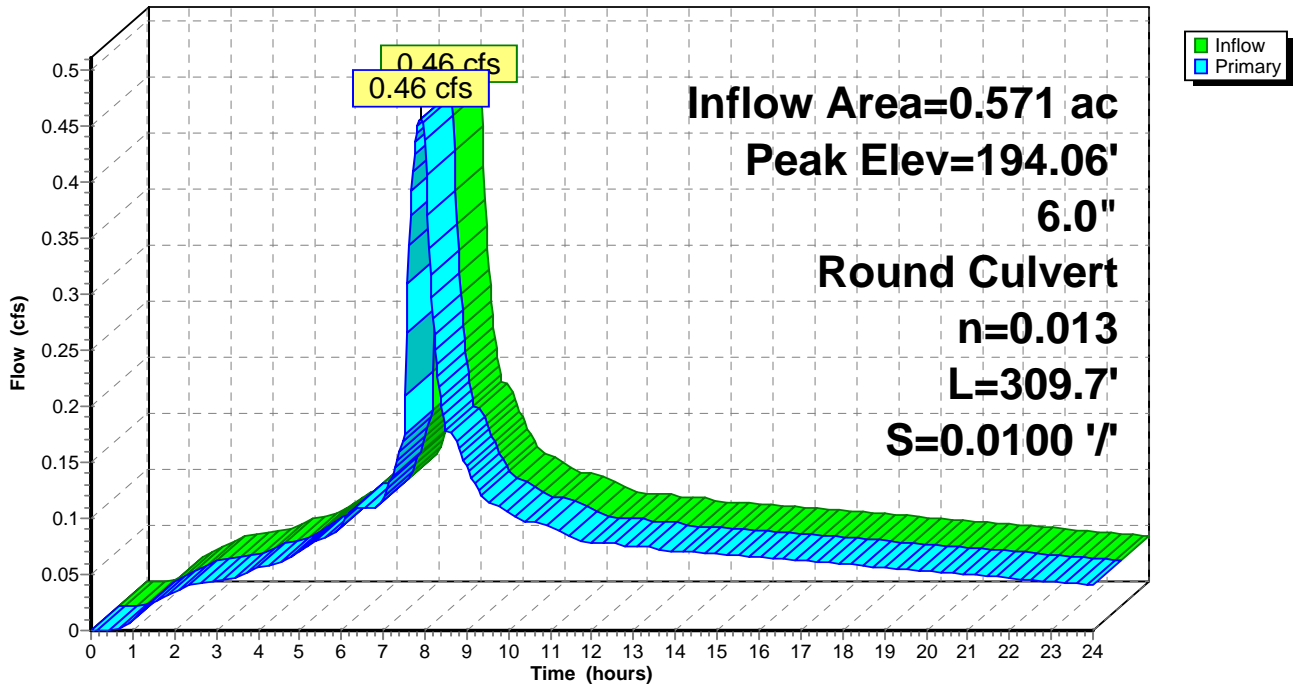
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 194.06' @ 7.90 hrs
 Flood Elev= 198.87'

Device	Routing	Invert	Outlet Devices
#1	Primary	193.58'	6.0" Round Culvert L= 309.7' Ke= 0.500 Inlet / Outlet Invert= 193.58' / 190.48' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.46 cfs @ 7.90 hrs HW=194.06' TW=190.90' (Dynamic Tailwater)
 ↳ **1=Culvert** (Inlet Controls 0.46 cfs @ 2.36 fps)

Pond B3.4A.2: 6"

Hydrograph



Summary for Pond B3.4B.1: 12"

Inflow Area = 3.358 ac, 90.71% Impervious, Inflow Depth > 3.52" for 25-YR event
 Inflow = 2.95 cfs @ 7.89 hrs, Volume= 0.984 af
 Outflow = 2.95 cfs @ 7.89 hrs, Volume= 0.984 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.95 cfs @ 7.89 hrs, Volume= 0.984 af

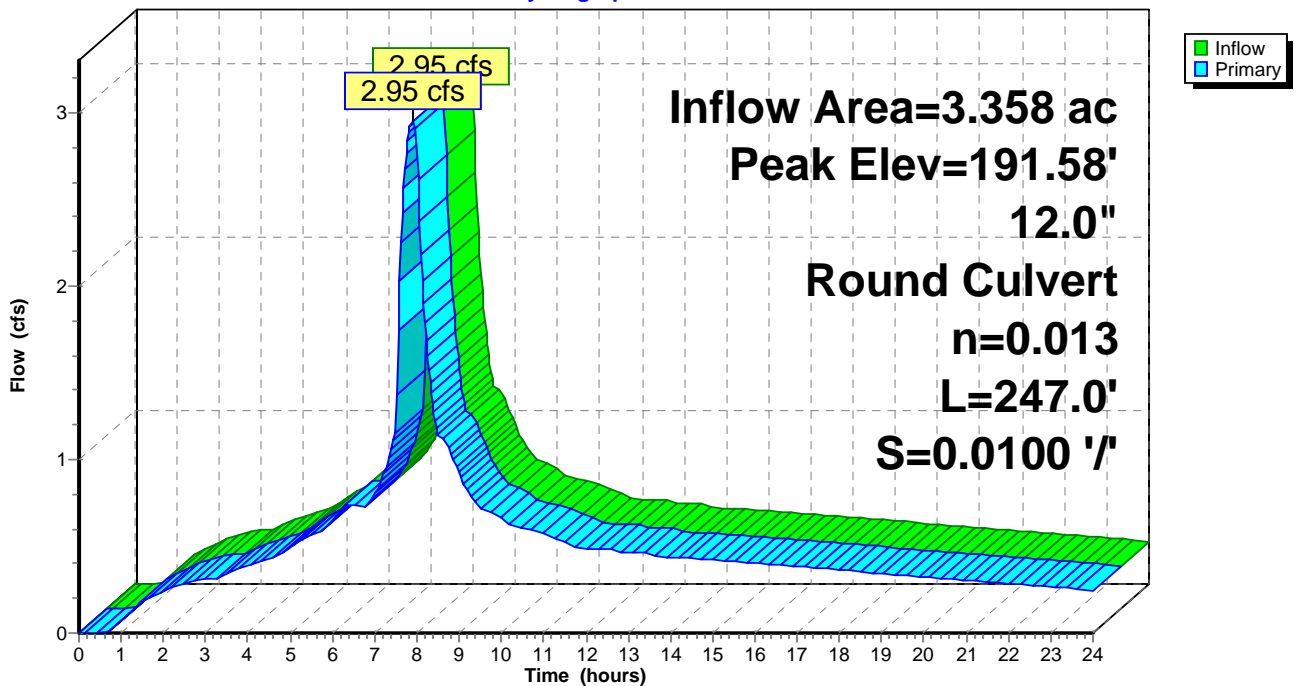
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 191.58' @ 7.89 hrs
 Flood Elev= 198.41'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.47'	12.0" Round Culvert L= 247.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 190.47' / 188.00' S= 0.0100 '/ Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.95 cfs @ 7.89 hrs HW=191.58' TW=188.95' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 2.95 cfs @ 3.75 fps)

Pond B3.4B.1: 12"

Hydrograph



Summary for Pond B3.4B.2: 10"

Inflow Area = 1.986 ac, 88.78% Impervious, Inflow Depth > 3.49" for 25-YR event
 Inflow = 1.73 cfs @ 7.89 hrs, Volume= 0.577 af
 Outflow = 1.73 cfs @ 7.89 hrs, Volume= 0.577 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.73 cfs @ 7.89 hrs, Volume= 0.577 af

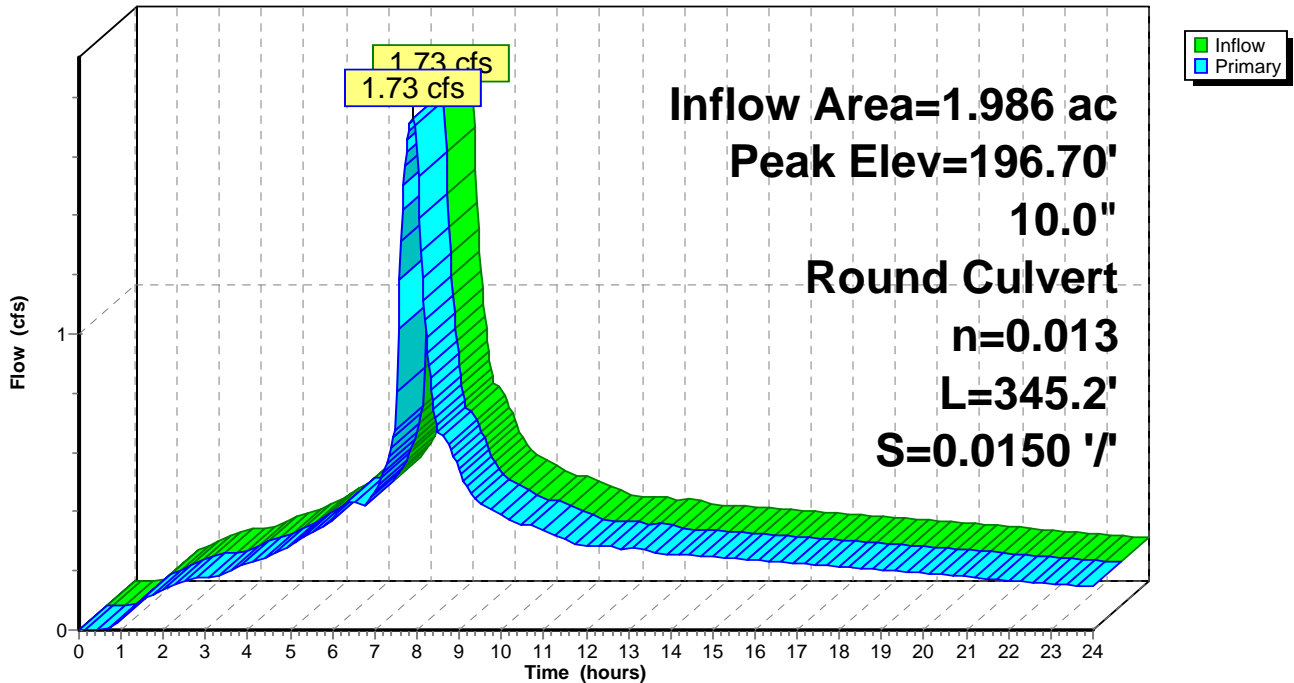
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 196.70' @ 7.89 hrs
 Flood Elev= 199.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	195.85'	10.0" Round Culvert L= 345.2' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 195.85' / 190.67' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=1.73 cfs @ 7.89 hrs HW=196.70' TW=191.58' (Dynamic Tailwater)
 ←1=Culvert (Inlet Controls 1.73 cfs @ 3.17 fps)

Pond B3.4B.2: 10"

Hydrograph



Appendix C: TR-55 Runoff Curve Numbers

Table 2-2a Runoff curve numbers for urban areas ^{1/}

Cover description	Average percent impervious area ^{2/}	Curve numbers for hydrologic soil group			
		A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82

Developing urban areas

Newly graded areas
(pervious areas only, no vegetation) ^{5/}

	77	86	91	94
--	----	----	----	----

Idle lands (CN's are determined using cover types
similar to those in table 2-2c).

¹ Average runoff condition, and $I_a = 0.2S$.

² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

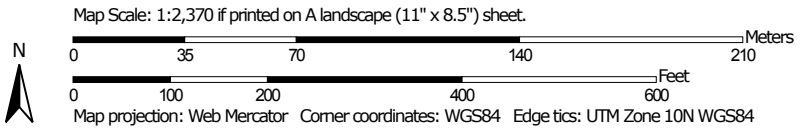
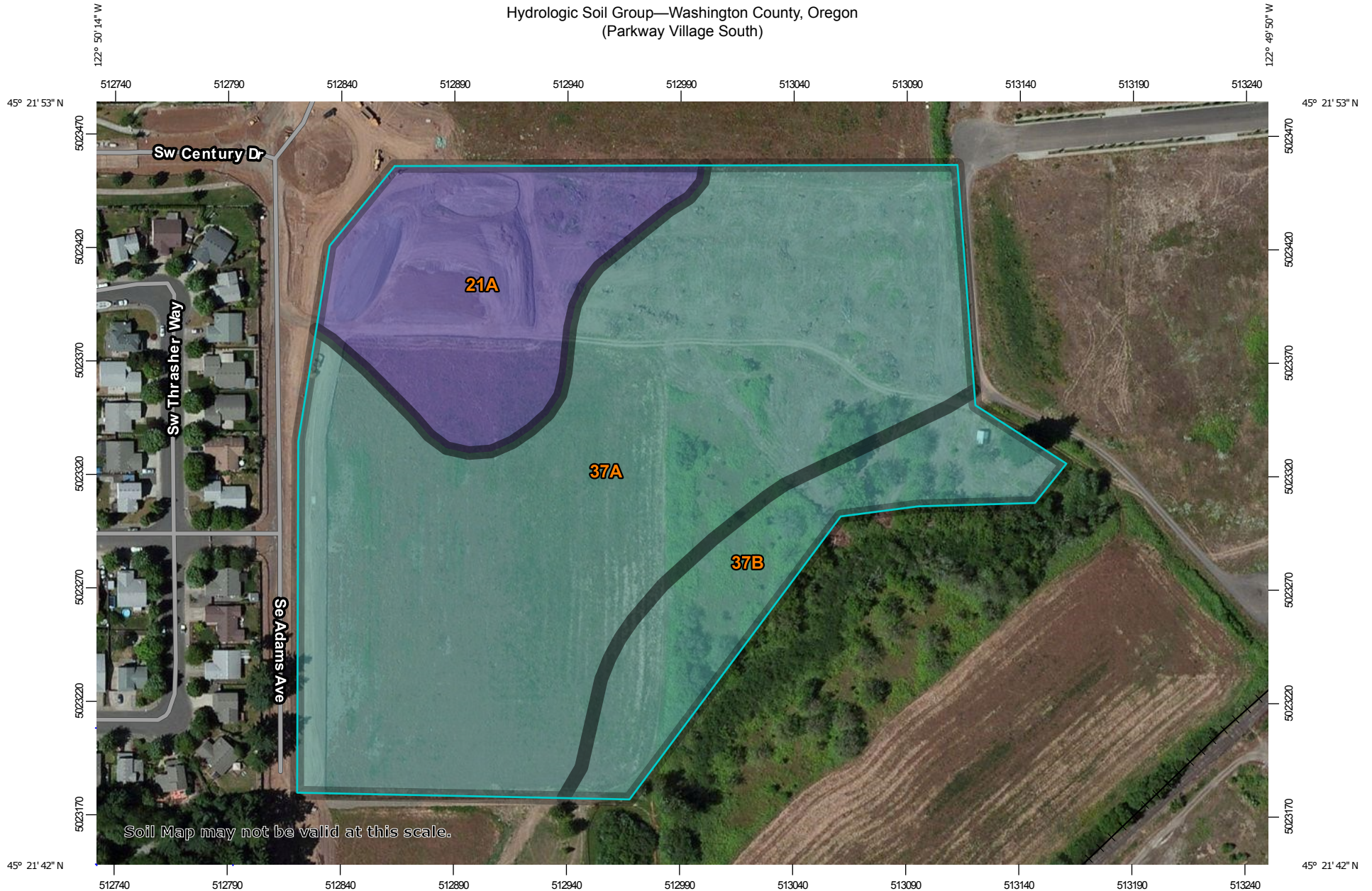
³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Appendix D: USDA – NRCS Soil Resource Report


Hydrologic Soil Group—Washington County, Oregon
(Parkway Village South)



Hydrologic Soil Group—Washington County, Oregon
(Parkway Village South)

MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines


-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Washington County, Oregon
Survey Area Data: Version 14, Sep 16, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Washington County, Oregon (OR067)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
21A	Hillsboro loam, 0 to 3 percent slopes	B	3.3	19.0%
37A	Quatama loam, 0 to 3 percent slopes	C	11.5	66.8%
37B	Quatama loam, 3 to 7 percent slopes	C	2.4	14.2%
Totals for Area of Interest			17.1	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Exhibit H: 2017 Similar Use Interpretation



Home of the Tualatin River National Wildlife Refuge

April 18, 2017

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Mayor
Krisanna Clark

Council President
Jennifer Harris

Councilors
Sean Garland
Dan King
Jennifer Kuiper
Sally Robinson
Kim Young

City Manager
Joseph Gall, ICMA-CM

Assistant City Manager
Tom Pessemier

Re: Similar Use Interpretation for Langer Farms Proposed Fun Center Use

Dear Mr. Goodell:

The City received your request for a Similar Use Interpretation regarding a proposed use on Tax Map 2S129DC Tax Lot 00100. The proposed use consists of a Family Fun Center with bowling, arcade, laser tag, "Ninja Warrior" obstacle course, retail/pro shop, concessions, restaurant, electric go kart track, rope course, infant/toddler play area, party/event space, and a zip line over the parking area. The zoning on the property is Light Industrial with a Planned Unit Development Overlay (LI-PUD).

Because of a prior subdivision approval (SUB 12-02) the uses allowed at the time of subdivision approval area vested. At the time of the subdivision approval, the code permitted a PUD to have the uses in effect at the time of the PUD, and the property was encumbered by a Development Agreement which acknowledged that the zoning requirements were tied to the 1995 version of the Sherwood Zoning & Community Development Code (SZCDC). Uses like those proposed are not specifically listed in the 1995 code, therefore an interpretation is needed to determine whether the uses proposed would fit within that code. As a point of background, the SZCDC in 1995, Section 2.110.02 (Permitted Uses), explains in subsection J that 'uses permitted outright in the GC zone, Section 2.109.02, except for adult entertainment', are permitted outright in the LI zone as well. Therefore, staff has reviewed the uses permitted in the 1995 LI zoning section as well as the GC permitted uses section. The proposed types of uses are not specifically listed in the GC zone either.

Section 16.88 of the current SZCDC regulates interpretation of similar uses. Subsection 16.88.030 presents the criteria for an interpretation:

16.88.030 - Approvals

The City Manager or his/her designee may authorize a use to be included among the allowed uses, if the use

1) is similar to and of the same general type as the uses specifically allowed;

ANALYSIS: Some uses proposed in the fun center are listed specifically in the 1995 code as permitted, including restaurants (2.109.02.j) (which would include the proposed concessions) and retail sales (2.109.02.b). Thus, these specific uses are clearly permitted by right. The remainder of the uses require an interpretation. The applicant's narrative suggests that the proposed uses are similar to "Personal Services," which is a listed permitted use in the GC zone (and thus by extension, the LI zone). However, personal services are not similar to the proposed uses because the term "personal services" is generally understood to refer to various commercial services that supply the personal needs of customers, and not to entertainment-type services such as those proposed. Furthermore, after the 1995 code lists "personal and business services" as a permitted use in the GC zone (2.109.2.c), it includes examples of what those could be, namely day care, preschool, and kindergarten. These examples are not similar to the proposed uses, in that they are primarily oriented toward educational and or childcare purposes, rather than entertainment. Finally, the 1995 code lists other types of uses such as movie theaters and sports fields (2.109.02.l and 2.109.03.k respectively) that are more directly comparable to the proposed uses. Were the code devoid of any entertainment or recreational use categories altogether, perhaps an argument could be made that these types of uses should come under the umbrella of personal services; however, since some more similar types of uses *are* specifically listed elsewhere in the code, the analysis should focus on those more similar use categories.

Most of the remaining proposed fun center uses are similar to other uses listed as permitted in the 1995 code, namely:

- Section 2.109.02 of the 1995 code lists uses that are similar in character and intensity to most of the remaining uses proposed, including:
 - Motion picture and live theaters (2.109.2.i) which indicates that uses where people pay to congregate indoors to enjoy entertainment activities are permitted in this zone. The applicant provided a narrative which also explains traffic impacts from the proposed uses are similar to those of a movie theater according to the ITE Trip Generation Manual, thus traffic impacts would be similar.
 - Restaurants, taverns, and lounges (2.109.2.j) which again indicates that the zone intended to allow people to congregate for a period of time indoors for entertainment.
- All of these uses shown above have peak times that would be similar to the proposed fun center, which also shows the zoning code's intent to allow traffic patterns that are typical with these kinds of uses.
- All other potential environmental impacts, as listed in Section 16.132 of the current SZCDC, that would be typical of the proposed uses would be similar to the impacts that would result of any of the uses listed above.

FINDING: The proposed uses, with the exception of the zip line, are similar to, and of the same general type, as the uses specifically allowed in the 1995 LI-PUD Zone.

2) is consistent with the Comprehensive Plan; and

ANALYSIS: In 1995, the SZCDC was included in Part 3 of the Sherwood Comprehensive Plan. Therefore, compliance with the code assures consistency with the Comprehensive Plan. Section 2.109.01 of the 1995 SZDC provides the purpose of the GC Zone (which was permitted within the LI zone)

The GC zoning district provides for the wholesale and commercial uses which require larger parcels of land, and or uses which involve products or activities which require special attention to environmental impacts.

The planned fun center is commercial in nature and requires a larger parcel of land to accommodate a 120,000 square foot building and associated parking.

FINDING: The proposed uses would be consistent with the Comprehensive Plan.

3) has similar intensity, density, off-site impacts and impacts on community facilities as uses permitted in the zone, and described in section 16.88.040 below.

ANALYSIS: Intensity generally measures the degree of development on a site. In residential developments, this is measure by the number of dwelling units per acre, or density. In non-residential developments, intensity is typically measured by floor-area ratio. The proposed uses are commercial in nature and the buildings necessary to house them would have a similar floor-area ratio, or intensity, as the permitted motion picture and live theaters (2.109.2.i) and restaurants, taverns, and lounges (2.109.2.J) uses. Environmental and traffic impacts would be similar in character as outlined previously. The project site has full public utilities available at the site or could be required prior to construction, as shown in the previous site plan approval.

FINDING: The proposed uses have similar intensity, density, off-site impacts and impacts on community facilities as uses permitted in the zone.

Regarding the Outdoor Zip Line: The proposed outdoor zip line use is different from any other use analyzed above. In comparing the proposed outdoor zip line use to all other uses in the 1995 code, the use is most similar to golf and sports fields. These uses are, first and foremost, outdoors. Additionally, the noise, lighting and other environmental impacts from an outdoor zip line would be similar to the impacts that would result from other outdoor sports activities.

Because the property is subject to the 1995 version of the SZCDC, any such outdoor recreational use would not be permissible. The property is zoned LI. The LI zone does not allow any outdoor recreation uses in the 1995 version of the code, nor does the GC zone include any such uses as permitted uses (as explained previously, all permitted uses in the GC are permitted in the LI zone also, see Section 2.110.02.J). The GC zone includes some outdoor recreational uses as a conditionally permitted, but not as permitted-by-right, or outright. Since the LI zone incorporates as permitted only those uses permitted outright in the GC zone, all conditional GC uses are not permitted in the LI zone. Were the zip line to be proposed inside the structure, it could be considered similar to the other proposed indoor entertainment uses and would be permitted.

Director's Interpretation – The uses proposed for a Family Fun Center with bowling, arcade, laser tag, "Ninja Warrior" obstacle course, retail/pro shop, concessions, restaurant, electric go kart track, rope course, infant/toddler play area, and party/event space are similar to uses permitted in the 1995 code, which is still applicable to this property due to vesting. The proposed outdoor zip line is not consistent with permitted uses, therefore would not be permitted unless modifications were made such that it were located indoors.

Sincerely,



Connie Randall

Planning Manager

(503)625-4208

randallc@sherwoodoregon.gov

Attachment: Sections of the 1995 Sherwood Zoning and Development Code.

CC: file

Exhibit I: 2010 Development Agreement

CURRENTLY IN-USE 5-4-11
AMENDED AND RESTATED DEVELOPMENT AGREEMENT

PARTIES

The Parties to this Amended and Restated Development Agreement ("Agreement") are the City of Sherwood, Oregon ("City") and Pamela and Clarence Langer, as to Phase 4, and the Langer Family, LLC, as to the remainder of the PUD (collectively, "Langer").

