

TUALATIN ARCHITECTURAL REVIEW BOARD MEETING

WEDNESDAY, DECEMBER 13, 2023

TUALATIN CITY SERVICE CENTER 10699 SW HERMAN ROAD Tualatin, OR 97062

OR

Join Zoom Meeting

z09

Meeting ID: 843 2131 9740 Passcode: 908819

Find your local number: https://us02web.zoom.us/u/kelkH8AE9n

CALL TO ORDER & ROLL CALL

ANNOUNCEMENTS & COMMUNICATION

APPROVAL OF MINUTES

1. Review of November 8, 2023 minutes.

COMMUNICATION FROM THE PUBLIC (NOT ON THE AGENDA)

ACTION ITEMS

1. Consideration of an Architectural Review application (AR 23-0004) for a three-building industrial development totaling 199,170 square feet on a 23.8-acre site in the General Manufacturing (MG) zone at 19000 SW 124th Avenue (Tax Lot: 2S127BB00100).

COMMUNICATION FROM CITY STAFF

FUTURE ACTION ITEMS

ADJOURNMENT



UNOFFICAL

Architectural Review Board

MINUTES OF November 8, 2023

ARB MEMBERS PRESENT:

Chair, Cyndy Hillier Board Member, Patrick Gaynor Board Member, Skip Stanaway Board Member, Chris Goodell

STAFF PRESENT:

Steve Koper, Community Development Assistant Director Lindsey Hagerman, Office Coordinator Madeleine Nelson, Assistant Planner

ARB MEMBERS ABSENT:

CALL TO ORDER AND ROLL CALL:

The meeting was called to order at 6:35 p.m. and roll call was taken.

ACTION ITEMS:

1. Consideration of an Architectural Review application (AR 23-0004) for a three-building industrial development totaling 199,170 square feet on a 23.8-acre site in the General Manufacturing (MG) zone at 19000 SW 124th Avenue (Tax Lot: 2S127BB00100).

Board Member Goodell made a motion to continue the meeting to December 13, 2023. Board Member Stanaway seconded. The Board unanimously voted to approve continuing the meeting to December 13, 2023.

ADJOURNMENT

A motion to adjourn was made by Board Member Stanaway. The motion was seconded by Board Member Goodell. The Board voted unanimously to adjourn the meeting at 6:55 p.m.

These minutes are not verbatim. The meeting was recorded, and copies of the recording are retained for a period of one year from the date of the meeting and are available upon request



TO: Architectural Review Board

THROUGH: Steve Koper, AICP, Planning Manager

FROM: Madeleine Nelson, Assistant Planner

DATE: December 13, 2023

SUBJECT:

Consideration of an Architectural Review application (AR 23-0004) for a three-building industrial development totaling 199,170 square feet on a 23.8-acre site in the General Manufacturing (MG) zone at 19000 SW 124th Avenue (Tax Lot: 2S127BB00100).

RECOMMENDATION:

Based on the analysis and findings, as well as the application materials demonstrating compliance with the applicable review criteria, staff respectfully recommends approval of the subject Architectural Review application (AR 23-0004), subject to the recommended conditions of approval in the attached Analysis and Findings.

EXECUTIVE SUMMARY:

- The subject proposal is a Type III land use case, subject to a quasi-judicial hearing before the Architectural Review Board.
- The subject site comprises 23.8-acres of land in the General Manufacturing (MG) zone, located east of 124th Avenue. The subject site is vacant undeveloped land.
- There are existing wetlands and neighboring properties to the east, neighboring properties to the
 north and existing wetlands to the south, as well as, an existing stormwater treatment and detention
 facility easement for 124th Avenue to the south. Most of the east side of the property is designated
 as a Natural Resource Protection Overlay District (NRPO) (Map 72-1). Non-building development
 uses proposed in natural areas of the NRPO are conditioned for compliance with Clean Water
 Services standards to mitigate the impact of development to the extent necessary.
- The applicant requests approval for a three-building industrial facility totaling 199,170 square feet. The buildings are intended to provide lease space to warehouse and manufacturing tenants. The buildings are anticipated to accommodate one to four tenants each.
- The site has an existing right in right out driveway along 124th Avenue, and a second right in right out driveway is proposed along 124th Avenue to facilitate access for vehicles to the proposed onsite loading docks and parking areas. Parking areas and landscaping are proposed throughout the site.

OUTCOMES OF DECISION:

Approval of AR 23-0004 will facilitate construction of the proposed development.



ALTERNATIVES TO RECOMMENDATION:

The Architectural Review Board may alternatively:

- Approve AR 23-0004 with amended conditions of approval and direct staff to provide updated Analysis and Findings;
- Continue the hearing to a later date for further consideration; or
- Deny AR 23-0004.

ATTACHMENTS:

- Analysis and Findings
- Presentation
- Exhibit A1 Applicant's Narrative
- Exhibit A2 Plan Set & Elevations
- Exhibit A3 Arborist Report
- Exhibit A4 Transportation Impact Analysis
- Exhibit A5 Stormwater Report
- Exhibit A6 Service Provider Letters
- Exhibit A7 Supporting Documents
- Exhibit B Public Notice
- Exhibit C Public Comment
- Exhibit D Property Line Adjustment (PLA23-0003) Decision
- Exhibit E Water System Capacity Analysis
- Exhibit F Clean Water Services Memorandum
- Exhibit G Map 8-1 Functional Classification and Traffic Signal Plan
- Exhibit H Map 72-3 Natural Resource Protection Overlay District
- Exhibit I Map 72-1 Significant Natural Resources



ANALYSIS AND FINDINGS 124TH AVENUE INDUSTRIAL DEVELOPMENT (AR 23-0004)

December 13, 2023

Case #: AR 23-0004

Project: 124th Avenue Industrial Development

Location: 19000 SW 124th Ave, Tax Lot: 2S127BB00100 Applicant: Jennifer Kimura, VLMK Engineering + Design

Owner: Tualatin 124, LLC

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Arrangements can be made to provide these materials in alternative formats such as large type or audio recording. Please contact the Planning Division at 503.691.3026 and allow as much lead time as possible.

I. INTRODUCTION

A. Applicable Criteria

The following Chapters of the Tualatin Municipal Code (TMC) and the Tualatin Development Code (TDC) are applicable to the subject proposal:

- TDC 32: Procedures
- TDC 33.020: Architectural Review
- TDC 33.110 Tree Removal
- TDC 61: General Manufacturing (MG)
- TDC 63: Industrial Uses and Manufacturing Zones Environmental Regulations
- TDC 71: Wetlands Protection District (WPD)
- TDC 72: Natural Resource Protection Overlay District (NRPO)
- TDC 73A: Site Design
- TDC 73B: Landscaping Standards
- TDC 73C: Parking Standards
- TDC 73D: Waste and Recyclables
- TDC 74: Public Improvement Requirements
- TDC 75: Access Management

B. Site Description



Figure 1 Aerial view of site with zoning (TualGIS)

The site at 19000 SW 124th Avenue (Tax Lot: 2S127BB00100) is a 23.9-acre lot which is zoned General Manufacturing (MG). The property takes will take access from 124th Avenue. The subject site is vacant undeveloped land. There are existing wetlands and neighboring properties to the east, neighboring properties to the north and existing wetlands to the south and the existing stormwater treatment and detention facility easement for 124th Avenue to the south. Most of the east side of the property is

designated as a Natural Resource Protection Overlay District (NRPO), and a portion of the proposed development is located in the overlay.

City staff approved a Property Line Adjustment (PLA23-0003) (Exhibit C) for the project site that relocated the property line between Tax Lots: 2S127BB00100 and 2S127BB00200 at 19000 SW 124th Avenue and 12075 SW Tualatin Sherwood Road. The Property Line Adjustment was between the two existing lots and proposed to move the property line to the south remaining as two lots.

C. Proposed Project

VMLK Engineering + Design, on behalf of Tualatin 124 LLC, is requesting approval to construct a three building industrial facility totaling 199,170 square feet. The buildings are intended to provide lease space to warehouse and manufacturing tenants. The buildings are anticipated to accommodate one to four tenants each. Building A is proposed to be 76,000 square feet, Building B proposes 70,670 square feet and Building C proposes 52,500 square feet on a 23.9-acre site zoned General Manufacturing (MG).

The proposed building construction consists of tilt up concrete perimeter walls with industrial slab on grade concrete floor. The proposed finishes will include aluminum framed storefront entry systems with enhanced paint to reveal the office locations. The site has an existing right in right out driveway along SW 124th Avenue, and a second right in right out driveway is proposed along SW 124th Avenue to facilitate access for vehicles to the proposed onsite loading docks and parking areas. Parking areas and landscaping are proposed throughout the site.

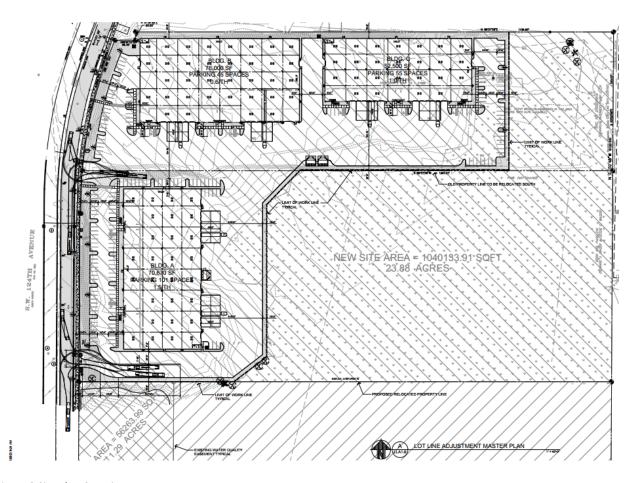


Figure 2 Site Plan Overview

D. Previous Land Use Actions

• ANN82-08 - Annexation

E. Surrounding Uses

Surrounding areas indicate industrial uses. Adjacent land uses include:

North: <u>General Manufacturing (MG)</u>

• A & I Distributors

• Albina Co, Inc.

South: General Manufacturing (MG)

• Itel Corporate Center Condominiums

• IPT Tualatin

West: General Manufacturing (MG)

• SW 124th Avenue

• Tualatin Island Greens

East: General Manufacturing (MG)

Hedges D Parking Lot

Vacant Land

F. Exhibit List

A: Application Materials

A1. Applicant's Narrative

A2. Plan Set and Elevations

A3. Arborist Report

A4. Transportation Impact Analysis

A5. Stormwater Report

A6. Service Provider Letters

A7. Supporting Documents

B: Public Notice

C: Public Comment

D: Property Line Adjustment (PLA23-0003) Decision

E: Water System Capacity Analysis

F: Clean Water Services Memorandum

G: Map 8-1 Functional Classification and Traffic Signal Plan

H: Map 72-3 Natural Resource Protection Overlay District

I: Map 72-1 Significant Natural Resources

II. PLANNING FINDINGS

Findings reference the Tualatin Development Code, unless otherwise noted.

Chapter 32: Procedures

[...]

Section 32.010 - Purpose and Applicability.

[...]

(2) Applicability of Review Procedures. All land use and development permit applications and decisions, will be made by using the procedures contained in this Chapter. The procedure "type" assigned to each application governs the decision-making process for that permit or application. There are five types of permit/application procedures as described in subsections (a) through (e) below. Table 32-1 lists the City's land use and development applications and corresponding review procedure(s).

[...]

(c) Type III Procedure (Quasi-Judicial Review—Public Hearing). Type III procedure is used when the standards and criteria require discretion, interpretation, or policy or legal judgment. Quasi-Judicial decisions involve discretion but implement established policy. Type III decisions are made by the Planning Commission or Architectural Review Board and require public notice and a public hearing, with an opportunity for appeal to the City Council.

[...]

(3) Determination of Review Type. Unless specified in Table 32-1, the City Manager will determine whether a permit or application is processed as Type I, II, III, IV-A or IV-B based on the descriptions above. Questions regarding the appropriate procedure will be resolved in favor of the review type providing the widest notice and opportunity to participate. An applicant may choose to elevate a Type I or II application to a higher numbered review type, provided the applicant pays the appropriate fee for the selected review type.

Table 32-1 – Applications Types and Review Procedures

Application / Action	Procedure Type	Decision Body*	Appeal Body*	Pre- Application Conference Required	Neighborhood/Developer Mtg Required	Applicable Code Chapter
Architectural Revie	w		•			
Industrial Buildings 150,000 square feet and larger	III	ARB	СС	Yes	Yes	TDC 33.020
[]	anning Commis	sion (PC): Ar	hitectural F	Review Board (A	RB); City Manager or designee (CM): Land

Finding:

Use Board of Appeals (LUBA).

The proposed Architectural Review application development is classified as "Large Commercial, Industrial, and Multifamily Development" under TDC 33.020(3)(g). The project proposes three industrial buildings that total over 150,000 square feet and therefore is subject to the Type III procedures according to Table 32-1. The application has been processed according to the applicable code for Type III procedures. This standard is met.

Section 32.030 - Time to Process Applications.

(1) Time Limit - 120-day Rule. The City must take final action on all Type II, Type III, and Type IV-A land use applications, as provided by ORS 227.178, including resolution of all local appeals, within 120 days after the application has been deemed complete under TDC 32.160, unless the applicant provides written request or consent to an extension in compliance with ORS 227.178. (Note: The 120-day rule does not apply to Type IV-B (Legislative Land Use) decisions.)

Finding:

The application was deemed complete on September 28, 2023. The 120th day will be January 26, 2024. The final action on this application must take place within the 120 days unless the applicant requests an extension in compliance with ORS 227.178. The applicant submitted a 45-day extension request to the 120-day timeline. The final action on this application must take place before March 11, 2024. This standard is met.

<u>Section 32.110 – Pre-Application Conference.</u>

- (1) Purpose of Pre-Application Conferences. Pre-application conferences are intended to familiarize applicants with the requirements of the TDC; to provide applicants with an opportunity discuss proposed projects in detail with City staff; and to identify approval criteria, standards, and procedures prior to filing a land use application. The pre-application conference is intended to be a tool to assist applicants in navigating the land use process, but is not intended to be an exhaustive review that identifies or resolves all potential issues, and does not bind or preclude the City from enforcing any applicable regulations or from applying regulations in a manner differently than may have been indicated at the time of the pre-application conference.
- (2) When Mandatory. Pre-application conferences are mandatory for all land use actions identified as requiring a pre-application conference in Table 32-1. An applicant may voluntarily request a pre-application conference for any land use action even if it is not required.
- (3) Timing of Pre-Application Conference. A pre-application conference must be held with City staff before an applicant submits an application and before an applicant conducts a Neighborhood/Developer meeting.
- (4) Application Requirements for Pre-Application Conference.
 - (a) Application Form. Pre-application conference requests must be made on forms provided by the City Manager.
 - (b) Submittal Requirements. Pre-application conference requests must include:
 - (i) A completed application form;
 - (ii) Payment of the application fee;
 - (iii) The information required, if any, for the specific pre-application conference sought; and
 - (iv) Any additional information the applicant deems necessary to demonstrate the nature and scope of the proposal in sufficient detail to allow City staff to review and comment.
- (5) Scheduling of Pre-Application Conference. Upon receipt of a complete application, the City Manager will schedule the pre-application conference. The City Manager will coordinate the involvement of city departments, as appropriate, in the pre-application conference. Pre-application conferences are not open to the general public.
- (6) Validity Period for Mandatory Pre-Application Conferences; Follow-Up Conferences. A follow-up conference is required for those mandatory pre-application conferences that have previously been held when:
 - (a) An application relating to the proposed development that was the subject of the preapplication conference has not been submitted within six (6) months of the pre-application conference;
 - (b) The proposed use, layout, and/or design of the proposal have significantly changed; or

(c) The owner and/or developer of a project changes after the pre-application conference and prior to application submittal.

Finding:

A Pre-Application meeting is mandatory. The applicant participated in a Pre-Application meeting on February 24, 2021. The application related to the proposed development was not submitted within six months of the Pre-Application conference. The application was submitted on April 19, 2023. A follow-up conference was held on May 5, 2023 to confirm the proposed use, layout, and design of the proposal had not significantly changed. These standards are met.

Section 32.120 - Neighborhood/Developer Meetings.

- (1) Purpose. The purpose of this meeting is to provide a means for the applicant and surrounding property owners to meet to review a development proposal and identify issues regarding the proposal so they can be considered prior to the application submittal. The meeting is intended to allow the developer and neighbors to share information and concerns regarding the project. The applicant may consider whether to incorporate solutions to these issues prior to application submittal.
- (2) When Mandatory. Neighborhood/developer meetings are mandatory for all land use actions identified in Table 32-1 as requiring a neighborhood/developer meeting. An applicant may voluntarily conduct a neighborhood/developer meeting even if it is not required and may conduct more than one neighborhood/developer meeting at their election.
- (3) Timing. A neighborhood/developer meeting must be held after a pre-application meeting with City staff, but before submittal of an application.
- (4) Time and Location. Required neighborhood/developer meetings must be held within the city limits of the City of Tualatin at the following times:
 - (a) If scheduled on a weekday, the meeting must begin no earlier than 6:00 p.m.
 - (b) If scheduled on a weekend, the meeting must begin between 10:00 a.m. and 6:00 p.m.
- (5) Notice Requirements.
 - (a) The applicant must provide notice of the meeting at least 14 calendar days and no more than 28 calendar days before the meeting. The notice must be by first class mail providing the date, time, and location of the meeting, as well as a brief description of the proposal and its location. The applicant must keep a copy of the notice to be submitted with their land use application.
 - (b) The applicant must mail notice of a neighborhood/developer meeting to the following persons:
 - (i) All property owners within 1,000 feet measured from the boundaries of the subject property;
 - (ii) All property owners within a platted residential subdivision that is located within 1,000 feet of the boundaries of the subject property. The notice area includes the entire subdivision and not just those lots within 1,000 feet. If the residential subdivision is one of two or more individually platted phases sharing a single subdivision name, the notice area need not include the additional phases; and
 - (iii) All designated representatives of recognized Citizen Involvement Organizations as established in TMC Chapter 11-9.
 - (c) The City will provide the applicant with labels for mailing for a fee.
 - (d) Failure of a property owner to receive notice does not invalidate the neighborhood/developer meeting proceedings.
- (6) Neighborhood/Developer Sign Posting Requirements. The applicant must provide and post on the subject property, at least 14 calendar days before the meeting. The sign must conform to the design and placement standards established by the City for signs notifying the public of land use actions in TDC 32.150.

(7) Neighborhood/Developer Meeting Requirements. The applicant must have a sign-in sheet for all attendees to provide their name, address, telephone number, and email address and keep a copy of the sign-in sheet to provide with their land use application. The applicant must prepare meeting notes identifying the persons attending, those commenting and the substance of the comments expressed, and the major points that were discussed. The applicant must keep a copy of the meeting notes for submittal with their land use application.

Finding:

The applicant provided evidence that a Neighborhood/Developer Meeting was held on April 21, 2022. The applicant has provided documentation of signposting and notification in compliance with this section, in addition to a sign-in sheet and notes from the meeting in Exhibit A7. These standards are met.

<u>Section 32.130 – Initiation of Applications.</u>

- (1) Type I, Type II, Type III, and Type IV-A Applications. Type I, Type II, Type III, and Type IV-A applications may be submitted by one or more of the following persons:
 - (a) The owner of the subject property;
 - (b) The contract purchaser of the subject property, when the application is accompanied by proof of the purchaser's status as such and by the seller's written consent;
 - (c) A lessee in possession of the property, when the application is accompanied by the owners' written consent; or
 - (d) The agent of any of the foregoing, when the application is duly authorized in writing by a person authorized to submit an application by paragraphs (a), (b) or (c) of this subsection, and accompanied by proof of the agent's authority.

[...]

Finding:

The applicant has provided a title report within Exhibit A7 showing Tualatin 124, LLC to be the current owner of the subject site. The application has been signed by an agent of Tualatin 124, LLC. This standard is met.

Section 32.140 - Application Submittal.

- (1) Submittal Requirements. Land use applications must be submitted on forms provided by the City. A land use application may not be accepted in partial submittals. All information supplied on the application form and accompanying the application must be complete and correct as to the applicable facts. Unless otherwise specified, all of the following must be submitted to initiate completeness review under TDC 32.160:
 - (a) A completed application form. The application form must contain, at a minimum, the following information:
 - (i) The names and addresses of the applicant(s), the owner(s) of the subject property, and any authorized representative(s) thereof;
 - (ii) The address or location of the subject property and its assessor's map and tax lot number;
 - (iii) The size of the subject property;
 - (iv) The comprehensive plan designation and zoning of the subject property;
 - (v) The type of application(s);
 - (vi) A brief description of the proposal; and
 - (vii) Signatures of the applicant(s), owner(s) of the subject property, and/or the duly authorized representative(s) thereof authorizing the filing of the application(s).
 - (b) A written statement addressing each applicable approval criterion and standard;
 - (c) Any additional information required under the TDC for the specific land use action sought;

- (d) Payment of the applicable application fee(s) pursuant to the most recently adopted fee schedule;
- (e) Recorded deed/land sales contract with legal description.
- (f) A preliminary title report or other proof of ownership.
- (g) For those applications requiring a neighborhood/developer meeting:
 - (i) The mailing list for the notice;
 - (ii) A copy of the notice;
 - (iii) An affidavit of the mailing and posting;
 - (iv) The original sign-in sheet of participants; and
 - (v) The meeting notes described in TDC 32.120(7).
- (h) A statement as to whether any City-recognized Citizen Involvement Organizations (CIOs) whose boundaries include, or are adjacent to, the subject property were contacted in advance of filing the application and, if so, a summary of the contact. The summary must include the date when contact was made, the form of the contact and who it was with (e.g. phone conversation with neighborhood association chairperson, meeting with land use committee, presentation at neighborhood association meeting), and the result;
- (i) Any additional information, as determined by the City Manager, that may be required by another provision, or for any other permit elsewhere, in the TDC, and any other information that may be required to adequately review and analyze the proposed development plan as to its conformance to the applicable criteria;
- (2) Application Intake. Each application, when received, must be date-stamped with the date the application was received by the City, and designated with a receipt number and a notation of the staff person who received the application.
- (3) Administrative Standards for Applications. The City Manager is authorized to establish administrative standards for application forms and submittals, including but not limited to plan details, information detail and specificity, number of copies, scale, and the form of submittal.

The applicant submitted an application for Architectural Review 23-0004 on April 19, 2023. The application was deemed complete on September 28, 2023. The general land use submittal requirements were included with this application. These standards are met.

Section 32.150 - Sign Posting.

- (1) When Signs Posted. Signs in conformance with these standards must be posted as follows:
 - (a) Signs providing notice of an upcoming neighborhood/developer meeting must be posted prior to a required neighborhood/developer meeting in accordance with Section 32.120(6); and
 - (b) Signs providing notice of a pending land use application must be posted after land use application has been submitted for Type II, III and IV-A applications.
- (2) Sign Design Requirements. The applicant must provide and post a sign(s) that conforms to the following standards:
 - (a) Waterproof sign materials;
 - (b) Sign face must be no less than eighteen (18) inches by twenty-four (24) inches (18" x 24"); and
 - (c) Sign text must be at least two (2) inch font.
- (3) On-site Placement. The applicant must place one sign on their property along each public street frontage of the subject property. (Example: If a property adjoins four public streets, the applicant must place a sign at each of those public street frontages for a total of four signs). The applicant cannot place the sign within public right of way.
- (4) Removal. If a sign providing notice of a pending land use application disappears prior to the final decision date of the subject land use application, the applicant must replace the sign within forty-eight (48) hours of discovery of the disappearance or of receipt of notice from the City of its

disappearance, whichever occurs first. The applicant must remove the sign no later than fourteen (14) days after:

- (a) The meeting date, in the case of signs providing notice of an upcoming neighborhood/developer meeting; or
- (b) The City makes a final decision on the subject land use application, in the case of signs providing notice of a pending land use application.

Finding:

The applicant provided certification within Exhibit A7 that signs in conformance with this section were placed on site in accordance with this section. These standards are met.

Section 32.160 - Completeness Review.

- (1) Duration. Except as otherwise provided under ORS 227.178, the City Manager must review an application for completeness within 30 days of its receipt.
- (2) Considerations. Determination of completeness will be based upon receipt of the information required under TDC 32.140 and will not be based on opinions as to quality or accuracy. Applications that do not respond to relevant code requirements or standards can be deemed incomplete. A determination that an application is complete indicates only that the application is ready for review on its merits, not that the City will make a favorable decision on the application.
- (3) Complete Applications. If an application is determined to be complete, review of the application will commence.
- (4) Incomplete Applications. If an application is determined to be incomplete, the City Manager must provide written notice to the applicant identifying the specific information that is missing and allowing the applicant the opportunity to submit the missing information. An application which has been determined to be incomplete must be deemed complete for purposes of this section upon receipt of:
 - (a) All of the missing information;
 - (b) Some of the missing information and written notice from the applicant that no other information will be provided; or
 - (c) Written notice from the applicant that none of the missing information will be provided.
- (5) Vesting. If an application was complete at the time it was first submitted, or if the applicant submits additional required information within 180 days of the date the application was first submitted, approval or denial of the application must be based upon the standards and criteria that were in effect at the time the application was first submitted.
- (6) Void Applications. An application is void if the application has been on file with the City for more than 180 days and the applicant has not provided the missing information or otherwise responded, as provided in subsection (4) of this section.

[...]

Finding:

The applicant submitted an application for AR 23-0004 on April 19, 2023. The application was then deemed complete on September 28, 2023. These standards are met.

<u>Section 32.230 – Type III Procedure (Quasi-Judicial Review – Public Hearing).</u>

Type III decisions involve the use of discretion and judgment and are made by the Planning Commission or Architectural Review Board after a public hearing with an opportunity for appeal to the City Council. The decision body for each application type is specified in Table 32-1. A hearing under these procedures provides a forum to apply standards to a specific set of facts to determine whether the facts conform to the applicable criteria and the resulting determination will directly affect only a small number of identifiable persons.

- (1) Submittal Requirements. Type III applications must include the submittal information required by TDC 32.140(1).
- (2) Determination of Completeness. After receiving an application for filing, the City Manager will review the application will for completeness in accordance with TDC 32.160.
- (3) Written Notice of Public Hearing—Type III. Once the application has been deemed complete, the City must mail by regular first class mail Notice of a Public Hearing to the following individuals and agencies no fewer than 20 days before the hearing.
 - (a) Recipients:
 - (i) The applicant and, the owners of the subject property;
 - (ii) All property owners within 1,000 feet measured from the boundaries of the subject property;
 - (iii) All property owners within a platted residential subdivision that is located within 1,000 feet of the boundaries of the subject property. The notice area includes the entire subdivision and not just those lots within 1,000 feet. If the residential subdivision is one of two or more individually platted phases sharing a single subdivision name, the notice area need not include the additional phases;
 - (iv) All recognized neighborhood associations within 1,000 feet from the boundaries of the subject property;
 - (v) All designated representatives of recognized Citizen Involvement Organizations as established in TMC Chapter 11-9;
 - (vi) Any person who submits a written request to receive a notice;
 - (vii)Any governmental agency that is entitled to notice under an intergovernmental agreement entered into with the City and any other affected agencies, including but not limited to: school districts; fire district; where the project either adjoins or directly affects a state highway, the Oregon Department of Transportation; and where the project site would access a County road or otherwise be subject to review by the County, then the County; and Clean Water Services; Tri Met; and, ODOT Rail Division and the railroad company if a railroad-highway grade crossing provides or will provide the only access to the subject property. The failure of another agency to respond with written comments on a pending application does not invalidate an action or permit approval made by the City under this Code;
 - (viii) Utility companies (as applicable); and,
 - (ix) Members of the decision body identified in Table 32-1.
 - (b) The Notice of a Public Hearing, at a minimum, must contain all of the following information:
 - (i) The names of the applicant(s), any representative(s) thereof, and the owner(s) of the subject property;
 - (ii) The street address if assigned, if no street address has been assigned then Township, Range, Section, Tax Lot or Tax Lot ID;
 - (iii) The type of application and a concise description of the nature of the land use action;
 - (iv) A list of the approval criteria by TDC section for the decision and other ordinances or regulations that apply to the application at issue;
 - (v) Brief summary of the local decision making process for the land use decision being made and a general explanation of the requirements for submission of testimony and the procedure for conduct of hearings;
 - (vi) The date, time and location of the hearing;
 - (vii)Disclosure statement indicating that if any person fails to address the relevant approval criteria with enough detail, he or she may not be able to appeal to the Land Use Board of Appeals on that issue, and that only comments on the relevant approval criteria are considered relevant evidence;

- (viii) The name of a City representative to contact and the telephone number where additional information may be obtained; and
- (ix) Statement that the application and all documents and evidence submitted to the City are in the public record and available for review, and that copies can be obtained at a reasonable cost from the City; and
- (x) Statement that a copy of the staff report will be available for inspection at no cost at least seven days prior to the hearing and will be provided at reasonable cost.
- (c) Failure of a person or agency to receive a notice, does not invalidate any proceeding in connection with the application, provided the City can demonstrate by affidavit that required notice was given.

After application submittal and completeness review as required by this section, notice for the Type III hearing regarding Architectural Review 23-0004 was mailed by city staff on October 2, 2023, and contained the information required by this section (Exhibit B). At the hearing scheduled on November 8, the applicant asked for a continuance to December 13, 2023. A public comment was received and has been included in Exhibit C. Clean Water Services provided a memorandum on October 24, 2023, and was included as Exhibit F. These standards are met.

- (4) Conduct of the Hearing—Type III. The person chairing the hearing must follow the order of proceedings set forth below. These procedures are intended to provide all interested persons a reasonable opportunity to participate in the hearing process and to provide for a full and impartial hearing on the application before the body. Questions concerning the propriety or the conduct of a hearing will be addressed to the chair with a request for a ruling. Rulings from the chair must, to the extent possible, carry out the stated intention of these procedures. A ruling given by the chair on such question may be modified or reversed by a majority of those members of the decision body present and eligible to vote on the application before the body. The procedures to be followed by the chair in the conduct of the hearing are as follows:
 - (a) At the commencement of the hearing, the person chairing the hearing must state to those in attendance all of the following information and instructions:
 - (i) The applicable substantive criteria;
 - (ii) That testimony, arguments and evidence must be directed toward the criteria described in paragraph (i) of this subsection or other criteria in the plan or land use regulation which the person believes to apply to the decision;
 - (iii) That failure to raise an issue accompanied by statements or evidence sufficient to afford the decision maker and the parties an opportunity to respond to the issue precludes appeal to the State Land Use Board of Appeals based on that issue;
 - (iv) At the conclusion of the initial evidentiary hearing, the decision body must deliberate and make a decision based on the facts and arguments in the public record; and
 - (v) Any participant may ask the decision body for an opportunity to present additional relevant evidence or testimony that is within the scope of the hearing; if the decision body grants the request, it will schedule a date to continue the hearing as provided in TDC 32.230(4)(e), or leave the record open for additional written evidence or testimony as provided TDC 32.230(4)(f).
 - (b) The public is entitled to an impartial decision body as free from potential conflicts of interest and pre-hearing ex parte (outside the hearing) contacts as reasonably possible. Where questions related to ex parte contact are concerned, members of the decision body must follow the guidance for disclosure of ex parte contacts contained in ORS 227.180. Where a real conflict of interest arises, that member or members of the decision body must not participate in the hearing, except where state law provides otherwise. Where the appearance of a conflict

of interest is likely, that member or members of the decision body must individually disclose their relationship to the applicant in the public hearing and state whether they are capable of rendering a fair and impartial decision. If they are unable to render a fair and impartial decision, they must be excused from the proceedings.

- (c) Presenting and receiving evidence.
 - (i) The decision body may set reasonable time limits for oral presentations and may limit or exclude cumulative, repetitious, irrelevant, or personally derogatory testimony or evidence;
 - (ii) No oral testimony will be accepted after the close of the public hearing. Written testimony may be received after the close of the public hearing only as provided by this section; and
 - (iii) Members of the decision body may visit the property and the surrounding area, and may use information obtained during the site visit to support their decision, if the information relied upon is disclosed at the beginning of the hearing and an opportunity is provided to dispute the evidence.
- (d) The decision body, in making its decision, must consider only facts and arguments in the public hearing record; except that it may take notice of facts not in the hearing record (e.g., local, state, or federal regulations; previous City decisions; case law; staff reports). Upon announcing its intention to take notice of such facts in its deliberations, it must allow persons who previously participated in the hearing to request the hearing record be reopened, as necessary, to present evidence concerning the newly presented facts.
- (e) If the decision body decides to continue the hearing, the hearing must be continued to a date that is at least seven days after the date of the first evidentiary hearing (e.g., next regularly scheduled meeting). An opportunity must be provided at the continued hearing for persons to present and respond to new written evidence and oral testimony. If new written evidence is submitted at the continued hearing, any person may request, before the conclusion of the hearing, that the record be left open for at least seven days, so that he or she can submit additional written evidence or arguments in response to the new written evidence. In the interest of time, after the close of the hearing, the decision body may limit additional testimony to arguments and not accept additional evidence.
- (f) If the decision body leaves the record open for additional written testimony, the record must be left open for at least seven days after the hearing. Any participant may ask the decision body in writing for an opportunity to respond to new evidence (i.e., information not disclosed during the public hearing) submitted when the record was left open. If such a request is filed, the decision body must reopen the record, as follows:
 - (i) When the record is reopened to admit new evidence or arguments (testimony), any person may raise new issues that relate to that new evidence or testimony;
 - (ii) An extension of the hearing or record granted pursuant to this section is subject to the limitations of TDC 32.030, unless the applicant waives his or her right to a final decision being made within the required timeframe; and
 - (iii) If requested by the applicant, the decision body must grant the applicant at least seven days after the record is closed to all other persons to submit final written arguments, but not evidence, provided the applicant may expressly waive this right.

Finding:

The Architectural Review Board will follow the hearing requirements set forth by this section. These standards will be met.

(5) Notice of Adoption of a Type III Decision. Notice of Adoption must be provided to the property owner, applicant, and any person who provided testimony at the hearing or in writing. The Type III Notice of Adoption must contain all of the following information:

- (a) A description of the applicant's proposal and the City's decision on the proposal, which may be a summary, provided it references the specifics of the proposal and conditions of approval in the public record;
- (b) The address or other geographic description of the property proposed for development, including a map of the property in relation to the surrounding area;
- (c) A statement that a copy of the decision and complete case file, including findings, conclusions, and conditions of approval, if any, is available for review and how copies can be obtained;
- (d) The date the decision becomes final, unless a request for appeal is submitted; and
- (e) The notice must include an explanation of rights to appeal the decision to the City Council in accordance with TDC 32.310.
- (6) Appeal of a Type III Decision. Appeal of an Architectural Review Board or Planning Commission Type III Decision to the City Council may be made in accordance with TDC 32.310.
- (7) Effective Date of a Type III Decision.
 - (a) The written order is the final decision on the application.
 - (b) The mailing date is the date of the order certifying its approval by the decision body.
 - (c) A decision of the Architectural Review Board or Planning Commission is final unless:
 - (i) a written appeal is received at the City offices within 14 calendar days of the date notice of the final decision is mailed; or
 - (ii) The City Manager or a member of the City Council requests a review of the decision within 14 calendar days of the date notice of the final decision is mailed.

A final decision and any appeal will follow the requirements of this section. These standards will be met.

Chapter 33: Applications and Approval Criteria Section 33.020 - Architectural Review.

- (5) Approval Criteria.
 - (d) Large Commercial, Industrial, and Multifamily Development. Applications for Large Commercial, Industrial, and Multifamily Development must comply with the applicable standards and objectives in TDC Chapter 73A through 73G.

Finding:

The subject application, which is for "large industrial development," must comply with the standards and objectives in TDC 73A through 73G. These standards are met by the submittal of the subject application in addition to the Findings and recommended Conditions of Approval.

- (9) Permit Expiration. Architectural Review decisions (including Minor Architectural Review decisions) expire two (2) years from the effective date unless the applicant has received a building, or grading permit submitted in conjunction with a building permit application, substantial construction has occurred pursuant to the building permit, and an inspection has been performed by a member of the Building Division.
- (10) Extension of Permit Expiration.
 - (a) An Architectural Review approval may be extended if the applicant, or successor interest, submits a written request for an extension of time within two (2) years of the effective date.
 - (b) A Minor Architectural Review approval may not be extended. A new application is required if the permit expires.
 - (c) Upon receipt of a request for an extension of time, the City will process the extension request as follows:
 - (i) If the City Manager approved the Architectural Review, then the City Manager will decide the extension request under the Type II procedures in TDC 32.220.

- (ii) If the Architectural Review Board (ARB) approved the Architectural Review, then the ARB will decide the extension request under the Type III quasi-judicial procedures in TDC 32.230.
- (d) The City must provide notice of the extension request to past recipients of the Architectural Review notice of decision and the applicant must post a sign pursuant to TDC 32.150.
- (e) The City Manager or Architectural Review Board, as applicable, may grant the extension of time upon finding the following:
 - (i) The applicant submitted a written extension request prior to the expiration date;
 - (ii) There have been no significant changes in any conditions, ordinances, regulations or standards of the City or applicable agencies that affect the previously approved project so as to warrant its resubmittal for Architectural Review;
 - (iii) If the previously approved application included a special study, the applicant provided a status report includes a letter from a recognized professional that states that conditions have not changed after the original approval and that no new study is warranted; and
 - (iv) If the site has been neglected so as to allow the site to become blighted, the deciding party must factor this into its decision.
- (f) The City Manager or Architectural Review Board, as applicable, may grant or deny the extension request. The decision must be in writing and must be made within sixty (60) days of receipt of the request for extension. If the decision is to grant the extension, the extension can be no more than a single one-year extension.
- (g) Upon making the decision, the City must provide notice of the extension decision as provided in TDC 32.220 for Type II decisions made by the City Manager and TDC 32.230 for Type III decisions made by the Architectural Review Board.

The proposed application is approved subject the compliance with the above criteria. With recommended Condition of Approval A1, these standards are met.

Section 33.110 - Tree Removal Permit/Review.

- (2) Applicability. No person may remove a tree on private property within the City limits, unless the City grants a tree removal permit, consistent with the provisions of this Section.
- [...]
- (3) Exemptions. The following actions are exempt from the requirements of a tree removal permit.
 - (a)General Exemption. Four or fewer trees may be removed within a single calendar year from a single parcel of property or contiguous parcels of property under the same ownership without a permit, if the tree is:
 - (i) Not located in the Natural Resource Protection Overlay District (NRPO);
 - (ii)Not located in the Wetlands Protection Area (WPA) of the Wetlands Protection District (WPD);
 - (iii)Not a Heritage Tree; and
 - (iv)Not previously required to be retained or planted under an approved Architectural Review decision.

Finding:

The Tree Protection Plan and Arborist Report found in Exhibit A2 and Exhibit A3 showed that the removal of trees would be necessary to construct the project as proposed. With recommended Condition of Approval A10.a, these standards are met.

Section 33.110 - Tree Removal Permit/Review Approval Criteria.

- (5) Approval Criteria.
 - (a) An applicant must satisfactorily demonstrate that at least one of the following criteria are met:

- (i) The tree is diseased and:
 - (A) The disease threatens the structural integrity of the tree; or
 - (B) The disease permanently and severely diminishes the esthetic value of the tree; or
 - (C) The continued retention of the tree could result in other trees being infected with a disease that threatens either their structural integrity or esthetic value.
- (ii) The tree represents a hazard which may include but not be limited to:
 - (A) The tree is in danger of falling; or
 - (B) Substantial portions of the tree are in danger of falling.
- (iii) It is necessary to remove the tree to construct proposed improvements based on Architectural Review approval, building permit, or approval of a Subdivision or Partition Review.

The applicant submitted a Tree Preservation Plan in Exhibit A2. The Arborist Report (Exhibit A3) stated that the removal of trees would be necessary to construct the project as proposed. The arborist report observed that significant impacts from grading are anticipated and most of the trees are in the direct footprint of the development. The inventory list in the arborist report proposed 159 trees for removal and 17 trees for retention. The trees proposed for retention near the south and east borders of the development. A portion of the proposed project is within the NRPO, however, the arborist report stated there are no trees located in or proposed for removal within the overlay. With recommended Condition of Approval A10.a, these standards are met.

Chapter 61: General Manufacturing (MG) Zone Section 61.200 - Use Categories.

(1)Use Categories. Table 61-1 lists use categories Permitted Outright (P) or Conditionally Permitted (C) in the MG zone. Use categories may also be designated as Limited (L) and subject to the limitations listed in Table 61-1 and restrictions identified in TDC 61.210. Limitations may restrict the specific type of use, location, size, or other characteristics of the use category. Use categories which are not listed are prohibited within the zone, except for uses which are found by the City Manager or appointee to be of a similar character and to meet the purpose of this zone, as provided in TDC 31.070.

[...]

Table 61-1: Use Categories in the MG Zone			
USE CATEGORY	STATUS	LIMITATIONS AND CODE REFERENCES	
INDUSTRIAL USE CATEGORIES			
Heavy Manufacturing	P (L)	Concrete batch plants are not permitted in the Leveton Tax Increment District. All other uses permitted outright.	
Light Manufacturing	Р		
Warehouse and Freight Movement	P/C	Conditional use required for warehousing of building materials and supplies. All other uses permitted outright.	

Finding:

The project area is within the General Manufacturing (MG) Planning District. The applicant's narrative stated the future building tenants are unknown, but proposed the uses of warehousing and manufacturing. Both warehousing and manufacturing are uses that are permitted within the MG Zone. A small portion of the site is within the Leveton Tax Increment district which prohibits concrete batch plants under the Heavy Manufacturing Use. A Conditional Use Permit would be required for the warehousing of building materials and supplies under the Warehouse and Freight Movement Use.

Additional review may be necessary at the time of tenant improvements. With recommended Condition of Approval A18, this standard is met.

<u>Section 61.300 – Development Standards.</u>

Development standards in the MG zone are listed in Table 61-2. Additional standards may apply to some uses and situations, see TDC 61.310.

Table 61-2
Development Standards in the MG Zone

	Standard	Building A	Building B	Building C
MINIMUM SETBACK	S	<u> </u>		
Front (Cipole Rd)	30 feet	Met	Met	Met
Side*	0-50 feet	Met	Met	Met
Rear*	0-50 feet	Met	Met	Met
Parking and Circulation Areas	5 feet	Met	Met	Met
Fences – From Public ROW	10 feet			
STRUCTURE HEIGHT				
Maximum Height	60 feet	Met	Met	Met
* Determined throug minimum setback if a spur track.				

[...]

Finding:

The existing ±23.9-acre lot meets the lot size and dimensional standards for the General Manufacturing (MG) Planning District. The applicant's submitted Site Plan (Exhibit A2) showed the Front, Side, and Rear minimum setbacks were met for the proposed Buildings A, B, and C. The parking and circulation areas are shown to meet the minimum standard setback of five feet. The structure heights submitted for Buildings A, B and C are 33'-6" which are under the maximum height of 60 feet. The Site Plan (Exhibit A2) depicted a six foot chain link fence to the north of the lot. With the recommended Condition of Approval A10.c to submit the setback of the proposed fence these standards are met.

Section 61.310 - Additional Development Standards.

(1) Outdoor Uses. All uses must be conducted wholly within a completely enclosed building, except off-street parking and loading, Basic Utilities, Wireless Communication Facilities and outdoor play areas of child day care centers as required by state day care certification standards.

Finding:

The proposal did not include or propose outdoor uses. With recommended Condition of Approval A19, this standard is met.

(2) Sound Barrier Construction. Sound barrier construction is required to mitigate the impact of noise associated with overhead doors and building mechanical equipment, including but not limited to heating, cooling and ventilation equipment, compressors, waste evacuation systems, electrical transformers, and other motorized or powered machinery located on the exterior of a building. Sound barrier construction must conform to the following standards:

- (a) Applicability. New construction, including additions or changes to existing facilities, must comply with the provisions of this section. When additions or changes to existing facilities are proposed, existing structures on the property may be required to comply with the provisions of this section, as determined through the Architectural Review process. Where buildings or outdoor use areas located on more than one parcel are all part of a single use as determined through the Architectural Review process, all of the parcels may be required to comply with the provisions of this section.
- (b) Distance from Residential Use. Sound barriers must be used to intercept all straight-line lateral (direct line between two points) paths of 450 feet or less between a residential property within a residential planning district and:
 - (i) Any side edge of an overhead door or other doorway larger than 64 square feet, at a minimum height of eight feet above the floor elevation of the doorway; or
 - (ii) Any building mechanical device at a minimum height equal to the height of the mechanical object to be screened.

[...]

Finding:

There are no residential planning districts within 450 feet of the project site. These standards are not applicable.

Chapter 63: Industrial Uses and Utilities and Manufacturing Zones – Environmental Regulations

[...]

Section 63.020 - Applicability.

The regulations of this Chapter apply to:

- (1) All industrial uses and utilities, regardless of the Planning District in which they are located, and
- (2) All Manufacturing Planning Districts, regardless of the use category

[...]

Finding:

The site is located in the General Manufacturing (MG) Planning District. Tenants are speculative at this time; however, warehousing and freight movement uses have been identified. Therefore the noise, vibration, air quality, odor, heat and glare, materials storage, waste disposal, and dangerous substances regulations of this Chapter apply. With recommended Condition of Approval A20, these standards are met.

Chapter 71: Wetlands Protection District (WPD)

Section 71.030 - Applicability.

Uses located within the Wetlands Protection District (WPD) shall comply with the certification requirements contained in TDC 71.040.

Finding:

The subject property contains natural resources including NRPO-WCNA Wetland Conservation Natural Areas. The subject property is not located within a Wetland Protection District (WPD), therefore Chapter 71 is not applicable.

Chapter 72: Natural Resource Protection Overlay District (NRPO)

[...]

Section 72.013 - Significant Natural Resources.

The following natural resource sites identified in the City of Tualatin Natural Resource Inventory and Local Wetlands Inventory (December, 1995) are Significant Natural Resources:

Finding:

The east side of the subject property is designated as a Natural Resource Protection Overlay District (NRPO). City staff approved a Property Line Adjustment (PLA23-0003) (Exhibit D) for the project site that relocated the property line between Tax Lots: 2S127BB00100 and 2S127BB00200 at 19000 SW 124th Avenue and 12075 SW Tualatin Sherwood Road. The Property Line Adjustment was between the two existing lots and proposed to move the property line to the south remaining as two lots. Map 72-3 (Exhibit H) shows resource W-34 (Significant Wetland – Hedges Creek) to be present on a portion of the site. Map 72-1 (Exhibit I) also shows the subject site to be located in the Wetland Conservation District (WCNA). Non-building development uses proposed in natural areas of the Natural Resource Protection Overlay District (NRPO) (Map 72-1) are subject to compliance with Clean Water Services standards to mitigate the impact of development to the extent necessary.

Section 72.020 - Location of Greenways and Natural Areas.

- (1) The designated significant natural resources are the Greenways and Natural Areas on Map 72-1, which shows the general location of the NRPO District.
- (2) Lands in the Wetland Protection District (WPD) are subject to Chapter 71, and other applicable regulations, but not Chapter 72.

Finding:

Map 72-1 (Exhibit I) illustrates Wetland Conservation Natural Areas (WCNA) within the confines of the subject property, therefore Chapter 72 is applicable. The subject property does not contain land that is within a Wetlands Protection District, therefore Chapter 71 is not applicable.

Section 72.040 - Natural Areas.

- (1) Natural Areas are the wetlands and upland open space areas on Map 72-1. They provide flood control, water quality, erosion control, fish and wildlife habitat, and valuable scenic qualities. Natural Areas may include restored and enhanced wetlands, park sites and other areas accessible by the public for passive recreation.
- (2) Wetland Natural Areas.
 - (a) Wetland Preservation Natural Areas (NRPO-WPNA) are shown on Map 72-1. They include all land within a delineated wetland boundary.
 - (b) Wetland Conservation Natural Areas (NRPO-WCNA) are shown on Map 72-1. Except as provided in Subsection (c), they include all land within a delineated wetland boundary.
 - (c) For uses not permitted in TDC 72.060(3), excavation, fill or removal in a NRPO-WCNA is allowed subject to the Oregon Division of State Lands (DSL) requirements and the following standards:
 - (i) The wetland acreage affected by the excavation, fill or removal shall not exceed 30 percent of the subject property's delineated wetland acreage. The wetland acreage affected shall include excavation, fill or removal activities conducted since March 1, 1996.
 - (ii) The excavation, fill or removal shall not reduce or block water features such as springs, drainage courses and streams.
 - (iii) The wetland's functions and values listed in the City of Tualatin Natural Resource Inventory and Local Wetlands Inventory (December, 1995) shall be retained or

improved through mitigation and/or enhancement. The wetland's functions and values may be assessed using the Oregon Freshwater Wetland Assessment Methodology (DSL, 1996, as amended).

(iv) Mitigation shall be conducted either on the subject property or within the same stream watershed as the subject wetland unless the applicant demonstrates the impracticality of doing so.

Finding:

The subject property contains Natural Resource Protection Overlay – Wetland Conservation Natural Areas (NRPO-WCNA) land shown on Map 72-1 (Exhibit I). The applicant submitted a service provider letter from Clean Water Services in Exhibit A6. The service provider letter attached conditions, development figures, and a planting plan. A condition provided in the service provider letter included, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits. Standards within TDC 72.040(c)(i), (ii), (iii) and (iv) will be evaluated with the submittal. Non-building development uses proposed in natural areas of the Natural Resource Protection Overlay District (NRPO) (Map 72-1) are subject to compliance with Clean Water Services standards to mitigate the impact of development to the extent necessary. With recommended Condition of Approval A3, these standards are met.

<u>Section 72.056 - Vegetated Corridors of Sensitive Areas.</u>

Lands subject to these regulations are also subject to the regulations in the Unified Sewage Agency's Design and Construction Standards.

Finding:

The proposed development has been reviewed by Clean Water Services in the submitted service provider letter in Exhibit A6 and memorandum in Exhibit F. The submitted comments and conditions will apply to all grading and construction activities. With recommended Condition of Approval A3, this standard is met.

<u>Section 72.060. - Development Restrictions in Greenways and Natural Areas.</u>

- (1) Except as provided in Subsection (2), no building, structure, grading, excavation, placement of fill, vegetation removal, impervious surface, use, activity or other development shall occur within Riverbank, Creek and Other Greenways, and Wetland and Open Space Natural Areas.
- (2) The following uses, activities and types of development are permitted within Riverbank, Creek and Other Greenways, and Wetland and Open Space Natural Areas provided they are designed to minimize intrusion into riparian areas:
 - (a) Public bicycle or pedestrian ways, subject to the provisions of TDC 72.070.
 - (b) Public streets, including bridges, when part of a City approved transportation plan, and public utility facilities, when part of a City approved plan and provided appropriate restoration is completed.
 - (c) Except in Wetland Natural Areas, private driveways and pedestrian ways when necessary to afford access between portions of private property that may be bisected by a Greenway or Open Space Natural Area.
 - (d) Except in Creek Greenways and Wetland Natural Areas, outdoor seating for a restaurant within the Central Urban Renewal District, but outside of any sensitive area or its vegetated corridor.
 - (e) Public parks and recreational facilities including, but not limited to, boat ramps, benches, interpretive stations, trash receptacles and directional signage, when part of a City-approved Greenway or Natural Area enhancement plan.

- (f) Landscaping, when part of a landscape plan approved through the Architectural Review process. City initiated landscape projects are exempt from the Architectural Review process. Landscaping in Greenways and Natural Areas shall comply with the approved Plant List in the Parks and Recreation Master Plan. When appropriate, technical advice shall be obtained from the Oregon Department of Fish and Wildlife, U.S. Soil Conservation Service, or similar agency, to ensure the proposed landscaping will enhance the preservation of any existing fish or wildlife habitats in the vicinity.
- (g) Wildlife protection and enhancement, including the removal of non-native vegetation and replacement with native plant species.
- (h) Except in Wetland Natural Areas, public boating facilities, irrigation pumps, water-related and water-dependent uses including the removal of vegetation necessary for the development of water-related and water-dependent uses, and replacement of existing structures with structures in the same location that do not disturb additional riparian surface.
- (i) In Wetland Natural Areas, perimeter mowing and other cutting necessary for hazard prevention.
- (3) The City may, through the subdivision, conditional use, architectural review, or other development approval process, attach appropriate conditions to approval of a development permit. Such conditions may include, but are not limited to:
 - (a) Use of Greenways and Natural Areas for storm drainage purposes;
 - (b) Location of approved landscaping, pedestrian and bike access areas, and other non-building uses and activities in Greenways and Natural Areas;
 - (c) Setback of proposed buildings, parking lots, and loading areas away from the Greenway and Natural Area boundary.
- (4) Greenways and Natural Areas in which an access easement is owned by the City, but retained in private ownership, shall be maintained by the property owner in their natural state and may only be modified if a landscape and maintenance plan complies with the approved Plant List in the Parks and Recreation Master Plan, and has been approved through the Architectural Review process or by the Parks and Recreation Director when Architectural Review is not required.
- (5) The Parks and Recreation Director shall be included as a commentor when a development application proposes dedication of Greenway or Natural Area property to the City or when development is pro-posed on Greenway or Natural Areas property maintained by the Parks and Recreation Department.

[...]

Finding:

The subject property contains Natural Resource Protection Overlay — Wetland Conservation Natural Areas (NRPO-WCNA) land shown on Map 72-1 (Exhibit I). The applicant submitted a service provider letter from Clean Water Services in Exhibit A6. The service provider letter attached conditions, development figures, and a planting plan. A condition provided in the service provider letter included, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits. The Parks and Recreation Department reviewed the proposal and provided no comments. Non-building development uses proposed in natural areas of the Natural Resource Protection Overlay District (NRPO) (Map 72-1) are subject to compliance with Clean Water Services standards to mitigate the impact of development to the extent necessary. With recommended Condition of Approval A3, these standards are met.

Section 72.070 - General Guidelines for Pedestrian and Bike Paths in Greenways.

To construct bike and pedestrian paths in greenways, the developer of the path shall adhere to the following guidelines, wherever practicable:

[...]

Finding:

The subject property does not contain a Greenway, therefore TDC 72.070 is not applicable.

<u>Section 72.085 - Landscaping Credit within Commercial and Industrial Planning Districts Adjacent to Greenways and Natural Areas.</u>

- (1) When a property owner in a Commercial, Institutional, or Industrial Planning District dedicates to the City a portion of the NRPO District, or vegetated corridor located within or adjacent to the NRPO District in accordance with a City-approved landscape plan, a Greenway and Natural Area Landscaping Credit shall be applied toward a portion of the site's percentage landscaping requirement.
- (2) The amount of the Greenway and Natural Area Landscaping Credit shall be as provided in TDC Chapter 73. The applicant must meet all landscaping requirements in this Code to the satisfaction of the Planning Director through the Architectural Review process.

TDC 72.090 - Reduction in Setback Requirements.

When a property owner in a IN, CO, CR, CO/MR, ML, or MG Planning District dedicates to the City land in the NRPO District, a bikeway or pedestrian path facility, or a vegetated corridor located within or adjacent to the NRPO District, the minimum front yard setback may be reduced through the AR process as provided in Chapters 50, 51, 52, 55, 60, and 61.
[...]

Finding:

This section of the Tualatin Development Code was not addressed in the submitted materials. Landscaping credits have not be considered in the review of the proposed industrial development.

Section 72.110 - Easements for Pedestrian and Bicycle Access.

In any portion of the NRPO District, the City may, through the subdivision, partition, conditional use, architectural review, or other applicable development approval process, require that easements for pedestrian and bicycle access and maintenance uses be granted as a condition of approval when said easements are necessary to achieve the purposes of the Parks and Recreation Master Plan, Greenway and Trail Development Plan (Figure 72-2), or Bicycle and Pedestrian Plan (Figure 11-4).

Finding:

The Parks and Recreation Department reviewed the proposal and provided no comments.

<u>Section 72.120 - Wetlands Protection District.</u>

In cases where land within the NRPO District is also within the Wetlands Protection District, Chapter 71, any development permitted by TDC 72.060 shall be subject to the provisions of Chapter 71.

Finding:

Although the subject property contains Wetland Conservation Natural Areas, it is not within a Wetlands Protection District. These standards are not applicable.

Section 72.130 - Floodplain District.

In cases where land within the NRPO District is also within the Floodplain District, Chapter 70, any development permitted by TDC 72.060 shall be subject to the provisions of Chapter 70.

The subject property contains one NRPO District. The site is not within the 100-Year Floodplain or Floodway.

<u>Section 72.140 - Dedication of Land for Park Purposes.</u>

Nothing in this chapter shall prohibit the dedication of land within the NRPO District to the public for park or open space purposes when the City Council finds that such dedication would be consistent with the purpose and objectives of the parks and recreation element of the Tualatin Public Facilities Plan.

<u>Section 72.150 - Modifications for Storm Drainage Improvements.</u>

Nothing in this chapter shall prohibit the City or any property owner from altering, enlarging, straightening, piping, or otherwise modifying a creek channel in the NRPO District upon a finding by the City Engineer that such modification is necessary for maintaining the ability of the creek to transmit storm water run-off.

Finding:

If necessary in the future, this section of the TDC will be applied.

Chapter 73A: Site Design

Section 73A.010 – Site and Building Design Standards Purpose and Objectives.

- (1) Purpose. The purpose of the site and building design objectives and standards found in TDC 73A through TDC 73G is to promote functional, safe, innovative, and attractive sites and buildings that are compatible with the surrounding environment, including, but not limited to:
 - (a) The building form, articulation of walls, roof design, materials, and placement of elements such as windows, doors, and identification features; and
 - (b) The placement, design, and relationship of proposed site elements such as buildings, vehicular parking, circulation areas, bikeways and bike parking, accessways, walkways, buffer areas, and landscaping.
- (2) Objectives. The objectives of site and building design standards in TDC 73A through TDC 73G are to:
 - (a) Enhance Tualatin through the creation of attractively designed development and streetscapes;
 - (b) Encourage originality, flexibility, and innovation in building design;
 - (c) Create opportunities for, or areas of, visual and aesthetic interest for occupants and visitors to the site;
 - (d) Provide a composition of building elements which responds to function, land form, identity and image, accessibility, orientation and climatic factors;
 - (e) Conserve, protect, and restore fish and wildlife habitat areas, and maintain or create visual and physical corridors to adjacent fish and wildlife habitat areas;
 - (f) Enhance energy efficiency through the use of landscape and architectural elements; and
 - (g) Minimize disruption of natural site features such as topography, trees, and water features.

Finding:

The Architectural Review Board will review the subject application and make a determination if the purpose and objectives of Chapter 73A have been adequately addressed.

Section 73A.500 - Industrial Design Standards.

The following standards are minimum requirements for industrial development in all zones, except the Mixed-Use Commercial (MUC) zone, which has its own standards:

(1) Walkways. Industrial development must provide walkways as follows:

- (a) Walkways must be a minimum of five feet in width;
- (b) Walkways must be constructed of asphalt, concrete, or a pervious surface such as pavers or grasscrete (not gravel or woody material);
- (c)Walkways must meet ADA standards applicable at time of construction or alteration;
- (e)Walkways must be provided between the main building entrances and other on-site buildings, accessways, and sidewalks along the public right-of-way;
- (f)Walkways through parking areas, drive aisles, and loading areas must be of a different appearance than the adjacent paved vehicular areas; and
- (g)Outdoor Recreation Access Routes must be provided between the development's walkway and bikeway circulation system and parks, bikeways and greenways where a bike or pedestrian path is designated.

Walkways are proposed along the entrances and perimeters of the buildings as shown on the Site Plan in Exhibit A2. The proposed walkways are a minimum of five feet in width and are to be constructed in concrete. Further evaluation for ADA standards will be conducted during the building permit phase. The plans depicted walkways between Buildings A and B to connect the office areas to the public sidewalk along 124th Avenue. The narrative stated Building C is located at the eastern portion of the site and the walkway connection would require pedestrians to cross through truck maneuvering areas. Walkways crossing the onsite drive aisles are proposed to be painted with cross striping. There are no outdoor recreation access routes required for this site. These standards are met.

- (2) Accessways.
- (a) When Required. Accessways are required to be constructed when a common wall development is adjacent to any of the following:
- (i) Residential property;
- (ii) Commercial property;
- (iii) Areas intended for public use, such as schools and parks; and
- (iv) Collector or arterial streets where transit stops or bike lanes are provided or designated.

Finding:

This development is not located adjacent to residential and commercial properties or areas intended for public use. This standard is not applicable.

(3) Drive-up Uses. Drive-up uses must comply with the following:

Finding:

There are no drive-up uses proposed under the application. This standard is not applicable.

- (4) Safety and Security. Industrial development must provide safety and security features as follows:
 - (a)Locate windows and provide lighting in a manner that enables tenants, employees, and police to watch over pedestrian, parking, and loading areas;
 - (b)Locate windows and interior lighting to enable surveillance of interior activity from the public right-of-way;
 - (c) Locate, orient, and select exterior lighting to facilitate surveillance of on-site activities from the public right-of-way without shining into public rights-of-way or fish and wildlife habitat areas;

Finding:

As shown in Exhibit A2 windows are proposed on the western elevation of Building A, the southern and western elevation of Building B and the southern, eastern and western elevation of Building C. The

windows will enable tenants to watch over pedestrian and parking areas. Wallpak lighting has been located on the buildings to illuminate the passenger vehicle parking areas. The applicant's narrative stated that the lighting is located far enough away from the public rights-of-way that it will not shine into the public rights-of-way. The narrative also stated the lighting will not extend beyond the curbline of the development to not affect the fish, wildlife and wetland habitat areas. A Site Lighting Plan is included in Exhibit A2. With recommended Condition of Approval A21, this standard is met.

- (d) Provide an identification system which clearly locates buildings and their entries for patrons and emergency services; and
- (e) Above ground sewer or water pumping stations, pressure reading stations, water reservoirs, electrical substations, and above ground natural gas pumping stations must provide a minimum six foot tall security fence or wall.

Finding:

Building identification will be reviewed and approved prior to issuance of a building permit and will be required to meet all standards of Tualatin Valley Fire and Rescue, as well as, all applicable building code standards. There are no above ground sewer or water pumping stations, pressure reading stations, water reservoirs, electrical substations, or above ground natural gas pumping stations proposed under this application. With recommended Condition of Approval A13, this standard is met.

- (5) Service, Delivery, and Screening. Industrial development must provide service, delivery, and screening features as follows:
 - (a) Above grade and on-grade electrical and mechanical equipment such as transformers, heat pumps and air conditioners must be screened with sight obscuring fences, walls or landscaping;
 - (b) Outdoor storage must be screened with a sight obscuring fence, wall, berm or dense evergreen landscaping; and

[...]

Finding:

The applicant's narrative (Exhibit A1) stated the proposed electrical transformers will be screened with landscaping. The shell buildings do not propose roof mounted units at the time of submittal. Future tenant buildouts may require rooftop units that are to be screened according to the standard. No outdoor storage is proposed. With recommended Condition of Approval A14, this standard is met.

- (6) Adjacent to Transit. Industrial development adjacent to transit must comply with the following:
 - (a) Development on a transit street designated in TDC Chapter 11 (Figure 11-5) must provide either a transit stop pad on-site, or an on-site or public sidewalk connection to a transit stop along the subject property's frontage on the transit street; and
 - (b) Development abutting major transit stops as designated in TDC Chapter 11 (Figure 11-5) must:
 (i) Locate any portion of a building within 20 feet of the major transit stop or provide a pedestrian plaza at the transit stop;

Finding:

The subject site abuts 124th Avenue. As shown in Exhibit A2, a sidewalk is proposed to connect the site to 124th Avenue. The site is not adjacent to a major transit stop. The project is located near one transit line (Trimet Route 97) that has stops within an approximately one-half mile walking/biking distance of the southern part of the site on Tualatin-Sherwood Road. This standard is met.

Chapter 73B: Landscaping Standards

Section 73B.020 - Landscape Area Standards Minimum Areas by Use and Zone.

Excerpted from 73B.020		
Zone	Minimum Area Requirement	
[]		
(3) [] MG zones except within the Core Area Parking	15% of the total area to be developed	

[...]

Finding:

The proposal included landscaping throughout the site submitted in the Landscape Plan in Exhibit A2. The site is within the General Manufacturing (MG) Planning District and requires a minimum of 15% of the total area to be developed to be enhanced with landscaping. With recommended Condition of Approval A10.b, this standard is met.

Section 73B.060 – Additional Minimum Landscaping Requirements for Industrial Uses.

- (1) *General.* In addition to requirements in TDC 73B.020, industrial uses must comply with the following:
 - (a) All areas not occupied by buildings, parking spaces, driveways, drive aisles, pedestrian areas, or undisturbed natural areas must be landscaped.
 - (b) Minimum 5-foot-wide landscaped area must be located along all building perimeters viewable by the general public from parking lots or the public right-of-way, but the following may be used instead of the 5-foot-wide landscaped area requirement:

[...]

Finding:

As shown on the Landscape Plan in Exhibit A2, building perimeter landscaping is proposed around the three proposed buildings which are viewable from parking areas. All areas not occupied by the buildings, parking spaces, driveways, drive aisles, and pedestrian areas are proposed to be landscaped. With recommended Condition of Approval A10.b, these standards are met.

<u>Section 73B.080 – Minimum Landscaping Standards for All Zones.</u>

The following are minimum standards for landscaping for all zones.

	 Must be designed, constructed, installed, and maintained so that within three years the ground must be covered by living grass or other plant materials.
	The foliage crown of trees cannot be used to meet this requirement.
(1) Required Landscape Areas	A maximum of 10% of the landscaped area may be covered with unvegetated areas of bark chips, rock or stone.
Areas	
	 Must be installed in accordance with the provisions of the American National Standards Institute ANSI A300 (Part 1) (Latest Edition).
	Must be controlled by pruning, trimming, or otherwise so that:
	It will not interfere with designated pedestrian or vehicular access; and
	It will not constitute a traffic hazard because of reduced visibility.

Finding:

As shown on the Landscape Plan included in Exhibit A2, and with recommended Condition of Approval A24, these standards are met.

	Landscape plans that include fences must integrate any fencing into the plan
(2) Fences	to guide wild animals toward animal crossings under, over, or around
	transportation corridors.

The Site Plan (Exhibit A2) depicted a six foot chain length fence to the north of the site. With recommended Condition of Approval A10.b, this standard is met.

	Trees and other plant materials to be retained must be identified on the landscape plan and grading plan.
	During construction:
	 Must provide above and below ground protection for existing trees and plant materials identified to remain;
	Trees and plant materials identified for preservation must be protected by chain link or other sturdy fencing placed around the tree at the drip line;
	If it is necessary to fence within the drip line, such fencing must be specified by a qualified arborist;
	Top soil storage and construction material storage must not be located within the drip line of trees designated to be preserved;
	 Where site conditions make necessary a grading, building, paving, trenching, boring, digging, or other similar encroachment upon a preserved tree's drip- line area, such grading, paving, trenching, boring, digging, or similar
(3) Tree Preservation	encroachment must only be permitted under the direction of a qualified arborist. Such direction must assure that the health needs of trees within the preserved area can be met; and
	Tree root ends must not remain exposed.
	 Landscaping under preserved trees must be compatible with the retention and health of the preserved tree.
	 When it is necessary for a preserved tree to be removed in accordance with TDC 33.110 (Tree Removal Permit) the landscaped area surrounding the tree or trees must be maintained and replanted with trees that relate to the present landscape plan, or if there is no landscape plan, then trees that are complementary with existing, landscape materials. Native trees are
	 encouraged 100% of the area preserved under any tree or group of trees (Except for impervious surface areas) retained in the landscape plan must apply directly to the percentage of landscaping required for a development

Finding:

Tree protection measures are identified in the Arborist Report submitted in Exhibit A3. With recommended Conditions of Approval A2 and A10.b, these standards are met.

(4) Grading	 After completion of site grading, top-soil is to be restored to exposed cut and fill areas to provide a suitable base for seeding and planting. All planting areas must be graded to provide positive drainage. Soil, water, plant materials, mulch, or other materials must not be allowed to wash across roadways or walkways. Impervious surface drainage must be directed away from pedestrian walkways, dwelling units, buildings, outdoor private and shared areas and landscape areas except where the landscape area is a water quality facility.
-------------	--

The proposal includes grading, as shown in the Grading Plan Exhibit A2. Grading and erosion control are further addressed in Chapter 74. With recommended Condition of Approval A10.a, these standards are met.

•	Landscaped areas must be irrigated with an automatic underground or drip irrigation system
•	Exceptions: Irrigation requirement does not apply to duplexes and townhouses.

Finding:

Irrigation will be provided in landscaped areas, as described in the Landscape Plan in Exhibit A2. This standard is met.

	Vegetation must be replanted in all areas where vegetation has been removed or damaged in areas not affected by the landscaping requirements and that are not to be occupied by structures or other improvements,.
(6) Re-vegetation in Un-	 Plant materials must be watered at intervals sufficient to ensure survival and growth for a minimum of two growing seasons.
landscaped Areas	The use of native plant materials is encouraged to reduce irrigation and maintenance demands.
	 Disturbed soils should be amended to an original or higher level of porosity to regain infiltration and stormwater storage capacity.

Finding:

The applicant proposed to landscape all areas not otherwise proposed for development within the development area. With recommended Condition of Approval A25, this standard is met.

Section 73B.090 – Minimum Standards Trees and Plants.

The following minimum standards apply to the types of landscaping required to be installed for all zones.

Standard	
(1) Deciduous Shade Trees	 One and on-half inch caliper measured six inches above ground; Balled and burlapped; bare root trees will be acceptable to plant during their dormant season; Reach a mature height of 30 feet or more; Cast moderate to dense shade in summer; Live over 60 years; Do well in urban environments, tolerant of pollution and heat, and resistant to drought; Require little maintenance and mechanically strong; Insect- and disease-resistant; Require little pruning; and Barren of fruit production.
(2) Deciduous Ornamental Trees	 One and on-half inch caliper measured six inches above ground; balled and burlapped; bare root trees will be acceptable to plant during their dormant season; and Healthy, disease-free, damage-free, well-branched stock, characteristic of the species
(3) Coniferous Trees	5 feet in height above ground;

	 balled and burlapped; bare root trees will be acceptable to plant during their dormant season; and Healthy, disease-free, damage-free, well-branched stock, characteristic of the species.
(4) Evergreen and Deciduous Shrubs	 One to five gallon size; Healthy, disease-free, damage-free, well-branched stock, characteristic of the species; and Side of shrub with best foliage must be oriented to public view.
(5) Groundcovers	 Fully rooted; Well branched or leafed; Healthy, disease-free, damage-free, well-branched stock, characteristic of the species; and English ivy (Hedera helix) is prohibited.
(6) Lawns	 Consist of grasses, including sod, or seeds of acceptable mix within the local landscape industry; 100 percent coverage and weed free; and Healthy, disease-free, damage-free, characteristic of the species.

Landscaping was proposed throughout the site in the submitted Landscape Plan (Exhibit A2). With recommended Condition of Approval A26, these standards are met.

Chapter 73C: Parking Standards

<u>Section 73C.020 – Parking Lot Design Standards.</u>

A parking lot, whether an accessory or principal use, intended for the parking of automobiles or trucks, must comply with the following:

- (1) Off-street parking lot design must comply with the dimensional standards set forth in Figure 73-1;
- (2) Parking lot drive aisles must be constructed of asphalt, concrete, or pervious concrete;
- (3) Parking stalls must be constructed of asphalt, concrete, previous concrete, or a pervious surface such as pavers or grasscrete, but not gravel or woody material. Pervious surfaces, are encouraged for parking stalls in or abutting the Natural Resource Protection Overlay District, Other Natural Areas, or in a Clean Water Services Vegetated Corridor;
- (4) Parking lots must be maintained adequately for all-weather use and drained to avoid water flow across sidewalks;
- (5) Parking bumpers or wheel stops or curbing must be provided to prevent cars from encroaching on adjacent landscaped areas, or adjacent pedestrian walkways.

Finding:

As shown on the submitted Site Plan (Exhibit A2) the parking stalls are proposed at 9×18.6 feet and drive aisles are proposed at 26 feet in width. These standards are met.

- (6) Disability parking spaces and accessibility must meet ADA standards applicable at time of construction or alteration;
- (7) Parking stalls for sub-compact vehicles must not exceed 35 percent of the total parking stalls required by TDC 73C.100. Stalls in excess of the number required by TDC 73C.100 can be sub-compact stalls;

The submitted Site Plan (Exhibit A2) depicted ten ADA parking spaces planned near the main entrances to the proposed buildings. There are no subcompact stalls proposed. ADA standards will be reviewed in greater detail during the building permit phase. These standards are met.

- (8) Groups of more than 4 parking spaces must be so located and served by driveways that their use will require no backing movements or other maneuvering within a street right-of-way other than an alley;
- (9) Drives to off-street parking areas must be designed and constructed to facilitate the flow of traffic, provide maximum safety of traffic access and egress, and maximum safety of pedestrians and vehicular traffic on the site;
- (10) On-site drive aisles without parking spaces, which provide access to parking areas with regular spaces or with a mix of regular and sub-compact spaces, must have a minimum width of 22 feet for two-way traffic and 12 feet for one-way traffic; When 90 degree stalls are located on both sides of a drive aisle, a minimum of 24 feet of aisle is required. On-site drive aisles without parking spaces, which provide access to parking areas with only sub-compact spaces, must have a minimum width of 20 feet for two-way traffic and 12 feet for one-way traffic;

Finding:

As shown on the Site Plan (Exhibit A2), the design of the vehicular circulation area will facilitate the flow of traffic and are a minimum of 24 feet in width. These standards are met.

(11) Artificial lighting, must be deflected to not shine or create glare in a residential zones, street rightof-way, a Natural Resource Protection Overlay District, Other Natural Areas, or a Clean Water Services Vegetated Corridor;

Finding:

The applicant submitted a Site Lighting Plan in Exhibit A2. Lighting will primarily be focused toward building entrances, loading, and interior parking areas. Artificial lighting must be deflected to not shine or create glare in a residential zones, street right-of-way, a Natural Resource Protection Overlay District, Other Natural Areas, or a Clean Water Services Vegetated Corridor. With recommended Condition of Approval A21, this standard is met.

- (12) Parking lot landscaping must be provided pursuant to the requirements of TDC 73C.200; and
- (13) Except for parking to serve residential uses, parking areas adjacent to or within residential zones or adjacent to residential uses must be designed to minimize disturbance of residents.

Finding:

Parking lot landscaping is reviewed below in TDC 73C.200. The site is not adjacent to a residential zone. These standards are met.

Section 73C.050 – Bicycle Parking Requirements and Standards.

- (1) Requirements. Bicycle parking facilities must include:
 - (a) Long-term parking that consists of covered, secure stationary racks, lockable enclosures, or rooms in which the bicycle is stored;
 - (i) Long-term bicycle parking facilities may be provided inside a building in suitable secure and accessible locations.
 - (b) Short-term parking provided by secure stationary racks (covered or not covered), which accommodate a bicyclist's lock securing the frame and both wheels.
- (2) Standards. Bicycle parking must comply with the following:

- (a) Each bicycle parking space must be at least six feet long and two feet wide, with overhead clearance in covered areas must be at least seven feet;
- (b) A five-foot-wide bicycle maneuvering area must be provided beside or between each row of bicycle parking. It must be constructed of concrete, asphalt or a pervious hard surface such as pavers, or grasscrete, and be maintained;
- (c) Access to bicycle parking must be provided by an area at least three feet in width. It must be constructed of concrete, asphalt, or a pervious hard surface such as pavers or grasscrete, and be maintained;
- (d) Bicycle parking areas and facilities must be identified with appropriate signing as specified in the Manual on Uniform Traffic Control Devices (MUTCD) (latest edition). At a minimum, bicycle parking signs must be located at the main entrance and at the location of the bicycle parking facilities;
- (e) Bicycle parking must be located in convenient, secure, and well-lighted locations approved through the Architectural Review process. Lighting, which may be provided, must be deflected to not shine or create glare into street rights-of-way or fish and wildlife habitat areas;
- (f) Required bicycle parking spaces must be provided at no cost to the bicyclist, or with only a nominal charge for key deposits, etc. This does not preclude the operation of private for-profit bicycle parking businesses;

[...]

Finding:

The Site Plan in Exhibit A2 noted interior and exterior bicycle parking. The applicant's narrative proposed 21 bicycle parking spaces. With recommended Condition of Approval A10.c these standards are met.

Section 73C.100 - Off-Street Parking Minimum/Maximum Requirements.

(1) The following are the minimum and maximum requirements for off-street motor vehicle parking in the City:

barrang in the t	,.			
USE	MINIMUM MOTOR VEHICLE PARKING	MAXIMUM MOTOR VEHICLE PARKING	BICYCLE PARKING	PERCENTAGE OF BICYCLE PARKING TO BE COVERED
[]				
(f) Industrial				
(i) Manufacturing	1.60 spaces per 1,000 square feet of gross floor area	None	2, or 0.10 spaces per 1,000 gross square feet, whichever is greater	First five spaces or 30 percent, whichever is greater
(ii) Warehousing	0.30 spaces per 1,000 square feet of gross floor area	Zone A: 0.4 spaces per 1,000 square feet of gross floor area Zone B: 0.5 spaces per 1,000 square feet of gross floor area	2, or 0.10 spaces per 1,000 gross square feet, whichever is greater	First five spaces or 30 percent, whichever is greater

Finding:

The applicant proposes to construct parking appropriate for a speculative mix of 50% manufacturing and 50% warehousing, based on the applicant's narrative in Exhibit A1.

Table 1: Minimum and Proposed Parking by Use

Use	Square Footage	Vehicle Parking Min.	Proposed Vehicle Parking	Bike Parking Min.	Proposed Bike Parking
Manufacturing	99,585	159		10	
Warehousing	99,585	30		10	
Total	199,170	189	201	20	21

For the proposed mix of uses, 189 parking spaces are required. The applicant's narrative and site plan proposed 201 parking spaces. Additionally, 20 bicycle parking spaces are required by code based on the total proposed area of the buildings. Six of the bicycle parking spaces must be covered. The applicant has proposed 21 bicycle parking spaces. The submitted narrative (Exhibit A1) stated, Building A would have seven bicycle parking spaces, five in the interior and two exterior would be provided. For Building B, eight bicycle parking spaces were proposed, five in the interior and three exterior. For Building C, six bicycle parking spaces are proposed, five in the interior and one exterior. With recommended Condition of Approval A10.c, these standards are met.

(2) In addition to the general parking requirements in subsection (1), the following are the minimum number of off-street vanpool and carpool parking for commercial, institutional, and industrial uses.

Number of Required Parking Spaces	Number of Vanpool or Carpool Spaces	
0 to 10	1	
10 to 25	2	
26 and greater	1 for each 25 spaces	

[...]

Finding:

Of the required 189 parking spaces, eight must be designated carpool/vanpool spaces. The submitted narrative (Exhibit A2) stated there are eight spaces proposed. With recommended Condition of Approval A10.c, this standard is met.

Section 73C.120 – Off-Street Loading Facilities Minimum Requirements.

(1) The minimum number of off-street loading berths for commercial, industrial, and institutional uses is as follows:

Use	Square Feet of Floor Area	Number of Berths	Dimensions of Berth	Unobstructed Clearance of Berth
[]				
Industrial	25,000—60,000	2	12 feet × 60 feet	14 feet
	60,000 and over	3	12 feet x 60 feet	14 feet

- (2) Loading berths must not use the public right-of-way as part of the required off-street loading area.
- (3) Required loading areas must be screened from public view, public streets, and adjacent properties by means of sight-obscuring landscaping, walls or other means, as approved through the Architectural Review process.
- (4) Required loading facilities must be installed prior to final building inspection and must be permanently maintained as a condition of use.

(5) The off-street loading facilities must in all cases be on the same lot or parcel as the structure they are intended to serve. In no case must the required off-street loading spaces be part of the area used to satisfy the off-street parking requirements.
[...]

Finding:

Building A is proposed to be 70,670 square feet and would require three berths, Building B is proposed to be 76,000 square feet and would require three berths and Building C is proposed to be 52,500 square feet and would require two berths. As shown on the Site Plan included in Exhibit A2, there are loading berths located on the eastern elevation of Building A that are screened from SW 124th Avenue. Loading berths are proposed on the southern elevation of Building B and are located 190 feet from SW 124th Avenue. Building C proposed loading berths on the southern elevation that are screened by Building B. The off-street loading facilities are on the same parcel they intend to serve. With recommended Condition of Approval A10.c, these standards are met.

<u>Section 73C.130 – Parking Lot Driveway and Walkway Minimum Requirements.</u> Parking lot driveways and walkways must comply with the following requirements:
[...]

(3) Industrial Uses. Ingress and egress for industrial uses must not be less than the following:

Required Parking	Minimum Number	Minimum	Minimum Pavement
Spaces	Required	Pavement Width	Walkways, Etc.
1-250	1	36 feet for first 50' from ROW, 24 feet thereafter	No curbs or walkway required

Finding:

Two driveways are proposed on the site. The north driveway is proposed at an existing driveway location along SW 124th Avenue. The existing driveway is proposed to be widened to 50 feet. A second 40 foot wide driveway is proposed to the south of the site along SW 124th Avenue. These standards will be further addressed in TDC Chapter 75 below.

- (6) Maximum Driveway Widths and Other Requirement.
- (a) Unless otherwise provided in this chapter, maximum driveway widths for Commercial, Industrial, and Institutional uses must not exceed 40 feet.
- (b) Driveways must not be constructed within five feet of an adjacent property line, unless the two adjacent property owners elect to provide joint access to their respective properties, as provided by TDC 73C.040.
- (c) The provisions of subsection (b) do not apply to townhouses, duplexes, triplexes, quadplexes, and cottage clusters which are allowed to construct driveways within five feet of adjacent property lines.
- (d) There must be a minimum distance of 40 feet between any two adjacent driveways on a single property unless a lesser distance is approved by the City Manager.
- (e) Must comply with the distance requirements for access as provided in TDC 75.
- (f) Must comply with vision clearance requirements in TDC 75.

Finding:

These standards will be further addressed in the Tualatin Development Code Chapter 75 findings below.

PARKING LOT LANDSCAPING

<u>Section 73C.200 – Parking Lot Landscaping Standards Purpose and Applicability.</u>

- (1) Purpose. The goals of the off-street parking lot standards are to create shaded areas in parking lots, to reduce glare and heat buildup, provide visual relief within paved parking areas, emphasize circulation patterns, reduce the total number of spaces, reduce the impervious surface area and stormwater runoff, and enhance the visual environment. The design of the off-street parking area must be the responsibility of the developer and should consider visibility of signage, traffic circulation, comfortable pedestrian access, and aesthetics.
- (2) Applicability. Off-street parking lot landscaping standards apply to any surface vehicle parking or circulation area.

Finding:

The proposal includes vehicular circulation and parking areas. This Section applies.

<u>Section 73C.240 – Industrial Parking Lot Landscaping Requirements.</u>

Industrial uses must comply with the following landscaping requirements for parking lots in all zones.

(1) General. Locate landscaping or approved substitute materials in all areas not necessary for vehicular parking and maneuvering

Finding:

As shown on the Landscape Plan (Exhibit A2), landscaping is proposed in areas not used for vehicles and pedestrian movement. This standard is met.

(2) Clear Zone. Clear zone required for the driver at ends of on-site drive aisles and at driveway entrances, vertically between a maximum of 30 inches and a minimum of 8 feet as measured from the ground level.

Finding:

As shown on the Landscape Plan (Exhibit A2), the proposed plantings will not impact visual clearance at the end of drive aisles and drive entrances. With recommended Condition of Approval A24 related to maintenance, this standard is met.

- (3) Perimeter. Minimum 5 feet in width in all off-street parking and vehicular circulation areas, including loading areas and must comply with the following.
 - (a) Deciduous trees located not more than 30 feet apart on average as measured on center;
 - (b) Shrubs or ground cover, planted so as to achieve 90 percent coverage within three years;
 - (c) Plantings which reach a mature height of 30 inches in three years which provide screening of vehicular headlights year round;
 - (d) Native trees and shrubs are encouraged; and

[...]

Finding:

As shown on the Landscape Plan (Exhibit A2), perimeter landscaping is proposed onsite in the parking and vehicular circulation areas. Deciduous trees are proposed along the western border along SW 124th Avenue. Building perimeter landscaping are shown through the proposed plans. With recommended Condition of Approval A10.b, these standards are met.

- (4) Landscape Island. Minimum 25 square feet per parking stall must be improved with landscape island areas and must comply with the following.
 - (a) May be lower than the surrounding parking surface to allow them to receive stormwater runoff and function as water quality facilities as well as parking lot landscaping;
 - (b) Must be protected from vehicles by curbs, but the curbs may have spaces to allow drainage into the islands;

- (c) Islands must be utilized at aisle ends to protect parked vehicles from moving vehicles and emphasize vehicular circulation patterns;
- (d) Landscape separation required for every eight continuous spaces in a row;
- (e) Must be planted with one deciduous shade trees for every four parking spaces; Required trees must be evenly dispersed throughout the parking lot;
- (f) Must be planted with groundcover or shrubs;
- (g) Native plant materials are encouraged;
- (h) Landscape island areas with trees must be a minimum of 5 feet in width (from inside of curb to curb);
- (i) Required plant material in landscape islands must achieve 90 percent coverage within three years; and

[...]

Finding:

Given the proposed 201 parking stalls, 50 trees and 5,025 square feet of parking lot landscape island areas are required. The Site Plan (Exhibit A2) depicted landscape separation for every eight continuous spaces in a row. The Landscape Plan (Exhibit A2) proposes at least 50 deciduous shade trees are evenly dispersed through the parking lot. Landscape islands are utilized at aisle ends to protect parked vehicles from moving vehicles and emphasize vehicular circulation patterns. With recommended Condition of Approval A10.b, these standards are met.

- (5) Landscaping Along Driveway Access. For lots with 12 or more parking spaces:
 - (a)Landscape area at least five (5) feet in width on each side of an accessway;
 - (b)Landscape area must extend 30 feet back from the property line; and

[...]

Finding:

As shown on the Landscape Plan included in Exhibit A2, with recommended Condition of Approval A10.b this standard is met.

Chapter 73D: Waste and Recyclables Management Standards Section 73D.010 - Applicability and Objectives.

(1)Applicability. The requirements of this Chapter apply to all new or expanded:

[...]

(c)Industrial developments; and

[...]

Finding:

The proposal includes a new industrial development. These standards apply.

Section 73D.020 - Design Methods.

An applicant required to provide mixed solid waste and source separated recyclables storage areas must comply with one of following methods:

- (1) The minimum standards method in TDC 73D.030;
- (2) The waste assessment method in TDC 73D.040;
- (3) The comprehensive recycling plan method in TDC 73D.050; or
- (4) The franchised hauler review method in TDC 73D.060.

Section 73D.030 – Minimum Standards Method.

This method specifies a minimum storage area requirement based on the size and general use category of the new or expanded development. This method is most appropriate when specific use of

a new or expanded development is not known. It provides specific dimensional standards for the minimum size of storage areas by general use category.

- (1) The size and location of the storage area(s) must be indicated on the site plan. Requirements are based on an assumed storage area height of four feet for mixed solid waste and source separated recyclables. Vertical storage higher than four feet, but no higher than 7 feet may be used to accommodate the same volume of storage in a reduced floor space (potential reduction of 43 percent of specific requirements). Where vertical or stacked storage is proposed, submitted plans must include drawings to illustrate the layout of the storage area and dimensions for containers.
- (2) The storage area requirement is based on uses. If a building has more than one use and that use occupies 20 percent or less of the gross leasable area (GLA) of the building, the GLA occupied by that use must be counted toward the floor area of the predominant use(s). If a building has more than one use and that use occupies more than 20 percent of the GLA of the building, then the storage area requirement for the whole building must be the sum of the area of each use. Minimum storage area requirements by use is as follows:

[...]

- (c) Commercial, industrial, and institutional developments must provide a minimum storage area of ten square feet plus:
 - (iii) Wholesale/ Warehouse/ Manufacturing 6 square feet/1000 square feet GLA; [...]
- (2) Mixed solid waste and source separated recyclables storage areas for multiple tenants on a single site may be combined and shared.

Finding:

The applicant's narrative (Exhibit A1) proposed the buildings to have between one and four future tenants for the future uses of warehousing and manufacturing. The size and location of the storage area must be indicated on the site plan. If a building has more than one use and that use occupies more than 20 percent of the GLA of the building, then the storage area requirement for the whole building must be the sum of the area of each use. Industrial developments must provide a minimum storage area of ten square feet plus Warehousing/Manufacturing – 6 square feet/1000 square feet GLA. The Site Plan (Exhibit A2) depicted three trash and recycling enclosures with one per building. The submitted service provider letter from Republic Services (Exhibit A6) stated the plan provides adequate space for the trash and recycling receptacles and are accessible for the collection trucks to provide service. With recommended Condition of Approval A10.c, these standards are met.

Section 73D.070 – Location, Design and Access Standards.

The following location, design, and access standards are applicable to all storage areas:

- (1) Location Standards.
 - (a) The storage area for source separated recyclables may be collocated with the storage area for mixed solid waste.
 - (b) Storage area space requirements can be satisfied with a single location or multiple locations, and can combine both interior and exterior locations.
 - (c) Exterior storage areas must:
 - (i) Be located in central and visible locations on the site to enhance security for users;
 - (ii) Be located in a parking area; and
 - (iii) Not be located within a required front yard setback or in a yard adjacent to a public or private street.
- (2) Design Standards.
 - (a) The dimensions of the storage area must accommodate containers consistent with current methods of local collection at time of construction or alteration.

- (b) Indoor and outdoor storage areas must comply with Oregon Building and Fire Code requirements.
- (c) Exterior storage areas must be enclosed by a sight obscuring fence or wall at least 6 feet in height.
- (d) Evergreen plants must be placed around the enclosure walls, excluding the gate or entrance openings for common wall, commercial, and institutional developments.
- (e) Gate openings for haulers must be a minimum of 10 feet wide and must be capable of being secured in a closed and open position.
- (f) Horizontal clearance must be a minimum of 10 feet and a vertical clearance of 8 feet is required if the storage area is covered.

[...]

- (h) Exterior storage areas must have either a concrete or asphalt floor surface.
- (i) Storage areas and containers must be clearly labeled to indicate the type of material accepted.

Finding:

Three locations are proposed on the Site Plan for trash and recycling areas. One storage area is proposed on the eastern side of Building A. Two storage areas are proposed to the south of Buildings B and C. The locations are located in central and visible locations in the parking areas. The submitted service provider letter from Republic Services (Exhibit A6) stated the plan provides adequate space for the trash and recycling receptacles and are accessible for the collection trucks to provide service. Further compliance with Building and Fire Code standards will be reviewed at the time of the building permit. With recommended Condition of Approval A10.c, these standards are met.

(3) Access Standards.

- (a) Storage areas must be accessible to users at convenient times of the day, and to hauler personnel on the day and approximate time they are scheduled to provide hauler service.
- (b) Storage areas must be designed to be easily accessible to hauler trucks and equipment, considering paving, grade, gate clearance and vehicle access.
- (c) Storage areas must be accessible to hauler trucks without requiring backing out of a driveway onto a public street. If only a single access point is available to the storage area, adequate turning radius must be provided to allow hauler trucks to safely exit the site in a forward motion.
- (d) Storage areas must located so that pedestrian and vehicular traffic movement are not obstructed on site or on public streets adjacent to the site.
- (e) The following is an exception to the access standard:
- (i) Access may be limited for security reasons.

Finding:

As shown in the applicant's submittal, Republic Services, the applicable waste hauler, has indicated that the dimensions and accessibility of the enclosures meet their service needs (Exhibit A6). These standards are met.

Chapter 74: Public Improvement Requirements

[...]

Section 74.120 - Public Improvements.

(1) Except as specially provided, all public improvements must be installed at the expense of the applicant. All public improvements installed by the applicant must be constructed and guaranteed as to workmanship and material as required by the Public Works Construction Code prior to acceptance by the City. Work must not be undertaken on any public improvement until after the construction

plans have been approved by the City Manager and a Public Works Permit issued and the required fees paid.

Finding:

All public improvements will be installed by the applicant at their expense after approval of plans and issued Erosion Control, Water Quality, and Public Works Permits. With recommended Conditions of Approval A16 and A17, this standard is met.

Section 74.130 - Private Improvements.

All private improvements must be installed at the expense of the applicant. The property owner must retain maintenance responsibilities over all private improvements.

Finding:

All private improvements will be installed by the applicant at their expense and will require prior approval of plans and building permits. With recommended Conditions of Approval A16 and A17, this standard is met.

Section 74.140 - Construction Timing.

- (1) All the public improvements required under this chapter must be completed and accepted by the City prior to the issuance of a Certificate of Occupancy.; or, for subdivision and partition applications, in accordance with the requirements of the Subdivision regulations.
- (2) All private improvements required under this Chapter must be approved by the City prior to the issuance of a Certificate of Occupancy.; or for subdivision and partition applications, in accordance with the requirements of the Subdivision regulations.

Finding:

All public and private improvements proposed and modified by conditions of approval will be completed and accepted by the City prior to receiving a Certificate of Occupancy. With recommended Conditions of Approval A16 and A17, this standard is met.

[...]

Section 74.210. - Minimum Street Right-of-Way Widths.

The width of streets in feet must not be less than the width required to accommodate a street improvement needed to mitigate the impact of a proposed development. In cases where a street is required to be improved according to the standards of the TDC, the width of the right-of-way must not be less than the minimums indicated in TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G.

[...]

(2) For development applications other than subdivisions and partitions, wherever existing or future streets adjacent to property proposed for development are of inadequate right-of-way width, the additional right-of-way necessary to comply with TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G must be dedicated to the City for use by the public prior to issuance of any building permit for the proposed development. This right-of-way dedication must be for the full width of the property abutting the roadway and, if required by the City Manager, additional dedications must be provided for slope and utility easements if deemed necessary.

[...]

Finding:

Any additional right-of-way for SW 124th Avenue and public easements necessary to accommodate public stormwater facilities and pedestrian improvements as determined by the City Engineer will be shown within final permit plans and dedicated.

With recommended Conditions of Approval A16 and A17, this standard is met.

Section 74.330. - Utility Easements.

- (1) Utility easements for water, sanitary sewer and storm drainage facilities, telephone, television cable, gas, electric lines and other public utilities must be granted to the City.
- [...]
- (4) For development applications other than subdivisions and partitions, and for both on-site and offsite easement areas, a utility easement must be granted to the City; building permits must not be issued for the development prior to acceptance of the easement by the City. The City may elect to exercise eminent domain and condemn necessary off-site public utility easements at the applicant's request and expense. The City Council must determine when condemnation proceedings are to be used.
- (5) The width of the public utility easement must meet the requirements of the Public Works Construction Code. All subdivisions and partitions must have a 6-foot public utility easement adjacent to the street and a 5-foot public utility easement adjacent to all side and rear lot lines. Other easements may be required as determined by the City Manager.

Finding:

All required public utility easements will be granted to the City. Public utility easements will be 8-feet-wide adjacent to the final dedicated right-of-way of SW 124th Avenue and 10-feet wide centered on water laterals from right-of-way to and surrounding all fire vaults, water meters, and reduced pressure backflow prevention by 5 feet to meet the Public Works Construction Code.

With recommended Conditions of Approval A5, A7, and A11, these standards are met.

[...]

Section 74.420 - Street Improvements.

When an applicant proposes to develop land adjacent to an existing or proposed street, including land which has been excluded under TDC 74.220, the applicant should be responsible for the improvements to the adjacent existing or proposed street that will bring the improvement of the street into conformance with the Transportation Plan (TDC Chapter 11), TDC 74.425 (Street Design Standards), and the City's Public Works Construction Code, subject to the following provisions:

(1) For any development proposed within the City, roadway facilities within the right-of-way described in TDC 74.210 must be improved to standards as set out in the Public Works Construction Code.

- (2) The required improvements may include the rebuilding or the reconstruction of any existing facilities located within the right-of-way adjacent to the proposed development to bring the facilities into compliance with the Public Works Construction Code.
- (3) The required improvements may include the construction or rebuilding of off-site improvements which are identified to mitigate the impact of the development.
- (4) Where development abuts an existing street, the improvement required must apply only to that portion of the street right-of-way located between the property line of the parcel proposed for development and the centerline of the right-of-way, plus any additional pavement beyond the centerline deemed necessary by the City Manager to ensure a smooth transition between a new improvement and the existing roadway (half-street improvement). Additional right-of-way and street improvements and off-site right-of-way and street improvements may be required by the City to mitigate the impact of the development. The new pavement must connect to the existing pavement at the ends of the section being improved by tapering in accordance with the Public Works Construction Code.

- (5) If additional improvements are required as part of the Access Management Plan of the City, TDC Chapter 75, the improvements must be required in the same manner as the half-street improvement requirements.
- (6) All required street improvements must include curbs, sidewalks with appropriate buffering, storm drainage, street lights, street signs, street trees, and, where designated, bikeways and transit facilities.

[...]

(8) For development applications other than subdivisions and partitions, all street improvements required by this section must be completed and accepted by the City prior to the issuance of a Certificate of Occupancy.

[....]

- (10) Streets within, or partially within, a proposed development site must be graded for the entire right-of-way width and constructed and surfaced in accordance with the Public Works Construction Code.
- (11) Existing streets which abut the proposed development site must be graded, constructed, reconstructed, surfaced or repaired as necessary in accordance with the Public Works Construction Code and TDC Chapter 11, Transportation Plan, and TDC 74.425 (Street Design Standards).
- (12) Sidewalks with appropriate buffering must be constructed along both sides of each internal street and at a minimum along the development side of each external street in accordance with the Public Works Construction Code.

[...]

- (13) The applicant must comply with the requirements of the Oregon Department of Transportation (ODOT), Tri-Met, Washington County and Clackamas County when a proposed development site is adjacent to a roadway under any of their jurisdictions, in addition to the requirements of this chapter. [...]
- (15) Except as provided in TDC 74.430, whenever an applicant proposes to develop land with frontage on certain arterial streets and, due to the access management provisions of TDC Chapter 75, is not allowed direct access onto the arterial, but instead must take access from another existing or future public street thereby providing an alternate to direct arterial access, the applicant must be required to construct and place at a minimum street signage, a sidewalk, street trees and street lights along that portion of the arterial street adjacent to the applicant's property. The three certain arterial streets are S.W. Tualatin-Sherwood Road, S.W. Pacific Highway (99W) and S.W. 124th Avenue. In addition, the applicant may be required to construct and place on the arterial at the intersection of the arterial and an existing or future public non-arterial street warranted traffic control devices (in accordance with the Manual on Uniform Traffic Control Devices, latest edition), pavement markings, street tapers and turning lanes, in accordance with the Public Works Construction Code.

[...]

(17) Intersections should be improved to operate at a level of service of at least D and E for signalized and unsignalized intersections, respectively.

[...]

Finding:

A Transportation Impact Analysis from Lancaster Mobley was submitted. City staff have reviewed the proposal against the above requirements. Required construction and reconstruction of public street surface infrastructure will benefit this development's bicycle, pedestrian, and vehicular trips utilizing streets and sidewalks.

With recommended Conditions of Approval A5, A11, A16 and A17, these standards are met.

Section 74.425 - Street Design Standards.

- (1) Street design standards are based on the functional and operational characteristics of streets such as travel volume, capacity, operating speed, and safety. They are necessary to ensure that the system of streets, as it develops, will be capable of safely and efficiently serving the traveling public while also accommodating the orderly development of adjacent lands.
- (2) The proposed street design standards are shown in Figures 72A through 72G. The typical roadway cross sections comprise the following elements: right-of-way, number of travel lanes, bicycle and pedestrian facilities, and other amenities such as landscape strips. These figures are intended for planning purposes for new road construction, as well as for those locations where it is physically and economically feasible to improve existing streets.

[...]

- (4) All streets must be designed and constructed according to the preferred standard. The City Manager may reduce the requirements of the preferred standard based on specific site conditions, but in no event will the requirement be less than the minimum standard. The City Manager must take into consideration the following factors when deciding whether the site conditions warrant a reduction of the preferred standard:
- (a)Arterials:
- (i) Whether adequate right-of-way exists;
- (ii)Impacts to properties adjacent to right-of-way;
- (iii)Current and future vehicle traffic at the location; and
- (iv)Amount of heavy vehicles (buses and trucks).
- (b)Collectors:
- (i)Whether adequate right-of-way exists;
- (ii)Impacts to properties adjacent to right-of-way;
- (iii)Amount of heavy vehicles (buses and trucks); and
- (iv)Proximity to property zoned manufacturing or industrial.

[...]

Finding:

Tualatin Comprehensive Plan Map 8-1: Tualatin Functional Classification Plan and Traffic Signal Plan designates street classifications. SW 124th Avenue is classified as a Major Arterial. A Transportation Impact Analysis from Lancaster Mobley did not recommend additional improvements greater than the preferred cross-sections. With recommended Conditions of Approval A5 and A11, these standards are met.

[...]

Section 74.440 - Streets, Traffic Study Required.

- (1) The City Manager may require a traffic study to be provided by the applicant and furnished to the City as part of the development approval process as provided by this Code, when the City Manager determines that such a study is necessary in connection with a proposed development project in order to:
 - (a) Assure that the existing or proposed transportation facilities in the vicinity of the proposed development are capable of accommodating the amount of traffic that is expected to be generated by the proposed development, and/or
 - (b) Assure that the internal traffic circulation of the proposed development will not result in conflicts between on-site parking movements and/or on-site loading movements and/or on-site traffic movements, or impact traffic on the adjacent streets.
- (2) The required traffic study must be completed prior to the approval of the development application.
- (3) The traffic study must include, at a minimum:

- (a) An analysis of the existing situation, including the level of service on adjacent and impacted facilities.
- (b) An analysis of any existing safety deficiencies.
- (c) Proposed trip generation and distribution for the proposed development.
- (d) Projected levels of service on adjacent and impacted facilities.
- (e) Recommendation of necessary improvements to ensure an acceptable level of service for roadways and a level of service of at least D and E for signalized and unsignalized intersections respectively, after the future traffic impacts are considered.
- (f) The City Manager will determine which facilities are impacted and need to be included in the study.
- (g) The study must be conducted by a registered engineer.
- (4) The applicant must implement all or a portion of the improvements called for in the traffic study as determined by the City Manager.

Finding:

A Transportation Impact Analysis from Lancaster Mobley did not recommend any improvements to any street cross-section or nearby intersections. Their summary included:

- 1. The proposed 124th Business Park is a 199,170-square-foot, industrial development located north of Tualatin Sherwood Road, east of SW 124th Avenue, and south of SW Myslony Street. The project site is located on Tax Lots 2S127BB 00100 & 00200 which encompass approximately 37.3 acres. The property is surrounded by homogeneous land uses, consisting predominantly of industrial warehouses or undeveloped land.
- 2. The 124th Business Park is proposing two driveways on SW 124th Avenue:
 - One corresponds to the location specified in the Tualatin Development Code (TDC). This access is assumed to be limited to right-in/right-out movements only.
 - A second driveway which is not currently listed in the TDC. This access is assumed to be limited to right-in/right-out movements only and is necessary for emergency access.
- 3. The 124th Business Park site is projected to generate 147 trips during the morning peak hour, 129 trips during the evening peak hour, and 970 trips during the average weekday.
- 4. Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections that do not already have planned and funded improvements.
- 5. Left-turn lane warrants were not examined at the site accesses on SW 124th Avenue since they are proposed as right-in/right-out turning movements only.
- 6. Preliminary traffic signal warrants were not examined for the site accesses since they are proposed as right-in/right-out turning movements only.
- 7. Based on the sight distance analysis, the proposed site accesses will meet ISD recommendations and SSD requirements as long as foliage in the landscape strip is maintained at a height of 3 feet or less.
- 8. The north access to SW 124th Avenue will meet the TDC access spacing standards and will be limited to right turns with the median remaining intact.

- 9. Secondary access to the site is not available from either SW Myslony Street or SW Cimino Street; therefore, a south access is recommended. It could be limited to emergency use but allowing site traffic to use the access is expected to have a minimal impact on the transportation system.
- 10. All proposed driveways can accommodate trucks entering and exiting from the north or south.
- 11. All study area intersections are anticipated to operate within the acceptable jurisdiction standards. Therefore, no mitigation for traffic operations is required or recommended. The access configuration options have little effect on study area operations.
- 12. The analysis shows little change in queues between background and buildout conditions. The queues can all be accommodated within the available storage. Therefore, no mitigation for queuing operations is required or recommended.

City staff have reviewed the subject analysis and have determined that it meets the requirements above.

With recommended Conditions of Approval A5, A16, and A17, this standard is met.

[...]

Section 74.470. - Street Lights.

(1)Street light poles and luminaries must be installed in accordance with the Public Works Construction Code.(2)The applicant must submit a street lighting plan for all interior and exterior streets on the proposed development site prior to issuance of a Public Works Permit.

Finding:

SW 124th Avenue adjacent to the development will meet PGE's Option A lighting standards. With recommended Conditions of Approval A5, A16, and A17, this standard is met. [...]

Section 74.610 - Water Service.

(1) Water lines must be installed to serve each property in accordance with the Public Works Construction Code. Water line construction plans must be submitted to the City Manager for review and approval prior to construction.

[...]

(3) As set forth is TDC Chapter 12, Water Service, the City has three water service levels. All development applicants must be required to connect the proposed development site to the service level in which the development site is located. If the development site is located on a boundary line between two service levels the applicant must be required to connect to the service level with the higher reservoir elevation. The applicant may also be required to install or provide pressure reducing valves to supply appropriate water pressure to the properties in the proposed development site.

Finding:

The Preliminary Utility Plan shows proposed laterals connecting to the public main within SW 124th Avenue. Separate laterals, meters, and reduced pressure backflow prevention are shown to serve the north two buildings and one lateral is shown shared for both domestic meter with reduced pressure backflow prevention and fire service with double check device assembly vault for the southern building.

A Technical Memorandum, HWM23-0001 - Water System Capacity Analysis, by Murraysmith confirms no additional public water system upgrades are needed.

Separate laterals to the main will be provided for each domestic and fire service within the development area. Water meters with reduced pressure backflow prevention and the fire double check device assembly vault will be located within landscaped areas.

Public utility easements will be recorded for any portion of the system outside existing public easements for all portions of water laterals ten feet wide to and surrounding any meter, reduced pressure backflow prevention, and fire vault by five feet.

With recommended Conditions of Approval A7, A11, A16 and A17, these standards are met.

Section 74.630 - Storm Drainage System.

- (1) Storm drainage lines must be installed to serve each property in accordance with City standards. Storm drainage construction plans and calculations must be submitted to the City Manager for review and approval prior to construction.
- (2) The storm drainage calculations must confirm that adequate capacity exists to serve the site. The discharge from the development must be analyzed in accordance with the City's Storm and Surface Water Regulations.

[...]

Section 74.640 - Grading.

(1) Development sites must be graded to minimize the impact of storm water runoff onto adjacent properties and to allow adjacent properties to drain as they did before the new development.
(2) A development applicant must submit a grading plan showing that all lots in all portions of the development will be served by gravity drainage from the building crawl spaces; and that this development will not affect the drainage on adjacent properties. The City Manager may require the applicant to remove all excess material from the development site.

Section 74.650 - Water Quality, Storm Water Detention and Erosion Control.

The applicant must comply with the water quality, storm water detention and erosion control requirements in the Surface Water Management Ordinance. If required:

[...]

- (2) On all other development applications, prior to issuance of any building permit, the applicant must arrange to construct a permanent on-site water quality facility and storm water detention facility and submit a design and calculations indicating that the requirements of the Surface Water Management Ordinance will be met and obtain a Stormwater Connection Permit from Clean Water Services.
- (3) For on-site private and regional non-residential public facilities, the applicant must submit a stormwater facility agreement, which will include an operation and maintenance plan provided by the City, for the water quality facility for the City's review and approval. The applicant must submit an erosion control plan prior to issuance of a Public Works Permit. No construction or disturbing of the site must occur until the erosion control plan is approved by the City and the required measures are in place and approved by the City.

Finding:

The Preliminary Utility Plan shows construction of two private stormwater systems including mechanical filters and detention releasing to the wetland buffer to the southeast. The Stormwater Report prepared by VLMK discusses proposed detention, hydromodification, and treatment of the new private impervious areas.

New and modified private and public impervious areas will include up to 25-year detention, hydromodification, and treatment. If existing capacity of regional public stormwater facilities are inadequate, modified impervious areas within SW 124th Avenue right-of-way will be addressed by construction of public LIDA street swales or alternate approaches as approved by the City Engineer.

Final plans and stormwater calculations will demonstrate that the development has direct access by gravity to public stormwater systems with adequate infiltration and/or downstream capacity in accordance with City of Tualatin and Clean Water Services.

The site disturbance is approximately 11 acres. Erosion and sediment control plans and permit applications conforming to the requirements of the City of Tualatin, CWS, and Oregon Department of Environmental Quality will be provided with the construction permit submittal documents. The applicant will obtain an erosion control permit from the City of Tualatin for disturbance greater than 500 square feet and a National Pollution Discharge Elimination System (NPDES) 1200-C Construction Erosion Control permit from Oregon DEQ for disturbance greater than 5 acres.

A Clean Water Services' Service Provider Letter and Memorandum were received. After land use decision issuance the applicant will submit final plans complying with the Service Provider Letter conditions and CWS Memorandum that are sufficient to obtain a Stormwater Connection Permit Authorization Letter from Clean Water Services in accordance with TDC 74.650(2) and CWS D&CS 3.01.2(d).

With recommended Conditions of Approval A8, A9, A16, and A17 these standards are met.

[...]

Chapter 75: Access Management

[...]

Section 75.040. - Driveway Approach Requirements.

- (1) The provision and maintenance of driveway approaches from private property to the public streets as stipulated in this Code are continuing requirements for the use of any structure or parcel of real property in the City of Tualatin. No building or other permit may be issued until scale plans are presented that show how the driveway approach requirement is to be fulfilled. If the owner or occupant of a lot or building changes the use to which the lot or building is put, thereby increasing driveway approach requirements, it is unlawful and a violation of this code to begin or maintain such altered use until the required increase in driveway approach is authorized by the City.
- (2) Owners of two or more uses, structures, or parcels of land may agree to utilize jointly the same driveway approach when the combined driveway approach of both uses, structures, or parcels of land satisfies their combined requirements as designated in this code; provided that satisfactory legal evidence is presented to the City Attorney in the form of deeds, easements, leases or contracts to establish joint use. Copies of said deeds, easements, leases or contracts must be placed on permanent file with the City Recorder.
- (3) Joint and Cross Access.
- (a) Adjacent commercial uses may be required to provide cross access drive and pedestrian access to allow circulation between sites.
- (b) A system of joint use driveways and cross access easements may be required and may incorporate the following:
- (i) A continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards;
- (ii) A design speed of ten mph and a maximum width of 24 feet to accommodate two-way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles; (iii) Stub-outs and

other design features to make it visually obvious that the abutting properties may be tied in to provide cross access via a service drive; and

- (iv) An unified access and circulation system plan for coordinated or shared parking areas.
- (c) Pursuant to this section, property owners may be required to:
- (i) Record an easement with the deed allowing cross access to and from other properties served by the joint use driveways and cross access or service drive;
- (ii) Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the city and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;
- (iii) Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners; and(iv)If subsection(i) through (iii) above involve access to the state highway system or county road system, ODOT or the county must be contacted and must approve changes to subsection(i) through (iii) above prior to any changes.

[...]

- (5) Lots that front on more than one street may be required to locate motor vehicle accesses on the street with the lower functional classification as determined by the City Manager.
- (6) Except as provided in TDC 53.100, all driveway approaches must connect directly with public streets.
- (7) To afford safe pedestrian access and egress for properties within the City, a sidewalk must be constructed along all street frontage, prior to use or occupancy of the building or structure proposed for said property. The sidewalks required by this section must be constructed to City standards, except in the case of streets with inadequate right-of-way width or where the final street design and grade have not been established, in which case the sidewalks must be constructed to a design and in a manner approved by the City Manager. Sidewalks approved by the City Manager may include temporary sidewalks and sidewalks constructed on private property; provided, however, that such sidewalks must provide continuity with sidewalks of adjoining commercial developments existing or proposed. When a sidewalk is to adjoin a future street improvement, the sidewalk construction must include construction of the curb and gutter section to grades and alignment established by the City Manager.
- (8) The standards set forth in this Code are minimum standards for driveway approaches, and may be increased through the Architectural Review process in any particular instance where the standards provided herein are deemed insufficient to protect the public health, safety, and general welfare.
- (9) Minimum driveway approach width for uses are as provided in Table 75-1 (Driveway Approach Width):

TABLE 75-1
Driveway Approach Width

Use	Minimum Driveway Approach Width	Maximum Driveway Approach Width
Industrial	36 feet	Over 250 Parking Spaces = As Required by the City Manager, but not exceeding 40 feet

(10) Driveway Approach Separation. There must be a minimum distance of 40 feet between any two adjacent driveways on a single property unless a lesser distance is approved by the City Manager. (11) Distance between Driveways and Intersections. Except for single-family dwellings, duplexes, townhouses, triplexes, quadplexes, and cottage clusters, the minimum distance between driveways and intersections must be as provided below. Distances listed must be measured from the stop bar at the intersection.

(a) At the intersection of collector or arterial streets, driveways must be located a minimum of 150 feet from the intersection.

[...]

- (12) Vision Clearance Area.
 - (b) Collector Streets. A vision clearance area for all collector/arterial street intersections, collector/arterial street and local street intersections, and collector/arterial street and railroad intersections must be that triangular area formed by the right-of-way lines along such lots and a straight line joining the right-of-way lines at points which are 25 feet from the intersection point of the right-of-way lines, as measured along such lines. Where a driveway intersects with a collector/arterial street, the distance measured along the driveway line for the triangular area must be ten feet (see Figure 73-2 for illustration).
 - (c) Vertical Height Restriction. Except for items associated with utilities or publicly owned structures such as poles and signs and existing street trees, no vehicular parking, hedge, planting, fence, wall structure, or temporary or permanent physical obstruction must be permitted between 30 inches and eight feet above the established height of the curb in the clear vision area (see Figure 73-2 for illustration).

[...]

Finding:

This lot is separated from lesser classified streets by an existing developed lot to the north and wetlands to the south. The proposed private accesses off of SW 124th Avenue, a Major Arterial, will be located between SW Cimino Street, a Connector, and SW Myslony Street, a Major Collector. These accesses will be right-in/right-out restricted, spaced greater than 40 feet apart, be between 36 and 40 feet wide, and include rolled curb and reinforced concrete planter to accommodate turning movements as determined by the City Engineer.

A public sidewalk adjacent to SW 124th Avenue will be constructed with private improvements located to allow future construction of a multi-use path. The driveway will meet vehicular sight distance and vision clearance requirements.

With recommended Conditions of Approval A5, A11, A16, and A17, these standards are met.

[...]

Section 75.140. - Existing Streets Access Standards.

The following list describes in detail the freeways and arterials as defined in TDC 75.050 with respect to access. Recommendations are made for future changes in accesses and location of future accesses. These recommendations are examples of possible solutions and shall not be construed as limiting the City's authority to change or impose different conditions if additional studies result in different recommendations from those listed below.

- (6) 124TH AVENUE.
- (c) Herman Road to Tualatin-Sherwood Road. On the east side of 124th Avenue between Herman Road and Tualatin-Sherwood Road the area will be served by the following streets or driveways: [...]
- (i) A street intersection at Myslony Street.
- (ii) A street or driveway intersection approximately 800 feet south of the Myslony Street/124th Avenue intersection extending east with an alternative to extend north to connect with Myslony Street a minimum of 150 feet east of 124th Avenue. Access may be limited to right in/right out as determined by the City Manager.
- (iii) Cimino Street extending east and south to an intersection at Tualatin-Sherwood Road across from 120th Avenue. The exact location and configuration of the streets and driveways shall be determined by the City Manager.

 $124^{\rm th}$ Avenue Industrial Development – Architectural Review (AR 23-0004) Page 48 of 54

[...]

Finding:

The proposed private accesses off of SW 124th Avenue will be located between SW Cimino Street and SW Myslony Street. These accesses will be right-in/right-out restricted. The northern access is in approximately 800 feet south of SW Myslony Street as indicated within access standards. With recommended Conditions of Approval A5, A11, A16, and A17, these standards are met.

III. RECOMMENDATION

Based on the application materials and analysis and findings presented above, staff finds that the applicable criteria have been met relative to AR 23-0004, and therefore recommend approval of this application with the following conditions of approval:

GENERAL:

A1. This Architectural Review approval expires after two years from the date of issuance unless a building, or grading permit submitted in conjunction with a building permit application, has been issued and substantial construction pursuant thereto has taken place and an inspection performed by a member of the Building Division, or an extension is granted under the terms of Section 33.020(10) or most current revision of the TDC.

PRIOR TO EROSION CONTROL, PUBLIC WORKS, AND WATER QUALITY PERMIT ISSUANCE:

- A2. Trees identified for preservation on the Erosion Control plan must be protected by chain link or other sturdy fencing placed around the tree at the drip line, pursuant to TDC 73B.080(3). Where site conditions make grading or other similar encroachment upon a preserved tree's drip-line area, such grading or similar encroachment must only be permitted under the direction of a qualified arborist.
- A3. Non-building development uses proposed in natural areas of the Natural Resource Protection Overlay District (NRPO) (Map 72-1) are subject to compliance with Clean Water Services standards stated in the Clean Water Services Service Provider letter dated January 31, 2023, and requirements stated in the Clean Water Services Memorandum dated October 24, 2023, to mitigate the impact of development to the extent necessary.

Submit to the Engineering Division via eTrakit for review and approval:

- A4. The applicant must apply for applicable Engineering Erosion Control, Water Quality, and Public Works permits:
 - a. Apply using <u>eTrakit</u>. With the initial Engineering permit(s) application(s) include:
 - i. One combined set of 22"x34" plans based on NAVD 1988 including all applicable Engineering permits attached to one Engineering permit. Include a note on other Engineering permits stating which application includes the set; and,
 - ii. Payment for an Erosion Control permit fee per the fee schedule; and,
 - iii. Engineering estimate and deposit for each Water Quality or Public Works permit per the fee schedule; and,
 - b. Deliver two 22"x34" hard copies of the combined Engineering permit plan sets to:

City of Tualatin

Attn: Engineering Division c/o Principal Engineer
10699 SW Herman Road
Tualatin, OR 97062

- A5. The applicant must submit Final Street Improvement Plans for SW 124th Avenue for the lot and Final Onsite Plans in accordance with applicable sections of Tualatin Development Code (TDC) 74 and 75 and Public Works Construction Code (PWCC) that show:
 - a. Dedication of a total of 55 feet of right-of-way from the centerline plus any additional right-of-way necessary to accommodate a 12-foot-wide multi-use path and to accommodate any final accepted future public stormwater LIDA management; and,

- b. A 2-inch grind and inlay of existing pavement from the roadway centerline/median to the curb adjacent to the property frontage or a similar paving improvement as approved by the City Engineer; and,
- c. Proposed driveways:
 - i. Right-in/right-out restricted; and,
 - ii. Approaches between 36 and 40 feet wide; and,
 - iii. Turning movement diagrams showing all proposed driveways operate without adverse impact as determined by the City Engineer to:
 - 1. Public rights-of-way and,
 - 2. The existing private access to SW 124th Avenue to the north of this development; and,
 - iv. Radii able to accommodate associated allowed vehicular movements as approved by the City Engineer; and,
 - v. Rolled curb and reinforced concrete planter strip as needed to support turning movements beyond the maximum 40-foot-wide approach; and,
- d. A curb-tight 6-foot-wide planter strip:
 - i. With street trees spaced to allow vehicular sight distance and vision clearance at accesses; and,
 - ii. Widened as needed to accommodate any required LIDA street swales for public stormwater to meet current CWS requirements; and,
- e. Existing public sidewalk within compliance of ADA standards or replacement of necessary driveways, ramps, and panels to bring into compliance; and,
- f. A 12-foot-wide multi-use path east of the planter strip; and,
- g. Dedication of right-of-way to accommodate any additional widening of the planter strip and 12-foot-wide multi-use path; and,
- h. Street lighting improvements as necessary to meet City Engineer standards including PGE's Option A; and,
- i. An 8-foot-wide public utility easement and any required slope easement adjacent to SW 124th Avenue right-of-way, or as approved by the City Engineer and,
- j. Any proposed private retaining walls outside of public utility and slope easements; and,
- A6. The applicant must submit Final Sanitary Sewer System Plans in accordance with Tualatin Development Code (TDC) 74.620, Tualatin Municipal Code (TMC) 3-2, and Public Works Construction Code (PWCC) that show
 - a. Location of the lines, grade, materials, and other details; and,
 - b. Cleanouts adjacent to right-of-way; and,
 - c. Private sampling manholes located onsite outside of right-of-way and public easements. If located close to the property line private manholes may act as a cleanout.
- A7. The applicant must submit Final Water System Plans in accordance with Tualatin Development Code (TDC) 74.610, Tualatin Municipal Code (TMC) 3-3, and Public Works Construction Code (PWCC) that show:
 - a. Separate laterals to the main for each domestic and fire service; and,
 - b. Water meters located within the planter strip with:
 - i. Reduced pressure backflow prevention for the domestic lateral; and,
 - ii. Irrigation after a domestic meter and reduced pressure backflow device serving the planter strip adjacent to this development; and,
 - Disconnection of any existing public irrigation serving the planter strip adjacent to this development while retaining any remaining public planter strip irrigation connectivity; and,

- d. A separate lateral and meter for any proposed public LIDA street swales; and,
- e. Public utility easements outside existing public easements for all portions of water laterals ten feet wide to and surrounding any meter, reduced pressure backflow prevention, and fire vault by five feet.

A8. The applicant must submit:

- a. Final Stormwater System Calculations and Plans in accordance with Tualatin Development Code (TDC) 74.630 and 74.650, Tualatin Municipal Code (TMC) 3-5-200 through 3-5-430, Public Works Construction Code (PWCC), and Clean Water Services' (CWS) Design & Construction Standards (D&CS) Chapter 4 stamped by an Oregon registered, professional engineer in accordance with TMC 3-5-390(1) that:
 - i. Address runoff from all new and modified private and public impervious areas:
 - 1. Confirm the existing capacity within the basin's public facility for hydromodification, detention, and treatment to include new and modified impervious area within right-of-way; and,
 - 2. For any required increase in capacity propose:
 - a. Modification of the existing public stormwater facility for this basin; or,
 - b. New street LIDA facilities within planter strips:
 - i. Adjacent to this development; and,
 - ii. Include any widening of the 6-foot wide planter strip with associated dedication of right-of-way to accommodate the design; or,
 - c. A fee-in-lieu for any unaddressed capacity of public stormwater detention, hydromodification, and treatment as approved by the City Engineer; and,
 - Treat new and modified impervious areas in accordance with CWS D&CS
 4.08.1.d meeting phosphorous removal in accordance with TMC 3-5-350 per the design storm in accordance with TMC 3-5-360 and CWS D&CS 4.08.2; and,
 - iii. Prove any proposed infiltration rates in accordance with CWS D&CS 4.08.03; and.
 - iv. Detain up to the 25-year storm event for conveyance with the City of Tualatin's stormwater system in accordance with, TMC 3-5-220, TMC 3-5-230, and CWS D&CS 4.08; and,
 - v. Accommodate hydromodification including post-development runoff rates not exceeding pre-development runoff rates for proposed new and modified impervious areas in accordance with CWS D&CS 4.03.5; and,
 - vi. Provide a downstream analysis and include solutions within final plans:
 - 1. For ¼ mile downstream from the release from the private development through the public stormwater system in accordance with TMC 3-5-210(4); and,
 - 2. Including but not limited to erosion; and,
 - 3. Accommodate up to a 25-year storm event within the City of Tualatin's public stormwater system with a maximum capacity of 82% for Tualatin's lines in accordance with TDC 74.640, CWS D&CS 5.05.2.d, and the City Engineer; and,
 - vii. Prove gravity flow five feet from the outside of the established line of the building to the public stormwater system or as otherwise approved by the City Engineer in accordance with CWS D&CS 1.03.39 and 5.09.3(a) (1) and (4); and,
 - viii. Discharge to an approved public system; and,

- ix. In accordance with TDC 74.650(2) and CWS D&CS 3.01.2(d), comply with:
 - The submitted Clean Water Services' Service Provider Letter dated January 31, 2023 conditions to obtain a Stormwater Connection Permit Authorization Letter, and,
 - 2. Requirements stated within the Clean Water Services' Memorandum dated October 24, 2023; and,
- b. Financial assurance for construction performance in accordance with TMC 3-390(3), PWCC 102.14.00, and amount per CWS D&CS 2.07 Table 2-1; and,
- c. A copy of the recorded private stormwater maintenance agreement in accordance with TMD 3-5-390(4):
 - i. The agreement must assure the owner as responsible for maintenance of the constructed portions of private stormwater systems within their lot; and,
 - ii. The identified system must include all conveyance, detention, hydromodification, and treatment.
- A9. The applicant must submit Final Erosion Control Plans in accordance with Tualatin Development Code (TDC) 74.640, Tualatin Municipal Code (TMC) 3-5-050 and 3-5-060, Public Works Construction Code (PWCC), and Clean Water Services' (CWS) Design & Construction Standards (D&CS) Chapters 2 and 6 that:
 - a. Minimize the impact of stormwater from the development to adjacent properties; and,
 - b. Plans sufficient to obtain a National Pollution Discharge Elimination System (NPDES) 1200-C Construction Erosion Control permit from Oregon DEQ.

PRIOR TO BUILDING PERMIT ISSUANCE:

Submit to the Planning Division via eTrakit for review and approval:

- A10. The applicant must submit a Final Site Plan Set (in .pdf format) that is in substantial conformance to the submitted site plans and shows:
 - a. A revised grading plan with details to demonstrate;
 - Identified trees for removal and retention, tree protection measures, and complete tree inventory list in accordance with the Arborist Report submitted as Exhibit A3 and TDC 73B.080(3).
 - b. A revised landscape plan with details to demonstrate;
 - i. The minimum landscape area requirement of 15% of the total area to be developed is calculated on the plan in accordance with TDC 73B.020.
 - ii. The proposed chain link fence shown on the site plan in Exhibit A2 is included in the landscape plan in accordance with TDC 73B.080(2).
 - iii. Perimeter landscaping is the minimum five feet in width in all off-street parking and vehicular circulation areas, including loading areas in compliance with TDC 73C.240(3).
 - iv. A minimum of 25 square feet per parking stall is improved with landscape island areas is calculated on the plan and are compliant with the standards of TDC 73C.240(4).
 - v. Landscape area at least five feet in width on each side of an accessway in accordance with TDC 73C.200(5).
 - c. A revised site plan with details to demonstrate;
 - i. The proposed chain link fence shown on the site plan in Exhibit A2 is setback at least 10 feet from the public right-of-way in accordance with TDC 61.300.
 - ii. Bicycle parking locations and requirements are met in accordance with TDC 73C.050.
 - iii. The minimum number of off-street vanpool and carpool parking for industrial uses are met in accordance with TDC 73C.100(2).

- iv. The minimum number of off-street loading berths for industrial uses, dimensions of berth, and unobstructed clearance of berths are met in accordance with TDC 73C.120.
- v. The size and location of waste and recycling storage areas and the minimum storage area for industrial developments for warehousing/manufacturing are met in accordance with TDC 73D.030.
- vi. The waste and recycling storage areas meet the design standards of TDC 73D.070.

Submit to the Engineering Division via <u>eTrakit</u> for review and approval:

- A11. The applicant must submit copies of recorded documents, as approved by the City Engineer, in accordance with Public Works Construction Code (PWCC) and Tualatin Development Code (TDC) 74.210, 74.330, and 75.040.
- A12. The applicant must obtain Erosion Control, Public Works, and Water Quality Permits from the City of Tualatin.

PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY AND/OR CERTIFICATE OF COMPLETION:

The applicant must contact the Planning Division (Madeleine Nelson, 503.691.3027 or mmelson@tualatin.gov) for a site inspection at least 72 hours prior to requesting a certificate of completeness. This inspection is separate from inspection(s) done by the Building Division. The following conditions must be satisfied:

- A13. The applicant must install an identification system which clearly locates buildings and their entries for patrons and emergency services, pursuant to Section 73A.500(4)(d). Building identification approved by TVF&R must be placed in a position that is plainly legible and visible from the street fronting the property. Numbers must contrast with their background, must be a minimum of 4 inches high, and must have a minimum stroke width of 1/2 inch. It is recommended to double this size on large buildings.
- A14. The applicant must screen with sight-obscuring fences or walls and landscaping, in accordance with TDC 73A.500(5) all above-grade and on-grade electrical and mechanical equipment, as well as, outdoor storage.
- A15. The applicant must construct all proposed site improvements as illustrated on the approved Final Site Plan Set.
- A16. The applicant must complete all the private stormwater and public improvements as shown on the approved permit plans. All improvements must also be accepted by the City in accordance with Tualatin Development Code (TDC) 74.120.
- A17. The applicant must submit paper and electronic as-builts of the Engineering permits along with maintenance bonds and any final fees for public and water quality improvements.

THE FOLLOWING ITEMS APPLY TO THE SITE IN AN ON-GOING MANNER:

A18. Warehouse and Freight Movement including the storage, repackaging, delivery and movement of products are permitted on site, in accordance with Table 61-1. A Conditional Use Permit, subject to TDC 33.040, will be required prior to establishment of any warehousing of building materials and supplies on site.

- A19. All uses must be conducted wholly within a completely enclosed building, except off-street parking and loading, pursuant to TDC 61.310(1).
- A20. The proposed development must comply with the Environmental Regulations of TDC 63.
- A21. Artificial lighting must be deflected to not shine or create glare in residential zones, street right-of-way, a Natural Resource Protection Overlay District, Other Natural Areas, or a Clean Water Services Vegetated Corridor in accordance with TDC 73C.020(11).
- A22. All site, building exterior, and landscaping improvements approved through the AR process must be continually maintained, so as to remain substantially similar to original approval through the AR process, except as permitted under TDC 33.020(7) *Modifications to Previously Approved Final Architectural Review Decisions*.
- A23. If the use of the property changes, thereby increasing off-street parking or loading requirements, the increased parking/loading area must be provided prior to commencement of the new use, pursuant to TDC 73C.010(2)(a)(v).
- A24. Site landscaping must be maintained to meet the vision clearance requirements of TDC Figure 75-1.
- A25. Vegetation must be replanted in all areas where vegetation has been removed or damaged. The use of native plant material is encouraged.
- A26. Proposed landscaping must meet the minimum standards for trees and plants in accordance with TDC 73B.090.
- A27. All sign permits require separate sign permit approval per TDC Chapter 38. This approval does not constitute sign permit approval.



AR 23-0004 124th Ave Industrial Development ARCHITECTURAL REVIEW BOARD December 13, 2023



Tonight's Presentation

- 1. Site Background
- 2. Project Overview
- 3. Applicable Criteria
- 4. Conclusion



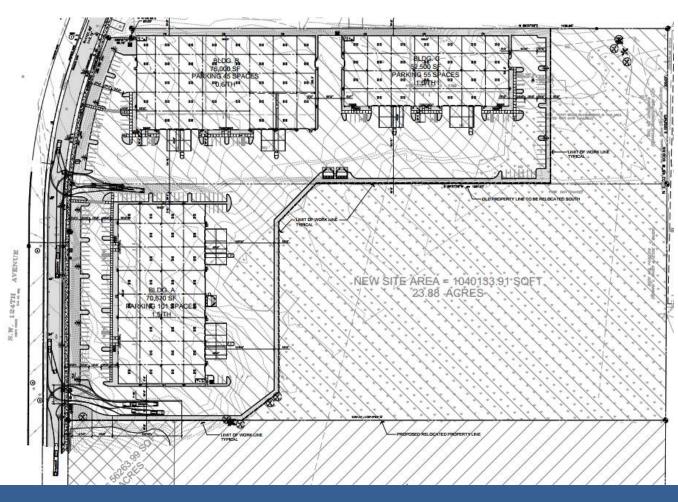
Site Background



AR 23-0004 124th Ave Industrial Development ARCHITECTURAL REVIEW BOARD December 13, 2023



Project Overview



AR 23-0004 124th Ave Industrial Development ARCHITECTURAL REVIEW BOARD December 13, 2023

Procedures (TDC 32.230)

Type III Architectural Review:

- Application submitted on April 19, 2023 and deemed complete on September 28, 2023
- Notice of Hearing sent October 2, 2023
- Public Hearing November 8, 2023, continued to December 13, 2023
- Final Decision required by January 26, 2024 + 45 day extension March 11, 2024



Architectural Review (TDC 33.020)

Architectural Review for Large Industrial Developments:

Approval criteria listed in Chapter 73A through 73G, including:

- Site Design Standards
- Landscaping Standards
- Parking Standards
- Waste & Recyclable Management Standards

Conditions of Approval: may implement identified public facilities and services needed to serve the proposed development through Chapters 74 and 75.



Tree Removal (TDC 33.110)

The application includes tree removal:

Approval Criteria

- The tree is diseased;
- The tree is a hazard;
- Necessary to remove tree to construct proposed improvements



General Manufacturing (TDC 61)

The proposal complies with the Use Categories in the MG Zone:

USE CATEGORY	STATUS	LIMITATIONS AND CODE REFERENCES
Heavy Manufacturing	P (L)	Concrete batch plants are not permitted in the Leveton Tax Increment District. All other uses permitted outright.
Light Manufacturing	Р	
Warehouse and Freight Movement	P/C	Conditional use required for warehousing of building materials and supplies. All other uses permitted outright.



General Manufacturing (TDC 61)

With conditions, the proposal complies with zoning:

	Standard	Building A	Building B	Building C
MINIMUM SETBACK	S			
Front (Cipole Rd)	30 feet	Met	Met	Met
Side*	0-50 feet	Met	Met	Met
Rear*	0-50 feet	Met	Met	Met
Parking and Circulation Areas	5 feet	Met	Met	Met
Fences (From Public ROW)	10 feet			
STRUCTURE HEIGHT				
Maximum Height	60 feet	Met	Met	Met
* Determined through Architectural Review process. No minimum setback if adjacent to railroad right-of-way or spur track.				

AR 23-0004 124th Ave Industrial Development ARCHITECTURAL REVIEW BOARD December 13, 2023



Natural Resource Protection Overlay (TDC 72)

Natural Resources

Natural Resources Protection Overlay District

Wetland Preservation District

Wetland Conservation District

Open Space Preservation District

Greenway

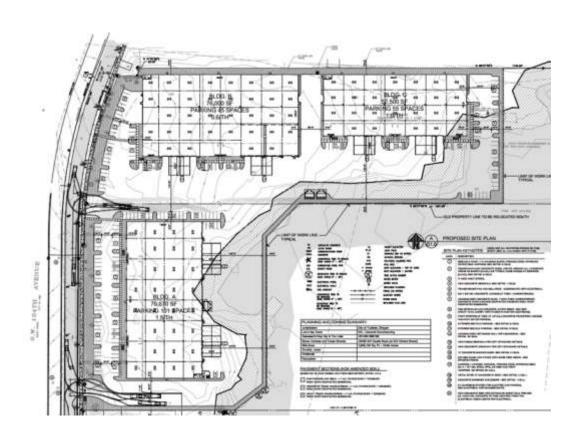




Site Design Standards (TDC 73A)

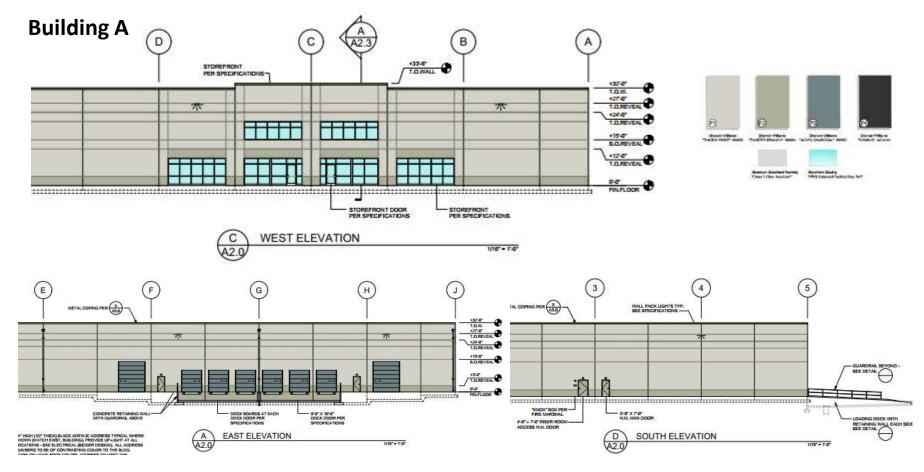
With conditions, the proposal complies with requirements for:

- Walkways
- Safety and Security
- Lighting
- Storage and screening





Building Design (TDC 73A)

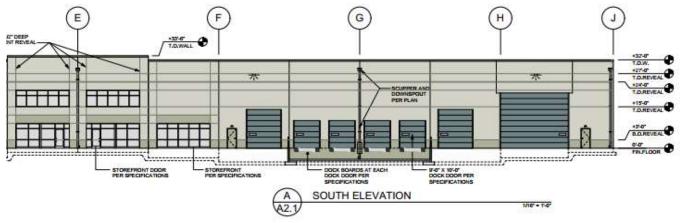


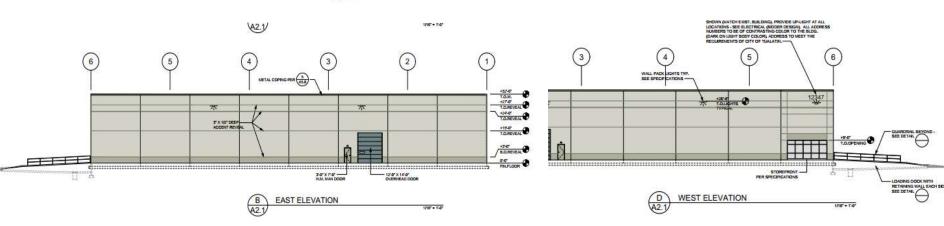
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Building Design (TDC 73A)

Building B



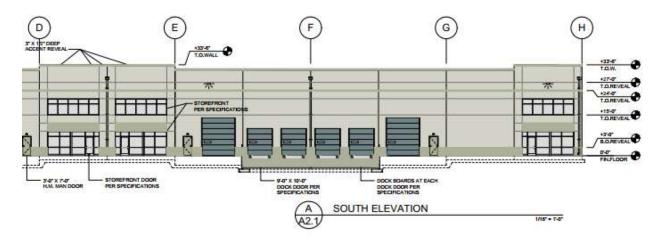


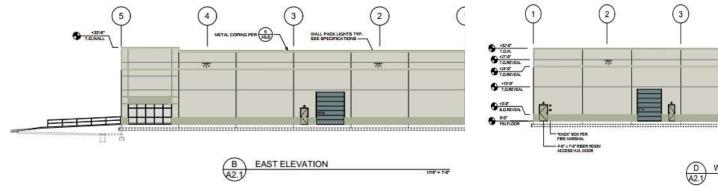
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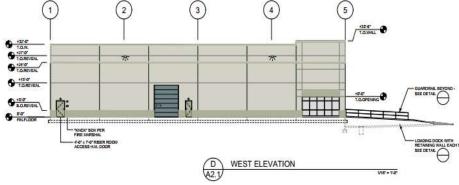


Building Design (TDC 73A)

Building C







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Building Design (TDC 73A)









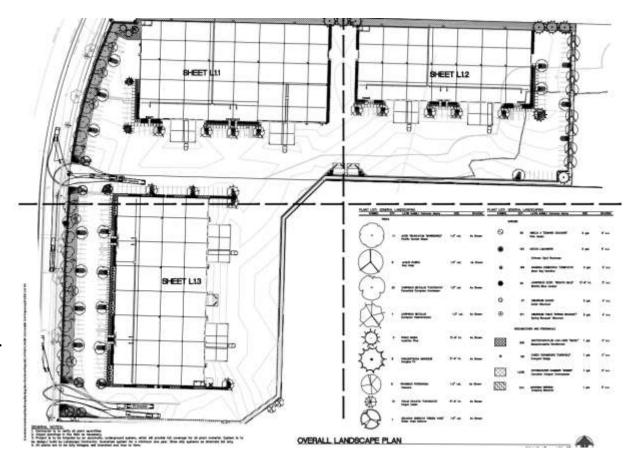
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Landscaping Standards (TDC 73B)

With conditions, the application demonstrates the proposal complies with requirements for:

- Minimum landscape area (15%)
- Landscape buffers
- Tree preservation
- Irrigation
- Revegetation of disturbed areas
- Minimum standards for plantings
- NRPO ČWS Conditions

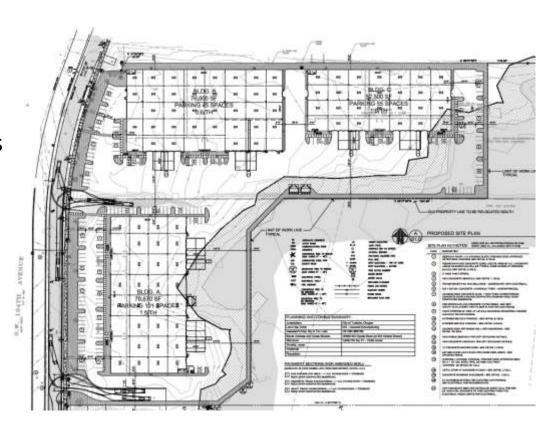




Parking Standards (TDC 73C)

With conditions, the application demonstrates the proposal complies with requirements for:

- Minimum parking requirements
 (201 proposed, 189 required)
- Bicycle parking (20 spaces required)
- Carpool/Vanpool spaces
- Parking / drive aisle standards
- Loading berth standards
- Parking lot landscaping

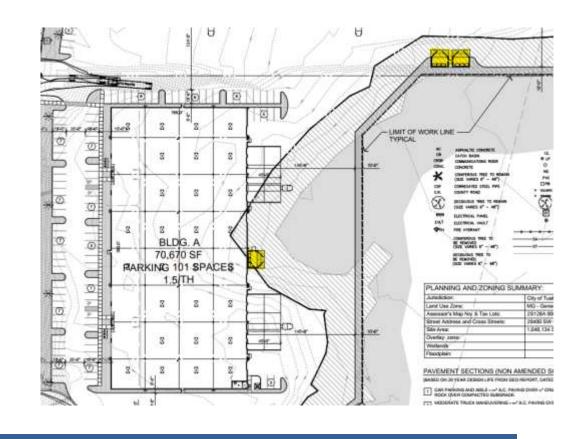




Waste and Recyclables (TDC 73D)

With conditions, the proposal complies with requirements for:

- Minimum storage area
- Location
- Design / screening
- Access



With conditions, the proposal complies with public improvement and access management standards:

- Right-of-Way and easement dedications required
- Street improvements have been conditioned
- Proposed driveways are right-in/right-out restricted
- Public utility standards met by conditions (Water, Sanitary Sewer, Storm Sewer)
 - Additional CWS Conditions
- Grading and erosion control standards will apply throughout construction



Conclusion

- The findings demonstrate that the proposal meets the applicable criteria of the Tualatin Development Code with the recommended Conditions of Approval.
- Therefore, staff respectfully recommends approval of the subject Architectural Review application (AR 23-0004), as conditioned.
- Questions?

SW 124TH DEVELOPMENT Three Speculative Buildings

SW 124th Avenue, North of SW Cimino Street Tualatin, Oregon 97062

ARCHITECTURAL REVIEW and LOT LINE ADJUSTMENT NARRATIVE

Prepared By: Havlin G. Kemp

April 14, 2023

PROJECT NARRATIVE

Architectural Review
City of Tualatin, Oregon

Project: Tualatin Logistics Park — Shell Only

Site: Address: SW 124th Avenue – Located East of SW 124th Ave. and north of

SW Cimino Street, Tualatin, Oregon

Property IDs: Map and Tax Lot: 2S127BB00100 & 2S127BB00200

Cross Streets: SW 124th Avenue and SW Cimino Street

Applicant: VLMK Engineering + Design, Contact: Amy Tallent - 503.222.4453

Owner: Tualatin 124 LLC, Contact: Tracy Bowers – 503-816-7719

Proposal: Construction of three new speculative warehouse/manufacturing shell

buildings.

Zoning: MG (General Manufacturing)

OVERVIEW

The 124th Ave Development Project is an approximate 23.9-acre industrial development on the undeveloped land east of SW 124th Ave and north of SW Cimino. The planned construction is for three buildings with a total building area of 199,260 square feet. The project is intended to provide lease space to warehouse and manufacturing tenants. Each building will accommodate one to 4 tenants.

The site is bounded by SW 124th Ave. to the west, existing wetlands and neighboring properties to the east, neighboring properties to the north and existing wetlands to the south and the existing stormwater treatment and detention facility easement for SW 124th to the south.

Sanitary sewer service is available to the west in SW 124th Avenue. Water service is available from a public watermain in SW 124th Avenue. Both will be provided by the City of Tualatin.

The current projected schedule is to begin rough grading for the entire site as soon as the approvals/permits are obtained (approximately June 2023) with an anticipated completion in June, 2024.

Site Condition: The site is currently undeveloped with fill previously placed at the north portion of the site and along the west side of the site along SW 124th. The bulk of the site is comprised of wetlands near the middle, south and east sides of the site.

Vehicle Access: Access to this development is proposed to be a right-in, right out driveway near the south end of the site to be used mostly by tractor trailers to access the loading docks at the east side of Building A. Another right-in, right-out driveway is proposed to be located at the location of the existing driveway and will be used by vehicles traveling to all three buildings, tractor-trailers accessing the loading docks at Buildings B and C and for vehicles and tractor trailers leaving the site from all three buildings.

Parking: The proposed parking for the site is above the required minimum parking spaces in the city development code for warehouse/manufacturing buildings. The parking spaces are located to the west of Building A, to the west and south of Building B and to the East and south of Building C.

Traffic and Transportation: A traffic study provided by Lancaster Mobley will show that the anticipated auto and truck trips will closely resemble a light industrial use with low access. The proposed new south driveway and the new North driveway will be sufficient to serve this industrial use site.

Jurisdictions: There are several jurisdictions having some level of authority over the proposed project including:

- 1. City of Tualatin (Design Review, Traffic review, Storm and Sanitary Sewer and Site/Building Permits, Public Works / Water Quality and 1200C permits).
- 2. Clean Water Services (CWS) (Pre-screen Site Assessment and Public Works / Water Quality permits).
- 3. Tualatin Valley Fire District

Construction Materials: The proposed building construction consists of tilt up concrete perimeter walls with industrial slab on grade concrete floor. Roof structure to be framed with open web steel joists and girders with metal deck and insulation and capped with a membrane roofing system.

Finishes will include aluminum framed storefront entry systems with enhanced paint and reveals to enhance the office locations.

Site Utilities:

• Storm:

The site will be fully served with an underground piped storm system. The system will include catchbasins and piping flowing to filters located in vaults at the east and south sides of the site. Stormwater will then flow to a below grade detention systems. Stormwater will flow out of the detention systems to the wetland at the south and east side of the site. New site improvements

will include installation of new catch basins, conveyance piping and providing water quality treatment and detention of all site impervious areas in compliance with current Clean Water Services requirements.

• Sanitary: The site will be fully served with private sanitary sewer laterals tying into the

public sanitary lines at the west in SW 124th Ave.

• Water: The site will be fully served from the existing public water main located in

SW 124th Ave. Domestic water will be tapped from this main. A fire water loop will tap into the public main west of Building A and loop around the buildings and connect back to the public main west of Building B. The proposed buildings will be fully sprinklered. Fire hydrants will be spaced

around the site per the TVFR requirements.

• Gas: The site will be served by a new underground gas line from SW 124th Ave.

Power: The site will be served by new underground electrical service from SW

124th Street.

• Lighting: The proposed on-site lighting systems will have energy efficient lights. The

exterior walls of the building will be lit with LED wallpak lighting. The

vehicle parking areas will be lit with the wallpaks on the buildings

Solid Waste Solid waste and recycling will be handled in the three proposed garbage
 Recycling enclosures located on the site plan. The garbage enclosures will be sized

for approval from the local garbage hauler, Republic Services.

Responses to Applicable Sections of the Tualatin Development Code.

TDC 33.020. Architectural Review.

- (2) Applicability.
 - (a) The following types of development are subject to Architectural Review:
 - (iii) Any site alteration which alters the topography, appearance or function of the site;

RESPONSE: The existing trees, shrubs and grasses will be removed, the site will be regraded and three new concrete tiltup warehouses will be constructed.

- (b) Examples of development subject to Architectural Review, include but are not limited to the following:
 - New buildings, condominiums, townhouse, single family dwellings, or manufactured dwelling park;

RESPONSE: Three new buildings are proposed to be constructed.

- (3) Types of Architectural Review Applications—Procedure Type.
 - (d) Large Commercial, Industrial, and Multifamily Development. Development applications that propose any of the following are subject to Type III Review by the Architectural Review Board as the hearing body:
 - (ii) New Industrial Buildings 150,000 square feet and larger;

RESPONSE: The proposed buildings have a total area of 199,260 sft of warehouse/manufacturing buildings.

- (4) Application Materials. The application must be on forms provided by the City. In addition to the application materials required by TDC 32.140 (Application Submittal), the following application materials are also required:
 - (a) The project name and the names, addresses, and telephone numbers of the architect, landscape architect, and engineer on the project;
 - (b) Existing conditions plan, site plan, grading plan, utility plan, landscape plan, and lighting plan all drawn to scale;
 - (c) A materials board that includes example building materials and textures;
 - (d) Title report; and
 - (e) A Service Provider Letter from Clean Water Services.

RESPONSE: All of the above are provided with this AR submittal

- (5) Approval Criteria.
 - (c) Large Commercial, Industrial, and Multifamily Development. Applications for Large Commercial, Industrial, and Multifamily Development must comply with the applicable standards and objectives in TDC Chapter 73A through 73G.

RESPONSE: See responses to Chap. 73A, 73B, 73C and 73D. Note that 73E-G do not apply.

TDC 33.110. Tree Removal Permit/Review.

- (1) *Purpose.* To regulate the removal of trees within the City limits other than trees within the public right-ofway which are subject to TDC Chapter 74.
- (2) Applicability. No person may remove a tree on private property within the City limits, unless the City grants a tree removal permit, consistent with the provisions of this Section.
- (3) Exemptions. The following actions are exempt from the requirements of a tree removal permit.

Response: None Applicable

(3) Procedure Type. Tree Removal Permit applications are subject to Type II Review in accordance with TDC Chapter 32. Tree Removal Permit applications submitted with an Architectural Review, Subdivision, or Partition application will be processed in conjunction with the Architectural Review, Subdivision, or Partition decision.

Response: Submitted with Type III Architectural Review.

- (4) Specific Submittal Requirements. In addition to the general submittal requirements in TDC 32.140 (Application Submittal), an applicant must submit the following:
 - (a) Tree Preservation Plan. A tree preservation plan drawn to scale must include:
 - (i) The location, size, species, and tag identification number of all trees on-site eight inches or more in diameter;
 - (ii) All trees proposed for removal and all trees proposed to be preserved;
 - (iii) All existing and proposed structures;
 - (iv) All existing and proposed public and private improvements; and
 - (v) All existing public and private easements.
 - (b) Tree Assessment Report. A tree assessment prepared by a certified arborist must include:
 - An analysis as to whether trees proposed for preservation may be preserved in light of the development proposed, are healthy specimens, and do not pose an imminent hazard to persons or property if preserved;
 - (ii) An analysis as to whether any trees proposed for removal could reasonably be preserved in light of the development proposed and health of the tree;
 - (iii) a statement addressing the approval criteria set forth in TDC 33.110(5);
 - (iv) the name, contact information, and signature of the arborist preparing the report; and
 - (v) The tree assessment report must have been prepared and dated no more than one calendar year preceding the date the development or Tree Removal Permit application is deemed complete by the City.
 - (c) Tree Tags. All trees on-site must be physically identified and numbered in the field with an arborist-approved tagging system that corresponds to the Tree Preservation Plan and Tree Assessment Report.

Response: A tree preservation plan is included with the Arborist's Tree Assessment Report. All the trees over 8-inches in diameter have been tagged onsite.

- (5) Approval Criteria.
 - (a) An applicant must satisfactorily demonstrate that at least one of the following criteria are met:

- (i) The tree is diseased and:
- (A) The disease threatens the structural integrity of the tree; or
- (B) The disease permanently and severely diminishes the esthetic value of the tree; or
- (C) The continued retention of the tree could result in other trees being infected with a disease that threatens either their structural integrity or esthetic value.
- (ii) The tree represents a hazard which may include but not be limited to:
- (A) The tree is in danger of falling; or
- (B) Substantial portions of the tree are in danger of falling.
- (iii) It is necessary to remove the tree to construct proposed improvements based on Architectural Review approval, building permit, or approval of a Subdivision or Partition Review.

Response: The Arborists report shows that removal of the trees is necessary to construct the project as proposed. A few trees that occur near the south and east edges of the development are proposed to remain.

(6) Emergencies. Response: None Applicable

TDC 36.100. - Property Line Adjustments.

- (4) Approval Criteria. A property line adjustment must be approved if all of the following criteria are met:
 - (a) The property line adjustment will not create an additional unit of land;

Response: The property line between the two lots is proposed to be moved south, resulting in two lots.

(b) The property line adjustment will not create nonconforming units of land or nonconforming development, or increase the degree of nonconformity in existing units of land or existing development;

Response: Nonconforming situations will not be created.

(c) The property line adjustment involves only units of land that were lawfully established, where the instruments creating the units of land have been properly recorded;

Response: The two existing lots have been legally created.

(d) The property line adjustment is not prohibited by any existing City land use approval, or previous condition of approval, affecting one or both of the units of land;

Response: There are no known land use decisions prohibiting approval of the proposed lot line adjustment.

(e) The property line adjustment does not involve the relocation or elimination of any public easement or right-of-way; and

Response: No relocation nor elimination of any public easement is proposed.

(f) The property line adjustment does not adversely impact the availability or access to public and private utilities or streets.

Response: Access to public utilities for both of the resulting lots will still be accessible in SW 124th Ave.

(5) Multiple Property Line Adjustments.

Response: Not applicable. Only one property line is proposed to be adjusted.

TDC 61.200. Use Categories.

Table 61-1
Use Categories in the MG Zone

USE CATEGORY	STATUS	LIMITATIONS AND CODE REFERENCES
INDUSTRIAL USE CATEGO	ORIES	
Heavy Manufacturing	P (L)	Concrete batch plants are not permitted in the Leveton Tax Increment District. All other uses permitted outright.
Light Manufacturing	Р	_
Solid Waste Treatment and Recycling	C (L)	Conditional uses limited to: Recycling collection center; Waste transfer station; and Resource recovery facility. Recycling collection center or waste transfer station are not permitted within the Limited Commercial Setback.
Vehicle Storage	P/C (L)	Conditional use required for bus maintenance and storage facility. Vehicle storage not permitted within the Limited Commercial Setback. Vehicles sales are not permitted.

		All other uses permitted outright in other locations.
Warehouse and Freight Movement	P/C	Conditional use required for warehousing of building materials and supplies. All other uses permitted outright.
Wholesale Sales	P/C (L)	Permitted uses limited to: Sales of industrial hand tools, industrial supplies such as safety equipment and welding equipment, that are products primarily sold wholesale to other industrial firms or industrial workers; and Sale, service and rental of construction and industrial equipment to contractors and industrial firms only. Conditional use permit required for wholesale sales of building materials and supplies.

RESPONSE: The proposed use of WAREHOUSE AND MANUFACTURING are permitted use. If a future tenant requires warehousing of building materials and supplies, a Condition Use Permit will be applied for. Both Heavy and Light manufacturing are permitted uses at this site.

TDC 61.210. Additional Limitations on Uses.

RESPONSE: Not applicable. Warehouse/Distribution and manufacturing are the only proposed uses.

Standards.

Development standards in the MG zone are listed in Table 61-2. Additional standards may apply to some uses and situations, see TDC 61.310.

Table 61-2 Development Standards in the MG Zone

STANDARD	REQUIREMENT	LIMITATIONS AND CODE REFERENCES
LOT SIZE		
Minimum Lot Size	20,000 square feet	_
RESPONSE: Met, lots are 23.88 and 12.87 acres.		
LOT DIMENSIONS		
Minimum Lot Width	100 feet	When lot has frontage on public street, minimum lot width at the street is 100 feet.
RESPONSE: Met at both SW 124 th Ave. for both lots.		When lot has frontage on cul-de-sac street, minimum lot width at the street is 50 feet.
Infrastructure and Utilities Uses	_	As determined through the Subdivision, Partition, or Lot Line Adjustment process
Flag Lots RESPONSE: Not applicable.	_	Must be sufficient to comply with minimum access requirements of TDC 73C.
MINIMUM SETBACKS		
Front	30 feet	
RESPONSE: 57-foot setback provided at SW 124th Ave.		
Front Setback Adjacent to Residential or Manufacturing Park Zone	50 feet	
RESPONSE: Not applicable Side	0-50 feet	Determined through Architectural Review process. No minimum setback if adjacent to railroad right- of-way or spur track.

Side Setback Adjacent to Residential	50 feet	
or Manufacturing Park Zone		
Rear	0-50 feet	Determined through Architectural Review process. No minimum setback if adjacent to railroad right- of-way or spur track.
Rear setback adjacent to Residential or Manufacturing Park Zone	50 feet	
RESPONSE: Not applicable		
Parking and Circulation Areas RESPONSE: Met at all property boundaries.	5 feet	No minimum setback required adjacent to joint access approach in accordance with TDC 73C.
Parking and Circulation Areas Adjacent to Residential or Manufacturing Park Zone	10 feet	
RESPONSE: Not Applicable		
Fences	10 feet	From public right-of-way.
RESPONSE: Not Applicable		
STRUCTURE HEIGHT		·
Maximum Height	60 feet	May be increased to 100 feet if yards adjacent to structure are not less than a distance equal to the height of the structure.
RESPONSE: Met, top of wall height on all three buildings is 33'-6"		Measured at the 50-foot setback line, includes flagpoles. The building height may extend above 28 feet on a plane beginning at the 50-foot setback line at a slope of 45 degrees extending away from the 50-foot setback line. Flagpoles may extend to 100 feet.
Maximum Height Adjacent to Residential Zone RESPONSE: Not applicable.	28 feet	

TDC 61.310. Additional Development Standards.

(1) Outdoor Uses. All uses must be conducted wholly within a completely enclosed building, except offstreet parking and loading, Basic Utilities, Wireless Communication Facilities and outdoor play areas of child day care centers as required by state day care certification standards.

RESPONSE: All uses are proposed to be conducted within the building.

- (2) Sound Barrier Construction. Sound barrier construction is required to mitigate the impact of noise associated with overhead doors and building mechanical equipment, including but not limited to heating, cooling and ventilation equipment, compressors, waste evacuation systems, electrical transformers, and other motorized or powered machinery located on the exterior of a building. Sound barrier construction must conform to the following standards:
 - (a) Applicability. New construction, including additions or changes to existing facilities, must comply with the provisions of this section. When additions or changes to existing facilities are proposed, existing structures on the property may be required to comply with the provisions of this section, as determined through the Architectural Review process. Where buildings or outdoor use areas located on more than one parcel are all part of a single use as determined through the Architectural Review process, all of the parcels may be required to comply with the provisions of this section.

RESPONSE: Not applicable, see below.

- (b) Distance from Residential Use. Sound barriers must be used to intercept all straight-line lateral (direct line between two points) paths of 450 feet or less between a residential property within a residential planning district and:
 - (i) Any side edge of an overhead door or other doorway larger than 64 square feet, at a minimum height of eight feet above the floor elevation of the doorway; or
 - (ii) Any building mechanical device at a minimum height equal to the height of the mechanical object to be screened.

RESPONSE: Not applicable. There are no residences within a residential planning district within 450-feet of this site.

(c) Exemption for Existing Structures.

RESPONSE: Not applicable.

- (d) Design. Sound barriers must consist of masonry walls or earth berms located so as to reflect sound away from, rather than toward, noise sensitive properties. This may include masonry "wing walls" attached to a building, detached masonry walls (such as at the perimeter of the site), earth berms, or combinations of the three. Wing walls must be at least as tall as the tallest overhead door they are designed to screen at the point where they meet the building. The height of the wall may be reduced along a maximum incline formed by a horizontal distance twice the vertical change in height, or 26.5 degrees from horizontal.
 - (i) "Wing wall" means a wall that is attached to a building on one side and meets the screening requirements of (1) and (2) of this section."
- (3) Setback Reduction for Developments Adjacent to Greenways and Natural Areas.

RESPONSE: Not Applicable.

CHAPTER 73A SITE DESIGN STANDARDS

TDC 73A.010. Site and Building Design Standards Purpose and Objectives.

INDUSTRIAL DESIGN STANDARDS

TDC 73A.500. Industrial Design Standards.

The following standards are minimum requirements for industrial development in all zones, except the Mixed-Use Commercial (MUC) zone, which has its own standards:

- (1) Walkways. Industrial development must provide walkways as follows:
 - (a) Walkways must be a minimum of five feet in width; RESPONSE: All walkways are 5-feet, minimum.
 - (b) Walkways must be constructed of asphalt, concrete, or a pervious surface such as pavers or grasscrete (not gravel or woody material); **RESPONSE: All walkways are constructed of concrete.**
 - (c) Walkways must meet ADA standards applicable at time of construction or alteration; **RESPONSE: All walkways will be designed to meet ADA standards.**
 - (e) Walkways must be provided between the main building entrances and other on-site buildings, accessways, and sidewalks along the public right-of-way; RESPONSE: Buildings A and B walkways connect the office areas to the public sidewalk along SW 124th. Building C is isolated at the east of the site and any walkway connection to the public sidewalk would take pedestrians into and through truck maneuvering areas.
 - (f) Walkways through parking areas, drive aisles, and loading areas must be of a different appearance than the adjacent paved vehicular areas; and RESPONSE: Walkways crossing the drive aisles will be painted, cross striped walkways.
 - (g) Outdoor Recreation Access Routes must be provided between the development's walkway and bikeway circulation system and parks, bikeways and greenways where a bike or pedestrian path is designated. **RESPONSE: Not applicable. There are no bike nor pedestrian paths designated.**
- Accessways.
 - (a) When Required. Accessways are required to be constructed when a common wall development is adjacent to any of the following:
 - (i) Residential property;
 - (ii) Commercial property;
 - (iii) Areas intended for public use, such as schools and parks; and
 - (iv) Collector or arterial streets where transit stops or bike lanes are provided or designated.

RESPONSE: Not applicable.

- (3) Drive-up Uses. RESPONSE: Not applicable. No drive-up uses are proposed.
- (4) Safety and Security. Industrial development must provide safety and security features as follows:
 - a) Locate windows and provide lighting in a manner that enables tenants, employees, and police to watch over pedestrian, parking, and loading areas; RESPONSE: Windows and wallpak lighting have been located at the office area at the west side of Building A, at the west and south side of Building B and at the east and south sides of Building C. Wallpak lighting has been located on the buildings to illuminate the passenger vehicle parking areas.

- (b) Locate windows and interior lighting to enable surveillance of interior activity from the public right-of-way; RESPONSE: Windows and wallpak lighting have been located at the street sides of Buildings A and B. Building C is not visible from SW 124th Ave.
- (c) Locate, orient, and select exterior lighting to facilitate surveillance of on-site activities from the public right-of-way without shining into public rights-of-way or fish and wildlife habitat areas; RESPONSE: Windows and wallpak lighting have been located at the office areas at the west and south areas of the buildings. Wallpak lighting has been located of the loading dock areas. . All of this lighting is located far enough from the public ROW to not shine in the ROW. Wallpak lighting at the east side of Building A and at the south side of Buildings B and C will not extend lighting beyond the curbline of the development, thus, fish and wildlife habitat in the wetland area will not be affected.
- (d) Provide an identification system which clearly locates buildings and their entries for patrons and emergency services; and RESPONSE: Building addresses will be added to the buildings, above the office entrances, when the building is occupied by tenants.
- (e) Above ground sewer or water pumping stations, pressure reading stations, water reservoirs, electrical substations, and above ground natural gas pumping stations must provide a minimum six foot tall security fence or wall. **RESPONSE:** Not applicable. None of these uses are proposed.
- (5) Service, Delivery, and Screening. Industrial development must provide service, delivery, and screening features as follows:
 - (a) Above grade and on-grade electrical and mechanical equipment such as transformers, heat pumps and air conditioners must be screened with sight obscuring fences, walls or landscaping; RESPONSE: Electrical Transformers will be screened with landscaping. These are Shell buildings so no roof mounted HVAC units are proposed. With future Tenant buildouts, rooftop mounted HVAC units will be screened with walls at the units if visible.
 - (b) Outdoor storage must be screened with a sight obscuring fence, wall, berm or dense evergreen landscaping; and **RESPONSE**: **No outdoor storage is proposed**.
 - (c) Above ground pumping stations, pressure reading stations, water reservoirs; electrical substations, and above ground natural gas pumping stations must be screened with sight-obscuring fences or walls and landscaping. **RESPONSE:** Not applicable. None of these uses are proposed.
- (6) Adjacent to Transit. RESPONSE: Not applicable. This development is not adjacent to a Transit Street.

CHAPTER 73B LANDSCAPING STANDARDS

TDC 73B.010. Landscape Standards Purpose and Objectives.

TDC 73B.020. Landscape Area Standards Minimum Areas by Use and Zone.

The following are the minimum areas required to be landscaped for each use and zone:

Zone	Minimum Area Requirement*	Minimum Area Requirement with dedication for a fish and wildlife habitat*
(3) CO, CR, CC, CG, ML and MG zones except within the Core Area Parking District—	15 percent of the total area to be developed	12.5 percent of the total area to be developed
All uses	RESPONSE: Met, most of the site will remain as the existing wetland.	

Table 73B-1R
Required Landscape Buffer Between Uses

			Proposed Improvement						
б			Residential	Commercial	Institutional	Parkir Lots 4—50 space)	Parking Lots 50+ spaces	
Abutting	Residenti	al	_	D	D	С		D	
Ab	Commerc	cial	С	_	D	_		_	
	Industrial		D	Α	D	_		_	
	Parking L		С	_	_	_		_	
	Arterial S	Streets	Α	_	Α	_		_	
	Options	Width (feet)	Trees (per linear feet of buffer)		Shrubs or Groundcove			ning	
Α		10	_		Lawn/living groundcover				
В	1	10	20 feet min/30) feet max	Lawn/living		_		
			spacing		groundcove	•			
С	1	10	15 feet min/30) feet max	Shrubs		4 feet hedges		
	2	8	spacing		Shrubs		5 feet fence		
	3	6					6 feet		
D	1	20	10 feet min/20 feet max		Shrubs			6 feet hedge	
	2	15	spacing		Shrubs			t fence	
	3	10			Shrubs		6 feet	t wall	

(Ord. No. 1438-20, § 23, 6-22-20)

RESPONSE: This site is bounded by MG, Industrial zoned properties and SW 124th, an Arterial street. The "A" type landscape buffer is met with the 30-feet of landscaping along SW 124th.

TDC 73B.060. Additional Minimum Landscaping Requirements for Industrial Uses.

- (1) General. In addition to requirements in TDC 73B.020, industrial uses must comply with the following:
 - (a) All areas not occupied by buildings, parking spaces, driveways, drive aisles, pedestrian areas, or undisturbed natural areas must be landscaped.

RESPONSE: This standard is met with this proposal.

- (b) Minimum 5-foot-wide landscaped area must be located along all building perimeters viewable by the general public from parking lots or the public right-of-way, but the following may be used instead of the 5-foot-wide landscaped area requirement:
 - (i) Pedestrian amenities such as landscaped plazas and arcades; and
 - (ii) Areas developed with pavers, bricks, or other surfaces, for exclusive pedestrian use and contain pedestrian amenities, such as benches, tables with umbrellas, children's play areas, shade trees, canopies.
- (c) Five-foot-wide landscaped area requirement does not apply to:
 - (i) Loading areas,
 - (ii) Bicycle parking areas,
 - (iii) Pedestrian egress/ingress locations, and
 - (iv) Where the distance along a wall between two vehicle or pedestrian access openings (such as entry doors, garage doors, carports and pedestrian corridors) is less than eight feet.

RESPONSE: This standard is met with this proposal. The 5-foot wide landscape area at the building perimeter has been provided at all required locations.

(d) Development that abuts an RL or MP Zone must have landscaping approved through Architectural Review and must provide and perpetually maintain dense, evergreen landscaped buffers between allowed uses and the adjacent RL and MP zones.

RESPONSE: Not applicable.

(2) MP Area—Wetland Buffer. RESPONSE: Not applicable.

TDC 73B.080. Minimum Landscaping Standards for All Zones.

The following are minimum standards for landscaping for all zones.

(1) Required Landscape Areas	 Must be designed, constructed, installed, and maintained
	so that within three years the ground must be covered by living
	grass or other plant materials.
	The foliage crown of trees cannot be used to meet this
	requirement.

	 A maximum of ten percent of the landscaped area may be covered with un-vegetated areas of bark chips, rock or stone. Must be installed in accordance with the provisions of the American National Standards Institute ANSI A300 (Part 1) (Latest Edition). Must be controlled by pruning, trimming, or otherwise so that: It will not interfere with designated pedestrian or vehicular access; and It will not constitute a traffic hazard because of reduced visibility.
(2) Fences	Landscape plans that include fences must integrate any fencing into the plan to guide wild animals toward animal crossings under, over, or around transportation corridors.
(3) Tree Preservation	 Trees and other plant materials to be retained must be identified on the landscape plan and grading plan. During construction: Must provide above and below ground protection for existing trees and plant materials identified to remain; Trees and plant materials identified for preservation must be protected by chain link or other sturdy fencing placed around the tree at the drip line; If it is necessary to fence within the drip line, such fencing must be specified by a qualified arborist; Top soil storage and construction material storage must not be located within the drip line of trees designated to be preserved; Where site conditions make necessary a grading, building, paving, trenching, boring, digging, or other similar encroachment upon a preserved tree's dripline area, such grading, paving, trenching, boring, digging, or similar encroachment must only be permitted under the direction of a qualified arborist. Such direction must assure that the health needs of trees within the preserved area can be met; and Tree root ends must not remain exposed. Landscaping under preserved trees must be compatible with the retention and health of the preserved tree. When it is necessary for a preserved tree to be removed in accordance with TDC 33.110 (Tree Removal Permit) the landscaped area surrounding the tree or trees must be maintained and replanted with trees that relate to the present landscape plan, or if there is no landscape plan, then trees that are complementary with existing, landscape materials.

	IX
	 Native trees are encouraged 100 percent of the area preserved under any tree or
	group of trees (Except for impervious surface areas) retained in
	the landscape plan must apply directly to the percentage of
	landscaping required for a development
(4) Grading	After completion of site grading, top-soil is to be restored
	to exposed cut and fill areas to provide a suitable base for
	seeding and planting.
	All planting areas must be graded to provide positive
	drainage.
	Soil, water, plant materials, mulch, or other materials must
	not be allowed to wash across roadways or walkways.
	Impervious surface drainage must be directed away from
	pedestrian walkways, dwelling units, buildings, outdoor
	private and shared areas and landscape areas except where
	the landscape area is a water quality facility.
(5) Irrigation	Landscaped areas must be irrigated with an automatic
	underground or drip irrigation system
	• Exceptions:
	 Irrigation requirement does not apply to duplexes and townhouses.
14) Davis astation in Lie	
(6) Re-vegetation in Un- landscaped	Vegetation must be replanted in all areas where vegetation has been removed or damaged in areas not affected by the
Areas	landscaping requirements and that are not to be occupied by
Aleds	structures or other improvements.
	Plant materials must be watered at intervals sufficient to
	ensure survival and growth for a minimum of two growing
	seasons.
	The use of native plant materials is encouraged to reduce
	irrigation and maintenance demands.
	• Disturbed soils should be amended to an original or higher
	level of porosity to regain infiltration and stormwater storage
	capacity.

RESPONSE: These standards are met with this proposal. See the Site Plan, Site Grading Plan, Tree Preservation Plan and the Landscape Plan.

TDC 73B.090. Minimum Standards Trees and Plants.

The following minimum standards apply to the types of landscaping required to be installed for all zones.

(1) Deciduous Shade Trees	One and on-half inch caliper measured six inches above
	ground;

	Balled and burlapped; bare root trees will be acceptable A plant during their degree and a great acceptable.
	to plant during their dormant season;
	 Reach a mature height of 30 feet or more;
	 Cast moderate to dense shade in summer;
	• Live over 60 years;
	Do well in urban environments, tolerant of pollution and
	heat, and resistant to drought;
	Require little maintenance and mechanically strong;
	 Insect- and disease-resistant;
	Require little pruning; and
	Barren of fruit production.
(2) Da sidua va Ossassa satal	·
(2) Deciduous Ornamental	One and on-half inch caliper measured six inches above
Trees	ground;
	balled and burlapped; bare root trees will be acceptable
	to plant during their dormant season; and
	Healthy, disease-free, damage-free, well-branched stock,
	characteristic of the species
(3) Coniferous Trees	Five feet in height above ground;
	Balled and burlapped; bare root trees will be acceptable
	to plant during their dormant season; and
	• Healthy, disease-free, damage-free, well-branched stock,
	characteristic of the species.
(4) Evergreen and Deciduous	One to five gallon size;
Shrubs	 Healthy, disease-free, damage-free, well-branched stock,
	characteristic of the species; and
	· '
	Side of shrub with best foliage must be oriented to public
15) C	view.
(5) Groundcovers	• Fully rooted;
	Well branched or leafed;
	Healthy, disease-free, damage-free, well-branched stock,
	characteristic of the species; and
	English ivy (Hedera helix) is prohibited.
(6) Lawns	Consist of grasses, including sod, or seeds of acceptable
	mix within the local landscape industry;
	• 100 percent coverage and weed free; and
	Healthy, disease-free, damage-free, characteristic of the
	species.
	1 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3

RESPONSE: This standard is met with this proposal. See the Landscape Plans.

CHAPTER 73C PARKING STANDARDS

In General

Parking Lot Landscaping

IN GENERAL

TDC 73C.010. Off-Street Parking and Loading Applicability and General Requirements.

- (1) Applicability. Off-street parking and loading is required to be provided by the owner and/or developer, in all zones, whenever the following occurs:
 - (a) Establishment of a new structure or use; RESPONSE: This proposal is for a New Structure.
- (2) General Requirements. Off-street parking spaces, off-street vanpool and carpool parking spaces, off-street bicycle parking, and off-street loading berths must be as provided as set forth in TDC 73C.100, unless greater requirements are otherwise established by the conditional use permit or the Architectural Review process.
 - (a) The following apply to property and/or use with respect to the provisions of TDC 73C.100:
 - (i) The requirements apply to both the existing structure and use, and enlarging a structure or use;
 - (ii) The floor area is measured by gross floor area of the building primary to the function of the particular use of the property other than space devoted to off-street parking or loading;
 - (iii) Where employees are specified, the term applies to all persons, including proprietors, working on the premises during the peak shift;
 - (iv) Calculations to determine the number of required parking spaces and loading berths must be rounded to the nearest whole number;
 - (v) If the use of a property changes, thereby increasing off-street parking or loading requirements, the increased parking/loading area must be provided prior to commencement of the new use;
 - (vi) Parking and loading requirements for structures not specifically listed herein must be determined by the City Manager, based upon requirements of comparable uses listed;
 - (vii) When several uses occupy a single structure, the total requirements for off-street parking may be the sum of the requirements of the several uses computed separately or be computed in accordance with TDC 73.370(1)(m), Joint Use Parking;
 - (viii) Off-street parking spaces for dwellings must be located on the same lot with the dwelling. Other required parking spaces may be located on a separate parcel, provided the parcel is not greater than five hundred (500) feet from the entrance to the building to be served, measured along the shortest pedestrian route to the building. The applicant must prove that the parking located on another parcel is functionally located and that there is safe vehicular and pedestrian access to and from the site. The parcel upon which parking facilities are located must be in the same ownership as the structure;
 - (ix) Required parking spaces must be available for the parking of operable passenger automobiles of residents, customers, patrons and employees and must not be used for storage of vehicles or materials or for the parking of trucks used in conducting the business;
 - (x) Institution of on-street parking, where none is previously provided, must not be done solely for the purpose of relieving crowded parking lots in commercial or industrial zones; and
 - (xi) Required vanpool and carpool parking must meet the 9-foot parking stall standards in Figure 73-1 and be identified with appropriate signage.

TDC 73C.020. Parking Lot Design Standards.

A parking lot, whether an accessory or principal use, intended for the parking of automobiles or trucks, must comply with the following:

- (1) Off-street parking lot design must comply with the dimensional standards set forth in Figure 73-1;
 - (a) Exception: Parking structures and underground parking where stall length and width requirements for a standard size stall must be reduced by .5 feet and vehicular access at the entrance if gated must be a minimum of 18 feet in width.
- (2) Parking lot drive aisles must be constructed of asphalt, concrete, or pervious concrete;
- (3) Parking stalls must be constructed of asphalt, concrete, previous concrete, or a pervious surface such as pavers or grasscrete, but not gravel or woody material. Pervious surfaces, are encouraged for parking stalls in or abutting the Natural Resource Protection Overlay District, Other Natural Areas, or in a Clean Water Services Vegetated Corridor;
- (4) Parking lots must be maintained adequately for all-weather use and drained to avoid water flow across sidewalks;
- (5) Parking bumpers or wheel stops or curbing must be provided to prevent cars from encroaching on adjacent landscaped areas, or adjacent pedestrian walkways.
- (6) Disability parking spaces and accessibility must meet ADA standards applicable at time of construction or alteration;
- (7) Parking stalls for sub-compact vehicles must not exceed 35 percent of the total parking stalls required by TDC 73C.100. Stalls in excess of the number required by TDC 73C.100 can be sub-compact stalls;
- (8) Groups of more than four parking spaces must be so located and served by driveways that their use will require no backing movements or other maneuvering within a street right-of-way other than an alley;
- (9) Drives to off-street parking areas must be designed and constructed to facilitate the flow of traffic, provide maximum safety of traffic access and egress, and maximum safety of pedestrians and vehicular traffic on the site;
- (10) On-site drive aisles without parking spaces, which provide access to parking areas with regular spaces or with a mix of regular and sub-compact spaces, must have a minimum width of 22 feet for two-way traffic and 12 feet for one-way traffic; When 90 degree stalls are located on both sides of a drive aisle, a minimum of 24 feet of aisle is required. On-site drive aisles without parking spaces, which provide access to parking areas with only sub-compact spaces, must have a minimum width of 20 feet for two-way traffic and 12 feet for one-way traffic;
- (11) Artificial lighting, must be deflected to not shine or create glare in a residential zones, street right-of-way, a Natural Resource Protection Overlay District, Other Natural Areas, or a Clean Water Services Vegetated Corridor;
- (12) Parking lot landscaping must be provided pursuant to the requirements of TDC 73C.200; and
- (13) Except for parking to serve residential uses, parking areas adjacent to or within residential zones or adjacent to residential uses must be designed to minimize disturbance of residents.

RESPONSE: All of the above criteria have been met with the proposed development.

TDC 73C.050. Bicycle Parking Requirements and Standards.

- (1) Requirements. Bicycle parking facilities must include:
 - (a) Long-term parking that consists of covered, secure stationary racks, lockable enclosures, or rooms in which the bicycle is stored;
 - (i) Long-term bicycle parking facilities may be provided inside a building in suitable secure and accessible locations.
 - (b) Short-term parking provided by secure stationary racks (covered or not covered), which accommodate a bicyclist's lock securing the frame and both wheels.
- (2) Standards. Bicycle parking must comply with the following:
 - (a) Each bicycle parking space must be at least six feet long and two feet wide, with overhead clearance in covered areas must be at least seven feet;
 - (b) A five-foot-wide bicycle maneuvering area must be provided beside or between each row of bicycle parking. It must be constructed of concrete, asphalt, or a pervious hard surface such as pavers or grasscrete, and be maintained;
 - (c) Access to bicycle parking must be provided by an area at least three feet in width. It must be constructed of concrete, asphalt, or a pervious hard surface such as pavers or grasscrete, and be maintained;
 - (d) Bicycle parking areas and facilities must be identified with appropriate signing as specified in the Manual on Uniform Traffic Control Devices (MUTCD) (latest edition). At a minimum, bicycle parking signs must be located at the main entrance and at the location of the bicycle parking facilities;
 - (e) Bicycle parking must be located in convenient, secure, and well-lighted locations approved through the Architectural Review process. Lighting, which may be provided, must be deflected to not shine or create glare into street rights-of-way or fish and wildlife habitat areas;
 - (f) Required bicycle parking spaces must be provided at no cost to the bicyclist, or with only a nominal charge for key deposits, etc. This does not preclude the operation of private for-profit bicycle parking businesses;
 - (g) Bicycle parking may be provided within the public right-of-way in the Core Area Parking District subject to approval of the City Engineer and provided it meets the other requirements for bicycle parking; and
 - (h) The City Manager or the Architectural Review Board may approve a form of bicycle parking not specified in these provisions but that meets the needs of long-term and/or short-term parking pursuant to Architectural Review.

TDC 73C.100. Off-Street Parking Minimum/Maximum Requirements.

(1) The following are the minimum and maximum requirements for off-street motor vehicle parking in the City, except these standards do not apply in the Core Area Parking District. The Core Area Parking District standards are in TDC 73C.110.

USE	MINIMUM MOTOR VEHICLE PARKING	MAXIMUM MOTOR VEHICLE PARKING	BICYCLE PARKING	PERCENTAGE OF BICYCLE PARKING TO BE COVERED
(f) Industrial				
(i) Manufacturing	1.60 spaces per 1,000 square feet of gross floor area	None	2, or 0.10 spaces per 1,000 gross square feet, whichever is greater	First five spaces or 30 percent, whichever is greater
(ii) Warehousing	0.30 spaces per 1,000 square feet of gross floor area	Zone A: 0.4 spaces per 1,000 square feet of gross floor area Zone B: 0.5 spaces per 1,000 square feet of gross floor area	2, or 0.10 spaces per 1,000 gross square feet, whichever is greater	First five spaces or 30 percent, whichever is greater

RESPONSE: Vehicle parking spaces: Assuming final buildout of the buildings at 50% warehousing and 50% manufacturing, the minimum required parking spaces on the site will be 190 spaces. At total of 201 parking spaces have been provided.

Bicycle Parking spaces: For Building A, 7 spaces, 5 at the interior and 2 exterior will be provided.

For Building B, 8 spaces, 5 at the interior and 3 exterior will be provided.

For Building C, 6 spaces, 5 at the interior and 1 exterior will be provided.

(2) In addition to the general parking requirements in subsection (1), the following are the minimum number of off-street vanpool and carpool parking for commercial, institutional, and industrial uses.

Number of Required Parking Spaces	Number of Vanpool or Carpool Spaces
0 to 10	1
10 to 25	2

26 and greater	1 for each 25 spaces
20 dila grealer	1 101 edcti 23 spaces

RESPONSE: A total of 201 vehicle parking spaced are provided. 201/25=8.04. Therefore, 8 Vanpool/carpool parking spaces are required. See the Site Plan for the location of these 8 spaces.

TDC 73C.120. Off-Street Loading Facilities Minimum Requirements.

(1) The minimum number of off-street loading berths for commercial, industrial, and institutional uses is as follows:

Use	Square Feet of Floor Area	Number of Berths	Dimensions of Berth	Unobstructed Clearance of Berth
Industrial	Less than 5,000	0	0	0
	5,000-25,000	1	12 feet × 60 feet	14 feet
	25,000—60,000	2	12 feet × 60 feet	14 feet
	60,000 and over	3	12 feet × 60 feet	14 feet

RESPONSE: The proposed buildings have more than the required number of loading berths and have nothing overhead and therefore are more than 14-feet clear.

(2) Loading berths must not use the public right-of-way as part of the required off-street loading area.

RESPONSE: The public ROW at SW 124th is not used as part of the required loading areas.

- (3) Required loading areas must be screened from public view, public streets, and adjacent properties by means of sight-obscuring landscaping, walls or other means, as approved through the Architectural Review process.
- RESPONSE: The loading areas are at the east side of Building A and not visible from SW 124th. The loading areas for Buildings B are 190-feet from SW 124th, not adjacent to the street. The loading areas for Building C are screened from SW 124th by Building B. See the Landscape Plan.
- (4) Required loading facilities must be installed prior to final building inspection and must be permanently maintained as a condition of use.

RESPONSE: The loading facilities are an integral part of these Shell Buildings and will be installed prior to building completion and will be maintained.

(5) The off-street loading facilities must in all cases be on the same lot or parcel as the structure they are intended to serve. In no case must the required off-street loading spaces be part of the area used to satisfy the off-street parking requirements.

RESPONSE: The loading facilities are on the same parcel as the proposed buildings.

TDC 73C.130. Parking Lot Driveway and Walkway Minimum Requirements.

Parking lot driveways and walkways must comply with the following requirements:

(1) Residential Use. RESPONSE: Not applicable.

(2) Commercial Uses. RESPONSE: Not applicable.

(3) Industrial Use. Ingress and egress for industrial uses must not be less than the following:

Required Parking Spaces	Minimum Number Required	Minimum Pavement Width	Minimum Pavement Walkways, etc.
1-250	1	36 feet for first 50' from ROW, 24 feet thereafter	No curbs or walkway required
Over 250	As required by City Manager	As required by City Manager	As required by City Manager

- (4) Institutional Uses. RESPONSE: Not applicable.
- (5) One-way Ingress or Egress. RESPONSE: Not applicable, none proposed.
- (6) Maximum Driveway Widths and Other Requirements.
 - (a) Unless otherwise provided in this chapter, maximum driveway widths for Commercial, Industrial, and Institutional uses must not exceed 40 feet.

RESPONSE: The proposed driveway widths are as follows:

- 1. The North driveway is proposed at the existing driveway location on SW 124th Ave. and is proposed to be widened to 50-feet for efficient truck access and maneuvering into and out of the site onto SW 124th Ave.
- 2. The South driveway is proposed to be a full service driveway onto SW 124th and is proposed to be 40-feet wide for efficient truck access and maneuvering into and out of the site onto SW 124th.
- (b) Driveways must not be constructed within five feet of an adjacent property line, unless the two adjacent property owners elect to provide joint access to their respective properties, as provided by TDC73C.040.
 - RESPONSE: Both driveways are more than 5-feet for the adjacent properties.
- (c) The provisions of subsection (b) do not apply to townhouses and duplexes, which are allowed to construct driveways within five feet of adjacent property lines.

RESPONSE: Not applicable.

(d) There must be a minimum distance of 40 feet between any two adjacent driveways on a single property unless a lesser distance is approved by the City Manager.

RESPONSE: This criteria is met with this proposed plan.

(e) Must comply with the distance requirements for access as provided in TDC 75.

RESPONSE: This criteria is met with this proposed plan.

(f) Must comply with vision clearance requirements in TDC 75.

RESPONSE: This criteria is met with this proposed plan.

PARKING LOT LANDSCAPING

TDC 73C.200. Parking Lot Landscaping Standards Purpose and Applicability.

TDC 73C.240. Industrial Parking Lot Landscaping Requirements.

Industrial uses must comply with the following landscaping requirements for parking lots in all zones.

- (1) General. Locate landscaping or approved substitute materials in all areas not necessary for vehicular parking and maneuvering.
- (2) Clear Zone. Clear zone required for the driver at ends of on-site drive aisles and at driveway entrances, vertically between a maximum of 30 inches and a minimum of eight feet as measured from the ground level.
 - (a) Exception: does not apply to parking structures and underground parking.
- (3) *Perimeter.* Minimum five feet in width in all off-street parking and vehicular circulation areas, including loading areas and must comply with the following:
 - (a) Deciduous trees located not more than 30 feet apart on average as measured on center;
 - (b) Shrubs or ground cover, planted so as to achieve 90 percent coverage within three years;
 - (c) Plantings which reach a mature height of 30 inches in three years which provide screening of vehicular headlights year round;
 - (d) Native trees and shrubs are encouraged; and
 - (e) Exception: Not required where off-street parking areas on separate lots are adjacent to one another and connected by vehicular access.
- (4) Landscape Island. Minimum 25 square feet per parking stall must be improved with landscape island areas and must comply with the following.
 - (a) May be lower than the surrounding parking surface to allow them to receive stormwater run-off and function as water quality facilities as well as parking lot landscaping;
 - (b) Must be protected from vehicles by curbs, but the curbs may have spaces to allow drainage into the islands;
 - (c) Islands must be utilized at aisle ends to protect parked vehicles from moving vehicles and emphasize vehicular circulation patterns;
 - (d) Landscape separation required for every eight continuous spaces in a row;
 - (e) Must be planted with one deciduous shade trees for every four parking spaces; Required trees must be evenly dispersed throughout the parking lot;
 - (f) Must be planted with groundcover or shrubs;
 - (g) Native plant materials are encouraged;
 - (h) Landscape island areas with trees must be a minimum of five feet in width (from inside of curb to curb);

- (i) Required plant material in landscape islands must achieve 90 percent coverage within three years; and
- (j) Exception: Landscape square footage requirements do not apply to parking structures and underground parking.

RESPONSE: All of the above criteria are met with this proposal. See the Site Plan and Landscape Plan.

- (5) Landscaping Along Driveway Access. For lots with 12 or more parking spaces:
 - (a) Landscape area at least five (5) feet in width on each side of an accessway;
 - (b) Landscape area must extend 30 feet back from the property line; and
 - (c) Exceptions: does not apply to parking structures and underground parking which must be determined through the Architectural Review process.

RESPONSE: All of the above criteria are met with this proposal. See the Site Plan and Landscape Plan.

CHAPTER 73D WASTE AND RECYCLABLES MANAGEMENT STANDARDS

TDC 73D.010. Applicability and Objectives.

- (1) Applicability. The requirements of this Chapter apply to all new or expanded:
 - (a) Common wall residential developments containing five or more units;
 - (b) Commercial developments;
 - (c) Industrial developments; and RESPONSE: This project is an Industrial development.
 - (d) Institutional developments.

TDC 73D.020. Design Methods.

An applicant required to provide mixed solid waste and source separated recyclables storage areas must comply with one of following methods:

TDC 73D.030. Minimum Standards Method.

This method specifies a minimum storage area requirement based on the size and general use category of the new or expanded development. This method is most appropriate when specific use of a new or expanded development is not known. It provides specific dimensional standards for the minimum size of storage areas by general use category.

RESPONSE: These Shell Buildings are anticipated to have between one and four future tenants in each building that will operate warehouse/manufacturing operations from the buildings. Future office buildouts are anticipated to be small, accounting for about 10-15% of the building area. It is anticipated that the requirement for waste storage will be very small as these uses do not generate much waste or recyclable material. The actual requirement for Waste Storage will be determined with each Tenant Improvement permit. It is anticipated that if more waste storage is required than the three exterior waste storage areas, that the added required area will be provided within the building structure in each of the tenant's space.

- (1) The size and location of the storage area(s) must be indicated on the site plan. Requirements are based on an assumed storage area height of four feet for mixed solid waste and source separated recyclables. Vertical storage higher than four feet, but no higher than seven feet may be used to accommodate the same volume of storage in a reduced floor space (potential reduction of 43 percent of specific requirements). Where vertical or stacked storage is proposed, submitted plans must include drawings to illustrate the layout of the storage area and dimensions for containers.
- (2) The storage area requirement is based on uses. If a building has more than one use and that use occupies 20 percent or less of the gross leasable area (GLA) of the building, the GLA occupied by that use must be counted toward the floor area of the predominant use(s). If a building has more than one use and that use occupies more than 20 percent of the GLA of the building, then the storage area requirement for the whole building must be the sum of the area of each use. Minimum storage area requirements by use is as follows:
 - (c) Commercial, industrial, and institutional developments must provide a minimum storage area of ten square feet plus:
 - (i) Office—Four square feet/1,000 square feet gross leasable area (GLA); **RESPONSE: It is not** anticipated that this use will occupy more than 15% of the building with the future tenant improvements.
 - (ii) Retail—Ten square feet/1,000 square feet GLA; **RESPONSE:** This is not an anticipated future use of the building.

- (iii) Wholesale/Warehouse/Manufacturing—Six square feet/1,000 square feet GLA; RESPONSE: This is anticipated to be the major use of the building with the future tenant improvements. The actual required areas for the waste storage will be determined with the future Tenant Improvement permits when tenants are secured for the building.
- (iv) Educational and Institutional—Four square feet/1,000 square feet GLA; and **RESPONSE: This is** not an anticipated future use of the building.
- (v) All other uses—Four square feet/1,000 square feet GLA. **RESPONSE: This is not an anticipated future use of the building.**
- (3) Mixed solid waste and source separated recyclables storage areas for multiple tenants on a single site may be combined and shared.

RESPONSE: It is anticipated that the future tenants of this proposed shell building will share the three outdoor waste storage areas.

TDC 73D.040. Waste Assessment Method.

RESPONSE: Not used.

TDC 73D.050. Comprehensive Recycling Plan Method.

RESPONSE: Not used.

TDC 73D.060. Franchised Hauler Review Method.

RESPONSE: Not used but may be applicable when tenants are selected for this Shell Building.

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TDC 73D.070. Location, Design and Access Standards.

The following location, design, and access standards are applicable to all storage areas:

- (1) Location Standards.
 - (a) The storage area for source separated recyclables may be collocated with the storage area for mixed solid waste. **RESPONSE: Recyclables are proposed to be collocated with mixed solid waste.**
 - (b) Storage area space requirements can be satisfied with a single location or multiple locations and can combine both interior and exterior locations. RESPONSE: Three locations for exterior waste storage are proposed; one at the east side of Building A and two south of Buildings B and C at the south boundary of the development. These are provided with the Shell construction. When Tenants are selected for the building, additional waste storage areas will be provided, most likely within the structure.
 - (c) Exterior storage areas must:
 - (i) Be located in central and visible locations on the site to enhance security for users;
 - (ii) Be located in a parking area; and
 - (iii) Not be located within a required front yard setback or in a yard adjacent to a public or private street.

RESPONSE: These 3 criteria are satisfied with the three proposed exterior waste storage areas.

- (2) Design Standards.
 - (a) The dimensions of the storage area must accommodate containers consistent with current methods of local collection at time of construction or alteration.
 - (b) Indoor and outdoor storage areas must comply with Oregon Building and Fire Code requirements.
 - (c) Exterior storage areas must be enclosed by a sight obscuring fence or wall at least six feet in height.
 - (d) Evergreen plants must be placed around the enclosure walls, excluding the gate or entrance openings for common wall, commercial, and institutional developments.
 - (e) Gate openings for haulers must be a minimum of ten feet wide and must be capable of being secured in a closed and open position.
 - (f) Horizontal clearance must be a minimum of ten feet and a vertical clearance of eight feet is required if the storage area is covered.
 - (g) A separate pedestrian access must also be provided in common wall, commercial, and institutional developments.
 - (h) Exterior storage areas must have either a concrete or asphalt floor surface.
 - (i) Storage areas and containers must be clearly labeled to indicate the type of material accepted.

RESPONSE: These 9 criteria are satisfied with the two proposed exterior waste storage areas except criteria (g) does not apply to this development.

- (3) Access Standards.
 - (a) Storage areas must be accessible to users at convenient times of the day, and to hauler personnel on the day and approximate time they are scheduled to provide hauler service.