RECITALS

1. On April 26, 1995, the City approved a Preliminary Development Plan for a Planned Unit Development ("PUD") on property owned by Langer. The subject property is located generally southeast of Hwy 99W and south of the Tualatin-Sherwood Road, in the City.
2. The decision approved development of the property in eight (8) separate phases. The decision contemplated and assigned specific uses to each phase, including High Density Residential, Retail/Commercial, and Light Industrial (LI).
3. The portions of the PUD designated LI have not yet developed, except for a portion of Phase 4, which was developed as a mini-warehouse use under the General Retail Trade category of allowed uses in the LI zone. Since the approval of the PUD, the City has amended its list of permitted and conditional uses in the LI zone, subject to the City's Zoning and Community Development Code ("ZCDC") 16.32.020.H, which provides the following: "Approved PUDs may elect to establish uses which are permitted or conditionally permitted under the base zone text at the time of final approval of the PUD."
4. The PUD approval contained conditions of approval including: a requirement for a wetlands delineation prior to development of Phase 8; the construction of Adams Drive at the time of development of Phase 6; and the elimination of the then-proposed extension of Century Drive east of Adams Drive.
5. The Final Development Plan was approved August 3, 1995. Neither the Preliminary Development Plan nor the Final Development Plan approvals related to a site plan. Thus, site plan review is required for each phase as development is proposed for that phase.
6. Phases 1 through 3 and 5 have been developed, and a portion of Phase 4 was developed as above-described and is anticipated for future redevelopment. The purpose of this Agreement is to clarify and refine the intent of the Parties regarding the following issues (collectively, the "PUD Issues"):

- (a) The allowed uses of Phases 4, 6, 7 and 8 of the PUD, all of which are designated for LI uses;
 - (b) The timing of related improvements, including the construction of Adams Drive and Century Drive;
 - (c) The cost-sharing of public improvements, including the construction of Adams Drive and Century Drive; and
 - (d) Certain related matters.
7. The City and Langer previously set forth their respective commitments relative to the PUD Issues in that certain Development Agreement dated January 3, 2008 ("2008 Agreement"), which was a condition of approval to a companion Minor Change to the PUD approved contemporaneously by the City.
8. Subsequent to entering into the 2008 Agreement, economic conditions have changed such that the Parties find it necessary to re-evaluate their respective commitments under the 2008 Agreement. The City and Langer now desire to amend and restate their commitments relative to the PUD Issues set forth below.
9. This Agreement represents the only Agreement between the City and Langer with respect to the PUD Issues and does not preclude or require any conditions that may arise from a subsequent application for site plan review. It is the intent of the parties that the site plan review conditions should not be inconsistent with this Agreement.
10. This Agreement is only between the City and Langer and does not affect any conditions or improvements that may be required by other jurisdictions.

AGREEMENT

A. PUD USES

1. Applicable Code. ZCDC 16.32.020.H, provides that "Approved PUDs may elect to establish uses which are permitted or conditionally permitted under the base zone text at the time of final approval of the PUD." The Langer PUD was approved and Phases 4, 6, 7 and 8 were assigned the Light Industrial ("LI") base zone designation on August 3, 1995.
2. Permitted and Conditional Uses. Accordingly, Langer elects to establish uses on the LI-designated phases of the PUD that were permitted or conditionally permitted under the LI base zone text applicable on August 3, 1995, including: "Uses permitted outright in the GC zone Section 2.109.02, except for adult entertainment businesses, which are prohibited." A copy of the uses permitted in the LI and GC zones on August 3, 1995 is set forth in Attachment A, attached hereto and incorporated herein by reference.

3. Election of Uses and Acceptance. The City acknowledges and accepts Langer's decision to elect to develop Phases 4, 6, 7 and 8 under ZCDC 16.32.020.H, including the ability to develop those phases for General Retail Trade under Section 2.109.02 of the 1995 ZCDC. Accordingly, the current provisions of ZCDC 16.32.030.K, which restrict retail uses in the LI zone to a maximum of 60,000 square feet, will not apply to site plan review of the PUD.

B. ADAMS DRIVE SOUTH EXTENSION

1. City Commitments. Except as otherwise provided in this section, as soon as reasonably practicable and in any event prior to Langer's construction of any portion of Adams Drive south of the PUD's southern boundary, the City, at the City's sole cost and expense, will take the following actions:
 - a. Acquire the necessary right-of-way and complete the design and engineering for construction of the extension of Adams Drive ("South Extension") south from its present terminus up to but not including the railroad crossing between the southern PUD boundary and Oregon Street ("Rail Crossing");
 - b. Obtain all necessary permits for the construction and operation of the South Extension, including without limitation, all permits associated with allowing impacts to wetlands;
 - c. Provide for the mitigation of any impacts to wetlands related to the alignment and construction of the South Extension; and
 - d. Pursuant to the City's standard timeline and procedure in such instances, accept Langer's dedication of that portion of the South Extension located within the boundaries of the PUD following final inspection approval and thereupon assume maintenance obligations for all of the South Extension.
2. Langer Commitments. Subsequent to the City's performance of its obligations set forth in Section B.1.a. to B.1.c. of this Agreement but prior to issuance of final occupancy permits for any structures included in Phases 6 or 7, Langer will substantially construct the South Extension, including the traffic circle and island at the intersection with Century Drive and the twelve-foot (12') wide multi-use path extending the length of the South Extension as identified in the City Transportation Systems Plan (the "Path"). The street will be aligned and constructed in a manner consistent with the "90-percent drawings" prepared by Hopper Dennis Jellison, PLLC dated April 2008 and on file with the City (the "South Extension Plans"). Upon completion of the construction of the South Extension, Langer will dedicate and record a public right-of-way easement to the City for Adams Drive south from its present terminus to the southern boundary of the PUD (the "South Extension Right-of-Way").

3. Alternative Commitments.
- a. Alternatively, in the event the City has completed the obligations set forth in Section B.1.a. to B.1.c. of this Agreement and the City receives or accrues funding equal to the cost estimate for the construction of the South Extension prior to the time Langer has substantially commenced the obligations set forth in Section B.2. of this Agreement, the City may, in its sole discretion, elect to construct the South Extension, including the traffic circle and island at the intersection with Century Drive, the Path, and if warranted, the traffic signal at Tualatin-Sherwood Road, at the City's sole expense. In the event the City undertakes construction of the South Extension, the City will deliver written notice ("Written Election") to Langer of the City's intent in accordance with Section I.7. of this Agreement prior to undertaking construction of the South Extension.
- b. The City will issue a Notice to Proceed to the selected bidder(s) ("Contractor") for completion of the physical construction of the South Extension within ninety (90) days after delivery of the Written Election to Langer ("Commencement Date"). In the event the City fails to issue the Notice to Proceed by the Commencement Date and Langer has obtained final site plan approval for either Phases 6 and/or 7 by said date, the City will forfeit its right to undertake construction of the South Extension, and Langer will re-assume the obligation to substantially construct the South Extension in accordance with Section B.2. of this Agreement, unless Langer agrees in writing to extend the Commencement Date. If the City has not forfeited its right to undertake construction of the South Extension, the City will substantially complete the construction of the South Extension within fourteen (14) months after the Commencement Date ("Completion Date"), and in any event, prior to the issuance of an occupancy permit for any structure included in Phases 6 or 7.
- c. To ensure the Completion Date is met, the City will include the required Completion Date and penalties for late completion in the contract ("Contract") the City enters with the Contractor. The penalties shall be an amount calculated to reimburse Langer for any losses incurred by Langer due to Contractor's failure to substantially complete construction by the Completion Date when such failure prevents the reasonable use of Phases 6 or 7 for retail commercial purposes, but in any event not less than \$10,000.00 per day Langer is unable to make reasonable use of Phases 6 or 7 for commercial retail purposes. The City shall take all necessary and appropriate action to enforce the penalty provision in the Contract and forward any amounts collected to Langer within 30 days of the date the City receives payment.
- d. If the City elects to construct the South Extension under this Section B.3, the City will perform its construction activities in a manner that minimizes obstruction or interference with access to, from, or within the PUD and

Langer's construction, if any, and use of the subject property in accordance with the PUD. The City will mobilize, conduct, and maintain all construction activities, equipment and materials on and around the PUD in such manner to allow use of the South Extension and access between the PUD and the South Extension through all access driveways. The City's agreement to perform its construction activities consistent with this section is a material inducement for Langer to enter this Agreement as it will facilitate Langer's timely completion of the PUD in accordance with Langer's agreement with its end users of the PUD.

e. If the City elects to construct the South Extension, Langer will take the following actions prior to the City's commencement of construction:

(A) Grant the South Extension Right-of-Way to the City, provided the City shall bear the expense of preparing the legal description for the South Extension Right-of-Way.

(B) Grant to the City reasonable temporary construction easement(s) to allow the City to complete its construction commitments, provided Langer's grant of an easement(s) may be conditioned to ensure that the City's use of the PUD property does not unreasonably interfere with Langer's use and development of the PUD.

(C) If Langer has not yet constructed the stormwater facility on Phase 8 as provided in Section F.1 of this Agreement ("Stormwater Facility"), allow temporary location of stormwater detention and treatment from the South Extension on Phase 8 in either a temporary facility ("Temporary Facility") or the existing stormwater facilities located on Phase 7 and Phase 8 ("Existing Facilities"). To the extent that the Temporary Facility or the Existing Facilities will require any expenses for engineering, construction, design, maintenance, or modification to existing land use approvals, the City will bear the expenses. If applicable, Langer and the City shall execute and record appropriate easement documents or amendments to the existing easement for the Existing Facilities to formalize the parties' respective obligations under this subsection (C).

(D) Use reasonable best efforts to avoid damaging the Path during construction and development of the PUD, provided that if Langer causes any such damage, Langer shall, at its sole expense, repair and replace the Path back to its original condition.

C. ADAMS DRIVE NORTH EXTENSION

1. City Commitments. Except as otherwise provided in this section, as soon as reasonably practicable and in any event prior to Langer's construction of any portion of Adams Drive north of the PUD's northern boundary, the City, at the City's sole cost and expense, will take the following actions:
 - a. Acquire the necessary right-of-way for and complete the surveying, design, and engineering for construction of an extension of Adams Drive ("North Extension") from the north side of the intersection with Tualatin-Sherwood Road, north to the existing stub road connecting to Highway 99W, with the alignment to curve east around the PGE substation and connect to the east end of the Home Depot stub road. The street will be aligned and constructed in a manner consistent with the "60-percent drawings" prepared by Harper Hoff Peterson Righellis Inc, dated February 2010 and on file with the City (the "North Extension Plans"). The right-of-way, design and engineering shall anticipate and include at least 43 p.m. peak-hour vehicle trips per acre from Phase 4 to accommodate redevelopment of Phase 4.

Any substantial changes to the alignment and cross-section shall require an amendment to this Agreement. Such amendment shall only relate to this section of the Agreement, and all other terms and conditions of this Agreement shall remain in full force and effect. A "substantial change" may include but is not limited to an increase in the number of lanes, an increase in the right-of-way width by 10 or more feet, requiring additional landscaping, medians, or pedestrian paths, shifting the alignment east or west by fifty (50) or more feet, and/or any other changes that will substantially increase the cost of construction.

- b. Obtain all necessary permits for the construction and operation of the North Extension, including without limitation, all permits associated with impacts to wetlands, all approach and/or signal permits required by the Oregon Department of Transportation for the intersection of Highway 99W and the existing stub road, and all approach permits required by Washington County for the connection of the North Extension and Tualatin-Sherwood Road.
- c. Provide for the mitigation of any impacts to wetlands associated with the alignment and construction of the North Extension.
- d. Otherwise remove any legal or planning constraints to the construction of the North Extension.
- e. Pay any extraordinary labor costs associated with Langer's performance of its obligations under Section C.2., where "extraordinary labor costs" means any

costs required by law to exceed an arms-length privately negotiated rate solely due to the nature of the improvement.

- f. Pay any extraordinary construction costs associated with Langer's performance of its obligations under Section C.2. that are attributable to extraordinary environmental or geographic conditions.
- g. Pursuant to the City's standard timeline and procedure in such instances, assume maintenance obligations for all of the North Extension following the City's final inspection approval of the North Extension.
- h. Permit Langer to assume, for purposes of completing the required traffic study, that the North Extension has been planned and funded for construction prior to development of Phases 6 and 7 pursuant to Langer's alternative commitments to construct the North Extension or make a payment in lieu thereof pursuant to Section C.2. below.
- i. Permit Langer to assume, for purposes of completing the required traffic study, that the North Extension has been planned and funded for construction prior to the redevelopment of Phases 4 pursuant to Langer's alternative commitments to construct the North Extension or make a payment in lieu thereof pursuant to Section C.2. below.
- j. The City will not require the closure of any residential access to Phase 4 from Tualatin-Sherwood Road until redevelopment of Phase 4. The City will reimburse Langer for the cost of relocating and rebuilding any access to and from the existing commercial uses on Phase 4 resulting from the closure of any access due to the construction of the North Extension, including any necessary relocation of administrative facilities associated with the commercial use.
- k. In the event Langer pays a fee in lieu of construction as described in Section C.2. below, the City will:
 - (A) Place the payment into an existing or newly-created interest-bearing City Trust and Agency Fund;
 - (B) Grant credits for transportation System Development Charges ("SDC's") otherwise payable by Langer as if Langer had constructed the North Extension; and
 - (C) Use the payment-in-lieu exclusively for the construction of the North Extension. However, if the City has not entered into a contract for the construction of the North Extension or any portion thereof within five (5) years after Langer deposits the fee with the City, the City shall return the fee-in lieu, together with any interest thereon to Langer, Langer's successor or a

person designated by Langer's successor, minus any amount provided as a credit against transportation SDC's under paragraph (B) above. This Agreement does not constitute a "contract for construction of the North Extension" for purposes of this subsection.