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- (b) Storage areas must be designed to be easily accessible to hauler trucks and equipment, considering paving, grade, gate clearance and vehicle access.
- (c) Storage areas must be accessible to hauler trucks without requiring backing out of a driveway onto a public street. If only a single access point is available to the storage area, adequate turning radius must be provided to allow hauler trucks to safely exit the site in a forward motion.
- (d) Storage areas must located so that pedestrian and vehicular traffic movement are not obstructed on site or on public streets adjacent to the site.
- (e) The following is an exception to the access standard:
 - (i) Access may be limited for security reasons.

RESPONSE: These 5 criteria are satisfied with the three proposed exterior waste storage areas.

CHAPTER 74 PUBLIC IMPROVEMENT REQUIREMENTS

TDC 74.110. Phasing of Improvements.

The applicant may build the development in phases. If the development is to be phased the applicant must submit a phasing plan to the City Manager for approval with the development application. The timing and extent or scope of public improvements and the conditions of development must be determined by the City Council on subdivision applications and by the City Manager on other development applications.

RESPONSE: Phasing is not anticipated with this development proposal.

TDC 74.120. Public Improvements.

(1) Except as specially provided, all public improvements must be installed at the expense of the applicant. All public improvements installed by the applicant must be constructed and guaranteed as to workmanship and material as required by the Public Works Construction Code prior to acceptance by the City. Work must not be undertaken on any public improvement until after the construction plans have been approved by the City Manager and a Public Works Permit issued and the required fees paid.

RESPONSE: The anticipated Public Improvements with this development are:

- 1. The driveway approach at SW 124th near the middle of the site at the location of the existing driveway.
- 2. The new driveway approach at the SW corner of the site at SW 124th Ave.
- (2) In accordance with the Tualatin Basin Program for fish and wildlife habitat the City intends to minimize or eliminate the negative impacts of public streets by modifying right-of-way widths and street improvements when appropriate. The City Manager is authorized to modify right-of-way widths and street improvements to address the negative impacts on fish and wildlife habitat.

RESPONSE: No impacts to fish and wildlife habitat are anticipated with the Public Improvements.

TDC 74.130. Private Improvements.

All private improvements must be installed at the expense of the applicant. The property owner must retain maintenance responsibilities over all private improvements.

RESPONSE: Understood.

TDC 74.140. Construction Timing.

- (1) All the public improvements required under this chapter must be completed and accepted by the City prior to the issuance of a Certificate of Occupancy; or, for subdivision and partition applications, in accordance with the requirements of the Subdivision regulations.
- (2) All private improvements required under this Chapter must be approved by the City prior to the issuance of a Certificate of Occupancy; or for subdivision and partition applications, in accordance with the requirements of the Subdivision regulations.

RESPONSE: These criteria are understood.

- THE DEVELOPMENT CODE OF THE CITY OF TUALATIN, OREGON CHAPTER 74 - PUBLIC IMPROVEMENT REQUIREMENTS RIGHT-OF-WAY

RIGHT-OF-WAY

TDC 74.210. Minimum Street Right-of-Way Widths.

The width of streets in feet must not be less than the width required to accommodate a street improvement needed to mitigate the impact of a proposed development. In cases where a street is required to be improved according to the standards of the TDC, the width of the right-of-way must not be less than the minimums indicated in TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G.

(1) For subdivision and partition applications, wherever existing or future streets adjacent to property proposed for development are of inadequate right-of-way width the additional right-of-way necessary to comply with TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G must be shown on the final subdivision or partition plat prior to approval of the plat by the City. This right-of-way dedication must be for the full width of the property abutting the roadway and, if required by the City Manager, additional dedications must be provided for slope and utility easements if deemed necessary.

RESPONSE: Not applicable.

(2) For development applications other than subdivisions and partitions, wherever existing or future streets adjacent to property proposed for development are of inadequate right-of-way width, the additional right-of-way necessary to comply with TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G must be dedicated to the City for use by the public prior to issuance of any building permit for the proposed development. This right-of-way dedication must be for the full width of the property abutting the roadway and, if required by the City Manager, additional dedications must be provided for slope and utility easements if deemed necessary.

RESPONSE: NOT APPLICABLE.

(3) For development applications that will impact existing streets not adjacent to the applicant's property, and to construct necessary street improvements to mitigate those impacts would require additional right-of-way, the applicant must be responsible for obtaining the necessary right-of-way from the property owner. A right-of-way dedication deed form must be obtained from the City Manager and upon completion returned to the City Manager for acceptance by the City. On subdivision and partition plats the right-of-way dedication must be accepted by the City prior to acceptance of the final plat by the City. On other development applications the right-of-way dedication must be accepted by the City prior to issuance of building permits. The City may elect to exercise eminent domain and condemn necessary off-site right-of-way at the applicant's request and expense. The City Council must determine when condemnation proceedings are to be used.

RESPONSE: Not applicable

(4) If the City Manager deems that it is impractical to acquire the additional right-of-way as required in subsections (1)—(3) of this section from both sides of the center-line in equal amounts, the City Manager may require that the right-of-way be dedicated in a manner that would result in unequal dedication from each side of the road. This requirement will also apply to slope and utility easements as discussed in TDC 74.320 and 74.330. The City Manager's recommendation must be presented to the City Council in the preliminary plat approval for subdivisions and partitions, and in the recommended decision on all other development applications, prior to finalization of the right-of-way dedication requirements.

RESPONSE: Not anticipated.

(5) Whenever a proposed development is bisected by an existing or future road or street that is of inadequate right-of-way width according to TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through

74-2G, additional right-of-way must be dedicated from both sides or from one side only as determined by the City Manager to bring the road right-of-way in compliance with this section.

RESPONSE: Not applicable.

(6) When a proposed development is adjacent to or bisected by a street proposed in the Transportation System Plan and no street right-of-way exists at the time the development is proposed, the entire right-of-way as shown in TDC Chapter 74, Public Improvement Requirements, Figures 74-2A through 74-2G must be dedicated by the applicant. The dedication of right-of-way required in this subsection must be along the route of the road as determined by the City.

RESPONSE: Not applicable.

TDC 74.220. Parcels Excluded from Development.

On subdivision development applications which include land partitioned off or having adjusted property lines from the original parcel, but do not include the original parcel, the applicant must be responsible for obtaining any necessary right-of-way from the owner of the original parcel if the right-of-way is needed to accommodate street improvements required of the applicant. The applicant must submit a completed right-of-way dedication deed to the City Manager for acceptance. The right-of-way dedication must be accepted by the City prior to the City approving the final subdivision plat.

RESPONSE: Not applicable.

EASEMENTS AND TRACTS

TDC 74.310. Greenway, Natural Area, Bike, and Pedestrian Path Dedications and Easements.

RESPONSE: Not applicable.

TDC 74.320. Slope Easements.

(1) The applicant must obtain and convey to the City any slope easements determined by the City Manager to be necessary adjacent to the proposed development site to support the street improvements in the public right-of-way or accessway or utility improvements required to be constructed by the applicant.

RESPONSE: Any required slope easements will be provided.

(2) For subdivision and partition applications, the slope easement dedication area must be shown to be dedicated to the City on the final subdivision or partition plat prior to approval of the plat by the City; or

RESPONSE: Not applicable.

(3) For all other development applications, a slope easement dedication must be submitted to the City Manager; building permits must not be issued for the development prior to acceptance of the easement by the City.

RESPONSE: Any required slope easements will be completed prior to Building Permit issuance.

TDC 74.330. Utility Easements.

(1) Utility easements for water, sanitary sewer and storm drainage facilities, telephone, television cable, gas, electric lines and other public utilities must be granted to the City.

RESPONSE: Any required utility easements will be granted to the City.

(2) For subdivision and partition applications, the on-site public utility easement dedication area must be shown to be dedicated to the City on the final subdivision or partition plat prior to approval of the plat by the City; and

RESPONSE: Not applicable.

(3) For subdivision and partition applications which require off-site public utility easements to serve the proposed development, a utility easement must be granted to the City prior to approval of the final plat by the City. The City may elect to exercise eminent domain and condemn necessary off-site public utility easements at the applicant's request and expense. The City Council must determine when condemnation proceedings are to be used.

RESPONSE: Not applicable.

(4) For development applications other than subdivisions and partitions, and for both on-site and off-site easement areas, a utility easement must be granted to the City; building permits must not be issued for the development prior to acceptance of the easement by the City. The City may elect to exercise eminent domain and condemn necessary off-site public utility easements at the applicant's request and expense. The City Council must determine when condemnation proceedings are to be used.

RESPONSE: Any required easements will be completed prior to Building Permit issuance.

(5) The width of the public utility easement must meet the requirements of the Public Works Construction Code. All subdivisions and partitions must have a 6-foot public utility easement adjacent to the street and a 5-foot public utility easement adjacent to all side and rear lot lines. Other easements may be required as determined by the City Manager.

RESPONSE: Any required easements will have widths to meet the Public Works Construction Code.

TDC 74.340. Watercourse Easements.

RESPONSE: Not anticipated on this project.

TDC 74.350. Maintenance Easement or Lots.

A dedicated lot or easement will be required when access to public improvements for operation and maintenance is required, as determined by the City Manager. Access for maintenance vehicles must be constructed of an all-weather driving surface capable of carrying a 50,000-pound vehicle. The width of the lot or easement must be at least 15-feet in order to accommodate City maintenance vehicles. In subdivisions and partitions, the easement or lot must be dedicated to the City on the final plat. In any other development, the easement or lot must be granted to the City and recorded prior to issuance of a building permit.

RESPONSE: Maintenance easements will be provided as required.

TDC 74.410. Future Street Extensions.

RESPONSE: None are anticipated with this project.

TDC 74.420. Street Improvements.

When an applicant proposes to develop land adjacent to an existing or proposed street, including land which has been excluded under TDC 74.220, the applicant should be responsible for the improvements to the adjacent existing or proposed street that will bring the improvement of the street into conformance with the Transportation Plan (TDC Chapter 11), TDC 74.425 (Street Design Standards), and the City's Public Works Construction Code, subject to the following provisions:

- (1) For any development proposed within the City, roadway facilities within the right-of-way described in TDC 74.210 must be improved to standards as set out in the Public Works Construction Code.
- (2) The required improvements may include the rebuilding or the reconstruction of any existing facilities located within the right-of-way adjacent to the proposed development to bring the facilities into compliance with the Public Works Construction Code.
- (3) The required improvements may include the construction or rebuilding of off-site improvements which are identified to mitigate the impact of the development.
- (4) Where development abuts an existing street, the improvement required must apply only to that portion of the street right-of-way located between the property line of the parcel proposed for development and the centerline of the right-of-way, plus any additional pavement beyond the centerline deemed necessary by the City Manager to ensure a smooth transition between a new improvement and the existing roadway (halfstreet improvement). Additional right-of-way and street improvements and off-site right-of-way and street improvements may be required by the City to mitigate the impact of the development. The new pavement must connect to the existing pavement at the ends of the section being improved by tapering in accordance with the Public Works Construction Code.
- (5) If additional improvements are required as part of the Access Management Plan of the City, TDC Chapter 75, the improvements must be required in the same manner as the half-street improvement requirements.
- (6) All required street improvements must include curbs, sidewalks with appropriate buffering, storm drainage, streetlights, street signs, street trees, and, where designated, bikeways and transit facilities.
- (7) For subdivision and partition applications, the street improvements required by TDC Chapter 74 must be completed and accepted by the City prior to signing the final subdivision or partition plat, or prior to releasing the security provided by the applicant to assure completion of such improvements or as otherwise specified in the development application approval.
- (8) For development applications other than subdivisions and partitions, all street improvements required by this section must be completed and accepted by the City prior to the issuance of a Certificate of Occupancy.
- (9) In addition to land adjacent to an existing or proposed street, the requirements of this section must apply to land separated from such a street only by a railroad right-of-way.
- (10) Streets within, or partially within, a proposed development site must be graded for the entire right-of-way width and constructed and surfaced in accordance with the Public Works Construction Code.
- (11) Existing streets which abut the proposed development site must be graded, constructed, reconstructed, surfaced or repaired as necessary in accordance with the Public Works Construction Code and TDC Chapter 11, Transportation Plan, and TDC 74.425 (Street Design Standards).
- (12) Sidewalks with appropriate buffering must be constructed along both sides of each internal street and at a minimum along the development side of each external street in accordance with the Public Works Construction Code.

- (13) The applicant must comply with the requirements of the Oregon Department of Transportation (ODOT), Tri-Met, Washington County and Clackamas County when a proposed development site is adjacent to a roadway under any of their jurisdictions, in addition to the requirements of this chapter.
- (14) The applicant must construct any required street improvements adjacent to parcels excluded from development, as set forth in TDC 74.220 of this chapter.
- (15) Except as provided in TDC 74.430, whenever an applicant proposes to develop land with frontage on certain arterial streets and, due to the access management provisions of TDC Chapter 75, is not allowed direct access onto the arterial, but instead must take access from another existing or future public street thereby providing an alternate to direct arterial access, the applicant must be required to construct and place at a minimum street signage, a sidewalk, street trees and street lights along that portion of the arterial street adjacent to the applicant's property. The three certain arterial streets are S.W. Tualatin-Sherwood Road, S.W. Pacific Highway (99W) and S.W. 124th Avenue. In addition, the applicant may be required to construct and place on the arterial at the intersection of the arterial and an existing or future public non-arterial street warranted traffic control devices (in accordance with the Manual on Uniform Traffic Control Devices, latest edition), pavement markings, street tapers and turning lanes, in accordance with the Public Works Construction Code.
- (16) The City Manager may determine that, although concurrent construction and placement of the improvements in (14) and (15) of this section, either individually or collectively, are impractical at the time of development, the improvements will be necessary at some future date. In such a case, the applicant must sign a written agreement guaranteeing future performance by the applicant and any successors in interest of the property being developed. The agreement must be subject to the City's approval.
- (17) Intersections should be improved to operate at a level of service of at least D and E for signalized and unsignalized intersections, respectively.
- (18) Pursuant to requirements for off-site improvements as conditions of development approval, proposed multifamily residential, commercial, or institutional uses that are adjacent to a major transit stop will be required to comply with the City's Mid-Block Crossing Policy.

RESPONSE: Not applicable. SW 124th Ave. is fully improved.

TDC 74.425. Street Design Standards.

- (1) Street design standards are based on the functional and operational characteristics of streets such as travel volume, capacity, operating speed, and safety. They are necessary to ensure that the system of streets, as it develops, will be capable of safely and efficiently serving the traveling public while also accommodating the orderly development of adjacent lands.
- (2) The proposed street design standards are shown in Figures 72A through 72G. The typical roadway cross sections comprise the following elements: right-of-way, number of travel lanes, bicycle and pedestrian facilities, and other amenities such as landscape strips. These figures are intended for planning purposes for new road construction, as well as for those locations where it is physically and economically feasible to improve existing streets.
- (3) In accordance with the Tualatin Basin Program for fish and wildlife habitat it is the intent of Figures 74-2A through 74-2G to allow for modifications to the standards when deemed appropriate by the City Manager to address fish and wildlife habitat.
- (4) All streets must be designed and constructed according to the preferred standard. The City Manager may reduce the requirements of the preferred standard based on specific site conditions, but in no event will the

requirement be less than the minimum standard. The City Manager must take into consideration the following factors when deciding whether the site conditions warrant a reduction of the preferred standard:

- (a) Arterials:
 - (i) Whether adequate right-of-way exists;
 - (ii) Impacts to properties adjacent to right-of-way;
 - (iii) Current and future vehicle traffic at the location; and
 - (iv) Amount of heavy vehicles (buses and trucks).
- (b) Collectors:
 - (i) Whether adequate right-of-way exists;
 - (ii) Impacts to properties adjacent to right-of-way;
 - (iii) Amount of heavy vehicles (buses and trucks); and
 - (iv) Proximity to property zoned manufacturing or industrial.
- (c) Local Streets:
 - (i) Local streets proposed within areas which have environmental constraints and/or sensitive areas and will not have direct residential access may utilize the minimum design standard.
 - (ii) When the minimum design standard is allowed, the City Manager may determine that no parking signs are required on one or both sides of the street.

RESPONSE: Not applicable.

TDC 74.430. Streets, Modifications of Requirements in Cases of Unusual Conditions.

- (1) When, in the opinion of the City Manager, the construction of street improvements in accordance with TDC 74.420 would result in the creation of a hazard, or would be impractical, or would be detrimental to the City, the City Manager may modify the scope of the required improvement to eliminate such hazardous, impractical, or detrimental results. Examples of conditions requiring modifications to improvement requirements include but are not limited to horizontal alignment, vertical alignment, significant stands of trees, fish and wildlife habitat areas, the amount of traffic generated by the proposed development, timing of the development or other conditions creating hazards for pedestrian, bicycle or motor vehicle traffic. The City Manager may determine that, although an improvement may be impractical at the time of development, it will be necessary at some future date. In such cases, a written agreement guaranteeing future performance by the applicant in installing the required improvements must be signed by the applicant and approved by the City.
- (2) When the City Manager determines that modification of the street improvement requirements in TDC 74.420 is warranted pursuant to subsection (1) of this section, the City Manager must prepare written findings of modification. The City Manager must forward a copy of said findings and description of modification to the applicant, or his authorized agent, as part of the Utility Facilities Review for the proposed development, as provided by TDC Chapter 32 (Procedures). The decision of the City Manager may be appealed to the City Council in accordance with TDC Chapter 32 (Procedures).
- (3) To accommodate bicyclists on streets prior to those streets being upgraded to the full standards, an interim standard may be implemented by the City. These interim standards include reduction in motor vehicle lane width to ten feet (the minimum specified in AASHTO's A Policy on Geo-metric Design of Highways and Streets (1990)), a reduction of bike lane width to 4-feet (as measured from the longitudinal gutter joint to the

centerline of the bike lane stripe), and a paint-striped separation two to four feet wide in lieu of a center turn lane. Where available roadway width does not provide for these minimums, the roadway can be signed for shared use by bicycle and motor vehicle travel. When width constraints occur at an intersection, bike lanes should terminate 50 feet from the intersection with appropriate signing.

RESPONSE: Not anticipated to be applicable.

TDC 74.440. Streets, Traffic Study Required.

- (1) The City Manager may require a traffic study to be provided by the applicant and furnished to the City as part of the development approval process as provided by this Code, when the City Manager determines that such a study is necessary in connection with a proposed development project in order to:
 - (a) Assure that the existing or proposed transportation facilities in the vicinity of the proposed development are capable of accommodating the amount of traffic that is expected to be generated by the proposed development; and/or
 - (b) Assure that the internal traffic circulation of the proposed development will not result in conflicts between on-site parking movements and/or on-site loading movements and/or on-site traffic movements, or impact traffic on the adjacent streets.
- (2) The required traffic study must be completed prior to the approval of the development application.
- (3) The traffic study must include, at a minimum:
 - (a) An analysis of the existing situation, including the level of service on adjacent and impacted facilities.
 - (b) An analysis of any existing safety deficiencies.
 - (c) Proposed trip generation and distribution for the proposed development.
 - (d) Projected levels of service on adjacent and impacted facilities.
 - (e) Recommendation of necessary improvements to ensure an acceptable level of service for roadways and a level of service of at least D and E for signalized and unsignalized intersections respectively, after the future traffic impacts are considered.
 - (f) The City Manager will determine which facilities are impacted and need to be included in the study.
 - (g) The study must be conducted by a registered engineer.
- (4) The applicant must implement all or a portion of the improvements called for in the traffic study as determined by the City Manager.

RESPONSE: A Traffic Study done by Lancaster Mobley has been provided with this AR Submittal.

TDC 74.450. Bikeways and Pedestrian Paths.

RESPONSE: Not applicable.

TDC 74.460. Accessways in Residential, Commercial and Industrial Subdivisions and Partitions.

RESPONSE: Not applicable, subdivision or partition are not proposed.

TDC 74.470. Street Lights.

- (1) Street light poles and luminaries must be installed in accordance with the Public Works Construction Code.
- (2) The applicant must submit a street lighting plan for all interior and exterior streets on the proposed development site prior to issuance of a Public Works Permit.

RESPONSE: Street lights are existing on SW 124th at the frontage of this development.

TDC 74.475. Street Names.

- (1) A street name must not be used which will duplicate or be confused with the names of existing streets in the Counties of Washington or Clackamas, except for extensions of existing streets. Street names and numbers must conform to the established pattern in the surrounding area.
- (2) The City Manager must maintain the approved list of street names from which the applicant may choose. Prior to the creation of any street, the street name must be approved by the City Manager.

RESPONSE: Not applicable, no new streets are proposed.

TDC 74.480. Street Signs.

- (1) Street name signs must be installed at all street intersections in accordance with standards adopted by the City.
- (2) Stop signs and other traffic control signs (speed limit, dead-end, etc.) may be required by the City.
- (3) Prior to approval of the final subdivision or partition plat, the applicant must pay the City a non-refundable fee equal to the cost of the purchase and installation of street signs, traffic control signs and street name signs. The location, placement, and cost of the signs must be determined by the City.

RESPONSE: Street signs will be provided as required.

TDC 74.485. Street Trees.

(1) Prior to approval of a residential subdivision or partition final plat, the applicant must pay the City a non-refundable fee equal to the cost of the purchase and installation of street trees. The location, placement, and cost of the trees must be determined by the City. This sum must be calculated on the interior and exterior streets as indicated on the final subdivision or partition plat.

RESPONSE: Not applicable.

(2) In nonresidential subdivisions and partitions street trees must be planted by the owners of the individual lots as development occurs.

RESPONSE: Not applicable.

(3) The Street Tree Ordinance specifies the species of tree which is to be planted and the spacing between trees.

RESPONSE: Street trees are existing along SW 124th Ave.

- THE DEVELOPMENT CODE OF THE CITY OF TUALATIN, OREGON CHAPTER 74 - PUBLIC IMPROVEMENT REQUIREMENTS UTILITIES

UTILITIES

TDC 74.610. Water Service.

(1) Water lines must be installed to serve each property in accordance with the Public Works Construction Code. Water line construction plans must be submitted to the City Manager for review and approval prior to construction.

RESPONSE: A public waterline exists in the SW 124th ROW for the length of the frontage of this development. Domestic water and fire water will be obtained for this project from that public main.

(2) If there are undeveloped properties adjacent to the subject site, public water lines must be extended by the applicant to the common boundary line of these properties. The lines must be sized to provide service to future development, in accordance with the City's Water System Master Plan, TDC Chapter 12.

RESPONSE: Not applicable.

(3) As set forth is TDC Chapter 12, Water Service, the City has three water service levels. All development applicants must be required to connect the proposed development site to the service level in which the development site is located. If the development site is located on a boundary line between two service levels the applicant must be required to connect to the service level with the higher reservoir elevation. The applicant may also be required to install or provide pressure reducing valves to supply appropriate water pressure to the properties in the proposed development site.

RESPONSE: A public waterline exists in the SW 124th ROW for the length of the frontage of this development. Domestic water and fire water will be obtained for this project from that public main.

TDC 74.620. Sanitary Sewer Service.

(1) Sanitary sewer lines must be installed to serve each property in accordance with the Public Works Construction Code. Sanitary sewer construction plans and calculations must be submitted to the City Manager for review and approval prior to construction.

RESPONSE: A Sanitary sewer line exists in SW 124th Ave. The three buildings in this development will connect to this existing sanitary sewer line.

(2) If there are undeveloped properties adjacent to the proposed development site which can be served by the gravity sewer system on the proposed development site, the applicant must extend public sanitary sewer lines to the common boundary line with these properties. The lines must be sized to convey flows to include all future development from all up stream areas that can be expected to drain through the lines on the site, in accordance with the City's Sanitary Sewer System Master Plan, TDC Chapter 13.

RESPONSE: Not applicable.

TDC 74.630. Storm Drainage System.

(1) Storm drainage lines must be installed to serve each property in accordance with City standards and Clean Water Services standards. Storm drainage construction plans and calculations must be submitted to the City Manager for review and approval prior to construction.

RESPONSE: Storm lines will be installed in accordance with the City Standards and CWS requirements.

(2) The storm drainage calculations must confirm that adequate capacity exists to serve the site. The discharge from the development must be analyzed in accordance with the City's Storm and Surface Water Regulations and Clean Water Services standards.

RESPONSE: Storm drainage calculations will be provided. Discharge from the site will be to the wetlands to the east.

(3) If there are undeveloped properties adjacent to the proposed development site which can be served by the storm drainage system on the proposed development site, the applicant must extend storm drainage lines to the common boundary line with these properties. The lines must be sized to convey expected flows to include all future development from all up stream areas that will drain through the lines on the site, in accordance with the adopted Stormwater Master Plan.

RESPONSE: Not applicable.

TDC 74.640. Grading.

(1) Development sites must be graded to minimize the impact of storm water runoff onto adjacent properties and to allow adjacent properties to drain as they did before the new development.

RESPONSE: The proposed Site Grading minimizes the stormwater runoff to the adjacent properties.

(2) A development applicant must submit a grading plan showing that all lots in all portions of the development will be served by gravity drainage from the building crawl spaces; and that this development will not affect the drainage on adjacent properties. The City Manager may require the applicant to remove all excess material from the development site.

RESPONSE: There will be no crawl spaces under the proposed building. Storm drainage from this site will not affect the drainage on adjacent properties.

TDC 74.650. Water Quality, Storm Water Detention and Erosion Control.

(1) All Applications. The applicant must comply with the water quality, stormwater detention, and erosion control requirements in Tualatin Municipal Code Chapter 3-5 (Soil Erosion, Surface Water Management, Water Quality Facilities, and Building and Sewers) and Clean Water Services standards.

RESPONSE: Permits for water quality, stormwater detention and Erosion Control will be obtained complying with the requirements of Tualatin and CWS.

- (2) Subdivisions and Partitions. Prior to approval of the final plat, an application for subdivision and partition development must:
 - (a) Submit a stormwater facilities design with calculations to satisfy the requirements of the Tualatin Municipal Code Chapter 3-5 (Soil Erosion, Surface Water Management, Water Quality Facilities, and Building And Sewers) and applicable Clean Water Services standards;
 - (b) Obtain a Stormwater Connection Permit from Clean Water Services; and

(c) Either construct a permanent on-site water quality facility and stormwater detention facility; or enter into an agreement with the City, as provided in TDC 36.320 and TMC 3-5-390, recorded against the property, to guarantee construction of a permanent on-site water quality facility and stormwater detention facility.

RESPONSE: Not applicable.

- (3) All Development, Except Subdivisions and Partitions. Prior to issuance of any building permit, an applicant for any development, except Subdivisions and Partitions, must:
 - (a) Submit a stormwater facilities design with calculations to satisfy the requirements of the Tualatin Municipal Code Chapter 3-5 (Soil Erosion, Surface Water Management, Water Quality Facilities, and Building And Sewers);

RESPONSE: A stormwater facility design satisfying the TMC will be submitted for permit.

(b) Obtain a Stormwater Connection Permit from Clean Water Services; and

RESPONSE: A Stormwater connection Permit will be obtained from CWS.

(c) Either construct a permanent on-site water quality facility and stormwater detention facility; or enter into an agreement with the City, as provided in TMC 35-390, recorded against the property, to guarantee construction of a permanent on-site water quality facility and stormwater detention facility.

RESPONSE: A permanent, on-site Stormwater water quality and detention facility will be provided meeting the City and CWS standards.

- (4) On-Site Private and Regional Non-Residential Facilities. For on-site private and regional non-residential public facilities, the applicant must:
 - (a) Enter into a stormwater facility agreement, as provided in TMC 3-5-390, recorded against the property. The stormwater facility agreement will include an operation and maintenance plan, provided by the City and consistent with Clean Water Services requirements, for the water quality facility.

RESPONSE: A Stormwater Facility agreement will be provided meeting CWS standards.

(b) Submit an erosion control plan prior to issuance of a Public Works Permit consistent with TMC 3-5 and Clean Water Services standards. No construction or disturbing of the site must occur until the erosion control plan is approved by the City and the required measures are in place and approved by the City.

RESPONSE: An Erosion Control plan will be provided meeting CWS standards prior to any site disturbance.

TDC 74.660. Underground.

(1) All utility lines including, but not limited to, those required for gas, electric, communication, lighting and cable television services and related facilities must be placed underground. Surface-mounted transformers, surface-mounted connection boxes and meter cabinets may be placed above ground. Temporary utility service facilities, high capacity electric and communication feeder lines, and utility transmission lines operating at 50,000 volts or above may be placed above ground. The applicant must make all necessary arrangements with all utility companies to provide the underground services. The City reserves the right to approve the location of all surface-mounted transformers.

RESPONSE: New utilities serving the proposed building will be placed underground.

(2) Any existing overhead utilities may not be upgraded to serve any proposed development. If existing overhead utilities are not adequate to serve the proposed development, the applicant must, at their own expense, provide an underground system. The applicant must be responsible for obtaining any off-site deeds and/or easements necessary to provide utility service to this site; the deeds and/or easements must be submitted to the City Manager for acceptance by the City prior to issuance of the Public Works Permit.

RESPONSE: There are no overhead powerlines along SW 124th Ave.

TDC 74.670. Existing Structures.

RESPONSE: Not applicable.

TDC 74.700. Removal, Destruction or Injury of Trees.

It is unlawful for a person, without a written permit from the City Manager, to remove, destroy, break or injure a tree, plant or shrub, that is planted or growing in or upon a public right-of-way within the City, or cause, authorize, or procure a person to do so, authorize or procure a person to injure, misuse or remove a device set for the protection of any tree, in or upon a public right-of-way.

RESPONSE: No trees will be removed from the ROW without a permit.

TDC 74.705. Street Tree Removal Permit.

RESPONSE: If existing street trees are removed at the new driveways, this code section will be followed.

TDC 74.706. Street Tree Fees.

A person who applies to remove a street tree under TDC 74.705 must pay all costs incurred by the City as reflected in the applicable fees listed in the city of Tualatin Fee Schedule. City actions and associated fees include but are not limited to inspection of a street tree requested for removal, removal of a street tree, removal of a stump, planting of a street tree, and inspection(s) to determine if the applicant has fulfilled permit requirements.

RESPONSE: Understood.

TDC 74.707. Street Tree Voluntary Planting.

A person who desires to plant a tree in or upon a public right-of-way may plant or have the City plant a species of street tree permitted by Table 74-1 without a City permit, if the tree is not a replacement for a tree that the person has removed. Such a person may submit a request to the City with payment of fee(s) so that the City may plant a street tree. If a stump exists where a street tree is to be planted, the person must remove the stump or pay a fee to the City as established in TDC 74.706 so that the City may remove the stump on behalf of the person. In all instances, a person who desires to plant a tree must comply with other applicable TDC sections and any additional requirements of the City Manager.

RESPONSE: Not applicable.

TDC 74.708. Street Tree Emergencies.

- (1) If emergency conditions occur that require the immediate cutting or removal of street trees to avoid danger or hazard to persons or property, the City Manager must issue emergency permits without payment of fees and formal applications. If the City Manager is unavailable, the adjacent property owners may proceed to cut the trees without permits to the extent necessary to eliminate the immediate danger or hazard. If a street tree is cut under this section without filing of an application with the City Manager, the person doing so must report the action to the City Manager within two City business days without payment of fee and must provide such information and evidence as may be reasonably required by the City Manager to explain and justify the removal.
- (2) In all instances, a person who removes a street tree as a result of an emergency must replace it within 60 days of notifying the City Manager. The City reserves the right to waive this requirement.
- (3) A person who fails to comply with TDC 74.708 must pay an enforcement fee and a restoration fee to the City of Tualatin, as set forth in TDC 34.220(3), in addition to civil penalties in TDC 31.111.
- (4) If no emergency is found to exist, no person must cut or remove a street tree without complying with the requirement of the Tualatin Development Code.

RESPONSE: Not applicable.

TDC 74.710. Open Ground.

When impervious material or substance is laid down or placed in or upon a public right-of-way near a tree, at least nine square feet of open ground for a tree up to three inches in diameter must be provided about the base of the trunk of each tree.

RESPONSE: Not applicable.

TDC 74.715. Attachments to Trees.

It is unlawful for a person to attach or keep attached a rope, wire, chain, sign or other device to a tree, plant or shrub in or upon a public right-of-way or to the guard or stake intended for the protection of such tree, except as a support for a tree, plant or shrub.

RESPONSE: No attachments will be made to trees in the right of way.

TDC 74.720. Protection of Trees During Construction.

- (1) During the erection, repair, alteration or removal of a building or structure, it is unlawful for the person in charge of such erection, repair, alteration or removal to leave a tree in or upon a public right-of-way in the vicinity of the building or structure without a good and sufficient guard or protectors to prevent injury to the tree arising out of or by reason of such erection, repair, alteration or removal.
- (2) Excavations and driveways must not be placed within six feet of a tree in or upon a public right-of-way without written permission from the City Manager. During excavation or construction, the person must guard the tree within six feet and all building material or other debris must be kept at least four feet from any tree.

RESPONSE: Existing street trees on SW 124th will be protected during the construction of the new driveways.

TDC 74.725. Maintenance Responsibilities.

Trees, shrubs or plants standing in or upon a public right-of-way, on public or private grounds that have branches projecting into the public street or sidewalk must be kept trimmed by the owner of the property adjacent to or in front of where such trees, shrubs or plants are growing so that:

- (1) The lowest branches are not less than 12 feet above the surface of the street and are not less than 14 feet above the surface of streets designated as state highways.
- (2) The lowest branches are not less than eight feet above the surface of a sidewalk or footpath.
- (3) A plant, tree, bush or shrub must not be more than 24 inches in height in the triangular area at the street or highway corner of a corner lot, or the alley-street intersection of a lot, such an area defined by a line across the corner between the points on the street right-of-way line measured ten feet back from the corner, and extending the line to the street curbs or, if there are no curbs, then to that portion of the street or alley used for vehicular traffic.
- (4) Newly planted trees may remain untrimmed if they do not interfere with street traffic or persons using the sidewalk or obstruct the light of a street electric lamp.
- (5) Maintenance responsibilities of the property owner include repair and upkeep of the sidewalk in accordance with the City Sidewalk Maintenance Ordinance.

RESPONSE: Landscaping in the ROW along SW 124th will be maintained by the property owner.

TDC 74.730. Notice of Violation.

When the owner, lessee, occupant or person in charge of private grounds neglects or refuses to trim a tree, shrub or plant as provided in TDC 74.725, the City Manager must cause a written notice to trim such tree or trees, shrubs or plants to be served upon such owner, lessee, occupant or person in charge, within ten days after the giving the notice; and if the owner, lessee or occupant or person in charge fails to do so, the person is guilty of violating this ordinance and subject to the penalties in TDC 74.760. The notice must be served upon the owner, lessee, occupant or person in charge either by "Certified Mail-Return Receipt Requested," or by posting the same notice on the property or near to the trees, shrubs or plants to be trimmed.

RESPONSE: Understood.

TDC 74.735. Trimming by City.

If the owner, lessee, occupant or person in charge of the property fails and neglects to trim the trees, shrubs or plants within ten days after service of the notice in TDC 74.730, the City Manager may trim the trees, shrubs or plants. Such trimming by the City does not act to relieve such owner, lessee, occupant or person in charge of responsibility for violating this Chapter.

RESPONSE: Understood.

TDC 74.740. Prohibited Trees.

It is unlawful for a person to plant a tree within the right-of-way of the City of Tualatin that is not in conformance with City standards, including Table 74-1. Any tree planted subsequent to adoption of this Chapter not in compliance with City standards, including Table 74-1, must be removed at the expense of the property owner.

RESPONSE: Not applicable.

TDC 74.745. Cutting and Planting Specifications.

The following regulations are established for the planting, trimming and care of trees in or upon the public right-of-way of the City.

- (1) When trees are cut down, the stump must be removed to a depth of six inches below the surface of the ground or finish grade of the street, whichever is of greater depth.
- (2) Trees must be planted in accordance with City standards, Table 74-1, except when a greater density is allowed under a special permit from the City Manager.

RESPONSE: Not applicable.

TDC 74.750. Removal or Treatment by City.

The City Manager may remove or cause or order to be removed a tree, plant or shrub, planted or growing in or upon a public right-of-way which by its nature causes an unsafe condition or is injurious to sewers or public improvements, or is affected with an injurious fungus disease, insect or other pest. When, in the opinion of the City Manager, trimming or treatment of a tree or shrub located on private grounds, but having branches extending over a public right-of-way is necessary, the City Manager may trim or treat such a branch or branches, or cause or order branches to be trimmed or treated.

RESPONSE: Understood.

TDC 74.755. Appeal of Permit Denial.

When application for a permit under this Chapter is denied by the City Manager, an order is issued by the City Manager directing certain trees, shrubs or plants to be trimmed or removed, or a permit is granted by the City Manager containing conditions which the applicant deems unreasonable, the applicant may appeal to the Council in writing and filed with the City Recorder within ten City business days after the denial of the permit sought or the making of the order the appellant deems unreasonable. After hearing, the Council may either grant or deny the application, rescind or modify the order from which the appeal was taken.

RESPONSE: Not anticipated at this time.

- THE DEVELOPMENT CODE OF THE CITY OF TUALATIN, OREGON CHAPTER 75 ACCESS MANAGEMENT

TDC 74.760. Penalties.

A person who violates this ordinance or fails to trim a tree or shrub for which notice to do so was provided, must, upon conviction, be fined not more than \$100.00.

RESPONSE: Understood

TDC 74.765. Street Tree Species and Planting Locations.

All trees, plants or shrubs planted in the right-of-way of the City must conform in species and location and in accordance with the street tree plan and City standards, including Table 74-1. If the City Manager determines that none of the species in City standards, including Table 74-1 is appropriate or finds appropriate a species not listed, the City Manager may substitute an unlisted species.

RESPONSE: Not applicable.

- THE DEVELOPMENT CODE OF THE CITY OF TUALATIN, OREGON CHAPTER 75 ACCESS MANAGEMENT

CHAPTER 75 ACCESS MANAGEMENT

TDC 75.010. Purpose.

The purpose of this chapter is to promote the development of safe, convenient and economic transportation systems and to preserve the safety and capacity of the street system by limiting conflicts resulting from uncontrolled driveway access, street intersections, and turning movements while providing for appropriate access for all properties.

TDC 75.020. Permit for New Driveway Approach.

(1) Applicability. A driveway approach permit must be obtained prior to constructing, relocating, reconstructing, enlarging, or altering any driveway approach.

RESPONSE: Driveway approaches are requested for the new South driveway to SW 124th and the widening of the existing driveway at SW 124th Ave.

- (2) Exceptions. A driveway approach permit is not required for:
 - (a) The construction, relocation, reconstruction, enlargement, or alteration of any driveway approach that requires a state highway access permit; or
 - (b) The construction, relocation, reconstruction, enlargement or alteration of any driveway approach that is part of the construction of a publicly or privately engineered public improvement project.

RESPONSE: Not applicable.

(3) Procedure Type. A Driveway Approach Permit is processed as a Type II procedure under TDC 32.220 (Type II).

RESPONSE: The (2) driveway approaches proposed for this project are included with the Type III Architectural Review.

- (4) Submittal Requirements. In addition to the application materials required by TDC 32.140 (Application Submittal), the following application materials are also required:
 - (a) A site plan, of a size and form and in the number of copies meeting the standards established by the City Manager, containing the following information:
 - (i) The location and dimensions of the proposed driveway approach;
 - (ii) The relationship to nearest street intersection and adjacent driveway approaches;
 - (iii) Topographic conditions;
 - (iv) The location of all utilities;
 - (v) The location of any existing or proposed buildings, structures, or vehicular use areas;
 - (vi) The location of any trees and vegetation adjacent to the location of the proposed driveway approach that are required to be protected pursuant to TDC Chapter 73B or 73C; and
 - (vii) The location of any street trees adjacent to the location of the proposed driveway approach.
 - (b) Identification of the uses or activities served, or proposed to be served, by the driveway approach; and
 - (c) Any other information, as determined by the City Manager, which may be required to adequately review and analyze the proposed driveway approach for conformance with the applicable criteria.

RESPONSE: All the above noted required information has been included with this AR submittal either on the Site and Grading Plans or in the Traffic Study.

- (5) Criteria. A Driveway Approach Permit must be granted if:
 - (a) The proposed driveway approach meets the standards of this Chapter and the Public Works Construction Code;
 - (b) No site conditions prevent placing the driveway approach in the required location;
 - (c) The number of driveway approaches onto an arterial are minimized;
 - (d) The proposed driveway approach, where possible:
 - (i) Is shared with an adjacent property; or
 - (ii) Takes access from the lowest classification of street abutting the property;
 - (e) The proposed driveway approach meets vision clearance standards;
 - The proposed driveway approach does not create traffic hazards and provides for safe turning movements and access;
 - (g) The proposed driveway approach does not result in significant adverse impacts to the vicinity;
 - (h) The proposed driveway approach minimizes impact to the functionality of adjacent streets and intersections; and
 - (i) The proposed driveway approach balances the adverse impacts to residentially zoned property and the functionality of adjacent streets.
- (6) Effective Date. The effective date of a Driveway Approach Permit approval is the date the notice of decision is mailed.
- (7) *Permit Expiration.* A Driveway Approach Permit approval expires one year from the effective date unless the driveway approach is constructed within the one-year period in accordance with the approval decision and City standards.

TDC 75.030. Driveway Approach Closure.

RESPONSE: No driveway approach closures are proposed nor anticipated.

TDC 75.040. Driveway Approach Requirements.

(1) The provision and maintenance of driveway approaches from private property to the public streets as stipulated in this Code are continuing requirements for the use of any structure or parcel of real property in the City of Tualatin. No building or other permit may be issued until scale plans are presented that show how the driveway approach requirement is to be fulfilled. If the owner or occupant of a lot or building changes the use to which the lot or building is put, thereby increasing driveway approach requirements, it is unlawful and a violation of this code to begin or maintain such altered use until the required increase in driveway approach is authorized by the City.

RESPONSE: Driveway approaches are requested for the new South driveway to SW 124th and the widening of the existing driveway at SW 124th Ave.

(2) Owners of two or more uses, structures, or parcels of land may agree to utilize jointly the same driveway approach when the combined driveway approach of both uses, structures, or parcels of land satisfies their

combined requirements as designated in this code; provided that satisfactory legal evidence is presented to the City Attorney in the form of deeds, easements, leases or contracts to establish joint use. Copies of said deeds, easements, leases or contracts must be placed on permanent file with the City Recorder.

RESPONSE: Not proposed for this project.

- Joint and Cross Access.
 - (a) Adjacent commercial uses may be required to provide cross access drive and pedestrian access to allow circulation between sites.
 - (b) A system of joint use driveways and cross access easements may be required and may incorporate the following:
 - A continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards;
 - (ii) A design speed of ten mph and a maximum width of 24 feet to accommodate two-way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles;
 - (iii) Stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide cross access via a service drive; and
 - (iv) An unified access and circulation system plan for coordinated or shared parking areas.
 - (c) Pursuant to this section, property owners may be required to:
 - (i) Record an easement with the deed allowing cross access to and from other properties served by the joint use driveways and cross access or service drive;
 - (ii) Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the city and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;
 - (iii) Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners; and
 - (iv) If subsection(i) through (iii) above involve access to the state highway system or county road system, ODOT or the county must be contacted and must approve changes to subsection(i) through (iii) above prior to any changes.

RESPONSE: Not proposed for this project.

- (4) Requirements for Development on Less than the Entire Site.
 - (a) To promote unified access and circulation systems, lots and parcels under the same ownership or consolidated for the purposes of development and comprised of more than one building site must be reviewed as one unit in relation to the access standards. The number of access points permitted must be the minimum number necessary to provide reasonable access to these properties, not the maximum available for that frontage. All necessary easements, agreements, and stipulations must be met. This must also apply to phased development plans. The owner and all lessees within the affected area must comply with the access requirements.
 - (b) All access must be internalized using the shared circulation system of the principal commercial development or retail center. Driveways should be designed to avoid queuing across surrounding parking and driving aisles.

RESPONSE: Not minimum number of driveways required for this development have been requested.

(5) Lots that front on more than one street may be required to locate motor vehicle accesses on the street with the lower functional classification as determined by the City Manager.

RESPONSE: Not Applicable.

(6) Except as provided in TDC 53.100, all driveway approach must connect directly with public streets.

RESPONSE: The (2) Driveway approaches connect directly with SW 124th Avenue.

(7) To afford safe pedestrian access and egress for properties within the City, a sidewalk must be constructed along all street frontage, prior to use or occupancy of the building or structure proposed for said property. The sidewalks required by this section must be constructed to City standards, except in the case of streets with inadequate right-of-way width or where the final street design and grade have not been established, in which case the sidewalks must be constructed to a design and in a manner approved by the City Manager. Sidewalks approved by the City Manager may include temporary sidewalks and sidewalks constructed on private property; provided, however, that such sidewalks must provide continuity with sidewalks of adjoining commercial developments existing or proposed. When a sidewalk is to adjoin a future street improvement, the sidewalk construction must include construction of the curb and gutter section to grades and alignment established by the City Manager.

RESPONSE: There is an existing sidewalk along the SW 124th frontage.

(8) The standards set forth in this Code are minimum standards for driveway approaches, and may be increased through the Architectural Review process in any particular instance where the standards provided herein are deemed insufficient to protect the public health, safety, and general welfare.

RESPONSE: Driveway approaches are requested for the new south driveway to SW 124th and the widening of the existing driveway at SW 124th Ave. The north driveway is proposed to be 50-feet in width, exceeding the 40-maximum width as noted below. The added width of the driveways if necessary, to provide easy truck access to the site and to provide necessary width for trucks turning onto the site and leaving the site onto SW 124th Ave.

(9) Minimum driveway approach width for uses are as provided in Table 75-1 (Driveway Approach Width):

TABLE 75-1
Driveway Approach Width

Use	Minimum Driveway Approach Width	Maximum Driveway Approach Width					
Industrial	36 feet	Over 250 Parking Spaces = As Required by the City					
		Manager, but not exceeding 40 feet					

RESPONSE: Driveway approaches are requested for the new south driveway to SW 124th and the widening of the existing driveway at SW 124th Ave. The north driveway is proposed to be 50-feet in width, exceeding the 40-maximum width as noted below. The added width of the driveways if necessary, to provide easy truck access to the site and to provide necessary width for trucks turning onto the site and leaving the site onto SW 124th Ave.

(10) *Driveway Approach Separation.* There must be a minimum distance of 40 feet between any two adjacent driveways on a single property unless a lesser distance is approved by the City Manager.

RESPONSE: The two driveways onto SW 124th Ave. are separated by more than 40-feet.

- (11) Distance between Driveways and Intersections. Except for single-family dwellings, the minimum distance between driveways and intersections must be as provided below. Distances listed must be measured from the stop bar at the intersection.
 - (a) At the intersection of collector or arterial streets, driveways must be located a minimum of 150 feet from the intersection.

RESPONSE: The distance from the SW Cimino/SW 124th intersection to the proposed south driveway is approximately 575-feet.

- (12) Vision Clearance Area.
 - (a) Local Streets.

RESPONSE: Not applicable.

(b) Collector Streets. A vision clearance area for all collector/arterial street intersections, collector/arterial street and local street intersections, and collector/arterial street and railroad intersections must be that triangular area formed by the right-of-way lines along such lots and a straight line joining the right-of-way lines at points which are 25 feet from the intersection point of the right-of-way lines, as measured along such lines. Where a driveway intersects with a collector/arterial street, the distance measured along the driveway line for the triangular area must be ten feet (see Figure 73-2 for illustration).

RESPONSE: The required vision clearance area will be provided at each driveway.

(c) Vertical Height Restriction. Except for items associated with utilities or publicly owned structures such as poles and signs and existing street trees, no vehicular parking, hedge, planting, fence, wall structure, or temporary or permanent physical obstruction must be permitted between 30 inches and eight feet above the established height of the curb in the clear vision area (see Figure 73-2 for illustration).

RESPONSE: The required vertical height clearances will be provided at each driveway.

TDC 75.050. Access Limited Roadways.

- (1) This section applies to all developments, permit approvals, land use approvals, partitions, subdivisions, or any other actions taken by the City pertaining to property abutting any road or street listed in TDC 75.050(2). In addition, any property not abutted by a road or street listed in subsection (2), but having access to an arterial by any easement or prescriptive right, must be treated as if the property did abut the arterial and this Chapter applies.
- (2) The following Freeways and Arterials are access limited roadways:
 - (f) 124th Avenue from Pacific Highway 99W south to Tonquin to Basalt Creek Parkway;
 - RESPONSE: Another driveway is proposed with this development as the south driveway and occurs at the east side of SW 124th, approximately 575-feet north of SW Cimino street intersection. This driveway is proposed to be a right-in, right-out driveway allowing access to the in tow locations.
- (3) This Chapter takes precedence over any other TDC chapter and over any other ordinance of the City when considering any development, land use approval or other proposal for property abutting an arterial or any property having an access right to an arterial.
- (4) The City may act on its own initiative to protect the public safety and control access on arterials or any street to be included by TDC 75.030, consistent with its authority as the City Road Authority.

TDC 75.060. Interim Access Agreement.

RESPONSE: Not requested with this proposal.

TDC 75.070. Existing Driveways and Street Intersections.

- (1) Existing driveways with access onto arterials on the date this chapter was originally adopted are allowed to remain. If additional development occurs on properties with existing driveways with access onto arterials, then this Chapter applies and the entire site must be made to conform with the requirements of this chapter.
- (2) The City Manager may restrict existing driveways and street intersections to right-in and right-out by construction of raised median barriers or other means.

RESPONSE: Not applicable. There are no existing driveways onto SW 124th, an arterial.

TDC 75.100. Spacing Standards for New Intersections.

Except as shown in TDC Chapter 11, Transportation, (Figures 11-1 and 11-3), all new intersections with arterials must have a minimum spacing of one-half mile between intersections.

RESPONSE: Not applicable. No new intersections are proposed.

TDC 75.110. Joint Access Standards.

When the City Manager determines that joint accesses are required by properties undergoing development or redevelopment, an overall access plan shall be prescribed by the City Manager and all properties shall adhere to this. Interim accesses may be allowed in accordance with TDC 75.060 of this chapter to provide for the eventual implementation of the overall access plan.

RESPONSE: Not applicable. Joint access is not proposed with this development.

TDC 75.120. Collector Streets Access Standards.

(1) Major Collectors. Direct access from newly constructed single family homes, duplexes or triplexes are not permitted. As major collectors in residential areas are fully improved, or adjacent land redevelops, direct access should be relocated to the nearest local street where feasible.

RESPONSE: Not applicable. This proposal is for an industrial development.

(2) Minor Collectors. Residential, commercial and industrial driveways where the frontage is greater or equal to 70 feet are permitted. Minimum spacing at 100 feet. Uses with less than 50 feet of frontage shall use a common (joint) access where available.

RESPONSE: Not applicable.

(3) If access is not able to be relocated to the nearest local street, the City Manager may allow interim access in accordance with 75.060 of this chapter to provide for the eventual implementation of the overall access plan.

RESPONSE: Not applicable.

TDC 75.130. New Streets Access Standards.

RESPONSE: Not Applicable.

TDC 75.140. Existing Streets Access Standards.

The following list describes in detail the freeways and arterials as defined in TDC 75.050 with respect to access. Recommendations are made for future changes in accesses and location of future accesses. These recommendations are examples of possible solutions and shall not be construed as limiting the City's authority to change or impose different conditions if additional studies result in different recommendations from those listed below.

- (6) 124TH AVENUE.
 - (c) Herman Road to Tualatin-Sherwood Road. On the east side of 124th Avenue between Herman Road and Tualatin-Sherwood Road the area will be served by the following streets or driveways:
 - ii) A street or driveway intersection approximately 800 feet south of the Myslony Street/124th

Avenue ... Access may be limited to right in/right out as determined by the City Manager.

RESPONSE: This location is the existing driveway at SW 124th that is the proposed north access to the site. The existing driveway is proposed to be widened. This driveway is proposed to be right-in, right-out.

Another driveway is proposed with this development as the south driveway and occurs at the east side of SW 124th, approximately 575-feet north of the Cimino street intersection. This driveway is proposed to be a right-in, right-out driveway allowing access to the site from the south end of the development.

Prepared by:

4-14-2023

Havlin G. Kemp PE, Principal VLMK Engineering + Design

Vicinity Map:



124th Avenue Business Park

Buildings 'A', 'B' and 'C' Southwest 124th Avenue Tualatin, Oregon 97062

Project Directory:

DEVELOPER:

Tualatin 124, LLC 9760 Southwest Freeman Drive Wilsonville, Oregon 97070 Phone: (503) 816-7719 Contact: Tracy Bowers

ENGINEER:

VLMK Engineering + Design 3933 South Kelly Avenue Portland, Oregon 97239 Phone: (503) 222-4453 Contact: Havlin Kemp, Kurt Nakashima

WETLAND CONSULTANT:

Environmental Science & Assessment, LLC 4831 Northeast Fremont Street, Suite 2B Portland, Oregon 97213 Phone: (503) 478-0424 Contact: Jack Dalton

SURVEYOR:

Weddle Surveying, Incorporated 6950 Southwest Hampton Street Tigard, Oregon 97223 Phone: (503) 941-9585 Contact: -

JURISDICTION:

City of Tualatin, Oregon 10699 Southwest Herman Road Tualatin, Oregon 97062 Phone: (503) 691-3044 Contact: -

LANDSCAPE ARCHITECT:

Otten and Associates 3933 South Kelly Avenue, Suite 'B' Portland, Oregon 97239 Phone: (503) 972-0311 Contact: Erin Holsonback

ARBORIST:

Teragan & Asoociates, Incorporated 3145 Westview Circle Lake Oswego, Oregon 97034 Phone: (503) 697-1975 Contact: Christine Johnson

CONTRACTOR:

To Be Determined

General Site Plan - Reference Only 1" = 80.0' TAX LOT 2S 1 22C- 1501 TAX LOT 2S 1 22C- 1600 PARKING 45 SPACES

Separate Permits / Deferred Submittals

2019 O.S.S.C, 2019 O.M.S.C., 2017 O.P.S.C., 2017 O.E.S.C., 2019 O.E.E.S.C. AND 2009 ICC ANSI 117.1

NO.	SYSTEM DESCRIPTION	SUB-CONTRACTOR	SUBMITTAL				
1	STEEL ROOF JOISTS AND GIRDERS	TO BE DETERMINED	SHOP DRAWINGS				
2	ELECTRICAL	TO BE DETERMINED	DIRECTLY TO CITY BY SUB-CONTRACTOR				
3	MECHANICAL	TO BE DETERMINED	DIRECTLY TO CITY BY SUB-CONTRACTOR				
4	FIRE PROTECTION	TO BE DETERMINED	DIRECTLY TO CITY BY SUB-CONTRACTOR				
5	PLUMBING	TO BE DETERMINED	DIRECTLY TO CITY BY SUB-CONTRACTOR				
6	EMERGENCY RESPONDER RADIO	TO BE DETERMINED	DIRECTLY TO CITY BY SUB-CONTRACTOR				
DEFERRED SUBMITTAL NOTE: IN ACCORDANCE WITH I.B.C. SECTION 107.3.4.1 DEFERRED SUBMITTAL ITEMS SHALL BE REVIEWED BY VLMK PRIOR TO SUBMITTAL TO THE BUILDING OFFICIAL FOR PERMIT APPROVAL. THE SUBCONTRACTOR OR VENDOR IS RESPONSIBLE TO PROVIDE CUSTOMARY DESIGN DOCUMENTS AND PERMIT COORDINATION FOR THEIR DEFERRED SUBMITTAL ITEMS. THE DEFERRED SUBMITTAL ITEMS							

6) ENERGY CODE (OZERCC) 7) ADA APPLICABLE CODES AND STANDARDS INCLUDE:

Building Codes:

2019 OREGON STRUCTUAL SPECIALTY CODE (OSSC) 2019 OREGON MECHANICAL SPECIALTY CODE (OMSC) 2017 OREGON PLUMBING SPECIALTY CODE (OPSC)

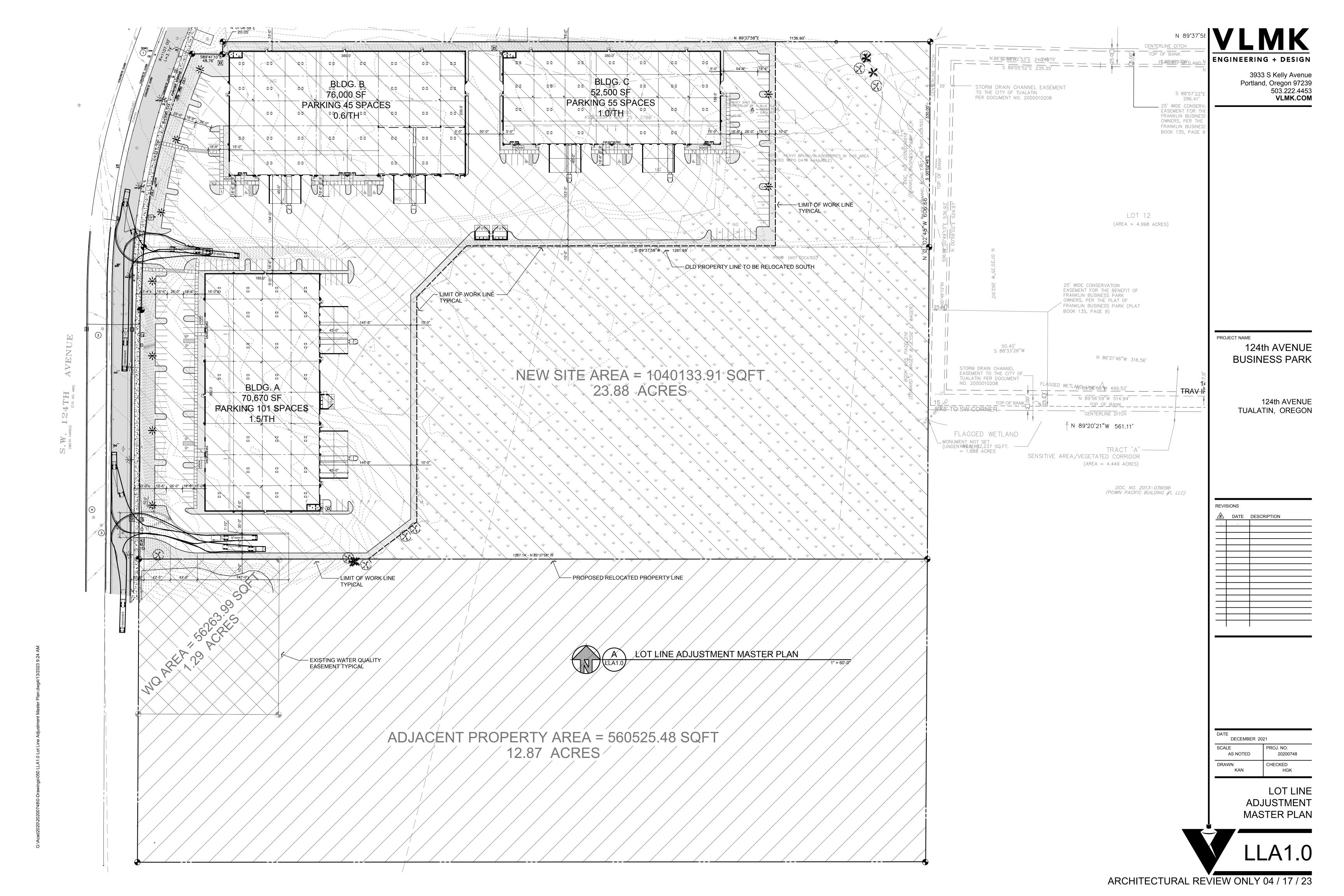
2017 OREGON ELECTRICAL SPECIALTY CODE (OESC) 5) FIRE 2019 OREGON FIRE CODE (OFC) 2019 OREGON ZERO ENERGY READY COMMERCAIL

> 2010 STANDARDS FOR ACCESSIBLE DESIGN NATIONAL FIRE PROTECTION AGENCY

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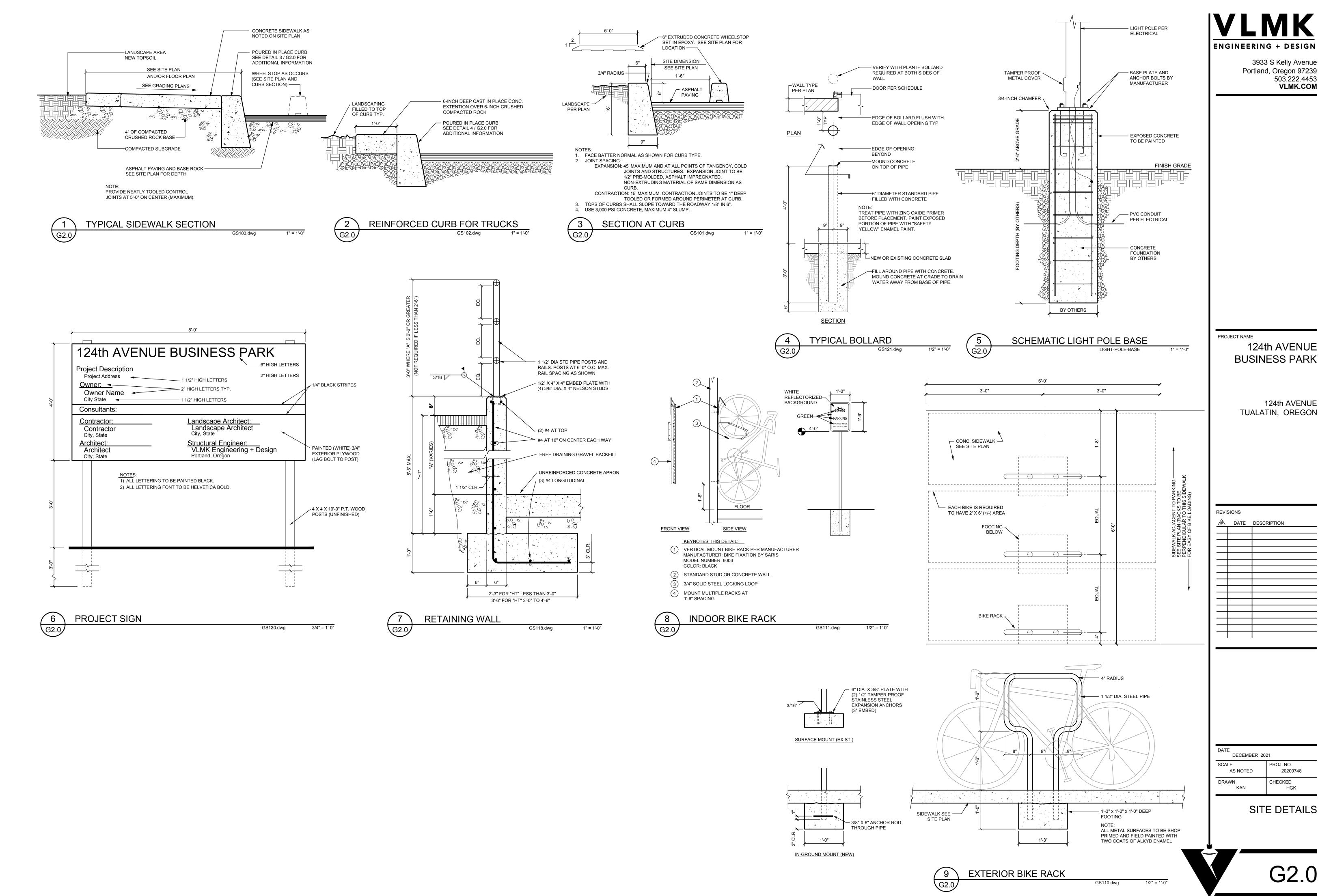
COVER SHEET



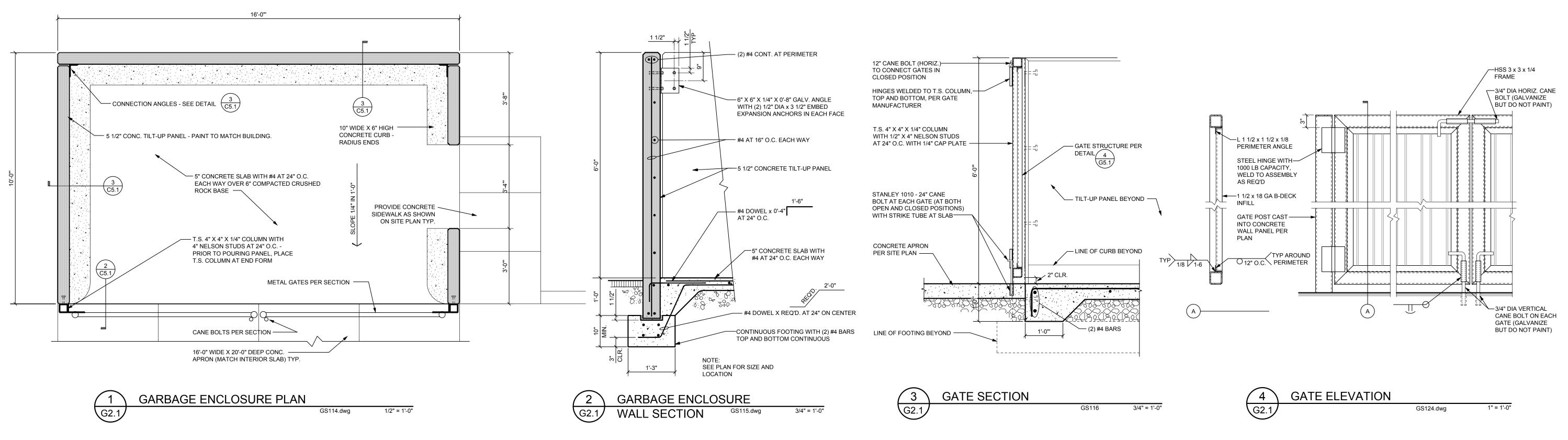


VLMK ENGINEERING + DESIGN 3933 S Kelly Avenue MONUMENT NOT SET Portland, Oregon 97239 503.222.4453 **VLMK.COM** (UNDER_WATER) 6' CHAIN LINK FENCE __6' CHAIN LINK FENCE N 01°06'58"E -_N_89**:**37'58"E 1136.90'-350.0 [×] /[×] [x]_54'-6" [.18'-6" BLDG. C BLDG.B **₹**-13 G [×] [×]\ [×] 52,500 SF 76,000 SF PER_DO PARKING 55 SPACES **PARKING 45 SPACES** [×] ~0.6/TH [×] 8 50'-0" [*] [*] Ç×I [×] [×] , - (E×I HEAVY BRUSH/BLACKBERRIES IN THIS AREA O TOPO DATA AVAILABLE) [×] - LIMIT OF WORK LINE **TYPICAL** PROJECT NAME 124th AVENUE **BUSINESS PARK** S 89°37′58″W / 1261.98′ POND (NOT LOCATED) - OLD PROPERTY LINE TO BE RELOCATED SOUTH 124th AVENUE TUALATIN, OREGON LIMIT OF WORK LINE PROPOSED SITE PLAN TYPICAL SITE PLAN KEYNOTES: NOTE: NOT ALL KEYNOTES APPEAR ON THIS SHEET. (SEE ALL ENLARGED SITE PLANS) CATCH BASIN COMMUNICATIONS RISER MANHOLE (MH AS NOTED) CONC. NATURAL GROUND CONIFEROUS TREE TO REMAIN POLYVINYL CHLORIDE PIPE SIDEWALK RAMP. 1:12 MAXIMUM SLOPE. PROVIDE CODE APPROVED (SIZE VARIES 6" - 48") DETECTABLE WARNING. SEE DETAIL 5 / G2.0. PULL BOX CORREGATED STEEL PIPE SPOT ELEVATION - TOP OF CURB POURED-IN-PLACE CONCRETE CURB. LOCATE AROUND ALL LANDSCAPE COUNTY ROAD SPOT ELEVATION - GUTTER AREAS AS SHOWN (U.N.O.). 5.0' TYPICAL CURB RADIUS AT CORNERS DECIDUOUS TREE TO REMAIN (U.N.O.). SEE DETAIL 6 / G2.0. TREE W/TAG NUMBER (SIZE VARIES 6" - 48") REVISIONS 3" WIDE PAINT STRIPE. WATER METER ELECTRICAL PANEL WATER VALVE NEW CONCRETE SIDEWALK. SEE DETAIL 1 / G2.0. STORM DRAIN # DATE DESCRIPTION ELECTRICAL VAULT WETLANDS FLAGGING EASEMENT T TRANSFORMER PAD AND BOLLARDS - COORDINATE WITH ELECTRICAL. ♥FH FIRE HYDRANT TUALATIN PER FENCE (AS NOTED) 5.0' X 5.0' MIN. CONCRETE LANDING (4" THICK - UNREINFORCED). NO. 20000102 CONIFEROUS TREE TO BLDG. A BE REMOVED LOADING DOCK CONCRETE SLAB. 7 INCH THICK UNREINFORCED (SIZE VARIES 6" - 48") -----ST-----STORM DRAIN CONCRETE OVER 6 INCHES COMPACTED CRUSHED ROCK OVER 70,670 SF WETLANDS FLAG LIINE DECIDUOUS TREE TO COMPACTED SUBGRADE. BE REMOVÈD (SIZE VARIES 6" /- 48") PARKING 101 SPACES FIRE SPRINKLER AND DOMESTIC WATER RISER - SEE SITE 5X5' TO SW CORNE UTILITY PLAN. (VERIFY WITH FLOOR PLANS FOR LOCATIONS). PAINT STRIPING (3" WIDE AT 2.0' O.C.) DENOTING PEDESTRIAN ACCESS WALKWAY OR NO PARKING. PLANNING AND ZONING SUMMARY: EXTERIOR BICYCLE PARKING - SEE DETAIL 8 / G2.0. FLAGGED W City of Tualatin, Oregon Jurisdiction: INTERIOR BICYCLE PARKING - SEE DETAIL 9 / G2.0. MG - General Manufacturing Land Use Zone: _MONUMENT NOT SET LOADING DOCK RETAINING WALL WITH GUARDRAIL - SEE (UNDER AR ARER\$ 2,237 Assessor's Map No. & Tax Lots: 2S128A 000100 DETAIL 10 / G2.0. = 1.888 ACRE Street Address and Cross Streets: 20400 SW Cipole Road (at SW Cimino Street) NEW PUBLIC SIDEWALK PER CITY STANDARD DETAILS. 145<u>'-8"</u> 1,040,134 Sq. Ft. - 23.8± Acres Site Area: 10'-0" NEW CONCRETE DRIVEWAY PER CITY STANDARD DETAILS. Overlay zone: 12" CONCRETE BACKER CURB - SEE DETAIL 4 / G2.0. Wetlands 6.0' HIGH CHAIN LINK FENCE WITH BARB WIRE ABOVE - SEE Floodplain: CARPOOL / VANPOOL PARKING. PROVIDE CODE APPROVED SIGN ON A 1 1/2" DIA. STEEL PIPE, 4.0' HIGH AND PAINT PAVEMENT SECTIONS (NON AMENDED SOIL): "CARPOOL" (IN SPACE ON A.C.). (BASED ON 20 YEAR DESIGN LIFE FROM GEO REPORT, DATED --/--/--) METAL STAIR AT MANDOOR IN DOCK - SEE DETAIL 2 / G2.1. CAR PARKING AND AISLE - ---" A.C. PAVING OVER --" CRUSHED CONCRETE GARBAGE ENCLOSURE - SEE DETAIL 1 / G2.2. ROCK OVER COMPACTED SUBGRADE. EV CHARGING STATION FOR ELECTRIC CAR PARKING. MODERATE TRUCK MANEUVERING - ---" A.C. PAVING OVER --" CRUSHED ROCK OVER COMPACTED SUBGRADE. SEE ELECTRICAL FOR REQUIREMENTS. NEW MONUMENT SIGN PER DETAILS ON SHEET G2.3. PROVIDE HEAVY TRUCK MANEUVERING - ---" A.C. PAVING OVER --" CRUSHED (2) 1-INCH DIA. CONDUITS TO THIS LOCATION FROM THE ROCK OVER COMPACTED SUBGRADE. ELECTRICAL ROOM LIGHTS PER ELECTRICAL. DECEMBER 2021 1267.14' - N 89°37'58" W PROJ. NO. AS NOTED 20200748 CHECKED DRAWN 147'-0"± -~43'-5" PROPOSED RELOCATED PROPERTY LINE LIMIT OF WORK LINE TYPICAL PROPOSED SITE PLAN

ARCHITECTURAL REVIEW ONLY 04/17/23



ARCHITECTURAL REVIEW ONLY 04/17/23



ENGINEERING + DESIGN

3933 S Kelly Avenue Portland, Oregon 97239 503.222.4453 **VLMK.COM**

PROJECT NAME

124th AVENUE

124th AVENUE TUALATIN, OREGON

BUSINESS PARK

DATE
DECEMBER 2021

SCALE
AS NOTED
PROJ. NO.
20200748

DRAWN
KAN
CHECKED
HGK

SITE DETAILS

NOTE:
SEE GRADING PLAN
FOR ALL FINISH ELEVATIONS

WALK DOOR
AT GRADE
MAX.

DOCK PLAN AND SECTION

GS119.dwg 1" = 10'-0"

BUILDING WALL—

-0.10' (1.2") OVERHEAD DOOR

WARP SLAB EDGE 0.10'(1.2"):1.0'

AT GRADE OHD
- SEE STRUCTURAL DETAILS

AT GRADE

-0.0<u>8 (1") AC</u> +0.42 TOW - TRUCK

LOADING DOCK

> 0.00' FIN. FLOOR REFERENCE

OVERHEAD DOOR AND-

TRACK ABOVE

LENGTH AS REQUIRED TO MEET 2'-6" ABOVE GRADE REQUIREMENT

TRAPPED CATCH BASIN—

GUARDRAIL PER DETAIL—

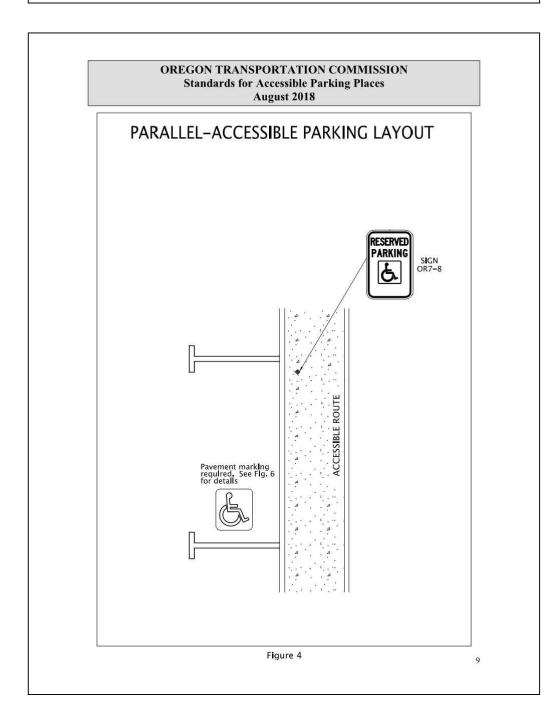
TOP OF RETAINING WALL-

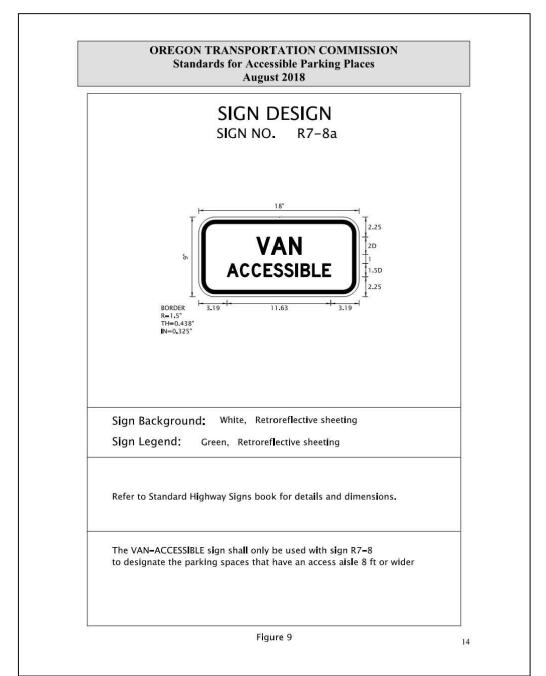
AC GRADE BEYOND WALL

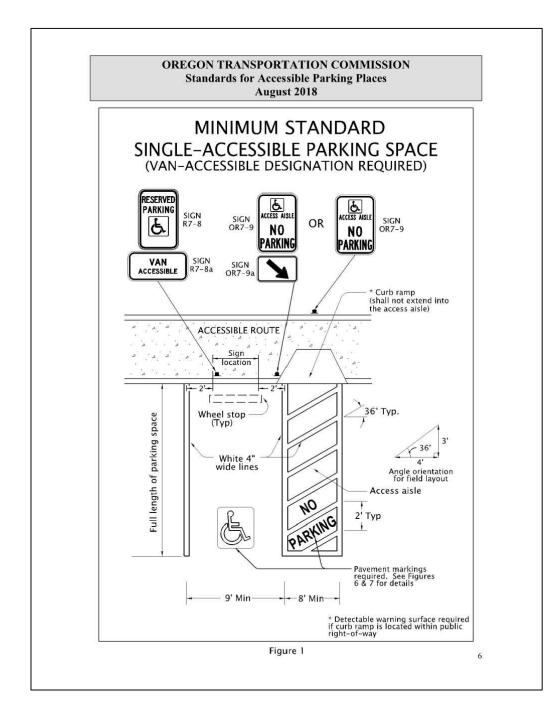
_-2.5' AC 3.0' FROM WALL\

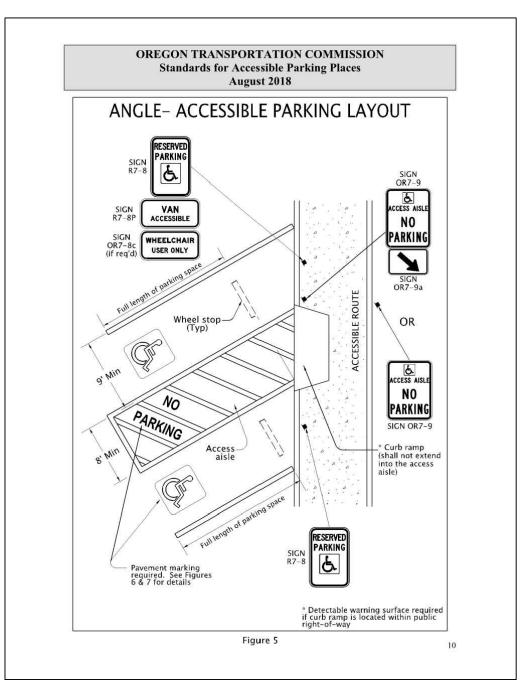
WARP AC —
TRANSITION

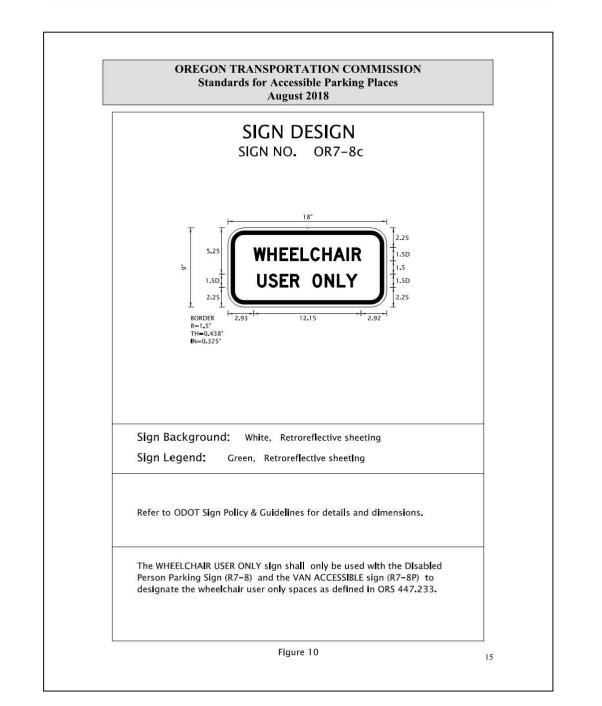
WARPED AC TRANSITION

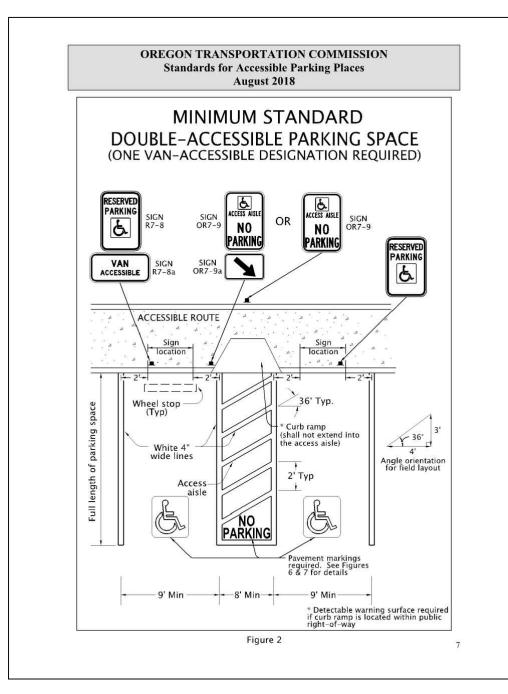


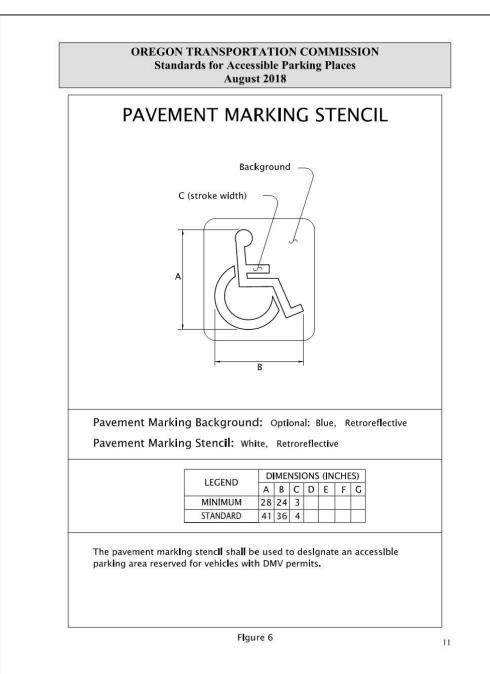


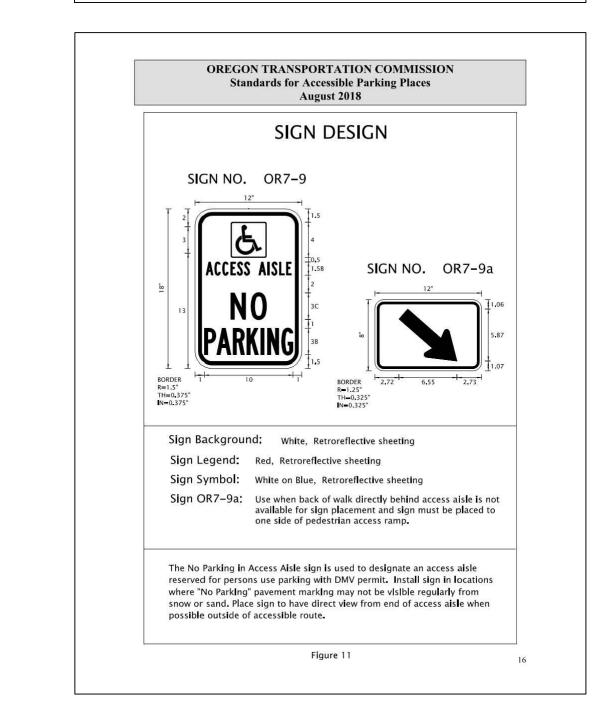












VLMK

ENGINEERING + DESIGN

3933 S Kelly Avenue Portland, Oregon 97239 503.222.4453 VLMK.COM

124th AVENUE BUSINESS PARK

> 124th AVENUE TUALATIN, OREGON

REVI	SIONS	
<u>#</u>	DATE	DESCRIPTION

DATE
DECEMBER 2021

SCALE
AS NOTED
PROJ. NO.
20200748

DRAWN
KAN
CHECKED
HGK

ADA PARKING LAYOUT AND SIGNAGE

G2.2

OREGON TRANSPORTATION COMMISSION

Standards for Accessible Parking Places

August 2018

PAVEMENT MARKING LEGEND

Pavement Marking Legend: White or Yellow, Retroreflective

be required for all access aisles next to accessible parking spaces.
Engineering judgement should be used for placement location to give
best visual location to prevent illegal use of access aisle. Yellow may be
used instead of white to increase contrast between access aisle white

lines and the "No Parking" legend.

PARKING VAN ACCESSIBLE

ACCESSIBLE ROUTE

The "No Parking" pavement marking is used to designate an access aisle

reserved for persons use parking with a DMV permit. This marking shall

Figure 7

OREGON TRANSPORTATION COMMISSION

Standards for Accessible Parking Places

August 2018

MINIMUM STANDARD

FIVE- ACCESSIBLE PARKING SPACES

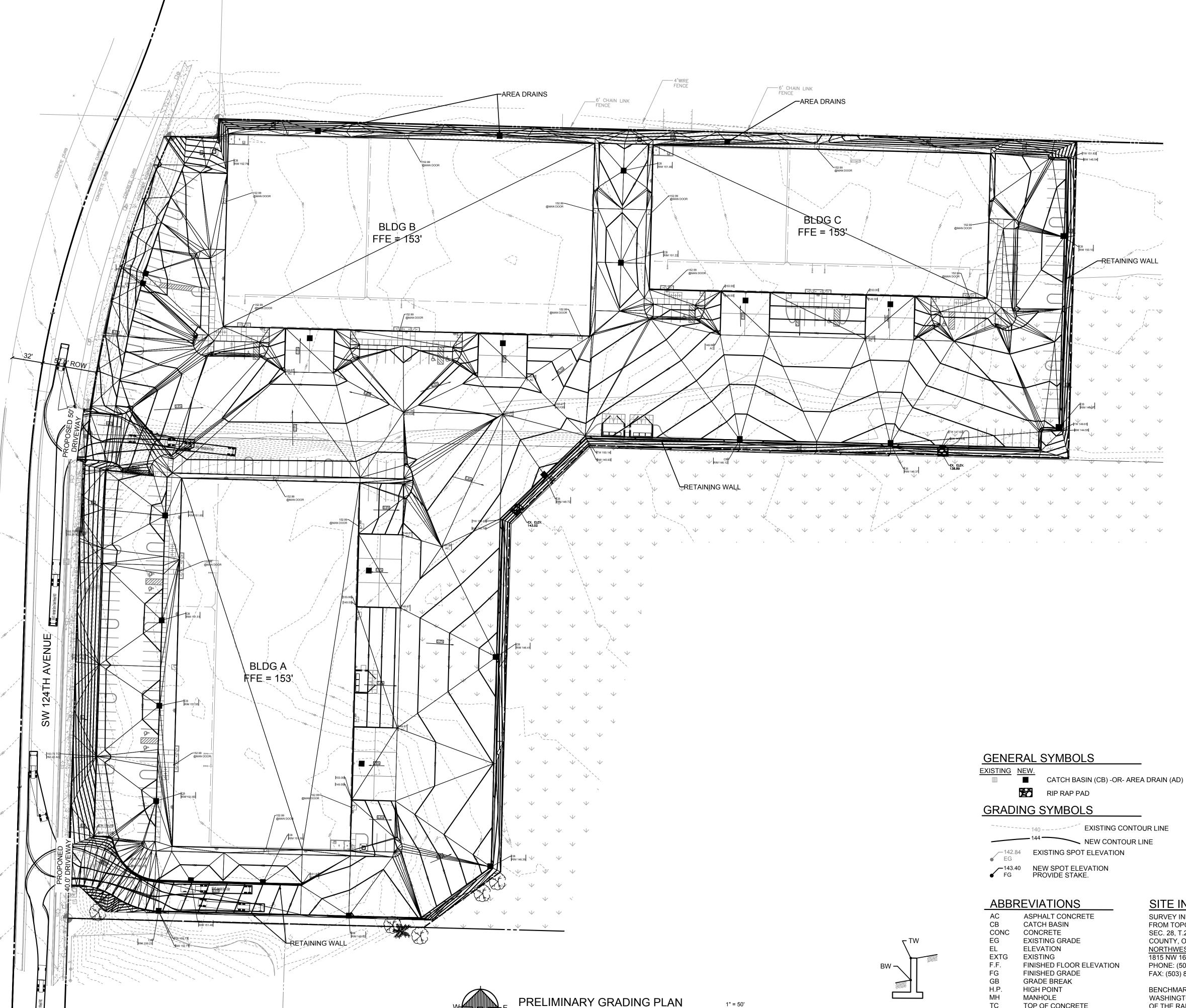
(ONE WHEELCHAIR USER DESIGNATION REQUIRED)

Figure 3

ACCESS AISLE NO PARKING

Access aisle (6' Min)

* Detectable warning surface require if curb ramp is located within public right-of-way



GENERAL NOTES

- 1. PRIOR TO ANY CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING UTILITIES AND TOPOGRAPHY ARE AS SHOWN ON PLANS. WHEN ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- 2. CONTRACTOR TO LEAVE ALL AREAS OF PROJECT FREE OF DEBRIS AND UNUSED CONSTRUCTION MATERIAL.
- 3. CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, SURVEYING, TESTING, PERSONNEL, TRAFFIC SAFETY CONTROL AND AS-BUILTS FOR ALL PHASES OF CONSTRUCTION.
- 4. CONTRACTOR SHALL COORDINATE PUBLIC IMPROVEMENTS AND INSPECTIONS WITH THE CITY OF TUALATIN.
- PROPERTY LINE BEARINGS AND DISTANCES AS WELL AS SITE AREA CALCULATIONS ARE PROVIDED FOR ZONING AND PERMIT REVIEW ONLY. REAL PROPERTY LEGAL DESCRIPTIONS AND AREA CALCULATIONS ARE TO BE PROVIDED BY A REGISTERED PROFESSIONAL SURVEYOR.
- 6. PROPERTY CORNER SURVEY MONUMENTS, WHICH ARE IN DANGER OF BEING DISTURBED OR DESTROYED BY THE WORK OF THIS PROJECT, SHALL BE TIED-OUT BY A REGISTERED PROFESSIONAL SURVEYOR PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, AND SHALL BE RE-SET IN ACCORDANCE WITH STATE LAW, IMMEDIATELY FOLLOWING THE COMPLETION OF ALL CONSTRUCTION
- 7. ADA REQUIREMENTS ALL ACCESSIBLE ROUTES AND PARKING SPACES, AISLES, RAMPS, ETC. SHALL BE INCOMPLIANCE WITH THE CURRENT OSSC REQUIREMENTS AND ANSI-A117.1-2009 (ADAAG). ADDITIONAL DESIGN PARAMETERS:
- 7.1. MAXIMUM RAMP SLOPE SHALL NOT EXCEED 7.5% 7.2. MAXIMUM WALK CROSS-SLOPE SHALL NOT EXCEED 1.5%
- 7.3. MAXIMUM LANDING SLOPE SHALL NOT EXCEED 1.5%
- 7.4. NO PORTION OF ADA PARKING SPACES AND AISLES SHALL EXCEED 2.0%

GRADING NOTES

- ATTENTION EXCAVATORS: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 811 OR 1-800-332-2344. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CALL CENTER. YOU MUST NOTIFY THE CENTER AT LEAST 2 BUSINESS DAYS, BUT NOT MORE THAN 10 BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 811 OR 1-800-332-2344.
- 2. ALL NEW CONTOURS SHOWN ARE FINISH GRADES, UNLESS OTHERWISE NOTED.
- 3. ORGANIC AND UNDESIRABLE MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION AREA AS DIRECTED BY THE ENGINEER.
- 4. ALL DISTURBED AREAS NOT LANDSCAPED ARE TO BE HYDROSEEDED OR BEDDED IN STRAW TO PREVENT EROSION. SEE EROSION CONTROL SHEET, CX.X.
- 5. ALL FILL AREAS SHALL BE STRIPPED OF ORGANIC MATERIAL FILL WILL BE PLACED IN 6 TO 8-INCH LIFTS AND COMPACTED TO 95 PERCENT RELATIVE MAXIMUM DENSITY ACCORDING TO ASTM D-1557 STANDARDS. BASE ROCK IN THE PAVED AREAS WILL BE COMPACTED TO 95% ASTM D-1557. LANDSCAPED AREAS WILL BE COMPACTED TO 90 PERCENT. ADDITIONAL COMPACTION TESTS MAY BE REQUIRED BY THE CITY OR THE ENGINEER OF RECORD, IF POOR COMPACTION EFFORTS ARE OBSERVED DURING CONSTRUCTION. COMPACTION REPORTS FROM A REPUTABLE TESTING LAB WILL BE SUPPLIED TO THE ENGINEER.

ENGINEERING + DESIGN

3933 S Kelly Avenue Portland, Oregon 97239 503.222.4453 **VLMK.COM**

PROJECT NAME

124th AVENUE **BUSINESS PARK**

124th AVENUE TUALATIN, OREGON

REVISIONS #\ DATE DESCRIPTION

APRIL 2022 SCALE PROJ. NO. 20200748 AS NOTED DRAWN CHECKED MMG

> **PRELIMINARY GRADING PLAN**

EXISTING CONTOUR LINE _____144 ______ NEW CONTOUR LINE

TOP OF CONCRETE BOTTOM OF WALL

TOP OF WALL TYP. TYPICAL

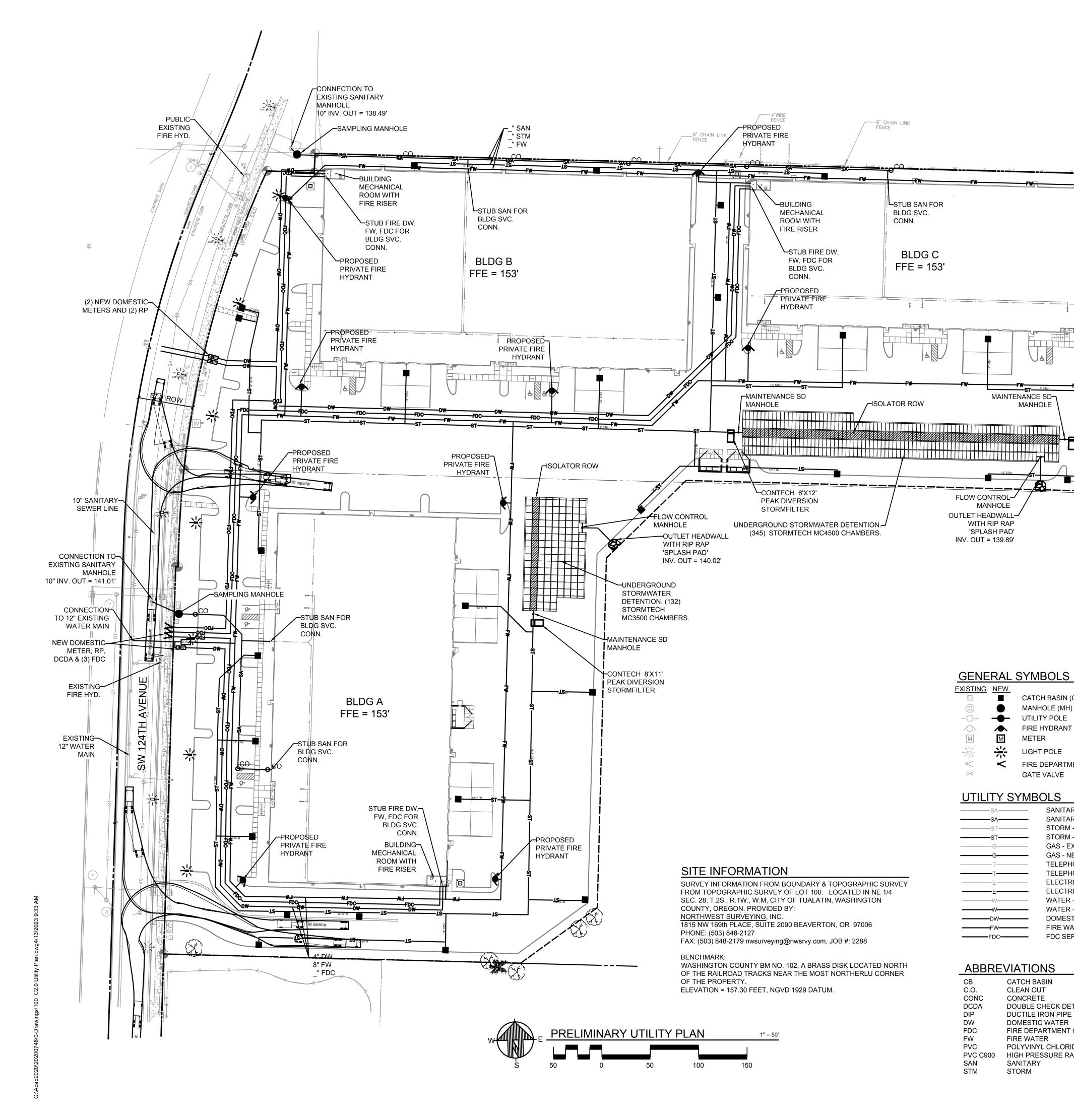
SURVEY INFORMATION FROM BOUNDARY & TOPOGRAPHIC SURVEY

FROM TOPOGRAPHIC SURVEY OF LOT 100. LOCATED IN NE 1/4 SEC. 28, T.2S., R.1W., W.M, CITY OF TUALATIN, WASHINGTON COUNTY, OREGON. PROVIDED BY: NORTHWEST SURVEYING, INC. 1815 NW 169th PLACE, SUITE 2090 BEAVERTON, OR 97006 PHONE: (503) 848-2127

FAX: (503) 848-2179 nwsurveying@nwsrvy.com, JOB #: 2288

SITE INFORMATION

BENCHMARK: WASHINGTON COUNTY BM NO. 102, A BRASS DISK LOCATED NORTH OF THE RAILROAD TRACKS NEAR THE MOST NORTHERLU CORNER OF THE PROPERTY. ELEVATION = 157.30 FEET, NGVD 1929 DATUM.



UTILITY NOTES

PROPOSED-

HYDRANT

CONTECH STEEL 4

CARTRIDGE

CATCH BASIN (CB) -OR- AREA DRAIN (AD)

FIRE DEPARTMENT CONNECTION (FDC)

SANITARY - EXISTING

TELEPHONE - EXISTING

DOMESTIC WATER - NEW

FDC SERVICE LINE - NEW

TELEPHONE - NEW ELECTRICAL - EXISTING

ELECTRICAL - NEW

WATER - EXISTING

FIRE WATER - NEW

DOUBLE CHECK DETECTOR ASSEMBLY

FIRE DEPARTMENT CONNECTION

HIGH PRESSURE RATED PVC

WATER - NEW

CATCH BASIN

DUCTILE IRON PIPE

POLYVINYL CHLORIDE

DOMESTIC WATER

CLEAN OUT

CONCRETE

FIRE WATER

SANITARY

STORM

SANITARY - NEW

STORM - EXIST

STORM - NEW

GAS - NEW

GAS - EXISTING

MANHOLE (MH)

FIRE HYDRANT (FH)

UTILITY POLE

LIGHT POLE

GATE VALVE

CATCHBASIN

STORMFILTER

-PROPOSED

HYDRANT

PRIVATE FIRE

PRIVATE FIRE

MAINTENANCE SD-

MANHOLE

- ATTENTION EXCAVATORS: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 811 OR 1-800-332-2344. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CALL CENTER. YOU MUST NOTIFY THE CENTER AT LEAST 2 BUSINESS DAYS, BUT NOT MORE THAN 10 BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 811 OR 1-800-332-2344.
- 2. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET. BEND OR ELBOW REQUIRED OR INSTALLATION OF THE UTILITIES SHOWN. THE DRAWINGS DO NOT DEPICT EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES LAYING WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDING SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR TO NOTIFY ENGINEER IMMEDIATELY IF THERE ARE ANY DISCREPANCIES.
- 3. BEDDING AND PIPE ZONE BACKFILL SHALL BE PER "PIPE TRENCH EMBEDMENT" DETAIL, SHEET ____
- 4. CONTRACTORS SHALL CONTACT CITY OF TUALATIN PUBLIC WORKS AT LEAST 2 BUSINESS DAYS, BUT NOT MORE THAN 10 BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL (___) ___-___.
- 5. THE MINIMUM HORIZONTAL SEPARATION BETWEEN SEWER LINES & PUBLIC WATER LINES SHALL BE 10-FT.
- 6. EXCAVATED SEWER TRENCH SPOIL MATERIAL SHALL BE TESTED AND LEGALLY DISPOSED OF AT A PROPER LANDFILL OR OTHER APPROPRIATE
- ALL SEWER TRENCH LINES AND EXCAVATIONS SHALL BE PROPERLY SHORED AND BRACED TO PREVENT CAVING. UNUSUALLY DEEP EXCAVATIONS MAY REQUIRE EXTRA SHORING AND BRACING. ALL SHEETING, SHORING, AND BRACING OF TRENCHES SHALL CONFORM TO OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION (OSHA) REGULATIONS AND THE CITY OF TUALATIN STANDARD CONSTRUCTION SPECIFICATIONS.
- 8. CONTRACTOR SHALL NOTIFY AND COORDINATE WITH PRIVATE UTILITIES FOR RELOCATION OF CONDUITS, POWER POLES, VAULTS, PEDESTALS, ETC.
- 9. ALL EXISTING FACILITIES SHALL BE MAINTAINED BY THE CONTRACTOR UNLESS OTHERWISE SHOWN OR DIRECTED. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO SUPPORT, MAINTAIN, OR OTHERWISE PROTECT EXISTING UTILITIES AND OTHER FACILITIES AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL LEAVE EXISTING FACILITIES IN AN EQUAL OR BETTER-THAN-ORIGINAL CONDITION.
- 10. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE & DEPTH OF EXISTING UTILITIES. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- 11. ALL SANITARY DRAINAGE, RAIN DRAIN AND STORM SEWER PIPING INSTALLED WITHIN 5-FT OF THE OUTSIDE OF THE BUILDING SHALL BE CAST IRON, SCHEDULE 40 ABS-D.W.V., SCHEDULE 40 PVC-D.W.V. OR OTHER MATERIAL AS APPROVED BY THE OREGON AMENDMENTS TO THE UNIFORM PLUMBING
- 12. HORIZONTAL STORM AND SANITARY DRAINAGE PIPE SHALL BE PROVIDED WITH A CLEANOUT AT ITS UPPER TERMINAL AND EACH RUN OF PIPING, WHICH IS MORE THAN 100 FOOT IN TOTAL DEVELOPED LENGTH. SHALL BE PROVIDED WITH A CLEANOUT FOR EACH 100 FOOT, OR FRACTION THEREOF, IN LENGTH OF SUCH PIPING. AN ADDITIONAL CLEANOUT SHALL BE PROVIDED FOR EACH AGGREGATE HORIZONTAL CHANGE OF DIRECTION EXCEEDING 135 DEGREES. THE MAXIMUM DISTANCE ALLOWED BETWEEN MANHOLES IS 300 FEET. ALL REQUIRED CLEANOUTS MAY NOT BE LOCATED ON PLAN.
- 13. PRIVATE SANITARY SEWER LINES, DENOTED "SAN" OR "SA", SHALL BE PVC 3034 OR APPROVED EQUAL IN ACCORDANCE WITH PROJECT SPECIFICATIONS. USE PVC C900 OR CL52 DIP WHERE COVER IS LESS THAN 15-INCHES FROM PIPE CROWN TO PAVED SURFACE. NOTE: ALL SANITARY PIPING WITHIN 5-FT OF AN EXTERIOR BUILDING WALL SHALL BE SCHEDULE 40 PVC OR OTHER PER APPROVED MATERIALS PER THE UNIFORM PLUMBING
- 14. PRIVATE STORM SEWER LINES, DENOTED "STM" OR "ST", SHALL BE PVC 3034, PVC C900, PVC C905, HDPE, CL52 DIP OR APPROVED EQUIVALENT, UNLESS OTHERWISE NOTED. ALL STORM PIPING SHOWN HAS BEEN SIZED FOR A MANNING'S "N" VALUE = 0.013 AND PIPE INVERTS HAVE BEEN DESIGNED USING CONCENTRIC PIPE TO PIPE AND WYE FITTINGS, UNLESS OTHERWISE
- 15. ALL STORM LATERALS SHALL HAVE #10 GAUGE COPPER WIRE OR TRACER TAPE AT 1.5-FT TO 2.0-FT ABOVE THE LATERAL.
- 16. ALL DOMESTIC (POTABLE) WATER SERVICE LINES OUTSIDE OF THE BUILDING DENOTED "DW" SHALL BE SCHEDULE 40 PVC OR PVC C900 CL150 UNLESS OTHERWISE NOTED. FIRE WATER SERVICE LINES OUTSIDE OF THE BUILDING DENOTED, "FW", "FDC" SHALL BE PVC C900 CL150 UNLESS OTHERWISE
- 17. CONCRETE THRUST BLOCKING AND/OR MECHANICAL RESTRAINTS ("MEGA-LUG" OR EQUIVALENT) SHALL BE PROVIDED AT ALL WATERLINE FITTINGS AS REQUIRED BY THE CITY OF TUALATIN. BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH AND CLEAR OF JOINT ACCESSORIES. BEARING AREA OF THRUST BLOCK SHALL BE COMPUTED ON THE BASIS OF ALLOWABLE SOIL BEARING PRESSURE. SEE DETAIL SHEET
- 18. MINIMUM COVER OVER WATERLINES IS TO BE 36 INCHES AS MEASURED FROM FINISH GRADE TO TOP OF PIPE. MINIMUM VERTICAL SEPARATION BETWEEN WATERLINE AND SANITARY SEWER AT A CROSSING IS 18 INCHES. SANITARY SEWER AT WATERLINE CROSSINGS WITH LESS THAN THE MINIMUM VERTICAL SEPARATION SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH WATERTIGHT JOINTS. IN SUCH CASES THE 18-FOOT LENGTH OF SANITARY SEWER SHALL BE CENTERED AT THE CROSSING.
- 19. PRIOR TO BEING PLACED IN SERVICE, THE WATERLINE AND SERVICES SHALL BE FLUSHED, STERILIZED, AND RE-FLUSHED, ALL IN ACCORDANCE WITH THE CITY OF TUALATIN "PUBLIC WORKS CONSTRUCTION CODE." CITY CREWS WILL TAKE BACTERIOLOGICAL TESTS WHEN SO REQUESTED BY THE CONTRACTOR INSTALLING WATER MAINS. THE REQUEST FOR THESE TESTS SHALL BE MADE THROUGH THE CITY INSPECTOR.
- 20. PRIOR TO CONSTRUCTION, ALL ON-SITE FIRE WATER SYSTEM LINE SIZES, METER SIZES, DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) SIZES, AND OTHER APPURTENANCES SHOWN ON THE UTILITY PLAN SHALL BE VERIFIED BY THE FIRE PROTECTION ENGINEER FOR THE PROJECT. ANALYSIS OF THE SYSTEM SHALL BE FROM THE NEW FACILITY SERVICE TO THE POINT OF CONNECTION WITH THE PUBLIC WATER SYSTEM. THE MAKES AND MODELS OF ALL SYSTEM COMPONENTS SHALL BE ACCEPTABLE PER WATER DISTRICT LIST OF APPROVED COMPONENTS.

ENGINEERING + DESIGN

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PROJECT NAME 124th AVENUE

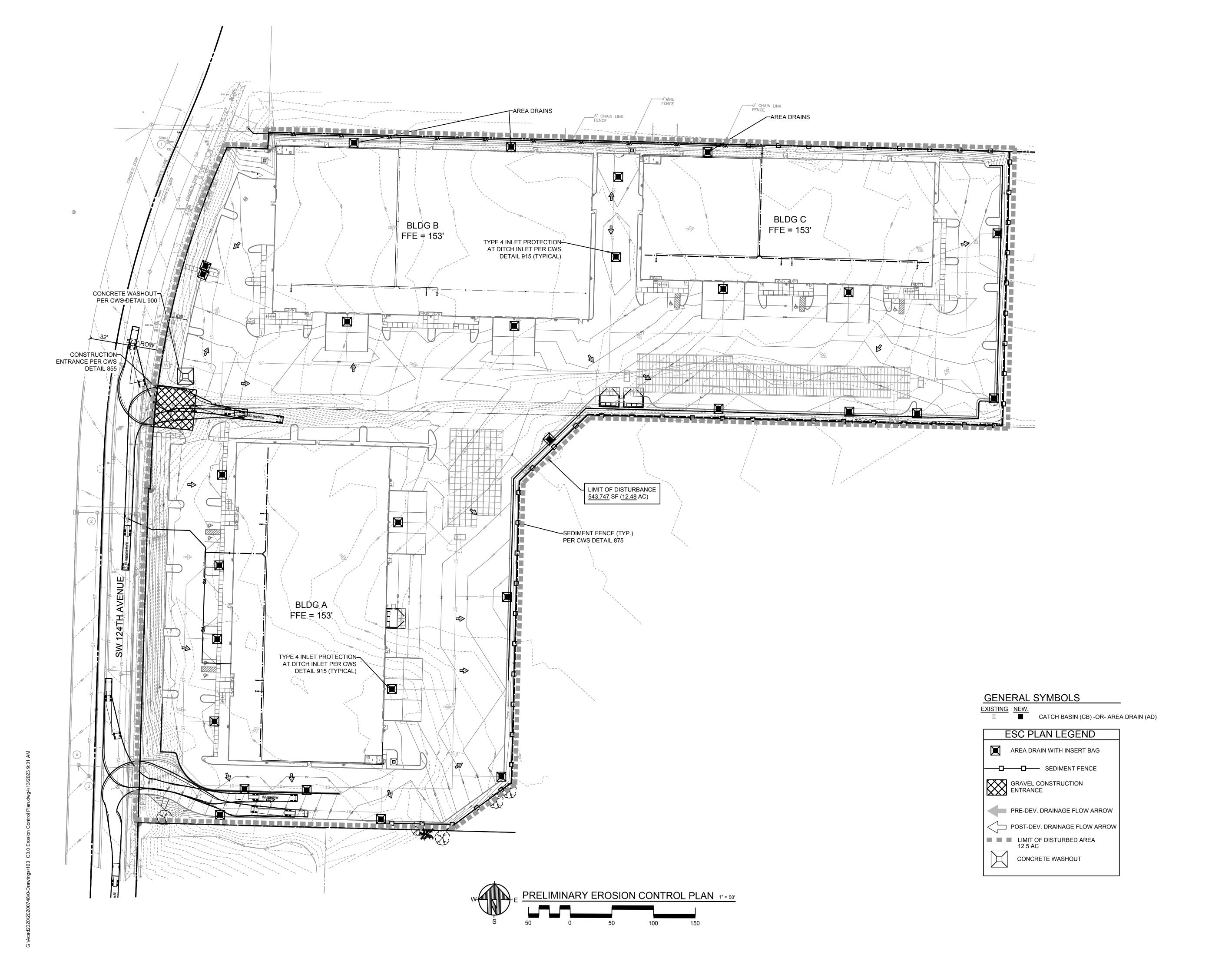
BUSINESS PARK

124th AVENUE TUALATIN, OREGON

REVIS	SIONS	
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DATE APRIL 2022					
PROJ. NO. 20200748					
CHECKED BMD					

PRELIMINARY UTILITY PLAN



ENGINEERING + DESIGN

3933 S Kelly Avenue Portland, Oregon 97239 503.222.4453 **VLMK.COM**

PROJECT NAME

124th AVENUE

BUSINESS PARK

124th AVENUE TUALATIN, OREGON

REVISIONS							
<u></u>	DATE	DESCRIPTION					

DATE APRIL 2	APRIL 2022					
SCALE AS NOTED	PROJ. NO. 20200748					
DRAWN MMG	CHECKED BMD					
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PRELIMINARY EROSION CONTROL PLAN

C3.0

SURVEYING.

0 60 120 180 SCALE: 1" = 60'

1-FT. CONTOUR INTERVAL

TOPOGRAPHIC SURVEY SW 124 AVE

IN THE NE 1/4 AND THE NW 1/4 OF SECTION 27

T.2S., R.1W., WILLAMETTE MERIDIAN
CITY OF TUALATIN, WASHINGTON COUNTY, OREGON

PREPARED FOR
VLMK ENGINEERING + DESIGN
C/O HAVLIN KEMP
503-222-4453

SANITARY SEWER NOTES

RIM=156.79' I.E. 10" PVC (THRU S-N) = 140.49'

RIM=154.24'
I.E. 10" PVC (THRU S-N) = 139.34'

RIM=151.82'
I.E. 10" PVC (THRU SW-NE) = 138.67'
I.E. 8" CSP IN (W) = 138.77'

RIM=154.84'
I.E. 10" PVC (THRU E-N) = 138.49'

RIM=158.88'
I.E. 10" PVC IN (S) = 141.28'
I.E. IN (W) = 141.31'
I.E. 10" PVC OUT (N) = 141.01'

7 RIM=161.82'
I.E. 10" PVC IN (E) = 150.82'
I.E. 10" PVC IN (S) = 150.77'
I.E. 10" PVC OUT (N) = 150.66

RIM=164.02'
I.E. 10" PVC IN (SW) = 155.01'
I.E. 10" PVC OUT (N) = 154.84'

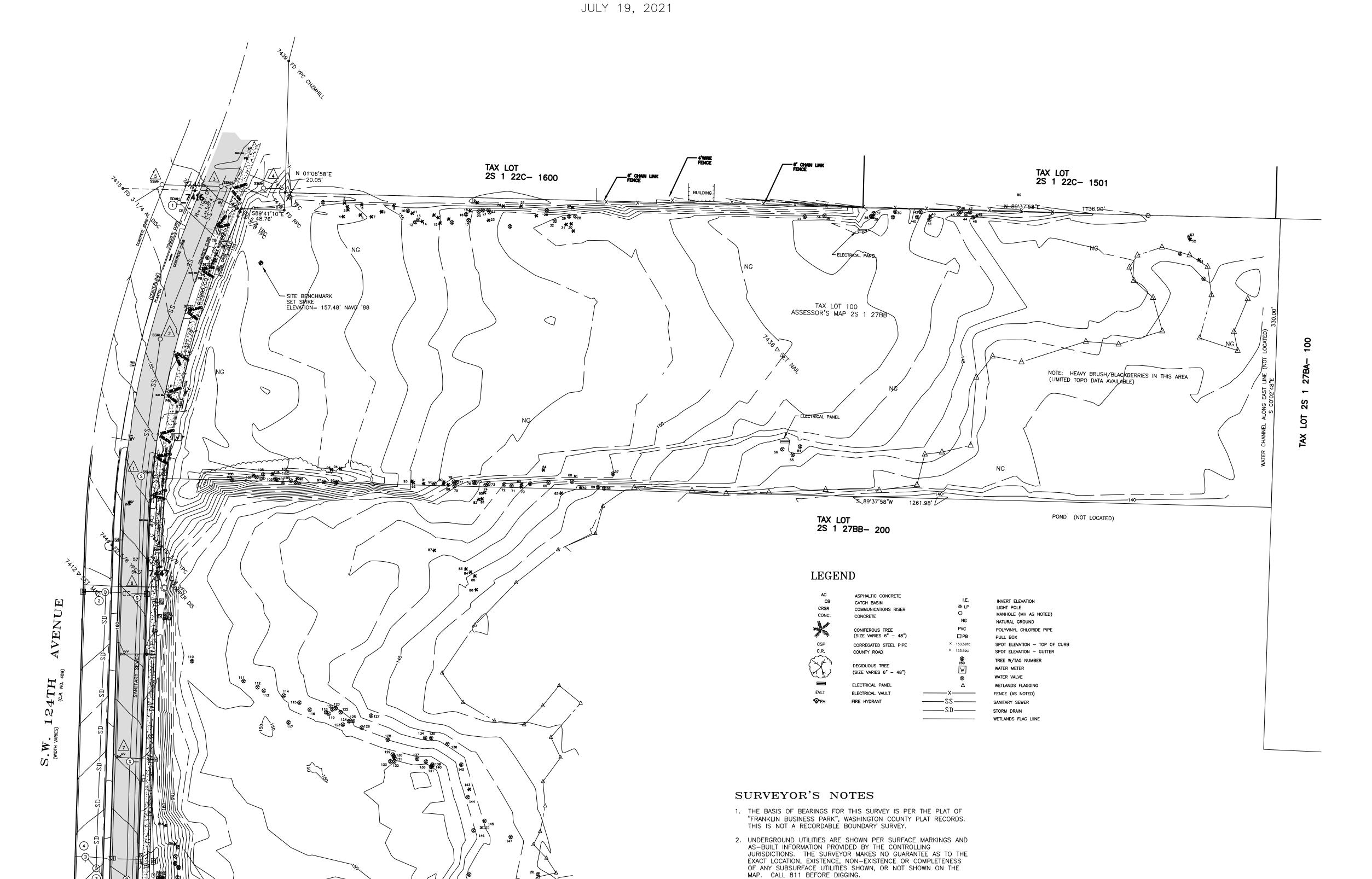
STORM DRAIN NOTES

RIM=152.32'
I.E. 12" CONC. IN (SE) = 147.4'
I.E. 12" PVC. OUT (NE) = 147.4'

I.E. 12" CONC. IN (E) = 155.96' I.E. 12" CONC. IN (W) = 155.91' I.E. 12" CONC. OUT (S) = 154.89'

RIM=163.99'
I.E. 12" CONC. IN (NW) = 153.86'
I.E. 12" CONC. IN (N) = 153.00'
I.E. 12" CONC. OUT (SE) (CAPPED) = 153.57'

(4) RIM=163.68'
I.E. 12" CONC. IN (E) = 159.86'
I.E. 12" CONC. IN (W) = 159.81'
I.E. 12" CONC. IN (S) = 159.23'
I.E. 12" CONC. OUT (SE) = 156.38



BENCHMARK

THE BENCHMARK USED FOR THIS PROJECT IS AN OPUS-DERIVED ELEVATION ON WEDDLE SURVEYING INC. POINT #7414. ELEVATION: 157.48' NAVD '88 (GEOID 12B)

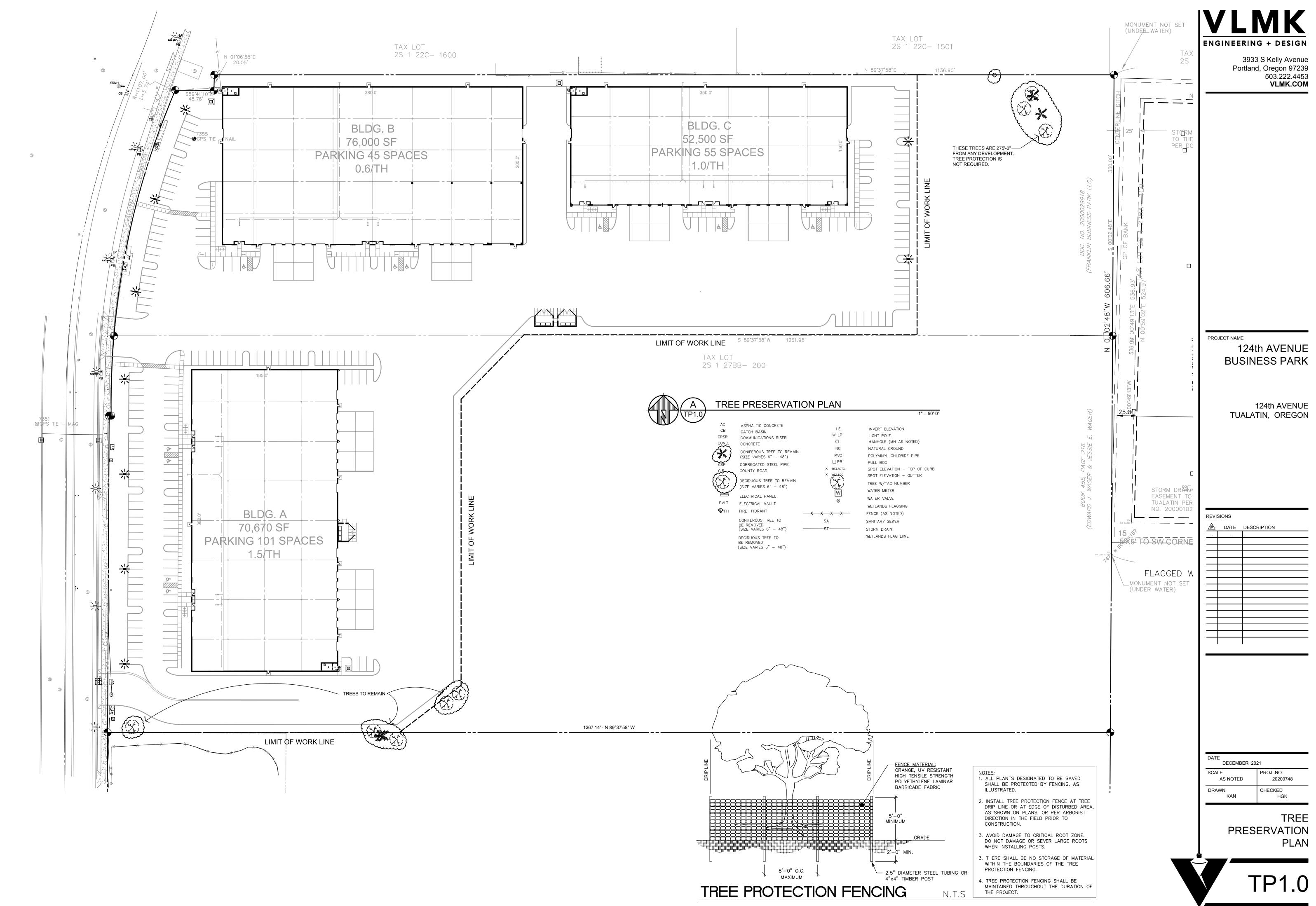
REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON
JULY 25, 1995
MICHAEL D. RENNICK
2718

EXPIRES: DECEMBER 31, 2022

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SVY1.0



ARCHITECTURAL REVIEW ONLY 04 / 17 / 23

VLMK ENGINEERING + DESIGN 3933 S Kelly Avenue Portland, Oregon 97239 503.222.4453 **VLMK.COM** MONUMENT NOT SET (UNDER_WATER) TAX LOT 2S 1 22C- 1501 6' CHAIN LINK FENCE TAX LOT 2S 1 22C- 1600 TAXN 01°06'58"E 1136.90' BLDG. C BLDG. B STORM TO THE PER DC 52,500 SF 76,000 SF PARKING 55 SPACES PARKING 45 SPACES 1.0/TH 0.6/TH PROJECT NAME **BUSINESS PARK** S 89°37′58″W 1261.98′ TAX LOT 2S 1 27BB- 200 124th AVENUE TUALATIN, OREGON REVISIONS STORM DRAMENT TO # DATE DESCRIPTION TUALATIN PER NO. 20000102 BLDG. A 70,670 SF _15 <u>_</u>5%5' TO SW CORNE PARKING 101 SPACES 1.5/TH FLAGGED SITE LIGHTING PLAN V_MONUMENT NOT SET (UNDERAWAÆER\$2,237 = 1.888 ACRE ON- SITE LIGHT POLE (L.P.) BUILDING WALL PACK LIGHT (W.P.) PATH LIGHT - LIGHT BOLLARD DECEMBER 2021 1267.14' - N 89°37'58" W AS NOTED CHECKED HGK DRAWN SITE LIGHTING

124th AVENUE

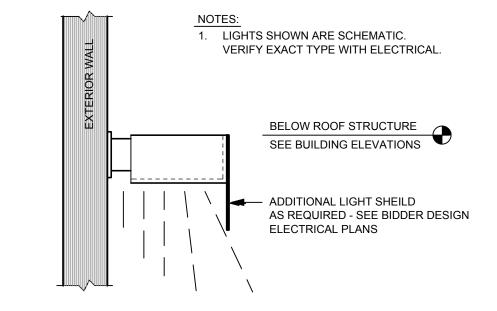
PLAN

LIGHT SOURCE SHIELDING PREVENTS DIRECT LINE OF SIGHT TO LIGHT SOURCE @ 3' ABOVE PROPERTY LINE PROPERTY LINE

TYPICAL LIGHTING SHEILD

ALL SITE LIGHTING TO MEET THE REQUIREMENTS OF C.O. CANBY STANDARDS TABLE 16.43.070 FOR ZONE LZ-2 'AMBIENT LEVEL MEDIUM' LIGHTING

CONSTRUCTION DOCUMENTS TO PROVIDE LZ-2 LUMENS FOR LIGHTING IN ACCORDANCE WITH TABLE 17.43.070 LUMINAIRE MAXIMUMS





Performance Data Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user reinforment and application. Actual wates pen aydiffer by 4-6% when operating between 120-480V +/- 10%. Contact factory or performance data on any configurations not shown here. Projected LED Lumen Maintenance 700 80C 700 --K 188W To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory. 0 25,000 50,000 100,000 DSX2 LED 80C 1000 1000 80C 1000 -- K 275W 1.0 0.98 0.97 0.95 **Electrical Load** | Drive Current | System | 120 | 208 | 240 | 277 | 347 | 480 | 80 700 188W 1.74 1.00 0.87 0.75 0.60 0.64 1.00 0.44 1.00 275W 2.55 1.47 1.27 1.10 0.88 0.64 100C (100 LEDs) 700 100C 700 -- K 218W T4 100 700 218W 2.02 1.16 1.01 0.87 0.70 0.56 FEATURES & SPECIFICATIONS

Note: Specifications subject to change without notice.

ULIZET 15 JU Plottcell - SSL twist-lock (120-2771)**

BOLLIZET 15 JU Plottcell - SSL t One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com
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DSX2 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles, per the table below.

J.563**

DM19AS Single unit DM29AS 2 at 90° + DM29AS 2 at 180° DM39AS 3 at 120° + DM3

Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its

The D-Series distills the benefits of the latest in

LED technology into a high performance, high efficacy, long-life luminaire. The outstanding

excellent uniformity, greater pole spacing and lower power density. The Size 2 is ideal for replacing 400-1000W metal halide in area lighting

applications with energy savings of up to 80% and expected service life of over 100,000 hours.

Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Not available with DS option. Not available with 347 or 480V.

Specifies a ROAM® enabled turninier with 0.10V dimening capability, PER option required. Not available with 1000m3 347V or 1000m4 480V, Additional hardware required. Not available with 0.000m3 347V or 1000m4 480V, Additional hardware minds of A

EXAMPLE: DSX2 LED 80C 1000 40K T4M MVOLT SPA DDBXD

photometric performance results in sites with

WALL / POLE LIGHTS

DSX2 LED Forward optics 80 C 80 LEDs (four engines) Rotated optics (four engines) 80 C 80 LEDs (four engines) 80 C

Example: SSA 20 4C DM19AS DDBXD

LIGHT SHOWN IS CAPABLE OF BOTH WALL AND POLE MOUNT SENSOR PROVIDED FOR SUNSET / SUNRISE OPERATION

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MATCH EXISTING LIGHTS & FIXTURES.

TYPICAL LIGHTING

D-Series Size 2

Weight 39 lbs (max): (17.7 kg)

ElumTools General Use Illuminance Results

Max/Min Maximum Minimum 2.8 fc 10.8 fc 0.0 fc 228.6 59.8

AS NOTED 20200748 CHECKED DRAWN KAN

PROJ. NO.

DECEMBER 2021

SCALE

VLMK

ENGINEERING + DESIGN

PROJECT NAME

REVISIONS

DATE DESCRIPTION

124th AVENUE

124th AVENUE

BUSINESS PARK

TUALATIN, OREGON

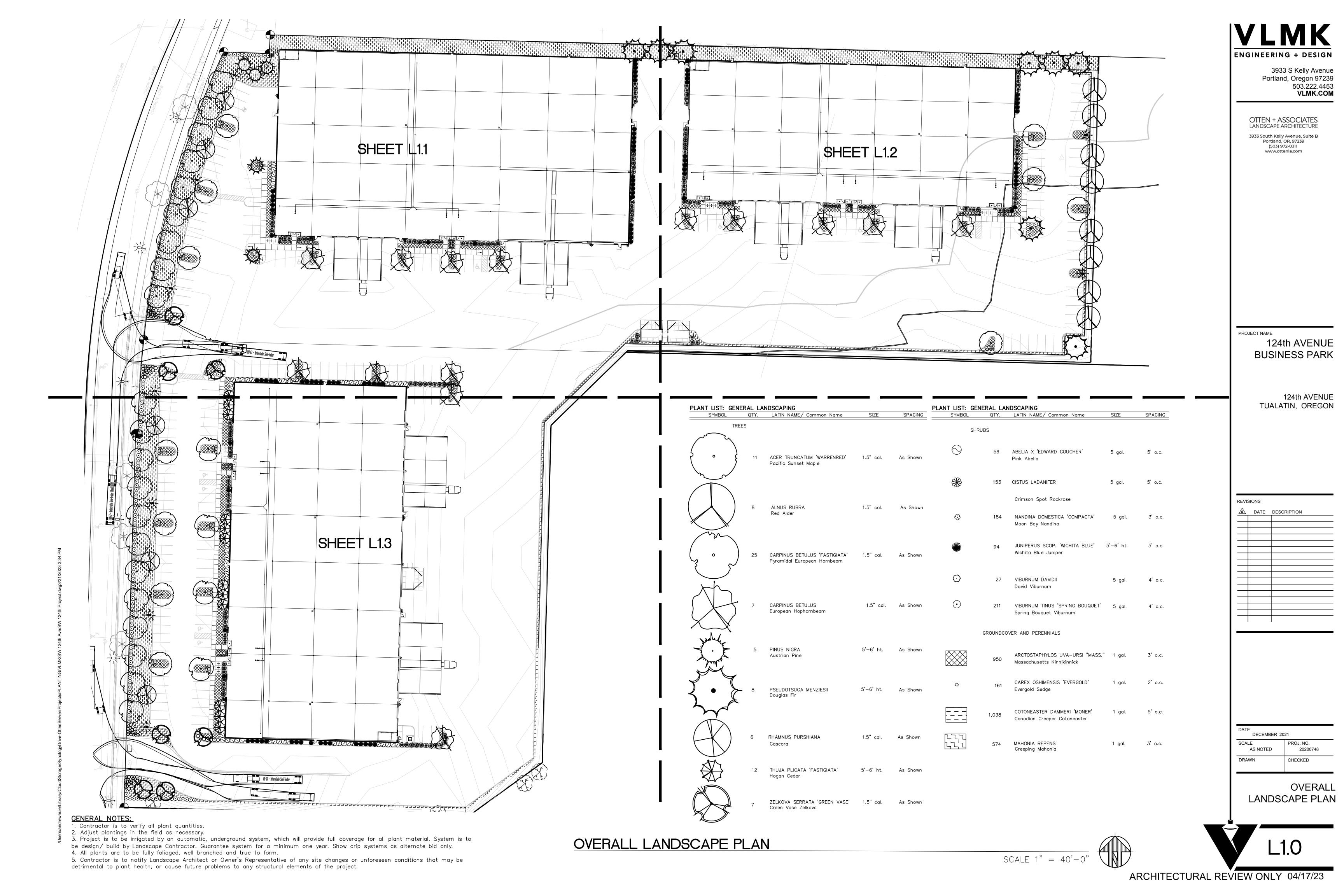
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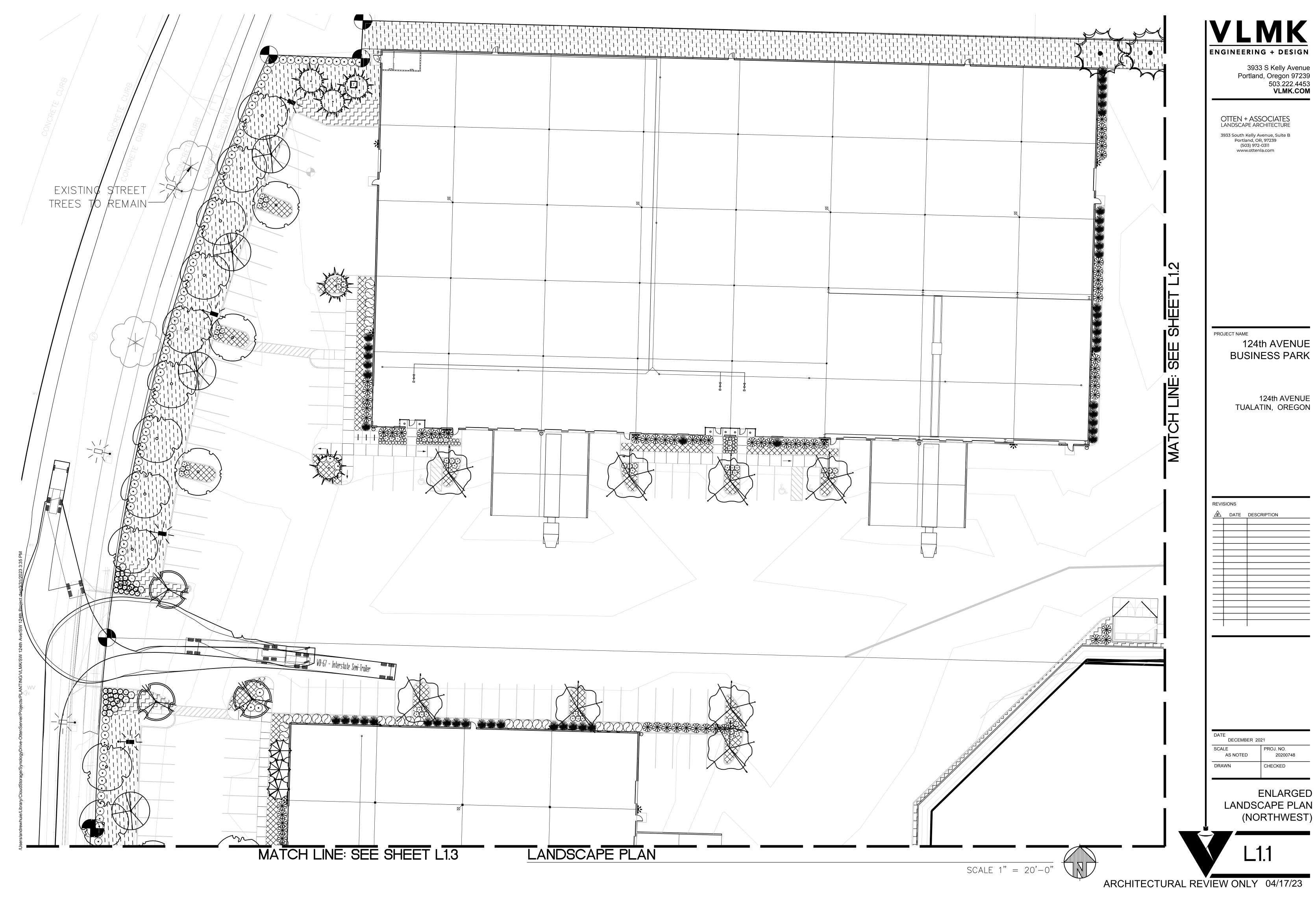
503.222.4453

VLMK.COM

Portland, Oregon 97239

SITE LIGHTING **DETAILS**





ENLARGED (NORTHWEST)

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OTTEN + ASSOCIATES LANDSCAPE ARCHITECTURE

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PROJECT NAME

124th AVENUE BUSINESS PARK

124th AVENUE TUALATIN, OREGON

DATE DESCRIPTION

DATE DESCRIPTION

DATE
DECEMBER 2021

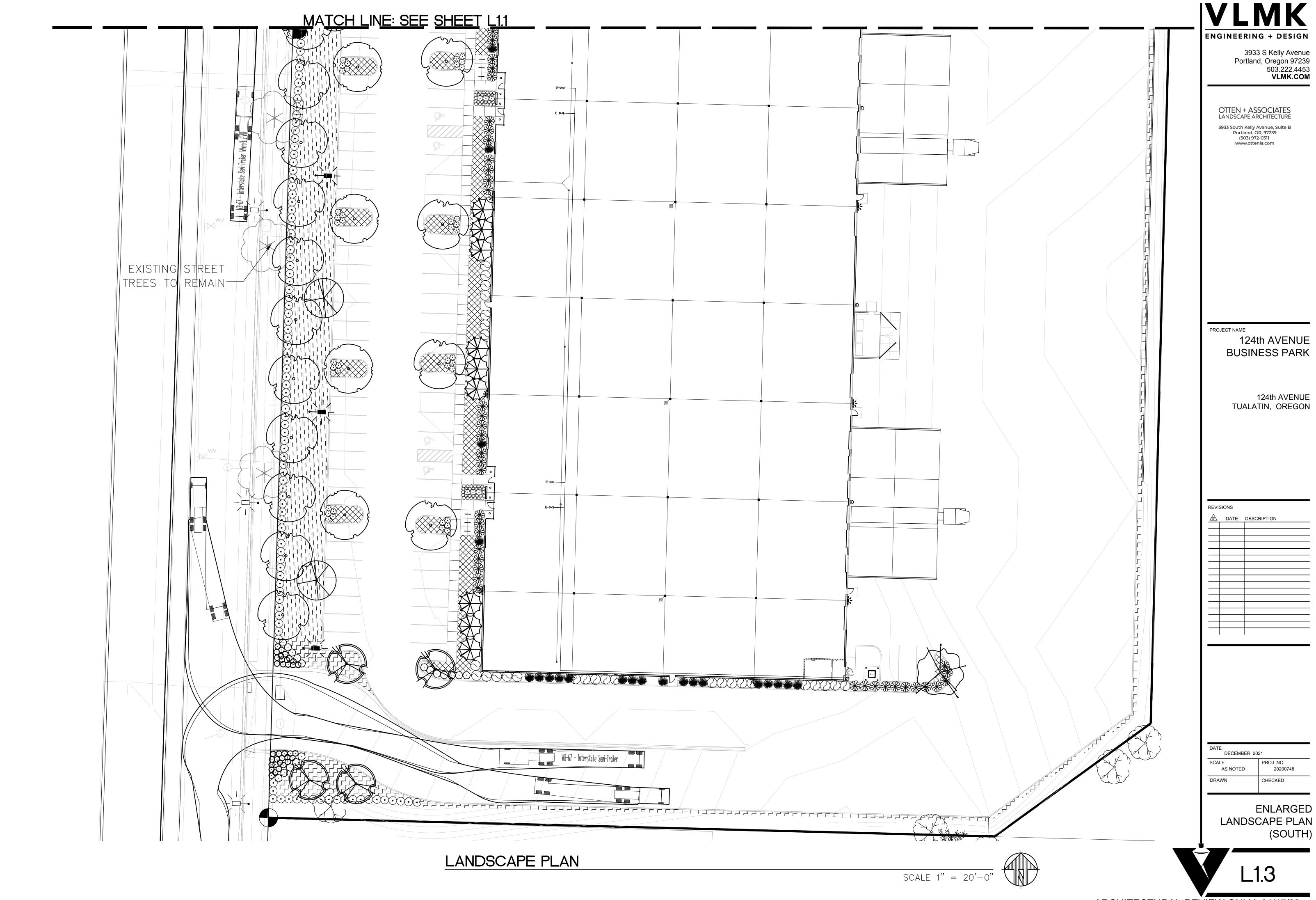
SCALE
AS NOTED

DRAWN

CHECKED

ENLARGED LANDSCAPE PLAN (NORTHEAST)





ENLARGED

(SOUTH)

ARCHITECTURAL REVIEW ONLY 04/17/23

OUTLINE SPECIFICATIONS PLANTING AND SEEDING:

GENERAL: All plants shall conform to all applicable standards of the latest edition of the "American Association of Nurserymen Standards", A.N.S.I. Z60.1 — 1973. Meet or exceed the regulations and laws of Federal, State, and County regulations, regarding the inspection of plant materials, certified as free from hazardous insects, disease, and noxious weeds, and certified fit for sale in Oregon.

The apparent silence of the Specifications and Plans as to any detail, or the apparent omission from them of a detailed description concerning any point, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of first quality are to be used. All interpretations of these Specifications shall be made upon the basis above stated.

Landscape contractor shall perform a site visit prior to bidding to view existing conditions.

PERFORMANCE QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary horticultural practices and who are completely familiar with the specified requirements and methods needed for the proper performance of the work of this section.

NOTIFICATION: Give Landscape Architect minimum of 2 days advance notice of times for inspections. Inspections at growing site does not preclude Landscape Architect's right of rejection of deficient materials at project site. Each plant failing to meet the above mentioned "Standards" or otherwise failing to meet the specified requirements as set forth shall be rejected and removed immediately from the premises by the Contractor and at his expense, and replaced with satisfactory plants or trees conforming to the specified requirements.

SUBSTITUTIONS: Only as approved by the Landscape Architect or the Owner's Representative.

GUARANTEE AND REPLACEMENT: All plant material shall be guaranteed from final acceptance for one full growing season or one year, whichever is longer. During this period the Contractor shall replace any plant material that is not in good condition and producing new growth (except that material damaged by severe weather conditions, due to Owner's negligence, normally unforeseen peculiarities of the planting site, or lost due to vandalism). Guarantee to replace, at no cost to Owner, unacceptable plant materials with plants of same variety, age, size and quality as plant originally specified. Conditions of guarantee on replacement plant shall be same as for original plant.

Landscape Contractor shall keep on site for Owner's Representative's inspection, all receipts for soil amendment and topsoil deliveries.

PROTECTION: Protect existing roads, sidewalks, and curbs, landscaping, and other features remaining as final work. Verify location of underground utilities prior to doing work. Repair and make good any damage to service lines, existing features, etc. caused by landscaping installation.

PLANT QUALITY ASSURANCE: Deliver direct from nursery. Maintain and protect roots of plant material from drying or other possible injury. Store plants in shade and protect them from weather immediately upon delivery, if not to be planted within four hours.

Nursery stock shall be healthy, well branched and rooted, formed true to variety and species, full foliaged, free of disease, injury, defects, insects, weeds, and weed roots. Trees shall have straight trunks, symmetrical tips, and have an intact single leader. Any trees with double leaders will be rejected upon inspection. All Plants: True to name, with one of each bundle or lot tagged with the common and botanical name and size of the plants in accordance with standards of practice of the American Association of Nurserymen, and shall conform to the Standardized Plant Names, 1942 Edition.

Container grown stock: Small container—grown plants, furnished in removable containers, shall be well rooted to ensure healthy growth. **Grow container plants in containers a minimum of one year** prior to delivery, with roots filling container but not root bound. Bare root stock: Roots well—branched and fibrous. Balled and burlapped (B&B): Ball shall be of natural size to ensure healthy growth. Ball shall be firm and the burlap sound. No loose or made ball will be acceptable.

TOPSOIL AND FINAL GRADES: Landscape Contractor is to supply and place 12" of topsoil in planting beds. Landscape Contractor is to verify with the General Contractor if the on—site topsoil is or is not conducive to proper plant growth. The topsoil shall be a sandy loam, free of all weeds and debris inimical to lawn or plant growth. Furnish soil analysis by a qualified soil testing laboratory stating percentages of organic matter; gradation of sand, silt and clay content; cation exchange capacity; deleterious material; pH; and plant nutrient content of the topsoil. Report suitablility of topsoil for plant growth and recommended quantities of nitrogen, phosphorus and potash nutrients and soil amendments (including compost) to be added to produce satisfactory topsoil. If stockpiled topsoil on site is not conducive to proper plant growth, the Landscape Contractor shall import the required amount.

Landscaping shall include finished grades and even distribution of topsoil to meet planting requirements. Grades and slopes shall be as indicated. Planting bed grades shall be approximately 3" below adjacent walks, paving, finished grade lines, etc., to allow for bark application. Finish grading shall remove all depressions or low areas to provide positive drainage throughout the area.

PLANTING SPECIFICATIONS:

HERBICIDES: Prior to soil preparation, all areas showing any undesirable weed or grass growth shall be treated with Round—up in strict accordance with the manufacturer's instructions.

SOIL PREPARATION: Work all areas by rototilling to a minimum depth of 8". Remove all stones (over 1½" size), sticks, mortar, large clumps of vegetation, roots, debris, or extraneous matter turned up in working. Soil shall be of a homogeneous fine texture. Level, smooth and lightly compact area to plus or minus .10 of required grades.

In groundcover areas add 2" of compost (or as approved) and till in to the top 6" of soil.

PLANTING HOLE: Lay out all plant locations and excavate all soils from planting holes to 2 1/2 times the root ball or root system width. Loosen soil inside bottom of plant hole. Dispose of any "subsoil" or debris from excavation. Check drainage of planting hole with water, and adjust any area showing drainage problems.

SOIL MIX: Prepare soil mix in each planting hole by mixing:

2 part native topsoil (no subsoil)

1 part compost (as approved)

Thoroughly mix in planting hole and add fertilizers at the following rates:

Small shrubs — 1/8 lb./ plant ชี Shrubs — 1/3 to 1/2 lb./ plant

Shrubs — 1/3 to 1/2 lb./ plan Trees — 1/3 to 1 lb./ plant

FERTILIZER: For trees and shrubs use Commercial Fertilizer "A" Inorganic (5—4—3) with micro—nutrients and 50% slow releasing nitrogen. For initial application in fine seed and shrubs use Commercial Fertilizer "B" (8—16—8) with micro—nutrients and 50% slow—releasing nitrogen. For lawn maintenance use Commercial Fertilizer "C" (22—16—8) with properties and 50% slow—releasing nitrogen. DO NOT apply fertilizer to Water Quality Swale.

PLANTING TREES AND SHRUBS: Plant upright and face to give best appearance or relationship to adjacent plants and structures. Place 6" minimum, lightly compacted layer of prepared planting soil under root system. Loosen and remove twine binding and burlap from top 1/2 of root balls. Cut off cleanly all broken or frayed roots, and spread roots out. Stagger Plants in rows. Backfill planting hole with soil mix while working each layer to eliminate voids.

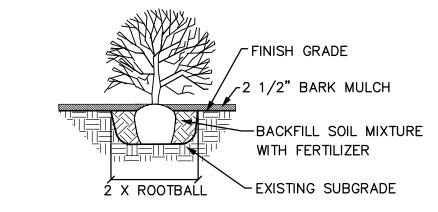
When approximately 2/3 full, water thoroughly, then allow water to soak away. Place remaining backfill and dish surface around plant to hold water. Final grade should keep s root ball slightly above surrounding grade, not to exceed 1". Water again until no more water is absorbed. Initial watering by irrigation system is not allowed.

STAKING OF TREES: Stake or guy all trees. Stakes shall be 2" X 2" (nom.) quality tree stakes with point. They shall be of Douglas Fir, clear and sturdy. Stake to be minimum 2/3 the height of the tree, not to exceed 8'-0". Drive stake firmly 1'-6" below the planting hole. Tree ties for deciduous trees shall be "Chainlock" (or better). For Evergreen trees use "Gro-Strait" Tree Ties (or a reinforced rubber hose and guy wires) with guy wires of a minimum 2 strand twisted 12 ga. wire. Staking and guying shall be loose enough to allow movement of tree while holding tree upright. Tree stakes shall be removed after one year.

MULCHING OF PLANTINGS: Mulch planting areas with dark, aged, medium grind fir or hemlock bark (aged at least 6 months) to a depth of 2" in ground cover areas and 2½" in shrub beds. Apply evenly, not higher than grade of plant as it came from the nursery, and rake to a smooth finish. Water thoroughly, then hose down planting area with fine spray to wash leaves of plants.

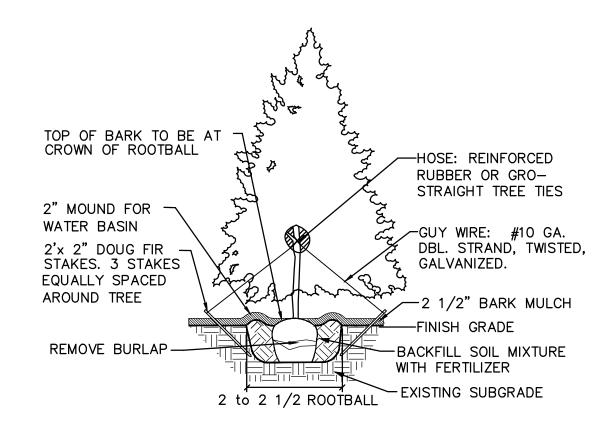
GENERAL MAINTENANCE: Protect and maintain work described in these specifications against all defects of materials and workmanship, through final acceptance. Replace plants not in normal healthy condition at the end of this period. Water, weed, cultivate, mulch, reset plants to proper grade or upright position, remove dead wood and do necessary standard maintenance operations. Irrigate when necessary to avoid drying out of plant materials, and to promote healthy growth.

CLEAN—UP: At completion of each division of work all extra material, supplies, equipment, etc., shall be removed from the site. All walks, paving, or other surfaces shall be swept clean, mulch areas shall have debris removed and any soil cleared from surface. All areas of the project shall be kept clean, orderly and complete.



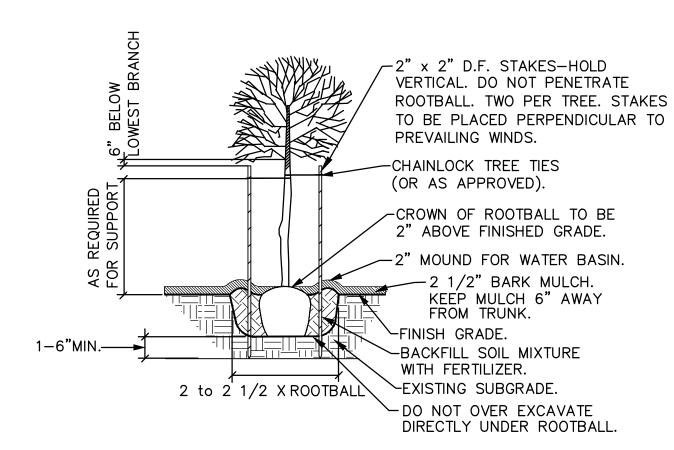
SHRUB PLANTING DETAIL

NOT TO SCALE



EVERGREEN TREE STAKING DETAIL

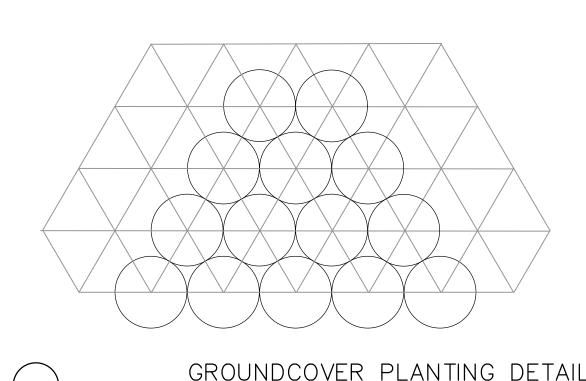
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NOTE: ANY PROPOSED CHANGES TO OUR SPECIFICATION OR DETAIL SHOULD BE APPROVED BY THE LANDSCAPE ARCHITECT. LIKEWISE, IN ACCORDANCE WITH BEST PRACTICES OF LOCAL LANDSCAPE INSTALLATION, SHOULD THE LANDSCAPE CONTRACTOR FIND A PREFERRED ALTERNATE METHOD, THE LANDSCAPE ARCHITECT MAY BE SO ADVISED.

GENERAL DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE



NOT TO SCALE



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PROJECT NAME

124th AVENUE

BUSINESS PARK

124th AVENUE TUALATIN, OREGON

DATE DESCRIPTION

DATE DESCRIPTION

DATE
DECEMBER 2021

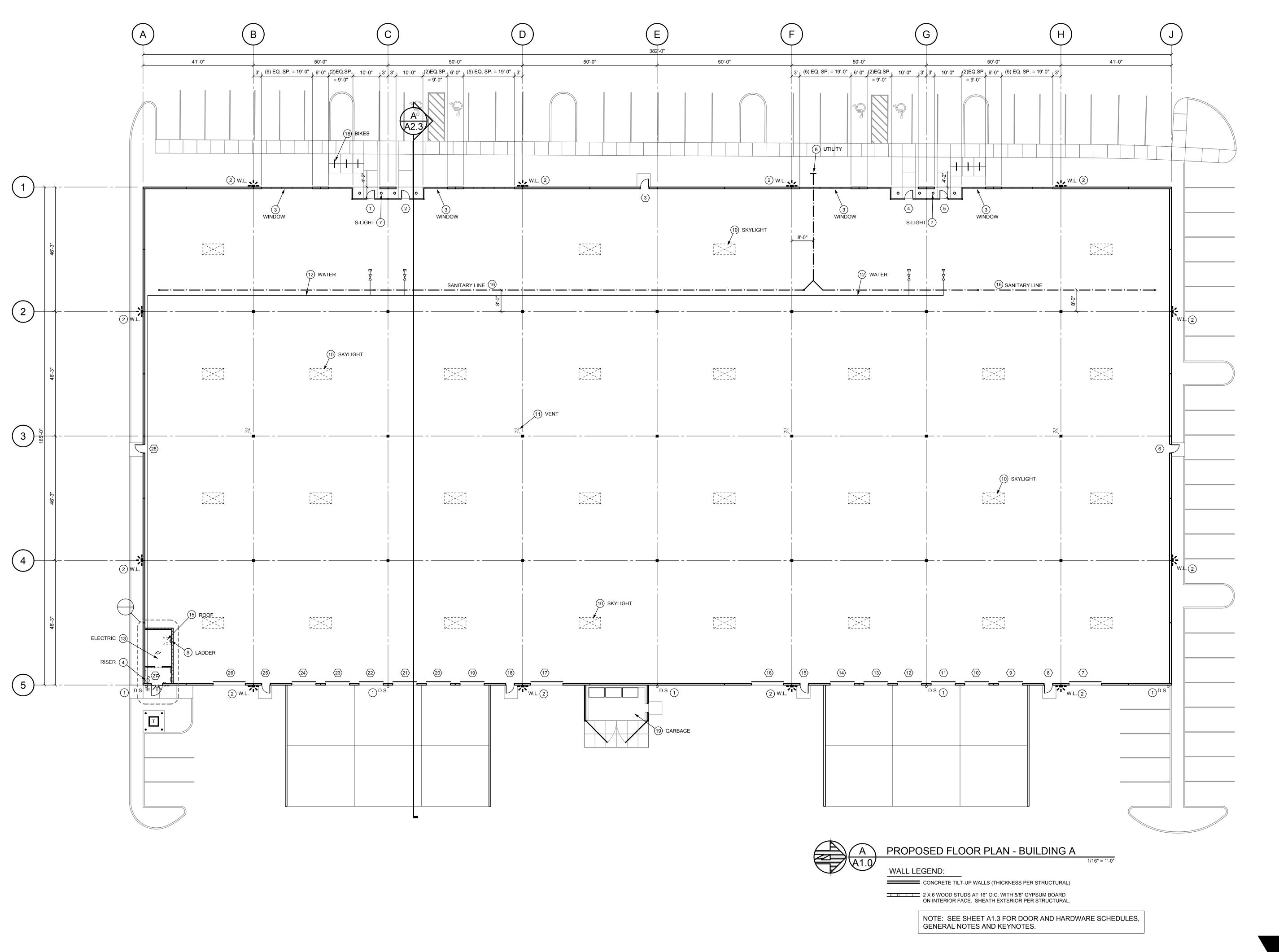
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LANDSCAPE DETAILS & SPECIFICATIONS

L2.0

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124th AVENUE BUSINESS PARK

> 124th AVENUE TUALATIN, OREGON

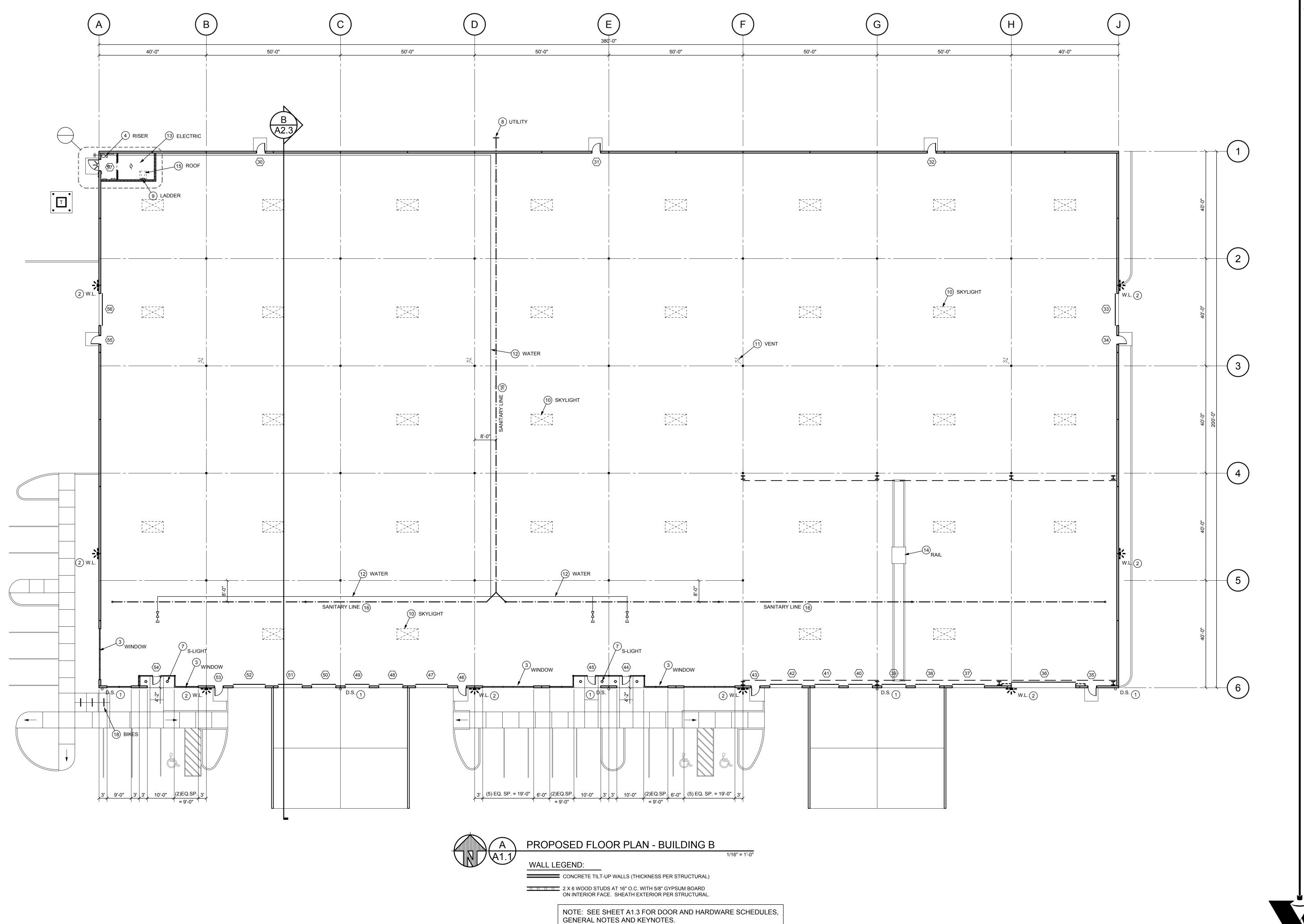
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PROPOSED FLOOR PLAN BUILDING A

A1.0



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124th AVENUE
BUSINESS PARK

124th AVENUE TUALATIN, OREGON

DATE
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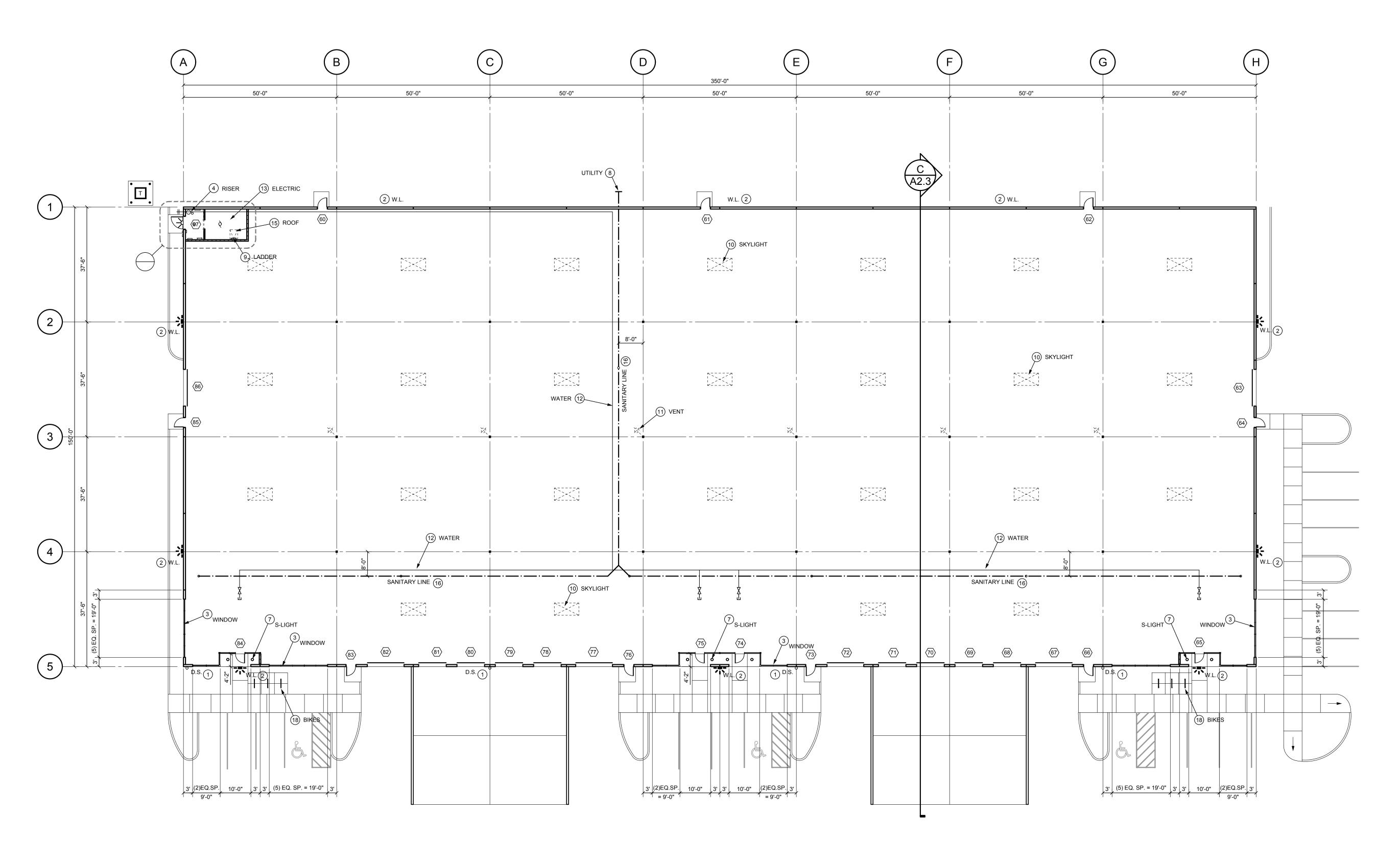
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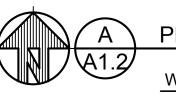
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CHECKED
HGK

PROPOSED FLOOR PLAN BUILDING B

A1.

ARCHITECTURAL REVIEW ONLY 04/17/23





PROPOSED FLOOR PLAN - BUILDING C

WALL LEGEND:

CONCRETE TILT-UP WALLS (THICKNESS PER STRUCTURAL)

2 X 6 WOOD STUDS AT 16" O.C. WITH 5/8" GYPSUM BOARD ON INTERIOR FACE. SHEATH EXTERIOR PER STRUCTURAL.

NOTE: SEE SHEET A1.3 FOR DOOR AND HARDWARE SCHEDULES, GENERAL NOTES AND KEYNOTES.

VLMK ENGINEERING + DESIGN

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PROJECT NAME 124th AVENUE **BUSINESS PARK**

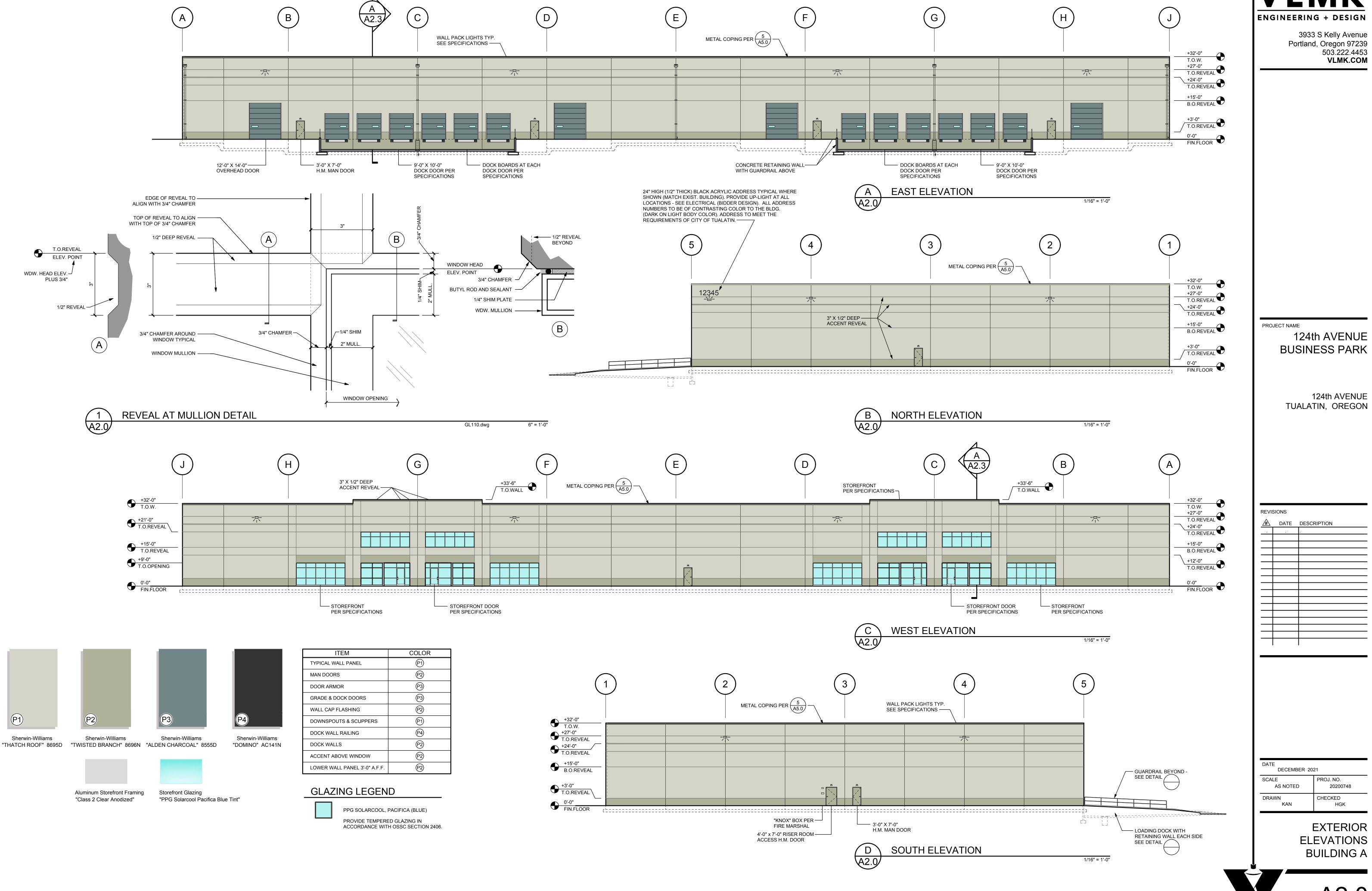
124th AVENUE TUALATIN, OREGON

REVISIONS A DATE DESCRIPTION

DECEMBER 2021 PROJ. NO. AS NOTED 20200748 DRAWN CHECKED

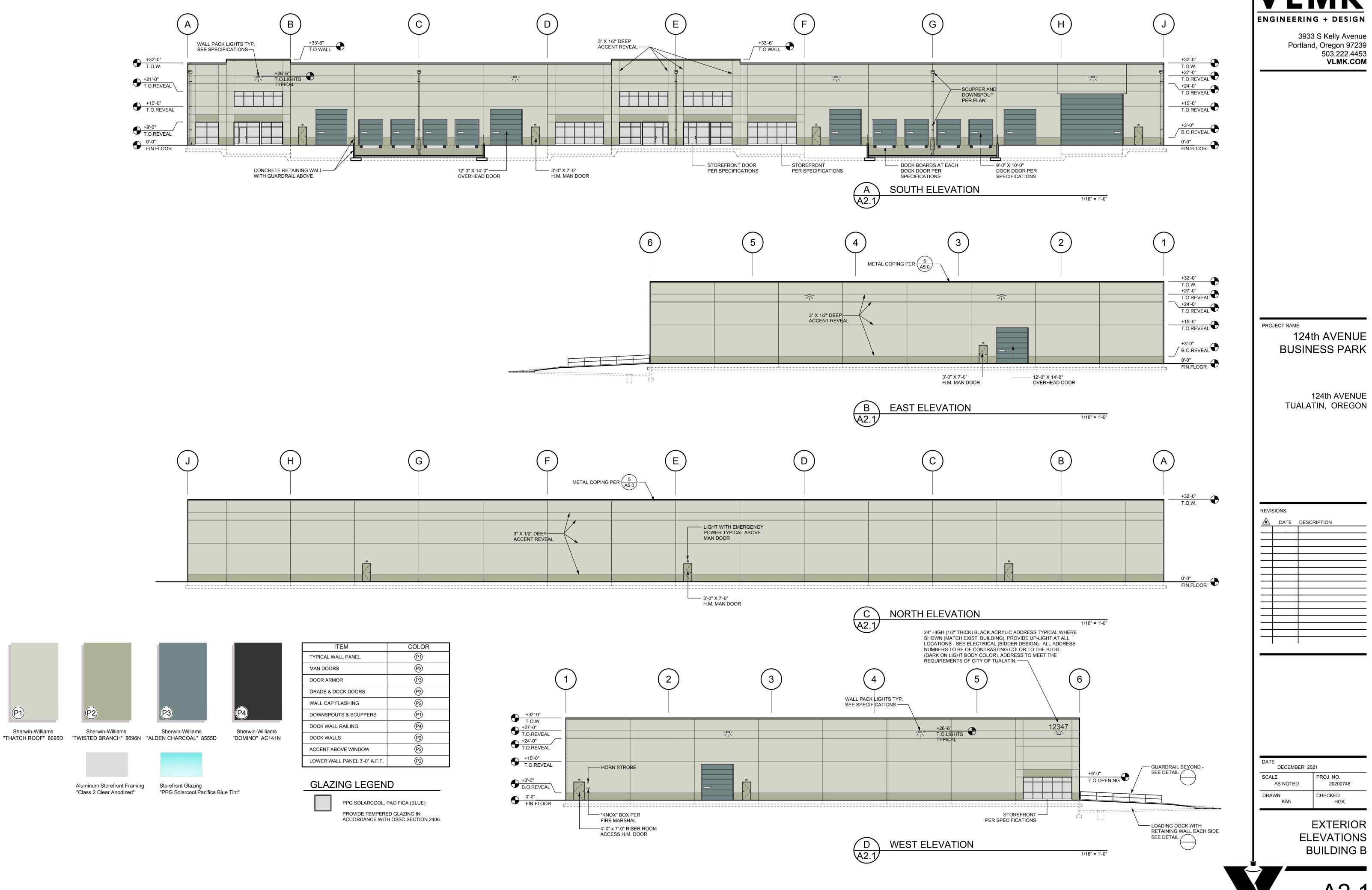
> PROPOSED FLOOR PLAN **BUILDING C**

> > A1.2



ENGINEERING + DESIGN

124th AVENUE



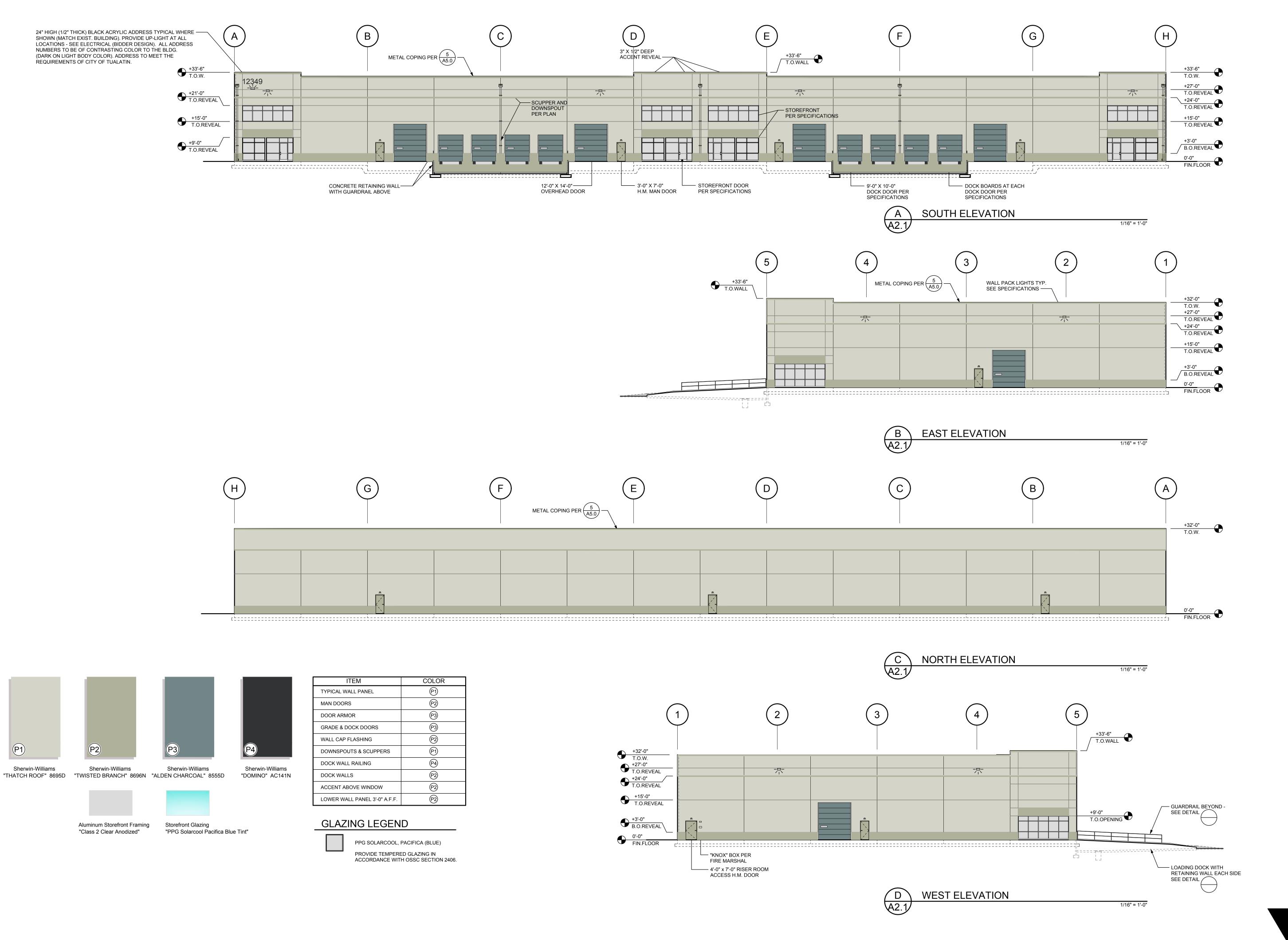
3933 S Kelly Avenue

124th AVENUE

124th AVENUE

20200748

EXTERIOR ELEVATIONS



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124th AVENUE BUSINESS PARK

124th AVENUE TUALATIN, OREGON

DATE
DECEMBER 2021

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20200748

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EXTERIOR ELEVATIONS BUILDING C

A2.2



TREE PROTECT PLAN

for

VLMK ENGINEERING + DESIGN for the

124TH AVE BUSINESS PARK PROJECT SW TUALATIN ROAD, TUALATIN, OR 97062

Submitted by
Peter van Oss PN-8145A
Date Friday, April 21, 2023

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Summary

Teragan and Associates, Inc.TM has been contracted with VLMK Engineering + Design to provide arboricultural consulting services. This report is the tree plan for the development of the proposed business park. The report includes the narrative for the proposed removals and the protection mitigation recommendations that should be adopted during the construction project. The provisions in this report are collaborated to meet and exceed the ordinances set forth by the City of Tualatin, OR.

Background

The plans show the proposed development of the lots adjacent to Tualatin Island Greens (east) south of SW Myslony Street and north of SW Cimino Street. The site is currently vacant property that represents a natural appearance. Most of the east side of the property is designated as a Natural Resource Protected (NRPO) area and the plans show that a small portion of the proposed development is located within the area. This report provides the narrative for the proposed tree removals and the recommended protection mitigation for the retained trees.

Tree Inventory

Our firm completed the inventory in June 2021, and I verified the current conditions onsite during a site visit conducted on April, 20, 2023. The tree diameters were recorded using a diameter tape. The health and conditions of the trees are determined by the plant species profiles compared to the current condition the trees present. Attributes that can negatively impact the ratings are growing conditions, bark inclusions, broken branches, poor vigor...etc. All trees are tagged with aluminum tags that have the corresponding numbers scribed on them except for trees that were not accessible due to accessibility restrictions.

Purpose and Use of the Report

The purpose of this report is to establish a narrative for the removal of the trees and tree protection measures that will need to be adhered to during the construction project to ensure a positive outcome of the retention efforts. This report may be used by the owner to establish communications between the city planning department, the contractors, and sub-contractors regarding the tree protection efforts of the project.

Limits of the Report

The trees were visually assessed from the ground only, no tools were used to assess any of the tree parts. The site improvements were not staked out at the time of the inventory and the impacts from the construction were established by visualizing the provided plans to key landmarks.

Observations

The property has a significant topographical change between the road (SW 124th Ave) to where the NRPO area is located. Significant impacts from grading are anticipated and most of the trees are in the direct footprint of the development. There is a small portion of the NRPO that is located within the proposed footprint of the development, there are no trees located within that portion of the NRPO, however. Southwest 12th Ave has an improved right-of-way and there are street trees planted between the road and the sidewalk. The street trees are to be retained and considered protected during the construction process.

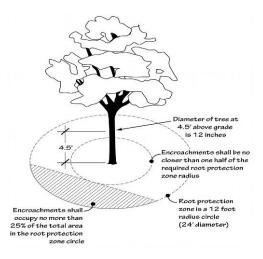
Proposed Removals

The attached site plans in this report (Appendix C) show the proposed site improvements which were added as an overlay to the existing conditions plans. The west side of the property has a significant topography change with an easterly aspect. The west side of the property is treed and given the terrain, most of the trees within the proposed development area will need to be removed. The trees within the proposed development area (orange hatched area on the plans) are proposed to be removed and the inventory in Appendix D shows detailed information regarding the individual trees.

Site Specific Tree Protection

There are 17 trees proposed to be retained not including the street trees. The trees in the northeast corner of the property are not anticipated to be negatively impacted by construction activities and the trees are outside of the development impact area. The trees to the south of the development are in proximity to the disturbance area and care must be taken to minimize impacts to the trees.

It is recommended that retained trees are protected at a distance of 12X the diameter of the trees. This means that ground disturbance should not occur within the root protection zones without the presence of the project arborist. It is typically accepted that 25% of the root structure can be disturbed without significantly impacting the trees, however this may decrease depending on the tree species and health and condition of the trees. The project arborist may require that alternative construction methods are used to increase the likelihood of retention possibility if large roots are encountered. Bridging or gapping the roots are examples viable alternative construction mitigation.



Given the significant topographical differences it is anticipated that grading and retaining wall placement may be needed

within the tree protection zones. If the impacts are observed to be too significant and viable alternative construction is not possible, the project arborist may advise removing additional trees.

The attached existing conditions plan provided has been marked up to scale. The blue circles indicate the tree protection zone at 12X the diameter and the orange circles indicate the tree protection zones at 6X the diameter.

Additional Tree Protection Mitigation in Appendix E

Teragan and Associates, Inc.TM
Arboricultural Consultants
3145 Westview Circle, Lake Oswego, OR 97034
503-697-1975 | info@teragan.com

Conclusion

It is my professional opinion that the tree protection measures set forth in this tree plan will suffice in the protection of the trees during construction. It is important to adhere to the standards in this report to ensure that the retention goals are successful.

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

Sincerely,

Peter van Oss

Peter van Oss | Senior Associate

ISA Certified Arborist PN-8145A

Tree Risk Assessment Qualified

ASCA Member

Enclosures:

Appendix A: Certification of Performance

Appendix B: Assumptions and Limiting Conditions

Appendix C: Site Plan Fencing Placement and Proposed Removals

Appendix D: Inventory

Appendix E: Tree Protection Standards

Appendix F: Vegetation Protection Signage

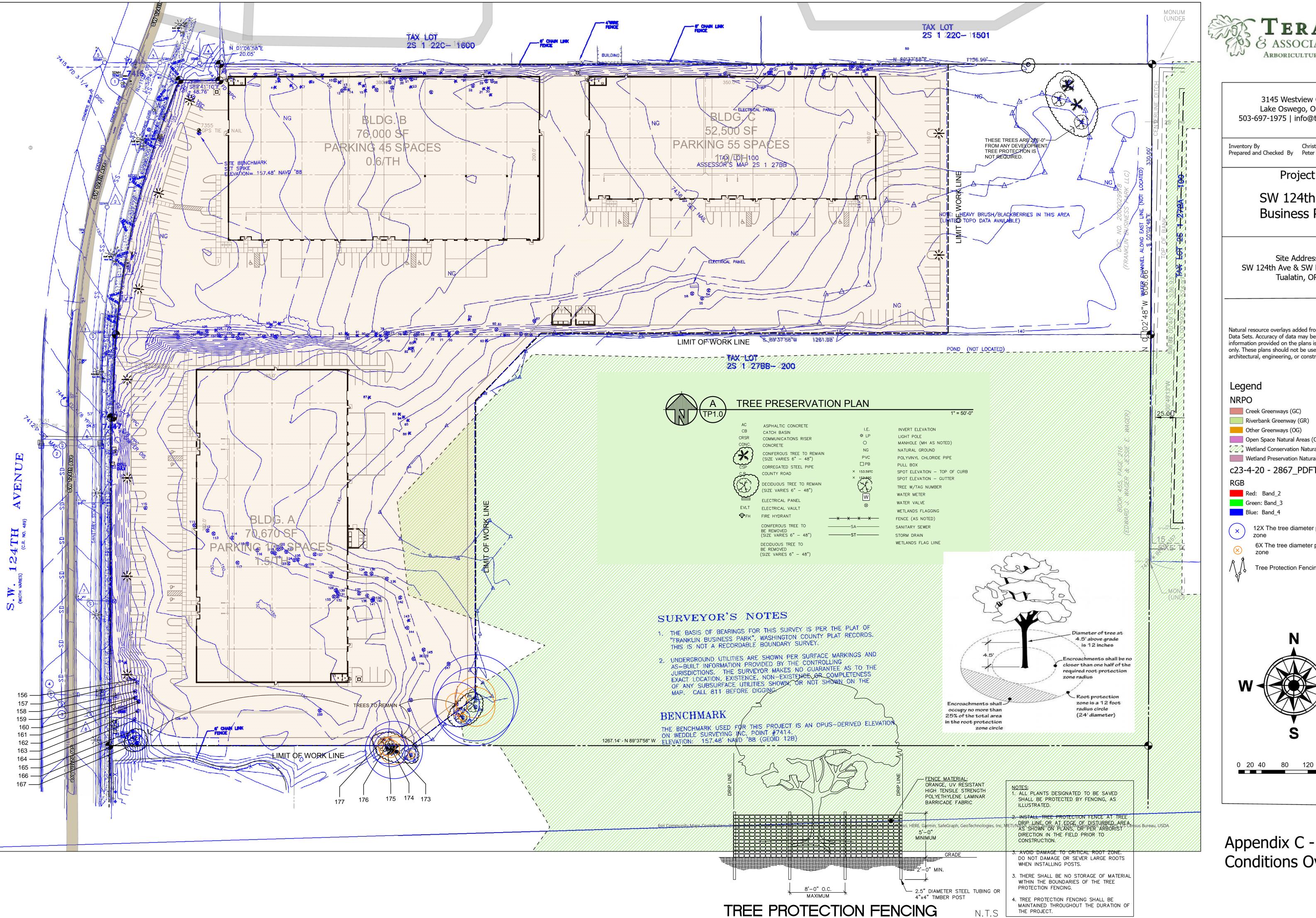
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Appendix A: Certification of Performance

I, Peter van Oss, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation or appraisal is stated in the attached report and the Terms of the Assignment.
- I have no current or prospective interest in the vegetation or the property that is subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions and conclusions stated herein are my own and are based on current professional procedures and facts.
- My analysis, opinions and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated in the report.
- My compensation is not contingent upon reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

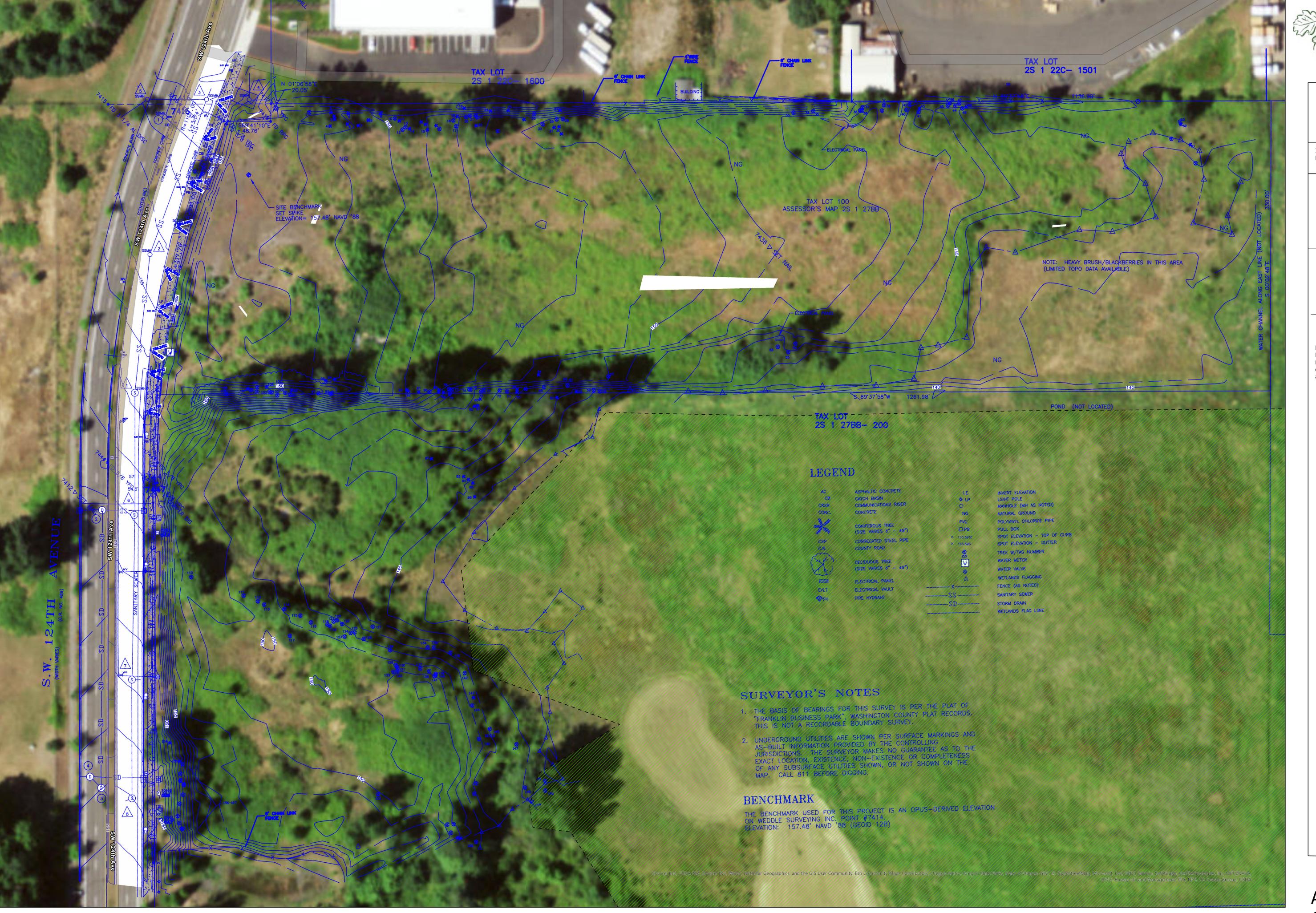
I further certify that I am a member of, and certified as an arborist by the ISA. I have been involved in the arboricultural field in a full-time capacity for a period of 17 years.





3145 Westview Circle Lake Oswego, Oregon 503-697-1975 | info@teragan.com Christine Johnson Prepared and Checked By Peter van Oss Project SW 124th Ave **Business Park** Site Address SW 124th Ave & SW Myslony St Tualatin, OR Natural resource overlays added from ArcGIS Online Data Sets. Accuracy of data may be outdated. The information provided on the plans is for reference only. These plans should not be used for architectural, engineering, or construction purposes. Open Space Natural Areas (OSNA) Wetland Conservation Natural Area (WCNA) Wetland Preservation Natural Area (WPNA) c23-4-20 - 2867_PDFToTIFF.tif 12X The tree diameter protection 6X The tree diameter protection Tree Protection Fencing 0 20 40 80 120 160

Appendix C - Existing Conditions Overlay





3145 Westview Circle Lake Oswego, Oregon 503-697-1975 | info@teragan.com Inventory By Christine Johnson Prepared and Checked By Peter van Oss Project SW 124th Ave **Business Park** Site Address SW 124th Ave & SW Myslony St Tualatin, OR Natural resource overlays added from ArcGIS Online Data Sets. Accuracy of data may be outdated. The information provided on the plans is for reference only. These plans should not be used for architectural, engineering, or construction purposes. Legend NRPO Creek Greenways (GC) Riverbank Greenway (GR) Other Greenways (OG) Open Space Natural Areas (OSNA) Wetland Conservation Natural Area (WCNA)
Wetland Preservation Natural Area (WPNA) c23-4-20 - 2867_PDFToTIFF.tif RGB Red: Band_2
Green: Band_3
Blue: Band_4

Appendix C - Existing Conditions Overlay

0 20 40 80 120 160 Feet



53	Cottonwood	Populus trichocarpa	23	Good	Good		X	Two leaders split at 1' AGL: 16,16.
54			20			v	Λ	Not tagged; heavy ivy and poison oak; broken branches.
	Cottonwood	Populus trichocarpa	35	Good Good	Fair Fair	X		Not tagged; three large leaders: 20,20,20; heavy ivy and poison oak.
55 56	Cottonwood	Populus trichocarpa	13			X		Not tagged; three targe teaders: 20,20,20; neavy tvy and poison oak. Not tagged; poison oak; phototropism to the NW.
57	Cottonwood	Populus trichocarpa	23	Good	Good	X		Not tagged, poison oak, phototropism to the Nw.
	Douglas-fir	Pseudotsuga menziesii		Good	Good	X		
58	Cottonwood	Populus trichocarpa	36 9	Good	Good	X		
59	Bigleaf maple	Acer macrophyllum		Good	Good	X		Discount Product of the Control of t
60	Pacific madrone	Arbutus menziesii	13	Good	Good	X		Diameter at 4'; splits into 2 leaders at 6' AGL; barbed wire embedded.
61	Scouller willow	Salix scoulleriana	Avg. 12	Poor	Poor	X		Seven leaders averaging 12" diameter; deadwood; broken branches.
62	Douglas-fir	Pseudotsuga menziesii	34	Good	Good	X		
63	Douglas-fir	Pseudotsuga menziesii	32	Fair	Fair	X		Storm damage; epicormic growth.
64	Douglas-fir	Pseudotsuga menziesii	11	Fair	Fair	X		Thin, suppressed.
65	Bigleaf maple	Acer macrophyllum	8	Good	Good	X		High crown.
66	Pacific madrone	Arbutus menziesii	14	Good	Good	X		Two leaders split at 3': 12,7.
67	Douglas-fir	Pseudotsuga menziesii	40	Good	Good	X		Inaccessible; not tagged.
68	Oregon white oak	Quercus garryana	8	Good	Good	X		
69	Douglas-fir	Pseudotsuga menziesii	24	Good	Good	X		
70	Douglas-fir	Pseudotsuga menziesii	28	Good	Good	X		
71	Bigleaf maple	Acer macrophyllum	12	Fair	Fair	X		Suppressed.
72	Bigleaf maple	Acer macrophyllum	8	Fair	Fair	X		Suppressed.
73	Bigleaf maple	Acer macrophyllum	10	Good	Good	X		
74	Bigleaf maple	Acer macrophyllum	11	Good	Good	X		
75	Bigleaf maple	Acer macrophyllum	15	Good	Good	X		
76	Bigleaf maple	Acer macrophyllum	10	Good	Good	X		
77	Bigleaf maple	Acer macrophyllum	11	Good	Fair	X		High crown; W side suppressed.
78	Bigleaf maple	Acer macrophyllum	16	Fair	Fair	X		Suppressed; broken limbs.
79	Bigleaf maple	Acer macrophyllum	18	Good	Fair	X		Suppressed on W side.
80	Pacific madrone	Arbutus menziesii	14	Good	Fair	X		Horizontal trunk for approximately 30'; 6" pacific madroneto the E.
81	Douglas-fir	Pseudotsuga menziesii	12	Fair	Good	X		Suppressed.
82	Douglas-fir	Pseudotsuga menziesii	18	Good	Good	X		
83	Douglas-fir	Pseudotsuga menziesii	11	Good	Good	X		
84	Douglas-fir	Pseudotsuga menziesii	9	Good	Fair	X		Suppressed.
85	Douglas-fir	Pseudotsuga menziesii	16	Good	Good	X		- Cappi esseci
86	Douglas-fir	Pseudotsuga menziesii	14	Good	Good	X		
87	Douglas-fir	Pseudotsuga menziesii	14	Good	Good	X		
88	Douglas-fir	Pseudotsuga menziesii	26	Good	Good	X		
89	Douglas-fir	Pseudotsuga menziesii	60	Good	Good	X		Two leaders fused at bottom 3': 40,45.
90	Douglas-fir	Pseudotsuga menziesii	14	Fair	Fair	X		Suppressed, unbalanced canopy.
91	Douglas-fir	Pseudotsuga menziesii	27	Good	Good	X		Poison oak in canopy
92	Douglas-fir	Pseudotsuga menziesii	28	Good	Good	X		Poison oak in canopy.
93	Douglas-fir	Pseudotsuga menziesii	28	Good	Good	X		Poison oak in canopy. Poison oak in canopy; directly next to 92;~50' break between 93 and 94.
93	Douglas-fir	Pseudotsuga menziesii	26	Good	Good	X		1 orson oak in canopy, directly next to 72,700 oreak octween 95 and 94.
95	Bigleaf maple		23	Good	Good	X		Three leaders 20 12 10; and leader has deadwood and a wound on Worlds
95		Acer macrophyllum Pseudotsuga menziesii	14	Good		X		Three leaders: 20,12,10; one leader has deadwood and a wound on W side.
	Douglas-fir	U	8		Good			n: I
97	Scouller willow	Salix scoulleriana		Good	Good	X		Poison oak.
98	Douglas-fir	Pseudotsuga menziesii	32	Good	Good	X		
99	Bigleaf maple	Acer macrophyllum	15	Good	Fair	X		Unbalanced to the S.
100	Bigleaf maple	Acer macrophyllum	20	Good	Good	X		
101	Cottonwood	Populus trichocarpa	14	Good	Good	X		High crown.
102	Scouller willow	Salix scoulleriana	10	Dead	Dead	X		7" willow to the E.
103	Bigleaf maple	Acer macrophyllum	17	Good	Good	X		
104	Douglas-fir	Pseudotsuga menziesii	18	Good	Good	X		
105	Douglas-fir	Pseudotsuga menziesii	8	Good	Good	X		Growing below canopy of 107.