2. Langer Commitments. Langer agrees to take the following actions with respect to the North Extension:
 - a. Subsequent to the City's performance of its obligations set forth in Section C.1. of this Agreement but prior to issuance of the final occupancy permit for any structure included in the development of Phase 6, Langer will substantially construct the North Extension consistent with the alignment and cross-section described in Section C.1.a. of this Agreement. However, in the event the City exercises its option to construct the South Extension under Section B.3. of this Agreement, Langer will substantially construct the North Extension prior to issuance of the final occupancy permit for any structure included in the development of Phases 6 or 7.
 - b. Alternatively, in the event the City has not substantially performed the obligations set forth in Section C. 1.a. to C.1.d. of this Agreement by a date that is sixty (60) days after Langer submits construction drawings for public improvements associated with the development of Phase 6 to the City, Langer shall submit a fee in lieu of construction in an amount equal to the cost estimate for the construction of the North Extension prior to the issuance of an occupancy permit for any structure included in the development of Phase 6. Langer's timely deposit of a fee in lieu under this paragraph shall fully satisfy Langer's obligations under Section C.2.a. of this Agreement and shall trigger the City's performance of its commitments under Section C.1.k. of this Agreement. In the event the City exercises its option to construct the South Extension under Section B.3. of this Agreement, the references to "Phase 6" in this subparagraph b. shall be replaced with "Phases 6 or 7."
 - c. In the event the City refunds the fee-in-lieu as described in Section C.1.k(C) of this Agreement prior to the redevelopment of Phase 4, and subsequent to the performance of the City's other obligations under Section C.1., Langer will substantially construct the North Extension consistent with the alignment and cross-section provided by the City prior to the issuance of an occupancy permit for any structure included in the redevelopment of Phase 4. In the event the City is still in possession of the fee-in-lieu at the time Phase 4 redevelops, the City will refund the fee to Langer, including any interest thereon, or will not require the construction of the North Extension as a condition of redevelopment.

D. RAIL CROSSING

1. City Commitments. As soon as reasonably practicable, the City, at the City's sole cost and expense, will take the following actions with respect to the Rail Crossing:
 - a. Acquire the necessary right-of-way for the Rail Crossing;
 - b. Obtain all required crossing or other permits from ODOT Rail and any other applicable agencies associated with the Rail Crossing;
 - c. Complete the design, engineering, and construction of the Rail Crossing; and
 - d. Use all reasonable best efforts to complete these actions and connect the South Extension to Oregon Street via the Rail Crossing no later than the date of issuance of occupancy permits for the development of Phases 6 and 7; provided, however, the failure to complete these actions by such date shall not be grounds to deny the issuance of such occupancy permits.
2. Langer Commitments. None.

E. CENTURY DRIVE

1. Langer Commitments. Langer agrees to take the following actions with respect to Century Drive:
 - a. Prior to issuance of final occupancy permits for any structure located in Phase 6 or Phase 7, design and substantially construct a reasonably direct vehicular connection between the existing terminus of Century Drive on the western boundary of the PUD and existing City right-of-way at the eastern boundary of the PUD ("Century Drive Connection"). The Century Drive Connection shall be constructed to the adjusted street standard described in Section E.2.a. below.
 - b. Following construction, dedicate a right-of-way easement to the City for the Century Drive Connection.
 - c. Provide the City with copies of receipts of eligible expenses where "eligible expenses" is defined to include all hard and soft costs of labor and materials associated with all aspects of the design, engineering, and construction, including applicable consultant fees, of the Century Drive Connection that exceed the cost of designing and constructing the Century Drive Connection as a standard parking lot drive aisle ("Eligible Expenses").

2. City Commitments. The City agrees to take the following actions with respect to Century Drive:
 - a. To work with Langer to achieve an adjustment to the relevant City street standards so that the nature, location, and design of the Century Drive Connection requires the minimum necessary right-of-way to provide a vehicular connection and includes traffic calming measures such as restrictions on through traffic for trucks.
 - b. Reimburse Langer for all undisputed Eligible Expenses within thirty (30) days after the City receives the receipts described in Section E.1.c.. City will immediately contact Langer regarding any disputed expenses and attempt to resolve the dispute within 90 days of the date the receipt containing the expense is received by the City. Any disputed expense that remains unresolved after 90 days shall be submitted to mediation as provided in Section I.12. of this Agreement; and
 - c. Pursuant to the City's standard timeline and procedure in such instances, accept Langer's dedication of the Century Drive Connection following final inspection approval and thereafter assume maintenance obligations for same.

F. STORMWATER FACILITY

1. Langer Commitments.
 - a. Prior to issuance of a final occupancy permit for the first structures located in Phases 6 or 7, Langer will design and substantially construct the "Stormwater Facility on Phase 8 (including any necessary portions of Phase 6), to accommodate existing stormwater detention and treatment for the PUD (including development of Phases 6, 7 and 8), and any detention and treatment associated with the South Extension and the Century Drive Connection. In conjunction with this construction, Langer retains the right to terminate use of the Existing Facilities and any Temporary Facility constructed pursuant to Section B.3.c. of this Agreement, provided the stormwater detention and treatment functions of the Existing Facilities and any Temporary Facility are incorporated into the Stormwater Facility and subject to any written agreements relating to the Existing Facilities. Langer retains the right to expand the Stormwater Facility to serve other public rights-of-way and uses outside the PUD in Langer's sole discretion, provided such expansion otherwise complies with City standards, including without limitation, awarding credits for SDC's.
 - b. Following construction, Langer will dedicate the Stormwater Facility to the public for use as a stormwater detention and treatment facility.

2. City Commitments.

- a. The City agrees to work with Langer, to the extent allowed by law, to issue any land use approvals related to termination of the Existing Facilities through an administrative process, to facilitate any related process for the vacation of any prior public dedications associated with the Existing Facilities, and to modify the existing recorded easement document among Langer and the City relating to the Existing Facilities.
- b. The City agrees to accept the dedication of the Stormwater Facility following final inspection approval and thereafter assume the maintenance obligations for same.

G. RENAMING OF ADAMS DRIVE

1. Langer Commitments. Prior to Langer's dedication of any portion of Adams Drive as described in this Agreement, Langer will submit a petition to the City to rename the completed portion of Adams Drive in accordance with the street name standards of ZCDC 16.108.010.4.A-C. Langer agrees to select a single name for Adams Drive from the southern end of the South Extension to the northern end of the North Extension.
2. City Commitments.
 - a. Provided the petition is submitted in the manner described in ZCDC 16.108.010.3, the City will support a petition received from Langer to rename the completed portion of Adams Drive.
 - b. If the petition is approved by the City Council, the City shall install standard City street signage identifying Adams Drive by its new name.

H. TRANSPORTATION CHARGES, FEES, AND CREDITS

1. Transportation Development Tax. The calculation and assessment of any Transportation Development Tax ("TDT"), including any TDT credits, will be made according to the Washington County TDT ordinance. Improvements to Tualatin-Sherwood Road will be creditable towards Washington County TDT's as allowed in Washington County's ordinance. It is the parties' mutual understanding that this ordinance provides full TDT credits for turn lanes and 50% or 66.67% for traffic signals for a four- and three-leg intersection, respectively. The City's commitment to this provision is a material inducement for Langer's agreement to complete the various public improvements set forth in this Agreement.

For the purpose of determining the number of weekday trips generated by all commercial land uses in Phases 4, 6, 7, and 8 of the PUD, the land use

category "Shopping Center" from ITE Trip Generation, 7th Edition, shall be applied to the Washington County TDT Ordinance for the calculations of the Washington County TDT.

2. Transportation SDC's.

The City shall calculate and assess the Project with SDC's and credits for SDC's, pursuant to the City's Municipal Code, as it may be amended from time to time, and subject to any resolutions adopted by the City implementing same.

For the purpose of determining the number of weekday trips generated by all commercial land uses in Phases 4, 6, 7, and 8 of the PUD, the land use category "Shopping Center" from ITE Trip Generation, 7th Edition, shall be applied to the City's SDC ordinance for the calculations of the City's SDC's.

3. Credits.

- a. Langer shall be entitled to seek SDC credits from the City and TDT credits from Washington County for all qualifying improvements and right-of-way dedications made by Langer, subject to the then applicable provisions of Oregon law and applicable ordinances. To the extent allowed by law, the City shall apportion SDC and TDT charges in the manner that maximizes the beneficial use of any resulting credits for Langer. In the event the City amends its SDC ordinance to eliminate the Transportation SDC prior to Langer's redemption of otherwise valid SDC credits, the City shall exercise good faith and best efforts to provide Langer a financial benefit in an amount equal to the value of any unredeemed credits in a manner consistent with applicable law, provided the City is not obligated to ensure such benefit or other return on the unredeemed credits.
 - b. The City hereby determines that, for purposes of qualifying for and administering SDC and TDT credits, Langer's construction of public improvements and dedication of right-of-way to the City pursuant to this Agreement are existing condition(s) of approval of the PUD, as it has been modified by the Minor Change approved in 2007.
4. Highway 99W Capacity Allocation Program. For purposes of calculating whether the trips associated with the regulated activities in Phases 6, 7, and 8 of the PUD exceed the trip limit of ZCDC 6.306.D.4, the City shall aggregate the trips and acreage of all such phases. As a result, the trips associated with the regulated activities of a single phase may exceed the trip limit that would otherwise apply if that phase were calculated individually, provided that the trips associated with all regulated activities for Phases 6, 7, and 8 do not exceed the trip limit in the aggregate. At each phase of development of the PUD, the number of reserve trips for the remaining phases will be identified in the applicable Trip Allocation Certificate.

I. TERMS AND CONDITIONS

1. Further Assurances. Each party shall execute and deliver any and all additional papers, documents and other assurances, and shall do any and all acts and things reasonably necessary in connection with the performance of its obligations hereunder in good faith, to carry out the intent of the parties hereto.
2. Modification of Amendment. No amendment, change or modification of this Agreement shall be valid, unless in writing and signed by the parties hereto.
3. Relationship. Nothing herein shall be construed to create an agency relationship or a partnership or joint venture between the parties.
4. Waiver of Default or Condition. In the event a party defaults in the performance of one or more of its obligations under this Agreement or in the event of the failure of a condition precedent to be satisfied under this Agreement, the nondefaulting party or beneficiary of the condition may, in its discretion, waive, as applicable, the default or satisfaction of condition hereunder and rescind any consequence of such default or failure of a condition, and in case of any such waiver or rescission, the parties shall be restored to their former positions and rights hereunder respectively, but no such waiver or rescission shall extend to or affect any subsequent or other default or condition precedent, or impair any right consequent thereon. No such waiver or rescission shall be in effect unless the same is in writing and signed by the nondefaulting party.
5. Burden and Benefit; Assignment. The covenants and agreements contained herein shall be binding upon and inure to the benefit of the parties and their successors and assigns and shall run with the land. Neither party may assign this Agreement without the prior written consent of the other party, which consent shall not be unreasonably withheld, conditioned or delayed.
6. Applicable Law. This Agreement shall be interpreted under the laws of the State of Oregon.
7. Notices. All notices, demands, consents, approvals and other communications which are required or desired to be given by either party to the other hereunder shall be in writing and shall be faxed, hand delivered, or sent by overnight courier or United States mail at its address set forth below, or at such other address as such party shall have last designated by notice to the other. Notices, demands, consents, approvals, and other communications shall be deemed given when delivered, three days after mailing by United States Mail or upon receipt if sent by courier; provided, however, that if any such notice or other communication shall also be sent by telecopy or fax machines,

such notice shall be deemed given at the time and on the date of machine transmittal.


8. Merger. This Agreement contains the entire agreement among the parties hereto with respect to the subject matter hereof and cannot be amended or supplemented except by a written agreement signed by all parties.
9. Rights Cumulative. All rights, remedies, powers and privileges conferred under this Agreement on the parties shall be cumulative of and in addition to, but not restrictive of or in lien of, those conferred by law.
10. No Third Party Beneficiaries. None of the duties and obligations of any party under this Agreement shall in any way or in any manner be deemed to create any rights in, any person or entity other than the parties hereto.
11. Force Majeure. The parties shall use reasonable diligence to accomplish the purpose of this Agreement but shall not be liable to each other, or their successors or assigns, for damages, costs, attorneys' fees (including costs or attorneys' fees on appeal) for breach of contract, or otherwise for failure, suspension, diminution, or other variations of services occasioned by any cause beyond the control and without the fault of the parties. Such causes may include but shall not be limited to acts of God, acts of terrorism or the public enemy, acts of other governments (including regulatory entities or courts) in their sovereign or contractual capacity, fires, floods, epidemics, quarantines, restrictions, strikes, or failure or breakdown of transmission or other facilities ("Force Majeure"). If any party is delayed, hindered, or prevented in or from performing its respective obligations under this Agreement by any occurrence or event of Force Majeure, then the period for such performance shall be extended for that period that such performance is delayed, hindered, or prevented.
12. Mediation. Should the parties arrive at an impasse regarding any of the provisions of this Agreement, the parties agree to submit to the dispute to mediation prior to the commencement of litigation. The mediator shall be an individual mutually acceptable to both parties, but in the absence of agreement, either party may apply to the Presiding Judge, Washington County Circuit for appointment of a mediator. Each party shall share equally in the fees and costs of the mediator. Each party shall be responsible for its own attorneys fees and other expert fees. Mediation shall be at Portland, Oregon unless the parties agree otherwise. Both parties agree to exercise their best effort in good faith to resolve all disputes in mediation. Participation in mediation is a mandatory requirement of both the City and Langer and failure to comply with this requirement is a material breach of this Agreement. The schedule and time allowed for mediation will be mutually acceptable. If the dispute is not resolved by mediation, either party may file a lawsuit to resolve the dispute in a court with proper jurisdiction located in Washington County,

Oregon. Any trial shall be to the court without a jury. In the event of any such mediation or litigation, each party shall bear its own attorneys' fees and costs.