105							1	To 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
106	Scouller willow	Salix scoulleriana	9	Good	Good	X		Growing 1' SE of 107.
107	Douglas-fir	Pseudotsuga menziesii	30	Good	Good	X		
108	Cottonwood	Populus trichocarpa	19	Good	Good	X		
109	Cottonwood	Populus trichocarpa	17	Good	Good	X		
110	Bigleaf maple	Acer macrophyllum	39	Good	Fair	X		Four leaders: 24,19,17,17.
111	Bigleaf maple	Acer macrophyllum	9	Good	Good	X		Two leaders: 7, 6; two 6" bigleaf maples to the SE.
112	Bigleaf maple	Acer macrophyllum	13	Fair	Fair	X		Three leaders: 10,8,6; 6" leader dead.
113	Bigleaf maple	Acer macrophyllum	14	Good	Good	X		Two leaders at 2' AGL; two leaders: 12, 7.
114	Bigleaf maple	Acer macrophyllum				X		
115	Bigleaf maple	Acer macrophyllum				X		
116	Bigleaf maple	Acer macrophyllum	10	Good	Good	X		Two leaders: 7, 7; two 7" trees to N.
117	Cottonwood	Populus trichocarpa	Avg. 8	Good	Good	X		Cluster of cottonwood.
118	Bigleaf maple	Acer macrophyllum	12	Good	Good	X		Three leaders: 8,8,4.
119	Bigleaf maple	Acer macrophyllum	8	Good	Good	X		
120	Bigleaf maple	Acer macrophyllum	14	Good	Good	X		Not tagged, poison oak.
121	Scouller willow	Salix scoulleriana	Avg.4	Dead	Dead	X		
122	Bigleaf maple	Acer macrophyllum	8	Good	Good	X		N of 121.
123	Bigleaf maple	Acer macrophyllum	9	Good	Good	X		Top of mound; two leaders: 7, 5.
124	Bigleaf maple	Acer macrophyllum	11	Good	Good	X		Three leaders: 7, 6, 6.
125	Bigleaf maple	Acer macrophyllum	11	Good	Good	X		Two leaders: 8,7.
126	Bigleaf maple	Acer macrophyllum	15	Good	Fair	X		Five leaders: 9,8,5,5,4; inclusion, bacterial wetwood.
127	Bigleaf maple	Acer macrophyllum	8	Good	Good	X		, , , , , , , , , , , , , , , , , , , ,
128	Cottonwood	Populus trichocarpa	13	Good	Good	X		
129	Cottonwood	Populus trichocarpa	8	Good	Good	X		
130	Cottonwood	Populus trichocarpa	8	Good	Good	X		
131	Cottonwood	Populus trichocarpa	8	Good	Good	X		
132	Cottonwood	Populus trichocarpa	8	Good	Good	X		Two leaders: 7, 4.
133	Cottonwood	Populus trichocarpa	8	Good	Good	X		Two leaders. 7, 4.
134	Sweet cherry	Prunus avium	14	Fair	Fair	X		Thin foliage, missing bark, sapsuckers.
135	Oneseed hawthorn	Crataegus monogyna	12	Good	Fair	X		Multiple leaders; crossing branches.
136	Oneseed hawthorn	Crataegus monogyna Crataegus monogyna	10	Good	Good	X		Two leaders: 7, 7; Not tagged
137	Cottonwood	Populus trichocarpa	26	Good	Good	X		Three leaders: 17, 15, 12.
138	Cottonwood	Populus trichocarpa	11	Good	Good	X		Tinee leaders.17, 13, 12.
139	Cottonwood	Populus trichocarpa	15	Good	Good	X		
140		Populus trichocarpa	8	Good	Good	X		
141	Cottonwood Cottonwood		14	Good	Good	X		
141		Populus trichocarpa	14			X		
142	Cottonwood Douglas-fir	Populus trichocarpa Pseudotsuga menziesii	12	Good	Good	X		
143	Scouller willow	ů		Good	Good			Trushing leadons with any of 9" diameter
144		Salix scoulleriana	Avg. 8	Good	Good	X X		Twelve leaders with avg. of 8" diameter.
	Pacific madrone Scouller willow	Arbutus menziesii		Good	Good			Two leaders: 6, 5.
146		Salix scoulleriana	Avg. 7	Good	Good	X		Seven leaders avg. 7"
147	Bigleaf maple	Acer macrophyllum	8	Good	Good	X	37	W 1 11 11 1 F 1 C 1
148	Oregon ash	Fraxinus latifolia	28	Fair	Fair		X	Wound and dead leader on E side of trunk.
149	Oregon ash	Fraxinus latifolia	Avg. 9	Fair	Fair		X	Deadwood, unbalanced to SE.
150	Cottonwood	Populus trichocarpa	49	Good	Good		X	diameter estimated due to large lateral side leader.
151	Cottonwood	Populus trichocarpa	54	Good	Good		X	diameter estimated, 3 leaders at 3'
152	Oregon ash	Fraxinus latifolia	8	Good	Good	**	X	NW CL L L L L L L L L L L L L L L L L L L
153	Cottonwood	Populus trichocarpa	20	Good	Good	X		NW of homeless camp; two leaders: 14, 14.
154	Cottonwood	Populus trichocarpa	26	Good	Good	X		Four leaders: 17,14,11,7; near road.
155	Douglas-fir	Pseudotsuga menziesii	8	Fair	Fair	X		
156	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X		Diameter at 2' agl, close to DF
157	Pacific madrone	Arbutus menziesii	10	Fair	Fair	X		Estimated diameter, poor access.
158	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X	I	Estimated diameter, poor access.



159	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X		Estimated diameter, poor access.
160	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X		Estimated diameter, poor access.
161	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X		Estimated diameter, poor access.
162	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X		Estimated diameter, poor access.
163	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X		Estimated diameter, poor access.
164	Pacific madrone	Arbutus menziesii	12	Fair	Fair	X		Estimated diameter, poor access.
165	Pacific madrone	Arbutus menziesii	12	Fair	Fair	X		Estimated diameter, poor access.
166	Pacific madrone	Arbutus menziesii	8	Fair	Fair	X		Estimated diameter, poor access.
167	Pacific madrone	Arbutus menziesii	10				X	Estimated diameter, poor access.
168	Red alder	Alnus rubra	9	Good	Good		X	Wound on E side of tree, 10' long, 6" wide, good wound wood response.
169	Red alder	Alnus rubra	9	Good	Good		X	Street tree diameter at 4'.
171	Northern red oak	Quercus rubra	9	Good	Good		X	Street tree; west of black fence
172	Northern red oak	Quercus rubra	10	Good	Good		X	Northern red oaks : 6,6,4,7,6,4,9.
173	Douglas-fir	Pseudotsuga menziesii	36	Good	Good		X	
174	Douglas-fir	Pseudotsuga menziesii	18	Good	Good		X	
175	Oregon ash	Fraxinus latifolia	22	Good	Good		X	
176	Oregon ash	Fraxinus latifolia	16	Poor	Very Poor	X		Large portion of dieback in the crown
177	Oregon ash	Fraxinus latifolia	18	Very Poor	Very Poor	X		Large failed crown
						159	17	

Appendix E: Tree Protection Specifications

It is critical that the following steps be taken to ensure that they are retained and protected.

Before Construction Begins

- 1. **Notify all contractors of the tree protection procedures.** For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection. It can only take one mistake with a misplaced trench or other action to destroy the future of a tree.
 - 1.1. Hold a Tree Protection meeting with all contractors to fully explain the goals of tree protection.
 - 1.2. Have all subcontractors sign memoranda of understanding regarding the goals of tree protection. Memoranda to include penalty for violating tree protection plan. Penalty to equal appraised value of tree(s) within the violated tree protection zone per the current Trunk Formula Method as outlined by the Council of Tree & Landscape Appraisers current edition of the *Guide for Plant Appraisal*.

2. Fencing.

- 2.1. Establish fencing around each tree or grove of trees to be retained as shown on the tree protection site plan.
- 2.2. The fencing is to be put in place before the ground is cleared to protect the trees and the soil around the trees from any disturbance at all. The exception is if trees are to be removed that are located within the tree protection zones, they should be removed prior to installing the tree protection fencing without the use of mechanized wheeled or tracked equipment.
- 2.3. Fencing is to be placed at the edge of the root protection zone as shown on the Tree Protection Plan (Appendix C). Root protection zones are established by the project arborist based on the needs of the site and the tree to be protected.
- 2.4. "Protection fencing consisting of a minimum 4-foot-high metal fencing, secured with metal posts shall be established at the edge of the root protection zone and permissible encroachment area on the development site. Existing structures and/or existing secured fencing at least 3.5 feet tall can serve as the required protective fencing." If construction fencing is used it is recommended that the panels are secured to prevent movement of the fencing during construction.
- 2.5. Fencing is to remain in the position that is established by the project arborist and not to be moved without written permission from the project arborist until the end of the project after the final inspection has been completed.

3. Signage

- 3.1. All tree protection fencing should have signage clearly indicating that the area is a vegetation protection zone (Appendix F).
- 3.2. Signage should be placed so as to be visible from all sides of a tree protection area and spaced every 35 feet.

During Construction

4. Protection guidelines within the Root Protection Zone

- 4.1. No traffic shall be allowed within the root protection zone. No vehicle, heavy equipment, or even repeated foot traffic.
- 4.2. No storage of materials including but not limited to soil, construction material, or waste from the site.
- 4.3. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
- 4.4. Construction trailers are not to be parked / placed within the root protection zone without written clearance from the project arborist.
- 4.5. No vehicles shall be allowed to park within the root protection areas.
- 4.6. No activity shall be allowed that will cause soil compaction within the root protection zone.
- 4.7. The use of straw waddles is strongly recommended instead of silt fencing to avoid the need for trenching within the root protection zones.

5. Landscaping

- 5.1. Landscaping within the tree protection zones at a distance of 12X the diameter of the tree may commence after approval from the project arborist.
- 5.2. Inground irrigation systems must be avoided, and it is recommended that only above ground irrigation systems are used. Temporary systems and/or drip irrigation are preferred.
- 5.3. Any hardscapes within the tree protection zones shall be approved by the project arborist prior to soil disturbance taking place.
- 5.4. Landscape vegetation can be installed inside of the tree protection zones by pocket planting only. It is not recommended that soils are amended unless laboratory testing indicates that soil amelioration is needed.
- 5.5. No more than 4" of fill is allowed within the tree protection zone measured at a distance of 12X the diameter in circumference of the trees. No more than 25% of the tree protection zone may be impacted without the consent of the project arborist.
- 5.6. It is highly recommended that nutrient rich mulch or arborist woodchips are used in the planter areas. The material may be enriched with nitrogen to enhance the nutrient uptake by the soils.
- 6. **Tree protection.** Retained trees shall be protected from any cutting, skinning, or breaking of branches, trunks, or roots.
- 7. **Root pruning.** The roots that are to be cut from existing trees that are to be retained, the project consulting arborist shall be notified to evaluate, document, and oversee the proper cutting of roots with sharp cutting tools. Cut roots are to be immediately covered with soil or mulch to prevent them from drying out.
- 8. **Grade changes**. No grade change should be allowed within the root protection zone.
- 9. **Root protection zone changes.** Any necessary deviation of the root protection zone shall be cleared by the project consulting arborist in writing.
- 10. **Watering**. Provide water to trees during the summer months as needed. Tree(s) that will have had root system(s) cut back will need supplemental water to overcome the loss of ability to absorb necessary moisture during the summer months.
- 11. **Utilities**. Any necessary passage of utilities through the root protection zone shall be by means of tunneling under roots by hand digging or boring.
- 12. **Re-inspection of fencing.** Tree protection fencing is subject to inspection by the city. The project arborist highly recommends monthly inspections of tree protection fencing to ensure compliance with the permit and protection of the trees.

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Arboricultural Consultants
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After Construction

- 13. Fences are to remain standing until the final inspection has been completed by the city for the project.
- 14. Provide for or ensure that adequate drainage will occur around the retained trees.
- 15. Pruning of the existing trees should be completed as one of the last steps of the landscaping process before the final placement of trees, shrubs, ground covers, mulch, or turf.
- 16. Trees that are retained may need to be fertilized as called for by the project arborist if acceptable thresholds are exceeded. Lab analysis may be required.
- 17. The existing trees should be monitored for decline for a period of three years post construction. Proper care should be prescribed if the trees start to show signs of stress.

If there are any questions or concerns regarding the proper protection of the trees during the construction process, contact the project arborist.

VEGETATION/TREE PROTECTION ZONE

DO NOT REMOVE OR ADJUST THIS FENCING. THE FENCE LOCATIONS ARE APPROVED TO PROTECT VEGETATION AND TREES.

Please contact the Code Enforcement Specialist and project arborist, if alterations to the approved location of the protection fencing are needed.



Project Arborist: TERAGAN & ASSOCIATES, INC 503-697-1975



124th Business Park

Transportation Impact Analysis

Tualatin, Oregon

Date:

April 18, 2023

Prepared for:

VLMK Engineering & Design

Prepared by:

Myla Cross

Jennifer Danziger, PE



RENEWS: 12/31/2023

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Executive Summary

- 1. The proposed 124th Business Park is a 199,170-square-foot, industrial development located north of Tualatin Sherwood Road, east of SW 124th Avenue, and south of SW Myslony Street. The project site is located on Tax Lots 2S127BB 00100 & 00200 which encompass approximately 37.3 acres. The property is surrounded by homogeneous land uses, consisting predominantly of industrial warehouses or undeveloped land.
- 2. The 124th Business Park is proposing two driveways on SW 124th Avenue:
 - One corresponds to the location specified in the Tualatin Development Code (TDC). This access is assumed to be limited to right-in/right-out movements only.
 - A second driveway which is not currently listed in the TDC. This access is assumed to be limited to right-in/right-out movements only and is necessary for emergency access.
- 3. The 124th Business Park site is projected to generate 147 trips during the morning peak hour, 129 trips during the evening peak hour, and 970 trips during the average weekday.
- 4. Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections that do not already have planned and funded improvements.
- 5. Left-turn lane warrants were not examined at the site accesses on SW 124th Avenue since they are proposed as right-in/right-out turning movements only.
- 6. Preliminary traffic signal warrants were not examined for the site accesses since they are proposed as right-in/right-out turning movements only.
- 7. Based on the sight distance analysis, the proposed site accesses will meet ISD recommendations and SSD requirements as long as foliage in the landscape strip is maintained at a height of 3 feet or less.
- 8. The north access to SW 124th Avenue will meet the TDC access spacing standards and will be limited to right turns with the median remaining intact.
- 9. Secondary access to the site is not available from either SW Myslony Street or SW Cimino Street; therefore, a south access is recommended. It could be limited to emergency use but allowing site traffic to use the access is expected to have a minimal impact on the transportation system.
- 10. All proposed driveways can accommodate trucks entering and exiting from the north or south.
- 11. All study area intersections are anticipated to operate within the acceptable jurisdiction standards. Therefore, no mitigation for traffic operations is required or recommended. The access configuration options have little effect on study area operations.
- 12. The analysis shows little change in queues between background and buildout conditions. The queues can all be accommodated within the available storage. Therefore, no mitigation for queuing operations is required or recommended.



Project Description

Introduction

The proposed 124th Business Park will include the construction of three industrial buildings, totaling approximately 199,170 square feet, located east of SW 124th Avenue, north of SW Tualatin Sherwood Road, and south of SW Myslony Street.

The 124th Business Park is proposing two driveways on SW 124th Avenue:

- One would utilize an existing curb cut located on SW 124th Avenue, which corresponds to the location specified in the Tualatin Development Code (TDC). The access is assumed to be limited to right-in/right-out movements only.
- The proposed development seeks to construct a second driveway which is not currently listed in the TDC. This access is assumed to be limited to right-in/right-out movements only.

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the proposed development and to determine any mitigation that may be necessary to do so.

Based on prior scoping coordination with the City of Tualatin and Washington County, the report includes safety and capacity analyses at six intersections:

- 1. SW Cipole Road & SW Herman Road
- 2. SW Tualatin-Sherwood Road & SW Cipole Road
- 3. SW 124th Avenue & SW Herman Road
- 4. SW 124th Avenue & SW Myslony Street
- 5. SW 124th Avenue & SW Tualatin-Sherwood Road
- 6. SW 124th Avenue & Site Access

Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations are included in the appendix to this report.

Location Description

The proposed 124th Business Park is located east of SW 124th Avenue, north of SW Tualatin-Sherwood Road, and south of SW Myslony Street, on Tax Lots 2S127BB 00100, and 00200, shown in red in Figure 1. The property is surrounded by homogenous land uses consisting of predominantly industrial warehouses or undeveloped land.





Figure 1: Project Location (Map © Google Earth)

The proposed development will include the construction of three industrial buildings, totaling approximately 199,170 square feet, as shown in the site plan in Appendix A. The limits of the work proposed are shown in yellow in Figure 1 and a property line adjustment is shown in blue. The developed area will not abut SW Cimino Street and will not extend to the eastern property line.

Vicinity Streets

The characteristics of roadways expected to be impacted by the proposed development are summarized in Table 1.



Table 1: Roadway Characteristics

Street Name	Jurisdiction	Functional Classification	Travel Lanes	Posted Speed	Curbs & Sidewalks	On-Street Parking	Bicycle Facilities
SW Tualatin- Sherwood Road	Washington County	Major Arterial	3-4*	45 mph	Partial Both Sides	Prohibited	Bike Lanes
SW Cipole Road	Washington County	Major Collector	2	45 mph	Partial Both Sides	Prohibited	None
SW 124 th Avenue	City of Tualatin (adjacent to site)	Major Arterial	4-5	45 mph	Partial Both Sides	Prohibited	Bike Lanes
SW Myslony Street	City of Tualatin	Major Collector	2-3	Not Posted	Partial Both Sides	Partially Permitted	Partial Bike Lanes
SW Herman Road	City of Tualatin	Minor Arterial	2-3	45 mph	North Side	Prohibited	Bike Lanes

^{*} The Tualatin-Sherwood Road expansion project is a Washington County Capital Improvement Program (CIP) Project that intends to expand the roadway to five lanes, improve bicycle and pedestrian facilities, improve storm drainage, and install street lighting.

Study Intersections

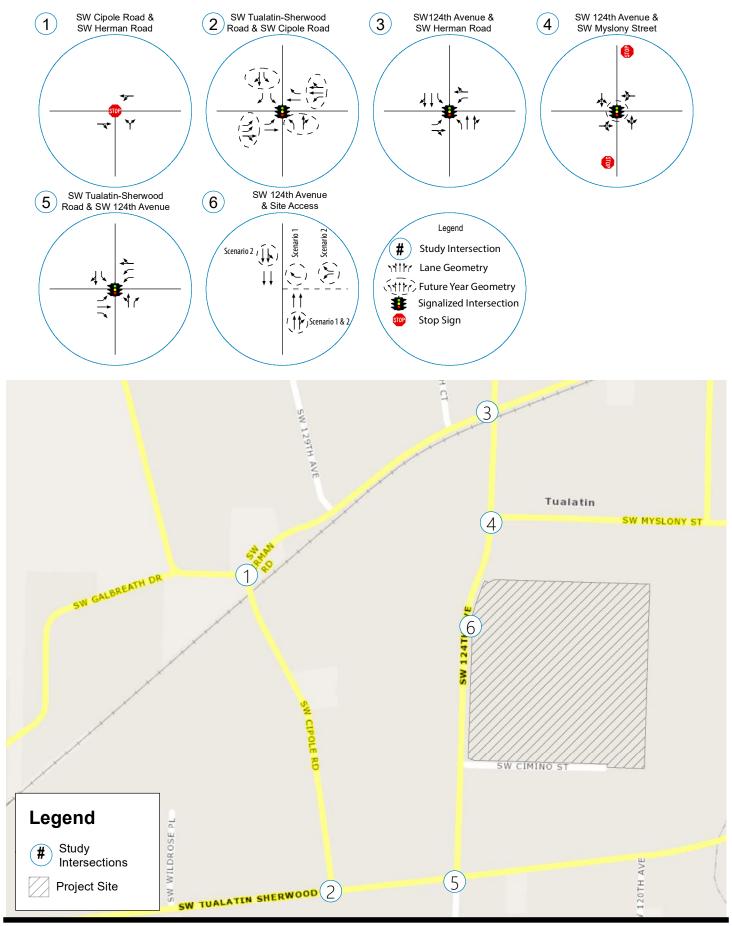
Through coordination with the City of Tualatin and Washington County, 6 study intersections were identified for evaluation. The existing characteristics of these intersections are summarized in Table 2. A vicinity map showing the project site, vicinity streets, and study intersection configurations is shown in Figure 2.

Table 2: Vicinity Intersection Descriptions

	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
1	SW Cipole Road & SW Herman Road	Four Legs	Stop Controlled	All-Way Stop Signs
2	SW Tualatin-Sherwood Road & SW Cipole Road	Three Legs	Signal	EB Protected/Permitted SB Permitted*
3	SW 124th Avenue & SW Herman Road	Four Legs	Signalized	All Protected/Permitted Left
4	SW 124th Avenue & SW Myslony Street	Four Legs	Stop Controlled	EB/WB Stop-Controlled
5	SW 124th Avenue & SW Tualatin-Sherwood Road	Four Legs	Signal	All Protected/Permitted Left EB/WB/SB Right-Turn Overlap
6	SW 124th Avenue & Site Access	Three Legs	Stop Controlled	WB Stop-Controlled ¹

 $^{^{\}star}$ The westbound leg will be constructed by the project and will be stop controlled.







Public Transit

The project is located near one transit line that has stops within an approximate one-half mile walking/biking distance of the southern part of the site.

Route 97 – Tualatin-Sherwood Road provides weekday rush-hour service between W Langer Dr/Sherwood Plaza and the Tualatin WES Station. The nearest bus stops to the site are located near the intersection of SW Cipole Road and SW Tualatin-Sherwood Road. Weekday service is scheduled with four westbound and three eastbound trips in the morning at approximately 60-minute headways. Afternoon service is scheduled with four eastbound and three westbound trips at approximately 60-minute headways. There is currently no weekend or holiday service.



Site Trips

Trip Generation

To estimate trips that will be generated by the development, trip rates from the *Trip Generation Manual*¹ were used. Specifically, data from the land use code 110, *General Light Industrial*, was used based on the square footage of the development. The 124th Business Park proposes to develop the site with three industrial buildings enclosing a total of 199,170 SF of gross floor area.

The trip generation calculations show that the 124th Business Park site is projected to generate 147 trips during the morning peak hour, 129 trips during the evening peak hour, and 970 trips during the average weekday. Table 3 summarizes the estimated net trip generation of the site with the land use assumptions discussed above.

Table 3: Trip Generation Summary

ITE ITE		E Sizo		AM Peak Hour			PM Peak Hour		
Land Use	Code	Size	ln	Out	Total	In	Out	Total	Total
General Light Industrial (All Vehicles)	110	199,170 SF	129	18	147	18	111	129	970
General Light Industrial (Trucks)	110	199,170 SF	1	1	2	1	1	2	50

Trip Distribution and Assignment

The directional distribution of site trips to/from the project site is necessary to identify intersections to be included in the study area of the TIA. The following trip distribution was estimated based on the locations of likely trip destinations and locations of major transportation facilities in the site vicinity:

- Approximately 30 percent of site trips will travel to/from the south along SW 124th Avenue
- Approximately 20 percent of site trips will travel to/from the west along SW Tualatin-Sherwood Road
- Approximately 30 percent of site trips will travel to/from the east along SW Tualatin-Sherwood Road
- Approximately 20 percent of site trips will travel to/from the north along SW 124th Avenue

To address the right-in/right-out access on SW 124th Avenue, some of the traffic will not be able to travel along the most direct route to the site. Inbound traffic from the north will need to travel southward to SW Tualatin-Sherwood Road by another route and then turn northward on SW 124th Avenue. Outbound traffic destined for locations south, west, or east of the site will need to travel northward on SW 124th Avenue and then travel southward to SW Tualatin-Sherwood Road by an alternate route.

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2022.

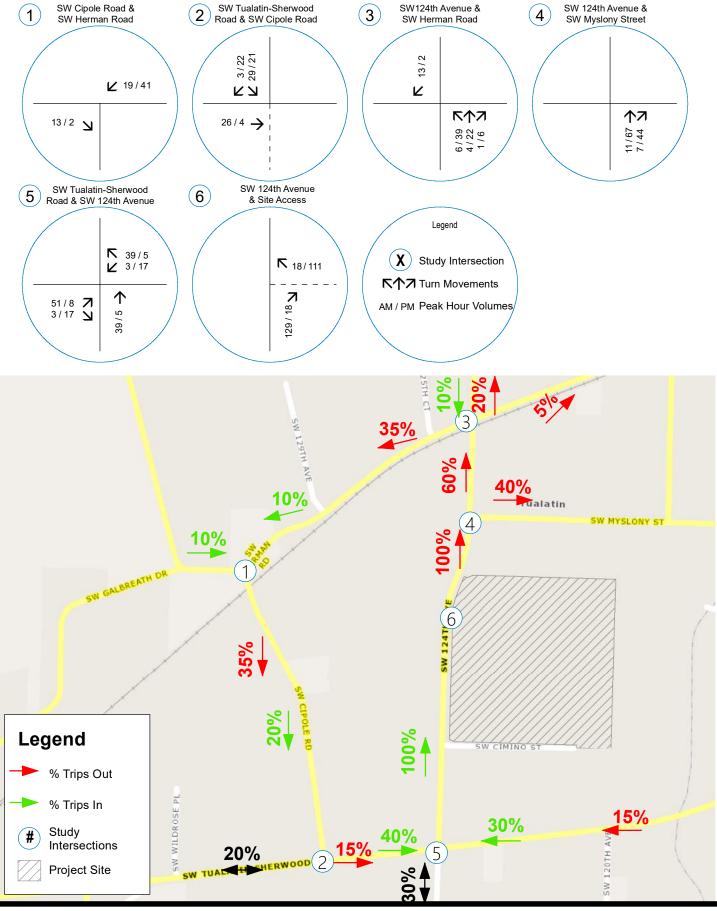


The following indirect routes are assumed:

- Approximately half, 10 percent, of the inbound traffic from the north is assumed to use to SW Cipole Road from OR 99E instead of SW 124th Avenue.
- The remaining 10 percent from the north is assumed to travel along SW 124th Avenue to SW Herman Road to SW Cipole Road.
- Approximately 40 percent of the outbound traffic is assumed to travel northward along SW 124th Avenue, turn right onto SW Myslony Street, and travel to SW Tualatin-Sherwood Road.
- Approximately 5 percent of the outbound traffic is assumed to travel northward on SW 124th Avenue and turn east on SW Herman Road to access SW Tualatin-Sherwood Road via SW Teton Avenue or other connecting roadways.
- Approximately 35 percent of the outbound traffic is assumed to travel northward on SW 124th Avenue and turn west on SW Herman Road and turn south on SW Cipole Road to SW Tualatin-Sherwood Road.

The resulting trip assignment is shown in Figure 3.







Traffic Volumes
Trip Distribution &
Assignment



Figure 3 124th Business Park TIA 7/25/2022

Traffic Volumes

Existing Conditions

The ongoing pandemic reduced traffic demand on most roadways due to policies on social distancing that have closed or limited business operations and reduced commuting as many people work from home. Restrictions have been lifted and schools are open, and many roadways are nearing "normal" traffic conditions.

New turning movement counts were collected at the study intersections on May 24, 2022. Based on conversations with city staff, the following methodology was used to find resulting 2022 existing traffic volumes. New turning movements counts were compared to historical counts at all study intersections. Each turning movement was compared with new counts and historical counts, and the maximum was used to develop the 2022 existing traffic volumes.

Figure 4 displays the Year 2022 existing condition traffic volumes. The new turning movement counts are included in Appendix B.

Background Year 2025 Conditions

To provide an analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. Two components were included in the background traffic estimates: 1) general growth and 2) growth associated with planned developments. An analysis year of 2025 was evaluated to correspond with completion of the improvements along SW Tualatin-Sherwood Road.

For the background growth, an annual growth rate of 1.0 percent per year was applied to the adjusted year 2022 existing traffic volumes. This growth rate is generally consistent with historical growth rates on study area roadways.

In addition to the background growth, two nearby projects are currently under construction that are planned to be fully operational at the time of project buildout. These include:

- PGE Integrated Operations Center this project is located on the southeast corner of SW Tualatin-Sherwood Road & SW 124th Avenue and is planned to be fully operational by 2022.
- T-S Corporate Park this project is located on the southwest corner of SW Tualatin-Sherwood Road & SW 124th Avenue and is planned to be fully operational by the end of 2022.
- Tualatin Logistics Business Park this project is located on the northwest corner of SW Tualatin-Sherwood Road & SW 124th Avenue and is planned to be fully operational by the end of 2023.
- Tualatin Industrial Park this project is located north of SW Tualatin-Sherwood Road and east of SW 112th Avenue, at 11045 SW Tualatin-Sherwood Road. The industrial park is built and is currently looking for potential clients, it will be considered fully operational under background conditions.
- Avery I & II this project is located north of SW Avery Street, and west of SW Teton Avenue, and is
 planned to be fully operational by the end of 2023.



• Walgraeve Industrial Park (Hedges Creek) – this project is located on the northeast corner of SW Myslony Street & SW 112th Avenue and is planned to be fully operational by 2024.

Therefore, trip assignments associated with all nearby developments were included in the background year condition. Detailed project information can be found in the appendix to this document.

Figure 5 displays the Year 2025 background volumes which include the general growth and growth from planned developments.

Tualatin-Sherwood Road (Langer Farms Parkway to Teton Avenue)

The Tualatin-Sherwood Road expansion project is a Washington County Capital Improvement Program (CIP) Project intends to expand the roadway to five lanes, improve bicycle and pedestrian facilities, improve storm drainage, and install street lighting. This project is currently applying for permits and starting the right-of-way acquisition process. Construction is planned to break ground in late Summer 2022, with a target completion of the in the fall of 2025. Thus, this project was assumed as part of the Background conditions.

Note, traffic forecasts were not available for the opening year of this project, so the background volumes shown in Figure 5 do not reflect any shifts in traffic due to latent demand that may occur with increased capacity on SW Tualatin-Sherwood Road.

Traffic Signal at SW 124th Avenue & SW Myslony Street

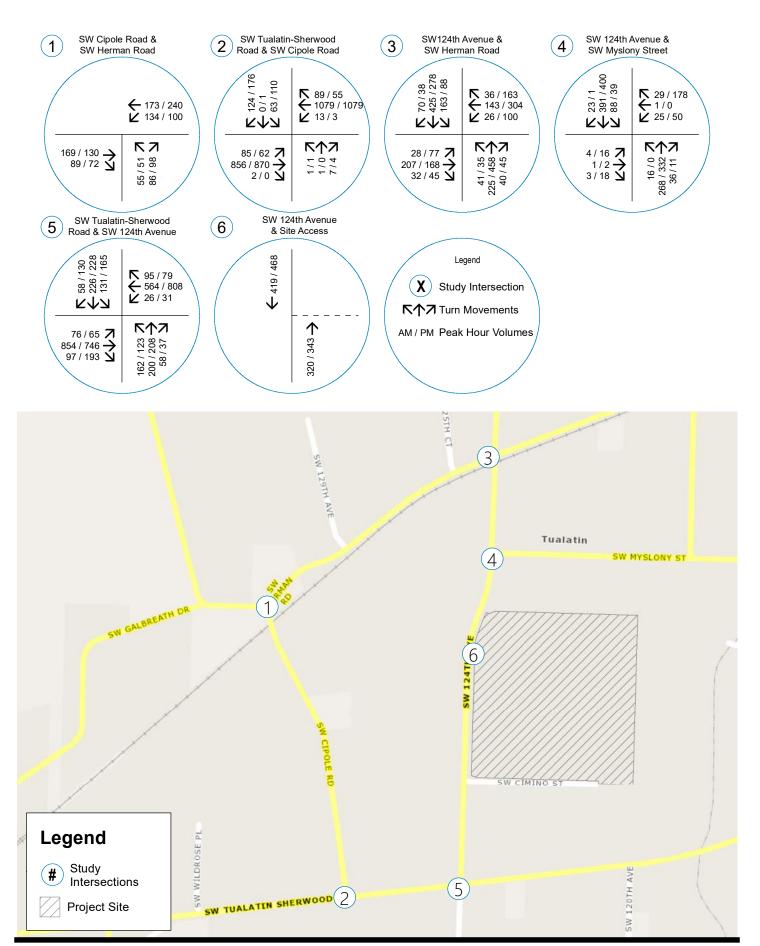
The Walgraeve Industrial Park (Hedges Creek) was approved in June 2022 with a condition requiring construction of a traffic signal at the intersection of SW 124th Avenue & SW Myslony Street. The signal is assumed to be in place by the year 2025.

Buildout Year 2025 Conditions

Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the Year 2025 background volumes to obtain the expected Year 2025 buildout conditions. Year 2025 buildout volumes which include the additional site trips projected to be generated by the proposed development are shown in Figure 6A for Access Scenario 1 and Figure 6B for Access Scenario 2.

Note, as a worst-case condition, all site traffic was assumed to use the north access.

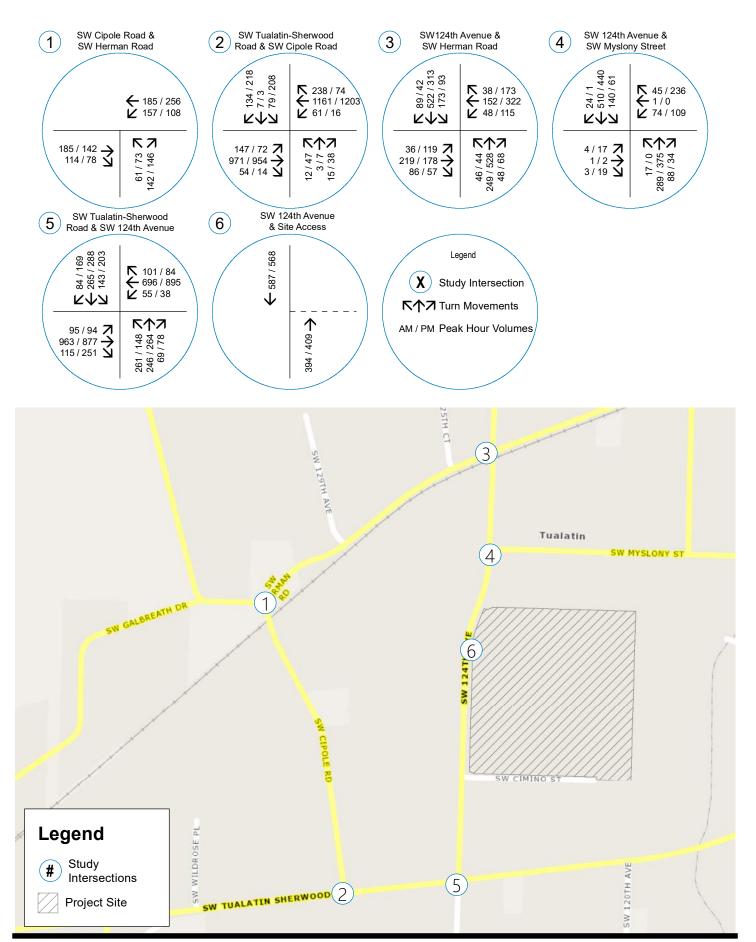






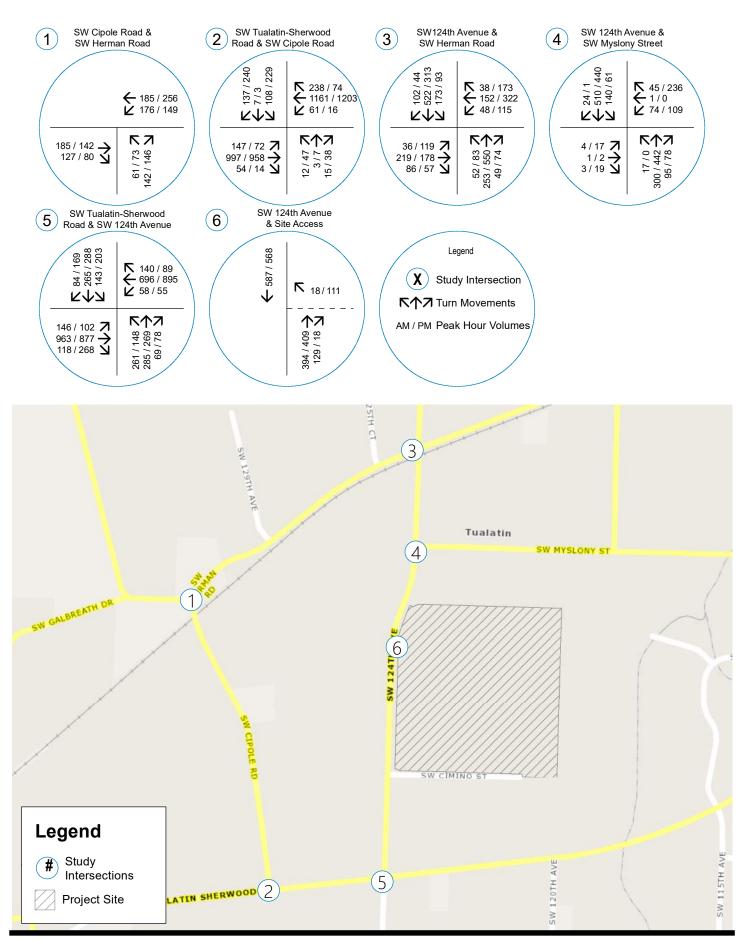
















Safety Analysis

Crash History Review

Using data obtained from ODOT's Crash Data System, a review of approximately five years of the most recent available crash history (January 2016 through December 2020) was performed at the study intersections. The crash data was evaluated based on the number of crashes, the type of collisions, and the severity of the collisions. Crash severity is based on injuries sustained by people involved in the crash, and includes five categories:

- Property Damage Only (PDO)
- Possible Injury (Injury C)
- Non-Incapacitating Injury (Injury B)
- Incapacitating Injury (Injury A)
- Fatality or Fatal Injury

Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak period represents approximately 10 percent of the average daily traffic (ADT) at the intersection.

Table 4 provides a summary of crash types while Table 5 summarizes crash severities and rates for each of the study intersections. Detailed ODOT crash reports are included in the technical appendix to this report.

Pedestrian and Bicycle Collisions

No collisions with a pedestrian or bicyclist were reported during the five-year analysis period.

Crash Severity

None of the intersection crashes reported in the five-year analysis period resulted in a fatality but two of the crashes resulted in an incapacitating injury (Type A):

- A turning collision between a northbound left-turning vehicle on 124th Avenue and a westbound vehicle on SW Tualatin-Sherwood Road resulted in a Type A injury to the driver who did not have the right-ofway and a Type B injury to the driver of the vehicle that was struck.
- An angle collision between a northbound vehicle on SW 124th Avenue and a westbound vehicle on SW Herman Road resulted in a Type A injury to the driver who disregarded the signal and two Type B injuries in the vehicle that was struck.



Table 4: Crash Type Summary

			Crash Type						
	Intersection	Rear End	Turning/ Angle	Fixed Object	Side- swipe	Head- on	Bike/ Ped	Other	Total Crashes
1	SW Cipole Road & SW Herman Road	0	0	0	0	1	0	0	1
2	SW Tualatin-Sherwood Road & SW Cipole Road	21	0	0	0	0	0	0	21
3	SW 124th Avenue & SW Herman Road	5	7	0	0	0	0	1	13
4	SW 124th Avenue & SW Myslony Street	0	2	2	1	0	0	0	5
5	SW 124th Avenue & SW Tualatin-Sherwood Road	87	9	2	1	0	0	1	100

Table 5: Crash Severity and Rate Summary

	Intersection		Crash Severity			Total	PHV	Crash	90 th %	
			С	В	Α	Fatal	Crashes	РПУ	Rate	Rate
1	SW Cipole Road & SW Herman Road	0	0	1	0	0	1	693	0.079	0.408
2	SW Tualatin-Sherwood Road & SW Cipole Road	6	13	2	0	0	21	2,361	0.487	0.509
3	SW 124th Avenue & SW Herman Road	8	4	0	1	0	13	1,799	0.396	0.860
4	SW 124th Avenue & SW Myslony Street	2	2	1	0	0	5	1,047	0.261	0.408
5	SW 124th Avenue & SW Tualatin-Sherwood Road	43	48	8	1	0	100	2,813	1.947	0.860

ODOT 90th Percentile Crash Rates

Intersection crash rates were compared to the published statewide 90th percentile crash rates within ODOT's Analysis Procedures Manual (APM). According to Exhibit 4-1: Intersection Crash Rates per MEV by Land Type and Traffic Control in the APM, intersections which experience crash rates in excess of 90th percentile crash rates should be "flagged for further analysis".

One intersection along SW Tualatin-Sherwood Road was identified as having a crash rate that exceeds the ODOT 90th percentile threshold. Historically, this corridor has experienced significant queuing that begins at the intersection with OR Highway 99W in Sherwood and often extends into Tualatin. Many of the rear-end collisions in the corridor occurred hundreds of feet from the associated intersection.



Washington County has two planned improvements along SW Tualatin-Sherwood Road that will help to relieve the congestion and should consequently reduce the crash rates in this corridor:

- The first is the project at SW Tualatin-Sherwood Road and Highway 99W in Sherwood. This project will add significant capacity to the highway intersection and widen SW Tualatin-Sherwood Road to SW Olds Place. Construction began in September 2022 and is expected to be completed in the spring of 2025.
- The second is the project on SW Tualatin-Sherwood Road from Langer Farms Parkway to Teton Avenue. This project will widen SW Tualatin-Sherwood Road to provide two through travel lanes in each direction and will add turn lanes to some intersections.

Reducing congestion will have a particularly strong influence on reducing rear-end type collisions, which accounted for nearly 85% of the crashes in the corridor. Therefore, no additional mitigation is recommended.

Washington County SPIS List

Two of the study area intersections is listed in the Washington County SPIS List:

- 1. SW Tualatin-Sherwood Road & SW Cipole Road
- 2. SW Tualatin-Sherwood Road & SW 124th Avenue

These listings are consistent with the crash rate findings and should be similarly improved with the Washington County planned and funded improvements in the corridor.

Conclusion

Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections that do not already have planned and funded improvements.

Warrant Analysis

Turn lane warrants and preliminary traffic signal warrants were examined for the study intersections where such treatments would be applicable.

Left-Turn Lane Warrants

Left-turn lane warrants were not examined at the site accesses on SW 124th Avenue since they are proposed as right-in/right-out turning movements only.

Preliminary Traffic Signal Warrants

Preliminary traffic signal warrants were not examined for the site accesses since they are proposed as right-in/right-out turning movements only.

Sight Distance

A sight distance analysis was performed for the planned project driveways. Both intersection sight distance (ISD) and stopping sight distance (SSD) are assessed. The ISD is an operational measure, intended to provide sufficient line of sight along the major street so that a driver could turn from the minor street without impeding traffic flow. The SSD is the minimum requirement to ensure safe operation of the roadway. Stopping sight distance allows an oncoming driver to see a hazard in the roadway, react, and come to a complete stop if



necessary to avoid a collision. As long as the available intersection sight distance is at least equal to the minimum required stopping sight distance for the design speed of the roadway, adequate sight distance is available for safe operation of the intersection.

Intersection Sight Distance

For SW 124th Avenue, sight distance is measured and evaluated in accordance with standards established in *A Policy on Geometric Design of Highway and Streets*². For intersection sight distance, the driver's eye is assumed to be 14.5 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the minor-street approach pavement. The oncoming vehicle driver's eye height along the major-street approach is assumed to be 3.5 feet above the cross-street pavement. A speed study on SW 124th Avenue south of SW Myslony Street measured the northbound 85th percentile speed at 52 mph and the southbound 85th percentile speed at 48 mph. The study is included in Appendix B.

Stopping Sight Distance

Stopping sight distance (SSD) is considered the minimum requirement to ensure safe operation of the driveway access. This distance allows the driver of a vehicle traveling on the major street to react to a turning vehicle or other object in the roadway and come to a complete stop to avoid a collision. To ensure safe operation of a driveway, the available sight distance must at least equal the minimum required stopping sight distance. SSD is the same for both passenger vehicles and trucks.

Available Sight Distance

Table 6 compares the available sight distance measured in the field with the calculated recommendations and requirements for the traffic movements at the site driveways.

North Access to SW 124th Avenue

The site access to SW 124th Avenue will be limited to right-turn movements. Sight lines to the south should meet the ISD recommendations and SSD requirements if foliage in the landscape strip is maintained at a height of 3 feet or less. Sight lines to the north are not necessary.

South Access to SW 124th Avenue

The south site access to SW 124th Avenue would be limited to right-turn movements. Sight lines to the south meet the ISD recommendations and SSD requirements if foliage in the landscape strip is maintained at a height of 3 feet or less. Sight lines to the north are not necessary.

Table 6: Sight Distance Comparison

Access	Recommended ISD	Required SSD	Available Sight Distance
North Access (Looking to South)	500 ft	455 ft	>1,000 ft
South Access (Looking to South	500 ft	455 ft	>1,000 ft

² American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 7th Edition, 2018.



Conclusion

Based on the sight distance analysis, the proposed site accesses will meet ISD recommendations and SSD requirements as long as foliage in the landscape strip is maintained at a height of 3 feet or less.

Access Spacing

The site accesses on SW 124th Avenue fall under the City of Tualatin access spacing standards. The following access standards for the City of Tualatin are found in TDC Chapter 75.140 Section 6c:

(6) 124TH AVENUE.

- (c) Herman Road to Tualatin-Sherwood Road. On the east side of 124th Avenue between Herman Road and Tualatin-Sherwood Road the area will be served by the following streets or driveways:
 - (i) A street intersection at Myslony Street.
 - (ii) A street or driveway intersection approximately 800 feet south of the Myslony Street/124th Avenue intersection extending east with an alternative to extend north to connect with Myslony Street a minimum of 150 feet east of 124th Avenue. Access may be limited to right in/right out as determined by the City Manager.
 - (iii) Cimino Street extending east and south to an intersection at Tualatin-Sherwood Road across from 120th Avenue. The exact location and configuration of the streets and driveways shall be determined by the City Manager.

The 124th Business Park is proposing two driveways on SW 124th Avenue, as shown in the attached site plan (Appendix A). In general, all passenger vehicles and the trucks for Buildings B and C are anticipated to use the north access. Most trucks departing from Building A are also anticipated to use the north access. The south will primarily serve as access for trucks arriving at Building A and as an emergency access for the rest of the development.

The advantages and disadvantages of each access location are presented below.

North Access to SW 124th Avenue

The north access would utilize the existing curb cut located on SW 124th Avenue, which corresponds to the location specified in the Tualatin Development Code (TDC). Access would be limited to right-in/right-out movements only.

Advantages of this access location and configuration include:

- The access location corresponds with the TDC description for access between SW Myslony Street and SW Cimino Street
- With the access limited to right turns, the center median on SW 124th Avenue would remain intact.
- The potential for collision is typically lower with limited access driveways because there are fewer conflict points.

Disadvantages of this access location and configuration include:



- By limiting the access to right-turn movements, some traffic will need to take more circuitous routes to/from the site.
- Traffic volumes on SW Herman Road, SW Myslony Street, SW 112th Avenue, and SW Cipole Road will be higher as drivers use these roadways for alternative routes.
- Vehicle miles of travel for site employees and trucks will likely be higher as travel routes for some movements will be longer.

South Access to SW 124th Avenue

The south access would be located approximately 450 feet south of the north access and approximately 550 feet north of SW Cimino Street. The access is not currently identified in the TDC. This access is proposed to be limited to right-in/right-out movements only.

Advantages of this access location and configuration include:

- The south access is proposed as secondary access to the site with very low usage anticipated.
- The south access will serve as an emergency access for the rest of the development. The TDC notes a possible access extending to the north to connect with Myslony Street; however. No right-of-way is available through properties developed to the north of the project, therefore, no options to connect to Myslony Street are available. To the south of the project site, topographical features, such as wetlands and a stream, hinder the ability for a site access to intersect with Cimino Street.

Disadvantages of this access location and configuration include:

- The NE Access to SW 124th Avenue does not meet the TDC 75.140 specifications. It would be a new driveway approach and would need to follow the procedures and criteria in TDC 75.020.
- Another access on SW 124th Avenue could increase the potential for collisions although the total volume on the roadway would not change.

Conclusion

The north access to SW 124th Avenue will meet the TDC access spacing standards and will be limited to right turns with the median remaining intact.

Secondary access to the site is not available from either SW Myslony Street or SW Cimino Street; therefore, a south access is recommended. It could be limited to emergency use but allowing site traffic to use the access is expected to have a minimal impact on the transportation system.

Truck Access

Truck turning templates for the site driveways are included in drawing *G1.0 Site Plan* of the application packet. All driveways can accommodate trucks entering and exiting from the north or south.



Operational Analysis

Methodology

An operational analysis was conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)³. Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates very little, or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection. The analysis was performed using the Synchro software which applies the HCM6 methodologies.

Performance Standards

The following agency performance standards are applicable in the study area:

- The **City of Tualatin** requires intersections to operate at a minimum D and E for signalized and unsignalized intersections, respectively.
- Washington County requires intersections to operate with a v/c ratio of 0.99 or less.

Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 7 for the morning and evening peak hours. Traffic signal timing along SW Tualatin-Sherwood Road was optimized and coordinated for the new lane configuration. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

Although two site accesses are proposed, the analysis presented in Table 7 conservatively evaluates a single site access to demonstrate that a single access can accommodate all site traffic, if necessary. A second site access to the south would reduce delays for the north access but would not change and of the off-site intersection results. The delay at second access would be minimal since volumes would be low and all movements would be right turns.

As shown in Table 7, all study area intersections are anticipated to meet jurisdictional standards for the buildout condition. Therefore, no mitigation for traffic operations is required or recommended.

³ Transportation Research Board, Highway Capacity Manual 6th Edition, 2016.



Transportation Impact Analysis

Table 7: Capacity Analysis Summary

i os	Performance	A	AM Peak Hour			PM Peak Hour		
Intersection & Scenario	Standard	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	
	1. S\	N Cipole R	oad & SW He	erman Road	l			
2022 Existing		В	14	0.60	В	12	0.55	
2025 Background	LOS E	С	19	0.73	В	14	0.63	
2025 Buildout		С	21	0.78	С	16	0.70	
	2. SW Tua	alatin-Sherv	vood Road 8	k SW Cipole	Road			
2022 Existing		В	11	0.84	В	13	0.82	
2025 Background	0.99	В	11	0.73	В	15	0.69	
2025 Buildout		В	12	0.76	В	16	0.70	
	3. SV	V 124th Ave	enue & SW H	lerman Roa	d			
2022 Existing		В	15	0.49	В	18	0.70	
2025 Background	LOS D	В	16	0.57	С	20	0.76	
2025 Buildout		В	16	0.59	С	21	0.77	
	4. SW	124th Ave	nue & SW M	yslony Stree	et ¹			
2022 Existing		С	20	0.22	С	22	0.57	
2025 Background	LOS D	В	11	0.52	В	16	0.66	
2025 Buildout		В	11	0.52	В	18	0.70	
	5. SW Tual	latin-Sherw	ood Road &	SW 124th A	venue			
2022 Existing		С	34	0.89	С	25	0.74	
2025 Background	0.99	С	25	0.70	С	27	0.59	
2025 Buildout		С	28	0.71	С	27	0.60	
	6.	SW 124th	Avenue & Si	te Access				
2025 Buildout	LOS E	В	11	0.03	В	11	0.19	

Notes:

Locations that do not meet standards are BOLDED.

¹SW 124th Avenue & SW Myslony Street is assumed to be signalized under background conditions, per a condition of approval for the Walgraeve Industrial development.



Queuing Analysis

An analysis of queuing was conducted for key study intersections. The analysis was conducted using the Synchro/SimTraffic software, with the reported values representing 95th percentile queue lengths. The 95th percentile queue is a statistical measurement which indicates there is a 5 percent chance that the queue may exceed this length during the analysis period; however, given this is a probability, the 95th percentile queue length may not be frequently observed in the field. Note, this analysis does not account for upstream congestion outside of the study area.

The effective storage for the turning lanes was obtained from the Washington County plans for the SW Tualatin-Sherwood Road improvements from SW Langer Farms Parkway to SW Teton Avenue, the site plan, or from Google Earth. Where dual left-turn lanes are planned, the storage for each lane is estimated.

The resulting 95th percentile queue estimates are summarized in Table 8.

Table 8: Queuing Analysis Summary

rable 6. Queung 7		AM/PM Peak Hour - 95	ith Percentile Queue (ft)
Movement	Effective Storage (ft)	2025 Background	2025 Buildout
	1. SW Cipole	Road & SW Herman Road	
EB	340	150/75	150/75
WB	325	150/150	150/150
NB	425	100/100	100/75
	2. SW Tualatin-Sh	erwood Road & SW Cipole	Road
EB L	615	150/75	175/100
WB L	285	225/75	175/100
NB L	150	50/100	50/100
SB L	300	150/250	200/275
	3. SW 124th A	Avenue & SW Herman Road	k
EB L	235	50/150	50/125
WB L	265	75/225	75/250
NB L	360	75/75	75/125
SB L	315	100/75	100/100
	4. SW 124th A	venue & SW Myslony Stree	et
EB LTR	85	50/50	50/50
WB LTR	275	125/250	150/250
NB L	240	50/<25	50/<25
SB L	280	150/100	150/100



Table 8: Queuing Analysis Summary

Marrana	Movement Effective Storage (ft)		th Percentile Queue (ft)				
iviovement	Effective Storage (It)	2025 Background	2025 Buildout				
	5. SW Tualatin-Sherwood Road & SW 124th Avenue						
EB L1	275	75/75	100/75				
EB L2	350	175/75	150/125				
EB R	350	75/75	75/100				
WB L1	380	50/25	50/50				
WB L2	470 100/50		100/100				
WB R	380	75/50	100/50				
NB L1	300	225/100	200/125				
NB L2	300	250/150	250/175				
SB L1	200	125/125	125/125				
SB L2	240	225/175	225/200				
SB R	250	75/100	75/125				
	6. SW 124	th Avenue & Site Access					
WBR	100	-/-	50/75				

The analysis shows little change in queues between background and buildout conditions. The queues can all be accommodated within the available storage. Therefore, no mitigation for queuing operations is required or recommended.



Conclusions

Key findings of this study include:

- Based on a review of the most recent five years of available crash data, no significant trends or crash
 patterns were identified at any of the study intersections that do not already have planned and funded
 improvements.
- Left-turn lane warrants were not examined at the site accesses on SW 124th Avenue since they are proposed as right-in/right-out turning movements only.
- Preliminary traffic signal warrants were not examined for the site accesses since they are proposed as right-in/right-out turning movements only.
- Based on the sight distance analysis, the proposed site accesses will meet ISD recommendations and SSD requirements as long as foliage in the landscape strip is maintained at a height of 3 feet or less.
- The north access to SW 124th Avenue will meet the TDC access spacing standards and will be limited to right turns with the median remaining intact.
- Secondary access to the site is not available from either SW Myslony Street or SW Cimino Street; therefore, a south access is recommended. It could be limited to emergency use but allowing site traffic to use the access is expected to have a minimal impact on the transportation system.
- All proposed driveways can accommodate trucks entering and exiting from the north or south.
- All study area intersections are anticipated to operate within the acceptable jurisdiction standards.
 Therefore, no mitigation for traffic operations is required or recommended. The access configuration options have little effect on study area operations.
- The analysis shows little change in queues between background and buildout conditions. The queues can all be accommodated within the available storage. Therefore, no mitigation for queuing operations is required or recommended.





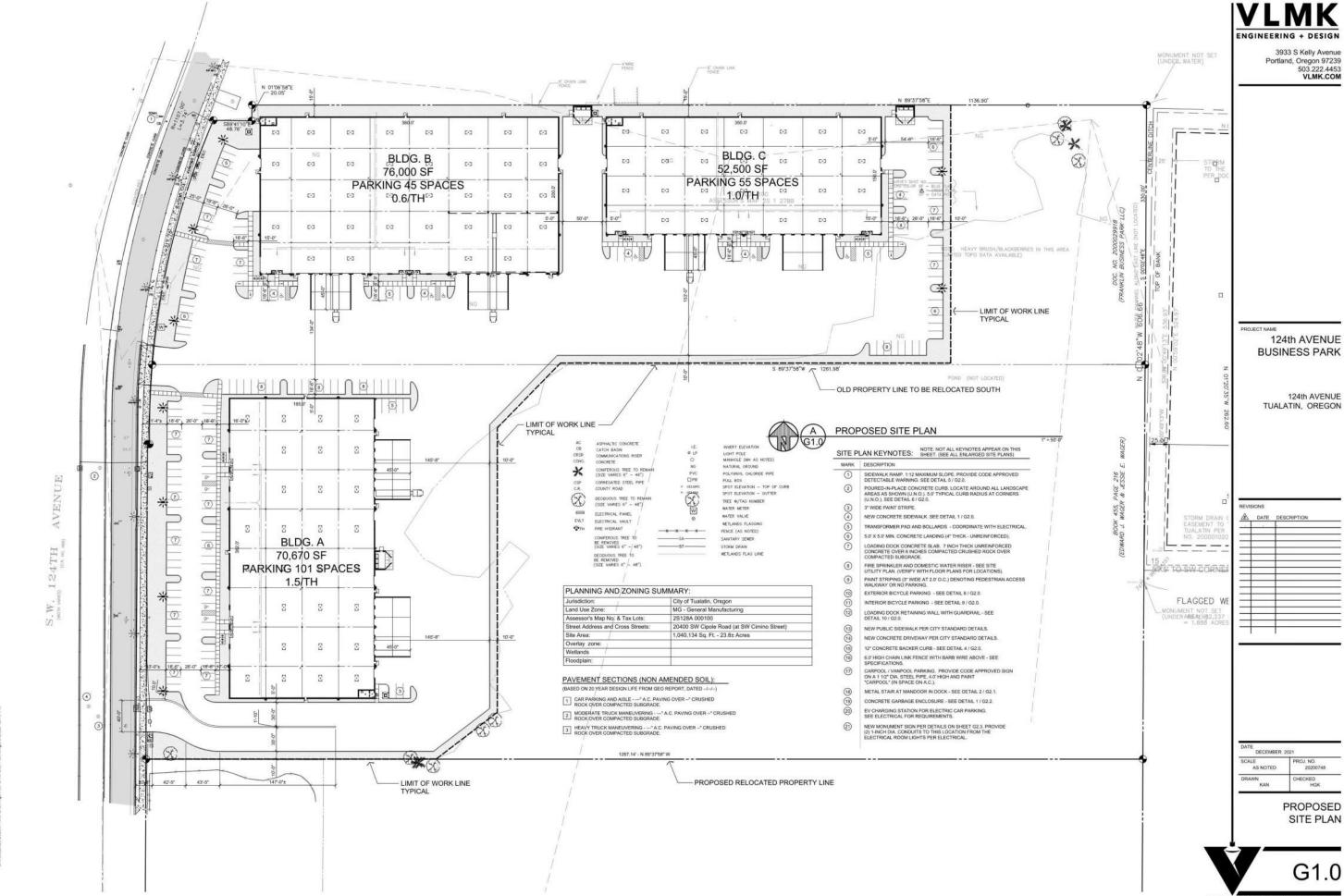
Appendix A – Site Information

Site Plan

Trip Generation Calculations

Scoping Memo





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NOT FOR CONSTRUCTION



TRIP GENERATION CALCULATIONS Source: Trip Generation Manual, 11th Edition

Land Use: General Light Industrial

Land Use Code: 110

Land Use Subcategory: All Sites

Setting/Location General Urban/Suburban

Variable: 1000 SF GFA

Trip Type: Vehicle

Variable Quantity: 265.5

AM PEAK HOUR

PM PEAK HOUR

Trip Rate: 0.74

Trip Rate: 0.65

_	Enter	Exit	Total
Directional Split	88%	12%	
Trip Ends	172	24	196

_	Enter	Exit	Total
Directional Split	14%	86%	
Trip Ends	24	149	173

WEEKDAY

SATURDAY

Trip Rate: 4.87

Trip Rate: 0.69

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	646	646	1,292

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	92	92	184



TRIP GENERATION CALCULATIONS Source: Trip Generation Manual, 11th Edition

Land Use: General Light Industrial

Land Use Code: 110

Land Use Subcategory: All Sites

Setting/Location General Urban/Suburban

Variable: 1000 SF GFA

Trip Type: Truck

Variable Quantity: 265.5

WARNING: Variable Quantity is greater than Maximum Survey Size for Peak Hours

AM PEAK HOUR

PM PEAK HOUR

rıp Rate: 0.01	Trip Rate: 0.01	

	Enter	Exit	Total
Directional Split	60%	40%	
Trip Ends	2	1	3

_	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	2	2	3

WEEKDAY

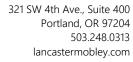
SATURDAY

Trip Rate: 0.25

Trip Rate: 0

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	33	33	66

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	NA	NA	NA





Memorandum

To: Mike McCarthy, Tony Doran, City of Tualatin

Copy: Tracy Bowers, Shredding Systems, Inc.

Havlin Kemp, VLMK Engineering + Design

From: Myla Cross

Jennifer Danziger, PE

Date: April 7, 2022

Subject: 124th Business Park Traffic Study Scoping Memorandum

This memorandum proposes a scope of work for the transportation impact analysis (TIA) of the approximately 199,170-square-foot (SF) industrial project located on the east side of SW 124th Avenue in Tualatin, Oregon.

Project Description

The proposed 124th Business Park is located east of SW 124th Avenue, north and south of other commercial warehouse properties, on Tax Lots 2S127BB 00100, and 00200. The proposed development will include the construction of three industrial buildings, encompassing a total of approximately 199,170 square feet. A site plan is attached to this memorandum.

Access Spacing

The following access standards for the City of Tualatin are found in the Tualatin Development Code (TDC) Chapter 75.140 Section 6c:

(6) 124TH AVENUE.

- (c) Herman Road to Tualatin-Sherwood Road. On the east side of 124th Avenue between Herman Road and Tualatin-Sherwood Road the area will be served by the following streets or driveways:
 - (i) A street intersection at Myslony Street.
 - (ii) A street or driveway intersection approximately 800 feet south of the Myslony Street/124th Avenue intersection extending east with an alternative to extend north to connect with Myslony Street a minimum of 150 feet east of 124th Avenue. Access may be limited to right in/right out as determined by the City Manager.
 - (iii) Cimino Street extending east and south to an intersection at Tualatin-Sherwood Road across from 120th Avenue. The exact location and configuration of the streets and driveways shall be determined by the City Manager.

The 124th Business Park is proposing two driveways on SW 124th Avenue:

- One would utilize an existing curb cut located on SW 124th Avenue, which corresponds to the location specified in the TDC. The preferred configuration would be full access to allow the most direct travel routes to the site. Full access would require removal of a portion of the median on SW 124th Avenue. The TDC notes the access may be limited to right-in/right-out movements only.
- The proposed development seeks to construct a second driveway at the south property line, which is not currently listed in the Tualatin Access Management Plan. This access is assumed to be limited to right-in/right-out movements only.

No right-of-way is available through properties developed to the north of the project, therefore, no options to connect to Myslony Street are available. To the south of the project site, topographical features, such as wetlands and a stream, hinder the ability for a site access to intersect with Cimino Street.

Based on the proposed development and the TDC language, we anticipate that two access scenarios will need to be addressed:

- Scenario 1 would assume that full movements are allowed at the proposed northern access.
- Scenario 2 would assume that the proposed northern access would be limited with right-in/right-out movements only.

Operations with a single site access will be considered with both scenarios but that difference will not affect the overall transportation network.

Trip Generation

To estimate trips that will be generated by the development, trip rates from the *Trip Generation Manual*¹ were used. Specifically, data from the land use code 110, *General Light Industrial*, was used based on the square footage of the development. The 124th Business Park proposes to develop the site with three industrial buildings enclosing a total of 199,170 SF of gross floor area.

The trip generation calculations show that the 124th Business Park site is projected to generate 147 trips during the morning peak hour, 129 trips during the evening peak hour, and 970 trips during the average weekday.

Table 1 summarizes the estimated net trip generation of the site with the land use assumptions discussed above.

Table 1: Trip Generation Summary

Land Use	AM Peak Hour		PM Peak Hour			Weekday	
Land Use	ln	Out	Total	ln	Out	Total	Total
General Light Industrial (All Vehicles)	129	18	147	18	111	129	970
General Light Industrial (Trucks)	1	1	2	1	1	2	50

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.



Trip Distribution

The directional distribution of site trips to/from the project site is necessary to identify intersections to be included in the study area of the TIA. The following trip distribution was estimated based on the locations of likely trip destinations and locations of major transportation facilities in the site vicinity:

- Approximately 30 percent of site trips will travel to/from the south along SW 124th Avenue
- Approximately 20 percent of site trips will travel to/from the west along SW Tualatin-Sherwood Road
- Approximately 30 percent of site trips will travel to/from the east along SW Tualatin-Sherwood Road
- Approximately 20 percent of site trips will travel to/from the north along SW 124th Avenue

Study Intersections

The proposed project lies within the City of Tualatin's planning area boundary, but traffic is also anticipated to affect Washington County roadway facilities. Tualatin Development Code (TDC) 74.440 does not establish criteria for determining the study area traffic studies; the need for a traffic study and the study area are determined by city staff. However, staff have provided a general guideline of 60 peak hour trips and 500 daily trips through an intersection. Washington County (Resolution & Order 86-95) defines the impact area for developments as "those road links where site-generated traffic equals or exceeds 10% of existing average daily traffic" (ADT).

Using the trip generation and distribution and the criteria discussed above, up to three intersections meet the City or County thresholds, depending on the access scenario. We propose the following intersections for the study area:

- 1. SW Tualatin-Sherwood Road & SW 124th Avenue
- 2. SW 124th Avenue & SW Myslony Road
- 3. SW 124th Avenue & SW Herman Road
- 4. SW 124th Avenue & Site Access #1
- 5. SW 124th Avenue & Site Access #2

The specific calculations for the two access scenarios are attached to this memorandum.

Existing Traffic Volumes

The ongoing pandemic reduced traffic demand on most roadways due to policies on social distancing that have closed or limited business operations and reduced commuting as many people work from home. Most restrictions have been lifted and schools are open, and many roadways are nearing "normal" traffic conditions.

Two approaches could be used to estimate traffic volumes.

- 1. The first approach would collect new traffic count data at the study area intersections. Volumes could be compared with historical trends to determine if adjustments are necessary.
- 2. Follow an approach like the one used in preparing the TIA for the Tualatin Logistics Park to be located across SW 124th Avenue from the proposed development. That TIA relied on estimates of year 2021



traffic volumes from the approved TIA for the T-S Corporate Park located in the southwest corner of the SW Tualatin-Sherwood Road intersection with SW 124th Avenue. That TIA estimated 2021 background conditions by applying a 1.5 percent annual growth rate and adding trips generated by approved projects. Some minor adjustments were made to these projects based on data collected in November 2021.

Please advise us on the preferred methodology.

Traffic Volume Projections

To develop future volumes, we propose using a background growth rate of 2 percent per year plus the traffic volumes from approved projects. The projects to be included in the background condition are:

- T-S Corporate Park Construction of this project is completed but not all spaces may be leased yet. If new counts are used, we will need to confirm the percentage of the project that is occupied and prorate the trip assignment accordingly. If historical volumes are used, then all traffic from this site would be included in the background condition.
- PGE Integrated Operations Center This project was completed and is at least partially occupied. If new counts are used, we will need to confirm the percentage of the project this project is occupied and prorate the trip assignment accordingly. If historical volumes are used, then all traffic from this site would be included in the background condition.
- Tualatin Logistics Park– this project is planned to be constructed by the summer of 2023.

The Tualatin-Sherwood Road expansion project is a Washington County Capital Improvement Program (CIP) Project intends to expand the roadway to five lanes, improve bicycle and pedestrian facilities, improve storm drainage, and install street lighting. This project is currently applying for permits and starting the right-of-way acquisition process. Construction is planned to begin the Summer 2022, with a target completion of Fall 2025. Thus, this project will be assumed as part of the Background conditions.

The buildout analysis year for the 124th Avenue Business Park is proposed to be 2025, to include the completion of the Tualatin-Sherwood Road expansion project.

Summary of Scoping Proposal

Please review our proposed scope of analysis and confirm the following:

- Trip generation and distribution is acceptable.
- Confirm the study area intersections proposal is acceptable or identify what other intersections should be included in the TIA.
- Should existing traffic volumes developed by collecting new counts or using historical data (like the volumes from the Tualatin Logistics Park TIA)?
- Our background growth rate of 2 percent per year is acceptable.





TRIP GENERATION CALCULATIONS Source: Trip Generation Manual, 11th Edition

Land Use: General Light Industrial

Land Use Code: 110

Land Use Subcategory: All Sites

Setting/Location General Urban/Suburban

Variable: 1000 SF GFA

Trip Type: Vehicle

Variable Quantity: 199.17

AM PEAK HOUR

PM PEAK HOUR

Trip Rate: 0.74

Trip Rate: 0.65

	Enter	Exit	Total
Directional Split	88%	12%	
Trip Ends	129	18	147

	Enter	Exit	Total
Directional Split	14%	86%	
Trip Ends	18	111	129

WEEKDAY

SATURDAY

Trip Rate: 4.87

Trip Rate: 0.69

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	485	485	970

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	69	69	138



TRIP GENERATION CALCULATIONS Source: Trip Generation Manual, 11th Edition

Land Use: General Light Industrial

Land Use Code: 110

Land Use Subcategory: All Sites

Setting/Location General Urban/Suburban

Variable: 1000 SF GFA

Trip Type: Truck

Variable Quantity: 199.17

WARNING: Variable Quantity is greater than Maximum Survey Size for Peak Hours

AM PEAK HOUR

PM PEAK HOUR

Trip Rate: 0.01

Trip Rate: 0.01

	Enter	Exit	Total
Directional Split	60%	40%	
Trip Ends	1	1	2

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	1	1	2

WEEKDAY

SATURDAY

Trip Rate: 0.25

Trip Rate: 0

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	25	25	50

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	NA	NA	NA

FULL ACCESS SCENARIO

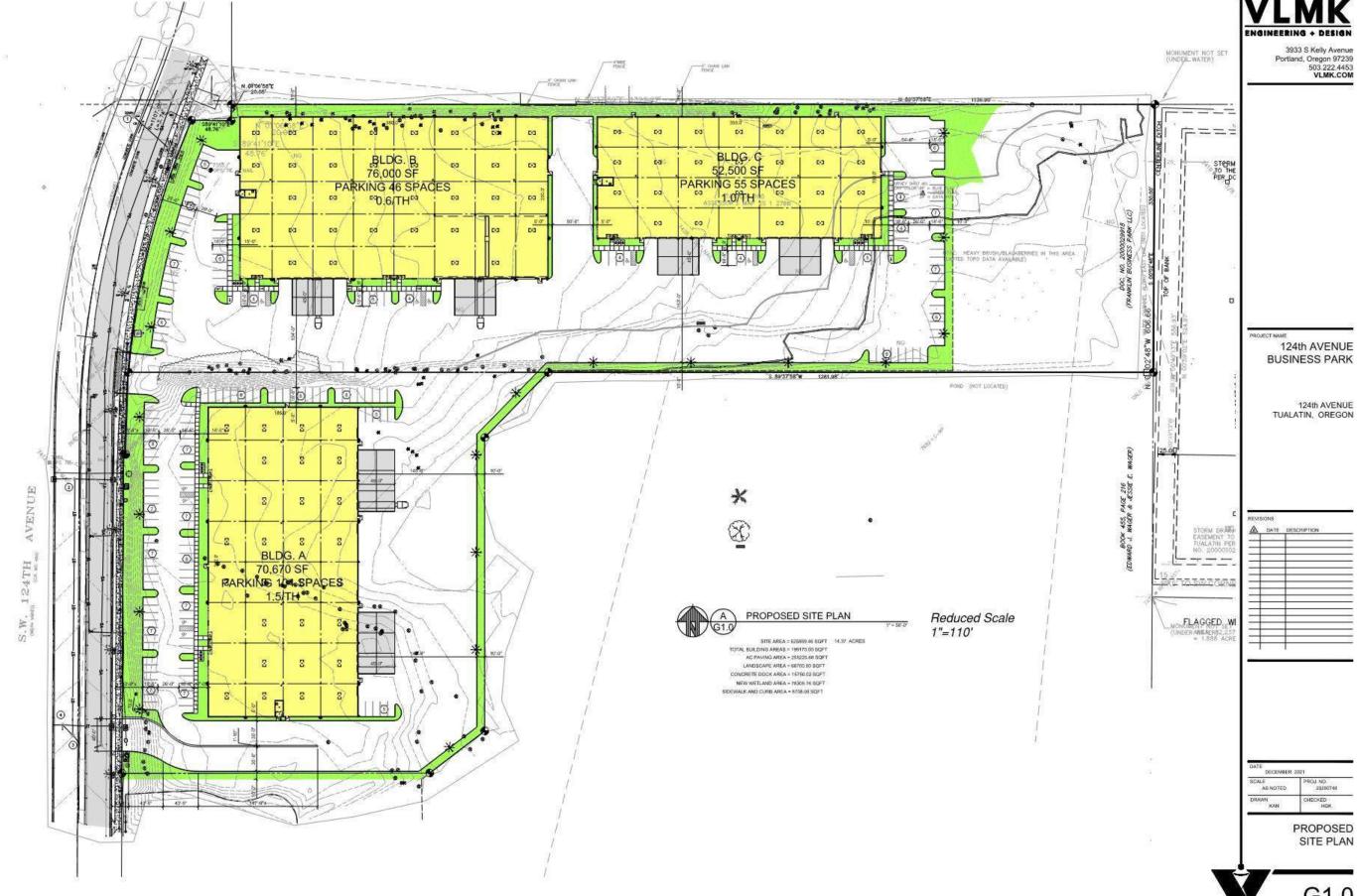
Trip Distribution - 124th Business Park	Distribution		AM Peak				PM Peak		Daily			
	In	Out	129	18	147	18	111	129	485	485	970	
SW Tualatin-Sherwood Rd & SW Oregon St	20%	20%	26	4	30	4	22	26	97	97	194	
SW Tualatin-Sherwood Rd & SW Cipole Rd	20%	20%	26	4	30	4	22	26	97	97	194	
SW Tualatin-Sherwood Rd & SW 124th Ave	80%	80%	103	14	117	14	89	103	388	388	776	
SW Tualatin-Sherwood Rd & SW 120th Ave	30%	30%	39	5	44	5	33	38	146	146	292	
SW Tualatin-Sherwood Rd & SW 115th Ave	30%	30%	39	5	44	5	33	38	146	146	292	
SW Tualatin-Sherwood Rd & SW Avery St/112th Ave	30%	30%	39	5	44	5	33	38	146	146	292	
SW 124th Ave & SW Myslony Rd	20%	20%	26	4	30	4	22	26	97	97	194	
SW 124th Ave & SW Herman Rd	20%	20%	26	4	30	4	22	26	97	97	194	
SW Cipole Road & SW Herman Road	0%	0%	0	0	0	0	0	0	0	0	0	

Trip Distribution - 124th Business Park	Distribution		AM Peak			PM Peak			Daily			2019	2019	%
	In	Out	129	18	147	18	111	129	485	485	970	WaCo	OTMS	AADT
SW Tualatin-Sherwood Rd														
West of SW Oregon St	13%	13%	17	2	19	2	14	16	63	63	126		23,746	1%
SW Oregon St to SW Cipole Rd	20%	20%	26	4	30	4	22	26	97	97	194			
SW Cipole Rd to SW 124th Ave	20%	20%	26	4	30	4	22	26	97	97	194		22,407	1%
SW 124th Ave to SW 120th Ave	30%	30%	39	5	44	5	33	38	146	146	292		29,914	1%
SW 120th Ave to SW 115th Ave	30%	30%	39	5	44	5	33	38	146	146	292			
SW 115th Ave to SW Avery/112th Ave	30%	30%	39	5	44	5	33	38	146	146	292			
East of SW Avery/112th Ave	18%	18%	23	3	26	3	20	23	87	87	174			
SW Oregon St														
South of SW Tualatin-Sherwood Rd	7%	7%	9	1	10	1	8	9	34	34	68	9,006		1%
SW 124th Avenue														
South of SW Tualatin to Sherwood Rd	30%	30%	39	5	44	5	33	38	146	146	292	7,761		4%
SW Tualatin-Sherwood Rd to Site Access	80%	80%	103	14	117	14	89	103	388	388	776			
Site Access to SW Myslony Rd	20%	20%	26	4	30	4	22	26	97	97	194			
SW Myslony Rd to SW Herman Rd	20%	20%	26	4	30	4	22	26	97	97	194		6,073	3%
North of SW Herman Rd	20%	20%	26	4	30	4	22	26	97	97	194			
SW Cipole Rd														
SW Tualatin-Sherwood Rd to SW Herman Rd	0%	0%	0	0	0	0	0	0	0	0	0	3,464		0%
North of SW Herman Rd	0%	0%	0	0	0	0	0	0	0	0	0			
SW Avery St/112th Ave														
South of SW Tualatin-Sherwood Rd	12%	12%	15	2	17	2	13	15	58	58	116			
North of SW Tualatin-Sherwood Rd	0%	0%	0	0	0	0	0	0	0	0	0			
SW Herman Rd														
SW Cipole Rd to SW 124th Ave	0%	0%	0	0	0	0	0	0	0	0	0			
SW 124th Ave to SW Teton Ave	0%	0%	0	0	0	0	0	0	0	0	0			

RIRO ACCESS SCENARIO

Trip Distribution 404th Dusiness Barb	Distribution		AM Peak				PM Peak		Daily		
Trip Distribution - 124th Business Park	In	Out	129	18	147	18	111	129	485	485	970
SW Tualatin-Sherwood Rd & SW Oregon St	20%	20%	26	4	30	4	22	26	97	97	194
SW Tualatin-Sherwood Rd & SW Cipole Rd	40%	35%	52	6	58	7	39	46	194	170	364
SW Tualatin-Sherwood Rd & SW 124th Ave	100%	30%	129	5	134	18	33	51	485	146	631
SW Tualatin-Sherwood Rd & SW 120th Ave	30%	15%	39	3	42	5	17	22	146	73	219
SW Tualatin-Sherwood Rd & SW 115th Ave	30%	15%	39	3	42	5	17	22	146	73	219
SW Tualatin-Sherwood Rd & SW Avery St/112th Ave	30%	40%	39	7	46	5	44	49	146	194	340
SW 124th Ave & SW Myslony Rd	20%	100%	26	18	44	4	111	115	97	485	582
SW 124th Ave & SW Herman Rd	20%	60%	26	11	37	4	67	71	97	291	388
SW Cipole Road & SW Herman Road	0%	35%	0	6	6	0	39	39	0	170	170

Trin Distribution 424th Business Bork	Distril	bution	AM Peak			PM Peak			Daily			2019	2019	%
Trip Distribution - 124th Business Park	In	Out	129	18	147	18	111	129	485	485	970	WaCo	OTMS	AADT
SW Tualatin-Sherwood Rd														
West of SW Oregon St	13%	13%	17	2	19	2	14	16	63	63	126		23,746	1%
SW Oregon St to SW Cipole Rd	20%	20%	26	4	30	4	22	26	97	97	194			
SW Cipole Rd to SW 124th Ave	40%	15%	52	3	55	7	17	24	194	73	267		22,407	1%
SW 124th Ave to SW 120th Ave	30%	15%	39	3	42	5	17	22	146	73	219		29,914	1%
SW 120th Ave to SW 115th Ave	30%	15%	39	3	42	5	17	22	146	73	219			
SW 115th Ave to SW Avery/112th Ave	30%	15%	39	3	42	5	17	22	146	73	219			
East of SW Avery/112th Ave	18%	13%	23	2	25	3	14	17	87	63	150			
SW Oregon St														
South of SW Tualatin-Sherwood Rd	7%	7%	9	1	10	1	8	9	34	34	68	9,006		1%
SW 124th Avenue														
South of SW Tualatin to Sherwood Rd	30%	30%	39	5	44	5	33	38	146	146	292	7,761		4%
SW Tualatin-Sherwood Rd to Site Access	100%	0%	129	0	129	18	0	18	485	0	485			
Site Access to SW Myslony Rd	0%	100%	0	18	18	0	111	111	0	485	485			
SW Myslony Rd to SW Herman Rd	0%	60%	0	11	11	0	67	67	0	291	291		6,073	5%
North of SW Herman Rd	20%	20%	26	4	30	4	22	26	97	97	194			
SW Cipole Rd														
SW Tualatin-Sherwood Rd to SW Herman Rd	0%	35%	0	6	6	0	39	39	0	170	170	3,464		5%
North of SW Herman Rd	0%	0%	0	0	0	0	0	0	0	0	0			
SW Avery St/112th Ave														
South of SW Tualatin-Sherwood Rd	12%	12%	15	2	17	2	13	15	58	58	116			
North of SW Tualatin-Sherwood Rd	0%	0%	0	0	0	0	0	0	0	0	0			
SW Herman Rd														
SW Cipole Rd to SW 124th Ave	0%	35%	0	6	6	0	39	39	0	170	170			
SW 124th Ave to SW Teton Ave	0%	5%	0	1	1	0	6	6	0	24	24			



G1.0

NOT FOR CONSTRUCTION



DATE: May 16, 2022

REQUEST: 124th Avenue Business Park Transportation Impact Study Scope Review

TASK NO: Tualatin On-Call - Task 6 (P#21208-000-006)

REVIEWER: Randy Johnson, PE, PTOE | DKS Associates

DKS Associates has reviewed the transportation impact study (TIS) scope and site plan for the proposed 124th Avenue Business Park development. The proposed 124th Business Park is located east of SW 124th Avenue, north and south of other commercial warehouse properties, on Tax Lots 2S127BB 00100, and 00200. The proposed development will include the construction of three industrial buildings, encompassing a total of approximately 199,170 square feet.

TIS SCOPE REVIEW

Key comments related to the proposed project analysis scope:

- The trip generation is acceptable as proposed
- The Trip Distribution looks good but recommend changing the 30% east along T-S Rd to 25% and adding 5% east on Herman as it is common to take Herman Road to Tualatin Road to Lower Boones Ferry to access I-5.
- Add study intersections Cipole Road/Herman Road and Tualatin-Sherwood Road/Cipole Road for the RIRO scenario
- Collect new count data. We would like to see a comparison of available historic counts with the new counts before deciding if we need to make any COVID related adjustments.
- 2% growth rate is acceptable

Key comments related to the proposed project site plan:

- Per the Tualatin Development Code (TDC) [Ch 75.140 Sec.6c], the access proposed 800 feet south of Myslony Street is the planned location for this development. The City requires this access to be right-in/right-out given the functional class, speed, volume and truck percentage of 124th Avenue.
- The City recommends the secondary access conform to the TDC by providing access to Myslony Street via an access easement or construction of a driveway to Cimino Street. Either location would provide left-in and left-out for the proposed development via Cimino Street or Myslony Street.

Appendix B – Traffic Data

Turning Movement Counts

Speed Data

In-Process Projects

Tualatin-Sherwood Road Improvements



Count Comparison - AM Peak Hour

DATE TIME	Year	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TEV
Cipole & Herman	Est.	86	1	97	2	0	0	2	168	42	39	115	1	553
	2022	51	0	86	0	0	0	0	54	89	134	173	0	587
	2021	55	1	62	2	0	0	2	169	40	39	74	1	445
		55	1	86	2	0	0	2	169	89	134	173	1	
TSR & Cipole	Est.	4	0	3	48	2	31	112	1094	16	15	723	77	2125
	2022	1	1	7	53	0	54	85	854	2	13	698	89	1857
	2019	0	0	0	63	0	124	37	856	0	0	1079	14	2173
		1	1	7	63	0	124	85	856	2	13	1079	89	
124 & Herman	Est.	38	314	63	176	375	64	31	223	56	53	155	39	1587
	2022	41	225	40	104	425	70	17	136	28	26	81	30	1223
	2017	19	128	31	163	181	59	28	207	32	25	143	36	1052
		41	225	40	163	425	70	28	207	32	26	143	36	
124 & Myslony	Est.	17	393	39	43	417	24	4	1	3	29	1	18	989
	2022	1	268	36	88	391	2	0	1	2	9	0	29	827
	2018	16	178	34	28	228	23	4	1	3	25	1	16	557
		16	268	36	88	391	23	4	1	3	25	1	29	
TSR & 124	Est.	177	218	90	170	212	57	70	963	112	99	579	193	2940
	2022	162	200	50	103	226	58	76	698	97	26	564	51	2311
	2019	131	179	54	143	134	45	53	839	31	11	546	108	2274
		162	200	54	143	226	58	76	839	97	26	564	108	
TSR & 124	Est.	177	218	90	170	212	57	70	963	112	99	579	193	2940
	2022	162	200	50	103	226	58	76	698	97	26	564	51	2311
	2019	109	180	58	131	138	47	60	854	50	16	516	95	2254
		162	200	58	131	226	58	76	854	97	26	564	95	

Count Comparison - PM Peak Hour

DATE TIM	IE INTID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TEV
Cipole & Herma	an Est.	48	0	62	1	0	0	0	119	73	117	245	1	666
	2022	51	0	98	0	0	0	0	130	72	58	54	0	463
	2021	45	0	61	1	0	0	0	102	63	100	240	1	613
		51	0	98	1	0	0	0	130	72	100	240	1	
TSR & Cipole	Est.	14	2	11	64	0	126	38	982	4	4	1227	14	2486
	2022	1	0	4	110	1	176	62	870	0	3	893	55	2175
	2019	0	0	0	63	0	124	37	856	0	0	1079	14	2173
		1	0	4	110	1	176	62	870	0	3	1079	55	
124 & Herman	Est.	15	346	65	95	403	29	84	182	32	149	328	176	1904
	2022	35	458	27	59	278	38	77	116	45	95	196	134	1558
	2017	10	200	45	88	260	26	77	168	22	100	304	163	1463
		35	458	45	88	278	38	77	168	45	100	304	163	
124 & Myslony	Est.	0	379	11	8	574	1	17	1	19	64	0	31	1105
	2022	0	332	11	39	374	0	3	2	5	38	0	178	982
	2018	0	198	11	6	400	1	16	1	18	50	0	24	725
		0	332	11	39	400	1	16	2	18	50	0	178	
TSR & 124	Est.	134	205	120	199	288	205	51	848	158	74	906	120	3308
	2022	123	208	37	96	228	130	65	712	193	31	690	55	2568
	2019	90	112	8	165	184	115	57	746	108	20	808	79	2492
		123	208	37	165	228	130	65	746	193	31	808	79	
TSR & 124	Est.	134	205	120	199	288	205	51	848	158	74	906	120	3308
	2022	123	208	37	96	228	130	65	712	193	31	690	55	2568
	2019	109	180	58	131	138	47	60	854	50	16	816	95	2554
		123	208	58	131	228	130	65	854	193	31	816	95	

Notes: Est. = Volumes for the Tualatin Logistics Park TIA (December 15, 2021) which were developed from historical volumes when the Covid19 pandemic was still impacting traffic counts. 2022 = Counts collected on May 24, 2022.

2017-2021 = Historical count data collected for other projects.



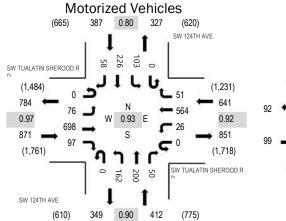
Location: 1 SW 124TH AVE & SW TUALATIN SHEROOD RD AM

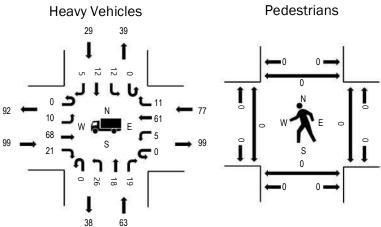
Date: Tuesday, May 24, 2022

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour





Note: Total study counts contained in parentheses.

	HV%	PHF
EB	11.4%	0.97
WB	12.0%	0.92
NB	15.3%	0.90
SB	7.5%	0.80
All	11.6%	0.93

Interval	SW TU		N SHERO	OD RD	SW T		N SHERC	OD RD			TH AVE				TH AVE			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
7:00 AM	0	2	65	12	0	2	37	2	0	17	12	4	0	7	3	3	166	2,193
7:05 AM	0	5	55	5	0	5	32	4	0	9	12	3	0	5	13	3	151	2,214
7:10 AM	0	5	68	11	0	3	29	9	0	15	7	4	0	10	5	5	171	2,258
7:15 AM	0	8	67	2	0	3	33	3	0	10	23	3	0	4	13	1	170	2,270
7:20 AM	0	7	56	9	0	4	43	3	0	16	8	3	0	4	3	3	159	2,272
7:25 AM	0	9	65	4	0	3	42	6	0	9	17	3	0	7	12	4	181	2,293
7:30 AM	0	1	72	4	0	1	50	6	0	14	19	6	0	10	14	4	201	2,301
7:35 AM	0	8	62	10	0	1	39	5	0	11	17	4	0	6	15	6	184	2,291
7:40 AM	0	8	64	6	0	5	54	5	0	13	7	3	0	7	8	6	186	2,308
7:45 AM	0	7	58	9	0	4	45	3	0	14	24	5	0	6	18	9	202	2,311
7:50 AM	0	9	69	10	0	0	52	4	0	13	10	7	0	14	16	6	210	2,301
7:55 AM	0	8	63	7	0	6	50	4	0	10	22	7	0	10	15	10	212	2,267
8:00 AM	0	4	64	2	0	2	55	4	0	16	23	3	0	5	7	2	187	2,239
8:05 AM	0	7	62	7	0	1	45	8	0	16	14	3	0	10	16	6	195	
8:10 AM	0	6	45	6	0	2	52	5	0	18	20	3	0	13	8	5	183	
8:15 AM	0	7	63	12	0	1	38	3	0	11	11	6	0	7	11	2	172	
8:20 AM	0	3	53	8	0	3	42	5	0	13	18	6	0	9	19	1	180	
8:25 AM	0	6	60	8	0	1	43	4	0	11	14	0	0	6	31	5	189	
8:30 AM	0	6	52	5	0	0	43	3	0	15	17	4	0	10	30	6	191	
8:35 AM	0	5	55	16	0	3	52	5	0	11	13	4	0	5	28	4	201	
8:40 AM	0	8	54	7	0	3	47	3	0	14	14	2	0	8	27	2	189	
8:45 AM	0	6	58	10	0	0	38	5	0	8	15	7	0	12	28	5	192	
8:50 AM	0	5	45	11	0	4	39	6	0	18	16	2	0	10	17	3	176	
8:55 AM	0	4	54	7	0	1	63	5	0	13	13	2	0	10	7	5	184	
Count Total	0	144	1,429	188	0	58	1,063	110	0	315	366	94	0	195	364	106	4,432	
Peak Hour	0	76	698	97	0	26	564	51	0	162	200	50	0	103	226	58	2,311	_

Interval		Hea	avy Vehicle	es		Interval		Bicycle	es on Road	dway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
7:00 AM	8	2	3	3	16	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	11	2	4	7	24	7:05 AM	0	0	0	0	0	7:05 AM	0	1	0	0	1
7:10 AM	17	3	4	2	26	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	9	7	3	2	21	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	8	6	8	2	24	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	8	4	5	5	22	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	4	4	5	4	17	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	8	3	2	4	17	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	8	6	7	1	22	7:40 AM	0	0	0	0	0	7:40 AM	0	0	1	0	1
7:45 AM	9	5	8	3	25	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	6	6	6	2	20	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	7	4	9	2	22	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	10	5	4	1	20	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	9	4	8	2	23	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	14	8	6	4	32	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	9	6	3	0	18	8:15 AM	1	0	0	0	1	8:15 AM	0	0	0	0	0
8:20 AM	4	10	7	4	25	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	6	2	8	4	20	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	9	7	7	3	26	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	8	4	4	2	18	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	8	2	7	2	19	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	6	6	7	6	25	8:45 AM	1	0	0	0	1	8:45 AM	0	0	0	0	0
8:50 AM	7	3	4	2	16	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	7	1	14	2	24	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	1	1
Count Total	200	110	143	69	522	Count Total	2	0	0	0	2	Count Total	0	1	1	1	3
Peak Hour	99	63	77	29	268	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	0	0



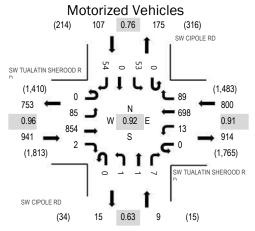
Location: 2 SW CIPOLE RD & SW TUALATIN SHEROOD RD AM

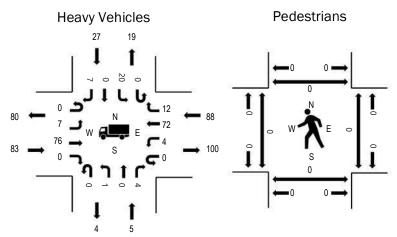
Date: Tuesday, May 24, 2022

Peak Hour: 07:20 AM - 08:20 AM

Peak 15-Minutes: 07:50 AM - 08:05 AM

Peak Hour





Note: Total study counts contained in parentheses.

	HV%	PHF
EB	8.8%	0.96
WB	11.0%	0.91
NB	55.6%	0.63
SB	25.2%	0.76
All	10.9%	0.92

Interval	SW TU		N SHERO bound	OD RD	SW TI		N SHERO bound	OD RD			OLE RD bound				OLE RD			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
7:00 AM	0	4	84	0	0	2	47	8	0	0	0	0	0	1	0	4	150	1,808
7:05 AM	0	6	61	1	0	2	35	6	0	0	0	0	0	7	0	2	120	1,80
7:10 AM	0	11	79	0	0	1	43	8	0	0	0	0	0	3	0	3	148	1,83
7:15 AM	0	9	67	1	0	4	30	8	0	1	0	0	0	1	0	5	126	1,84
7:20 AM	0	9	79	0	0	1	52	8	0	0	0	1	0	3	0	1	154	1,85
7:25 AM	0	4	71	0	0	2	48	5	0	0	0	0	0	2	0	5	137	1,84
7:30 AM	0	6	77	1	0	1	57	16	0	0	0	2	0	1	0	5	166	1,83
7:35 AM	0	4	72	0	0	1	47	5	0	0	0	0	0	6	0	4	139	1,82
7:40 AM	0	6	76	0	0	2	72	5	0	0	0	0	0	4	0	3	168	1,83
7:45 AM	0	8	58	0	0	1	53	8	0	0	0	0	0	8	0	7	143	1,80
7:50 AM	0	10	90	0	0	0	75	6	0	0	0	1	0	3	0	7	192	1,79
7:55 AM	0	15	69	1	0	0	54	10	0	1	0	0	0	7	0	8	165	1,75
8:00 AM	0	5	62	0	0	1	65	10	0	0	0	0	0	1	0	5	149	1,71
8:05 AM	0	6	66	0	0	2	57	4	0	0	0	2	0	5	0	4	146	
8:10 AM	0	7	63	0	0	1	69	6	0	0	0	1	0	7	0	3	157	
8:15 AM	0	5	71	0	0	1	49	6	0	0	1	0	0	6	0	2	141	
8:20 AM	0	7	68	0	0	1	50	4	0	0	0	1	0	3	0	5	139	
8:25 AM	0	4	66	0	0	0	48	4	0	0	0	0	0	4	0	6	132	
8:30 AM	0	4	65	0	0	1	62	4	0	0	0	0	0	8	0	6	150	
8:35 AM	0	4	67	0	0	0	67	7	0	0	0	0	0	4	0	4	153	
8:40 AM	0	12	62	1	0	0	55	3	0	0	0	0	0	4	0	2	139	
8:45 AM	0	8	62	0	0	1	46	2	0	0	0	2	0	7	0	6	134	
8:50 AM	0	1	66	3	0	0	61	4	0	0	0	2	0	3	1	4	145	
8:55 AM	0	4	45	0	0	0	60	9	0	0	0	0	0	9	0	5	132	
Count Total	0	159	1,646	8	0	25	1,302	156	0	2	1	12	0	107	1	106	3,525	
Peak Hour	0	85	854	2	0	13	698	89	0	1	1	7	0	53	0	54	1,857	

Interval		Hea	avy Vehicle	es		Interval		Bicycle	es on Road	dway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
7:00 AM	8	0	5	2	15	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	10	0	3	7	20	7:05 AM	0	0	0	0	0	7:05 AM	0	1	0	0	1
7:10 AM	12	0	4	2	18	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	9	1	4	2	16	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	6	1	9	0	16	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	8	0	7	1	16	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	3	1	4	1	9	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	9	0	7	3	19	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	5	0	8	3	16	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	6	0	9	3	18	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	7	0	8	3	18	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	4	1	9	5	19	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	11	0	7	0	18	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	5	2	8	3	18	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	11	0	8	4	23	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	8	0	4	1	13	8:15 AM	1	0	0	0	1	8:15 AM	0	0	0	0	0
8:20 AM	4	1	8	0	13	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	8	0	6	2	16	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	8	0	11	3	22	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	5	0	4	1	10	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	7	0	5	3	15	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	4	1	10	3	18	8:45 AM	1	0	0	0	1	8:45 AM	0	0	0	0	0
8:50 AM	7	0	6	1	14	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	7	0	11	3	21	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	172	8	165	56	401	Count Total	2	0	0	0	2	Count Total	0	1	0	0	1
Peak Hour	83	5	88	27	203	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	0	0



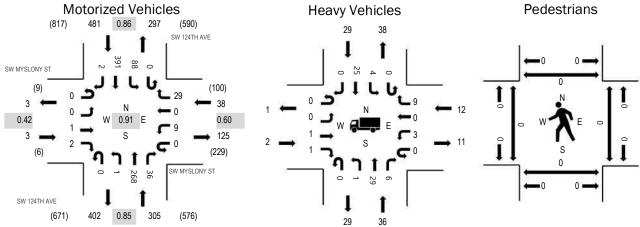
Location: 3 SW 124TH AVE & SW MYSLONY ST AM

Date: Tuesday, May 24, 2022

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	66.7%	0.42
WB	31.6%	0.60
NB	11.8%	0.85
SB	6.0%	0.86
All	9.6%	0.91

Interval			SLONY S	Т			SLONY S bound	Т			TH AVE			SW 124 South	TH AVE			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
7:00 AM	0	0	0	0	0	2	0	4	0	0	19	2	0	14	17	0	58	712
7:05 AM	0	0	0	0	0	4	0	1	0	0	17	0	0	5	17	0	44	718
7:10 AM	0	0	0	0	0	0	2	2	0	0	20	2	0	4	16	1	47	727
7:15 AM	0	0	0	0	0	0	0	2	0	0	26	3	0	6	13	0	50	754
7:20 AM	0	0	0	0	0	1	1	4	0	0	14	3	0	9	24	0	56	761
7:25 AM	0	2	0	0	0	2	0	3	0	0	21	6	0	7	12	1	54	767
7:30 AM	0	0	0	0	0	1	0	2	0	0	23	3	0	2	28	1	60	786
7:35 AM	0	0	0	1	0	1	0	4	0	0	22	2	0	6	28	0	64	793
7:40 AM	0	0	0	0	0	1	0	4	0	0	21	2	0	11	23	0	62	808
7:45 AM	0	0	1	0	0	0	0	3	0	0	12	4	0	10	34	0	64	827
7:50 AM	0	0	0	0	0	0	0	1	0	0	26	1	0	9	42	0	79	822
7:55 AM	0	0	0	0	0	1	0	4	0	1	20	3	0	18	27	0	74	811
8:00 AM	0	0	0	0	0	1	0	0	0	0	22	8	0	8	24	1	64	787
8:05 AM	0	0	0	0	0	0	0	2	0	0	30	1	0	5	15	0	53	
8:10 AM	0	0	0	1	0	2	0	4	0	0	27	3	0	7	30	0	74	
8:15 AM	0	0	0	0	0	0	0	4	0	0	19	3	0	7	24	0	57	
8:20 AM	0	0	0	0	0	0	0	2	0	0	19	4	0	8	29	0	62	
8:25 AM	0	0	0	0	0	1	0	1	0	0	22	2	0	3	44	0	73	
8:30 AM	0	0	0	0	0	2	0	1	0	0	23	3	0	5	32	1	67	
8:35 AM	0	0	0	0	0	2	0	5	0	0	18	4	0	5	45	0	79	
8:40 AM	0	0	0	1	0	0	0	2	0	0	30	0	0	3	45	0	81	
8:45 AM	0	0	0	0	0	0	0	5	0	0	22	0	0	7	25	0	59	
8:50 AM	0	0	0	0	0	2	0	9	0	0	24	0	0	3	30	0	68	
8:55 AM	0	0	0	0	0	0	0	5	0	0	17	2	0	5	21	0	50	
Count Total	0	2	1	3	0	23	3	74	0	1	514	61	0	167	645	5	1,499	
Peak Hour	0	0	1	2	0	9	0	29	0	1	268	36	0	88	391	2	827	=

Interval		Hea	avy Vehicle	es		Interval		Bicycle	es on Road	dway		Interval	Pe	destrians/E	Bicycles on	Crosswa	ılk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
7:00 AM	0	2	0	6	8	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	1	1	2	4	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	4	3	3	10	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	3	0	2	5	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	3	2	4	9	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	2	5	0	4	11	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	5	1	3	9	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	1	0	3	2	6	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	5	2	4	11	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	1	0	1	1	3	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	2	0	3	5	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	1	2	3	6	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	0	3	1	1	5	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	5	1	1	7	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	3	3	3	9	8:10 AM	0	0	0	1	1	8:10 AM	0	0	0	0	0
8:15 AM	0	2	1	2	5	8:15 AM	0	1	0	0	1	8:15 AM	0	0	0	0	0
8:20 AM	0	5	0	3	8	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	4	1	5	10	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	5	1	1	7	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	3	1	2	6	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	1	3	0	4	8	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	4	2	4	10	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	0	2	2	3	7	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	2	3	1	6	8:55 AM	0	0	0	0	0	8:55 AM	0	1	0	0	1
Count Total	5	72	31	67	175	Count Total	0	1	0	1	2	Count Total	0	1	0	0	1
Peak Hour	2	36	12	29	79	Peak Hour	0	1	0	1	2	Peak Hour	0	0	0	0	0



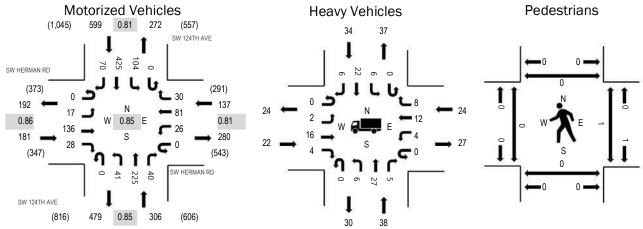
Location: 4 SW 124TH AVE & SW HERMAN RD AM

Date: Tuesday, May 24, 2022

Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	12.2%	0.86
WB	17.5%	0.81
NB	12.4%	0.85
SB	5.7%	0.81
All	9.6%	0.85

Interval			RMAN RE)			RMAN RI)			TH AVE				TH AVE			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
7:00 AM	0	4	9	1	0	2	10	3	0	5	20	5	0	10	29	2	100	1,177
7:05 AM	0	3	6	0	0	3	3	3	0	1	11	1	0	5	21	4	61	1,176
7:10 AM	0	7	10	2	0	1	8	3	0	4	13	3	0	18	19	3	91	1,196
7:15 AM	0	2	11	0	0	2	14	0	0	2	19	3	0	4	15	3	75	1,196
7:20 AM	0	5	11	2	0	1	8	1	0	4	22	4	0	11	28	5	102	1,202
7:25 AM	0	2	14	2	0	4	7	1	0	3	19	4	0	14	15	4	89	1,200
7:30 AM	0	2	8	4	0	4	12	4	0	7	15	2	0	8	28	4	98	1,212
7:35 AM	0	1	16	2	0	2	8	1	0	2	18	4	0	14	25	4	97	1,207
7:40 AM	0	0	14	5	0	2	11	1	0	1	26	3	0	8	30	5	106	1,213
7:45 AM	0	1	12	0	0	3	10	4	0	4	14	1	0	11	40	10	110	1,223
7:50 AM	0	2	17	2	0	4	10	3	0	5	22	4	0	10	43	9	131	1,195
7:55 AM	0	1	16	3	0	2	14	3	0	5	8	2	0	13	39	11	117	1,157
8:00 AM	0	0	14	3	0	3	7	2	0	4	20	7	0	5	27	7	99	1,112
8:05 AM	0	2	5	2	0	0	5	4	0	7	21	5	0	7	18	5	81	
8:10 AM	0	0	4	0	0	1	7	0	0	2	24	4	0	9	36	4	91	
8:15 AM	0	1	12	3	0	3	5	0	0	3	18	1	0	5	23	7	81	
8:20 AM	0	3	11	4	0	1	5	4	0	4	18	1	0	11	35	3	100	
8:25 AM	0	4	12	5	0	4	2	0	0	2	18	3	0	5	42	4	101	
8:30 AM	0	1	10	3	0	1	8	4	0	1	18	2	0	10	34	1	93	
8:35 AM	0	1	8	1	0	2	1	4	0	1	22	2	0	14	43	4	103	
8:40 AM	0	1	15	2	0	2	7	2	0	3	22	8	0	4	45	5	116	
8:45 AM	0	3	6	1	0	4	9	0	0	1	25	0	0	7	24	2	82	
8:50 AM	0	0	8	1	0	2	9	1	0	2	25	1	0	12	29	3	93	
8:55 AM	0	1	1	2	0	1	6	3	0	3	21	1	0	7	24	2	72	
Count Total	0	47	250	50	0	54	186	51	0	76	459	71	0	222	712	111	2,289	
Peak Hour	0	17	136	28	0	26	81	30	0	41	225	40	0	104	425	70	1,223	_

Interval		Hea	avy Vehicle	es		Interval		Bicycle	es on Road	dway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
7:00 AM	7	2	2	6	17	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	2	1	2	4	9	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	1	4	4	4	13	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	1	3	2	2	8	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	2	7	2	3	14	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	4	4	2	10	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	4	0	3	8	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	4	2	1	1	8	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	2	4	2	3	11	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	1	0	4	1	6	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	1	2	1	2	6	7:50 AM	0	0	0	0	0	7:50 AM	0	0	1	0	1
7:55 AM	4	1	0	3	8	7:55 AM	0	0	1	0	1	7:55 AM	0	0	0	0	0
8:00 AM	2	3	2	1	8	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	7	1	2	10	8:05 AM	1	0	0	0	1	8:05 AM	0	0	0	0	0
8:10 AM	1	5	2	4	12	8:10 AM	0	0	1	0	1	8:10 AM	0	0	0	0	0
8:15 AM	2	1	3	6	12	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	2	4	2	7	15	8:20 AM	0	1	0	0	1	8:20 AM	0	0	0	0	0
8:25 AM	6	5	1	3	15	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	1	3	4	1	9	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	4	2	1	7	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	2	3	2	3	10	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	1	6	4	2	13	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	2	3	2	5	12	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	5	3	3	11	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	45	83	52	72	252	Count Total	1	1	2	0	4	Count Total	0	0	1	0	1
Peak Hour	22	38	24	34	118	Peak Hour	1	1	2	0	4	Peak Hour	0	0	1	0	1



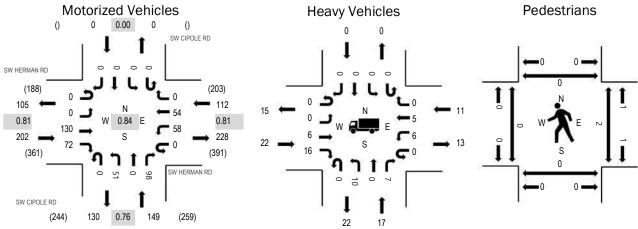
Location: 5 SW CIPOLE RD & SW HERMAN RD AM

Date: Tuesday, May 24, 2022

Peak Hour: 07:10 AM - 08:10 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	10.9%	0.81
WB	9.8%	0.81
NB	11.4%	0.76
SB	0.0%	0.00
All	10.8%	0.84

Interval			RMAN RE)			RMAN RI)			OLE RD				OLE RD			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
7:00 AM	0	0	13	6	0	7	3	0	0	4	0	4	0	0	0	0	37	461
7:05 AM	0	0	10	8	0	2	3	0	0	2	0	3	0	0	0	0	28	462
7:10 AM	0	0	10	2	0	2	5	0	0	9	0	10	0	0	0	0	38	463
7:15 AM	0	0	8	6	0	6	4	0	0	5	0	9	0	0	0	0	38	455
7:20 AM	0	0	8	5	0	4	6	0	0	3	0	13	0	0	0	0	39	453
7:25 AM	0	0	13	5	0	4	2	0	0	2	0	7	0	0	0	0	33	447
7:30 AM	0	0	10	5	0	2	6	0	0	5	0	9	0	0	0	0	37	443
7:35 AM	0	0	13	5	0	7	4	0	0	3	0	6	0	0	0	0	38	439
7:40 AM	0	0	13	6	0	6	4	0	0	2	0	5	0	0	0	0	36	431
7:45 AM	0	0	12	6	0	11	3	0	0	4	0	6	0	0	0	0	42	429
7:50 AM	0	0	15	7	0	5	7	0	0	5	0	11	0	0	0	0	50	412
7:55 AM	0	0	12	13	0	5	3	0	0	4	0	8	0	0	0	0	45	385
8:00 AM	0	0	11	5	0	5	4	0	0	4	0	9	0	0	0	0	38	362
8:05 AM	0	0	5	7	0	1	6	0	0	5	0	5	0	0	0	0	29	
8:10 AM	0	0	5	5	0	2	6	0	0	3	0	9	0	0	0	0	30	
8:15 AM	0	0	11	3	0	7	6	0	0	1	0	8	0	0	0	0	36	
8:20 AM	0	0	10	3	0	2	5	0	0	2	0	11	0	0	0	0	33	
8:25 AM	0	0	10	8	0	2	2	0	0	3	0	4	0	0	0	0	29	
8:30 AM	0	0	7	6	0	7	5	0	0	1	0	7	0	0	0	0	33	
8:35 AM	0	0	7	10	0	2	1	0	0	3	0	7	0	0	0	0	30	
8:40 AM	0	0	7	6	0	3	3	0	0	4	0	11	0	0	0	0	34	
8:45 AM	0	0	1	3	0	5	5	0	0	7	0	4	0	0	0	0	25	
8:50 AM	0	0	8	5	0	2	5	0	0	2	0	1	0	0	0	0	23	
8:55 AM	0	0	2	5	0	5	1	0	0	6	0	3	0	0	0	0	22	
Count Total	0	0	221	140	0	104	99	0	0	89	0	170	0	0	0	0	823	_
Peak Hour	0	0	130	72	0	58	54	0	0	51	0	98	0	0	0	0	463	_

Interval		Hea	avy Vehicle	es	-	Interval		Bicycle	s on Road	lway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
7:00 AM	4	1	2	0	7	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	6	0	1	0	7	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	1	2	0	0	3	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	3	1	1	0	5	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	0	1	1	0	2	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	1	2	1	0	4	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	2	2	0	0	4	7:30 AM	0	0	1	0	1	7:30 AM	0	0	0	0	0
7:35 AM	4	3	1	0	8	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	4	0	1	0	5	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	2	0	0	2	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	2	1	1	0	4	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	1	1	2	0	4	7:55 AM	0	0	1	0	1	7:55 AM	0	0	0	0	0
8:00 AM	2	1	1	0	4	8:00 AM	0	0	0	0	0	8:00 AM	0	0	1	0	1
8:05 AM	2	1	2	0	5	8:05 AM	0	1	0	0	1	8:05 AM	0	0	1	0	1
8:10 AM	1	0	4	0	5	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	2	4	0	6	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	2	1	1	0	4	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	3	4	2	0	9	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	2	0	2	0	4	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	7	0	1	0	8	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	6	3	2	0	11	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	2	0	0	0	2	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	1	2	0	4	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	3	3	0	6	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	56	32	35	0	123	Count Total	0	1	2	0	3	Count Total	0	0	2	0	2
Peak Hour	22	17	11	0	50	Peak Hour	0	1	2	0	3	Peak Hour	0	0	2	0	2



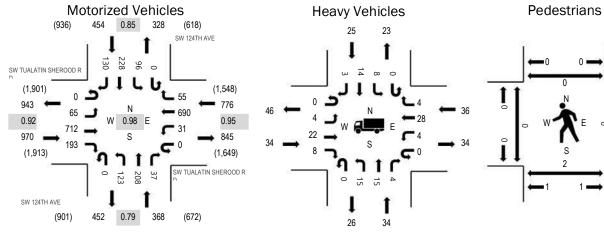
Location: 1 SW 124TH AVE & SW TUALATIN SHEROOD RD PM

Date: Tuesday, May 24, 2022

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

Peak 15-Minutes: 04:35 PM - 04:50 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.5%	0.92
WB	4.6%	0.95
NB	9.2%	0.79
SB	5.5%	0.85
All	5.0%	0.98

manne Count	.5 - ΜΙΟΙΟ	nzeu	venic	162														
	SW TI		N SHERO	OD RD	SW T		N SHERC	OD RD			TH AVE			SW 124				
Interval			bound				bound				bound				bound			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
4:00 PM	0	0	55	16	0	1	53	6	0	15	32	5	0	6	25	9	223	2,568
4:05 PM	0	9	50	12	0	3	61	5	0	8	27	2	0	8	20	12	217	2,557
4:10 PM	0	7	55	14	0	2	51	3	0	3	24	1	0	7	17	19	203	2,550
4:15 PM	0	6	58	19	0	2	57	4	0	17	17	1	0	10	16	8	215	2,555
4:20 PM	0	7	67	15	0	4	70	2	0	7	19	9	0	2	10	7	219	2,563
4:25 PM	0	4	54	15	0	1	56	4	0	7	9	3	0	6	26	12	197	2,564
4:30 PM	0	8	58	16	0	4	51	5	0	14	16	1	0	8	20	9	210	2,564
4:35 PM	0	6	52	15	0	3	51	7	0	8	16	3	0	14	29	12	216	2,548
4:40 PM	0	4	65	17	0	3	55	8	0	12	17	7	0	9	19	12	228	2,543
4:45 PM	0	7	73	18	0	5	66	4	0	13	4	1	0	3	9	11	214	2,527
4:50 PM	0	1	56	23	0	0	64	0	0	7	16	1	0	9	18	7	202	2,537
4:55 PM	0	6	69	13	0	3	55	7	0	12	11	3	0	14	19	12	224	2,538
5:00 PM	0	6	59	19	0	3	61	1	0	8	10	4	0	10	22	9	212	2,501
5:05 PM	0	10	47	6	0	1	51	7	0	8	19	2	0	8	33	18	210	
5:10 PM	0	1	49	21	0	2	41	7	0	12	22	3	0	6	25	19	208	
5:15 PM	0	6	67	20	0	3	58	8	0	11	9	0	0	11	14	16	223	
5:20 PM	0	5	59	17	0	3	67	1	0	8	19	4	0	8	20	9	220	
5:25 PM	0	8	53	13	0	4	49	3	0	9	18	1	0	6	16	17	197	
5:30 PM	0	9	57	15	0	0	45	1	0	13	10	0	0	4	23	17	194	
5:35 PM	0	4	56	14	0	2	53	11	0	8	12	4	0	4	24	19	211	
5:40 PM	0	5	66	15	0	3	66	10	0	7	8	4	0	6	17	5	212	
5:45 PM	0	6	60	13	0	3	69	1	0	12	13	2	0	12	17	16	224	
5:50 PM	0	8	66	12	0	3	64	4	0	6	17	2	0	3	8	10	203	
5:55 PM	0	2	54	15	0	7	59	1	0	10	8	1	0	6	16	8	187	
Count Total	0	135	1,405	373	0	65	1,373	110	0	235	373	64	0	180	463	293	5,069	_
Peak Hour	0	65	712	193	0	31	690	55	0	123	208	37	0	96	228	130	2,568	

Interval		Hea	avy Vehicle	es		Interval		Bicycle	s on Road	dway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
4:00 PM	2	6	7	1	16	4:00 PM	0	0	1	0	1	4:00 PM	1	0	0	0	1
4:05 PM	4	3	2	4	13	4:05 PM	0	0	0	0	0	4:05 PM	0	1	0	0	1
4:10 PM	3	1	3	4	11	4:10 PM	0	1	1	0	2	4:10 PM	0	0	0	0	0
4:15 PM	2	3	2	1	8	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	3	3	3	3	12	4:20 PM	1	0	1	0	2	4:20 PM	0	0	0	0	0
4:25 PM	3	1	3	2	9	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	6	3	6	4	19	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	2	7	2	1	12	4:35 PM	0	0	1	0	1	4:35 PM	0	0	0	0	0
4:40 PM	2	0	3	1	6	4:40 PM	0	0	0	15	15	4:40 PM	0	0	0	0	0
4:45 PM	3	2	0	1	6	4:45 PM	0	0	0	15	15	4:45 PM	0	1	0	0	1
4:50 PM	3	1	2	2	8	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	4	3	1	9	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	3	1	4	1	9	5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0
5:05 PM	1	2	0	0	3	5:05 PM	0	1	0	0	1	5:05 PM	0	0	0	0	0
5:10 PM	3	3	2	5	13	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	2	0	2	0	4	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	3	1	2	1	7	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	1	1	0	1	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	4	0	2	0	6	5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1
5:35 PM	1	1	1	2	5	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	4	1	3	1	9	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	1	1	1	4	5:45 PM	1	0	0	0	1	5:45 PM	0	1	0	0	1
5:50 PM	4	1	2	0	7	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	2	0	5	1	8	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	63	46	60	38	207	Count Total	2	3	4	30	39	Count Total	1	3	1	0	5
Peak Hour	34	34	36	25	129	Peak Hour	1	1	4	30	36	Peak Hour	1	2	0	0	3



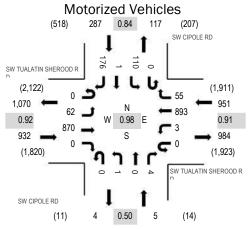
Location: 2 SW CIPOLE RD & SW TUALATIN SHEROOD RD PM

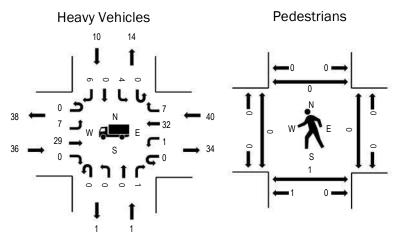
Date: Tuesday, May 24, 2022

Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:45 PM - 05:00 PM

Peak Hour





Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.9%	0.92
WB	4.2%	0.91
NB	20.0%	0.50
SB	3.5%	0.84
All	4.0%	0.98

	Interval	SW TU		N SHERO	OD RD	SW TI		N SHERC	OD RD			OLE RD				OLE RD			Rolling
	Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
	4:00 PM	0	6	63	0	0	0	70	3	0	0	0	2	0	13	0	16	173	2,161
	4:05 PM	0	5	49	0	0	1	76	3	0	0	0	0	0	22	0	16	172	2,163
	4:10 PM	0	5	70	0	0	0	69	3	0	0	1	1	0	11	0	10	170	2,164
	4:15 PM	0	5	81	0	0	1	80	5	0	0	0	1	0	12	0	16	201	2,175
	4:20 PM	0	10	72	0	0	0	73	5	0	0	0	0	0	6	0	15	181	2,152
	4:25 PM	0	4	58	0	0	0	78	4	0	0	0	1	0	8	0	10	163	2,150
	4:30 PM	0	8	76	0	0	0	69	6	0	0	0	0	0	8	1	15	183	2,150
	4:35 PM	0	9	81	0	0	1	74	3	0	0	0	0	0	12	0	13	193	2,143
	4:40 PM	0	6	73	0	0	0	74	4	0	0	0	0	0	5	0	6	168	2,125
	4:45 PM	0	3	68	0	0	0	75	5	0	0	0	2	0	12	0	18	183	2,138
	4:50 PM	0	4	78	0	0	0	73	5	0	0	0	0	0	7	0	19	186	2,152
	4:55 PM	0	5	80	0	0	0	77	9	0	0	0	0	0	5	0	12	188	2,131
	5:00 PM	0	3	67	0	0	0	69	4	0	0	0	0	0	16	0	16	175	2,102
	5:05 PM	0	2	65	0	0	1	73	3	0	1	0	0	0	4	0	24	173	
	5:10 PM	0	3	71	0	0	0	78	2	0	0	0	0	0	15	0	12	181	
	5:15 PM	0	4	69	0	0	1	75	5	0	0	0	0	0	9	0	15	178	
	5:20 PM	0	10	64	0	0	1	67	4	0	0	0	2	0	11	0	20	179	
	5:25 PM	0	5	67	0	0	0	74	6	0	0	1	0	0	6	0	4	163	
	5:30 PM	0	3	72	1	0	0	77	2	0	0	0	0	0	8	0	13	176	
	5:35 PM	0	2	78	1	0	0	81	1	0	0	0	0	0	6	0	6	175	
	5:40 PM	0	4	84	0	0	1	75	3	0	0	0	1	0	3	0	10	181	
	5:45 PM	0	4	78	0	0	1	102	2	0	0	0	0	0	2	0	8	197	
	5:50 PM	0	3	72	0	0	0	78	1	0	0	0	1	0	4	0	6	165	
	5:55 PM	0	0	69	0	0	0	74	4	0	0	0	0	0	2	0	10	159	
(Count Total	0	113	1,705	2	0	8	1,811	92	0	1	2	11	0	207	1	310	4,263	_
	Peak Hour	0	62	870	0	0	3	893	55	0	1	0	4	0	110	1	176	2,175	_

Interval		Hea	avy Vehicle	es		Interval		Bicycle	es on Road	lway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
4:00 PM	1	1	6	2	10	4:00 PM	3	0	1	0	4	4:00 PM	0	1	0	0	1
4:05 PM	3	0	4	4	11	4:05 PM	1	0	0	0	1	4:05 PM	0	0	0	0	0
4:10 PM	3	0	3	1	7	4:10 PM	0	0	1	0	1	4:10 PM	0	0	0	0	0
4:15 PM	4	0	2	3	9	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	2	0	6	1	9	4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	0	0
4:25 PM	6	0	3	0	9	4:25 PM	0	0	1	0	1	4:25 PM	0	0	0	0	0
4:30 PM	5	0	6	2	13	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	4	0	4	0	8	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	3	1	5	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	3	1	1	1	6	4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	0	1
4:50 PM	2	0	3	1	6	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	2	0	4	0	6	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	2	0	4	1	7	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	2	0	1	0	3	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	3	0	3	0	6	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	2	0	1	0	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	1	3	0	5	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	2	0	0	1	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	4	0	2	0	6	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	2	0	2	0	4	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	1	3	1	7	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	1	0	2	5:45 PM	1	0	0	0	1	5:45 PM	0	1	0	0	1
5:50 PM	2	0	2	2	6	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	1	0	2	1	4	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	60	4	69	22	155	Count Total	6	0	3	0	9	Count Total	0	3	0	0	3
Peak Hour	36	1	40	10	87	Peak Hour	1	0	1	0	2	Peak Hour	0	1	0	0	1



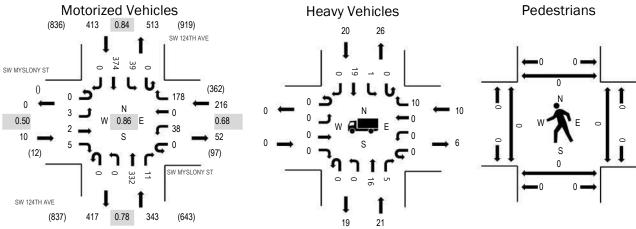
Location: 3 SW 124TH AVE & SW MYSLONY ST PM

Date: Tuesday, May 24, 2022

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

Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.50
WB	4.6%	0.68
NB	6.1%	0.78
SB	4.8%	0.84
All	5.2%	0.86

Interval		Eastb				West	SLONY S				bound				bound			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
4:00 PM	0	0	0	2	0	4	0	24	0	0	41	0	0	2	27	0	100	982
4:05 PM	0	0	0	0	0	5	0	22	0	0	35	2	0	0	30	0	94	949
4:10 PM	0	1	0	0	0	4	0	20	0	0	31	1	0	6	29	0	92	962
4:15 PM	0	0	0	1	0	2	0	17	0	0	29	1	0	2	26	0	78	956
4:20 PM	0	0	0	0	0	1	0	7	0	0	19	0	0	4	33	0	64	966
4:25 PM	0	0	0	0	0	4	0	6	0	0	25	0	0	2	26	0	63	975
4:30 PM	0	1	0	0	0	4	0	6	0	0	31	2	0	5	37	0	86	981
4:35 PM	0	0	2	0	0	1	0	23	0	0	23	3	0	1	30	0	83	965
4:40 PM	0	0	0	1	0	3	0	16	0	0	32	0	0	3	38	0	93	961
4:45 PM	0	1	0	1	0	2	0	10	0	0	26	1	0	4	23	0	68	926
4:50 PM	0	0	0	0	0	6	0	13	0	0	16	1	0	4	33	0	73	912
4:55 PM	0	0	0	0	0	2	0	14	0	0	24	0	0	6	42	0	88	904
5:00 PM	0	0	0	0	0	2	0	16	0	0	21	0	0	3	25	0	67	871
5:05 PM	0	0	0	0	0	12	0	20	0	0	33	1	0	1	40	0	107	
5:10 PM	0	0	0	0	0	6	0	11	0	0	21	0	0	7	41	0	86	
5:15 PM	0	0	0	0	0	4	0	9	0	0	25	2	0	8	40	0	88	
5:20 PM	0	0	0	0	0	0	0	6	0	0	30	0	0	6	31	0	73	
5:25 PM	0	2	0	0	0	2	0	9	0	0	26	0	0	1	29	0	69	
5:30 PM	0	0	0	0	0	3	0	4	0	0	26	1	0	1	35	0	70	
5:35 PM	0	0	0	0	0	1	0	10	0	0	26	0	0	1	41	0	79	
5:40 PM	0	0	0	0	0	3	0	2	0	0	25	0	0	3	25	0	58	
5:45 PM	0	0	0	0	0	2	0	5	0	0	13	0	0	1	33	0	54	
5:50 PM	0	0	0	0	0	1	0	7	0	0	35	0	0	5	17	0	65	
5:55 PM	0	0	0	0	0	1	0	10	0	0	14	1	0	3	26	0	55	
Count Total	0	5	2	5	0	75	0	287	0	0	627	16	0	79	757	0	1,853	_
Peak Hour	0	3	2	5	0	38	0	178	0	0	332	11	0	39	374	0	982	_

Interval		Hea	avy Vehicle	es	-	Interval		Bicycle	es on Road	dway		Interval	Ped	destrians/E	Bicycles on	Crosswa	ılk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
4:00 PM	0	3	0	1	4	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	3	5	2	10	4:05 PM	0	2	0	0	2	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	3	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	2	0	2	4	4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0
4:20 PM	0	2	0	3	5	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	1	1	3	5	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	4	2	2	8	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	3	1	0	4	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	1	0	1	2	4:40 PM	0	0	0	30	30	4:40 PM	0	0	0	0	0
4:45 PM	0	1	1	2	4	4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0
4:50 PM	0	1	0	1	2	4:50 PM	0	0	1	0	1	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	2	4	6	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	1	0	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	3	4	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	0	1	2	5:25 PM	0	0	0	0	0	5:25 PM	0	0	1	0	1
5:30 PM	0	2	1	0	3	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	2	2	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	1	0	0	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	2	0	0	2	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	1	0	1	5:55 PM	0	0	0	0	0	5:55 PM	0	0	1	0	1
Count Total	0	30	14	32	76	Count Total	0	3	1	31	35	Count Total	0	0	2	0	2
Peak Hour	0	21	10	20	51	Peak Hour	0	3	1	31	35	Peak Hour	0	0	0	0	0



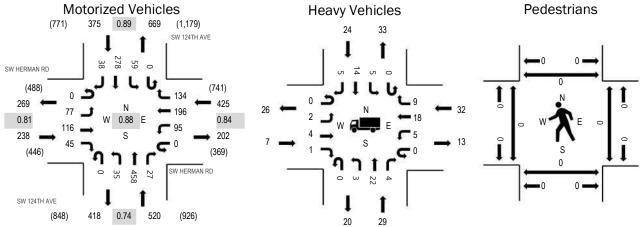
Location: 4 SW 124TH AVE & SW HERMAN RD PM

Date: Tuesday, May 24, 2022

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

Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.9%	0.81
WB	7.5%	0.84
NB	5.6%	0.74
SB	6.4%	0.89
All	5.9%	0.88

Interval			RMAN RE)		SW HER	RMAN RI)			TH AVE			SW 124	TH AVE			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
4:00 PM	0	8	11	4	0	3	19	15	0	5	65	2	0	7	21	2	162	1,558
4:05 PM	0	5	15	3	0	8	14	15	0	3	46	3	0	6	21	5	144	1,521
4:10 PM	0	9	7	6	0	12	17	9	0	3	45	3	0	7	17	4	139	1,514
4:15 PM	0	9	9	4	0	7	16	10	0	2	30	4	0	6	19	6	122	1,510
4:20 PM	0	5	9	6	0	6	15	4	0	3	35	3	0	7	29	2	124	1,524
4:25 PM	0	0	5	4	0	7	14	4	0	3	28	1	0	3	16	0	85	1,523
4:30 PM	0	14	11	5	0	11	20	19	0	1	28	2	0	5	26	0	142	1,546
4:35 PM	0	4	13	3	0	8	9	17	0	4	47	3	0	4	18	4	134	1,512
4:40 PM	0	4	9	1	0	12	13	18	0	3	41	0	0	3	28	4	136	1,476
4:45 PM	0	5	12	2	0	6	25	9	0	2	35	3	0	2	17	2	120	1,436
4:50 PM	0	5	8	3	0	9	18	10	0	4	21	1	0	4	29	6	118	1,407
4:55 PM	0	9	7	4	0	6	16	4	0	2	37	2	0	5	37	3	132	1,367
5:00 PM	0	11	17	5	0	5	18	8	0	4	27	4	0	3	18	5	125	1,326
5:05 PM	0	11	8	5	0	6	16	10	0	5	40	3	0	3	28	2	137	
5:10 PM	0	10	6	2	0	9	18	11	0	3	33	2	0	2	37	2	135	
5:15 PM	0	6	5	6	0	9	23	7	0	1	31	2	0	4	37	5	136	
5:20 PM	0	7	9	3	0	10	13	9	0	1	36	3	0	5	26	1	123	
5:25 PM	0	5	11	1	0	7	15	4	0	1	32	3	0	4	22	3	108	
5:30 PM	0	7	6	3	0	4	9	6	0	3	26	2	0	2	34	6	108	
5:35 PM	0	2	8	0	0	13	10	4	0	3	27	3	0	3	24	1	98	
5:40 PM	0	7	8	1	0	3	6	6	0	0	29	1	0	8	25	2	96	
5:45 PM	0	5	5	2	0	8	15	6	0	2	16	1	0	7	22	2	91	
5:50 PM	0	8	6	1	0	1	4	3	0	2	27	2	0	3	21	0	78	
5:55 PM	0	4	4	3	0	4	14	2	0	2	27	2	0	2	25	2	91	
Count Total	0	160	209	77	0	174	357	210	0	62	809	55	0	105	597	69	2,884	
Peak Hour	0	77	116	45	0	95	196	134	0	35	458	27	0	59	278	38	1,558	_

Interval		Hea	avy Vehicle	es	•	Interval		Bicycle	s on Road	dway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
4:00 PM	1	2	5	1	9	4:00 PM	1	0	0	0	1	4:00 PM	0	0	0	0	0
4:05 PM	0	8	4	3	15	4:05 PM	1	2	0	0	3	4:05 PM	0	0	0	0	0
4:10 PM	0	1	4	4	9	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	2	1	3	6	4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0
4:20 PM	1	4	3	3	11	4:20 PM	1	0	0	1	2	4:20 PM	0	0	0	0	0
4:25 PM	1	2	5	1	9	4:25 PM	0	0	1	0	1	4:25 PM	0	0	0	0	0
4:30 PM	0	5	2	2	9	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	2	1	1	5	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	1	3	1	6	4:40 PM	0	0	1	30	31	4:40 PM	0	0	0	0	0
4:45 PM	1	1	1	2	5	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	1	2	2	5	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	0	1	1	3	4:55 PM	1	1	0	0	2	4:55 PM	0	0	0	0	0
5:00 PM	2	0	3	1	6	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	1	2	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	2	1	3	3	9	5:10 PM	0	1	0	0	1	5:10 PM	0	0	0	0	0
5:15 PM	0	0	2	1	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	1	2	4	8	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	2	3	6	5:25 PM	0	0	0	0	0	5:25 PM	0	0	1	0	1
5:30 PM	2	2	0	2	6	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	3	1	4	5:35 PM	1	0	0	0	1	5:35 PM	0	0	0	0	0
5:40 PM	2	0	0	0	2	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	1	1	2	4	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	1	2	1	0	4	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	2	2	5	5:55 PM	0	0	0	0	0	5:55 PM	0	0	1	0	1
Count Total	17	39	51	44	151	Count Total	5	5	2	31	43	Count Total	0	0	2	0	2
Peak Hour	7	29	32	24	92	Peak Hour	4	4	2	31	41	Peak Hour	0	0	0	0	0



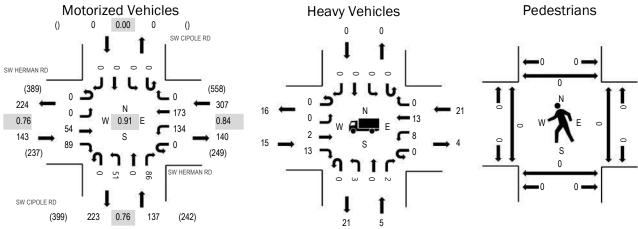
Location: 5 SW CIPOLE RD & SW HERMAN RD PM

Date: Tuesday, May 24, 2022

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

Peak 15-Minutes: 04:00 PM - 04:15 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	10.5%	0.76
WB	6.8%	0.84
NB	3.6%	0.76
SB	0.0%	0.00
All	7.0%	0.91

Interval	SW HERMAN RD Eastbound						RMAN RI)			OLE RD				OLE RD			Rolling
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Hour
4:00 PM	0	0	5	7	0	13	17	0	0	4	0	11	0	0	0	0	57	587
4:05 PM	0	0	4	4	0	9	22	0	0	9	0	7	0	0	0	0	55	583
4:10 PM	0	0	6	9	0	9	12	0	0	6	0	8	0	0	0	0	50	586
4:15 PM	0	0	6	6	0	15	10	0	0	2	0	6	0	0	0	0	45	574
4:20 PM	0	0	6	15	0	11	8	0	0	9	0	8	0	0	0	0	57	577
4:25 PM	0	0	5	6	0	10	13	0	0	0	0	2	0	0	0	0	36	565
4:30 PM	0	0	2	8	0	11	14	0	0	7	0	8	0	0	0	0	50	567
4:35 PM	0	0	4	5	0	8	16	0	0	2	0	12	0	0	0	0	47	556
4:40 PM	0	0	4	6	0	7	9	0	0	4	0	5	0	0	0	0	35	540
4:45 PM	0	0	4	8	0	17	25	0	0	3	0	7	0	0	0	0	64	530
4:50 PM	0	0	4	13	0	14	7	0	0	4	0	6	0	0	0	0	48	500
4:55 PM	0	0	4	2	0	10	20	0	0	1	0	6	0	0	0	0	43	471
5:00 PM	0	0	5	9	0	15	11	0	0	7	0	6	0	0	0	0	53	450
5:05 PM	0	0	2	7	0	18	21	0	0	2	0	8	0	0	0	0	58	
5:10 PM	0	0	1	8	0	10	13	0	0	3	0	3	0	0	0	0	38	
5:15 PM	0	0	7	3	0	19	9	0	0	2	0	8	0	0	0	0	48	
5:20 PM	0	0	4	6	0	11	13	0	0	4	0	7	0	0	0	0	45	
5:25 PM	0	0	4	2	0	11	7	0	0	7	0	7	0	0	0	0	38	
5:30 PM	0	0	5	7	0	4	14	0	0	3	0	6	0	0	0	0	39	
5:35 PM	0	0	4	3	0	7	12	0	0	5	0	0	0	0	0	0	31	
5:40 PM	0	0	5	1	0	3	5	0	0	4	0	7	0	0	0	0	25	
5:45 PM	0	0	3	3	0	12	10	0	0	0	0	6	0	0	0	0	34	
5:50 PM	0	0	3	0	0	2	7	0	0	1	0	6	0	0	0	0	19	
5:55 PM	0	0	1	1	0	14	3	0	0	2	0	1	0	0	0	0	22	
Count Total	0	0	98	139	0	260	298	0	0	91	0	151	0	0	0	0	1,037	_
Peak Hour	0	0	54	89	0	134	173	0	0	51	0	86	0	0	0	0	587	=

Interval		Hea	avy Vehicle	es		Interval		Bicycle	s on Road	dway		Interval	Ped	destrians/E	Bicycles on	Crosswa	lk
Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total	Start Time	EB	NB	WB	SB	Total
4:00 PM	2	2	5	0	9	4:00 PM	0	1	0	0	1	4:00 PM	0	0	0	0	0
4:05 PM	0	0	4	0	4	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	3	0	3	0	6	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	2	0	1	0	3	4:15 PM	1	0	0	0	1	4:15 PM	0	0	0	0	0
4:20 PM	1	0	1	0	2	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	0	2	0	2	4:25 PM	0	0	1	0	1	4:25 PM	0	0	0	0	0
4:30 PM	1	1	1	0	3	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	1	1	0	3	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	3	0	0	0	3	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	1	1	1	0	3	4:50 PM	1	0	0	0	1	4:50 PM	0	0	0	0	0
4:55 PM	1	0	1	0	2	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	1	2	0	4	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	2	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	1	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	1	1	3	0	5	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	1	2	0	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	1	0	0	2	5:30 PM	1	0	0	0	1	5:30 PM	0	0	0	0	0
5:35 PM	0	0	2	0	2	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	1	1	0	0	2	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	1	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	1	0	0	1	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	2	0	2	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	20	12	36	0	68	Count Total	3	1	1	0	5	Count Total	0	0	0	0	0
Peak Hour	15	5	21	0	41	Peak Hour	2	1	1	0	4	Peak Hour	0	0	0	0	0

Date Start: 15-Jul-21 Date End: 16-Jul-21 SW 124th Ave S-O SW Myslony St Site Code: 1

NB																•	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76		85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	Percent
07/15/21	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	1	2	1	7	15	30	53	76	33	12	3	0	0	0	233	51	56
15:00	1	0	4	4	20	35	96	102	53	8	1	1	1	0	326	51	54
16:00	5	0	2	2	6	12	71	144	93	16	4	1	0	0	356	53	56
17:00	3	0	2	1	5	15	73	116	75	21	9	2	0	0	322	53	58
18:00	0	0	0	0	1	15	45	64	40	17	4	1	0	0	187	54	58
19:00	0	0	1	1	3	4	25	37	20	7	1	0	0	0	99	53	57
20:00	2	0	0	0	3	1	35	39	33	11	0	0	0	1	125	53	57
21:00	1	0	0	1	0	13	26	30	12	6	1	0	0	0	90	52	57
22:00	1	1	0	0	1	4	12	25	8	2	1	0	0	0	55	51	55
23:00	0	0	0	3	2	3	11	9	4	3	4	0	0	0	39	56	62
Total	14	3	10	19	56	132	447	642	371	103	28	5	1	1	1832		
Percent	0.8%	0.2%	0.5%	1.0%	3.1%	7.2%	24.4%	35.0%	20.3%	5.6%	1.5%	0.3%	0.1%	0.1%			
AM Peak																	
Vol.																	
PM Peak	16:00	14:00	15:00	14:00	15:00	15:00	15:00	16:00	16:00	17:00	17:00	17:00	15:00	20:00	16:00		
Vol.	5	2	4	7	20	35	96	144	93	21	9	2	1	1	356		

Date Start: 15-Jul-21 Date End: 16-Jul-21 SW 124th Ave S-O SW Myslony St Site Code: 1

NB																	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76		85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	Percent
07/16/21	0	0	0	1	0	3	4	11	2	0	0	0	0	0	21	49	52
01:00	0	0	0	0	0	2	8	9	3	1	0	0	0	0	23	50	54
02:00	1	0	0	0	0	1	7	2	3	0	0	1	0	0	15	52	66
03:00	0	1	0	2	10	10	4	8	7	1	1	0	0	0	44	51	54
04:00	1	0	1	12	33	21	15	20	9	1	0	0	0	0	113	48	52
05:00	1	0	1	5	12	21	20	45	27	15	3	3	0	0	153	54	59
06:00	4	1	0	3	15	31	31	53	31	14	3	1	0	0	187	53	58
07:00	3	0	3	7	15	29	32	61	40	15	0	2	0	0	207	53	57
08:00	2	0	1	5	9	14	49	70	30	9	1	0	0	0	190	51	55
09:00	3	0	2	4	3	29	65	52	22	12	3	0	0	0	195	51	57
10:00	0	0	1	7	10	32	53	69	18	3	1	0	0	0	194	49	53
11:00	4	0	2	3	10	36	49	56	27	5	3	0	0	0	195	51	54
12 PM	4	0	2	7	10	30	64	71	35	3	2	0	0	0	228	50	54
13:00	3	0	0	6	10	27	56	98	22	3	1	0	0	0	226	49	53
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	26	2	13	62	137	286	457	625	276	82	18	7	0	0	1991		
Percent	1.3%	0.1%	0.7%	3.1%	6.9%	14.4%	23.0%	31.4%	13.9%	4.1%	0.9%	0.4%	0.0%	0.0%			
AM Peak	06:00	03:00	07:00	04:00	04:00	11:00	09:00	08:00	07:00	05:00	05:00	05:00			07:00		
Vol.	4	1	3	12	33	36	65	70	40	15	3	3			207		
PM Peak	12:00		12:00	12:00	12:00	12:00	12:00	13:00	12:00	12:00	12:00				12:00		
Vol.	4		2	7	10	30	64	98	35	3	2				228		
Grand Total	40	5	23	81	193	418	904	1267	647	185	46	12	1	1	3823		
Percent	1.0%	0.1%	0.6%	2.1%	5.0%	10.9%	23.6%	33.1%	16.9%	4.8%	1.2%	0.3%	0.0%	0.0%			
			D	. * 1	07 14011												

 15th Percentile :
 37 MPH

 50th Percentile :
 45 MPH

 85th Percentile :
 52 MPH

 95th Percentile :
 56 MPH

Statistics 10 MPH Pace Speed: 41-50 MPH

 Number in Pace :
 2171

 Percent in Pace :
 56.8%

 Number of Vehicles > 55 MPH :
 245

 Percent of Vehicles > 55 MPH :
 6.4%

 Mean Speed(Average) :
 46 MPH

Date Start: 19-Jul-21 Date End: 20-Jul-21 SW 124th Ave S-O SW Myslony St Site Code: 1

NB																	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76		85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	Percent
07/19/21	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	3	0	1	13	31	67	166	115	46	4	2	0	0	0	448	49	53
17:00	1	1	2	13	18	67	130	89	27	5	1	0	0	0	354	48	52
18:00	0	0	2	7	13	33	70	54	18	2	0	1	0	0	200	49	53
19:00	1	0	1	3	3	9	34	45	10	3	0	0	0	1	110	49	53
20:00	0	1	1	0	10	16	30	39	9	1	1	0	0	0	108	49	53
21:00	0	2	2	5	5	10	26	17	8	1	1	0	0	0	77	49	53
22:00	0	0	0	1	2	5	16	18	5	1	0	0	0	0	48	49	53
23:00	0	0	0	0	1	5	8	9	3	0	1	0	0	0	27	49	54
Total	5	4	9	42	83	212	480	386	126	17	6	1	0	1	1372		
Percent	0.4%	0.3%	0.7%	3.1%	6.0%	15.5%	35.0%	28.1%	9.2%	1.2%	0.4%	0.1%	0.0%	0.1%			
AM Peak																	
Vol.																	
PM Peak	16:00	21:00	17:00	16:00	16:00	16:00	16:00	16:00	16:00	17:00	16:00	18:00		19:00	16:00		
Vol.	3	2	2	13	31	67	166	115	46	5	2	1		1	448		

Date Start: 19-Jul-21 Date End: 20-Jul-21 SW 124th Ave S-O SW Myslony St Site Code: 1

NB																	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76		85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	Percent
07/20/21	0	0	0	1	1	6	6	3	4	0	0	0	0	0	21	51	53
01:00	0	0	1	4	0	1	7	7	1	0	0	0	0	0	21	48	49
02:00	0	0	3	11	8	7	8	3	0	0	0	0	0	0	40	43	46
03:00	0	0	0	0	1	3	12	5	2	1	0	0	0	0	24	49	54
04:00	0	0	0	1	2	12	16	27	10	0	0	1	0	0	69	50	53
05:00	0	0	0	1	4	14	23	49	24	6	1	0	0	0	122	52	55
06:00	2	0	4	3	2	20	41	48	26	9	0	0	1	0	156	52	56
07:00	2	0	3	9	14	31	84	100	28	7	0	0	0	0	278	49	53
08:00	3	5	3	9	15	47	78	56	8	1	0	0	0	0	225	47	49
09:00	0	0	1	13	13	46	77	42	10	2	0	0	0	0	204	47	50
10:00	2	3	7	10	18	47	71	52	15	2	1	2	0	0	230	48	52
11:00	0	3	4	11	29	51	92	52	13	0	0	1	0	0	256	47	50
12 PM	4	4	6	11	23	52	98	56	12	2	1	0	1	0	270	47	51
13:00	1	0	5	4	25	27	86	82	18	7	0	0	0	0	255	49	53
14:00	2	2	2	19	36	68	137	65	19	4	1	0	0	0	355	47	51
15:00	2	2	11	35	56	78	147	97	21	2	1	0	0	0	452	47	50
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	18	19	50	142	247	510	983	744	211	43	5	4	2	0	2978		
Percent	0.6%	0.6%	1.7%	4.8%	8.3%	17.1%	33.0%	25.0%	7.1%	1.4%	0.2%	0.1%	0.1%	0.0%			
AM Peak	08:00	08:00	10:00	09:00	11:00	11:00	11:00	07:00	07:00	06:00	05:00	10:00	06:00		07:00		
Vol.	3	5	7	13	29	51	92	100	28	9	1_	2	1		278		
PM Peak	12:00	12:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	13:00	12:00		12:00		15:00		
Vol.	4	4	11	35	56	78	147	97	21	7	1		1		452		
Grand Total	23	23	59	184	330	722	1463	1130	337	60	11	5	2	1	4350		
Percent	0.5%	0.5%	1.4%	4.2%	7.6%	16.6%	33.6%	26.0%	7.7%	1.4%	0.3%	0.1%	0.0%	0.0%			

15th Percentile: 35 MPH 50th Percentile: 42 MPH 85th Percentile: 48 MPH 95th Percentile: 52 MPH

Statistics 10 MPH Pace Speed: 41-50 MPH Number in Pace: 2593

 Number in Pace :
 2593

 Percent in Pace :
 59.6%

 Number of Vehicles > 55 MPH :
 79

 Percent of Vehicles > 55 MPH :
 1.8%

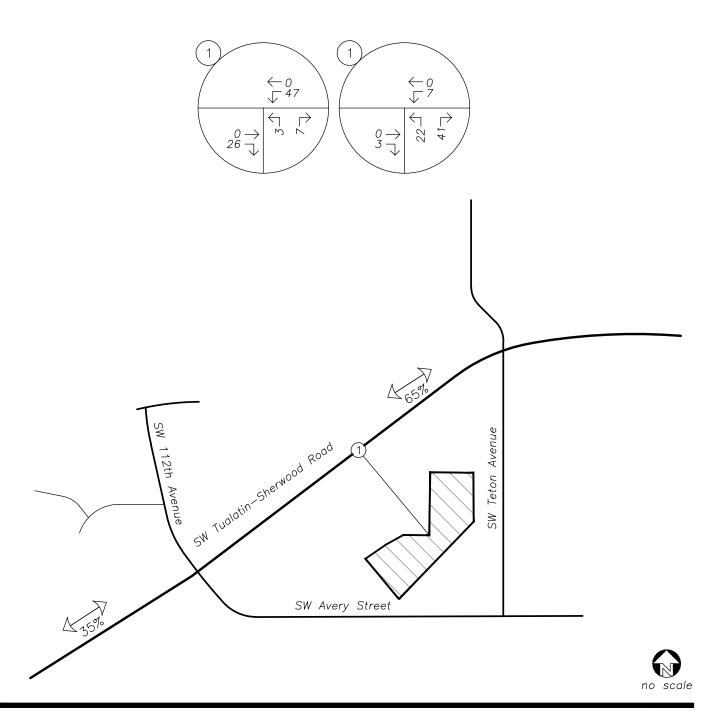
 Mean Speed(Average) :
 43 MPH

LEGEND

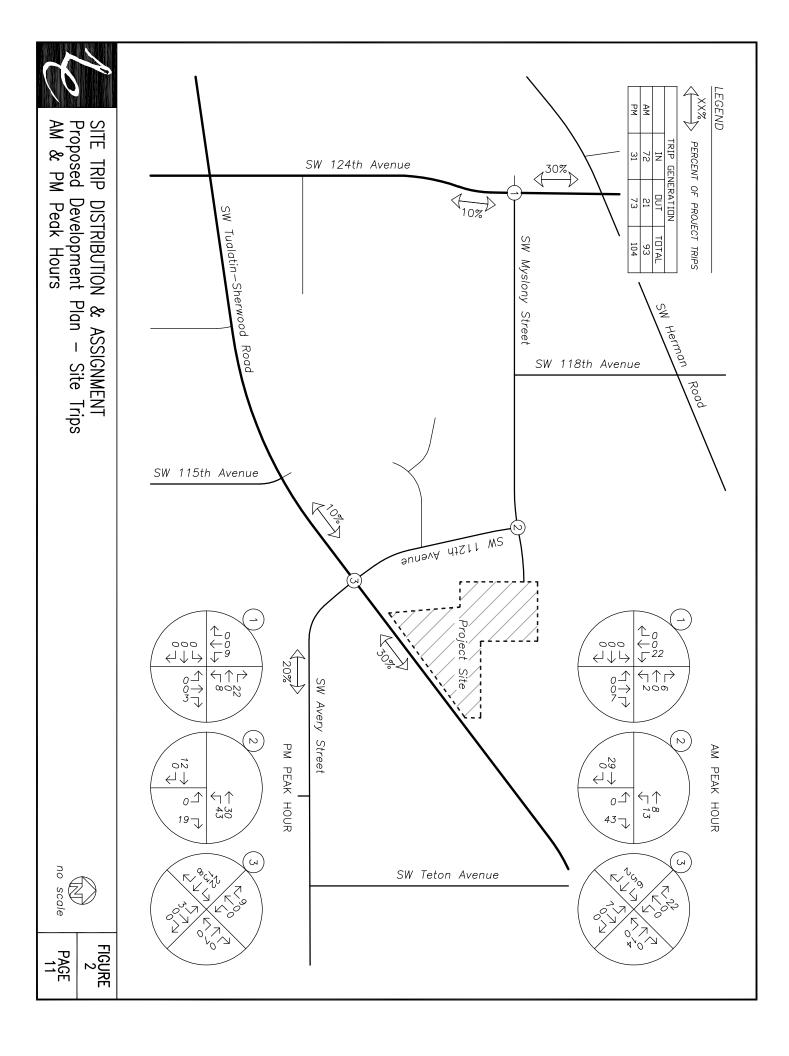


TRIP GENERATION									
	IN	OUT	TOTAL						
AM	73	10	83						
РМ	10	63	73						

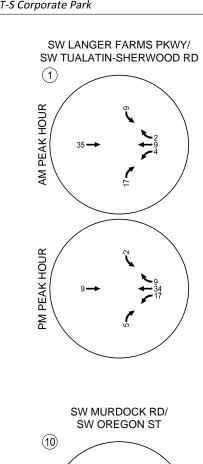
AM PEAK HOUR PM PEAK HOUR

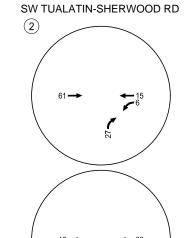




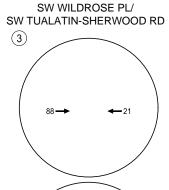


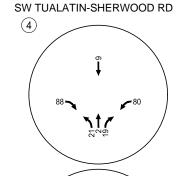
T-S Corporate Park



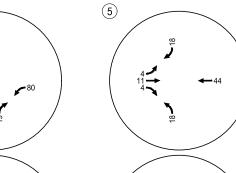


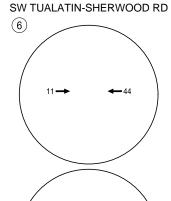
SW OREGON ST/



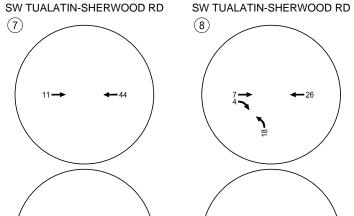


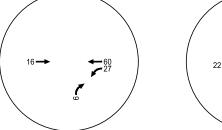
SW CIPOLE RD/

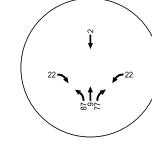


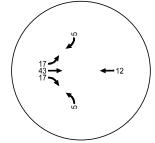


SW 120TH AVE/



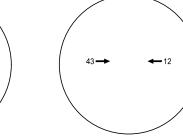


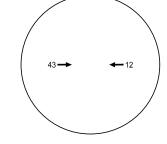




SW 124TH AVE/

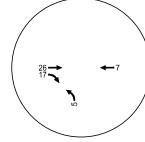
SW TUALATIN-SHERWOOD RD



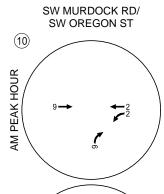


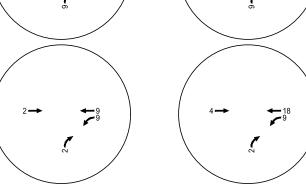
SW 115TH AVE/

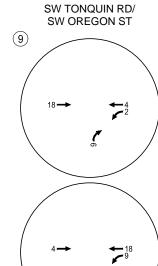
7

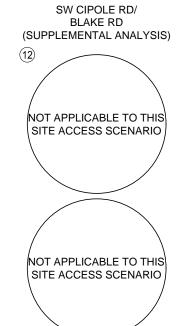


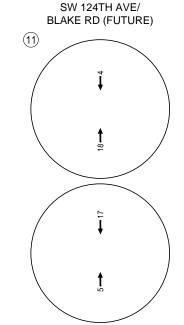
SW 112TH AVE-SW AVERY ST/

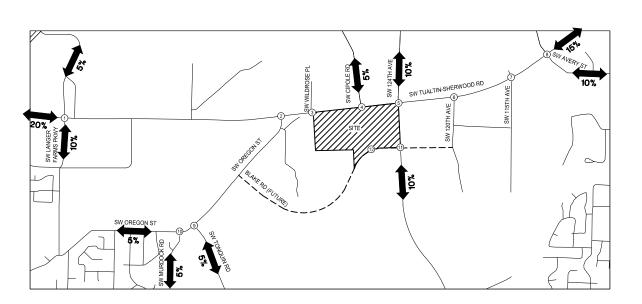








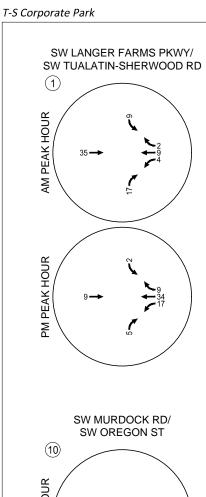


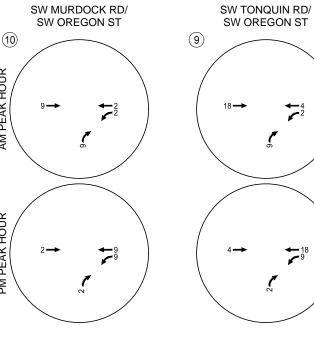


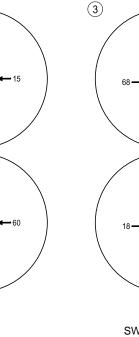
Site Trip Distribution Weekday AM and PM Peak Hours Sherwood, Oregon



SW 112TH AVE-SW AVERY ST/



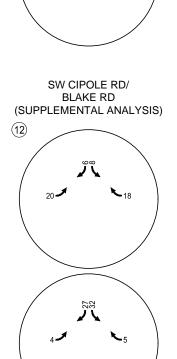




SW OREGON ST/

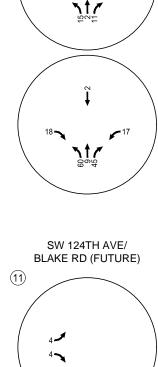
SW TUALATIN-SHERWOOD RD

2



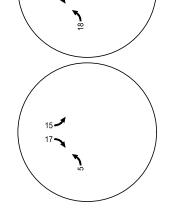
SW WILDROSE PL/

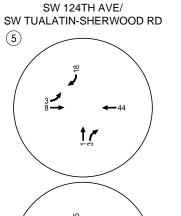
SW TUALATIN-SHERWOOD RD

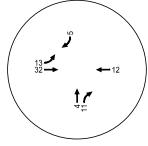


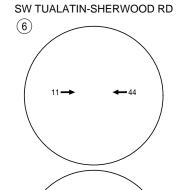
SW CIPOLE RD/ SW TUALATIN-SHERWOOD RD

4

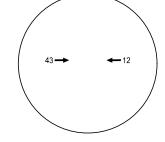


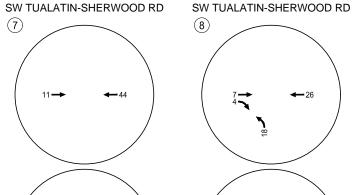




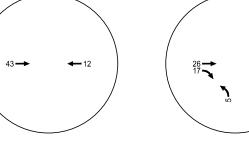


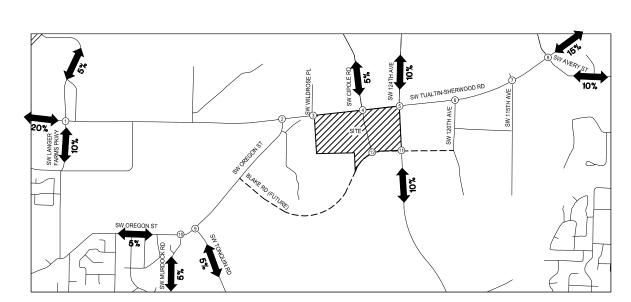
SW 120TH AVE/



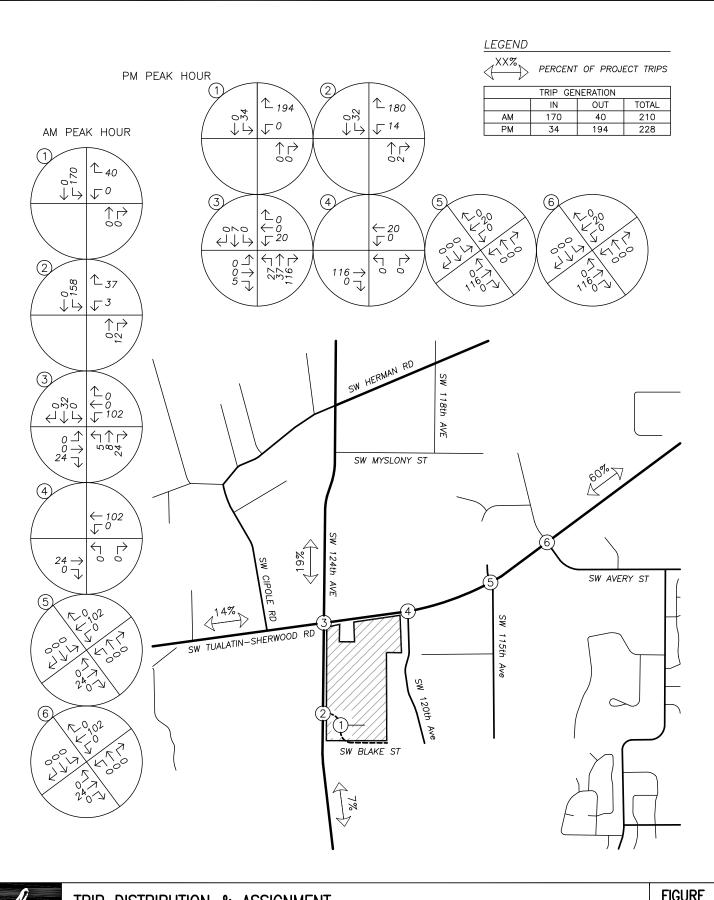


SW 115TH AVE/









le

TRIP DISTRIBUTION & ASSIGNMENT Proposed Development Plan — Site Trips AM & PM Peak Hours



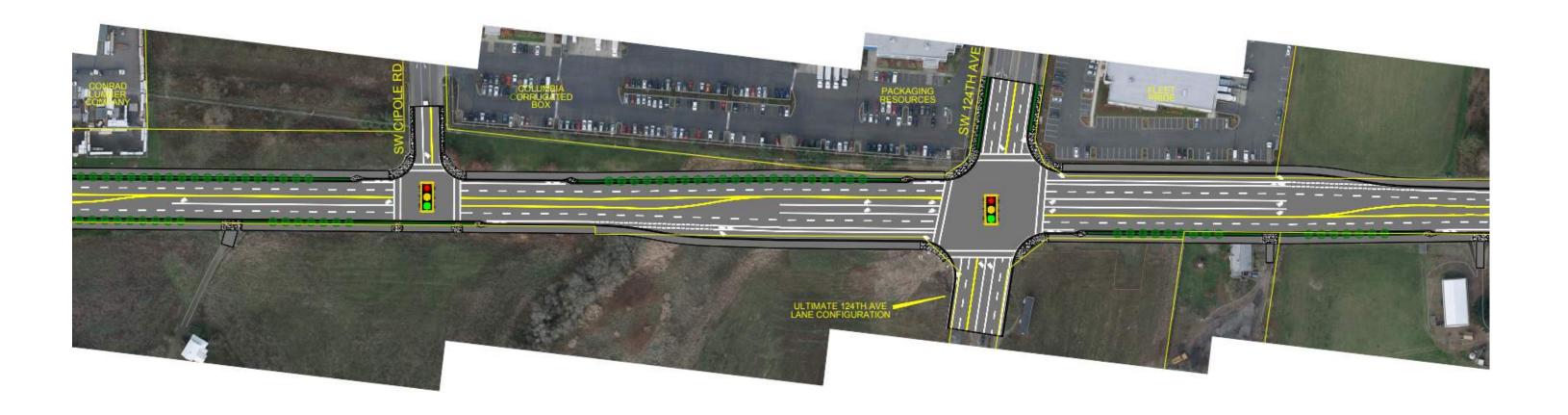
FIGURE 4

PAGE 10









TUALATIN-SHERWOOD ROAD LANGER FARMS PKWY TO TETON AVE

PIRELIMINARY - SUBJECT TO CHANGE







2100 SW River Parkway Portland Oregon 97201 Phone: 503.223.6663



Appendix C – Safety

Crash Reports



TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

CIPOLE RD and HERMAN RD, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

1 - 1 of 1 Crash records shown.

	S D M																
SER#	P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE						
INVEST	E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE	A	S			
RD DPT	E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC INJ G	E LICNS PED			
UNLOC?	D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE SVRTY E	X RES LOC	ERROR	ACT EVENT	CAUSE
03200	N N N	N N 09/01/2020	17	SW HERMAN RD	STRGHT		N	N	CLR	O-STRGHT	01 NONE 0	STRGHT					05
COUNTY		TU	315	SW CIPOLE RD	NE	(NONE)	UNKNOWN	N	DRY	HEAD	PRVTE	SW-NE				000	00
Y		7A			08			N	DAY	INJ	PSNGR CAR		01 DRVR INJB 49 M	OR-Y	039	000	05
N		45 22 33.25	5 -122 48 39.34			(02)								OR<25			
											02 NONE 0	STRGHT					
											PRVTE	NE-SW				000	00
											PSNGR CAR		01 DRVR INJB 27 F	OR-Y	000	000	00
														OR<25			

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and CIPOLE RD, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

1 - 4 of 21 Crash records shown.

	S D M																			
SER#		S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	EAUI		DIST	FIRST STREET	RD CHAR		INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	3				
RD DPT	ELGN	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G :	E LICN	S PED			
UNLOC?	D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	K RES	LOC	ERROR	ACT EVENT	CAUSE
00228	N N N	01/13/2019	14	SW CIPOLE RD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 9	STRGHT								27,29
NONE		SU	0	SW TUALATIN-SHERWOOD	E		TRF SIGNAL	N	DRY	REAR	N/A	E -W							000	00
N N		4P 45 22 8.5	-122 48		06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U1	ık UNK UNK		000	000	00
			32.72								02 NONE 9	STOP								
											N/A	E -W							011	00
											PSNGR CAR		01 DRVR	NONE	00 U1	ık UNK UNK		000	000	00
01094	N N N	N N 03/04/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-STRGHT	01 NONE 0	STRGHT								27,07
CITY		MO	40	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E							000	00
N		6P			05			N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	25 M			016,043	038	27,07
N		45 22 8.59	-122 48 31.74			(02)										OR<2	5			
											02 NONE 0	STRGHT								
											PRVTE	W -E	01		40 =			000	000	00
											PSNGR CAR		01 DRVR	INJC	48 F	OR-Y OR<2		000	000	00
04026	N N N	06/19/2016	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 0	STRGHT								29
NONE		SU	100	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
N		2P			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	18 M			026	000	29
N		45 22 8.69	-122 48 30.79			(02)										OR<2	5			
											02 NONE 0	STOP								
											PRVTE	E -W	01 DDITT	TNIC	02 11	OD W		000	011	00
											PSNGR CAR		01 DRVR	INJC	23 F	OR-Y OR<2		000	000	00
04920	N N N	N N 07/26/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								07
CITY		TU	100	SW CIPOLE RD	E	(NONE)	NONE	N	DRY	REAR	PRVTE	W -E							000	00
N		12P			07			N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	21 M			043	000	07
N		45 22 8.68	-122 48 30.85			(02)										OR<2	5			
											01 NONE 0	STRGHT								
											PRVTE	W -E							000	00
											PSNGR CAR		02 PSNG	INJC	19 M			000	000	00
											02 NONE 0	STOP								
											PRVTE	W -E							011	00
											PSNGR CAR		01 DRVR	INJC	53 M	OR-Y OR<2		000	000	00
03523	N N N	N N 06/14/2017	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-1STOP	01 NONE 0	STRGHT								29,32
CITY		WE	100	SW CIPOLE RD	E	(NONE)	NONE	N	DRY	REAR	PRVTE	W -E							000	00
N		10A			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	41 F	OR-Y		026,052	000	29,32
N		45 22 8.68	-122 48 30.89			(02)										OR<2	5			

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and CIPOLE RD, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

5 - 8 of 21 Crash records shown.

S	D M																		
	R J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
	U I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E L	G N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICNS	S PED			
	S V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL		LIGHT		V# TYPE	TO	P# TYPE		E		LOC	ERROR	ACT EVENT	CAUSE
				,						02 NONE 0	STOP								
										PRVTE	W -E	0.4						011 013	00
										PSNGR CAR	G=0.5	01 DRVR	INJC	69 M	OR-Y	5	000	000	00
										02 NONE 0 PRVTE	STOP W -E							011 013	00
										PSNGR CAR	WE	02 PSNG	NO<5	04 M			000	000	00
										03 NONE 0	STOP								
										PRVTE	W -E							022	00
										PSNGR CAR		01 DRVR	NONE	67 M	OR-Y OR<25		000	000	00
															UR<2:)			
	N N N 07/13/2018		SW TUALATIN-SHERWOOD		(NONE)	N	N	CLR	S-1STOP	01 NONE 0	STRGHT							013	22,29
CITY	FR	100	SW CIPOLE RD	E	(NONE)	NONE	N	DRY	REAR	PRVTE	W -E							000	22
N	11A			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	32 M	OR-Y		026	000	29
N	45 22 8.68	-122 48 30.92			(02)										OR<25	5			
		30.92								02 NONE 0	STOP								
										PRVTE	W -E							011 013	00
										PSNGR CAR		01 DRVR	INJC	53 F	OR-Y OR>25		000	000	00
										03 NONE 0	STOP								
										PRVTE	M -E							022	00
										PSNGR CAR		01 DRVR	NONE	26 M	OR-Y OR<25		000	000	00
01251 N N	N 03/04/2020	14	SW CIPOLE RD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 0	STRGHT								29
NONE	WE	100	SW TUALATIN-SHERWOOD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
N	11A			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	39 M	OR-Y		026	000	29
N	45 22 8.68				(02)										OR<25	5			
		30.91								02 NONE 0	STOP								
										PRVTE	E -W							011	00
										PSNGR CAR		01 DRVR	INJC	38 M	OR-Y		000	000	00
															OR<25	5			
04565 N N	N N N 08/31/2018	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 9	STRGHT								29
CITY	FR	110	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	N/A	E -W							000	00
N	5P			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK		000	000	00
N	45 22 8.69				(02)										UNK				
		30.78								02 NONE 9	STOP								
										N/A	E -W							011	00
										PSNGR CAR		01 DRVR	NONE	00 U	nk UNK		000	000	00
															UNK				

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and CIPOLE RD, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

9 - 11 of 21 Crash records shown.

SER# P R	M J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A U		DIST	FIRST STREET	RD CHAR	(MEDIAN)	TNT-DET	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	c				
RD DPT E L G			SECOND STREET			TRAF-						DDTC	INJ		s E LICNS	חבט			
		FROM		DIRECT	LEGS (#LANES)		RNDBT	SURF	COLL	OWNER	FROM	PRTC					EDDOD	A CT PATENT	CALLCE
JNLOC? D C S 02191 N N N		LONG 14	LRS SW CIPOLE RD	LOCTN	(#LANES)	Y	DRVWY N	LIGHT	SVRTY S-STRGHT	V# TYPE 01 NONE 0	TO STRGHT	P# TYPE	SVRII	<u> </u>	A KES	LOC	ERROR	ACT EVENT	CAUSE 29
72191 N N N	04/04/2010	14	SW CIPOLE RD	SIRGHI		ī	IN	CLK	5-51KGHI	OI NONE O	SIRGHI								29
IONE	MO	150	SW TUALATIN-SHERWOOD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
1	1P			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	19 M	OTH-Y		026	000	29
ī	45 22 8.76				(02)										N-RES				
		30.1								02 NONE 0	STRGHT								
										PRVTE	E -W							000	00
										PSNGR CAR		01 DRVR	INJB	58 M	OR-Y		000	000	00
															OR<25				
4294 N N N	N N 06/30/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT							013	27,29,32
CITY	TH	150	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E							000	00
					, ,														
1 1	3P	100 40		07	(00)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	18 F			016,026,052	038	27,29,32
ı	45 22 8.75	30.13			(02)										OR<25				
										02 NONE 0	STOP								
										PRVTE	W - E							011 013	00
										PSNGR CAR		01 DRVR	INJB	45 F	OR-Y OR<25		000	000	00
										03 NONE 0	STOP								
										PRVTE	M -E							022 013	00
										PSNGR CAR		01 DRVR	INJC	55 M	OR-Y OR<25		000	000	00
										04 NONE 0	STOP								
										PRVTE	M - E							022 013	00
										PSNGR CAR		01 DRVR	NONE	28 F	OR-Y OR<25		000	000	00
										04 NONE 0	STOP								
										PRVTE	M - E							022 013	00
										PSNGR CAR		02 PSNG	INJC	55 F			000	000	00
										05 NONE 0	STOP								
										UNKN	W -E							022	00
										PSNGR CAR		01 DRVR	NONE	35 F	OR-Y		000	000	00
															OR<25				
6795 N N N	N N 10/07/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-1STOP	01 NONE 0	STRGHT							093	27,29
TTY	FR	150	SW CIPOLE RD	E	(NONE)	NONE	N	WET	REAR	PRVTE	W -E							000	00
1	12P			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	65 F	OR-Y		016,026	038 093	27,29
1	45 22 8.75				(02)										OR<25		•		,
		30.22								02 NONE 0	STOP								
										PRVTE	W -E							011	00
										PSNGR CAR	-	01 DRVR	INJC	52 M	OR-Y			000	00
															OR>25				

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY TUALATIN-SHERWOOD and CIPOLE RD, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

12 - 14 of 21 Crash records shown.

S D	M																			
SER# P R	. J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE										
INVEST E A U	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			А	S					
RD DPT E L G	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LI	CNS P	ED			
UNLOC? D C S	V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	7 E	X RES	5 L	OC	ERROR	ACT EVENT	CAUSE
08043 N N N	N N 12/15/2017	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-1STOP	01 NONE 0	STRGHT									07
CITY	FR	150	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	W -E								000	00
N	7p			07			N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	16 I	or.	-Y		043	000	07
N	45 22 8.75	-122 48 30.21			(02)										OR:	<25				
		30.21								02 NONE 0	STOP									
										PRVTE	W -E								011	00
										PSNGR CAR		01 DRVR	INJC	33 I	OR-			000	000	00
06640 N N N	N N 10/01/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-STRGHT	01 NONE 0	STRGHT					-25				07
CITY	SA	200	SW CIPOLE RD	E	(NONE)	NONE	N	WET	REAR	PRVTE	W -E								000	00
N	11A			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	37 I	ı ∩p.	-V		043	000	07
N	45 22 8.82			07	(02)		14	DAI	INO	I BNOK CAR		OI DRVR	NONE	37 1	OR.			013	000	07
		29.52								01 NONE 0	STRGHT									
										PRVTE	W -E								000	00
										PSNGR CAR		02 PSNG	NO<5	03 I	י			000	000	00
										02 NONE 0	STRGHT									
										PRVTE	W -E								006 013	00
										PSNGR CAR		01 DRVR	INJC	34 I	OR-			000	000	00
										03 NONE 0	STOP				Oit	-23				
										PRVTE	W -E								022 013	00
										PSNGR CAR		01 DRVR	NONE	34 N	I OR-			000	000	00
										04 NONE 0	STOP				010	-23				
										PRVTE	W -E								022	00
										PSNGR CAR		01 DRVR	NONE	54 N	OR-	-Y		000	000	00
															OR	<25				
08017 N N N	11/02/2016		SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT									29
NONE	WE	200	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	N/A	M - E								000	00
N	5P			07			N	DUSK	PDO	PSNGR CAR		01 DRVR	NONE	00 τ	Jnk UNI	7		000	000	00
N	45 22 8.82	-122 48 29.51			(02)										UNI	7				
										02 NONE 9	STOP									
										N/A	W -E								011	00
										PSNGR CAR		01 DRVR	NONE	00 τ	Jnk UNI UNI			000	000	00
05771 N N N	N N 11/04/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								013	27,07
CITY	МО	200	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W								000	00
N	5P			08			N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	31 N				016,043	038	27,07
N	45 22 8.81	-122 48 29.54			(02)										OR	<25				

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and CIPOLE RD, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

Page: 9

15 - 18 of 21 Crash records shown.

	1				_														
	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
NVEST E A U I		DIST	FIRST STREET	RD CHAR	(MEDIAN)		OFFRD		CRASH	TRLR QTY	MOVE			A S					
D DPT E L G N		FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT		COLL	OWNER	FROM	PRTC	INJ		LICNS				
NLOC? D C S V	/ L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE 02 NONE 0	TO STOP	P# TYPE	SVRTY	Ε Σ	RES	LOC	ERROR	ACT EVENT	CAUSE
										PRVTE	E -W							011 013	00
										PSNGR CAR		01 DRVR	INJC	38 M	OR-Y		000	000	00
															OR<25				
										03 NONE 0	STOP								
										PRVTE	E -W	01 DDIM	MONTE	21 M	OD 17		000	022	00
										PSNGR CAR		01 DRVR	NONE	31 M	OR-1		000	000	00
0669 N N N	N N 02/07/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	FOG	S-1STOP	01 NONE 9	STRGHT								29
ATE	WE	245	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
	<i>C</i> 7			07			NT	DI III	DDO	DOMOD GAD		01 DDITT	MONTE	00 11-	1- 115112		0.00	0.00	0.0
	6A 45 22 8.88	-122 48		0 /	(02)		N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	UU Ur	UNK		000	000	00
	13 22 0.00	28.92			(02)										OIVIC				
										02 NONE 9	STOP								
										N/A PSNGR CAR	W -E	01 DRVR	NONE	00 112	le TINIZ		000	011 000	00 00
										FSNGR CAR		OI DRVR	NONE	00 01	UNK		000	000	00
715 N N N	N N 02/05/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-1STOP	01 NONE 9	STRGHT								07
TY	WE	263	SW CIPOLE RD	E	(NONE)	NONE	N	WET	REAR	N/A	E -W							000	00
	10A			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 IIr	k IINK		000	000	00
	45 22 8.9	-122 48 28.69			(02)			2111	120	T STIGHT GIAT		01 211111	110112	00 01	UNK				
		20.09								02 NONE 9	STOP								
										N/A	E -W							011	00
										PSNGR CAR		01 DRVR	NONE	00 Ur			000	000	00
2010 N N N	N N 10/11/2010	1.4	CM THAT ATTN CHEDWOOD	COD CLIM		NT.	NT.	OI D	C 1 CTOD	01 NONE 0	CTDCIT				UNK			012	27 07
	N N 10/11/2019	14	SW TUALATIN-SHERWOOD			N	N	CLR	S-1STOP	01 NONE 0	STRGHT							013	27,07
TY	FR	285	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E							000	00
	7A			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	39 M	OR-Y		016,043	038	27,07
	45 22 8.94				(02)										OR<25				
		28.34								02 NONE 0	STOP								
										PRVTE	W -E							011 013	00
										PSNGR CAR		01 DRVR	INJC	35 F	OR-Y		000	000	00
															OR<25				
										03 NONE 0	STOP							0.00	0.0
										PRVTE PSNGR CAR	W -E	01 DRVR	NONE	67 M	∩ p _ v		000	022 000	00 00
										PSNGR CAR		UI DRVR	MOINE	0 / 141					00
															OR 25				
1862 N N N	N N 07/24/2016	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-STRGHT	01 NONE 0	STRGHT								07
	N N 07/24/2016 SU	14	SW TUALATIN-SHERWOOD SW CIPOLE RD	STRGHT	(NONE)	Y UNKNOWN	N N	CLR DRY	S-STRGHT REAR		STRGHT E -W							000	
1862 N N N					(NONE)					01 NONE 0		01 DRVR	NONE		OR<25		043		07

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and CIPOLE RD, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

19 - 21 of 21 Crash records shown.

	S D M																			
SER#	P RJS	W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	E A U I C	O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A S					
RD DPT	ELGNH	R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G E	LICNS	PED			
UNLOC?	DCSVL	K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E X	RES	LOC	ERROR	ACT EVENT	CAUSE
											01 NONE 0	STRGHT								
											PRVTE	E -W							000	00
											PSNGR CAR		02 PSNG	INJC	15 F			000	000	00
											02 NONE 0	STRGHT								
											PRVTE	E -W							006	00
											PSNGR CAR		01 DRVR	NONE	41 M	OR-Y		000	000	00
																OR<25				
04887	N N N	08/03/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								29
NONE		MO	300	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
N		9A			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	47 M	OR-Y		026	000	29
N		45 22 8.95				(02)										OR<25				
			28.16								02 NONE 0	STOP								
											PRVTE	E -W							011	00
											PSNGR CAR		01 DRVR	INJC	67 F	OR-Y		000	000	00
																OR<25				
00576	N N N	02/01/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-1STOP	01 NONE 9	STRGHT								29
CITY		TH	325	SW CIPOLE RD	E	(NONE)	UNKNOWN	N	WET	REAR	N/A	W -E							000	00
N		6P			07			N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00 Un	k UNK		000	000	00
N		45 22 8.99	-122 48 27.84			(02)										UNK				
			4/.04								02 NONE 9	STOP								
											N/A	W -E							011	00
											PSNGR CAR		01 DRVR	NONE	00 Un	k UNK		000	000	00
																UNK				

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

1 - 4 of 13 Crash records shown.

	S D M																			
SER#		S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
	EAUI		DIST	FIRST STREET	RD CHAR		INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			А	S				
RD DPT	ELGN	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICN	S PED			
UNLOC?	DCSV	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRT		X RES	LOC	ERROR	ACT EVENT	CAUSE
01033	N N N	N N 02/28/2019	16	SW HERMAN RD	INTER	CROSS	N	N	CLD	ANGL-OTH	01 NONE 9	TURN-R								27,02
CITY		TH	0	SW 124TH AVE	N		TRF SIGNAL	N	WET	TURN	N/A	E -N							000	00
N N		1P 45 22 42.84			00	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 Uı	nk UNK UNK		000	000	00
			17.93								02 NONE 9 N/A PSNGR CAR	STRGHT S -N	01 DRVR	NONE:	00 Uı	nk IINK		000	000	00
													OI BRVIC			UNK				
04634	N N N	N N 12/16/2020	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								07
CITY		WE	0	SW 124TH AVE	N		TRF SIGNAL	N	DRY	REAR	PRVTE	N -S							000	00
N N		5P 45 22 42.84	4 -122 48 17.93		09	2		N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	46 F	OR-Y	5	043,026	000	07
			17.75								02 NONE 0	STOP								
											PRVTE	N -S							011	00
											PSNGR CAR		01 DRVR	INJC	20 F	OR-Y	5	000	000	00
03529	N N N	06/14/2017	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 9	TURN-R								29
NONE		WE	0	SW 124TH AVE	NE		TRF SIGNAL	N	DRY	REAR	N/A	E -N							000	00
N N		5P 45 22 42.84	4 -122 48 17.93		09	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 Uı	nk UNK UNK		000	000	00
			17.00								02 NONE 9	STOP								
											N/A	E -N							011	00
											PSNGR CAR		01 DRVR	NONE	00 Ui	IK UNK UNK		000	000	00
02723	N N N	N N 07/29/2020	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 0	TURN-R								07
CITY		WE	0	SW 124TH AVE	SW		YIELD	N	DRY	REAR	PRVTE	W -S							000	00
N N		10A 45 22 42.84	4 -122 48 17.93		09	2		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	56 F	OR-Y	5	043	000	07
											01 NONE 0	TURN-R								
											PRVTE	W -S	00		0.5			000	000	00
											PSNGR CAR		02 PSNG	INJC	06 M			000	000	00
											02 NONE 0	STOP								
											PRVTE	W -S	01 DRVR	MONE	40 M	OD W		000	011	00
											PSNGR CAR		UI DRVR	NONE	48 M	OR-1	5	000	000	00
01769	N N N	04/10/2018	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1STOP	01 NONE 9	BACK								10
NONE		TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	BACK	N/A	E -W							000	00
N N		3P 45 22 42.84	4 -122 48 17.93		09	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 Uı	ık UNK UNK		000	000	00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

5 - 9 of 13 Crash records shown.

S D N	M																				
ER# P R S	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE											
NVEST E A U I	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			1	A S						
D DPT E L G N	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	(G E	LICN	S PEI				
NLOC? D C S V	/ L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRT	Y :	E X	RES	LOC	ERR	ROR	ACT EVENT	CAUSE
							,			02 NONE 9	STOP										
										N/A PSNGR CAR	M -E	01 DDIM	MONTE	0.0) TT	1_ TINTE		000	,	011	00
										PSNGR CAR		01 DRVR	NONE	01) UII	UNK		000	,	000	00
366 N N N	N N 08/12/2016	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE 0	STRGHT										04
ITY	FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	ANGL	PRVTE	E -W									000	00
	9A			02	2		N	DAY	INJ	PSNGR CAR		01 DRVR	TNTB	3(ъ (OR-Y		000)	000	00
	45 22 42.8			02	2		14	DAI	1110	I DIVOIC CAIC		OI DRVR	1110 D	5.	, ,	OR<2		000	,	000	00
		17.93								01 NONE 0	STRGHT										
										PRVTE	E -W									000	00
										PSNGR CAR		02 PSNG	INJB	08	3 F			000)	000	00
										02 NONE 0	STRGHT										
										PRVTE	SIRGHI S -N									000	00
										PSNGR CAR	5 1	01 DRVR	INJA	56	5 F	OR-Y		020)	000	04
																OR<2					
422 N N N	N N 04/13/2016	16	SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1 L-TUF	RN 01 NONE 9	STRGHT										02
TY	WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	N/A	S -N									000	00
	3P			04	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	0.0) Un	k UNK		000)	000	00
	45 22 42.8	4 -122 48 17.93														UNK					
		17.93								02 NONE 9	TURN-L										
										N/A	N -E									000	00
										PSNGR CAR		01 DRVR	NONE	0.0) Un			000)	000	00
022 N N N	NT NT 04/07/2017	1.0	ON HEDWAN DD	TMEED	dD0dd	NT.	NT.	OI D	0 1 T mil	DN 01 NONE 0	CMD CLIM					UNK					02
	N N 04/07/2017		SW HERMAN RD	INTER	CROSS	N	N	CLD		RN 01 NONE 0	STRGHT									0.00	
TY	FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	TURN	PRVTE	S -N									000	00
	1P			04	2		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	29) M			000)	000	00
	45 22 42.8	4 -122 48 17.93														OR<2	5				
		17.55								02 NONE 0	TURN-L										
										PRVTE	N -E									000	00
										PSNGR CAR		01 DRVR	NONE	45	5 M			004	1,028	000	02
																OR<2	5				
408 N N N	N N 10/11/2018		SW HERMAN RD	INTER	CROSS	N	N	CLR	O-1 L-TUF	RN 01 NONE 9	TURN-L										04
TY	TH	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	N/A	N -E									000	00
	1P			04	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	0.0) Un			000)	000	00
	45 22 42.8	4 -122 48 17.93														UNK					
		11.99								02 NONE 9	STRGHT										
										N/A	S -N									000	00
										PSNGR CAR		01 DRVR	NONE	0.0) Un			000)	000	00
																UNK					

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

HERMAN RD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

10 - 13 of 13 Crash records shown.

	S D M																			
SER#	P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT	E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LIC	NS PED			
UNLOC?	D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	ТО	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
06891	N N N	12/24/2019	16	SW HERMAN RD	INTER	CROSS	N	N	CLD	O-1 L-TU	RN 01 NONE 0	STRGHT								02
CITY		TU	0	SW 124TH AVE	CN		L-GRN-SIG	N	DRY	TURN	PRVTE	S -N							000	00
N N		5P 45 22 42.84	4 -122 48 17.93		04	2		N	DUSK	INJ	PSNGR CAR		01 DRVR	INJC	30 1	M OR-		000	000	00
											02 NONE 0	TURN-L								
											PRVTE	N -E							000	00
											PSNGR CAR		01 DRVR	NONE	57 1	M OR-		028,004	000	02
02817	N N N	N N 08/06/2020	16	SW HERMAN RD	INTER	CROSS	N	N	RAIN	O-1 L-TU	RN 01 NONE 9	TURN-L								02
CITY		TH	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	TURN	N/A	S -W							000	00
N N		9A 45 22 42.84	4 -122 48		01	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Jnk UNK UNK		000	000	00
			17.93								0.0 170177	C== C11=								
											02 NONE 9 N/A	STRGHT N -S							000	00
											PSNGR CAR	N -5	01 DRVR	NONE	0.0	Jnk UNK		000	000	00
																UNK				
02786	N N N	N N 06/01/2018	17	SW HERMAN RD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 9	STRGHT								07
CITY		FR	100	SW 124TH AVE	E	(NONE)	UNKNOWN	N	DRY	REAR	N/A	E -W							000	00
N		5P			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Jnk UNK		000	000	00
N		45 22 43.42				(02)										UNK				
			15.94								02 NONE 9	STOP								
											N/A	E -W							011	00
											PSNGR CAR		01 DRVR	NONE	00	Jnk UNK		000	000	00
																UNK				
03519	N N N	N N 07/10/2019	17	SW HERMAN RD	STRGHT		N	N	CLD	S-1STOP	01 NONE 9	STRGHT								27,29
CITY		WE	200	SW 124TH AVE	E	(NONE)	UNKNOWN	N	DRY	REAR	N/A	E -W							000	00
N		4P			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Jnk UNK		000	000	00
N		45 22 43.8				(02)										UNK				
			14.66								02 NONE 9	STOP								
											N/A	E -W							011	00
											PSNGR CAR	••	01 DRVR	NONE	00	Jnk UNK		000	000	00
																UNK				

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

MYSLONY ST and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

1 - 5 of 5 Crash records shown.

S	D M																		
SER# P	R J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A	U I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E L	G N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G I	E LICNS	PED			
UNLOC? D C	S V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	то	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
01826 N N	N N N 03/18/2016	16	SW MYSLONY ST	INTER	3-LEG	N	N	CLR	O-1STOP	01 NONE 0	STRGHT								05
CITY	FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	SS-M	PRVTE	N -S							000	00
N N	4A 45 22 35.3	3 -122 48 17.98		04	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	INJC	47 M	NONE OR<25	i	044	000	05
		17.90								02 NONE 0	STOP								
										PRVTE	S -N							012	00
										MTRCYCLE		01 DRVR	INJB	36 M	OR-Y OR>25	i	000	000	00
09144 N N	N N N 10/10/2016	17	SW MYSLONY ST	ALLEY		N	N	CLR	ANGL-OTH	01 NONE 0	TURN-L								02
CITY	MO	450	SW 124TH AVE	E	(NONE)	NONE	N	DRY	TURN	UNKN	N -E							018	00
N	3P 45 22 35.3			08	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	27 M	OTH-Y N-RES		028	000	02
		11.29								02 NONE 0	STRGHT								
										PRVTE	E -W							000	00
										PSNGR CAR		01 DRVR	INJC	46 F	OR-Y OR<25	i	000	000	00
96859 N N	N 10/10/2016	17	SW MYSLONY ST	ALLEY		N	N	CLR	ANGL-OTH	01 NONE 0	TURN-L								02
CITY	MO	630	SW 124TH AVE	E	(NONE)	NONE	N	DRY	TURN	UNKN	S -W							000	00
N N	3P 45 22 35.3			07	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	27 M	OTH-Y N-RES		028	000	02
		8.79								02 NONE 0	STRGHT								
										UNKN	W -E							000	00
										PSNGR CAR		01 DRVR	INJC	46 F	OR-Y OR<25		000	000	00
03137 N Y	N N N 06/19/2018	16	SW 124TH AVE	CURVE		N	Y	CLR	FIX OBJ	01 NONE 9	STRGHT							053	10
CITY	TU	300	SW MYSLONY ST	S	(RSDMD)	UNKNOWN	N	DRY	FIX	N/A	N -S							000	00
Y N	8P 45 22 32.0	2 -122 48 18.52		07	(04)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U1	nk UNK UNK		000	000	00
06893 N N	N N N 11/01/2017		SW 124TH AVE	CURVE		N	Y	CLD	FIX OBJ	01 NONE 9	STRGHT							044,062	10
CITY	WE	325	SW MYSLONY ST	S	(RSDMD)	NONE	N	DRY	FIX	N/A	N -S							000	00
Y N	1P 45 22 31.9	8 -122 48 18.54		07	(04)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 Ui	nk UNK UNK		000	000	00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

1 - 5 of 100 Crash records shown.

S	D M																			
SER# P	RЈ	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E	A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E	L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICNS	PED			
UNLOC? D	c s v	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
02547 N	N N	05/21/2018	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 1	STRGHT								27,29
CITY		MO	0	SW 124TH AVE	N		TRF SIGNAL	N	DRY	REAR	PRVTE	N -S							000	00
N N		8A 45 22 9.72	-122 48 20.29		06	0		N	DAY	INJ	SEMI TOW		01 DRVR	NONE	49 M	OTH-Y		016,026	038	27,29
			20.27								02 NONE 0	STOP								
											PRVTE	N -S							012	00
											PSNGR CAR		01 DRVR	INJC	65 F	OR-Y OR<25		000	000	00
00625 N	N N	N N 02/06/2019	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 1	TURN-L								27,29
CITY		WE	0	SW 124TH AVE	N		TRF SIGNAL	N	DRY	REAR	PRVTE	N -E							000	00
N		11A	100 40		06	0		N	DAY	INJ	SEMI TOW		01 DRVR	NONE	31 M			016,026	038	27,29
N		45 22 9.72	-122 48 20.29													N-RES				
											02 NONE 0	STOP								
											PRVTE	N -S		_					011	00
											PSNGR CAR		01 DRVR	INJC	17 M	OR-Y OR<25		000	000	00
02851 N	N N	N N 08/06/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 9	STRGHT							013	07,29
CITY		TH	0	SW 124TH AVE	N		TRF SIGNAL	N	DRY	REAR	N/A	N -S							000	00
N N		5P 45 22 9.72	-122 48 20.29		06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
			20.29								02 NONE 9	STOP								
											N/A	N -S							011	00
											PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
03895 N	Y N	N N 10/25/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 9	STRGHT								29
CITY		SU	0	SW 124TH AVE	N		TRF SIGNAL	N	DRY	REAR	N/A	N -S							000	00
N N		12P 45 22 9.73			06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
			20.32								02 NONE 9	STOP								
											N/A	N -S							011	00
											PSNGR CAR		01 DRVR	NONE	00 U			000	000	00
																UNK				
02692 N	N N	04/23/2016	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 9	STRGHT								29
NONE		SA	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR	N/A	E -W							000	00
N N		12P 45 22 9.72			06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
			20.29								02 NONE 9	STOP								
											N/A	E -W							011	00
											PSNGR CAR		01 DRVR	NONE	00 U	nk UNK		000	000	00
																UNK				

URBAN NON-SYSTEM CRASH LISTING

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CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

6 - 9 of 100 Crash records shown.