13. Conditions Precedent to Langer's Performance. Langer's commitments set forth in this Agreement are conditioned entirely upon the City's performance of all of its commitments that are precedent to the City's commitments under and in accordance with this Agreement, and the City's timely issuance of a PUD modification for the subject property.
14. Conditions Precedent to City's Performance. City's commitments set forth in this Agreement are conditioned entirely upon Langer's performance of all of its commitments that are precedent to the City's commitments under and in accordance with this Agreement.
15. Nature of Agreement. The City hereby confirms that it has approved and executed this Agreement pursuant to its governing charter and not pursuant to ORS 94.504 *et seq.*, and does further confirm that this Agreement does not constitute or concern the adoption, amendment, or application of the Statewide Planning Goals, a comprehensive plan provision, or a land use regulation, the City and Langer acknowledging and agreeing that any and all land use approvals required for the PUD are to be obtained (or have been obtained) in due course on another date in accordance with all applicable laws and regulations.
16. Amendment and Restatement. The Parties intend that this Agreement acts as a full and amended restatement of the original 2008 Agreement. Upon this Amended and Restated Agreement taking effect, the original 2008 Agreement shall no further force or effect.
17. Duration. This Agreement expires not later than January 1, 2015; provided, however, the expiration date of this Agreement shall be automatically extended to January 1, 2017 in the event that on January 1, 2015, Langer is not in material default of any provisions of this Agreement, has substantially built out Phase 7, and has obtained a certificate of occupancy for at least one (1) structure in Phase 6.

IN WITNESS WHEREOF,

For the City of Sherwood:




Jim Patterson, City Manager

James A. Patterson
City Manager
Sherwood, Oregon 97140

Date: 8/7/2010

For Langer:

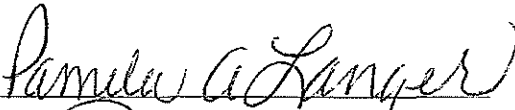
Pamela and Clarence Langer, as to Phase 4:

By: 

Clarence Langer Jr.

Print Name: CLARENCE LANGER JR.

Date: 8-6-10

By: 

Pamela A. Langer

Print Name: Pamela A. Langer

Date: August 6, 2010

Langer Family, LLC, as to remainder of PUD:

By: 

Clarence Langer Jr.

Print Name: CLARENCE LANGER JR.

Title: Manager

Date: 8-6-10



Home of the Tualatin River National Wildlife Refuge

**SHERWOOD
COMPREHENSIVE PLAN
PART 3**

**ZONING & COMMUNITY
DEVELOPMENT CODE**

Prepared by
City of Sherwood, Oregon
20 NW Washington
Sherwood, OR 97140
(503) 625-5522

February 28, 1995

2.109 GENERAL COMMERCIAL (GC)

2.109.01 Purpose

The GC zoning district provides for wholesale and commercial uses which require larger parcels of land, and or uses which involve products or activities which require special attention to environmental impacts as per Chapter 8.

2.109.02 Permitted Uses

The following uses are permitted outright, provided such uses meet the applicable environmental performance standards contained in Chapter 8:

- A. Professional services, including but not limited to financial, medical and dental, social services, real estate, legal, artistic, and similar uses.
- B. General retail trade, including bakeries where product distribution is limited to retailing on the premises only.
- C. Personal and business services, including day cares, preschools, and kindergartens.
- D. Postal substations when located entirely within and incidental to a use permitted outright.
- E. Temporary uses, including but not limited to portable construction offices and real estate sales offices, subject to Section 4.500.
- F. Farm and garden supply stores, and retail plant nurseries, but excluding wholesale plant nurseries, and commercial farm equipment and vehicle sales which are prohibited.
- G. Agricultural uses such as truck farming and horticulture, excluding commercial buildings and structures, or the raising of animals other than household pets.
- H. Commercial trade schools.
- I. Motion picture and live theaters, but excluding drive-ins which are prohibited.
- J. Restaurants, taverns, and lounges.

- K. Automotive and other appliance and equipment parts sales, but excluding junkyards and salvage yards which are prohibited.
- L. Blueprinting, printing, publishing, or other reproduction services.
- M. Automobile, recreational vehicle, motorcycle, truck, manufactured home, boat, farm, and other equipment sales, parts sales, repairs, rentals or service.
- N. Wholesale trade, warehousing, commercial storage and mini-warehousing, except as prohibited in Sections 2.110.04E and 2.111.04E.
- O. Limited manufacturing, including only: beverage bottling plants, commercial bakeries, machine shops, and handicraft manufacturing.
- P. Building material sales, lumberyards, contractors storage and equipment yards, building maintenance services, and similar uses.
- Q. Veterinarian offices and animal hospitals.
- R. Agricultural uses including but not limited to farming, and wholesale and retail plant nurseries, with customarily associated commercial buildings and structures permitted.
- S. Medical, dental, and similar laboratories.
- T. Truck and bus yards and terminals.
- U. Adult entertainment businesses, subject to Section 2.208.

2.109.03 Conditional Uses

The following uses are permitted as conditional uses, provided such uses meet the applicable environmental performance standards contained in Chapter 8, and are approved in accordance with Section 4.300:

- A. Special care facilities, including but not limited to hospitals, sanitariums, convalescent homes, correctional institutions, and residential care facilities.
- B. Radio, television, and similar communication stations, including transmitters.
- C. Churches and parsonages.

- D. Cemeteries and crematory mausoleums.
- E. Public and private utility buildings, including but not limited to telephone exchanges, electric substation, gas regulator stations, treatment plants, water wells, and public works yards.
- F. Government offices, including but not limited to administrative office, post offices, and police and fire stations.
- G. Public use buildings including but not limited to libraries, museums, community centers and senior centers.
- H. Private lodges, fraternal organizations, country clubs, sports and racquet clubs, and other similar clubs, but excluding golf courses which are prohibited.
- I. Motels or hotels.
- J. Residential apartments when located on the upper floors, in the rear of, or otherwise clearly secondary to a commercial building.
- K. Public recreational facilities, including but not limited to parks, playfields, and sports and racquet courts, but excluding golf courses which are prohibited.
- L. Public and private schools providing education at the elementary school level or higher.
- M. Any incidental business, service, process, storage or display, not otherwise permitted by Section 2.109, that is essential to and customarily associated with any use permitted outright.

2.109.04 Prohibited Uses

The following uses are expressly prohibited:

- A. Junkyards and salvage yards.
- B. Industrial and manufacturing uses, except as specifically permitted by Sections 2.109.02 and 2.109.03.
- C. Any other prohibited use noted in Section 2.109.03.

2.109.05 Dimensional Standards

No lot area, setback, yard, landscaped area, open space, off-street parking or loading area, or other site dimension or

requirement, existing on, or after, the effective date of this Code shall be reduced below the minimum required by this Code. Nor shall the conveyance of any portion of a lot, for other than a public use or right-of-way, leave a lot or structure on the remainder of said lot with less than minimum Code dimensions, area, setbacks or other requirements, except as permitted by Section 4.400.

A. Lot Dimensions

Except as otherwise provided, required minimum lot areas and dimensions shall be:

1. Lot area: 10,000 square feet
2. Lot width at front property line: 70 feet
3. Lot width at building line: 70 feet

B. Setbacks

Except as otherwise provided, required minimum setbacks shall be:

1. Front yard: None, unless the lot abuts a residential zone, then the front yard shall be that required in the residential zone.
2. Side yards: None, unless abutting a residential zone or public park property, then there shall be a minimum of twenty (20) feet.
3. Rear yard: None, unless abutting a residential zone, then there shall be a minimum of twenty (20) feet.
4. Existing residential uses shall maintain setbacks specified in Section 2.105.04.

C. Height

Except as otherwise provided, the maximum height of structures shall be fifty (50) feet, except structures within one hundred (100) feet of a residential zone shall be limited to the height requirements of that residential area. Structures over fifty (50) feet in height may be permitted as conditional uses, subject to Section 4.300.

2.109.06 Community Design

For standards relating to off-street parking and loading, energy conservation, historic resources, environmental resources, landscaping, access and egress, signs, parks and open space, on-site storage, and site design, see Chapters 5, 8 and 9.

2.109.07 Flood Plain

Except as otherwise provided, Section 8.202 shall apply.

2.110 LIGHT INDUSTRIAL (LI)

2.110.01 Purpose

The LI zoning district provides for the manufacturing, processing, assembling, packaging and treatment of products which have been previously prepared from raw materials. Industrial establishments shall not have objectionable external features and shall feature well-landscaped sites and attractive architectural design, as determined by the Commission.

2.110.02 Permitted Uses

The following uses are permitted outright, provided such uses meet the applicable environmental performance standards contained in Chapter 8.

- A. Veterinarians offices and animal hospitals.
- B. Contractor's offices, and other offices associated with a use permitted in the LI zone.
- C. Public and private utilities including but not limited to telephone exchanges, electric substations, gas regulator stations, sewage treatment plants, water wells and public works yards.
- D. Glass installation and sales.
- E. Government offices, including but not limited to postal stations, administrative offices, police and fire stations.
- F. Automobile, boat, trailer, and recreational vehicle storage.
- G. Laboratories for testing and medical, dental, photographic, or motion picture processing, except as prohibited by Section 2.110.04E.
- H. Industrial hand tool and supply sales, primarily wholesaled to other industrial firms or industrial workers.
- I. Other similar light industrial uses subject to Section 4.600.
- J. Uses permitted outright in the GC zone, Section 2.109.02, except for adult entertainment businesses which are prohibited.

- K. Dwelling unit for one (1) security person employed on the premises, and their immediate family.
- L. PUDs, subject to the provisions of Section 2.202.
- M. Temporary uses, including but not limited to construction and real estate sales offices, subject to Section 4.500.

2.110.03 Conditional Uses

The following uses are permitted as Conditional Uses provided such uses meet the applicable environmental performance standards contained in Chapter 8 and are approved in accordance with Section 4.300:

- A. Manufacture, compounding, processing, assembling, packaging, treatment, fabrication, wholesaling, warehousing or storage of the following articles or products:
 1. Food products, including but not limited to candy, dairy products, beverages, coffee, canned goods and baked goods, and meat and poultry, except as prohibited by Section 2.110.03.
 2. Appliances, including but not limited to, refrigerators, freezers, washing machines, dryers; small electronic motors and generators; heating and cooling equipment; lawn mowers, rototillers, and chain saws; vending machines; and similar products and associated small parts.
 3. Cosmetics, drugs, pharmaceutical, toiletries, chemicals and similar products, except as prohibited by Section 2.110.04.
 4. Electrical, radio, television, optical, scientific, hearing aids, electronic, computer, communications and similar instruments, components, appliances and systems, and similar products and associated small parts.
 5. Building components and household fixtures, including but not limited to furniture, cabinets, and upholstery; ladders; mattresses, doors and windows; signs and display structures; and similar products and associated small parts.
 6. Recreational vehicles and equipment, including but not limited to bicycles, recreational watercraft, exercise equipment, and similar products and

associated small parts, but excluding motorized equipment unless otherwise permitted by Section 2.110.02 or 2.110.03.

7. Musical instruments, toys and novelties.
 8. Pottery and ceramics, limited to products using previously pulverized clay.
 9. Textiles and fiber products.
 10. Other small products and tools manufactured from previously prepared or semi-finished materials, including but not limited to bone, fur, leather, feathers, textiles, plastics, glass, wood products, metals, tobacco, rubber, and precious or semi-precious stones.
- B. Laundry, dry cleaning, dyeing or rug cleaning plants.
- C. Light metal fabrication, machining, welding and electroplating and casting or molding of semi-finished or finished metals.
- D. Offices associated with a use conditionally permitted in the LI Zone.
- E. Sawmills.