	S D N	1																		
SER#	P R J	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT	ELGI	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICN	S PED			
UNLOC?	D C S V	/ L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	ТО	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
03949	N N N	N N 06/16/2016	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	Y	CLD	FIX OBJ	01 NONE 9	TURN-L							040	80
CITY		TH	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	FIX	N/A	N -E							000	00
N N		6P 45 22 9.72	-122 48 20.29		05	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
04777	N N N	N N 08/04/2017	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								07
CITY		FR	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR	PRVTE	E -W							000	00
N N		3P 45 22 9.72	-122 48 20.29		06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	20 M	OR-Y OR<2		043	000	07
											02 NONE 0	STOP								
											PRVTE	E -W							011	00
											PSNGR CAR		01 DRVR	INJC	37 F	OR-Y OR<2		000	000	00
07573	N N N	N N 11/28/2017	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	RAIN	S-1STOP	01 NONE 0	STRGHT								27,0
CITY		TU	0	SW 124TH AVE	E		TRF SIGNAL	N	WET	REAR	PRVTE	E -W							000	00
N N		5P 45 22 9.72			06	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	INJC	48 F	OR-Y OR<2		016,043	038	27,0
			20.29								02 NONE 0 PRVTE PSNGR CAR	STOP E -W	01 DRVR	NONE	29 M	OR-Y OR<2		000	011 000	00 00
03012	N N N	N N 05/23/2017	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 9	STRGHT								07
CITY		TU	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR	N/A	E -W							000	00
N N		6P 45 22 9.72	-122 48		06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
			20.29								0.0 NONE 0	GEOD.								
											02 NONE 9 N/A	STOP E -W							011	00
											PSNGR CAR	E -W	01 DRVR	NONE	00 U			000	000	00
00173	N N N	N N 01/10/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLD	S-1STOP	01 NONE 0	STRGHT				UNK			013	07
CITY		TH	0	SW 124TH AVE	E			N	DRY	REAR	PRVTE	E -W							000	00
N		6P			06	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	INJC	48 F	OR-Y		043	000	07
N		45 22 9.72	-122 48 20.29													OR>2				
											02 NONE 0	STOP							011 012	0.0
											PRVTE PSNGR CAR	E -W	01 DRVR	INJC	67 F			000	011 013 000	00
											03 NONE 0	STOP				OR<2	5			
											PRVTE	E -W							022	00
											PRVTE PSNGR CAR	E -W	01 DRVR	INJC	51 F	OR-Y		000	022 000	00 00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

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10 - 14 of 100 Crash records shown.

S D	M																		
ER# P R	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
NVEST E A U	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
D DPT E L G	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LIC	IS PED			
NLOC? D C S	V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	ТО	P# TYPE	SVRTY	Z E	X RES	LOC	ERROR	ACT EVENT	CAUSE
										03 NONE 0 PRVTE	STOP E -W							022	00
										PSNGR CAR		02 PSNG	INJC	08	M		000	000	00
										04 NONE 0	STOP							0.00	0.0
										PRVTE PSNGR CAR	E -W	01 DRVR	NONE	17	M OR-	7	000	022 000	00 00
															OR<				
2816 N N N	N N 06/05/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								27,29
TY	WE	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR	PRVTE	E -W							000	00
	2A			06	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	23	M OTH	-Y	016,026	038	27,29
	45 22 9.72	-122 48 20.29													OR<	25			
										02 NONE 0	STOP								
										PRVTE	E -W							011	00
										PSNGR CAR		01 DRVR	INJC	56	M OR-		000	000	00
333 N N N	01/18/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	RAIN	S-STRGHT	01 NONE 9	STRGHT								29
NE	FR	0	SW 124TH AVE	E		TRF SIGNAL	N	WET	REAR	N/A	E -W							000	00
	6P			06	0		N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk UNK		000	000	00
	45 22 9.72	-122 48 20.29													UNK				
										02 NONE 9	STRGHT								
										N/A	E -W	01 DDID	NONE	0.0			0.00	006	00
										PSNGR CAR		01 DRVR	NONE	00	UNK UNK		000	000	00
653 N Y N	N N 02/09/2019	16	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLD	S-1STOP	01 NONE 9	STRGHT								29
TY	SA	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR	N/A	E -W							000	00
	1P			09	2		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk UNK		000	000	00
	45 22 42.84														UNK				
		17.93								02 NONE 9	STOP								
										N/A	E -W							011	00
										MTRCYCLE		01 DRVR	NONE	00	Unk UNK		000	000	00
															UNK				
258 N N N	N N 03/12/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLD	S-1STOP	01 NONE 9	STRGHT								27,29
TY	TU	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR	N/A	E -W							000	00
	4P 45 22 9.72	-122 48		06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk UNK		000	000	00
		20.29								00 110117	QIII C T								
										02 NONE 9 N/A	STOP E -W							011	00
										PSNGR CAR	т М	01 DRVR	NONE	00	Unk UNK		000	000	00
															UNK				

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

15 - 19 of 100 Crash records shown.

	S D M																
SER#	P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE						
INVEST	E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE	A	S			
RD DPT	E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC INJ G	E LICNS PED			
NLOC?	D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE SVRTY E	X RES LOC	ERROR	ACT EVENT	CAUSE
4350	N N N	11/24/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-STRGHT	01 NONE 0	STRGHT					29
IONE		TU	0	SW 124TH AVE	E		TRF SIGNAL	N	DRY	REAR	PRVTE	E -W				000	00
1 1		10A 45 22 9.72	-122 48 20.29		06	0		N	DAY	INJ	PSNGR CAR		01 DRVR INJB 36	F OR-Y OR<25	042	000	29
											02 NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01 DRVR NONE 65	M OR-Y	000	006 000	00
														OR<25			
	N N N	N N 06/19/2019	16	SW TUALATIN-SHERWOOD		CROSS	N	N	CLD	S-1STOP	01 NONE 9	STRGHT					07
I I		WE 6P	0	SW 124TH AVE	S 06	2	TRF SIGNAL	N N	DRY DAY	REAR PDO	N/A PSNGR CAR	S -N	01 DRVR NONE 00	Unk UNK	000	000	00
N		45 22 42.84	1 -122 48 17.93								02 NONE 9 N/A PSNGR CAR	STOP S -N	01 DRVR NONE 00		000	011 000	00 00
2525	N. N. N.	N N 05 /21 /0016	1.4	CH WILLIAM CHERNICO	TAMBER	2 170	37		GI D	G 1000	01 NOVE 0	OMD GUM		UNK			07
	N N N	N N 05/31/2016	14	SW TUALATIN-SHERWOOD		3-LEG	N	N	CLR	S-1STOP	01 NONE 0	STRGHT					07
CITY		TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	W -E				000	00
<u>//</u>		2P 45 22 9.72	-122 48 20.29		06	0		N	DAY	INJ	PSNGR CAR		01 DRVR INJC 41	M OR-Y OR<25	043	000	07
											02 NONE 0 PRVTE PSNGR CAR	STOP W -E	01 DRVR NONE 32	F OR-Y OR<25	000	011 000	00
)4658	N N N	N N 07/15/2016	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 0	STRGHT					07
!ITY		FR	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	M -E				000	00
1		3P 45 22 9.72	-122 48 20.29		06	0		N	DAY	INJ	PSNGR CAR		01 DRVR INJB 50	F OTH-Y OR<25	043	000	07
			20122								02 NONE 0 PRVTE PSNGR CAR	STOP W -E	01 DRVR NONE 40	F OR-Y OR<25	000	011 000	00
1864	N N N	N N 03/20/2016	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLD	S-1STOP	01 NONE 9	STRGHT					27,29
ITY		SU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	N/A	W -E				000	00
ī		4P 45 22 9.72			06	0		N	DAY	PDO	PSNGR CAR		01 DRVR NONE 00	Unk UNK UNK	000	000	00
			20.29								02 NONE 9 N/A PSNGR CAR	STOP W -E	01 DRVR NONE 00	Unk UNK UNK	000	011 000	00 00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

20 - 23 of 100 Crash records shown.

	S D M	I																			
SER#	P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE										
INVEST	E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S					
RD DPT	E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LI	CNS PEI)			
UNLOC?	D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	Y E	X RE	S LO	C ERROR	R ACT EVEN		AUSE
05361	N N N	08/11/2016	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 9	STRGHT								29	9
NONE		TH	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	N/A	W -E							000	0.0	0
N N		6P 45 22 9.72	-122 48 20.29		06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk UN UN		000	000	00	O .
											02 NONE 9	STOP									
											N/A	W -E							011	00	
											PSNGR CAR		01 DRVR	NONE	00	Unk UN UN		000	000	00	0
07665	N N N	11/08/2016	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 9	STRGHT								2'	7,29
NO RPT		TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	N/A	E -W							000	0	0
N N		3P 45 22 9.72	-122 48		05	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk UN		000	000	00	0
		13 22 3.72	20.29													014					
											02 NONE 9	STOP E -W							011	00	0
											N/A SEMI TOW	E -W	01 DRVR	NONE	00	Unk UN		000	000	0(
00025	N N N	N N 01/02/2017	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								29	9
CITY		МО	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	W -E							000	00	0
N		5P			06	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	79	M OR	-Y	026	000	29	9
N		45 22 9.72	-122 48 20.29													OR	<25				
											02 NONE 0	STOP									
											PRVTE	W -E	01 DDID	T11.T.C	2.0		77	000	011	0(
											PSNGR CAR		01 DRVR	INJC	30		- Y < 25	000	000	00	J
											02 NONE 0	STOP									
											PRVTE	W -E	00 Dava	T11.T.C	٥٦	_		000	011	0(
											PSNGR CAR		02 PSNG	INJC	05	F.		000	000	00	J
02204	N N N	N N 04/18/2017	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								0.	7
CITY		TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	M -E							000	0	0
N N		6P 45 22 9.72	-122 48		06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	18		H-Y <25	043	000	0'	7
			20.29								02 NONE 0	STOP									
											PRVTE	W -E							011	00	0
											PSNGR CAR		01 DRVR	INJC	18		-Y <25	000	000	00	0
05685	N N N	09/15/2017	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLR	S-1STOP	01 NONE 1	STRGHT					-			29	9
NONE		FR	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	W -E							000	0	0
N N		5P 45 22 9 72	-122 48		06	0		N	DAY	INJ	SEMI TOW		01 DRVR	NONE	38			026	000	29	9
N		45 22 9.72	-122 48 20.29														<25				

24 - 27

TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT

of 100 Crash records shown.

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

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NONE

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08/13/2019

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SW TUALATIN-SHERWOOD INTER

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SW 124TH AVE

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S D M P R J S W DATE CLASS CITY STREET INT-TYPE SPCL USE SER# TRLR QTY DIST FIRST STREET RD CHAR OFFRD WTHR CRASH MOVE Α INVEST E A U I C O DAY (MEDIAN) INT-REL S RD DPT E L G N H R TIME FROM SECOND STREET DIRECT OWNER G E LICNS PED LEGS TRAF-RNDBT SURF COLL FROM PRTC INJ LONG CAUSE UNLOC? D C S V L K LAT LRS LOCTN (#LANES) CONTL DRVWY LIGHT SVRTY V# TYPE TO P# TYPE SVRTY E X RES LOC ERROR ACT EVENT 02 NONE STOP PRVTE W -E 012 00 PSNGR CAR 01 DRVR INJC 56 F OR-Y 000 000 00 OR<25 06563 STRGHT 07 NNN N N 10/19/2017 14 SW TUALATIN-SHERWOOD INTER 3-LEG N N RAIN S-1STOP 01 NONE 0 CITY 0 SW 124TH AVE TRF SIGNAL 000 00 TH N WET REAR PRVTE W -E бP 06 043 000 07 DLIT INJ PSNGR CAR 01 DRVR NONE 17 M OR-Y 45 22 9.72 -122 48 OR<25 20.29 02 NONE STOP 011 00 PRVTE W -E PSNGR CAR 01 DRVR INJC 50 M OR-Y 000 000 00 OR<25 02 NONE 0 STOP PRVTE W -E 011 00 02 PSNG INJC 50 F 000 000 00 PSNGR CAR 29 07889 N N N 12/09/2017 14 SW TUALATIN-SHERWOOD INTER 3-LEG N N CLR S-1STOP 01 NONE 9 STRGHT SW 124TH AVE TRF SIGNAL W -E 000 00 NONE SA DRY REAR N/A 1P 06 DAY PDO PSNGR CAR 01 DRVR NONE 00 Unk UNK 000 000 00 45 22 9.72 -122 48 UNK 20.29 02 NONE STOP N/A W -E 011 00 PSNGR CAR 01 DRVR NONE 00 Unk UNK 000 000 00 UNK N N 07/29/2019 03819 N N N 14 SW TUALATIN-SHERWOOD INTER CROSS N Ν CLR S-1STOP 01 NONE 0 STRGHT 013 27,29 UNKNOWN 000 00 CITY MO SW 124TH AVE Ν DRY REAR PRVTE E -W 05 PSNGR CAR 9A DAY 01 DRVR NONE 81 M OR-Y 016,026 038 27.29 INJ 45 22 9.72 -122 48 OR<25 N 20.29 02 NONE 0 STOP PRVTE 011 013 00 E -W 000 PSNGR CAR 01 DRVR INJC 64 M OR-Y 000 00 OR<25 03 NONE 0 STOP

S-1STOP

REAR

INJ

PRVTE

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PSNGR CAR

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28 - 33 of 100 Crash records shown.

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URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

	S D M																			
	P RJSV	DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	EAUICO) DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT	ELGNHF	RTIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LI	CNS PED			
JNLOC?	DCSVLK	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	5 LOC	ERROR	ACT EVENT	CAUSE
											02 NONE 0	STOP	,						2.1.1	
											PRVTE PSNGR CAR	W -E	01 DRVR	TNJC	59 N	ſ OR:	-V	000	011 000	00 00
											I BIVOIC CITIC		OI DICVIC	1110 C	3, 1	OR.		000	000	00
2093	N N N	06/23/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								29
ONE		SU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	W -E							000	00
					0.5								04					225		
		11A 45 22 9.71	_122 48		06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	62 F	OR. OR.		026	000	29
		13 22 3.71	20.29													Oic	23			
											02 NONE 0	STOP							0.1.1	0.0
											PRVTE PSNGR CAR	W -E	01 DRVR	TNTC	70 F	r ∩p.	-V	000	011 000	00 00
											I BNOK CAK		OI DRVR	INOC	70 1	OR.		000	000	00
0771	N N N	02/12/2019	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	RAIN	S-1STOP	01 NONE 9	STRGHT								29
ONE		TU	0	SW 124TH AVE	W		TRF SIGNAL	N	WET	REAR	N/A	W -E							000	00
		8A			06	0		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 1	Inle IINI	r	000	000	0.0
		45 22 9.72	-122 48		00	U		IN	DAI	PDO	PSNGR CAR		UI DRVR	NONE	00 0	UNI UNI		000	000	00
		10 22 7.72	20.29													021.	-			
											02 NONE 9 N/A	STOP W -E							011	00
											PSNGR CAR	W -E	01 DRVR	NONE	00 T	Jnk UNI	ζ	000	000	00
																UNI				
3688	N N N	10/21/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	ANIMAL	01 NONE 9	STRGHT							035	12
ONE		MO	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	OTH	N/A	E -W							000	00
1		5A			05	0		N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00 T	Jnk UNI	ζ	000	000	00
Ī		45 22 9.72	-122 48			· ·				120	1 Divoit Offic		01 211111	1,01,2		UNI				
			20.27																	
4439	N N N	12/01/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								07
ONE		TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	W -E							000	00
		10A			06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	54 M	OR-	-Y	026	000	07
		45 22 9.72														OR:	<25			
			20.29								02 NONE 0	STOP								
											PRVTE	W -E							011	00
											PSNGR CAR		01 DRVR	INJC	42 M			000	000	00
																OR-	<25			
3080	N N N	11/03/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 0	STRGHT								29
ONE		TU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	M -E							000	00
		1P			06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	66 F	OR-	-Y	026	000	29
		45 22 9.75														OR:	<25			
			20.31								02 NONE 0	STOP								
											PRVTE	W -E							011	00
											PSNGR CAR		01 DRVR	INJC	27 F			000	000	00
																OR:	<25			

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

34 - 37 of 100 Crash records shown.

S D M																			
SER# P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICI	IS PED			
JNLOC? D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
)4555 N N N	N N 12/10/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	RAIN	S-1STOP	01 NONE 9	STRGHT								07
CITY	TH	0	SW 124TH AVE	W		TRF SIGNAL	N	WET	REAR	N/A	W -E							000	00
1	9P 45 22 9.72			06	0		N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00 τ	Jnk UNK UNK		000	000	00
		20.29								02 NONE 9	STOP								
										N/A	W -E							011	00
										PSNGR CAR		01 DRVR	NONE	00 t	Jnk UNK UNK		000	000	00
3889 N Y N	N N 10/25/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	S-1STOP	01 NONE 0	STRGHT				OIVIC			013	29
ITY	SU	0	SW 124TH AVE	W		TRF SIGNAL	N	DRY	REAR	PRVTE	W -E							000	00
	12P 45 22 9.72			06	0		N	DAY	INJ	PSNGR CAR		01 DRVR	INJB	53 N	I OR-1		026	000	29
		20.29								02 NONE 0	STOP								
										PRVTE	W -E							011 013	00
										PSNGR CAR		01 DRVR	INJC	68 N	I OR-I		000	000	00
										02 NONE 0	STOP				OIC .	.5			
										PRVTE	W -E							011 013	00
										PSNGR CAR		02 PSNG	INJC	60 I	,		000	000	00
										03 NONE 0	STOP								
										PRVTE	W -E							022	00
										PSNGR CAR		01 DRVR	INJC	55 E	OR-1		000	000	00
6385 N N N	N N 09/21/2016	14	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	CLD	O-1 L-TUR	RN 01 NONE 0	STRGHT								04
ITY	WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	E -W							000	00
	8A			02	0		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	57 E	OR-	-	000	000	00
	45 22 9.72														OR<				
		20.29								02 NONE 0	TURN-L								
										PRVTE	M - N							000	00
										PSNGR CAR		01 DRVR	NONE	23 I	OR-1		020,004	000	04
)335 N N N	01/18/2017	16	SW TUALATIN-SHERWOOD	INTER	3-LEG	N	N	RAIN	O-1 L-TUR	RN 01 NONE 0	STRGHT								04
O RPT	WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	TURN	PRVTE	S -N							000	00
	1P 45 23 16.36	5 -122 48		04	0		N	DAY	INJ	PSNGR CAR		01 DRVR	INJB	23 N	I OR-1		000	000	00
		15.23								0.2 NONE 0	י זעמוזיי								
										02 NONE 0	TURN-L								
										DR <i>U</i> TF	N -F							0.00	0.0
										PRVTE PSNGR CAR	N -E	01 DRVR	NONE	20 N	I OR-	•	020	000	00 04

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

38 - 41 of 100 Crash records shown.

S	D M																		
SER# P	R J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A	U I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A S	3				
RD DPT E L	G N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G E	LICNS	PED			
UNLOC? D C	S V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E X	RES	LOC	ERROR	ACT EVENT	CAUSE
04434 N N	N N N 07/21/2017	16	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	O-1 L-TURN	01 NONE 0	STRGHT								04
CITY	FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	N -S							000	00
N N	3P 45 22 42.84	1 -122 48 17.93		01	2		N	DAY	INJ	PSNGR CAR		01 DRVR	INJB	35 M	OR-Y OR<25		020	000	04
										02 NONE 0	TURN-L							000	0.0
										PRVTE PSNGR CAR	S -W	01 DRVR	NONE	55 M	OR-Y		000	000	00 00
										r bivoit Crit		OI DILVIL	NONE	33 11	OR<25		000	000	
01124 N N	N N N 03/05/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLR	O-1 L-TURN	01 NONE 0	STRGHT							080	02
CITY	TU	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	S -N							000	00
N N	7A 45 22 9.72			04	0		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	49 M	OR-Y OR<25		000	000	00
		20.29								02 NONE 0	TURN-L								
										PRVTE	N -E							000	00
										PSNGR CAR		01 DRVR	NONE	30 M	OR-Y OR<25		028,004	000	02
										03 NONE 0	STOP								
										PRVTE	E -W	01 DDIM	NONE	40 14	OD 11		000	022	00 00
										PSNGR CAR		01 DRVR	NONE	40 M	OR-1 OR<25		000	000	
02524 N N	N N N 05/18/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLD	O-1 L-TURN	01 NONE 0	TURN-L								04
CITY	SA	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	M -N							000	00
N N	3P 45 22 9.72	-122 48		02	0		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	77 F	OR-Y OR<25		020	000	04
		20.29																	
										02 NONE 0 PRVTE	STRGHT E -W							000	00
										PSNGR CAR	E -M	01 DRVR	INJC	23 M	OR-Y		000	000	00
															OR<25				
06869 N N	N N N 12/23/2019	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	CLD	O-1 L-TURN	01 NONE 0	STRGHT								04
CITY	MO	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	E -W							000	00
N N	1P 45 22 9.72	-122 48		02	0		N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	22 F	OR-Y OR<25		000	000	00
		20.29								OO NONE O	minor i								
										02 NONE 0 PRVTE	TURN-L W -N							000	00
										PSNGR CAR		01 DRVR	NONE	61 M	OR-Y OR<25		020	000	04
00382 N N	N 01/17/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	RAIN	O-1 L-TURN	01 NONE 0	TURN-L				01(\2)			087	02
CITY	FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	WET	TURN	PRVTE	M -N							000 087	00
N	4A			02	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	INJB	25 F	OR-Y		028,004	000	02

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

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42 - 46 of 100 Crash records shown.

	S D M																			
ER#	P R J S	W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
NVEST	E A U I C	O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
D DPT	E L G N H	R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G :	E LIC	NS PED			
NLOC?	D C S V I	K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
											02 NONE 0	STRGHT							000 005	0.0
											PRVTE PSNGR CAR	E -W	01 DRVR	TNT T N	EO T	OΠ	V	000	000 087 000	0 0 0 0
											PSNGR CAR		UI DRVR	INUA	30 F	OR-		000	000	00
2026	NT NT NT N	N 08/14/2020	14	SW TUALATIN-SHERWOOD	TATTED	CROSS	N	N	CLR	0 1 1 7711	N 01 NONE 0	TURN-L					-20		087	02
2930	11 11 11 11	N 00/14/2020	14	SW TOALATIN-SHERWOOD	INIEK	CROSS	IN	IN	CLK	O-1 L-10k	N OI NONE O	IOKN-L							067	02
ITY		FR	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	S -W							000 087	00
		4P			01	0		N	DAY	INJ	PSNGR CAR		01 DRVR	TNTC	51 F	OR-	.V	028,004	000	02
		45 22 9.72	-122 48		01	O		11	DAI	INO	I BIVOIC CAIC		OI DRVR	INCC	J1 1	OR<		020,001	000	02
			20.29																	
											02 NONE 0	STRGHT								
											PRVTE	N -S	01 DDID	T117.0	10 11	0.0	17	000	000 087	00
											PSNGR CAR		01 DRVR	INJC	18 M	OR-		000	000	00
2041	NT NT NT	T 10/20/2020	1.4	ON BUALANTIN CHEDWOOD	TAMBED	anoaa	NT.		FOG	0 1 T DITT	N 01 NONE 0	milda i				010	.23			0.0
3941	N N N	Y 10/28/2020	14	SW TUALATIN-SHERWOOD	INTER	CROSS	N	N	FOG	O-I L-TUR	N 01 NONE 0	TURN-L								02
ITY		WE	0	SW 124TH AVE	CN		TRF SIGNAL	N	DRY	TURN	PRVTE	S -W							000	00
		6A			01	0		N	DLIT	INJ	PSNGR CAR		01 DRVR	TNIC	60 M	OR-	v	028,004	000	02
		45 22 9.72	-122 48		01	U		IN	דדת	INO	PSNGR CAR		UI DRVR	INUC	OU M	OR-		020,004	000	02
			20.29													Oic	.23			
											02 NONE 0	STRGHT								
											PRVTE	N -S	04						000	00
											PSNGR CAR		01 DRVR	INJC	31 F			000	000	00
																OR<	.25			
5093	N N N N	N 08/01/2016	16	SW 124TH AVE	STRGHT		Y	N	CLR	S-1STOP	01 NONE 9	STRGHT								07
!ITY		MO	50	SW TUALATIN-SHERWOOD	N	(NONE)	UNKNOWN	N	DRY	REAR	N/A	N -S							000	00
_		0.7			0.5					220	D0170D 01D		01 557		00	1		0.00	0.00	0.0
ī ī		9A 45 22 10.65	_122 /10		06	(03)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U1	nk UNI UNI		000	000	00
		45 22 10.65	20.29			(03)										UNI	=			
											02 NONE 9	STOP								
											N/A	N -S							012	00
											SEMI TOW		01 DRVR	NONE	00 U1			000	000	00
																UNF	-			
2414	N N N N	N 07/07/2020	16	SW 124TH AVE	STRGHT		N	N	CLD	S-1STOP	01 NONE 0	STRGHT								07
ITY		TU	100	SW TUALATIN-SHERWOOD	N	(NONE)	NONE	N	DRY	REAR	PRVTE	N -S							000	00
		107			0.0			N	D737	TNIT	Davido CAD		01 555	TNITO	20 3-	0.5	V	0.4.2	000	0.77
T T		10A 45 22 11.16	-122 48		08	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	TNJC	22 M	OR-		043	000	07
			20.29			(02)										OR	د ک ی			
											02 NONE 0	STOP								
											PRVTE	N -S							011	00
											PSNGR CAR		01 DRVR	INJC	49 F			000	000	00
																OR<	25			
0173	N N N	N 01/09/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT								29
		TH	40	SW 124TH AVE	E	(NONE)	UNKNOWN	N	WET	REAR	N/A	E -W							000	00
ITY																				
CITY I		8P 45 22 9.87			06	(02)		N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	00 U1	nk UNF UNF		000	000	00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

47 - 50 of 100 Crash records shown.

S D I	M																		
	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A U	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E L G	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LIC	NS PED			
UNLOC? D C S	V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
										02 NONE 9	STOP	,						011	0.0
										N/A PSNGR CAR	E -W	01 DRVR	NONE	00 1	IInk IINK		000	011 000	00
										FBNGK CAK		OI DRVR	NONE	00 1	UNK UNK		000	000	00
04205 N N N	N N 08/14/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	SMOK	S-STRGHT	01 NONE 0	STRGHT							087	07
CITY	TU	50	SW 124TH AVE	E	(NONE)	NONE	N	DRY	REAR	PRVTE	W -E							000 087	00
	15			0.5						D0170D 01D		01 pprm		10			0.42	0.00	0.5
N N	1P 45 22 9.88	_122 48		05	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	18 1	F OR- OR<		043	000	07
19	43 22 9.00	18.7			(02)										010	23			
										02 NONE 0	STRGHT							005 005	
										PRVTE PSNGR CAR	W -E	01 DRVR	TNIC	22 1	M OB-	v	000	006 087 000	00
										FBNGK CAK		OI DRVR	INOC	J2 1	OR<		000	000	00
										02 NONE 0	STRGHT								
										PRVTE	M -E							006 087	00
										PSNGR CAR		02 PSNG	INJC	31 1	F		000	000	00
										02 NONE 0	STRGHT								
										PRVTE	W -E							006 087	00
										PSNGR CAR		03 PSNG	INJB	01	F		000	000	00
02275 N N N	N N 05/07/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								29
CITY	TU	0.0	ON 104mm AND																
	10	80	SW 124TH AVE	E	(NONE)	UNKNOWN	N	DRY	REAR	UNKN	E -W							000	00
N		80	SW 124TH AVE		(NONE)	UNKNOWN					E -W	01 DRVR	NONE:	00 1	M IINIK		026		
N N	1P 45 22 9.93		SW 124TH AVE	E 08		UNKNOWN	N	DRY DAY	REAR	UNKN PSNGR CAR	E -W	01 DRVR	NONE	00 1	M UNK UNK		026	000	00 29
	1P		SW 124TH AVE		(NONE)	UNKNOWN				PSNGR CAR		01 DRVR	NONE	00 1			026		
	1P	-122 48	SW 124TH AVE			UNKNOWN				PSNGR CAR	STOP	01 DRVR	NONE	00 I			026	000	29
	1P	-122 48	SW 124TH AVE			UNKNOWN				PSNGR CAR		01 DRVR			UNK		026		
	1P	-122 48	SW 124TH AVE			UNKNOWN				PSNGR CAR 02 NONE 0 PRVTE	STOP				UNK	Y		000	29
	1P	-122 48		08		UNKNOWN				PSNGR CAR 02 NONE 0 PRVTE	STOP				UNK F OR-	Y		000	29
N	1P 45 22 9.93	-122 48 18.3		08			N	DAY	INJ	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR	STOP E -W				UNK F OR-	Y		000	29 00 00
02767 N N N NONE	1P 45 22 9.93 06/01/2019 SA	-122 48 18.3	SW TUALATIN-SHERWOOD	08 STRGHT	(02)	N	N	DAY CLR DRY	INJ S-1STOP REAR	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A	STOP E -W STRGHT	01 DRVR	INJC	35 1	UNK F OR- OR<	Y 25	000	000 011 000	29 00 00 29 00
02767 N N N	1P 45 22 9.93	-122 48 18.3	SW TUALATIN-SHERWOOD	08 STRGHT	(02)	N	N	DAY	INJ S-1STOP	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9	STOP E -W STRGHT		INJC	35 1	UNK F OR- OR<	Y 25		000 011 000	29 00 00 29
02767 N N N N NONE	1P 45 22 9.93 06/01/2019 SA 2P	-122 48 18.3	SW TUALATIN-SHERWOOD	08 STRGHT	(02)	N	N	DAY CLR DRY	INJ S-1STOP REAR	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR	STOP E -W STRGHT E -W	01 DRVR	INJC	35 1	UNK F OR- OR<	Y 25	000	000 011 000	29 00 00 29 00
02767 N N N N NONE	1P 45 22 9.93 06/01/2019 SA 2P	-122 48 18.3 14 100 -122 48	SW TUALATIN-SHERWOOD	08 STRGHT	(02)	N	N	DAY CLR DRY	INJ S-1STOP REAR	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR	STOP E -W STRGHT E -W	01 DRVR	INJC	35 1	UNK F OR- OR<	Y 25	000	000 011 000 000	29 00 00 29 00 00
02767 N N N N NONE	1P 45 22 9.93 06/01/2019 SA 2P	-122 48 18.3 14 100 -122 48	SW TUALATIN-SHERWOOD	08 STRGHT	(02)	N	N	DAY CLR DRY	INJ S-1STOP REAR	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR 02 NONE 9 N/A	STOP E -W STRGHT E -W	01 DRVR	INJC	35 1	UNK F OR- OR< UNK UNK	Y 25	000	000 011 000 000 000	29 00 00 29 00
02767 N N N N NONE	1P 45 22 9.93 06/01/2019 SA 2P	-122 48 18.3 14 100 -122 48	SW TUALATIN-SHERWOOD	08 STRGHT	(02)	N	N	DAY CLR DRY	INJ S-1STOP REAR	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR	STOP E -W STRGHT E -W	01 DRVR	INJC	35 1	UNK F OR- OR< UNK UNK	Y 25	000	000 011 000 000	29 00 00 29 00 00
02767 N N N N NONE	1P 45 22 9.93 06/01/2019 SA 2P	-122 48 18.3 14 100 -122 48	SW TUALATIN-SHERWOOD	O8 STRGHT E 08	(02)	N	N	DAY CLR DRY	INJ S-1STOP REAR	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR 02 NONE 9 N/A	STOP E -W STRGHT E -W	01 DRVR	INJC	35 1	F OR-OR< UNK UNK	Y 25	000	000 011 000 000 000	29 00 00 29 00 00
02767 N N N N NONE N	1P 45 22 9.93 06/01/2019 SA 2P 45 22 9.95	-122 48 18.3 14 100 -122 48 18.02	SW TUALATIN-SHERWOOD SW 124TH AVE	O8 STRGHT E 08	(02)	N UNKNOWN	N N N	CLR DRY DAY	INJ S-1STOP REAR PDO	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR 02 NONE 9 N/A PSNGR CAR	STOP E -W STRGHT E -W STOP E -W	01 DRVR	INJC	35 1	F OR-OR< UNK UNK	Y 25	000	000 011 000 000 000	29 00 00 29 00 00
02767 N N N N N N N N N N N N N N N N N N	1P 45 22 9.93 06/01/2019 SA 2P 45 22 9.95	-122 48 18.3 14 100 -122 48 18.02	SW TUALATIN-SHERWOOD SW 124TH AVE SW TUALATIN-SHERWOOD	08 STRGHT E 08 STRGHT	(NONE) (NO2)	N UNKNOWN	N N	CLR DRY DAY	INJ S-1STOP REAR PDO S-1STOP REAR	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR 02 NONE 9 N/A PSNGR CAR 01 NONE 9 N/A PSNGR CAR	STOP E -W STRGHT E -W STOP E -W	01 DRVR 01 DRVR	INJC	00 1	F OR- OR< UNK UNK UNK	Y 25	000	000 011 000 000 000 011 000	29 00 00 29 00 00 00 29 00
02767 N N N N N N N N N N N N N N N N N N	1P 45 22 9.93 06/01/2019 SA 2P 45 22 9.95	-122 48 18.3 14 100 -122 48 18.02	SW TUALATIN-SHERWOOD SW 124TH AVE SW TUALATIN-SHERWOOD	O8 STRGHT E O8 STRGHT E	(NONE) (NO2)	N UNKNOWN	N N	CLR DRY DAY	INJ S-1STOP REAR PDO S-1STOP	PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR 01 NONE 9 N/A PSNGR CAR 02 NONE 9 N/A PSNGR CAR	STOP E -W STRGHT E -W STOP E -W	01 DRVR	INJC	00 1	F OR- OR< UNK UNK UNK	Y 25	000	000 011 000 000 000	29 00 00 29 00 00 00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

51 - 53 of 100 Crash records shown.

	S D M																			
SER#	P R J S	W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	E A U I C	O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A 5	3				
RD DPT	E L G N H	R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G I	LICNS	PED			
UNLOC?	D C S V L	K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E 2	K RES	LOC	ERROR	ACT EVENT	CAUSE
											02 NONE 9	STOP							011	0.0
											N/A PSNGR CAR	W -E	01 DDIM	MONTE	00 II-	le TINTIZ		000	011 000	00 00
											PSNGR CAR		01 DRVR	NONE	00 Ur	UNK		000	000	00
06003	N N N N	N 11/15/2019	1.4	SW TUALATIN-SHERWOOD	OMD OUT		NT	NT.	CLR	g 1gmon	01 NONE 0	CMD CLIM				OIVIC				07
06003	N N N	N 11/15/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT								07
CITY		FR	100	SW 124TH AVE	E	(NONE)	TRF SIGNAL	N	DRY	REAR	N/A	E -W							000	00
N		6P			08			N	DUSK	DDO	DOMOD OND		01 DDIM	MONTE	00 II-	le IINTIZ		000	000	00
N N			-122 48 18		08	(02)		IN	DUSK	PDO	PSNGR CAR		01 DRVR	NONE	10 01	UNK		000	000	00
IN		43 22 9.94	-122 40 10			(02)					02 NONE 9	STOP				OIVIC				
											N/A	E -W							011	00
											PSNGR CAR		01 DRVR	NONE	00 Ur	ık UNK		000	000	00
																UNK				
06147	N N N	11/13/2018	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	RAIN	S-1STOP	01 NONE 0	STRGHT							013	27,29
NO RPT		TU	156	SW 124TH AVE	E	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	E -W							000	00
		ED.			0.0			27	DIIGI	T3.T	DOMOD GAD		01 DDIM	NONE	46 34	0D 11		016 006	0.3.0	07 00
N N		5P 45 22 10.04	100 40		8 0	(02)		N	DUSK	INJ	PSNGR CAR		01 DRVR	NONE	46 M			016,026	038	27,29
V .		45 22 10.04	17.22			(02)										OR<25				
											02 NONE 0	STOP								
											PRVTE	E -W							011 013	00
											PSNGR CAR		01 DRVR	INJC	37 M	OR-Y		000	022	00
																OR<25				
											03 NONE 0	STOP								
											PRVTE	E -W							011	00
											PSNGR CAR		01 DRVR	INJC	45 M			000	000	00
											0.2 MONTE 0	GEOD.				OR<25				
											03 NONE 0 PRVTE	STOP E -W							011	00
											PSNGR CAR	E -W	02 PSNG	TNJC	45 F			000	000	00
											1 BNOIC CINC		02 15110	1110 C	15 1			000	000	00
											03 NONE 0	STOP								
											PRVTE	E -W							011	00
											PSNGR CAR		03 PSNG	INJC	18 F			000	000	00
06091	N N N	Y 11/10/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-STRGHT	01 NONE 0	STRGHT							013	07
CITY		SA	200	SW 124TH AVE	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E							000	00
1		1P			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	22 F	OR-Y		043	000	07
		45 22 10.1				(02)										OR>25				
1			16.64								02 NONE 0	STRGHT								
Ŋ											PRVTE	W -E							000 013	00
N											PSNGR CAR	,, 11	01 DRVR	INJC	61 F	OR-Y		000	000 013	00
1																				
I																OR<25				
1											02 NONE 0	STRGHT				OR<25				
N											02 NONE 0 PRVTE	STRGHT W -E				OR<25			000 013	00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

54 - 57 of 100 Crash records shown.

	S D M	I																		
SER#	P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT	E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LIC	NS PED			
UNLOC?	D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
											03 NONE 0 PRVTE	STRGHT W -E							022	00
											PSNGR CAR	W E	01 DRVR	NONE	71 M	OR-	Y	000	000	00
																OR<				
00223	N N N	N N 01/13/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								07
CITY		SU	200	SW 124TH AVE	E	(NONE)	NONE	N	DRY	REAR	PRVTE	E -W							000	00
N		5P			08			N	DUSK	INJ	PSNGR CAR		01 DRVR	NONE	62 M	OR-	Y	043	000	07
1		45 22 10.1				(02)										OR<	25			
			16.62								02 NONE 0	STOP								
											PRVTE	E -W							011	00
											PSNGR CAR		01 DRVR	INJC	66 M	OR-	Y	000	000	00
																OR<	25			
)3702	N N N	N N 07/22/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT								27,07
CITY		MO	250	SW 124TH AVE	E	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
N		9A			07			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK		000	000	00
Ī		45 22 10.16				(02)										UNK				
			15.97								02 NONE 9	STOP								
											N/A	W -E							011	00
											PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
00331	N N N	N N 01/16/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-1STOP	01 NONE 0	STRGHT							013	07
!ITY		TH	250	SW 124TH AVE	E	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	E -W							000	00
Ī		бA			08			N	DARK	INJ	PSNGR CAR		01 DRVR	NONE	22 M	OR-	Y	043	000	07
		45 22 10.17				(02)										OR<				
			15.94								02 NONE 0	STOP								
											PRVTE	E -W							011 013	00
											PSNGR CAR		01 DRVR	INJC	59 F	OR-	Y	000	000	00
																OR<	25			
											03 NONE 0	STOP								
											PRVTE PSNGR CAR	E -W	01 DRVR	TNIC	24 M	OD	5.7	000	022 000	0 0 0 0
											PSNGK CAK		UI DRVR	INCC	24 M	OR-		000	000	00
3925	N N N	N N 10/27/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-1STOP	01 NONE 0	STRGHT							013	27,07
CITY		TU	250	SW 124TH AVE	E	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
1		7A			08			N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	48 M			016,043	038	27,07
1		45 22 10.17				(02)										OR<	25			
			15.93								02 NONE 0	STOP								
											PRVTE	E -W							011 013	00
											PSNGR CAR		01 DRVR	INJC	61 F			000	000	00
																OR<	25			

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

58 - 63 of 100 Crash records shown.

S D	М																
SER# P R	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE							
INVEST E A U	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A S			
RD DPT E L G	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G E LICNS	PED		
UNLOC? D C S	V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E X RES	LOC ERROR	ACT EVENT	CAUSE
										03 NONE 0 PRVTE	STOP E -W					022	00
										PSNGR CAR	ь и	01 DRVR	NONE	29 M OR-Y	000	000	00
														OR<25			
84730 N N N	11/10/2017	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	UNK	S-1STOP	01 NONE 9	STRGHT						29
NO RPT	FR	500	SW 124TH AVE	E	(NONE)	UNKNOWN	N	WET	REAR	N/A	E -W					000	00
N	6P			08			N	DUSK	PDO	PSNGR CAR		01 DRVR	NONE	00 Unk UNK	000	000	00
N	45 22 10.52				(02)									UNK			
		12.48								02 NONE 9	STOP						
										N/A	E -W					011	00
										PSNGR CAR		01 DRVR	NONE	00 Unk UNK	000	000	00
														UNK			
02064 N N N	N N 04/25/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT						27,07
CITY	TH	500	SW 124TH AVE	E	(NONE)	NONE	N	DRY	REAR	PRVTE	E -W					000	00
N	5P			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	17 F OR-Y	016,043	038	27,07
N	45 22 10.52				(02)									OR<25			
		12.51								02 NONE 0	STOP						
										PRVTE	E -W					011	00
										PSNGR CAR		01 DRVR	INJC	54 F OR-Y	000	000	00
														OR<25			
00134 N N N	N N 01/08/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-1STOP	01 NONE 9	STRGHT						07
CITY	TU	500	SW 124TH AVE	E	(NONE)	NONE	N	WET	REAR	N/A	E -W					000	00
N	11A			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 Unk UNK	000	000	00
N	45 22 10.52				(02)									UNK			
		12.49								02 NONE 9	STOP						
										N/A	E -W					011	00
										PSNGR CAR		01 DRVR	NONE	00 Unk UNK	000	000	00
														UNK			
06592 Y N N	N N 12/01/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-STRGHT	01 NONE 9	STRGHT						01
CITY	SA	600	SW 124TH AVE	E	(NONE)	NONE	N	WET	REAR	N/A	E -W					000	00
N	11A			8 0			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 Unk UNK	000	000	00
N	45 22 10.66	5 -122 48 11.14			(02)									UNK			
										02 NONE 9	STRGHT						
										N/A	E -W					000	00
										PSNGR CAR		01 DRVR	NONE	00 Unk UNK UNK	000	000	00
04556 N N N	N N 12/10/2020	19	SW 124TH AVE	STRGHT		N	Y	FOG	FIX OBJ	01 NONE 9	STRGHT					035,079	12
COUNTY	TH	1800	SW TUALATIN-SHERWOOD	S	(NONE)	UNKNOWN	N	WET	FIX	N/A	S -N					088	00
Y	1A			08			N	DARK	PDO	PSNGR CAR		01 DRVR	NONE	00 Unk UNK	000	000	00
N	45 21 51.32	2 -122 48			(02)		=-		-					UNK		-	- -
		20.39															

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

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64 - 67 of 100 Crash records shown.

S D M																			
SER# P R J	S W DATE	CLASS	CITY STREET		INT-TYPE	1				SPCL USE									
INVEST E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICI	IS PED			
UNLOC? D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY		SVRTY	V# TYPE	ТО	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
02004 N N N	05/31/2020	19	SW 124TH AVE	STRGHT		N	Y	CLR	BIKE	01 NONE 0	STRGHT								32
COUNTY	SU	3745	SW TUALATIN-SHERWOOD	S	(NONE)	UNKNOWN	N	DRY	SS-O	PRVTE	N -S							000	00
Y	5P			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	21	M OR-	Z	080,052	000	32
И	45 21 51.04	4 -122 48 20.38			(02)										OR<	25			
											- STRGHT	01 BIKE	INJB	43	М	SHLDF	000	046	00
											N S								
02027 N N N	04/23/2019	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 9	STRGHT								29
NONE	TU	30	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
N N	1P 45 22 9.61	-122 48		06	(02)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk UNK UNK		000	000	00
		21.36								02 NONE 9	STOP								
										N/A	W -E							011	00
										PSNGR CAR		01 DRVR	NONE	00	Unk UNK UNK		000	000	00
06475 N N N	11/26/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-STRGHT	01 NONE 9	STRGHT								29
NONE	TU	30	SW 124TH AVE	M	(NONE)	UNKNOWN	N	WET	REAR	N/A	E -W							000	00
N N	1P 45 22 9.61			05	(02)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00	Unk UNK UNK		000	000	00
		21.35								02 NONE 9 N/A	STRGHT E -W							000	00
										PSNGR CAR		01 DRVR	NONE	00	Unk UNK UNK		000	000	00
06771 N N N	N N 10/07/2016	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 0	STRGHT								07
CITY	FR	50	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E							000	00
N N	3P 45 22 9.59	-122 48		06	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	44	F OR-1		043	000	07
		21.64								02 NONE 0	STOP								
										PRVTE	W -E							011	00
										PSNGR CAR		01 DRVR	INJC	51	F OTH-		000	000	00
										02 NONE 0	STOP								
										PRVTE PSNGR CAR	W -E	02 PSNG	INJC	25	F		000	011 000	0 0 0 0
05356 N N N	08/11/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT								06,29
NONE	TH	50	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
N	6A			06			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE:	0.0	Unk IINK		000	000	00
N	45 22 9.59	-122 48 21.64			(03)		14	2111	120	1 DIVOIC CARC		OT DICVIC	140141	00	UNK			000	

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URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

68 - 71 of 100 Crash records shown.

S D	M																		
SER# P R	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A U	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A S					
RD DPT E L G	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G E	LICNS I	PED			
INLOC? D C S	V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E X	RES I	LOC EF	RROR	ACT EVENT	CAUSE
										02 NONE 9	STOP							011	00
										N/A PSNGR CAR	W -E	01 DRVR	NONE	00 Unk	IINK	00	0.0	011 000	00
										I BIVOR CAR		OI DRVR	NONE		UNK	00	, ,	000	00
6572 N N N	N N 09/29/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-STRGHT	01 NONE 9	STRGHT								07
ITY	TH	50	SW 124TH AVE	W	(NONE)	NONE	N	DRY	REAR	N/A	E -W							000	00
	5P			05			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 IInle	IINIV	0.0	20	000	00
	45 22 9.59			05	(02)		IN	DAI	PDO	PSINGR CAR		OI DRVR	NONE	00 011k	UNK	00	00	000	00
		21.64								02 NONE 9	STRGHT								
										N/A	E -W							006	00
										PSNGR CAR	- "	01 DRVR	NONE	00 Unk	UNK	0.0	00	000	00
															UNK				
1112 N N N	N N 02/27/2017	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-1STOP	01 NONE 0	STRGHT							013	07
ITY	MO	50	SW 124TH AVE	W	(NONE)	NONE	N	WET	REAR	PRVTE	E -W							000	00
	3P			05			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	34 F	OR-Y	04	13	000	07
	45 22 9.59				(02)										OR<25				
		21.65								02 NONE 0	STOP								
										PRVTE	E -W							011 013	00
										PSNGR CAR		01 DRVR	INJC	16 M	OR-Y	0.0	00	000	00
															OR<25				
										03 NONE 0	STOP								
										PRVTE	E -W	01 555		42 34		0.0	2.0	022	00
										PSNGR CAR		01 DRVR	INJB	43 M	OR-Y OR<25	00	00	000	00
5186 N N N	N N 10/09/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT								27,29
ITY	WE	50	SW 124TH AVE	W	(NONE)	NONE	N	DRY	REAR	N/A	E -W							000	00
	2P			05			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 Unk	IINK	0.0	0.0	000	00
	45 22 9.58	-122 48			(02)										UNK				
		21.65																	
										02 NONE 9	STOP							011	0.0
										N/A PSNGR CAR	E -W	01 DRVR	NONE	00 IInle	TIME	00	10	011 000	00 00
										FSNGR CAR		OI DRVK	NONE		UNK	00	0	000	00
0542 N N N	N N 01/26/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-1STOP	01 NONE 0	STRGHT							013	07
ITY	SU	50	SW 124TH AVE	W	(NONE)	NONE	N	WET	REAR	PRVTE	E -W							000	00
												0.7 -		0.4	on	٠			
	3P 45 22 9.58	-122 4Q		05	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE		OR-Y OR<25	04	±3	000	07
	49 44 9.58	21.64			(U Z)										01/720				
										02 NONE 0	STOP								
										PRVTE	E -W							011 013	00
										PSNGR CAR		01 DRVR	INJC			0.0	00	000	00
															OR<25				

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URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

72 - 74 of 100 Crash records shown.

	S D M	I.																		
SER#	P R J	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	EAUI	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT	ELGN	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICN	IS PED			
UNLOC?	DCSV	/ L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
										,	02 NONE 0	STOP								
											PRVTE	E -M	00 5070		F1 -			000	011 013	00
											PSNGR CAR		02 PSNG	INJC	51 F			000	000	00
											03 NONE 0	STOP								
											PRVTE	E -W							022 013	00
											PSNGR CAR		01 DRVR	INJC	22 F	OR-Y		000	000	00
																OR<2	5			
											03 NONE 0	STOP								
											PRVTE	E -W							022 013	00
											PSNGR CAR		02 PSNG	INJC	03 M	I		000	000	00
											04 NONE 0	STOP								
											PRVTE	E -W							022	00
											PSNGR CAR		01 DRVR	NONE	17 F	OR-Y	.	000	000	00
																OR<2	5			
3771	N N N	N N 06/09/2016	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 9	STRGHT								27,07
ITY		TH	75	SW 124TH AVE	W	(NONE)	TRF SIGNAL	N	DRY	REAR	N/A	W -E							000	00
		5P			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 11	nk IINK		000	000	00
		45 22 9.55	-122 48 22		00	(02)		14	DAI	100	I BIVOIC CAIC		OI DRVR	NONE	00 0	UNK		000	000	00
						(,					02 NONE 9	STOP								
											N/A	M -E							011	00
											UNKNOWN		01 DRVR	NONE	00 U			000	000	00
																UNK				
4225	Y N N	N N 06/27/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT							013	01,29
ITY		MO	100	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -M							000	00
ſ		11A			07			N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	37 M	OTH-	Y	047,026	000	01,29
		45 22 9.51				(02)										N-RE	S			
			22.42								02 NONE 0	STOP								
											PRVTE	E -W							011 013	00
											PSNGR CAR	2	01 DRVR	NONE	65 F	OR-Y		000	000	00
																OR<2	5			
											03 NONE 0	STOP								
											PRVTE	E -W							022	00
											PSNGR CAR		01 DRVR	NONE	65 M	OR-Y		000	000	0.0
																	_			
																OR<2	5			
	N N N	N N 05/01/2016		SW TUALATIN-SHERWOOD			И	N	CLR	S-STRGHT	01 NONE 0	STRGHT				OR<2	5			29
)2841 CITY	N N N		14	SW TUALATIN-SHERWOOD SW 124TH AVE	STRGHT	(NONE)	N UNKNOWN	N N	CLR DRY	S-STRGHT REAR	01 NONE 0	STRGHT E -W				OR<2	5		000	29
!ITY	N N N	SU 3P	100										01 DRVR	NONE	75 M	ı or-y	-	042		
ITY	N N N	SU	100		W	(NONE)		N	DRY	REAR	PRVTE		01 DRVR	NONE	75 M		-	042	000	00
ITY	N N N	SU 3P	100		W			N	DRY	REAR	PRVTE		01 DRVR	NONE	75 M	ı or-y	-	042	000	00
ITY	N N N	SU 3P	100		W			N	DRY	REAR	PRVTE PSNGR CAR	E -W	01 DRVR			OR-Y OR<2	-	042	000	00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

75 - 79 of 100 Crash records shown.

S D M																			
SER# P R J S	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E L G N I	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LIC	NS PED			
JNLOC? D C S V I	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
										02 NONE 0	STRGHT							0.00	0.0
										PRVTE PSNGR CAR	E -W	01 DRVR	NONE	52 M	OR-	v	000	000 000	00 00
										FBNGIC CAIC		OI DRVR	NONE	JJ 1.	OR<		000	000	00
										03 NONE 0	STRGHT								
										PRVTE	E -W							022	00
										PSNGR CAR		01 DRVR	NONE	37 M	OTH N-R		000	000	00
3700 N N N	07/17/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-STRGHT	01 NONE 0	STRGHT								29
ITY	TU	100	SW 124TH AVE	W	(NONE)	NONE	N	DRY	REAR	PRVTE	W -E							000	00
	7A			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	19 F	OR-	Y	042	000	29
	45 22 9.52	-122 48 22.31			(02)										OR<	25			
		22.71								02 NONE 0	STRGHT								
										PRVTE	W -E							006	00
										PSNGR CAR		01 DRVR	INJC	41 F			000	000	00
4450 N N N	08/25/2018	14	SW TUALATIN-SHERWOOD	QTDCUT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT				OR<	25			29
	SA				(NONE)													0.00	00
IONE		100	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	
1	10A 45 22 9.52			07	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	73 F	OR-		026	000	29
		22.34								02 NONE 0	STOP								
										PRVTE	E -W							011	00
										PSNGR CAR		01 DRVR	INJC	59 F	OR-	Y	000	000	00
															OR<	25			
4024 N N N	08/08/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-1STOP	01 NONE 0	STRGHT								07
O RPT	TH	100	SW 124TH AVE	M	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	W -E							000	00
I	12P			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	18 M	OR-	Y	043	000	07
	45 22 9.48				(02)										OR<	25			
		22.29								02 NONE 0	STOP								
										PRVTE	W -E							011	00
										PSNGR CAR		01 DRVR	INJC	56 M	OR-	Y	000	000	00
															OR<	25			
2746 N N N I	N N 05/31/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								27,07
ITY	FR	100	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E							000	00
ī	3P			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	28 F			016,043	038	27,07
I	45 22 9.51				(02)										OR<	25			
		22.33								02 NONE 0	STOP								
										PRVTE	W -E							011	00
										PSNGR CAR		01 DRVR	INJC	30 M			000	000	00
															OR<	25			

URBAN NON-SYSTEM CRASH LISTING

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CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

80 - 84 of 100 Crash records shown.

2	S D M																			
SER# I	P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E	E A U I	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E	E L G N	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICN	S PED			
UNLOC? I	D C S V	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
03686 1	N N N	07/21/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								29
NONE		SU	100	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E							000	00
N N		2P 45 22 9.52			08	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	32 F	OR-Y OR<2		026	000	29
			22.34								02 NONE 0	STOP								
											PRVTE	W -E							011	00
											PSNGR CAR		01 DRVR	INJC	62 F	OR-Y OR<2		000	000	00
02237	N N N	N N 06/18/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								07
CITY		TH	100	SW 124TH AVE	W	(NONE)	NONE	N	DRY	REAR	PRVTE	W -E							000	00
N		3P			08			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	18 M	OR-Y		043	000	07
N		45 22 9.53				(02)										OR<2	5			
			22.34								02 NONE 0	STOP								
											PRVTE	W -E							011	00
											PSNGR CAR		01 DRVR	INJC	29 F	OR-Y OR<2		000	000	00
00669 1	N N N	N N 02/02/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLD	S-STRGHT	01 NONE 9	STRGHT								27,29
CITY		SU	100	SW 124TH AVE	M	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
N N		12P 45 22 9.52	100 40		08	(02)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
IN		45 22 9.52	22.34			(02)										UNK				
											02 NONE 9	STRGHT							0.05	0.0
											N/A PSNGR CAR	W -E	01 DRVR	NONE:	00 11	nk IINK		000	006 000	00 00
											I BIVOR CAR		OI DRVIC	NONE	00 0	UNK		000	000	00
04153 N	N N N	N N 11/13/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-1STOP	01 NONE 9	STRGHT							013	07,27,29
CITY		FR	100	SW 124TH AVE	W	(NONE)	UNKNOWN	N	WET	REAR	N/A	E -W							000	00
N		10A			07			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK		000	000	00
N		45 22 9.54	-122 48 22.13			(02)										UNK				
											02 NONE 9	STOP								
											N/A	E -W	0.1						011	0.0
											PSNGR CAR		01 DRVR	NONE	00 0	nk UNK UNK		000	000	00
07776 N	N N N	N N 11/12/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-STRGHT	01 NONE 9	STRGHT								07
CITY		SA	150	SW 124TH AVE	М	(NONE)	UNKNOWN	N	DRY	REAR	N/A	M -E							000	00
N N		1P 45 22 9.45	-122 48		08	(02)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
11		13 22 7.43	23.01			(0 2)										OTVIC				
											02 NONE 9	STRGHT							0.06	0.0
											N/A PSNGR CAR	W -E	01 DRVR	NONE	00 11	nk UNK		000	006 000	00 00
																UNK				

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

> 85 - 88 of 100 Crash records shown.

	P R J	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE								
INVEST	EAUI		DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			А	S			
	ELGN		FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ		E LICNS PEI			
	DCSV		LONG	LRS	LOCTN	(#LANES)			LIGHT		V# TYPE	TO	P# TYPE					ACT EVENT	CAUSE
00766		02/13/2019	14	SW TUALATIN-SHERWOOD		(222,235)	N	N	RAIN	S-1STOP	01 NONE 9	STRGHT	- 11 - 11 - 1	SVICE		11 1125 200	Brittore	IIOI DVEIVI	27,29
NONE		WE	150	SW 124TH AVE	W	(NONE)	UNKNOWN	N	WET	REAR	N/A	W -E						000	00
N		8A			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 11	nk IINK	000	000	00
N		45 22 9.44			00	(02)		14	DAI	100	I BNOK CAR		OI DRVR	NONE	00 0.	UNK	000	000	00
			23.05								02 NONE 9	STOP							
											N/A	W -E						011	00
											PSNGR CAR		01 DRVR	NONE	00 U:	nk UNK UNK	000	000	00
03213	N N N	06/22/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT							29
NO RPT		SA	150	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E						000	00
N		10A			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U:	nk UNK	000	000	00
N		45 22 9.45	-122 48 23.03			(02)										UNK			
			23.03								02 NONE 9	STOP							
											N/A	W -E						011	00
											PSNGR CAR		01 DRVR	NONE	00 U:	nk UNK UNK	000	000	00
05653 1	N N N	N N 08/23/2016	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT						013	29
CITY		TU	200	SW 124TH AVE	W	(NONE)	NONE	N	DRY	REAR	PRVTE	E -W						000	00
N		6P			07			N	DAY	INJ	PSNGR CAR		01 DRVR	INJC	19 F	OR-Y	026	000	29
N		45 22 9.38	-122 48 23.72			(02)										OR<25			
											02 NONE 0	STOP							
											PRVTE	E -W						011 013	00
											PSNGR CAR		01 DRVR	INJC	23 F	OR-Y OR>25	000	000	00
											03 NONE 0	STOP							
											PRVTE	E -W						022	00
											PRVTE PSNGR CAR	E -W	01 DRVR	NONE	42 M		000	022	00
	N N N	N N 10/22/2016	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-1STOP		E -W	01 DRVR	NONE	42 M	OR-Y OR<25	000		
07214 N	N N N	N N 10/22/2016 SA	14	SW TUALATIN-SHERWOOD SW 124TH AVE	STRGHT	(NONE)	Y NONE	N N	CLR DRY	S-1STOP REAR	PSNGR CAR		01 DRVR	NONE	42 M		000	000	00
CITY	N N N	SA 11A	200								PSNGR CAR 01 NONE 0	STRGHT	01 DRVR			OR<25	000	000	29
N	N N N	SA	200		W	(NONE)		N	DRY	REAR	PSNGR CAR 01 NONE 0 PRVTE	STRGHT				OR<25		000	29
CITY	N N N	SA 11A	200		W			N	DRY	REAR	PSNGR CAR 01 NONE 0 PRVTE PSNGR CAR 02 NONE 0	STRGHT W -E STOP				OR<25		000 013 000 000	29 00 29
CITY	N N N	SA 11A	200		W			N	DRY	REAR	PSNGR CAR 01 NONE 0 PRVTE PSNGR CAR 02 NONE 0 PRVTE	STRGHT W -E	01 DRVR	NONE	19 F	OR<25 OR-Y OR<25	026	000 013 000 000	29 00 29
CITY	N N N	SA 11A	200		W			N	DRY	REAR	PSNGR CAR 01 NONE 0 PRVTE PSNGR CAR 02 NONE 0	STRGHT W -E STOP		NONE	19 F	OR<25 OR-Y OR<25		000 013 000 000	29 00 29
	N N N	SA 11A	200		W			N	DRY	REAR	PSNGR CAR 01 NONE 0 PRVTE PSNGR CAR 02 NONE 0 PRVTE	STRGHT W -E STOP	01 DRVR	NONE	19 F	OR-Y OR-25 OTH-Y	026	000 013 000 000	29 00 29
N	N N N	SA 11A	200		W			N	DRY	REAR	PSNGR CAR 01 NONE 0 PRVTE PSNGR CAR 02 NONE 0 PRVTE PSNGR CAR	STRGHT W -E STOP W -E	01 DRVR	NONE	19 F	OR-Y OR-25 OTH-Y N-RES	026	000 013 000 000	29 00 29

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

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89 - 91 of 100 Crash records shown.

S D M																			
SER# P R J S	S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST E A U I C	C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT E L G N H	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LICN	S PED			
UNLOC? D C S V L	K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
04986 N N N	08/15/2017	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT								29
NONE	TU	200	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	N/A	E -W							000	00
N N	3P 45 22 9.38			07	(02)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
		23.72								02 NONE 9	STOP								
										N/A	E -W							011	00
										PSNGR CAR		01 DRVR	NONE	00 U	nk UNK UNK		000	000	00
03319 N N N	06/28/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT				OIVIC			013	29
NONE	TH	200	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
N	12P 45 22 9.38			07	(02)		N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	44 M	OTH- N-RE		026	000	29
		23.73								02 NONE 0	STOP								
										PRVTE	E -W							011 013	00
										PSNGR CAR	ь и	01 DRVR	INJC	66 M			000	000	00
										03 NONE 0	STOP				OR<2	5			
										PRVTE	E -W							022	00
										PSNGR CAR		01 DRVR	INJC	18 M	OR-Y		000	000	00
07019 N N N	12/05/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT							013	29
IONE	WE	200	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
ī	5P 45 22 9.41			07	(02)		N	DLIT	INJ	PSNGR CAR		01 DRVR	NONE	54 M	OR-Y		026	000	29
		23.54								02 NONE 0	STOP								
										PRVTE	E -W							011 013	00
										PSNGR CAR		01 DRVR	INJC	59 F			000	000	00
										03 NONE 0	STOP				OR<2	5			
										PRVTE	E -W							011	00
										PSNGR CAR		01 DRVR	NONE	17 M	OR-Y		000	000	00
00566 N N N N	N 02/03/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-1STOP	01 NONE 0	STRGHT							013	27,07
CITY	SU	200	SW 124TH AVE	W	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	W -E							000	00
	7p			08	(02)		N	DLIT	INJ	PSNGR CAR		01 DRVR	INJC	31 F			016,043	038	27,07
	45 00 0 00				(112)										OR<2	5			
	45 22 9.38	-122 48 23.73			(02)														
	45 22 9.38				(02)					02 NONE 0	STOP							000	6-
N N	45 22 9.38				(02)					02 NONE 0 PRVTE PSNGR CAR	STOP W -E	01 DRVR	TNIC	20 -			000	011 013 000	00

URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

92 - 95 of 100 Crash records shown.

	S D	М																		
SER#	P R	J S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
INVEST	E A U	I C O DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A	S				
RD DPT	E L G	N H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E LIC	NS PED			
UNLOC?	D C S	V L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	то	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUSE
											03 NONE 0 PRVTE	STOP W -E							022	00
											PSNGR CAR	M -F	01 DRVR	INJC	34 F	OR-	Y	000	000	00
																OR<				
03622	N N N	N N 10/05/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT								27,29
CITY		MO	200	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	E -W							000	00
N		6P			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	32 F	OR-	v	016,026	038	27,29
N		45 22 9.38	-122 48		0 7	(02)		14	DAI	1110	I BIVOIC CAIC		OI DRVR	NONE	JZ 1	OR<		010,020	030	21,25
			23.71																	
											02 NONE 0	STOP							011	0.0
											PRVTE PSNGR CAR	E -W	01 DRVR	TNTC	22 F	. UB-	v	000	011 000	00 00
											I BIVOIC CAIC		OI DRVR	1110 C	22 1	OR<		000	000	00
04450	N N N	07/21/2017	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-STRGHT	01 NONE 9	STRGHT								29
NONE		FR	300	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
N		9P			08			N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	υ 00	Jnk UNK		000	000	00
N		45 22 9.25	-122 48			(02)										UNK				
			25.11								02 NONE 9	CMD CITM								
											N/A	STRGHT W -E							006	00
											PSNGR CAR	WE	01 DRVR	NONE	00 τ	Jnk UNK		000	000	00
																UNK				
06980	N N N	12/17/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	RAIN	S-STRGHT	01 NONE 9	STRGHT								29
NONE		MO	300	SW 124TH AVE	W	(NONE)	UNKNOWN	N	WET	REAR	N/A	E -W							000	00
N		6P			07			N	DLIT	PDO	PSNGR CAR		01 DRVR	NONE	υ 00	Jnk UNK		000	000	00
N		45 22 9.25				(02)										UNK				
			25.08								02 NONE 9	STRGHT								
											N/A	E -W							000	00
											PSNGR CAR		01 DRVR	NONE	J 00	Jnk UNK		000	000	00
																UNK				
05082	N N N	N N 10/04/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT							013	07
CITY		FR	300	SW 124TH AVE	W	(NONE)	NONE	N	DRY	REAR	PRVTE	E -W							000	00
N		12P			07			N	DAY	INJ	PSNGR CAR		01 DRVR	NONE	22 N	I OR-	Y	043	000	07
N		45 22 9.25	-122 48 25.1			(02)										OR<	25			
											02 NONE 0	STOP							011 010	2.2
											PRVTE PSNGR CAR	E -W	חזיחת 1	МОМТ	16 1	I OR-	v	000	011 013 000	00 00
											PANGK CAK		01 DRVR	MOINE	40 I	OR-		000	000	00
											03 NONE 0	STOP				*	•			
											PRVTE	E -W							022	00
											PSNGR CAR		01 DRVR	NONE	78 N			000	000	00
																OR<	25			

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URBAN NON-SYSTEM CRASH LISTING

CITY OF TUALATIN, WASHINGTON COUNTY

TUALATIN-SHERWOOD and 124TH AVE, City of Tualatin, Washington County, 01/01/2016 to 12/31/2020

96 - 100 of 100 Crash records shown.

	D M	_																		
		S W DATE	CLASS	CITY STREET		INT-TYPE					SPCL USE									
NVEST E			DIST	FIRST STREET	RD CHAR	(MEDIAN)		OFFRD	WTHR	CRASH	TRLR QTY	MOVE			A					
D DPT E	LGNI	H R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-		SURF	COLL	OWNER	FROM	PRTC	INJ		E LICN				
NLOC? D	C S V I	L K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE 03 NONE 0	TO	P# TYPE	SVRTY	E	X RES	LOC	ERROR	ACT EVENT	CAUS
											PRVTE	STOP E -W							022	00
											PSNGR CAR	- ··	02 PSNG	INJC	75 F			000	000	00
											1 STIGHT GIAT		02 101.0	22.00	, 5					
.227 N	N N	03/03/2020	14	SW TUALATIN-SHERWOOD	STRGHT		Y	N	CLR	S-1STOP	01 NONE 9	STRGHT							002	27
UNTY		TU	360	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
		1P			08			N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 11	nk IINK		000	000	00
		45 22 9.18			00	(02)		IN	DAI	FDO	FBNGK CAK		OI DRVR	NONE	00 0.	UNK		000	000	00
			25.78								02 NONE 9	STOP								
											N/A	W -E							011	00
											PSNGR CAR		01 DRVR	NONE	00 11	nk UNK		000	000	00
													01 21(1)			UNK				
767 N	N N I	N N 10/16/2020	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 0	STRGHT							087	27,2
ITY		FR	500	SW 124TH AVE	W	(NONE)	TRF SIGNAL	N	DRY	REAR	PRVTE	W -E							000 087	00
		7P			08			N	DLIT	INJ	PSNGR CAR		01 DRVR	INJC	37 F	OR-Y		016,026	038	27,2
		45 22 8.98				(02)										OR<2	5			
			27.89								02 NONE 0	STOP								
											PRVTE	W -E							011 087	00
											PSNGR CAR		01 DRVR	NONE	41 M	OR-Y		000	000	00
																OR<2				
											02 NONE 0	STOP								
											PRVTE	W -E							011 087	00
											PSNGR CAR		02 PSNG	INJC	58 F			000	000	00
3669 N	N N I	N N 07/19/2019	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT								07
ITY		FR	505	SW 124TH AVE	W	(NONE)	UNKNOWN	N	DRY	REAR	N/A	W -E							000	00
						(/						–								
		6P	100 40		8 0	(00)		N	DAY	PDO	PSNGR CAR		01 DRVR	NONE	00 U			000	000	00
		45 22 8.97	-122 48 27.95			(02)										UNK				
											02 NONE 9	STOP								
											N/A	W -E							011	00
											PSNGR CAR		01 DRVR	NONE	00 U			000	000	00
																UNK				
5669 N	N N I	N N 12/05/2018	14	SW TUALATIN-SHERWOOD	STRGHT		N	N	CLR	S-STRGHT	01 NONE 9	STRGHT								27,2
TY		WE	580	SW 124TH AVE	W	(NONE)	NONE	N	DRY	REAR	N/A	W -E							000	00
		бA			08			N	DAWN	PDO	PSNGR CAR		01 DRVR	NONE	00 U	nk UNK		000	000	00
		45 22 8.87				(02)										UNK				
			29.02								02 NONE 9	STOP								
											N/A	W -E							011	00
											PSNGR CAR		01 DRVR	NONE	0.0 11	nk UNK		000	000	00

Appendix D – Operations Analysis

Synchro Reports

SimTraffic Queuing Reports



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	2	169	89	134	173	1	55	1	86	2	0	0
Future Vol, veh/h	2	169	89	134	173	1	55	1	86	2	0	0
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	20	20	20	9	9	9	14	14	14	0	0	0
Mvmt Flow	3	228	120	181	234	1	74	1	116	3	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	13.5			15.9			11.4			9.6		
HCM LOS	В			С			В			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	39%	1%	44%	100%	
Vol Thru, %	1%	65%	56%	0%	
Vol Right, %	61%	34%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	142	260	308	2	
LT Vol	55	2	134	2	
Through Vol	1	169	173	0	
RT Vol	86	89	1	0	
Lane Flow Rate	192	351	416	3	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.309	0.509	0.604	0.005	
Departure Headway (Hd)	5.792	5.212	5.223	6.518	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	620	692	691	548	
Service Time	3.829	3.239	3.249	4.572	
HCM Lane V/C Ratio	0.31	0.507	0.602	0.005	
HCM Control Delay	11.4	13.5	15.9	9.6	
HCM Lane LOS	В	В	С	Α	
HCM 95th-tile Q	1.3	2.9	4.1	0	

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	•	→	•	•	\	4	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	*	†		7	ሻ	7	
Traffic Volume (vph)	85	856	1079	89	63	124	
Future Volume (vph)	85	856	1079	89	63	124	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	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	
Frt	1.00	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1671	1759	1667	1388	1399	1252	
FIt Permitted	0.12	1.00	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	213	1759	1667	1388	1399	1252	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	89	892	1124	93	66	129	
RTOR Reduction (vph)	0	0	0	11	0	115	
Lane Group Flow (vph)	89	892	1124	82	66	14	
Confl. Bikes (#/hr)				1			
Heavy Vehicles (%)	8%	8%	14%	14%	29%	29%	
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm	
Protected Phases	5	2	6		4		
Permitted Phases	2			6		4	
Actuated Green, G (s)	97.9	97.9	88.1	88.1	11.6	11.6	
Effective Green, g (s)	97.9	99.4	89.6	89.6	12.6	12.6	
Actuated g/C Ratio	0.82	0.83	0.75	0.75	0.10	0.10	
Clearance Time (s)	4.0	5.5	5.5	5.5	5.0	5.0	
Vehicle Extension (s)	1.5	3.5	3.5	3.5	2.0	2.0	
Lane Grp Cap (vph)	244	1457	1244	1036	146	131	
v/s Ratio Prot	0.02	c0.51	c0.67		c0.05		
v/s Ratio Perm	0.28			0.06		0.01	
v/c Ratio	0.36	0.61	0.90	0.08	0.45	0.10	
Uniform Delay, d1	15.3	3.6	11.8	4.1	50.5	48.6	
Progression Factor	1.00	1.00	0.76	0.41	1.00	1.00	
Incremental Delay, d2	0.3	1.9	10.0	0.1	0.8	0.1	
Delay (s)	15.6	5.5	19.0	1.8	51.3	48.7	
Level of Service	В	Α	В	Α	D	D	
Approach Delay (s)		6.4	17.7		49.6		
Approach LOS		Α	В		D		
Intersection Summary							
HCM 2000 Control Delay			15.7	H	CM 2000	Level of Service	
HCM 2000 Volume to Capa	city ratio		0.84	- 110	CIVI 2000	201010100100	
Actuated Cycle Length (s)	iony radio		120.0	Sı	um of lost	time (s)	
Intersection Capacity Utiliza	ation		76.5%			of Service	
Analysis Period (min)			15	,,	2 23107	. 5511150	
aryolo i orioa (iliili)			10				

c Critical Lane Group

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Synchro 11 Report
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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ሻ	†	†	7	*	7
Traffic Volume (veh/h)	85	856	1079	89	63	124
Future Volume (veh/h)	85	856	1079	89	63	124
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1781	1781	1693	1693	1470	1470
Adj Flow Rate, veh/h	89	892	1124	77	66	129
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	8	8	14	14	29	29
Cap, veh/h	379	1434	1239	1028	180	160
Arrive On Green	0.04	0.80	0.97	0.97	0.13	0.13
Sat Flow, veh/h	1697	1781	1693	1405	1400	1246
Grp Volume(v), veh/h	89	892	1124	77	66	129
Grp Sat Flow(s), veh/h/ln	1697	1781	1693	1405	1400	1246
Q Serve(g_s), s	1.5	23.5	18.1	0.2	5.2	12.1
Cycle Q Clear(g_c), s	1.5	23.5	18.1	0.2	5.2	12.1
Prop In Lane	1.00	20.0	10.1	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	379	1434	1239	1028	180	160
V/C Ratio(X)	0.23	0.62	0.91	0.07	0.37	0.81
Avail Cap(c_a), veh/h	394	1434	1239	1028	268	239
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.70	0.70	1.00	1.00
	5.3	4.6	0.70	0.70	47.8	50.8
Uniform Delay (d), s/veh						
Incr Delay (d2), s/veh	0.1	2.0	8.3	0.1	0.5	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.1	3.5	0.1	1.8	8.3
Unsig. Movement Delay, s/veh	E 1	6.6	0.0	0.5	40.2	E7 E
LnGrp Delay(d),s/veh	5.4	6.6	9.0	0.5	48.3	57.5
LnGrp LOS	A	A	A	A	D 105	E
Approach Vol, veh/h		981	1201		195	
Approach Delay, s/veh		6.5	8.4		54.4	
Approach LOS		Α	Α		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		100.6		19.4	8.7	91.8
Change Period (Y+Rc), s		5.5		5.0	4.0	5.5
Max Green Setting (Gmax), s		87.5		22.0	5.8	77.7
Max Q Clear Time (g_c+l1), s		25.5		14.1	3.5	20.1
Green Ext Time (p_c), s		44.2		0.4	0.0	52.0
Intersection Summary						
			11 1			
HCM 6th Ctrl Delay			11.4			
HCM 6th LOS			В			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	f)		*	1>		ሻ	↑ ↑		*	↑ 1>	
Traffic Volume (vph)	28	207	32	26	143	36	41	225	40	163	425	70
Future Volume (vph)	28	207	32	26	143	36	41	225	40	163	425	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.98		1.00	0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1648		1597	1627		1504	2930		1702	3323	
Flt Permitted	0.56	1.00		0.45	1.00		0.44	1.00		0.47	1.00	
Satd. Flow (perm)	939	1648		756	1627		692	2930		850	3323	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	31	233	36	29	161	40	46	253	45	183	478	79
RTOR Reduction (vph)	0	7	0	0	11	0	0	16	0	0	13	0
Lane Group Flow (vph)	31	262	0	29	190	0	46	282	0	183	544	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	20%	20%	20%	6%	6%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.7	15.8		17.5	15.7		21.5	18.1		28.7	21.7	
Effective Green, g (s)	19.7	17.3		19.5	17.2		23.5	19.6		30.7	23.2	
Actuated g/C Ratio	0.31	0.27		0.31	0.27		0.37	0.31		0.48	0.36	
Clearance Time (s)	5.0	5.5		5.0	5.5		5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	320	447		268	439		311	901		516	1210	
v/s Ratio Prot	0.00	c0.16		c0.00	0.12		0.01	0.10		c0.04	c0.16	
v/s Ratio Perm	0.03			0.03			0.04			0.13		
v/c Ratio	0.10	0.59		0.11	0.43		0.15	0.31		0.35	0.45	
Uniform Delay, d1	15.5	20.1		15.8	19.2		13.1	16.9		9.7	15.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	2.0		0.1	0.7		0.1	0.2		0.2	0.3	
Delay (s)	15.6	22.1		15.8	19.9		13.2	17.1		9.9	15.7	
Level of Service	В	С		В	В		В	В		Α	В	
Approach Delay (s)		21.4			19.4			16.6			14.2	
Approach LOS		С			В			В			В	
Intersection Summary												
HCM 2000 Control Delay			16.8	H	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	city ratio		0.49									
Actuated Cycle Length (s)			63.7		um of lost				16.0			
Intersection Capacity Utiliza	ation		48.5%	IC	U Level o	of Service)		Α			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	₽		ሻ	f)		ሻ	∱ }		7	∱ ⊅	
Traffic Volume (veh/h)	28	207	32	26	143	36	41	225	40	163	425	70
Future Volume (veh/h)	28	207	32	26	143	36	41	225	40	163	425	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	4707	No	4707	4707	No	4707	1001	No	1001	1011	No	1011
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1604	1604	1604	1811	1811	1811
Adj Flow Rate, veh/h	31	233	0	29	161	0	46	253	39	183	478	68
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	13	13	13	13	13	13	20	20	20	6	6	6
Cap, veh/h	413	418	0.00	358	415	0.00	369	637	97	525	904	128
Arrive On Green	0.06	0.24	0.00	0.05	0.24	0.00	0.07	0.24	0.21	0.13	0.30	0.27
Sat Flow, veh/h	1626	1707	0	1626	1707	0	1527	2642	401	1725	3016	427
Grp Volume(v), veh/h	31	233	0	29	161	0	46	144	148	183	272	274
Grp Sat Flow(s),veh/h/ln	1626	1707	0	1626	1707	0	1527	1523	1520	1725	1721	1722
Q Serve(g_s), s	0.7	5.7	0.0	0.6	3.8	0.0	1.0	3.8	4.0	3.6	6.3	6.4
Cycle Q Clear(g_c), s	0.7	5.7	0.0	0.6	3.8	0.0	1.0	3.8	4.0	3.6	6.3	6.4
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.26	1.00		0.25
Lane Grp Cap(c), veh/h	413	418		358	415		369	367	366	525	516	516
V/C Ratio(X)	0.08	0.56		0.08	0.39		0.12	0.39	0.40	0.35	0.53	0.53
Avail Cap(c_a), veh/h	643	1047	4.00	591	1047	4.00	519	887	885	593	1001	1002
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	15.9	0.0	12.8	15.2	0.0	12.3	15.3	15.5	10.8	14.0	14.2
Incr Delay (d2), s/veh	0.0	1.2	0.0	0.0	0.6	0.0	0.1	0.7	0.7	0.1	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.1	0.0	0.2	1.4	0.0	0.3	1.1	1.2	1.0	2.0	2.0
Unsig. Movement Delay, s/veh		17.0	0.0	10.0	15.0	0.0	10.4	16.0	10.0	10.0	110	15.1
LnGrp Delay(d),s/veh	12.6	17.0	0.0	12.8	15.8	0.0	12.4	16.0	16.2	10.9	14.8	15.1
LnGrp LOS	В	В		В	B		В	В	В	В	B 700	<u>B</u>
Approach Vol, veh/h		264			190			338			729	
Approach Delay, s/veh		16.5			15.4			15.6			13.9	
Approach LOS		В			В			В			В	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	15.6	6.6	15.8	7.3	18.4	6.7	15.7				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5				
Max Green Setting (Gmax), s	7.0	26.5	8.5	28.0	7.0	26.5	8.5	28.0				
Max Q Clear Time (g_c+I1), s	5.6	6.0	2.6	7.7	3.0	8.4	2.7	5.8				
Green Ext Time (p_c), s	0.0	1.4	0.0	1.3	0.0	2.8	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			В									

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EDL		EDI	WDL		WDN	NDL	↑ ↑	NDI	SBL T	↑ ↑	SDN
Traffic Vol, veh/h	4	↔ 1	3	25	♣ 1	29	16	268	36	88	391	23
Future Vol, veh/h	4	1	3	25	1	29	16	268	36	88	391	23
Conflicting Peds, #/hr	3	0	1	1	0	3	10	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	- Clop	Olop -	None	- Olop	- Olop	None	-	-	None	-	-	None
Storage Length	_	_	-	_	_	-	200	_	-	200	_	-
Veh in Median Storage,	# -	0	_	_	0	_	-	0	_	-	0	_
Grade, %	_	0	_	_	0	_	_	0	_	_	0	_
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	13	13	13	41	41	41	18	18	18	17	17	17
Mymt Flow	5	1	4	30	1	35	19	319	43	105	465	27
		•	•		•			0.0				
Major/Minor N	/linor2		N	/linor1			Major1		N	Major2		
	891	1090	248	823	1082	184	493	0	0	362	0	0
Conflicting Flow All	690	690		379	379	104	493		U	302		U
Stage 1 Stage 2	201	400	-	444	703	-	-	-	-	-	-	-
Critical Hdwy	7.76	6.76	7.16	8.32	7.32	7.72	4.46	-	-	4.44	-	-
Critical Hdwy Stg 1	6.76	5.76	7.10	7.32	6.32	1.12	4.40	_	_	4.44	-	_
Critical Hdwy Stg 2	6.76	5.76	_	7.32	6.32	_			_		-	
Follow-up Hdwy	3.63	4.13	3.43	3.91	4.41	3.71	2.38	_	_	2.37		_
Pot Cap-1 Maneuver	220	197	720	208	163	718	962	_		1092	_	
Stage 1	377	418	120	520	525	1 10	302	-		1032	-	_
Stage 2	751	573	_	471	354	_	_	_	_	<u>-</u>	_	<u>-</u>
Platoon blocked, %	731	313	_	7/1	554					_	_	_
Mov Cap-1 Maneuver	189	174	719	188	144	716	961	_	_	1092	_	_
Mov Cap-1 Maneuver	189	174	119	188	144	110	301	-		1032	_	_
Stage 1	369	377	_	510	515	_	_	_	_	_	_	_
Stage 2	697	562	_	422	320			_	_	_		_
Olago Z	001	JUZ		744	520							
Approach	EB			WB			NB			SB		
HCM Control Delay, s	19.5			20			0.4			1.5		
HCM LOS	19.5 C			C			U. T			1.0		
TIOWI LOO	J											
Minor Lane/Major Mvmt		NBL	NBT	NBR I	EBLn1V	VBLn1	SBL	SBT	SBR			
Capacity (veh/h)		961	-	-	257	305	1092	-				
HCM Lane V/C Ratio		0.02	_			0.215		_	_			
HCM Control Delay (s)		8.8	_	_	19.5	20	8.6	_	_			
HCM Lane LOS		A	_	_	C	C	Α	_	_			
HCM 95th %tile Q(veh)		0.1	_	_	0.1	0.8	0.3	_	_			
		V. 1			J. 1	0.0	3.0					

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	•	7	*	↑	7	ሻ		1	*	*	7
Traffic Volume (vph)	76	854	97	26	564	95	162	200	58	131	226	58
Future Volume (vph)	76	854	97	26	564	95	162	200	58	131	226	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.5	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	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	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	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	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1612	1696	1408	1583	1667	1401	1626	1712	1455	1583	1667	1392
Flt Permitted	0.27	1.00	1.00	0.10	1.00	1.00	0.29	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	462	1696	1408	167	1667	1401	496	1712	1455	599	1667	1392
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)	82	918	104	28	606	102	174	215	62	141	243	62
RTOR Reduction (vph)	0	0	38	0	0	40	0	0	51	0	0	48
Lane Group Flow (vph)	82	918	66	28	606	62	174	215	11	141	243	14
Confl. Peds. (#/hr)			2	2			1					1
Confl. Bikes (#/hr)			5			1						
Heavy Vehicles (%)	12%	12%	12%	14%	14%	14%	11%	11%	11%	14%	14%	14%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	74.4	68.4	76.4	68.8	65.6	73.5	29.5	21.5	21.5	29.3	21.4	27.4
Effective Green, g (s)	74.4	69.9	76.4	68.8	67.1	73.5	29.5	23.0	21.5	29.3	22.9	27.4
Actuated g/C Ratio	0.62	0.58	0.64	0.57	0.56	0.61	0.25	0.19	0.18	0.24	0.19	0.23
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5	4.0	4.0	5.5	5.5	4.0	5.5	4.0
Vehicle Extension (s)	1.5	4.5	1.5	1.5	4.5	1.5	1.5	2.0	2.0	1.5	2.0	1.5
Lane Grp Cap (vph)	343	987	896	133	932	858	197	328	260	211	318	317
v/s Ratio Prot	c0.01	c0.54	0.00	0.01	0.36	0.00	c0.06	0.13		0.04	0.15	0.00
v/s Ratio Perm	0.14		0.04	0.11		0.04	c0.16		0.01	0.12		0.01
v/c Ratio	0.24	0.93	0.07	0.21	0.65	0.07	0.88	0.66	0.04	0.67	0.76	0.04
Uniform Delay, d1	12.2	22.8	8.3	20.2	18.3	9.4	41.7	44.8	40.7	38.9	46.0	36.1
Progression Factor	1.00	0.89	0.73	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	14.5	0.0	0.3	3.5	0.0	33.2	3.6	0.0	6.1	9.4	0.0
Delay (s)	12.4	34.8	6.1	20.4	21.8	9.4	74.9	48.4	40.8	45.0	55.4	36.1
Level of Service	В	С	Α	С	С	Α	Е	D	D	D	Е	D
Approach Delay (s)		30.5			20.1			57.6			49.4	
Approach LOS		С			С			Е			D	
Intersection Summary												
HCM 2000 Control Delay			35.2	Н	CM 2000	Level of	Service		D			
HCM 2000 Volume to Capa	city ratio		0.89									
Actuated Cycle Length (s)			120.0			t time (s)			16.0			
Intersection Capacity Utiliza	tion		83.7%	IC	CU Level	of Service	9		E			
Analysis Period (min)			15									
c Critical Lane Group												

	۶	→	•	•	←	•	1	†	/	/	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	•	7	ሻ	•	7	ሻ	•	7	ሻ	+	7
Traffic Volume (veh/h)	76	854	97	26	564	95	162	200	58	131	226	58
Future Volume (veh/h)	76	854	97	26	564	95	162	200	58	131	226	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1=00	No	1=00	1000	No	1000	4-0-	No		1000	No	1000
Adj Sat Flow, veh/h/ln	1722	1722	1722	1693	1693	1693	1737	1737	1737	1693	1693	1693
Adj Flow Rate, veh/h	82	918	88	28	606	27	174	215	40	141	243	40
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	12	12	12	14	14	14	11	11	11	14	14	14
Cap, veh/h	366	1019	922	158	979	896	204	318	250	223	309	299
Arrive On Green	0.04	0.59	0.58	0.03	0.58	0.57	0.07	0.18	0.17	0.07	0.18	0.17
Sat Flow, veh/h	1640	1722	1423	1612	1693	1415	1654	1737	1468	1612	1693	1430
Grp Volume(v), veh/h	82	918	88	28	606	27	174	215	40	141	243	40
Grp Sat Flow(s), veh/h/ln	1640	1722	1423	1612	1693	1415	1654	1737	1468	1612	1693	1430
Q Serve(g_s), s	2.5	55.9	2.8	0.9	28.2	0.9	8.0	13.9	2.8	8.0	16.4	2.7
Cycle Q Clear(g_c), s	2.5	55.9	2.8	0.9	28.2	0.9	8.0	13.9	2.8	8.0	16.4	2.7
Prop In Lane	1.00	1010	1.00	1.00	070	1.00	1.00	040	1.00	1.00	000	1.00
Lane Grp Cap(c), veh/h	366	1019	922	158	979	896	204	318	250	223	309	299
V/C Ratio(X)	0.22	0.90	0.10	0.18	0.62	0.03	0.85	0.68	0.16	0.63	0.79	0.13
Avail Cap(c_a), veh/h	384	1019	922	198	979	896	204	420	336	223	409	384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6 0.1	21.4 10.1	8.0 0.2	23.2 0.2	16.6 2.9	8.3 0.1	44.1 26.5	45.7 1.2	42.5 0.1	40.3 4.3	46.8 5.1	38.6 0.1
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh %ile BackOfQ(50%),veh/ln	0.0	22.6	0.0	0.0	10.7	0.0	3.0	5.9	1.0	3.6	7.2	0.0
Unsig. Movement Delay, s/veh		22.0	0.0	0.4	10.7	0.3	3.0	5.9	1.0	3.0	1.2	0.9
LnGrp Delay(d),s/veh	13.7	31.5	8.2	23.4	19.6	8.3	70.6	46.9	42.6	44.7	51.9	38.7
LnGrp LOS	13.7 B	31.3 C	0.2 A	23.4 C	19.0 B	0.5 A	70.0 E	40.3 D	42.0 D	74.7 D	51.9 D	30.7 D
Approach Vol, veh/h	<u> </u>	1088			661		<u> </u>	429	<u> </u>		424	
Approach Delay, s/veh		28.2			19.3			56.1			48.2	
Approach LOS		20.2 C			19.5 B			50.1 E			40.2 D	
Apploach E03											U	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.0	75.0	12.0	25.9	8.7	73.4	12.0	25.9				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.5	4.0	5.5	4.0	5.5				
Max Green Setting (Gmax), s	6.0	59.5	8.0	27.5	6.0	59.5	8.0	27.5				
Max Q Clear Time (g_c+I1), s	2.9	57.9	10.0	18.4	4.5	30.2	10.0	15.9				
Green Ext Time (p_c), s	0.0	1.5	0.0	1.8	0.1	15.7	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			33.8									
HCM 6th LOS			С									

ntersection	
ntersection Delay, s/veh	11.7
ntersection LOS	В

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	0	130	72	100	240	1	51	0	98	1	0	0
Future Vol, veh/h	0	130	72	100	240	1	51	0	98	1	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	7	7	7	7	7	7	5	5	5	0	0	0
Mvmt Flow	0	155	86	119	286	1	61	0	117	1	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB			NB			SB		
Opposing Approach		WB		EB			SB			NB		
Opposing Lanes		1		1			1			1		
Conflicting Approach Left		SB		NB			EB			WB		
Conflicting Lanes Left		1		1			1			1		
Conflicting Approach Right		NB		SB			WB			EB		
Conflicting Lanes Right		1		1			1			1		
HCM Control Delay		10		13.5			10			9		
HCM LOS		Α		В			Α			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	34%	0%	29%	100%	
Vol Thru, %	0%	64%	70%	0%	
Vol Right, %	66%	36%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	149	202	341	1	
LT Vol	51	0	100	1	
Through Vol	0	130	240	0	
RT Vol	98	72	1	0	
Lane Flow Rate	177	240	406	1	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.254	0.317	0.543	0.002	
Departure Headway (Hd)	5.148	4.748	4.815	6.019	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	692	750	743	598	
Service Time	3.225	2.819	2.878	4.019	
HCM Lane V/C Ratio	0.256	0.32	0.546	0.002	
HCM Control Delay	10	10	13.5	9	
HCM Lane LOS	Α	Α	В	Α	
HCM 95th-tile Q	1	1.4	3.3	0	

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Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations	*	<u></u>	<u> </u>	7	<u> </u>	7			
Traffic Volume (vph)	62	870	1079	55	110	176			
Future Volume (vph)	62	870	1079	55	110	176			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Frpb, ped/bikes	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			
Frt	1.00	1.00	1.00	0.85	1.00	0.85			
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1736	1827	1845	1530	1736	1553			
Flt Permitted	0.10	1.00	1.00	1.00	0.95	1.00			
Satd. Flow (perm)	176	1827	1845	1530	1736	1553			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92			
Adj. Flow (vph)	67	946	1173	60	120	191			
RTOR Reduction (vph)	0	0	0	7	0	151			
Lane Group Flow (vph)	67	946	1173	53	120	40			
Confl. Peds. (#/hr)	1			1					
Confl. Bikes (#/hr)	40/	40/	00/	4	40/	40/			
Heavy Vehicles (%)	4%	4%	3%	3%	4%	4%			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm			
Protected Phases	5	2	6		4	_			
Permitted Phases	2			6		4			
Actuated Green, G (s)	96.1	96.1	87.9	87.9	13.4	13.4			
Effective Green, g (s)	96.1	97.6	89.4	89.4	14.4	14.4			
Actuated g/C Ratio	0.80	0.81	0.75	0.75	0.12	0.12			
Clearance Time (s)	4.0	5.5	5.5	5.5	5.0	5.0			
Vehicle Extension (s)	1.5	3.5	3.5	3.5	2.0	2.0			
Lane Grp Cap (vph)	195	1485	1374	1139	208	186			
v/s Ratio Prot	0.01	c0.52	c0.64		c0.07				
v/s Ratio Perm	0.26			0.03		0.03			
v/c Ratio	0.34	0.64	0.85	0.05	0.58	0.21			
Uniform Delay, d1	18.4	4.3	10.7	4.0	49.9	47.7			
Progression Factor	1.00	1.00	0.68	0.16	1.00	1.00			
Incremental Delay, d2	0.4	2.1	5.5	0.1	2.4	0.2			
Delay (s)	18.8	6.4	12.8	0.7	52.3	47.9			
Level of Service	В	Α	В	Α	D	D			
Approach Delay (s)		7.3	12.2		49.6				
Approach LOS		Α	В		D				
Intersection Summary									
HCM 2000 Control Delay			14.8	H(CM 2000	Level of Service)	В	
HCM 2000 Volume to Capaci	ity ratio		0.82						
Actuated Cycle Length (s)			120.0	Sı	um of lost	time (s)		12.0	
Intersection Capacity Utilizati	ion		74.4%	IC	U Level o	of Service		D	
Intersection Capacity Utilizati Analysis Period (min)	ion		74.4% 15	IC	U Level o	of Service		D	

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*	†		7	ሻ	7
Traffic Volume (veh/h)	62	870	1079	55	110	176
Future Volume (veh/h)	62	870	1079	55	110	176
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1841	1856	1856	1841	1841
Adj Flow Rate, veh/h	67	946	1173	44	120	191
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	3	3	4	4
Cap, veh/h	353	1445	1326	1098	260	231
Arrive On Green	0.04	0.79	0.95	0.95	0.15	0.15
Sat Flow, veh/h	1753	1841	1856	1537	1753	1560
Grp Volume(v), veh/h	67	946	1173	44	120	191
Grp Sat Flow(s), veh/h/ln	1753	1841	1856	1537	1753	1560
Q Serve(g_s), s	1.2	27.3	23.7	0.2	7.5	14.3
Cycle Q Clear(g_c), s	1.2	27.3	23.7	0.2	7.5	14.3
Prop In Lane	1.00	21.0	20.1	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	353	1445	1326	1098	260	231
V/C Ratio(X)	0.19	0.65	0.88	0.04	0.46	0.83
Avail Cap(c_a), veh/h	373	1445	1326	1098	336	299
HCM Platoon Ratio	1.00	1.00	1.33	1.33	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.64	0.64	1.00	1.00
Uniform Delay (d), s/veh	6.9	5.7	1.4	0.04	46.7	49.6
Incr Delay (d2), s/veh	0.9	2.3	6.0	0.9	0.5	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.9	3.6	0.0	3.3	12.5
Unsig. Movement Delay, s/veh		1.3	3.0	U. I	3.3	12.0
LnGrp Delay(d),s/veh	7.0	8.0	7.4	0.9	47.2	60.5
LnGrp LOS	7.0 A	6.0 A	7.4 A	0.9 A	47.2 D	60.5 E
Approach Vol, veh/h	<u> </u>		1217	A	311	<u> </u>
		1013	7.2			
Approach LOS		8.0			55.4	
Approach LOS		Α	Α		Е	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		98.2		21.8	8.5	89.7
Change Period (Y+Rc), s		5.5		5.0	4.0	5.5
Max Green Setting (Gmax), s		87.5		22.0	5.8	77.7
Max Q Clear Time (g_c+l1), s		29.3		16.3	3.2	25.7
Green Ext Time (p_c), s		45.0		0.5	0.0	48.4
Intersection Summary						
			12.4			
HCM 6th Ctrl Delay			13.4			
HCM 6th LOS			В			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	1>		*	1>		ሻ	↑ ↑		ች	↑ ↑	
Traffic Volume (vph)	77	168	45	100	304	163	35	458	45	88	278	38
Future Volume (vph)	77	168	45	100	304	163	35	458	45	88	278	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.97		1.00	0.95		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1628		1597	1586		1504	2962		1703	3334	
Flt Permitted	0.20	1.00		0.53	1.00		0.52	1.00		0.27	1.00	
Satd. Flow (perm)	332	1628		891	1586		816	2962		478	3334	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	87	189	51	112	342	183	39	515	51	99	312	43
RTOR Reduction (vph)	0	10	0	0	20	0	0	9	0	0	12	0
Lane Group Flow (vph)	87	230	0	112	505	0	39	557	0	99	343	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)	•					•			•	•		4
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	20%	20%	20%	6%	6%	6%
Turn Type	pm+pt	NA	7070	pm+pt	NA	,	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4	•		8			2	_		6	•	
Actuated Green, G (s)	33.8	28.2		33.8	28.2		24.1	20.7		27.3	22.3	
Effective Green, g (s)	35.8	29.7		35.8	29.7		26.1	22.2		29.3	23.8	
Actuated g/C Ratio	0.44	0.37		0.44	0.37		0.32	0.28		0.36	0.30	
Clearance Time (s)	5.0	5.5		5.0	5.5		5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	251	600		454	585		302	816		265	985	
v/s Ratio Prot	c0.03	0.14		0.02	c0.32		0.01	c0.19		c0.03	0.10	
v/s Ratio Perm	0.13	0.14		0.02	00.02		0.03	00.15		0.11	0.10	
v/c Ratio	0.35	0.38		0.25	0.86		0.13	0.68		0.37	0.35	
Uniform Delay, d1	15.1	18.7		13.4	23.5		18.9	26.0		17.9	22.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4		0.1	12.6		0.1	2.4		0.3	0.2	
Delay (s)	15.4	19.1		13.6	36.1		18.9	28.4		18.2	22.5	
Level of Service	В	В		В	D		В	C		В	C	
Approach Delay (s)		18.1			32.1			27.8			21.5	
Approach LOS		В			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			26.2	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.70									
Actuated Cycle Length (s)			80.5	S	um of lost	time (s)			16.0			
Intersection Capacity Utiliza	ation		62.6%	IC	CU Level o	of Service)		В			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	₽		ሻ	1•		ሻ	ተኈ		ሻ	∱ ∱	
Traffic Volume (veh/h)	77	168	45	100	304	163	35	458	45	88	278	38
Future Volume (veh/h)	77	168	45	100	304	163	35	458	45	88	278	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	4707	No	4707	4707	No	4707	1001	No	1001	1011	No	1011
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1604	1604	1604	1811	1811	1811
Adj Flow Rate, veh/h	87	189	0	112	342	0	39	515	45	99	312	32
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	13	13	13	13	13	13	20	20	20	6	6	6
Cap, veh/h	345	462	0.00	459	474	0.00	405	772	67	359	947	96
Arrive On Green	0.08	0.27	0.00	0.09	0.28	0.00	0.06	0.27	0.25	0.09	0.30	0.27
Sat Flow, veh/h	1626	1707	0	1626	1707	0	1527	2835	247	1725	3144	320
Grp Volume(v), veh/h	87	189	0	112	342	0	39	276	284	99	170	174
Grp Sat Flow(s),veh/h/ln	1626	1707	0	1626	1707	0	1527	1523	1559	1725	1721	1743
Q Serve(g_s), s	2.1	5.2	0.0	2.7	10.3	0.0	1.0	9.2	9.3	2.3	4.4	4.5
Cycle Q Clear(g_c), s	2.1	5.2	0.0	2.7	10.3	0.0	1.0	9.2	9.3	2.3	4.4	4.5
Prop In Lane	1.00	460	0.00	1.00	171	0.00	1.00	115	0.16	1.00	E10	0.18
Lane Grp Cap(c), veh/h	345	462 0.41		459	474		405	415 0.67	424	359	518	525
V/C Ratio(X)	0.25 480	882		0.24 583	0.72 882		0.10 530	747	0.67 764	0.28 451	0.33 844	0.33 855
Avail Cap(c_a), veh/h HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	17.1	0.00	13.1	18.6	0.00	13.6	18.5	18.6	13.6	15.5	15.6
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.1	2.1	0.0	0.0	1.8	1.8	0.2	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.9	0.0	0.9	3.9	0.0	0.3	2.9	3.0	0.7	1.5	1.5
Unsig. Movement Delay, s/veh		1.0	0.0	0.5	0.5	0.0	0.0	2.0	0.0	0.7	1.0	1.0
LnGrp Delay(d),s/veh	14.0	17.7	0.0	13.2	20.7	0.0	13.6	20.3	20.4	13.8	15.8	16.0
LnGrp LOS	В	В	0.0	В	C	0.0	В	C	C	В	В	В
Approach Vol, veh/h		276			454			599			443	
Approach Delay, s/veh		16.5			18.9			19.9			15.4	
Approach LOS		В			В			В			В	
	4		2	4		^	7					
Timer - Assigned Phs	1	10.5	3	4	7.3	6	7	10.0				
Phs Duration (G+Y+Rc), s	9.0	19.5	9.2 5.0	19.4	5.0	21.2	8.7	19.9				
Change Period (Y+Rc), s Max Green Setting (Gmax), s	5.0 7.0	5.5 26.5	8.5	5.5 28.0	7.0	5.5 26.5	5.0 8.5	5.5 28.0				
Max Q Clear Time (g_c+l1), s	4.3	11.3	4.7	7.2	3.0	6.5	4.1	12.3				
Green Ext Time (p_c), s	0.0	2.7	0.0	1.0	0.0	1.7	0.0	12.3				
	0.0	2.1	0.0	1.0	0.0	1.7	0.0	1.0				
Intersection Summary			10.0									
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			В									