2.110.04 Prohibited Uses

The following uses are expressly prohibited:

- A. Adult Entertainment Businesses.
- B. Any use permitted or conditionally permitted under Section 2.111 that is not specifically listed in this Section, and any use listed in Section 2.111.04.
- C. Auto wrecking and junk or salvage yards.
- D. Distillation of oil, coal, wood or tar compounds and the creosote treatment of any products.
- E. Manufacture, compounding, processing, assembling, packaging, treatment, fabrication, wholesale, warehousing, or storage of the following products of substances, except for any incidental business, service, process, storage, or display that is essential to and customarily associated, in the City's determination, with any otherwise permitted or conditionally permitted use:

1. Abrasives, acids, disinfectants, dyes and paints, bleaching powder and soaps and similar products.
 2. Ammonia, chlorine, sodium compounds, toxics, and similar chemicals.
 3. Celluloid or pyroxylin.
 4. Cement, lime, gypsum, plaster of Paris, clay, creosote, coal and coke, tar and tar-based roofing and waterproofing materials and similar substances.
 5. Explosives and radioactive materials.
 6. Fertilizer, herbicides and insect poison.
- F. Metal rolling and extraction mills, forge plants, smelters and blast furnaces.
- G. Pulp mills and paper mills.
- H. Slaughter of livestock or poultry, the manufacture of animal by-products or fat rendering.
- I. Leather tanneries.
- J. General purpose solid waste landfills, incinerators, and other solid waste facilities.

2.110.05 Dimensional Standards

No lot area, setback, yard, landscaped area, open space, off-street parking or loading area, or other site dimension or requirement, existing on, or after, the effective date of this Code shall be reduced below the minimum required by this Code. Nor shall the conveyance of any portion of a lot, for other than a public use or right-of-way, leave a lot or structure on the remainder of said lot with less than minimum Code dimensions, area, setbacks or other requirements, except as permitted by Section 4.400.

A. Lot Dimensions

Except as otherwise provided, required minimum lot area and dimensions shall be:

1. Lot area: 10,000 sq. feet
2. Lot width at front property line: 100 feet
3. Lot width at building line: 100 feet

B. Setbacks

Except as otherwise provided, required minimum setbacks shall be:

1. Front yard: Twenty (20) feet, except when abutting a residential zone or public park, then there shall be a minimum of forty (40) feet.
2. Side yards: None, except when abutting a residential zone, then there shall be a minimum of forty (40) feet.
3. Rear yard: None, except when abutting a residential zone, then there shall be a minimum of forty (40) feet.
4. Corner lots: Twenty (20) feet on any side facing a street, except when abutting a residential zone, then there shall be a minimum of forty (40) feet.

C. Height

Except as otherwise provided, the maximum height shall be fifty (50) feet, except that structures within one hundred (100) feet of a residential zone shall be limited to the height requirements of the residential zone.

2.110.06 Community Design

For standards relating to off-street parking and loading, energy conservation, historic resources, environmental resources, landscaping, access and egress, signs, parks and open space, on-site storage, and site design, see Chapters 5, 8 and 9.

2.110.07 Flood Plain

Except as otherwise provided, Section 8.202 shall apply.

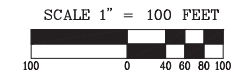


Exhibit J: Surrounding Land Uses & County Assessor Map



LEGEND

CURRENT LAND USE CURRENT LAND USE ZONING



AKS
 AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD STE 100
 TUALUMINA, OR 97062
 P: 503.563.6100
 F: 503.563.6102
 aks-eng.com

PARKWAY VILLAGE SOUTH
LANGER FAMILY LLC.
SHERWOOD OREGON
 WASHINGTON COUNTY TAX MAP 2S 1 29DC
 TAX LOT 100

SURROUNDING LAND USES

DESIGNED BY: JDS
 DRAWN BY: JDS
 CHECKED BY: JPC
 SCALE: AS NOTED
 DATE: 07/17/2017

REGISTERED PROFESSIONAL ENGINEER
ELIMINA
NOT FOR CONSTRUCTION
 JUNE 29, 2007
 J. C. CHRISTIAN

RENEWAL DATE: 12/31/17
 REVISIONS:

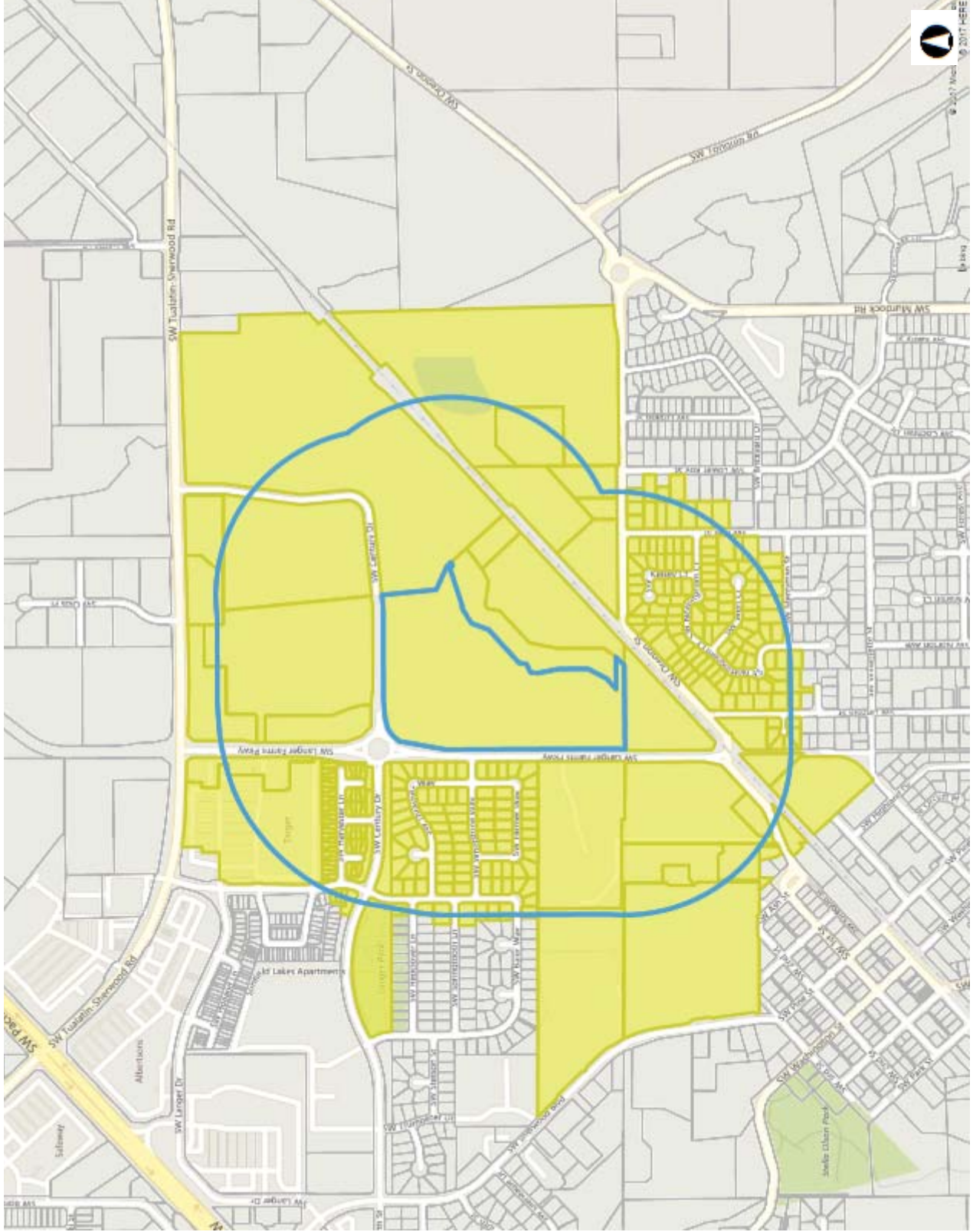
JOB NUMBER
5656

SHEET
1



Exhibit K: Mailing Labels & 1,000-foot Notification List

2S129DC00100 - 1000' Radius



0.5 Miles

0.24

0

0.5

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- Subject
- Radius
- Radius Properties

4/10/2017

Notes

2S129CA-15300
21467 (Sw) Fallow Terrace Llc
4130 SE Division St
Portland, OR 97202

2S132AB-14400
Aaron & Jo Atkins
22284 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-05200
Aaron Shields
15821 SW Baler Way
Sherwood, OR 97140

2S129CD-06200
Abdumadzhid Achilov & Galina Achilova
15681 SW Thrasher Way
Sherwood, OR 97140

2S129CA-15400
Ahmed Eisawy
21459 SW Fallow Ter
Sherwood, OR 97140

2S132AB-00703
Alan & Dann Wells
15355 SW Clifford Ct
Sherwood, OR 97140

2S129CD-09000
Aleksandr & Valentina Fursov
15671 SW Whetstone Way
Sherwood, OR 97140

2S132AB-08500
Alfred & Shirlee Musgrove
15183 SW Wert Ct
Sherwood, OR 97140

2S132AB-10000
Alison & Douglas Mcewing
15268 SW Wert Ct
Sherwood, OR 97140

2S129CD-08000
Alison Bingham
15678 SW Thrasher Way
Sherwood, OR 97140

2S129CA-16700
Amy Zahler & Charles Boyle
21426 SW Massey Ter
Sherwood, OR 97140

2S129CD-10800
Andre Hage
15642 SW Farmer Way
Sherwood, OR 97140

2S129CD-09800
Andrew Mcconnell
15679 SW Oriole Ct
Sherwood, OR 97140

2S132AB-14300
Anne Cerling
22268 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14500
Anne Lynas-Adams
15629 SW Harvester Ln
Sherwood, OR 97140

2S132AB-07000
Antony & Wendy Caronna
22331 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-18300
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S129CA-18400
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S129CA-18600
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S129CA-18700
Arbor Terrace HOA
10725 SW Barbur Blvd # 350
Portland, OR 97219

2S132AB-00905
Aron Nelson
15173 SW Merryman St
Sherwood, OR 97140

2S129CA-00900
Aulukista Llc
2015 Business Park Blvd 3000
Anchorage, AK 99503

2S129CD-05700
Barbara Verboort
23905 Butteville Rd NE
Aurora, OR 97002

2S132AB-10800
Bennett Bruce Erik Rev Living Trust
16840 SW Parrett Mountain Rd
Sherwood, OR 97140

2S132AB-08200
Blue Water Holdings Llc
17594 Shepherds Ct
Lake Oswego, OR 97035

2S129CA-12700
Boyd Gregory Matthew Revoc Living Trust
8371 SW Metolius Loop
Wilsonville, OR 97070

2S132AB-09000
Bradford & Rebecca Bertram
22269 SW Hall St
Sherwood, OR 97140

2S129CD-11800
Brannon Yeldell
15534 SW Whetstone Way
Sherwood, OR 97140

2S132AB-10300
Brent Savage
22348 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-08700
Brian & Jessica Crow
15135 SW Wert Ct
Sherwood, OR 97140

2S132AB-08400
Brian & Kori Almquist
15207 SW Wert Ct
Sherwood, OR 97140

2S129CD-08200
Brian Gall
15710 SW Thrasher Way
Sherwood, OR 97140

2S129CA-13800
Bruce & Sara Walker
15687 SW Harvester Ln
Sherwood, OR 97140

2S129CA-13700
Carl & Marie Wright
15695 SW Harvester Ln
Sherwood, OR 97140

2S132AB-11300
Carla Bietz & Donald Jason
22159 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-09700
Carol King
15530 SW Farmer Way
Sherwood, OR 97140

2S129CA-15700
Carolyn Toner
20242 Danny Ct
Oregon City, OR 97045

2S132AB-08000
Carrie Nelson
22293 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14200
Cathleen Drost
15655 SW Harvester Ln
Sherwood, OR 97140

2S132AA-00501
Chad & Heather Sobol
22148 SW Hall St
Sherwood, OR 97140

2S129CD-10900
Chad & Kelsey Wallen
15654 SW Farmer Way
Sherwood, OR 97140

2S129CA-14700
Chad Russell & Taneal White
15609 SW Harvester Ln
Sherwood, OR 97140

2S129CD-04300
Chan Family Trust
19030 SW Chesapeake Dr
Tualatin, OR 97062

2S129CD-05800
Charles & Laura Monson
21525 SW Grainery Pl
Sherwood, OR 97140

2S129CD-09300
Charles & Michelle Spencer
15593 SW Whetstone Way
Sherwood, OR 97140

2S129CA-15500
Charles & Monica Hodge
21451 SW Fallow Ter
Sherwood, OR 97140

2S132AB-12100
Chris & Simone Huff
22134 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-09200
Christi Mccauley
21160 SW 90Th Ave
Tualatin, OR 97062

2S132AB-13400
Christie Burks
22109 SW Hall St
Sherwood, OR 97140

2S132AB-06800
Christopher & Anya Landtiser
22345 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-15600
Christopher & Melanie Vallely
21434 SW Ferguson Ter
Sherwood, OR 97140

2S132AB-12300
Christopher Peet
22148 SW Kelsey Ct
Sherwood, OR 97140

2S132BA-04100
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S132AB-07300
Clarke Elizabeth F & Tmiothy W Clarke
Living
22323 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-07800
Collins & Kimberly Kaholo
22301 SW Nottingham Ct
Sherwood, OR 97140

2S132AA-00500
Coren Tradd
Po Box 623
Sherwood, OR 97140

2S129CD-06100
Cory Bome & Teletha Lori
21584 SW Grainery Pl
Sherwood, OR 97140

2S129CA-12900
Courtney Atwood
15759 SW Harvester Ln
Sherwood, OR 97140

2S132AB-03400
Cross Joanne H Trust
8285 SW 174Th Ter
Beaverton, OR 97007

2S132AB-15300
Cuong & Marisol Nguyen
15149 SW Darla Kay Ct
Sherwood, OR 97140

2S129CD-04900
Cynthia Herring
15863 SW Baler Way
Sherwood, OR 97140

2S132AB-14900
Cynthia Nelson
15404 SW Darla Kay Ct
Sherwood, OR 97140

2S132AB-11500
Dana Hiserote
22113 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-11700
Daniel & Ilona Bobosh
15560 SW Whetstone Way
Sherwood, OR 97140

2S129CD-10600
Daniel & Tami Platt
15618 SW Farmer Way
Sherwood, OR 97140

2S129CD-02900
Dario (Survivors) Trust
Po Box 967
Tualatin, OR 97062

2S129CD-09500
Darla Baldoni
15514 SW Farmer Way
Sherwood, OR 97140

2S129CA-12200
Dave & Danean Canucci
21363 SW Baler Way
Sherwood, OR 97140

2S132AB-00902
David & Cindy Parish
5204 Lake Crest Dr
Mckinney, TX 75071

2S132AA-00602
David & Laura Kaufman
22246 SW Hall St
Sherwood, OR 97140

2S129CA-15000
David & Laura Romine
21484 SW Fallow Ter
Sherwood, OR 97140

2S132AB-11900
David & Oksu Phillips
2108 S Sorrelle
Mesa, AZ 85209

2S129CA-13000
David & Rebecca Wagner
15753 SW Harvester Ln
Sherwood, OR 97140

2S129CA-14400
David & Valerie Baehler
15635 SW Harvester Ln
Sherwood, OR 97140

2S129CD-07600
David Crawford
15544 SW Thrasher Way
Sherwood, OR 97140

2S132AB-10600
Dawn Bambusch
22420 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-11700
Dawna Gnos
22102 SW Kelsey Ct
Sherwood, OR 97140

2S132AB-15200
Deborah Leake
15431 SW Darla Kay Ct
Sherwood, OR 97140

2S132AB-13100
Deborah Lewis
22151 SW Hall St
Sherwood, OR 97140

2S132AB-14500
Dennis & Karen Kern
14701 SW Chickadee Rd
Terrebonne, OR 97760

2S132AB-03800
Dennis & Shirley Finch
15149 SW Merryman St
Sherwood, OR 97140

2S132AB-13500
Derek & Apryl Mires
22206 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-16500
Doan Nguyen
21406 SW Massey Ter
Sherwood, OR 97140

2S129CD-08600
Don & Charlotte Washington
15774 SW Thrasher Way
Sherwood, OR 97140

2S129CD-10200
Don & Charlotte Washington
15774 SW Thrasher Way
Sherwood, OR 97140

2S129CD-05900
Donaldo Cotoc
21520 SW Grainery Pl
Sherwood, OR 97140

2S129CA-12100
Douglas Rice
17820 SW 111Th Ave
Tualatin, OR 97062

2S129CD-07500
Douglas Rux
15532 SW Thrasher Way
Sherwood, OR 97140

2S129DB-00500
Douglas Seeber
Po Box 965
Newberg, OR 97132

2S129CD-12100
Dustyn Rondema
15585 SW Farmer Way
Sherwood, OR 97140

2S132AB-12800
Eduardo Aragon & Reyes, Valenzuela
22193 SW Hall St
Sherwood, OR 97140

2S129CA-14300
Edward & Linda Wilson
4738 Amherst Ct
Lake Oswego, OR 97035

2S129CD-04600
Elisabeth Bacon
15899 SW Baler Way
Sherwood, OR 97140

2S129CD-09400
Elise Fraser
15567 SW Whetstone Way
Sherwood, OR 97140

2S132AB-13900
Evlyn Turner
Po Box 131
Sherwood, OR 97140

2S129DB-00400
Flrf Llc
204 N Robinson Ave STE 709
Oklahoma City, OK 73102

2S132AB-06300
Francisco & Kelly Catibayan
22385 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-01100
Fre 596 Llc
707 Old County Rd
Belmont, CA 94002

2S132AB-03700
Gabriele Kruger
15117 SW Merryman St
Sherwood, OR 97140

2S132AB-09801
Gary & Janet Thompson
15224 SW Wert Ct
Sherwood, OR 97140

2S132AB-08600
Gaylene Beck
15151 SW Wert Ct
Sherwood, OR 97140

2S132AB-15000
George & Jennifer Lockhart
15416 SW Darla Kay Ct
Sherwood, OR 97140

2S129CD-05300
George & Karina Ramirez
17581 SW Lawton St
Beaverton, OR 97003

2S132AA-14100
George Haliski
22159 SW Lower Roy St
Sherwood, OR 97140

2S132AB-11000
Gerry & Janet Avolio
911 Elliott Rd
Newberg, OR 97132

2S129CA-16200
Gilbert Jue
701 Tender Ln
Foster City, CA 94404

2S129DC-00600
Grabowski Family Trust
Po Box 5678
Ketchum, ID 83340

2S129DC-00700
Grabowski Family Trust
Po Box 5678
Ketchum, ID 83340

2S129CD-05600
Gustavo Cornejo & Graciela Real
21589 SW Grainery Pl
Sherwood, OR 97140

2S129CD-08500
Hansen Esther B Rev Trust
15758 SW Thrasher Way
Sherwood, OR 97140

2S129CD-11500
Harold Bray
15612 SW Whetstone Way
Sherwood, OR 97140

2S132AB-03600
Harold Payne
15083 SW Merryman St
Sherwood, OR 97140

2S129CD-00700
Havel Nelson & Lorita Revoc Living Trust
15819 SW Red Clover Ln
Sherwood, OR 97140

2S129CA-16900
Heather Olander
17149 SW Villa Rd
Sherwood, OR 97140

2S132AB-00906
Housing Authority Of Washington County
111 NE Lincoln St # 200-L
Hillsboro, OR 97124

2S129CA-13400
Isaac & Cecilia Sanabria
15721 SW Harvester Ln
Sherwood, OR 97140

2S129CD-07100
Ismael & Alice Rios
15549 SW Thrasher Way
Sherwood, OR 97140

2S132AB-09700
Jacob & Elizabeth Farmer
15200 SW Wert Ct
Sherwood, OR 97140

2S132AB-08800
Jacob Cooper
15123 SW Wert Ct
Sherwood, OR 97140

2S132BA-04000
James & Jacqui Fisher
23225 NE Dillon Rd
Newberg, OR 97132

2S129CA-13300
James & Janet Gregston
15733 SW Harvester Ln
Sherwood, OR 97140

2S132AB-12600
James & Lindsay Myers
22170 SW Kelsey Ct
Sherwood, OR 97140

2S129CA-16100
James & Rachelle Mccoy
21439 SW Ferguson Ter
Sherwood, OR 97140

2S132AA-00404
James Catron
14960 SW Oregon St
Sherwood, OR 97140

2S132AB-13300
Jamie & Devan Tingley
22123 SW Hall St
Sherwood, OR 97140

2S132AB-15100
Jarrod & Patrice Rogers
15428 SW Darla Kay Ct
Sherwood, OR 97140

2S129CD-06400
Jeannine Matteson
15649 SW Thrasher Way
Sherwood, OR 97140

2S129CD-09900
Jeffery & Nicole Smith
15550 SW Farmer Way
Sherwood, OR 97140

2S132AA-14300
Jeffrey Lee
22145 SW Lower Roy St
Sherwood, OR 97140

2S129CA-16600
Jeli & Associates Llc
29800 SE 32Nd Cir
Washougal, WA 98671

2S129CA-13600
Jennifer & Daniel Standke
15707 SW Harvester Ln
Sherwood, OR 97140

2S129CD-00800
Jered Richter
12350 SW Sussex St
Beaverton, OR 97008

2S129CD-11000
Jerome Witler
11825 SW Greenburg Rd STE 200
Portland, OR 97223

2S132AB-09600
Jiankun Li & Jiayi Wang
15178 SW Wert Ct
Sherwood, OR 97140

2S132AB-10900
Jill & Mark Roberts
22273 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-08900
Joan & Patrick Smith
15105 SW Wert Ct
Sherwood, OR 97140

2S132AB-12000
Joel & Nancy Griffin
22126 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-06300
Joel Theiss & Fred Wiedemann
16627 SW Villa Rd
Sherwood, OR 97140

2S132AB-09400
John & Ulrike Coulliette
15140 SW Wert Ct
Sherwood, OR 97140

2S129CD-11600
John Honeywell
15586 SW Whetstone Way
Sherwood, OR 97140

2S132AB-13800
Jon & Emily Rievley
22228 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-09600
Jon & Theresa Easton
15522 SW Farmer Way
Sherwood, OR 97140

2S129CA-15100
Jonathan Wetter
21490 SW Fallow Ter
Sherwood, OR 97140

2S129CD-10300
Jones Ryan N Revocable Trust
3 Crestwind Dr
Rancho Palos Verdes, CA 90275

2S132AB-12900
Jose Campuzano
22179 SW Hall St
Sherwood, OR 97140

2S129CD-12200
Jose Martinez
15599 SW Farmer Way
Sherwood, OR 97140

2S132AB-07100
Joseph & Imaya Remenak
15352 SW Oregon St
Sherwood, OR 97140

2S129CD-06800
Joseph & Jennifer Domingo
15585 SW Thrasher Way
Sherwood, OR 97140

2S129CD-08300
Joseph & Kelly Cutler
15726 SW Thrasher Way
Sherwood, OR 97140

2S129CD-11300
Joseph & Tana Jewett
15664 SW Whetstone Way
Sherwood, OR 97140

2S132AB-06000
Joshua & Gina Highberger
22435 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-08800
Joshua & Kristin Burnham
15735 SW Whetstone Way
Sherwood, OR 97140

2S129CD-04400
Joshua Fravel
15923 SW Baler Way
Sherwood, OR 97140

2S129CD-12300
Juana Calidonio
15611 SW Farmer Way
Sherwood, OR 97140

2S129CD-04500
Juanita Dicker
15911 SW Baler Way
Sherwood, OR 97140

2S132AB-00901
Julian & Alice Thornton
22324 SW Lincoln St
Sherwood, OR 97140

2S132AB-13700
Julie & Destiny Cowan
Po Box 460
Sherwood, OR 97140

2S132AB-11600
Julie & James Tone
22105 SW Kelsey Ct
Sherwood, OR 97140

2S132AB-03500
Kalen & Donna Garrison
15061 SW Merryman St
Sherwood, OR 97140

2S129CD-12400
Karen Hogue
15623 SW Farmer Way
Sherwood, OR 97140

2S132AB-07700
Katherine Blakeslee
22309 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-06000
Kelly & Jill Johnson
21552 SW Grainery Pl
Sherwood, OR 97140

2S129CA-15200
Kelly Baker
7568 SW 90Th Pl
Portland, OR 97223

2S129CD-04700
Kenneth & Kathleen Kolb
15887 SW Baler Way
Sherwood, OR 97140

2S132AA-00402
Kerry Neill
22112 SW Hall St
Sherwood, OR 97140

2S132AB-00800
Khristina Moore
22282 SW Lincoln St
Sherwood, OR 97140

2S132AB-09900
Kimberly & Randell Rocha-Pearson
15246 SW Wert Ct
Sherwood, OR 97140

2S132AA-00403
Kyle & Traci Rossi
2034 NE Hancock St
Portland, OR 97212

2S132AA-00612
Kyle Rathmanner
22117 SW Lower Roy St
Sherwood, OR 97140

2S129CD-07300
Langer Family Llc
15585 SW Tualatin Sherwood Rd
Sherwood, OR 97140

2S129DC-00100
Langer Family Llc
15585 SW Tualatin Sherwood Rd
Sherwood, OR 97140

2S129DB-00100
Langer Gramor Llc
19767 SW 72Nd Ave STE 100
Tualatin, OR 97062

2S129DB-00300
Langer Gramor Llc
19767 SW 72Nd Ave STE 100
Tualatin, OR 97062

2S129DC-00200
Langer Storage Llc
15585 SW Tualatin Sherwood Rd
Sherwood, OR 97140

2S132AB-14700
Leonard Enterprises Llc
Po Box 1088
Sherwood, OR 97140

2S132AB-14800
Leonard Enterprises Llc
Po Box 1088
Sherwood, OR 97140

2S132AB-11200
Linda Duncan
22165 SW Kelsey Ct
Sherwood, OR 97140

2S129CA-13100
Ling Jiang & Xiaoyu Song
13573 Rogers Rd
Lake Oswego, OR 97035

2S132AB-15400
Lisa & Mohammed Baggia
15407 SW Darla Kay Ct
Sherwood, OR 97140

2S129CA-13200
Lisa Rutledge & Jeffrey Engel
15739 SW Harvester Ln
Sherwood, OR 97140

2S129CA-13900
Long Khuu
15681 SW Harvester Ln
Sherwood, OR 97140

2S129CD-07400
Lori Gallagher
15520 SW Thrasher Way
Sherwood, OR 97140

2S129CD-02800
Louis Schwab
15858 SW Baler Way
Sherwood, OR 97140

2S129CD-07200
Makaela Lipke
15537 SW Thrasher Way
Sherwood, OR 97140

2S132AB-09300
Marcy & John Ratcliff
15118 SW Wert Ct
Sherwood, OR 97140

2S129CD-02000
Mark & Penny Gerstlauer
15845 SW Springtooth Ln
Sherwood, OR 97140

2S132AB-14100
Mary Green-Zwemke & Christopher
Zwemke
22252 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14900
Matthew & Brianne Ellis
21474 SW Fallow Ter
Sherwood, OR 97140

2S129CA-16800
Matthew & Jessica Elliott
21415 SW Massey Ter
Sherwood, OR 97140

2S129CA-14800
Mee Wu
Po Box 3884
Wilsonville, OR 97070

2S129CD-10100
Melissa Chase
15566 SW Farmer Way
Sherwood, OR 97140

2S132AB-11100
Michael & Colette Musselman
22183 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-10500
Michael & Judith Kulland
15606 SW Farmer Way
Sherwood, OR 97140

2S132AB-14600
Michael & Linda Rooke
15240 SW Oregon St
Sherwood, OR 97140

2S132AB-10200
Michael Bates
22340 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-07600
Michael Brazie Jr & Camyll Reel
15294 SW Oregon St
Sherwood, OR 97140

2S129CD-11400
Michael Maddy
15638 SW Whetstone Way
Sherwood, OR 97140

2S129CD-05100
Michael Mckee
15790 SW Thrasher Way
Sherwood, OR 97140

2S132AA-00603
Michael Peterson
22176 SW Hall St
Sherwood, OR 97140

2S132AB-12700
Michele Guthrie
22188 SW Kelsey Ct
Sherwood, OR 97140

2S129CA-13500
Michelle & Benjamin Rakun
15713 SW Harvester Ln
Sherwood, OR 97140

2S129CD-08700
Morteza Aleali & Fatemeh Jannesai
15767 SW Whetstone Way
Sherwood, OR 97140

2S132AB-10500
Nancy Falk
22412 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-00801
Nels & Ruth Martin
22296 SW Lincoln St
Sherwood, OR 97140

2S132BA-00201
New Life Asseby Of God
Po Box 878
Sherwood, OR 97140

2S129CA-14600
Niall Alboro
15617 SW Harvester Ln
Sherwood, OR 97140

2S129CD-06500
Nolan & Lana Booth
15633 SW Thrasher Way
Sherwood, OR 97140

2S129DC-00500
Oregon Self Storage & Sherwood Llc
8312 W Northview St STE 120
Boise, ID 83704

2S129D0-00150
Orwa Sherwood Llc
8320 NE Highway 99
Vancouver, WA 98665

2S129D0-00151
Orwa Sherwood Llc
8320 NE Highway 99
Vancouver, WA 98665

2S129CA-16000
Pamela Pataroque
2304 Oswego Glen Ct
Lake Oswego, OR 97034

2S132AB-13000
Patricia Cole
22165 SW Hall St
Sherwood, OR 97140

2S132AA-00604
Patrick & Adrienne Bridge
22204 SW Hall St
Sherwood, OR 97140

2S129CA-12600
Patrick Ochs
15779 SW Harvester Ln
Sherwood, OR 97140

2S132AB-06900
Paul & Rayna Graham
22337 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-14000
Paul & Rebecca Mickel
22244 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-15900
Paula Richardson
21456 SW Ferguson Ter
Sherwood, OR 97140

2S129CA-14100
Paula Thomas
15661 SW Harvester Ln
Sherwood, OR 97140

2S132AB-07400
Pedro & Teresa Urzua
22315 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-04800
Philip Lloyd
15875 SW Baler Way
Sherwood, OR 97140

2S129CA-16400
Prasad Anand Rev Liv Trust
48301 Sawleaf St
Fremont, CA 94539

2S132AB-09200
Ralph Klock
15100 SW Wert Ct
Sherwood, OR 97140

2S129CA-12000
Randal Tang & Linh Huynh
21339 SW Baler Way
Sherwood, OR 97140

2S132AB-00702
Randall & Deena Leavitt
22346 SW Lincoln St
Sherwood, OR 97140

2S129DC-00800
Randall & Jui-Mei Killion
11825 SW Katherine St
Portland, OR 97223

2S132AB-10400
Randy & Pamela August
22372 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-14000
Rhys Jensen
15669 SW Harvester Ln
Sherwood, OR 97140

2S132AB-07200
Richard & Belinda Orr
15336 SW Oregon St
Sherwood, OR 97140

2S129CD-10700
Richard & Lorena Stevens
15630 SW Farmer Way
Sherwood, OR 97140

2S129CD-11100
Richard Jones & Maria Schmidt
15680 SW Farmer Way
Sherwood, OR 97140

2S129CA-15800
Richard Silva & Christina Fajardo
21450 SW Ferguson Ter
Sherwood, OR 97140

2S132AB-06400
Ricki & Jeanette Godfrey
22377 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-09100
Robert & Amy Rivera
22291 SW Hall St
Sherwood, OR 97140

2S129CD-11200
Robert & Catherine Hahn
15692 SW Farmer Way
Sherwood, OR 97140

2S132AB-10700
Robert Byers
22428 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-02700
Robert McIntyre & Hua Hou
15826 SW Springtooth Ln
Sherwood, OR 97140

2S132AA-00405
Robert White Jr
14938 SW Oregon St
Sherwood, OR 97140

2S132AB-08100
Roger & Wendy Swift
22306 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-06600
Roger Johnson & Maria Ho
1242 Deep Creek Rd
Livermore, CA 94550

2S132AB-14200
Roger Vidal-Roque & Evelyn Castellanos
22260 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-07000
Rosemary Potter
15561 SW Thrasher Way
Sherwood, OR 97140

2S129CD-02600
Ruth Parker
15850 SW Springtooth Ln
Sherwood, OR 97140

2S132AB-13600
Ruthanne Rusnak
22214 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-06200
Sabino & Yeraldy Perez
22393 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-06500
Sara & Terrance Foster
22369 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-05000
Sasha & Matthew Sten
22820 SW Saunders Dr
Sherwood, OR 97140

2S132AB-06100
Scott & Anne Ohman
22401 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-07700
Scott & Gail Whitcomb
12919 SW Morgan Rd
Sherwood, OR 97140

2S129CD-08100
Scott & Stacie Cannon
15694 SW Thrasher Way
Sherwood, OR 97140

2S129CD-10000
Scott & Sydney Fender
15558 SW Farmer Way
Sherwood, OR 97140

2S132AB-00203
Sean & Shelley Roark
22235 SW Hall St
Sherwood, OR 97140

2S129CD-08400
Shannon Myrick
15742 SW Thrasher Way
Sherwood, OR 97140

2S129CA-17000
Sharon & Talaiasi Punivai
21401 SW Massey Ter
Sherwood, OR 97140

2S129CA-12300
Shaun Platz & Erik Griggs
15793 SW Harvester Ln
Sherwood, OR 97140

2S132AB-12200
Shawn & Helen Hegerberg
22140 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-10400
Sheila & David Fisher
15594 SW Farmer Way
Sherwood, OR 97140

2S129CA-00100
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CA-00200
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CA-18500
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CA-18800
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129DC-00300
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129DC-00400
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S132AB-01400
City of Sherwood
22560 SW Pine St
Sherwood, OR 97140

2S129CC-10600
Sherwood School Dist #88J
23295 SW Main St
Sherwood, OR 97140

2S132BA-00800
Sherwood School Dist #88J
23295 SW Main St
Sherwood, OR 97140

2S129CD-05400
Shields Linda Living Trust
15805 SW Baler Way
Sherwood, OR 97140

2S129CA-12400
Spencer & Adriana Perry
15791 SW Harvester Ln
Sherwood, OR 97140

2S132BA-00400
Springs li At Sherwood Llc
401 NE Evans St
Mcminnville, OR 97128

2S132BA-00600
Springs li At Sherwood Llc
640 NE 3Rd St
Mcminnville, OR 97128

2S132BA-04300
Springs li At Sherwood Llc
401 NE Evans St
Mcminnville, OR 97128

2S132BA-04400
Springs li At Sherwood Llc
640 NE 3Rd St
Mcminnville, OR 97128

2S129CD-12500
St Francis Catholic Church
15651 SW Oregon St
Sherwood, OR 97140

2S132BA-00200
St Francis Catholic Church
15651 SW Oregon St
Sherwood, OR 97140

2S132AB-12400
Stephen & Katie Orsolini
22156 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-06600
Steve Hobson
15617 SW Thrasher Way
Sherwood, OR 97140

2S129CD-06700
Steven & Yesenia Stoddard
15601 SW Thrasher Way
Sherwood, OR 97140

2S129CA-16300
Subhash Gowda & Anitha Subhash
12478 Salmon River Rd
San Diego, CA 92129

2S132AB-11400
Suphawadee Ross
22137 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-11900
Tamarisk Llc
3 Crestwind Dr
Rancho Palos Verdes, CA 90275

2S129CA-01000
Target Corporation
Po Box 9456
Minneapolis, MN 55440

2S129CD-09100
Theresa & Erik Strot
15645 SW Whetstone Way
Sherwood, OR 97140

2S132AB-00904
Therese Nair
22443 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-10100
Thomas & Dawn Ekerson
22334 SW Nottingham Ct
Sherwood, OR 97140

2S129CD-08900
Zhenya & Michelle Tilley
15703 SW Whetstone Way
Sherwood, OR 97140

2S129CD-07900
Timothy & Jasmine Cooper
15662 SW Thrasher Way
Sherwood, OR 97140

2S132AB-08300
Timothy Lebrun & Mari Susan
13275 SW Greenfield Dr
Portland, OR 97223

2S129CD-03000
Todd & Laura Portinga
15882 SW Baler Way
Sherwood, OR 97140

2S132AB-07500
Todd Tebo & Maki Bishop
15310 SW Oregon St
Sherwood, OR 97140

2S132AB-13200
Tom & Carmen Berger
22137 SW Hall St
Sherwood, OR 97140

2S132AB-09500
Travis & Crystal Roberts
15156 SW Wert Ct
Sherwood, OR 97140

2S132AB-11800
Travis & Jill Harper
22112 SW Kelsey Ct
Sherwood, OR 97140

2S132AB-05900
Trisha & Dustin Valdez
22451 SW Nottingham Ct
Sherwood, OR 97140

2S132AB-01200
Tualatin Valley Fire & Rescue
11945 SW 70Th Ave
Portland, OR 97223

2S129CD-02100
Tyler & Xochidawn Reel
15823 SW Springtooth Ln
Sherwood, OR 97140

2S129DB-00200
Wal-Mart Real Estate Business Tr
Po Box 8050
Bentonville, AR 72712

2S129D0-00600
Washington County Facilites Mgmt
169 N 1St Ave # 42
Hillsboro, OR 97124

2S129D0-00602
Washington County Facilites Mgmt
169 N 1St Ave # 42
Hillsboro, OR 97124

2S129CD-07800
Wei & Siska Lin
15564 SW Thrasher Way
Sherwood, OR 97140

2S129CD-06900
Wendi Oliver & Douglas John
15573 SW Thrasher Way
Sherwood, OR 97140

2S132AB-12500
William & Jennifer Walruff
22162 SW Kelsey Ct
Sherwood, OR 97140

2S129CD-12000
William & Marilyn Sykes
15577 SW Farmer Way
Sherwood, OR 97140

2S132AB-06700
Zachary & Crystal Englen
22353 SW Nottingham Ct
Sherwood, OR 97140

2S129CA-12500
Zhixiang Liang & Jin Hou
2106 Mornington Ln
San Ramon, CA 94582

2S129CA-12800
Zhixiang Liang & Jin Hou
2106 Mornington Ln
San Ramon, CA 94582