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		7	↑ ↑		ř	ħβ	
Traffic Vol, veh/h	16	2	18	50	0	178	0	332	11	39	400	1
Future Vol, veh/h	16	2	18	50	0	178	0	332	11	39	400	1
Conflicting Peds, #/hr	3	0	1	1	0	3	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage,	,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	13	13	13	41	41	41	18	18	18	17	17	17
Mvmt Flow	19	2	21	60	0	212	0	395	13	46	476	1
Major/Minor N	/linor2		N	Minor1			Major1		N	Major2		
Conflicting Flow All	771	978	241	734	972	207	478	0	0	408	0	0
Stage 1	570	570		402	402	-	-	-	-	-	-	-
Stage 2	201	408	_	332	570	_	_	_	_	_	_	_
Critical Hdwy	7.76	6.76	7.16	8.32	7.32	7.72	4.46	-	-	4.44	-	-
Critical Hdwy Stg 1	6.76	5.76	-	7.32	6.32	-	-	-	_	-	-	-
Critical Hdwy Stg 2	6.76	5.76	-	7.32	6.32	-	-	-	-	-	-	-
Follow-up Hdwy	3.63	4.13	3.43	3.91	4.41	3.71	2.38	-	-	2.37	-	-
Pot Cap-1 Maneuver	271	231	727	245	194	691	976	-	-	1047	-	-
Stage 1	447	477	-	502	510	-		-	_	-	-	-
Stage 2	751	568	-	558	417	_	_	_	_	-	_	-
Platoon blocked, %								-	_		-	-
Mov Cap-1 Maneuver	181	221	726	228	185	689	975	-	-	1047	-	-
Mov Cap-2 Maneuver	181	221	-	228	185	-	-	-	_	-	-	-
Stage 1	447	456	-	502	510	-	-	-	-	-	-	-
Stage 2	519	568	-	515	398	-	-	-	_	-	-	-
J												
Approach	EB			WB			NB			SB		
HCM Control Delay, s	19.3			22			0			0.8		
HCM LOS	С			C								
	-											
Minor Lane/Major Mvm	t	NBL	NBT	NBR I	EBLn1V	VBLn1	SBL	SBT	SBR			
Capacity (veh/h)		975	-	-	295	477	1047	-	-			
HCM Lane V/C Ratio		-	-	-		0.569		-	-			
HCM Control Delay (s)		0	-	-	19.3	22	8.6	-	-			
HCM Lane LOS		A	-	-	С	С	Α	-	-			
HCM 95th %tile Q(veh)		0	-	-	0.5	3.5	0.1	-	-			
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	*	7	ሻ	1	7	ሻ	†	7	ሻ	1	7
Traffic Volume (vph)	65	746	193	31	808	79	123	208	37	165	228	130
Future Volume (vph)	65	746	193	31	808	79	123	208	37	165	228	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.5	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	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	0.98	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	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	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1827	1519	1769	1863	1564	1718	1810	1500	1769	1863	1552
Flt Permitted	0.13	1.00	1.00	0.20	1.00	1.00	0.30	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	243	1827	1519	381	1863	1564	545	1810	1500	564	1863	1552
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)	67	769	199	32	833	81	127	214	38	170	235	134
RTOR Reduction (vph)	0	0	70	0	0	30	0	0	32	0	0	105
Lane Group Flow (vph)	67	769	129	32	833	51	127	214	6	170	235	29
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Confl. Bikes (#/hr)			1			2			1			2
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	74.9	69.2	77.6	69.9	66.7	76.1	27.6	19.2	19.2	29.6	20.2	25.9
Effective Green, g (s)	74.9	70.7	77.6	69.9	68.2	76.1	27.6	20.7	19.2	29.6	21.7	25.9
Actuated g/C Ratio	0.62	0.59	0.65	0.58	0.57	0.63	0.23	0.17	0.16	0.25	0.18	0.22
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5	4.0	4.0	5.5	5.5	4.0	5.5	4.0
Vehicle Extension (s)	1.5	4.5	1.5	1.5	4.5	1.5	1.5	2.0	2.0	1.5	2.0	1.5
Lane Grp Cap (vph)	222	1076	982	258	1058	991	207	312	240	233	336	334
v/s Ratio Prot	c0.01	0.42	0.01	0.00	c0.45	0.00	0.04	0.12		c0.06	c0.13	0.00
v/s Ratio Perm	0.17		0.08	0.07		0.03	0.10		0.00	0.12		0.01
v/c Ratio	0.30	0.71	0.13	0.12	0.79	0.05	0.61	0.69	0.03	0.73	0.70	0.09
Uniform Delay, d1	17.5	17.5	8.2	14.7	20.2	8.3	38.9	46.6	42.5	38.4	46.1	37.6
Progression Factor	0.98	0.84	0.49	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	3.3	0.0	0.1	5.9	0.0	3.8	4.9	0.0	9.3	5.1	0.0
Delay (s)	17.3	17.9	4.1	14.7	26.2	8.3	42.6	51.5	42.5	47.7	51.2	37.6
Level of Service	В	В	Α	В	С	Α	D	D	D	D	D	D
Approach Delay (s)		15.2			24.2			47.6			46.7	
Approach LOS		В			С			D			D	
Intersection Summary												
HCM 2000 Control Delay			28.3	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.74									
Actuated Cycle Length (s)			120.0			st time (s)			16.0			
Intersection Capacity Utiliza	ation		80.5%	IC	CU Level	of Service	•		D			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	↑	7	ሻ	↑	7	7	↑	7	ሻ	↑	7
Traffic Volume (veh/h)	65	746	193	31	808	79	123	208	37	165	228	130
Future Volume (veh/h)	65	746	193	31	808	79	123	208	37	165	228	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	1011	10-0	No	10-0	1000	No	1000	10-0	No	40-0
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1826	1826	1826	1870	1870	1870
Adj Flow Rate, veh/h	67	769	184	32	833	9	127	214	17	170	235	113
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	2	2	2	5	5	5	2	2	2
Cap, veh/h	288	1110	1004	346	1109	1013	214	310	237	233	318	302
Arrive On Green	0.05	0.80	0.79	0.03	0.59	0.58	0.07	0.17	0.16	0.07	0.17	0.16
Sat Flow, veh/h	1753	1841	1525	1781	1870	1563	1739	1826	1508	1781	1870	1541
Grp Volume(v), veh/h	67	769	184	32	833	9	127	214	17	170	235	113
Grp Sat Flow(s), veh/h/ln	1753	1841	1525	1781	1870	1563	1739	1826	1508	1781	1870	1541
Q Serve(g_s), s	1.8	22.4	3.1	0.9	39.2	0.2	7.3	13.2	1.2	8.0	14.3	7.6
Cycle Q Clear(g_c), s	1.8	22.4	3.1	0.9	39.2	0.2	7.3	13.2	1.2	8.0	14.3	7.6
Prop In Lane	1.00	4440	1.00	1.00	4400	1.00	1.00	240	1.00	1.00	040	1.00
Lane Grp Cap(c), veh/h	288	1110	1004	346	1109	1013	214	310	237	233	318	302
V/C Ratio(X)	0.23	0.69	0.18	0.09	0.75	0.01	0.59	0.69	0.07	0.73	0.74	0.37
Avail Cap(c_a), veh/h	311	1110	1004	387	1109	1013	214	441	346	233	452	412
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74 16.1	0.74 6.9	0.74 4.0	1.00 11.4	1.00 17.9	1.00 7.5	1.00 39.9	1.00 46.8	1.00 43.1	1.00 43.1	1.00 47.3	1.00 42.0
Uniform Delay (d), s/veh	0.1	2.7	0.3	0.0	4.7	0.0	3.0	1.0	0.0	9.7	1.8	0.3
Incr Delay (d2), s/veh Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.5	0.0	0.0	16.5	0.0	3.2	5.9	0.0	1.6	6.6	2.9
Unsig. Movement Delay, s/veh		5.5	0.9	0.5	10.5	0.1	3.2	5.9	0.4	1.0	0.0	2.9
LnGrp Delay(d),s/veh	16.2	9.6	4.3	11.4	22.6	7.5	43.0	47.9	43.1	52.8	49.1	42.3
LnGrp LOS	В	3.0 A	4.5 A	В	C	7.5 A	43.0 D	T1.3	73.1 D	52.0 D	T3.1	42.5 D
Approach Vol, veh/h		1020			874			358			518	<u> </u>
Approach Delay, s/veh		9.1			22.1			45.9			48.9	
Approach LOS		A			C			43.3 D			TO.3	
											D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.3	76.3	12.0	24.4	8.5	75.1	12.0	24.4				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.5	4.0	5.5	4.0	5.5				
Max Green Setting (Gmax), s	6.0	59.5	8.0	27.5	6.0	59.5	8.0	27.5				
Max Q Clear Time (g_c+l1), s	2.9	24.4	9.3	16.3	3.8	41.2	10.0	15.2				
Green Ext Time (p_c), s	0.0	24.6	0.0	2.3	0.1	14.4	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			25.4									
HCM 6th LOS			С									

Intersection		
Intersection Delay, s/veh	19	
Intersection LOS	С	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			↔			- ↔	
Traffic Vol, veh/h	2	185	114	157	185	1	61	1	142	2	0	0
Future Vol, veh/h	2	185	114	157	185	1	61	1	142	2	0	0
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	20	20	20	9	9	9	14	14	14	0	0	0
Mvmt Flow	3	250	154	212	250	1	82	1	192	3	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	18.2			22.6			14.4			10.4		
HCM LOS	С			С			В			В		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	30%	1%	46%	100%	
Vol Thru, %	0%	61%	54%	0%	
Vol Right, %	70%	38%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	204	301	343	2	
LT Vol	61	2	157	2	
Through Vol	1	185	185	0	
RT Vol	142	114	1	0	
Lane Flow Rate	276	407	464	3	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.466	0.637	0.73	0.006	
Departure Headway (Hd)	6.079	5.637	5.673	7.338	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	590	639	635	491	
Service Time	4.147	3.7	3.733	5.338	
HCM Lane V/C Ratio	0.468	0.637	0.731	0.006	
HCM Control Delay	14.4	18.2	22.6	10.4	
HCM Lane LOS	В	С	С	В	
HCM 95th-tile Q	2.5	4.5	6.3	0	

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ }		ř	∱ β		¥	€		ř	f)	_
Traffic Volume (vph)	147	971	54	61	1161	238	12	3	15	79	7	134
Future Volume (vph)	147	971	54	61	1161	238	12	3	15	79	7	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	5.5		4.5	4.5		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3312		1583	3075		1805	1660		1399	1262	
Flt Permitted	0.08	1.00		0.24	1.00		0.66	1.00		0.54	1.00	
Satd. Flow (perm)	147	3312		393	3075		1260	1660		797	1262	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	1011	56	64	1209	248	12	3	16	82	7	140
RTOR Reduction (vph)	0	2	0	0	10	0	0	15	0	0	118	0
Lane Group Flow (vph)	153	1065	0	64	1447	0	13	4	0	82	29	0
Confl. Bikes (#/hr)			5			1						
Heavy Vehicles (%)	8%	8%	8%	14%	14%	14%	0%	0%	0%	29%	29%	29%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	84.8	75.3		71.5	66.5		12.1	10.1		25.7	19.2	
Effective Green, g (s)	84.8	75.3		71.5	66.5		12.1	10.1		26.7	19.2	
Actuated g/C Ratio	0.71	0.63		0.60	0.55		0.10	0.08		0.22	0.16	
Clearance Time (s)	4.5	4.5		4.5	5.5		4.5	4.5		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.5		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	266	2078		283	1704		136	139		238	201	
v/s Ratio Prot	c0.06	0.32		0.01	c0.47		0.00	0.00		c0.03	0.02	
v/s Ratio Perm	0.34	0.02		0.12	00.11		0.01	0.00		c0.04	0.02	
v/c Ratio	0.58	0.51		0.23	0.85		0.10	0.03		0.34	0.15	
Uniform Delay, d1	18.5	12.3		10.5	22.5		48.9	50.5		38.6	43.4	
Progression Factor	1.00	1.00		1.04	0.96		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	0.9		0.4	5.2		0.3	0.1		0.3	0.1	
Delay (s)	21.5	13.2		11.3	26.9		49.2	50.5		38.9	43.5	
Level of Service	C	В		В	C		D	D		D	D	
Approach Delay (s)		14.2			26.3			50.0			41.8	
Approach LOS		В			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			22.8	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	acity ratio		0.73									
Actuated Cycle Length (s)			120.0		um of lost				19.5			
Intersection Capacity Utiliza	ation		71.4%	IC	CU Level o	of Service)		С			
Analysis Period (min)			15									

c Critical Lane Group

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		ሻ	∱ î≽		7	₽		7	ĵ∍	
Traffic Volume (veh/h)	147	971	54	61	1161	238	12	3	15	79	7	134
Future Volume (veh/h)	147	971	54	61	1161	238	12	3	15	79	7	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1693	1693	1693	1900	1900	1900	1470	1470	1470
Adj Flow Rate, veh/h	153	1011	56	64	1209	232	12	3	16	82	7	140
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	8	8	8	14	14	14	0	0	0	29	29	29
Cap, veh/h	364	2118	117	355	1722	328	112	20	107	250	8	163
Arrive On Green	0.05	0.65	0.65	0.07	1.00	1.00	0.01	0.08	0.08	0.08	0.14	0.14
Sat Flow, veh/h	1697	3256	180	1612	2685	511	1810	261	1389	1400	60	1195
Grp Volume(v), veh/h	153	525	542	64	720	721	12	0	19	82	0	147
Grp Sat Flow(s), veh/h/ln	1697	1692	1744	1612	1608	1588	1810	0	1650	1400	0	1255
Q Serve(g_s), s	3.7	18.9	18.9	1.6	0.0	0.0	0.7	0.0	1.3	6.1	0.0	13.7
Cycle Q Clear(g_c), s	3.7	18.9	18.9	1.6	0.0	0.0	0.7	0.0	1.3	6.1	0.0	13.7
Prop In Lane	1.00	10.0	0.10	1.00	0.0	0.32	1.00	0.0	0.84	1.00	0.0	0.95
Lane Grp Cap(c), veh/h	364	1101	1135	355	1031	1019	112	0	127	250	0	171
V/C Ratio(X)	0.42	0.48	0.48	0.18	0.70	0.71	0.11	0.00	0.15	0.33	0.00	0.86
Avail Cap(c_a), veh/h	364	1101	1135	365	1031	1019	163	0.00	385	410	0.00	471
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	10.6	10.6	7.7	0.02	0.02	50.1	0.0	51.7	43.0	0.0	50.7
Incr Delay (d2), s/veh	0.8	1.5	1.4	0.2	3.2	3.4	0.4	0.0	0.5	0.3	0.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	7.1	7.3	0.5	0.0	1.0	0.3	0.0	0.6	2.1	0.0	4.5
Unsig. Movement Delay, s/veh		7.1	1.0	0.5	0.9	1.0	0.0	0.0	0.0	۷.۱	0.0	4.5
LnGrp Delay(d),s/veh	7.2	12.1	12.1	7.9	3.2	3.4	50.5	0.0	52.2	43.3	0.0	55.4
LnGrp LOS	7 .Z A	12.1 B	12.1 B	7.9 A	J.2	3. 4	50.5 D	Α	J2.2 D	45.5 D	Α	55.4 E
			<u> </u>				<u> </u>	31	<u> </u>	<u> </u>	229	<u> </u>
Approach Vol, veh/h		1220			1505							
Approach Delay, s/veh		11.5			3.5			51.6			51.1	
Approach LOS		В			Α			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	83.6	6.1	21.4	10.0	82.5	13.3	14.2				
Change Period (Y+Rc), s	4.5	* 5.5	4.5	5.0	4.5	5.5	5.0	* 5				
Max Green Setting (Gmax), s	5.1	* 46	5.0	45.0	5.5	45.0	22.0	* 28				
Max Q Clear Time (g_c+I1), s	3.6	20.9	2.7	15.7	5.7	2.0	8.1	3.3				
Green Ext Time (p_c), s	0.0	8.0	0.0	0.6	0.0	16.5	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			10.9									
HCM 6th LOS			В									
Notos												

^{*} HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ች	f)		ች	1>		ሻ	† \$		ች	↑ ↑	
Traffic Volume (vph)	36	219	86	48	152	38	46	249	48	173	522	89
Future Volume (vph)	36	219	86	48	152	38	46	249	48	173	522	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1610		1597	1627		1504	2924		1702	3321	
Flt Permitted	0.56	1.00		0.33	1.00		0.38	1.00		0.42	1.00	
Satd. Flow (perm)	939	1610		563	1627		604	2924		746	3321	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	246	97	54	171	43	52	280	54	194	587	100
RTOR Reduction (vph)	0	13	0	0	8	0	0	13	0	0	12	0
Lane Group Flow (vph)	40	330	0	54	206	0	52	321	0	194	675	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	20%	20%	20%	6%	6%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.0	21.5		25.4	22.2		22.9	19.5		35.4	27.0	
Effective Green, g (s)	26.0	23.0		27.4	23.7		24.9	21.0		36.4	28.5	
Actuated g/C Ratio	0.34	0.30		0.36	0.31		0.33	0.28		0.48	0.37	
Clearance Time (s)	5.0	5.5		5.0	5.5		5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	351	486		259	506		249	806		506	1243	
v/s Ratio Prot	0.01	c0.21		c0.01	0.13		0.01	0.11		c0.06	c0.20	
v/s Ratio Perm	0.03			0.06			0.06			0.12		
v/c Ratio	0.11	0.68		0.21	0.41		0.21	0.40		0.38	0.54	
Uniform Delay, d1	17.0	23.3		16.7	20.7		17.8	22.4		12.0	18.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.8		0.1	0.5		0.2	0.3		0.2	0.5	
Delay (s)	17.0	27.1		16.9	21.2		18.0	22.7		12.2	19.2	
Level of Service	В	С		В	С		В	С		В	В	
Approach Delay (s)		26.0			20.3			22.1			17.6	
Approach LOS		С			С			С			В	
Intersection Summary												
HCM 2000 Control Delay			20.6	H	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.57									
Actuated Cycle Length (s)			76.1		um of lost				16.0			
Intersection Capacity Utiliza	ation		55.7%	IC	CU Level o	of Service)		В			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	₽		ሻ	₽		ሻ	ተ ኈ		ሻ	∱ ∱	
Traffic Volume (veh/h)	36	219	86	48	152	38	46	249	48	173	522	89
Future Volume (veh/h)	36	219	86	48	152	38	46	249	48	173	522	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1604	1604	1604	1811	1811	1811
Adj Flow Rate, veh/h	40	246	0	54	171	0	52	280	54	194	587	100
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	13	13	13	13	13	13	20	20	20	6	6	6
Cap, veh/h	401	394	0.00	349	411	0.00	335	661	125	521	938	159
Arrive On Green	0.06	0.23	0.00	0.07	0.24	0.00	0.07	0.26	0.23	0.13	0.32	0.29
Sat Flow, veh/h	1626	1707	0	1626	1707	0	1527	2544	483	1725	2930	498
Grp Volume(v), veh/h	40	246	0	54	171	0	52	166	168	194	344	343
Grp Sat Flow(s),veh/h/ln	1626	1707	0	1626	1707	0	1527	1523	1503	1725	1721	1708
Q Serve(g_s), s	0.9	6.7	0.0	1.3	4.4	0.0	1.2	4.7	4.9	3.9	8.8	8.9
Cycle Q Clear(g_c), s	0.9	6.7	0.0	1.3	4.4	0.0	1.2	4.7	4.9	3.9	8.8	8.9
Prop In Lane	1.00	20.4	0.00	1.00	444	0.00	1.00	000	0.32	1.00	== 4	0.29
Lane Grp Cap(c), veh/h	401	394		349	411		335	396	390	521	551	547
V/C Ratio(X)	0.10	0.62		0.15	0.42		0.16	0.42	0.43	0.37	0.62	0.63
Avail Cap(c_a), veh/h	488	1379	4.00	484	1445	4.00	463	938	925	1026	1522	1511
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	18.0	0.0	13.9	16.7	0.0	12.8	16.0	16.3	10.9	15.0	15.2
Incr Delay (d2), s/veh	0.0	1.6	0.0	0.1	0.7 0.0	0.0	0.1 0.0	0.7	0.8	0.2	1.2	1.2 0.0
Initial Q Delay(d3),s/veh	0.0	0.0 2.5	0.0	0.0 0.4	1.6	0.0	0.0	0.0 1.4	0.0 1.4	1.1	0.0 2.9	2.9
%ile BackOfQ(50%),veh/ln Unsig. Movement Delay, s/veh	0.3	2.5	0.0	0.4	1.0	0.0	0.3	1.4	1.4	1.1	2.9	2.9
LnGrp Delay(d),s/veh	13.9	19.6	0.0	14.0	17.3	0.0	12.9	16.7	17.0	11.1	16.2	16.4
LnGrp LOS	13.9 B	19.0 B	0.0	14.0 B	17.3 B	0.0	12.9 B	В	17.0 B	В	10.2 B	10.4 B
	ь	286		ь	225		Б	386	Б	В	881	В
Approach Vol, veh/h Approach Delay, s/veh		18.8			16.5			16.3			15.2	
Approach LOS		10.0 B			10.5 B			10.3 B			15.2 B	
											Ь	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	17.5	7.7	16.0	7.6	20.6	7.2	16.5				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5				
Max Green Setting (Gmax), s	21.0	30.5	7.0	40.5	7.0	44.5	5.0	42.5				
Max Q Clear Time (g_c+l1), s	5.9	6.9	3.3	8.7	3.2	10.9	2.9	6.4				
Green Ext Time (p_c), s	0.2	1.7	0.0	1.5	0.0	4.2	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay			16.2									
HCM 6th LOS			В									

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	† 1>		ሻ	∱ }	
Traffic Volume (vph)	4	1	3	74	1	45	17	289	88	140	510	24
Future Volume (vph)	4	1	3	74	1	45	17	289	88	140	510	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.95		1.00	0.96		1.00	0.99	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1542			1233		1530	2938		1543	3061	
Flt Permitted		0.86			0.81		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1353			1025		1530	2938		1543	3061	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	5	1	4	88	1	54	20	344	105	167	607	29
RTOR Reduction (vph)	0	3	0	0	28	0	0	28	0	0	3	0
Lane Group Flow (vph)	0	7	0	0	115	0	20	421	0	167	633	0
Confl. Peds. (#/hr)	3		1	1		3	1					1
Confl. Bikes (#/hr)			•	•			•		1			1
Heavy Vehicles (%)	13%	13%	13%	41%	41%	41%	18%	18%	18%	17%	17%	17%
Turn Type	Perm	NA	.070	Perm	NA	,0	Prot	NA		Prot	NA	/0
Protected Phases	7 01111	4		1 01111	8		5	2		1	6	
Permitted Phases	4	•		8	J			_		•	•	
Actuated Green, G (s)		9.6			9.6		1.0	21.6		9.3	29.9	
Effective Green, g (s)		9.6			9.6		1.0	21.6		9.3	29.9	
Actuated g/C Ratio		0.18			0.18		0.02	0.40		0.17	0.55	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		240			182		28	1175		265	1694	
v/s Ratio Prot		240			102		0.01	0.14		c0.11	c0.21	
v/s Ratio Perm		0.00			c0.11		0.01	0.14		60.11	UU.Z I	
v/c Ratio		0.03			0.63		0.71	0.36		0.63	0.37	
Uniform Delay, d1		18.3			20.6		26.4	11.3		20.8	6.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			7.0		60.5	0.2		4.8	0.1	
Delay (s)		18.4			27.5		86.9	11.5		25.6	6.9	
Level of Service		В			27.5 C		60.9 F	11.3 B		23.0 C	0.9 A	
Approach Delay (s)		18.4			27.5		ı	14.7		U	10.8	
Approach LOS		В			27.5 C			B			10.0 B	
Intersection Summary												
HCM 2000 Control Delay			13.8	Н	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capacity	ratio		0.52		2 2000	_5.5.57	31 1100					
Actuated Cycle Length (s)			54.0	S	um of lost	time (s)			13.5			
Intersection Capacity Utilization)		40.3%			of Service			Α			
Analysis Period (min)			15	10	20 20101	2. 2017100						
c Critical Lane Group			10									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	ተኈ		*	∱ ∱	
Traffic Volume (veh/h)	4	1	3	74	1	45	17	289	88	140	510	24
Future Volume (veh/h)	4	1	3	74	1	45	17	289	88	140	510	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	4707	No	4707	1000	No	1000	4000	No	4000	1010	No	1010
Adj Sat Flow, veh/h/ln	1707	1707	1707	1292	1292	1292	1633	1633	1633	1648	1648	1648
Adj Flow Rate, veh/h	5	1	4	88	1	54	20	344	105	167	607	29
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	13	13	13	41	41	41	18	18	18	17	17	17
Cap, veh/h	261	69	108	277	16	68	40	629	189	215	1157	55
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.03	0.27	0.27	0.14	0.38	0.38
Sat Flow, veh/h	537	402	626	551	94	391	1555	2338	701	1570	3039	145
Grp Volume(v), veh/h	10	0	0	143	0	0	20	226	223	167	312	324
Grp Sat Flow(s),veh/h/ln	1564	0	0	1036	0	0	1555	1552	1487	1570	1566	1618
Q Serve(g_s), s	0.0	0.0	0.0	3.6	0.0	0.0	0.4	4.0	4.1	3.3	4.9	5.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	4.2	0.0	0.0	0.4	4.0	4.1	3.3	4.9	5.0
Prop In Lane	0.50	0	0.40	0.62	0	0.38	1.00	440	0.47	1.00	500	0.09
Lane Grp Cap(c), veh/h	438	0	0	360	0	0	40	418	400	215	596	616
V/C Ratio(X)	0.02	0.00	0.00	0.40	0.00	0.00	0.51	0.54	0.56	0.78	0.52	0.53
Avail Cap(c_a), veh/h	1318	1.00	0	1024	0	0	364	1332	1277	1102	2077	2146
HCM Platoon Ratio	1.00	1.00	1.00 0.00	1.00	1.00	1.00 0.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00 11.0	0.00	0.00	12.7	0.00	0.00	1.00 15.4	1.00 10.0	1.00 10.1	1.00 13.4	1.00 7.7	1.00 7.7
Uniform Delay (d), s/veh Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.0	0.0	9.6	1.1	1.2	5.9	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	0.0	0.0	0.0	0.0	0.2	0.9	0.9	1.1	0.9	0.9
LnGrp Delay(d),s/veh	11.1	0.0	0.0	13.4	0.0	0.0	25.0	11.1	11.3	19.3	8.4	8.4
LnGrp LOS	В	Α	Α	В	Α	Α	23.0 C	В	11.3 B	13.3 B	Α	Α
Approach Vol, veh/h		10			143			469			803	
Approach Delay, s/veh		11.1			13.4			11.8			10.7	
Approach LOS		В			В			В			В	
											U	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	13.1		10.0	5.3	16.7		10.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	22.5	27.5		26.5	7.5	42.5		26.5				
Max Q Clear Time (g_c+l1), s	5.3	6.1		2.2	2.4	7.0		6.2				
Green Ext Time (p_c), s	0.4	2.4		0.0	0.0	3.8		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			11.3									
HCM 6th LOS			В									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	^	7	ሻሻ	^	7	ሻሻ	↑ ↑		ሻሻ	†	7
Traffic Volume (vph)	95	963	115	55	696	101	261	246	69	143	265	84
Future Volume (vph)	95	963	115	55	696	101	261	246	69	143	265	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95		0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3127	3223	1423	3072	3167	1402	3155	3146		3072	1667	1402
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3127	3223	1423	3072	3167	1402	3155	3146		3072	1667	1402
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)	102	1035	124	59	748	109	281	265	74	154	285	90
RTOR Reduction (vph)	0	0	50	0	0	50	0	23	0	0	0	66
Lane Group Flow (vph)	102	1035	74	59	748	59	281	316	0	154	285	24
Confl. Peds. (#/hr)			2	2			1					1
Confl. Bikes (#/hr)			5			1						
Heavy Vehicles (%)	12%	12%	12%	14%	14%	14%	11%	11%	11%	14%	14%	14%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases			2			6						4
Actuated Green, G (s)	7.3	57.8	71.8	4.8	55.3	64.8	14.0	28.9		9.5	24.4	31.7
Effective Green, g (s)	7.3	59.3	71.8	4.8	56.8	64.8	14.0	30.4		9.5	25.9	31.7
Actuated g/C Ratio	0.06	0.49	0.60	0.04	0.47	0.54	0.12	0.25		0.08	0.22	0.26
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5	4.0	4.0	5.5		4.0	5.5	4.0
Vehicle Extension (s)	1.5	4.5	1.5	1.5	4.5	1.5	1.5	2.0		1.5	2.0	1.5
Lane Grp Cap (vph)	190	1592	851	122	1499	757	368	796		243	359	370
v/s Ratio Prot	c0.03	c0.32	0.01	0.02	0.24	0.01	c0.09	0.10		0.05	c0.17	0.00
v/s Ratio Perm			0.04			0.04						0.01
v/c Ratio	0.54	0.65	0.09	0.48	0.50	0.08	0.76	0.40		0.63	0.79	0.06
Uniform Delay, d1	54.7	22.6	10.2	56.4	21.8	13.3	51.4	37.2		53.6	44.5	33.0
Progression Factor	1.12	0.65	0.85	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	1.9	0.0	1.1	1.2	0.0	8.2	0.1		3.9	10.7	0.0
Delay (s)	62.8	16.5	8.7	57.5	23.0	13.3	59.6	37.3		57.5	55.3	33.1
Level of Service	Е	В	Α	Е	С	В	Е	D		Е	Е	С
Approach Delay (s)		19.5			24.0			47.4			52.1	
Approach LOS		В			С			D			D	
Intersection Summary												
HCM 2000 Control Delay			31.2	H	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.70									
Actuated Cycle Length (s)			120.0			st time (s)			16.0			
Intersection Capacity Utiliza	ition		65.8%	IC	U Level	of Service			С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	14.54	^	7	ሻሻ	^	7	ሻሻ	ተ ኈ		ሻሻ	†	7
Traffic Volume (veh/h)	95	963	115	55	696	101	261	246	69	143	265	84
Future Volume (veh/h)	95	963	115	55	696	101	261	246	69	143	265	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1693	1693	1693	1737	1737	1737	1693	1693	1693
Adj Flow Rate, veh/h	102	1035	108	59	748	34	281	265	52	154	285	68
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	12	12	12	14	14	14	11	11	11	14	14	14
Cap, veh/h	151	1677	878	112	1611	788	351	692	134	211	354	350
Arrive On Green	0.09	1.00	1.00	0.04	0.50	0.49	0.11	0.25	0.24	0.07	0.21	0.20
Sat Flow, veh/h	3182	3272	1437	3127	3216	1415	3209	2757	533	3127	1693	1432
Grp Volume(v), veh/h	102	1035	108	59	748	34	281	157	160	154	285	68
Grp Sat Flow(s),veh/h/ln	1591	1636	1437	1564	1608	1415	1605	1650	1640	1564	1693	1432
Q Serve(g_s), s	3.7	0.0	0.0	2.2	18.2	1.3	10.3	9.4	9.8	5.8	19.2	4.5
Cycle Q Clear(g_c), s	3.7	0.0	0.0	2.2	18.2	1.3	10.3	9.4	9.8	5.8	19.2	4.5
Prop In Lane	1.00		1.00	1.00	1011	1.00	1.00		0.32	1.00	0=1	1.00
Lane Grp Cap(c), veh/h	151	1677	878	112	1611	788	351	414	411	211	354	350
V/C Ratio(X)	0.68	0.62	0.12	0.53	0.46	0.04	0.80	0.38	0.39	0.73	0.81	0.19
Avail Cap(c_a), veh/h	217	1677	878	143	1611	788	428	506	503	292	451	432
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	0.0	0.0	56.8	19.5	12.1	52.2	37.2	37.5	54.9	45.1	36.0
Incr Delay (d2), s/veh	1.7	1.5	0.3	1.4	1.0	0.1	7.1	0.2	0.2	2.9	6.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.3	0.1	0.9	6.6	0.4	4.4	3.7	3.8	2.3	8.4	1.6
Unsig. Movement Delay, s/veh		1 5	0.2	E0 2	20.4	10.0	E0 0	27.4	27.0	E7 0	E1 1	26.4
LnGrp Delay(d),s/veh	55.1	1.5	0.3	58.3	20.4 C	12.2 B	59.2 E	37.4 D	37.8 D	57.8	51.4 D	36.1
LnGrp LOS	<u>E</u>	A 4045	A	E		Б	<u> </u>		U	<u>E</u>		D
Approach Vol, veh/h		1245			841			598			507	
Approach Delay, s/veh		5.8			22.8			47.8			51.3	
Approach LOS		А			С			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	65.5	17.1	29.1	9.7	64.1	12.1	34.1				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.5	4.0	5.5	4.0	5.5				
Max Green Setting (Gmax), s	5.5	49.0	16.0	30.5	8.2	46.3	11.2	35.3				
Max Q Clear Time (g_c+I1), s	4.2	2.0	12.3	21.2	5.7	20.2	7.8	11.8				
Green Ext Time (p_c), s	0.0	34.6	0.9	2.3	0.2	16.6	0.4	3.8				
Intersection Summary												
HCM 6th Ctrl Delay			25.4									
HCM 6th LOS			С									

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	В

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			₽			4	
Traffic Vol, veh/h	0	142	78	108	256	1	73	0	146	1	0	0
Future Vol, veh/h	0	142	78	108	256	1	73	0	146	1	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	7	7	7	7	7	7	5	5	5	0	0	0
Mvmt Flow	0	169	93	129	305	1	87	0	174	1	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB			NB			SB		
Opposing Approach		WB		EB			SB			NB		
Opposing Lanes		1		1			1			1		
Conflicting Approach Left		SB		NB			EB			WB		
Conflicting Lanes Left		1		1			1			1		
Conflicting Approach Right		NB		SB			WB			EB		
Conflicting Lanes Right		1		1			1			1		
HCM Control Delay		11.3		16.6			11.9			9.5		
HCM LOS		В		С			В			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	33%	0%	30%	100%	
Vol Thru, %	0%	65%	70%	0%	
Vol Right, %	67%	35%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	219	220	365	1	
LT Vol	73	0	108	1	
Through Vol	0	142	256	0	
RT Vol	146	78	1	0	
Lane Flow Rate	261	262	435	1	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.393	0.377	0.628	0.002	
Departure Headway (Hd)	5.421	5.177	5.203	6.443	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	665	694	695	554	
Service Time	3.457	3.21	3.231	4.5	
HCM Lane V/C Ratio	0.392	0.378	0.626	0.002	
HCM Control Delay	11.9	11.3	16.6	9.5	
HCM Lane LOS	В	В	С	Α	
HCM 95th-tile Q	1.9	1.8	4.4	0	

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ች	↑ ↑		ሻ	ĵ.		ች	1>	
Traffic Volume (vph)	72	954	14	16	1203	74	47	7	38	208	3	218
Future Volume (vph)	72	954	14	16	1203	74	47	7	38	208	3	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	5.5		4.5	4.5		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	3462		1752	3470		1805	1662		1736	1556	
Flt Permitted	0.10	1.00		0.22	1.00		0.61	1.00		0.52	1.00	
Satd. Flow (perm)	186	3462		398	3470		1158	1662		943	1556	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	1037	15	17	1308	80	51	8	41	226	3	237
RTOR Reduction (vph)	0	0	0	0	3	0	0	38	0	0	143	0
Lane Group Flow (vph)	78	1052	0	17	1385	0	51	11	0	226	97	0
Confl. Peds. (#/hr)	1	1002	2	2	1000	1	<u> </u>				<u> </u>	
Confl. Bikes (#/hr)	•		6	_		4						
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	0%	0%	0%	4%	4%	4%
Turn Type	pm+pt	NA	170	pm+pt	NA	0 70	pm+pt	NA	070	pm+pt	NA	170
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6	U		8	U		4		
Actuated Green, G (s)	76.8	71.3		69.4	67.1		13.5	9.4		32.4	23.8	
Effective Green, g (s)	76.8	71.3		69.4	67.1		13.5	9.4		33.4	23.8	
Actuated g/C Ratio	0.64	0.59		0.58	0.56		0.11	0.08		0.28	0.20	
Clearance Time (s)	4.5	4.5		4.5	5.5		4.5	4.5		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.5		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	190	2057		256	1940		152	130		391	308	
v/s Ratio Prot	c0.02	0.30		0.00	c0.40		0.01	0.01		c0.09	0.06	
v/s Ratio Perm	0.24	0.30		0.00	00.40		0.01	0.01		c0.09	0.00	
v/c Ratio	0.24	0.51		0.04	0.71		0.03	0.09		0.58	0.31	
Uniform Delay, d1	14.3	14.2		11.6	19.4		48.6	51.3		36.0	41.1	
	14.3	1.00		0.55	0.48		1.00			1.00	1.00	
Progression Factor	1.00				2.1			1.00			0.2	
Incremental Delay, d2		0.9		0.1			1.3	0.3		1.3		
Delay (s)	15.7	15.1		6.5	11.4		49.9	51.6		37.3	41.3	
Level of Service	В	B		Α	B		D	D		D	D	
Approach LOC		15.1			11.3			50.8			39.4	
Approach LOS		В			В			D			D	
Intersection Summary												
HCM 2000 Control Delay			18.2	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	acity ratio		0.69									
Actuated Cycle Length (s)			120.0		um of lost				19.5			
Intersection Capacity Utiliza	ation		73.9%	IC	CU Level o	of Service)		D			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ⊅		ሻ	ħβ		7	₽		7	ĵ₃	
Traffic Volume (veh/h)	72	954	14	16	1203	74	47	7	38	208	3	218
Future Volume (veh/h)	72	954	14	16	1203	74	47	7	38	208	3	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1900	1900	1900	1841	1841	1841
Adj Flow Rate, veh/h	78	1037	15	17	1308	64	51	8	41	226	3	237
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	3	3	3	0	0	0	4	4	4
Cap, veh/h	357	2151	31	330	2013	98	152	20	101	378	3	270
Arrive On Green	0.04	0.61	0.61	0.04	1.00	1.00	0.03	0.07	0.07	0.14	0.17	0.17
Sat Flow, veh/h	1753	3528	51	1767	3417	167	1810	270	1382	1753	20	1543
Grp Volume(v), veh/h	78	514	538	17	674	698	51	0	49	226	0	240
Grp Sat Flow(s), veh/h/ln	1753	1749	1830	1767	1763	1821	1810	0	1651	1753	0	1563
Q Serve(g_s), s	2.1	19.5	19.5	0.5	0.0	0.0	3.1	0.0	3.4	13.5	0.0	18.0
Cycle Q Clear(g_c), s	2.1	19.5	19.5	0.5	0.0	0.0	3.1	0.0	3.4	13.5	0.0	18.0
Prop In Lane	1.00	13.5	0.03	1.00	0.0	0.09	1.00	0.0	0.84	1.00	0.0	0.99
Lane Grp Cap(c), veh/h	357	1066	1116	330	1039	1073	152	0	121	378	0	273
V/C Ratio(X)	0.22	0.48	0.48	0.05	0.65	0.65	0.34	0.00	0.41	0.60	0.00	0.88
. ,	367	1066	1116	373	1039	1073	166	0.00	385	467	0.00	585
Avail Cap(c_a), veh/h				2.00				1.00		1.00	1.00	
HCM Platoon Ratio	1.00	1.00	1.00	0.86	2.00 0.86	2.00 0.86	1.00	0.00	1.00	1.00		1.00
Upstream Filter(I)		1.00					1.00		1.00		0.00	1.00
Uniform Delay (d), s/veh	8.7	12.9	12.9	10.4	0.0	0.0	49.3	0.0	53.1	40.0	0.0	48.2
Incr Delay (d2), s/veh	0.3	1.6	1.5	0.1	2.7	2.6	1.3	0.0	2.2	0.6	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	7.8	8.2	0.2	0.8	0.8	1.5	0.0	1.5	5.9	0.0	7.3
Unsig. Movement Delay, s/veh		44.5		10.5	0.7	0.0	50 5	0.0	0	10.0	0.0	54.0
LnGrp Delay(d),s/veh	9.0	14.5	14.4	10.5	2.7	2.6	50.5	0.0	55.3	40.6	0.0	51.8
LnGrp LOS	A	В	В	В	Α	Α	D	Α	E	D	Α	<u>D</u>
Approach Vol, veh/h		1130			1389			100			466	
Approach Delay, s/veh		14.1			2.8			52.9			46.4	
Approach LOS		В			Α			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	78.7	8.7	26.0	9.1	76.2	20.9	13.8				
Change Period (Y+Rc), s	4.5	* 5.5	4.5	5.0	4.5	5.5	5.0	* 5				
Max Green Setting (Gmax), s	5.1	* 46	5.1	44.9	5.3	45.2	22.0	* 28				
Max Q Clear Time (g_c+l1), s	2.5	21.5	5.1	20.0	4.1	2.0	15.5	5.4				
Green Ext Time (p_c), s	0.0	7.7	0.0	1.0	0.0	14.7	0.4	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			15.1									
HCM 6th LOS			В									
Notos												

^{*} HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	1>		ች	1>		ሻ	↑ ↑		ች	∱ %	
Traffic Volume (vph)	119	178	57	115	322	173	44	528	68	93	313	42
Future Volume (vph)	119	178	57	115	322	173	44	528	68	93	313	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.96		1.00	0.95		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1620		1597	1586		1504	2949		1703	3336	
Flt Permitted	0.20	1.00		0.47	1.00		0.49	1.00		0.19	1.00	
Satd. Flow (perm)	332	1620		789	1586		772	2949		343	3336	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	134	200	64	129	362	194	49	593	76	104	352	47
RTOR Reduction (vph)	0	9	0	0	15	0	0	8	0	0	9	0
Lane Group Flow (vph)	134	255	0	129	541	0	49	661	0	104	390	0
Confl. Peds. (#/hr)	1	200		120	U	1	.0	001	1	1	000	
Confl. Bikes (#/hr)	•					•			•	•		4
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	20%	20%	20%	6%	6%	6%
Turn Type	pm+pt	NA	1070	pm+pt	NA	1070	pm+pt	NA	2070	pm+pt	NA	070
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4	7		8	U		2	2		6	U	
Actuated Green, G (s)	42.3	37.2		45.7	38.9		33.2	28.2		40.0	31.6	
Effective Green, g (s)	44.3	38.7		47.7	40.4		35.2	29.7		42.0	33.1	
Actuated g/C Ratio	0.44	0.38		0.47	0.40		0.35	0.29		0.41	0.33	
Clearance Time (s)	5.0	5.5		5.0	5.5		5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
	220	617		432	630		310	862		267	1086	
Lane Grp Cap (vph)												
v/s Ratio Prot v/s Ratio Perm	c0.04	0.16		c0.02	c0.34		0.01	c0.22		c0.04	0.12	
	0.23	0.44		0.12	0.00		0.05	0.77		0.12	0.20	
v/c Ratio	0.61	0.41		0.30	0.86 28.0		0.16	0.77 32.8		0.39	0.36	
Uniform Delay, d1	20.4	23.1 1.00		16.0	1.00		22.4			20.3	26.1 1.00	
Progression Factor	1.00			1.00	11.2		1.00	1.00		1.00	0.2	
Incremental Delay, d2	3.3	0.5		0.1			0.1	4.1		0.3		
Delay (s)	23.7	23.6		16.1	39.2		22.5	36.9		20.6	26.4	
Level of Service	С	C		В	D		С	D		С	C	
Approach Delay (s)		23.6			34.9			35.9			25.2	
Approach LOS		С			С			D			С	
Intersection Summary												
HCM 2000 Control Delay			31.1	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.76									
Actuated Cycle Length (s)			101.6		um of lost				16.0			
Intersection Capacity Utiliza	ation		69.4%	IC	CU Level o	of Service			С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	₽		ሻ	1•			∱ ∱			∱ ∱	
Traffic Volume (veh/h)	119	178	57	115	322	173	44	528	68	93	313	42
Future Volume (veh/h)	119	178	57	115	322	173	44	528	68	93	313	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1604	1604	1604	1811	1811	1811
Adj Flow Rate, veh/h	134	200	0	129	362	0	49	593	76	104	352	47
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	13	13	13	13	13	13	20	20	20	6	6	6
Cap, veh/h	336	484		454	485		390	818	105	320	976	129
Arrive On Green	0.09	0.28	0.00	0.09	0.28	0.00	0.06	0.30	0.28	0.08	0.32	0.30
Sat Flow, veh/h	1626	1707	0	1626	1707	0	1527	2716	347	1725	3044	403
Grp Volume(v), veh/h	134	200	0	129	362	0	49	332	337	104	198	201
Grp Sat Flow(s),veh/h/ln	1626	1707	0	1626	1707	0	1527	1523	1540	1725	1721	1726
Q Serve(g_s), s	3.7	6.3	0.0	3.6	12.7	0.0	1.4	12.8	12.9	2.6	5.8	5.9
Cycle Q Clear(g_c), s	3.7	6.3	0.0	3.6	12.7	0.0	1.4	12.8	12.9	2.6	5.8	5.9
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.23	1.00		0.23
Lane Grp Cap(c), veh/h	336	484		454	485		390	459	464	320	552	553
V/C Ratio(X)	0.40	0.41		0.28	0.75		0.13	0.72	0.73	0.33	0.36	0.36
Avail Cap(c_a), veh/h	336	1091		502	1143		484	742	750	759	1204	1208
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	19.1	0.0	14.6	21.4	0.0	14.4	20.5	20.7	15.2	17.1	17.3
Incr Delay (d2), s/veh	0.3	0.6	0.0	0.1	2.3	0.0	0.1	2.2	2.2	0.2	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.4	0.0	1.2	5.0	0.0	0.4	4.2	4.3	0.9	2.0	2.1
Unsig. Movement Delay, s/veh	40.0	40.7	0.0	447	00.7	0.0	44.4	00.7	00.0	45.4	47 F	477
LnGrp Delay(d),s/veh	16.0	19.7	0.0	14.7	23.7	0.0	14.4	22.7	22.9	15.4	17.5	17.7
LnGrp LOS	В	B		В	C		В	C	С	В	В	<u>B</u>
Approach Vol, veh/h		334			491			718			503	
Approach Delay, s/veh		18.2			21.3			22.2			17.2	
Approach LOS		В			С			С			В	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	23.8	10.1	22.6	8.0	25.1	10.0	22.7				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5				
Max Green Setting (Gmax), s	21.0	30.5	7.0	40.5	7.0	44.5	5.0	42.5				
Max Q Clear Time (g_c+I1), s	4.6	14.9	5.6	8.3	3.4	7.9	5.7	14.7				
Green Ext Time (p_c), s	0.1	3.4	0.0	1.2	0.0	2.2	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			20.1									
HCM 6th LOS			С									

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	ħβ		ሻ	ħβ	
Traffic Volume (vph)	17	2	19	109	0	236	0	375	34	61	440	1
Future Volume (vph)	17	2	19	109	0	236	0	375	34	61	440	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99			1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.93			0.91			0.99		1.00	1.00	
Flt Protected		0.98			0.98			1.00		0.95	1.00	
Satd. Flow (prot)		1520			1192			3022		1543	3084	
FIt Permitted		0.82			0.88			1.00		0.95	1.00	
Satd. Flow (perm)		1279			1071			3022		1543	3084	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	20	2	23	130	0	281	0	446	40	73	524	1
RTOR Reduction (vph)	0	14	0	0	94	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	31	0	0	317	0	0	478	0	73	525	0
Confl. Peds. (#/hr)	3		1	1		3	1					1
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	13%	13%	13%	41%	41%	41%	18%	18%	18%	17%	17%	17%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases	. 0	4		. 0	8		5	2		1	6	
Permitted Phases	4	•		8				_		•		
Actuated Green, G (s)		22.8			22.8			16.4		4.0	24.9	
Effective Green, g (s)		22.8			22.8			16.4		4.0	24.9	
Actuated g/C Ratio		0.40			0.40			0.29		0.07	0.44	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		514			430			874		108	1354	
v/s Ratio Prot		014			400			c0.16		c0.05	0.17	
v/s Ratio Perm		0.02			c0.30			00.10		00.00	0.17	
v/c Ratio		0.06			0.74			0.55		0.68	0.39	
Uniform Delay, d1		10.4			14.4			17.0		25.7	10.7	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			6.5			0.7		15.5	0.2	
Delay (s)		10.4			20.9			17.7		41.2	10.9	
Level of Service		В			C			В		D	В	
Approach Delay (s)		10.4			20.9			17.7			14.6	
Approach LOS		В			C			В			В	
Intersection Summary												
HCM 2000 Control Delay			17.2	Н	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capacity	ratio		0.66									
Actuated Cycle Length (s)			56.7	S	um of lost	time (s)			13.5			
Intersection Capacity Utilization			51.5%			of Service			Α			
Analysis Period (min)			15									
c Critical Lane Group												

Synchro 11 Report

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	ተ ኈ		ሻ	∱ ∱	
Traffic Volume (veh/h)	17	2	19	109	0	236	0	375	34	61	440	1
Future Volume (veh/h)	17	2	19	109	0	236	0	375	34	61	440	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1292	1292	1292	1633	1633	1633	1648	1648	1648
Adj Flow Rate, veh/h	20	2	23	130	0	281	0	446	40	73	524	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	13	13	13	41	41	41	18	18	18	17	17	17
Cap, veh/h	288	56	253	211	30	322	3	664	59	99	1223	2
Arrive On Green	0.44	0.44	0.44	0.44	0.00	0.44	0.00	0.23	0.23	0.06	0.38	0.38
Sat Flow, veh/h	421	126	572	268	68	728	1555	2880	257	1570	3206	6
Grp Volume(v), veh/h	45	0	0	411	0	0	0	239	247	73	256	269
Grp Sat Flow(s),veh/h/ln	1119	0	0	1065	0	0	1555	1552	1586	1570	1566	1647
Q Serve(g_s), s	0.0	0.0	0.0	13.5	0.0	0.0	0.0	7.2	7.2	2.3	6.2	6.2
Cycle Q Clear(g_c), s	0.8	0.0	0.0	17.8	0.0	0.0	0.0	7.2	7.2	2.3	6.2	6.2
Prop In Lane	0.44		0.51	0.32		0.68	1.00		0.16	1.00		0.00
Lane Grp Cap(c), veh/h	597	0	0	564	0	0	3	358	366	99	597	628
V/C Ratio(X)	0.08	0.00	0.00	0.73	0.00	0.00	0.00	0.67	0.67	0.74	0.43	0.43
Avail Cap(c_a), veh/h	1020	0	0	929	0	0	152	834	853	261	949	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	12.8	0.0	0.0	0.0	17.9	17.9	23.6	11.7	11.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.8	0.0	0.0	0.0	2.2	2.2	10.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	3.6	0.0	0.0	0.0	2.3	2.4	1.0	1.7	1.8
Unsig. Movement Delay, s/veh	8.2	0.0	0.0	116	0.0	0.0	0.0	20.4	20.4	33.7	10.0	10.0
LnGrp Delay(d),s/veh		0.0	0.0	14.6	0.0	0.0	0.0	20.1 C	20.1 C	33.1 C	12.2 B	12.2
LnGrp LOS	A	A	A	В	A 444	A	A		U	U		В
Approach Vol, veh/h		45			411			486			598	
Approach LOC		8.2			14.6			20.1			14.8	
Approach LOS		Α			В			С			В	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	16.3		27.1	0.0	24.0		27.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.5	27.5		40.5	5.0	31.0		40.5				
Max Q Clear Time (g_c+I1), s	4.3	9.2		2.8	0.0	8.2		19.8				
Green Ext Time (p_c), s	0.0	2.5		0.2	0.0	2.8		2.9				
Intersection Summary												
HCM 6th Ctrl Delay			16.2									
HCM 6th LOS			В									

	•	→	•	•	←	•	•	†	/	\	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	^	7	ሻሻ	^	7	ሻሻ	ħβ		ሻሻ		7
Traffic Volume (vph)	94	877	251	38	895	84	148	264	78	203	288	169
Future Volume (vph)	94	877	251	38	895	84	148	264	78	203	288	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95		0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3367	3471	1533	3433	3539	1565	3335	3310		3433	1863	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3367	3471	1533	3433	3539	1565	3335	3310		3433	1863	1566
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)	97	904	259	39	923	87	153	272	80	209	297	174
RTOR Reduction (vph)	0	0	101	0	0	36	0	25	0	0	0	80
Lane Group Flow (vph)	97	904	158	39	923	51	153	327	0	209	297	94
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Confl. Bikes (#/hr)			1			2			1			2
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	. 7	3	8		7	4	5
Permitted Phases			2			6						4
Actuated Green, G (s)	8.3	63.3	73.0	4.4	59.4	70.2	9.7	22.5		10.8	23.6	31.9
Effective Green, g (s)	8.3	64.8	73.0	4.4	60.9	70.2	9.7	24.0		10.8	25.1	31.9
Actuated g/C Ratio	0.07	0.54	0.61	0.04	0.51	0.59	0.08	0.20		0.09	0.21	0.27
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5	4.0	4.0	5.5		4.0	5.5	4.0
Vehicle Extension (s)	1.5	4.5	1.5	1.5	4.5	1.5	1.5	2.0		1.5	2.0	1.5
Lane Grp Cap (vph)	232	1874	932	125	1796	915	269	662		308	389	468
v/s Ratio Prot	0.03	c0.26	0.01	0.01	c0.26	0.01	0.05	c0.10		0.06	c0.16	0.01
v/s Ratio Perm			0.09			0.03						0.05
v/c Ratio	0.42	0.48	0.17	0.31	0.51	0.06	0.57	0.49		0.68	0.76	0.20
Uniform Delay, d1	53.5	17.2	10.3	56.3	19.7	10.7	53.1	42.6		52.9	44.7	34.2
Progression Factor	0.83	0.60	0.27	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.8	0.0	0.5	1.1	0.0	1.6	0.2		4.6	7.8	0.1
Delay (s)	44.7	11.0	2.8	56.8	20.7	10.7	54.8	42.8		57.5	52.5	34.2
Level of Service	D	В	Α	Е	С	В	D	D		Е	D	С
Approach Delay (s)		11.9			21.3			46.4			49.4	
Approach LOS		В			С			D			D	
Intersection Summary												
HCM 2000 Control Delay 27.0			Н	CM 2000	Level of S	Service		С				
HCM 2000 Volume to Capac	city ratio		0.59									
Actuated Cycle Length (s)			120.0			st time (s)			16.0			
Intersection Capacity Utilization 65.5%			IC	CU Level	of Service			С				
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	^	7	ሻሻ	^	7	ሻሻ	∱ ኈ		ሻሻ		7
Traffic Volume (veh/h)	94	877	251	38	895	84	148	264	78	203	288	169
Future Volume (veh/h)	94	877	251	38	895	84	148	264	78	203	288	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1826	1826	1826	1870	1870	1870
Adj Flow Rate, veh/h	97	904	244	39	923	15	153	272	59	209	297	153
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	2	2	2	5	5	5	2	2	2
Cap, veh/h	656	1935	933	105	1344	699	218	574	122	280	385	607
Arrive On Green	0.39	1.00	1.00	0.03	0.38	0.37	0.06	0.20	0.19	0.08	0.21	0.19
Sat Flow, veh/h	3401	3497	1539	3456	3554	1562	3374	2836	605	3456	1870	1560
Grp Volume(v), veh/h	97	904	244	39	923	15	153	164	167	209	297	153
Grp Sat Flow(s), veh/h/ln	1700	1749	1539	1728	1777	1562	1687	1735	1706	1728	1870	1560
Q Serve(g_s), s	2.2	0.0	0.0	1.3	26.2	0.3	5.3	10.0	10.4	7.1	18.0	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0	1.3	26.2	0.3	5.3	10.0	10.4	7.1	18.0	0.0
Prop In Lane	1.00	0.0	1.00	1.00	20.2	1.00	1.00	10.0	0.35	1.00	10.0	1.00
Lane Grp Cap(c), veh/h	656	1935	933	105	1344	699	218	351	345	280	385	607
V/C Ratio(X)	0.15	0.47	0.26	0.37	0.69	0.02	0.70	0.47	0.48	0.75	0.77	0.25
Avail Cap(c_a), veh/h	656	1935	933	173	1481	759	337	463	455	374	514	715
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	0.0	57.1	31.3	6.8	55.0	42.2	42.6	53.9	45.0	25.0
Incr Delay (d2), s/veh	0.0	0.7	0.6	0.8	2.9	0.0	1.5	0.4	0.4	3.5	3.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.6	11.2	0.0	2.3	4.2	4.3	3.1	8.4	2.9
Unsig. Movement Delay, s/veh		0.2	0.2	0.0	11.2	0.1	2.3	4.2	4.5	J. I	0.4	2.9
	30.5	0.7	0.6	57.9	34.2	6.9	56.5	42.5	43.0	57.4	48.4	25.1
LnGrp Delay(d),s/veh					34.2 C		30.3 E					
LnGrp LOS	С	A 4045	A	<u>E</u>		A		D 104	D	<u>E</u>	D 050	С
Approach Vol, veh/h		1245			977			484			659	
Approach Delay, s/veh		3.0			34.7			47.1			45.8	
Approach LOS		Α			С			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	70.4	13.3	28.7	28.6	49.4	13.7	28.3				
Change Period (Y+Rc), s	4.0	5.5	5.5	* 5.5	5.5	* 5.5	4.0	5.5				
Max Green Setting (Gmax), s	6.0	51.5	12.0	* 32	9.0	* 49	13.0	30.5				
Max Q Clear Time (g_c+I1), s	3.3	2.0	7.3	20.0	4.2	28.2	9.1	12.4				
Green Ext Time (p_c), s	0.0	34.0	0.5	3.1	0.3	15.7	0.6	3.5				
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			С									
Notes												

^{*} HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

ntersection	
ntersection Delay, s/veh	21.1
ntersection LOS	С

EBL	EBI	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	4			4			4			4	
2	185	127	176	185	1	61	1	142	2	0	0
2	185	127	176	185	1	61	1	142	2	0	0
0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
20	20	20	9	9	9	14	14	14	0	0	0
3	250	172	238	250	1	82	1	192	3	0	0
0	1	0	0	1	0	0	1	0	0	1	0
EB			WB			NB			SB		
WB			EB			SB			NB		
1			1			1			1		
SB			NB			EB			WB		
1			1			1			1		
NB			SB			WB			EB		
1			1			1			1		
19.6			26.1			14.8			10.6		
С			D			В			В		
	2 2 0.74 20 3 0 EB WB 1 SB 1 NB 1 19.6	2 185 2 185 0.74 0.74 20 20 3 250 0 1 EB WB 1 SB 1 NB 1 19.6	2 185 127 2 185 127 0.74 0.74 0.74 20 20 20 3 250 172 0 1 0 EB WB 1 SB 1 NB 1 19.6	2 185 127 176 2 185 127 176 0.74 0.74 0.74 0.74 20 20 20 9 3 250 172 238 0 1 0 0 EB WB WB BB 1 1 1 SB NB 1 1 NB SB 1 1 NB SB 1 1 19.6 26.1	2 185 127 176 185 2 185 127 176 185 0.74 0.74 0.74 0.74 0.74 20 20 20 9 9 3 250 172 238 250 0 1 0 0 1 EB WB WB EB 1 1 1 SB NB 1 1 1 NB SB 1 1 1 19.6 26.1	2 185 127 176 185 1 2 185 127 176 185 1 0.74 0.74 0.74 0.74 0.74 0.74 20 20 20 9 9 9 3 250 172 238 250 1 0 1 0 0 1 0 EB WB WB EB 1 1 1 SB NB 1 1 1 NB SB 1 1 1 19.6 26.1	2 185 127 176 185 1 61 2 185 127 176 185 1 61 0.74 0.74 0.74 0.74 0.74 0.74 20 20 20 9 9 9 14 3 250 172 238 250 1 82 0 1 0 0 1 0 0 1 0 0 EB WB NB WB EB SB 1 1 1 1 1 SB NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 185 127 176 185 1 61 1 2 185 127 176 185 1 61 1 0.74 0.74 0.74 0.74 0.74 0.74 0.74 20 20 20 9 9 9 14 14 3 250 172 238 250 1 82 1 0 1 0 0 1 0 0 1 0 0 1 EB WB NB WB EB SB 1 1 1 1 1 SB NB EB 1 NB EB	2 185 127 176 185 1 61 1 142 2 185 127 176 185 1 61 1 142 0.74 0.74 0.74 0.74 0.74 0.74 0.74 0.74 20 20 20 9 9 9 9 14 14 14 14 3 250 172 238 250 1 82 1 192 0 1 0 0 1 0 0 1 0 0 1 0 EB WB NB WB EB SB 1 1 1 1 1 1 SB NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 NB EB 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 185 127 176 185 1 61 1 142 2 2 185 127 176 185 1 61 1 142 2 0.74 0.74 0.74 0.74 0.74 0.74 0.74 0.74	2 185 127 176 185 1 61 1 142 2 0 2 185 127 176 185 1 61 1 142 2 0 0.74 0

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	30%	1%	49%	100%	
Vol Thru, %	0%	59%	51%	0%	
Vol Right, %	70%	40%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	204	314	362	2	
LT Vol	61	2	176	2	
Through Vol	1	185	185	0	
RT Vol	142	127	1	0	
Lane Flow Rate	276	424	489	3	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.474	0.67	0.778	0.006	
Departure Headway (Hd)	6.192	5.686	5.728	7.515	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	579	632	631	479	
Service Time	4.267	3.752	3.792	5.515	
HCM Lane V/C Ratio	0.477	0.671	0.775	0.006	
HCM Control Delay	14.8	19.6	26.1	10.6	
HCM Lane LOS	В	С	D	В	
HCM 95th-tile Q	2.5	5.1	7.4	0	

124th Business Park
2025 Buildout - AM
Synchro 11 Report
Page 1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		Ť	∱ ∱		ሻ	₽		Ť	f)	
Traffic Volume (vph)	147	997	54	61	1161	238	12	3	15	108	7	137
Future Volume (vph)	147	997	54	61	1161	238	12	3	15	108	7	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	5.5		4.5	4.5		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.87		1.00	0.86	
FIt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3313		1583	3075		1805	1660		1399	1262	
FIt Permitted	0.08	1.00		0.22	1.00		0.66	1.00		0.52	1.00	
Satd. Flow (perm)	134	3313		369	3075		1257	1660		772	1262	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	153	1039	56	64	1209	248	12	3	16	112	7	143
RTOR Reduction (vph)	0	2	0	0	11	0	0	15	0	0	118	0
Lane Group Flow (vph)	153	1093	0	64	1446	0	13	4	0	113	32	0
Confl. Bikes (#/hr)			5			1						
Heavy Vehicles (%)	8%	8%	8%	14%	14%	14%	0%	0%	0%	29%	29%	29%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	82.8	73.2		69.4	64.3		11.0	9.0		27.7	21.2	
Effective Green, g (s)	82.8	73.2		69.4	64.3		11.0	9.0		28.7	21.2	
Actuated g/C Ratio	0.69	0.61		0.58	0.54		0.09	0.08		0.24	0.18	
Clearance Time (s)	4.5	4.5		4.5	5.5		4.5	4.5		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.5		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	258	2020		265	1647		124	124		264	222	
v/s Ratio Prot	c0.06	0.33		0.01	c0.47		0.00	0.00		c0.05	0.03	
v/s Ratio Perm	0.34			0.13			0.01			c0.05		
v/c Ratio	0.59	0.54		0.24	0.88		0.10	0.03		0.43	0.15	
Uniform Delay, d1	22.0	13.6		11.6	24.4		49.9	51.5		37.9	41.7	
Progression Factor	1.00	1.00		0.48	0.43		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	1.0		0.4	6.6		0.4	0.1		0.4	0.1	
Delay (s)	25.7	14.7		6.0	17.0		50.2	51.6		38.3	41.9	
Level of Service	С	В		Α	В		D	D		D	D	
Approach Delay (s)		16.0			16.5			51.0			40.3	
Approach LOS		В			В			D			D	
Intersection Summary												
HCM 2000 Control Delay			18.7	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	city ratio		0.76									
Actuated Cycle Length (s)			120.0		um of lost				19.5			
Intersection Capacity Utiliza	ation		73.0%	IC	CU Level c	of Service)		С			
Analysis Period (min)			15									

c Critical Lane Group

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ⊅		ሻ	∱ ⊅		7	₽		7	ĵ₃	
Traffic Volume (veh/h)	147	997	54	61	1161	238	12	3	15	108	7	137
Future Volume (veh/h)	147	997	54	61	1161	238	12	3	15	108	7	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781	1693	1693	1693	1900	1900	1900	1470	1470	1470
Adj Flow Rate, veh/h	153	1039	56	64	1209	232	12	3	16	112	7	143
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	8	8	8	14	14	14	0	0	0	29	29	29
Cap, veh/h	363	2114	114	345	1716	326	113	15	82	259	8	166
Arrive On Green	0.05	0.65	0.65	0.07	1.00	1.00	0.01	0.06	0.06	0.10	0.14	0.14
Sat Flow, veh/h	1697	3262	176	1612	2685	511	1810	261	1389	1400	59	1196
Grp Volume(v), veh/h	153	539	556	64	720	721	12	0	19	112	0	150
Grp Sat Flow(s),veh/h/ln	1697	1692	1745	1612	1608	1588	1810	0	1650	1400	0	1255
Q Serve(g_s), s	3.7	19.7	19.7	1.6	0.0	0.0	0.7	0.0	1.3	8.5	0.0	14.0
Cycle Q Clear(g_c), s	3.7	19.7	19.7	1.6	0.0	0.0	0.7	0.0	1.3	8.5	0.0	14.0
Prop In Lane	1.00		0.10	1.00	0.0	0.32	1.00	0.0	0.84	1.00	0.0	0.95
Lane Grp Cap(c), veh/h	363	1097	1131	345	1027	1015	113	0	97	259	0	174
V/C Ratio(X)	0.42	0.49	0.49	0.19	0.70	0.71	0.11	0.00	0.20	0.43	0.00	0.86
Avail Cap(c_a), veh/h	363	1097	1131	354	1027	1015	163	0	385	390	0	471
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.5	10.9	10.9	7.9	0.0	0.0	52.0	0.0	53.8	43.7	0.0	50.5
Incr Delay (d2), s/veh	0.8	1.6	1.5	0.2	3.2	3.4	0.4	0.0	1.0	0.4	0.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.5	7.7	0.5	0.9	0.9	0.4	0.0	0.6	3.0	0.0	4.6
Unsig. Movement Delay, s/veh		1.0	• • • •	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.0
LnGrp Delay(d),s/veh	7.3	12.5	12.4	8.1	3.2	3.4	52.4	0.0	54.7	44.1	0.0	55.3
LnGrp LOS	A	В	В	A	A	A	D	A	D	D	A	E
Approach Vol, veh/h		1248			1505	, <u>, , , , , , , , , , , , , , , , , , </u>		31			262	
Approach Delay, s/veh		11.8			3.5			53.8			50.5	
Approach LOS		В			3.5 A			D			50.5 D	
							_				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	83.3	6.1	21.7	10.0	82.2	15.7	12.1				
Change Period (Y+Rc), s	4.5	* 5.5	4.5	5.0	4.5	5.5	5.0	* 5				
Max Green Setting (Gmax), s	5.1	* 46	5.0	45.0	5.5	45.0	22.0	* 28				
Max Q Clear Time (g_c+I1), s	3.6	21.7	2.7	16.0	5.7	2.0	10.5	3.3				
Green Ext Time (p_c), s	0.0	8.2	0.0	0.6	0.0	16.5	0.2	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			11.5									
HCM 6th LOS			В									
Notos												

^{*} HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ች	₽		ች	1>		ሻ	† \$		*	↑ ↑	
Traffic Volume (vph)	36	219	86	48	152	38	52	253	49	173	522	102
Future Volume (vph)	36	219	86	48	152	38	52	253	49	173	522	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1610		1597	1627		1504	2924		1702	3311	
Flt Permitted	0.56	1.00		0.33	1.00		0.33	1.00		0.41	1.00	
Satd. Flow (perm)	944	1610		562	1627		525	2924		738	3311	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	246	97	54	171	43	58	284	55	194	587	115
RTOR Reduction (vph)	0	13	0	0	8	0	0	13	0	0	14	0
Lane Group Flow (vph)	40	330	0	54	206	0	58	326	0	194	688	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	20%	20%	20%	6%	6%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.1	21.6		25.7	22.4		24.4	19.5		35.3	25.4	
Effective Green, g (s)	26.1	23.1		27.7	23.9		26.4	21.0		36.3	26.9	
Actuated g/C Ratio	0.34	0.30		0.36	0.31		0.35	0.28		0.48	0.35	
Clearance Time (s)	5.0	5.5		5.0	5.5		5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	353	488		262	510		257	805		500	1168	
v/s Ratio Prot	0.01	c0.21		c0.01	0.13		0.02	0.11		c0.06	c0.21	
v/s Ratio Perm	0.03			0.06			0.06			0.12		
v/c Ratio	0.11	0.68		0.21	0.40		0.23	0.40		0.39	0.59	
Uniform Delay, d1	16.9	23.3		16.6	20.5		17.0	22.5		12.1	20.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.7		0.1	0.5		0.2	0.3		0.2	0.8	
Delay (s)	17.0	27.0		16.7	21.1		17.1	22.8		12.3	20.9	
Level of Service	В	С		В	С		В	С		В	С	
Approach Delay (s)		25.9			20.2			22.0			19.0	
Approach LOS		С			С			С			В	
Intersection Summary												
HCM 2000 Control Delay			21.2	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.59									
Actuated Cycle Length (s)			76.2		um of lost				16.0			
Intersection Capacity Utiliza	ation		56.1%	IC	CU Level o	of Service	•		В			
Analysis Period (min)			15									
c Critical Lane Group												

124th Business Park
2025 Buildout - AM
Synchro 11 Report
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	f)		7	f)		¥	∱ }		¥	♦ 13-	
Traffic Volume (veh/h)	36	219	86	48	152	38	52	253	49	173	522	102
Future Volume (veh/h)	36	219	86	48	152	38	52	253	49	173	522	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1604	1604	1604	1811	1811	1811
Adj Flow Rate, veh/h	40	246	0	54	171	0	58	284	55	194	587	115
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	13	13	13	13	13	13	20	20	20	6	6	6
Cap, veh/h	396	392		344	408		336	682	130	524	927	181
Arrive On Green	0.06	0.23	0.00	0.07	0.24	0.00	0.07	0.27	0.24	0.13	0.32	0.30
Sat Flow, veh/h	1626	1707	0	1626	1707	0	1527	2542	484	1725	2858	558
Grp Volume(v), veh/h	40	246	0	54	171	0	58	168	171	194	353	349
Grp Sat Flow(s),veh/h/ln	1626	1707	0	1626	1707	0	1527	1523	1503	1725	1721	1695
Q Serve(g_s), s	1.0	6.9	0.0	1.3	4.5	0.0	1.4	4.8	5.0	4.0	9.2	9.3
Cycle Q Clear(g_c), s	1.0	6.9	0.0	1.3	4.5	0.0	1.4	4.8	5.0	4.0	9.2	9.3
Prop In Lane	1.00		0.00	1.00		0.00	1.00		0.32	1.00		0.33
Lane Grp Cap(c), veh/h	396	392		344	408		336	409	403	524	558	550
V/C Ratio(X)	0.10	0.63		0.16	0.42		0.17	0.41	0.42	0.37	0.63	0.64
Avail Cap(c_a), veh/h	481	1356		475	1420		455	922	909	1019	1496	1474
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	18.3	0.0	14.2	17.0	0.0	12.7	15.9	16.2	10.9	15.2	15.4
Incr Delay (d2), s/veh	0.0	1.7	0.0	0.1	0.7	0.0	0.1	0.7	0.7	0.2	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.6	0.0	0.4	1.7	0.0	0.4	1.4	1.5	1.1	3.0	3.0
Unsig. Movement Delay, s/veh		00.0	0.0	440	4==	0.0	40.0	10.0	40.0	44.4	10.1	40.7
LnGrp Delay(d),s/veh	14.2	20.0	0.0	14.3	17.7	0.0	12.8	16.6	16.9	11.1	16.4	16.7
LnGrp LOS	В	С		В	В		В	В	В	В	В	<u>B</u>
Approach Vol, veh/h		286			225			397			896	
Approach Delay, s/veh		19.2			16.9			16.2			15.3	
Approach LOS		В			В			В			В	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	18.2	7.7	16.1	7.9	21.2	7.2	16.7				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5				
Max Green Setting (Gmax), s	21.0	30.5	7.0	40.5	7.0	44.5	5.0	42.5				
Max Q Clear Time (g_c+I1), s	6.0	7.0	3.3	8.9	3.4	11.3	3.0	6.5				
Green Ext Time (p_c), s	0.2	1.8	0.0	1.5	0.0	4.3	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			В									

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	∱ }		ሻ	∱ ∱	
Traffic Volume (vph)	4	1	3	74	1	45	17	300	95	140	510	24
Future Volume (vph)	4	1	3	74	1	45	17	300	95	140	510	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.95		1.00	0.96		1.00	0.99	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1542			1233		1530	2934		1543	3061	
Flt Permitted		0.86			0.81		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1353			1025		1530	2934		1543	3061	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	5	1	4	88	1	54	20	357	113	167	607	29
RTOR Reduction (vph)	0	3	0	0	28	0	0	29	0	0	3	0
Lane Group Flow (vph)	0	7	0	0	115	0	20	441	0	167	633	0
Confl. Peds. (#/hr)	3	'	1	1	110	3	1	771	U	107	000	1
Confl. Bikes (#/hr)	0					0	•		1			1
Heavy Vehicles (%)	13%	13%	13%	41%	41%	41%	18%	18%	18%	17%	17%	17%
Turn Type	Perm	NA	10 /0	Perm	NA	T 1 /0	Prot	NA	1070	Prot	NA	17 70
Protected Phases	reiiii	4		reiiii	8		5	2		1	6	
Permitted Phases	4	4		8	0		5	2		- 1	U	
Actuated Green, G (s)	4	9.6		O	9.6		1.0	22.1		9.3	30.4	
Effective Green, g (s)		9.6			9.6		1.0	22.1		9.3	30.4	
Actuated g/C Ratio		0.18			0.18		0.02	0.41		0.17	0.56	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		238			180		28	1189		263	1707	
v/s Ratio Prot		0.00			-0.44		0.01	0.15		c0.11	c0.21	
v/s Ratio Perm		0.00			c0.11		0.74	0.07		0.00	0.07	
v/c Ratio		0.03			0.64		0.71	0.37		0.63	0.37	
Uniform Delay, d1		18.6			20.8		26.6	11.3		21.0	6.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			7.2		60.5	0.2		4.9	0.1	
Delay (s)		18.6			28.1		87.1	11.5		26.0	6.9	
Level of Service		В			C		F	В		С	Α	
Approach Delay (s)		18.6			28.1			14.6			10.8	
Approach LOS		В			С			В			В	
Intersection Summary												
HCM 2000 Control Delay			13.9	H	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capacit	y ratio		0.52									
Actuated Cycle Length (s)			54.5		um of lost				13.5			
Intersection Capacity Utilization	n		40.4%	IC	CU Level of	of Service			А			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	∱ β		ሻ	∱ ∱	
Traffic Volume (veh/h)	4	1	3	74	1	45	17	300	95	140	510	24
Future Volume (veh/h)	4	1	3	74	1	45	17	300	95	140	510	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1292	1292	1292	1633	1633	1633	1648	1648	1648
Adj Flow Rate, veh/h	5	1	4	88	1	54	20	357	113	167	607	29
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	13	13	13	41	41	41	18	18	18	17	17	17
Cap, veh/h	258	69	108	273	16	67	40	641	200	215	1181	56
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.03	0.28	0.28	0.14	0.39	0.39
Sat Flow, veh/h	540	399	626	550	95	391	1555	2314	721	1570	3039	145
Grp Volume(v), veh/h	10	0	0	143	0	0	20	237	233	167	312	324
Grp Sat Flow(s),veh/h/ln	1565	0	0	1037	0	0	1555	1552	1483	1570	1566	1618
Q Serve(g_s), s	0.0	0.0	0.0	3.6	0.0	0.0	0.4	4.3	4.4	3.4	5.0	5.0
Cycle Q Clear(g_c), s	0.2	0.0	0.0	4.3	0.0	0.0	0.4	4.3	4.4	3.4	5.0	5.0
Prop In Lane	0.50	•	0.40	0.62	•	0.38	1.00	400	0.49	1.00	222	0.09
Lane Grp Cap(c), veh/h	435	0	0	357	0	0	40	430	411	215	609	629
V/C Ratio(X)	0.02	0.00	0.00	0.40	0.00	0.00	0.51	0.55	0.57	0.78	0.51	0.51
Avail Cap(c_a), veh/h	1254	0	0	974	0	0	358	1355	1296	1082	2087	2157
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.3	0.0	0.0	12.9	0.0	0.0	15.7	10.1	10.1	13.6	7.6	7.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.0	0.0	9.7 0.0	1.1 0.0	1.2	5.9 0.0	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0 1.0	1.1	0.0	0.0
%ile BackOfQ(50%),veh/ln Unsig. Movement Delay, s/veh		0.0	0.0	0.0	0.0	0.0	0.2	1.0	1.0	1.1	0.9	0.9
LnGrp Delay(d),s/veh	11.3	0.0	0.0	13.6	0.0	0.0	25.4	11.2	11.3	19.5	8.3	8.3
LnGrp LOS	11.3 B	Α	Α	13.0 B	Α	Α	23.4 C	11.2 B	11.3 B	19.5 B	0.5 A	0.5 A
Approach Vol, veh/h	ь	10		Б	143	A		490	Б	Б	803	
Approach Delay, s/veh		11.3			13.6			11.8			10.6	
Approach LOS		11.3 B			13.0 B			11.0			10.0 B	
					Ь						Ь	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	13.5		10.1	5.3	17.2		10.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	22.5	28.5		25.5	7.5	43.5		25.5				
Max Q Clear Time (g_c+I1), s	5.4	6.4		2.2	2.4	7.0		6.3				
Green Ext Time (p_c), s	0.4	2.6		0.0	0.0	3.8		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			11.3									
HCM 6th LOS			В									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	^	7	ሻሻ	^	7	ሻሻ	ħβ		ሻሻ		7
Traffic Volume (vph)	146	963	118	58	696	140	261	285	69	143	265	84
Future Volume (vph)	146	963	118	58	696	140	261	285	69	143	265	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95		0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3127	3223	1423	3072	3167	1402	3155	3157		3072	1667	1405
FIt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3127	3223	1423	3072	3167	1402	3155	3157		3072	1667	1405
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)	157	1035	127	62	748	151	281	306	74	154	285	90
RTOR Reduction (vph)	0	0	51	0	0	79	0	19	0	0	0	61
Lane Group Flow (vph)	157	1035	76	62	748	72	281	361	0	154	285	29
Confl. Peds. (#/hr)			2	2			1					1
Confl. Bikes (#/hr)			5			1						
Heavy Vehicles (%)	12%	12%	12%	14%	14%	14%	11%	11%	11%	14%	14%	14%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases			2			6						4
Actuated Green, G (s)	14.6	57.6	71.9	4.8	47.8	57.3	14.3	29.1		9.5	24.3	38.9
Effective Green, g (s)	14.6	59.1	71.9	4.8	49.3	57.3	14.3	30.6		9.5	25.8	38.9
Actuated g/C Ratio	0.12	0.49	0.60	0.04	0.41	0.48	0.12	0.26		0.08	0.22	0.32
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5	4.0	4.0	5.5		4.0	5.5	4.0
Vehicle Extension (s)	1.5	4.5	1.5	1.5	4.5	1.5	1.5	2.0		1.5	2.0	1.5
Lane Grp Cap (vph)	380	1587	852	122	1301	669	375	805		243	358	502
v/s Ratio Prot	0.05	c0.32	0.01	0.02	c0.24	0.01	c0.09	0.11		0.05	c0.17	0.01
v/s Ratio Perm			0.04			0.04						0.01
v/c Ratio	0.41	0.65	0.09	0.51	0.57	0.11	0.75	0.45		0.63	0.80	0.06
Uniform Delay, d1	48.7	22.8	10.2	56.4	27.3	17.3	51.1	37.6		53.6	44.6	27.9
Progression Factor	0.78	0.63	0.72	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	1.9	0.0	1.2	1.9	0.0	7.0	0.1		3.9	10.9	0.0
Delay (s)	38.4	16.3	7.3	57.7	29.1	17.3	58.1	37.8		57.5	55.5	27.9
Level of Service	D	В	Α	Е	С	В	Е	D		Е	Е	С
Approach Delay (s)		18.0			29.1			46.4			51.4	
Approach LOS		В			С			D			D	
Intersection Summary												
HCM 2000 Control Delay			31.6	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capac	ity ratio		0.71									
Actuated Cycle Length (s)			120.0			t time (s)			16.0			
Intersection Capacity Utilizati	on		65.8%	IC	CU Level	of Service			С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1,1	^	7	1/4	^	7	ሻሻ	↑ }		44		7
Traffic Volume (veh/h)	146	963	118	58	696	140	261	285	69	143	265	84
Future Volume (veh/h)	146	963	118	58	696	140	261	285	69	143	265	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1722	1722	1722	1693	1693	1693	1737	1737	1737	1693	1693	1693
Adj Flow Rate, veh/h	157	1035	111	62	748	76	281	306	52	154	285	68
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	12	12	12	14	14	14	11	11	11	14	14	14
Cap, veh/h	604	1634	859	114	1072	551	351	744	125	212	354	554
Arrive On Green	0.38	1.00	0.97	0.04	0.33	0.32	0.11	0.26	0.25	0.07	0.21	0.20
Sat Flow, veh/h	3182	3272	1437	3127	3216	1414	3209	2826	475	3127	1693	1432
Grp Volume(v), veh/h	157	1035	111	62	748	76	281	177	181	154	285	68
Grp Sat Flow(s), veh/h/ln	1591	1636	1437	1564	1608	1414	1605	1650	1651	1564	1693	1432
Q Serve(g_s), s	4.1	0.1	0.0	2.3	24.2	2.0	10.3	10.6	10.9	5.8	19.2	0.0
Cycle Q Clear(g_c), s	4.1	0.1	0.0	2.3	24.2	2.0	10.3	10.6	10.9	5.8	19.2	0.0
Prop In Lane	1.00	0.1	1.00	1.00		1.00	1.00	10.0	0.29	1.00	10.2	1.00
Lane Grp Cap(c), veh/h	604	1634	859	114	1072	551	351	434	434	212	354	554
V/C Ratio(X)	0.26	0.63	0.13	0.54	0.70	0.14	0.80	0.41	0.42	0.73	0.81	0.12
Avail Cap(c_a), veh/h	604	1634	859	143	1203	608	428	503	504	297	451	636
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	0.2	56.8	34.7	9.1	52.2	36.5	36.8	54.8	45.1	23.7
Incr Delay (d2), s/veh	0.1	1.6	0.3	1.5	3.8	0.5	7.1	0.2	0.2	2.5	6.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.4	0.1	0.9	9.7	0.8	4.4	4.2	4.3	2.3	8.4	1.2
Unsig. Movement Delay, s/veh		0.1	0.1	0.0	0.7	0.0		1.2	1.0	2.0	0.1	1.2
LnGrp Delay(d),s/veh	31.5	1.6	0.5	58.3	38.5	9.6	59.2	36.7	37.0	57.4	51.4	23.7
LnGrp LOS	C	Α	A	E	D	Α	E	D	D	E	D	C
Approach Vol, veh/h		1303			886			639			507	
Approach Delay, s/veh		5.1			37.4			46.7			49.5	
Approach LOS		Α			57.4 D			40.7 D			49.5 D	
											D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	63.9	18.6	29.1	28.3	44.0	12.1	35.6				
Change Period (Y+Rc), s	4.0	5.5	5.5	* 5.5	5.5	* 5.5	4.0	5.5				
Max Green Setting (Gmax), s	5.5	49.0	16.0	* 31	11.1	* 43	11.4	35.1				
Max Q Clear Time (g_c+l1), s	4.3	2.1	12.3	21.2	6.1	26.2	7.8	12.9				
Green Ext Time (p_c), s	0.0	34.5	0.9	2.3	0.6	12.3	0.4	4.2				
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			С									
Notos												

^{*} HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.2					
		WDD	NDT	NDD	CDI	CDT
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	^	7	†	400	0	^
Traffic Vol, veh/h	0	18	394	129	0	587
Future Vol, veh/h	0	18	394	129	0	587
Conflicting Peds, #/hr	1	3	0	0	0	_ 0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage,		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	13	13	18	18	17	17
Mvmt Flow	0	21	469	154	0	699
Majar/Minar	1:1		1-:1		/a:a=0	
	1inor1		//ajor1		/lajor2	
Conflicting Flow All	-	315	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.16	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.43	-	-	-	-
Pot Cap-1 Maneuver	0	649	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	_	-	0	-
Platoon blocked, %			-	-	_	-
Mov Cap-1 Maneuver	-	647	_	_	_	_
Mov Cap-2 Maneuver	_	-	_	_	_	_
Stage 1	_	_	_	_	_	_
Stage 2	_	_	_	<u>_</u>	_	_
Stage 2						
Approach	WB		NB		SB	
HCM Control Delay, s	10.8		0		0	
HCM LOS	В					
Min I /M-i M 1		NDT	NDD	MDL 4	ODT	
Minor Lane/Major Mvmt		NBT		VBLn1	SBT	
Capacity (veh/h)		-	-	0	-	
HCM Lane V/C Ratio		-		0.033	-	
HCM Control Delay (s)		-	-		-	
HCM Lane LOS		-	-	В	-	
HCM 95th %tile Q(veh)		-	-	0.1	-	

ntersection	
ntersection Delay, s/veh	15.7
ntersection LOS	С

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	0	142	78	149	256	1	73	0	146	1	0	0
Future Vol, veh/h	0	142	78	149	256	1	73	0	146	1	0	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	7	7	7	7	7	7	5	5	5	0	0	0
Mvmt Flow	0	169	93	177	305	1	87	0	174	1	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach		EB		WB			NB			SB		
Opposing Approach		WB		EB			SB			NB		
Opposing Lanes		1		1			1			1		
Conflicting Approach Left		SB		NB			EB			WB		
Conflicting Lanes Left		1		1			1			1		
Conflicting Approach Right		NB		SB			WB			EB		
Conflicting Lanes Right		1		1			1			1		
HCM Control Delay		11.6		19.8			12.3			9.7		
HCM LOS		В		С			В			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	33%	0%	37%	100%	
Vol Thru, %	0%	65%	63%	0%	
Vol Right, %	67%	35%	0%	0%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	219	220	406	1	
LT Vol	73	0	149	1	
Through Vol	0	142	256	0	
RT Vol	146	78	1	0	
Lane Flow Rate	261	262	483	1	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.402	0.383	0.704	0.002	
Departure Headway (Hd)	5.553	5.271	5.242	6.613	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	647	684	691	539	
Service Time	3.595	3.307	3.271	4.678	
HCM Lane V/C Ratio	0.403	0.383	0.699	0.002	
HCM Control Delay	12.3	11.6	19.8	9.7	
HCM Lane LOS	В	В	С	Α	
HCM 95th-tile Q	1.9	1.8	5.8	0	

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ች	↑ ↑		ሻ	ĵ.		ች	1>	
Traffic Volume (vph)	72	957	14	16	1203	74	47	7	38	227	3	240
Future Volume (vph)	72	957	14	16	1203	74	47	7	38	227	3	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	5.5		4.5	4.5		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	3462		1752	3470		1805	1662		1736	1556	
Flt Permitted	0.10	1.00		0.21	1.00		0.60	1.00		0.52	1.00	
Satd. Flow (perm)	182	3462		392	3470		1133	1662		943	1556	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	1040	15	17	1308	80	51	8	41	247	3	261
RTOR Reduction (vph)	0	0	0	0	3	0	0	38	0	0	142	0
Lane Group Flow (vph)	78	1055	0	17	1385	0	51	11	0	247	122	0
Confl. Peds. (#/hr)	1		2	2		1	<u> </u>		•			
Confl. Bikes (#/hr)	•		6	-		4						
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	0%	0%	0%	4%	4%	4%
Turn Type	pm+pt	NA	.,,	pm+pt	NA	0,70	pm+pt	NA	• 70	pm+pt	NA	.,,
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2	_		6	•		8			4	•	
Actuated Green, G (s)	76.0	70.5		68.6	66.3		13.5	9.4		33.2	24.6	
Effective Green, g (s)	76.0	70.5		68.6	66.3		13.5	9.4		34.2	24.6	
Actuated g/C Ratio	0.63	0.59		0.57	0.55		0.11	0.08		0.29	0.21	
Clearance Time (s)	4.5	4.5		4.5	5.5		4.5	4.5		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.5		3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)	186	2033		250	1917		150	130		402	318	
v/s Ratio Prot	c0.02	0.30		0.00	c0.40		0.01	0.01		c0.10	0.08	
v/s Ratio Perm	0.25	0.00		0.04	00.40		0.03	0.01		c0.07	0.00	
v/c Ratio	0.42	0.52		0.07	0.72		0.34	0.09		0.61	0.38	
Uniform Delay, d1	14.8	14.7		12.0	20.0		48.6	51.3		35.8	41.1	
Progression Factor	1.00	1.00		0.55	0.49		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	1.00		0.1	2.2		1.4	0.3		2.0	0.3	
Delay (s)	16.3	15.6		6.7	12.0		50.0	51.6		37.8	41.4	
Level of Service	В	В		Α	12.0 B		00.0 D	D D		57.0 D	D	
Approach Delay (s)		15.7		, , , , , , , , , , , , , , , , , , ,	11.9			50.8			39.7	
Approach LOS		В			В			D			D	
Intersection Summary												
HCM 2000 Control Delay			19.0	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	citv ratio		0.70			3. 3.			_			
Actuated Cycle Length (s)	.,		120.0	Si	um of lost	time (s)			19.5			
Intersection Capacity Utiliza	tion		75.2%		U Level o				D			
Analysis Period (min)			15									
c Critical Lane Group			. •									

	•	→	•	•	←	•	•	†	<i>></i>	>	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		7	ħβ		Ţ	4Î		Ţ	f)	
Traffic Volume (veh/h)	72	957	14	16	1203	74	47	7	38	227	3	240
Future Volume (veh/h)	72	957	14	16	1203	74	47	7	38	227	3	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1900	1900	1900	1841	1841	1841
Adj Flow Rate, veh/h	78	1040	15	17	1308	64	51	8	41	247	3	261
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	3	3	3	0	0	0	4	4	4
Cap, veh/h	351	2096	30	317	1960	96	152	21	110	403	3	295
Arrive On Green	0.04	0.59	0.59	0.04	1.00	1.00	0.03	0.08	0.08	0.15	0.19	0.19
Sat Flow, veh/h	1753	3528	51	1767	3416	167	1810	270	1382	1753	18	1545
Grp Volume(v), veh/h	78	516	539	17	674	698	51	0	49	247	0	264
Grp Sat Flow(s),veh/h/ln	1753	1749	1830	1767	1763	1821	1810	0	1651	1753	0	1563
Q Serve(g_s), s	2.2	20.4	20.4	0.5	0.0	0.0	3.1	0.0	3.4	14.7	0.0	19.7
Cycle Q Clear(g_c), s	2.2	20.4	20.4	0.5	0.0	0.0	3.1	0.0	3.4	14.7	0.0	19.7
Prop In Lane	1.00		0.03	1.00		0.09	1.00		0.84	1.00		0.99
Lane Grp Cap(c), veh/h	351	1039	1087	317	1011	1044	152	0	131	403	0	298
V/C Ratio(X)	0.22	0.50	0.50	0.05	0.67	0.67	0.33	0.00	0.37	0.61	0.00	0.89
Avail Cap(c_a), veh/h	361	1039	1087	360	1011	1044	167	0	385	475	0	585
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.4	14.0	14.0	11.3	0.0	0.0	48.7	0.0	52.4	39.0	0.0	47.3
Incr Delay (d2), s/veh	0.3	1.7	1.6	0.1	3.0	2.9	1.3	0.0	1.8	0.8	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	8.3	8.6	0.2	0.8	0.9	1.4	0.0	1.5	6.4	0.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.8	15.7	15.6	11.3	3.0	2.9	49.9	0.0	54.2	39.8	0.0	50.8
LnGrp LOS	Α	В	В	В	Α	Α	D	Α	D	D	Α	D
Approach Vol, veh/h		1133			1389			100			511	
Approach Delay, s/veh		15.3			3.1			52.0			45.5	
Approach LOS		В			Α			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
	6.7		8.7	•	9.1	74.3	22.0	14.5				
Phs Duration (G+Y+Rc), s		76.8 * 5.5	4.5	27.9	4.5			* 5				
Change Period (Y+Rc), s	4.5			5.0		5.5	5.0	* 28				
Max Green Setting (Gmax), s	5.1	* 46	5.1	44.9	5.3	45.2	22.0					
Max Q Clear Time (g_c+l1), s	2.5	22.4	5.1	21.7	4.2	2.0	16.7	5.4				
Green Ext Time (p_c), s	0.0	7.7	0.0	1.1	0.0	14.7	0.4	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			В									
Notos												

^{*} HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	1>		ች	1>		ሻ	↑ ↑		ች	∱ %	
Traffic Volume (vph)	119	178	57	115	322	173	83	550	74	93	315	44
Future Volume (vph)	119	178	57	115	322	173	83	550	74	93	315	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	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	
Frt	1.00	0.96		1.00	0.95		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	1620		1597	1586		1504	2947		1703	3334	
Flt Permitted	0.19	1.00		0.47	1.00		0.48	1.00		0.18	1.00	
Satd. Flow (perm)	326	1620		786	1586		758	2947		322	3334	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	134	200	64	129	362	194	93	618	83	104	354	49
RTOR Reduction (vph)	0	9	0	0	15	0	0	8	0	0	10	0
Lane Group Flow (vph)	134	255	0	129	541	0	93	693	0	104	393	0
Confl. Peds. (#/hr)	1					1			1	1		
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	13%	13%	13%	13%	13%	13%	20%	20%	20%	6%	6%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4	-		8			2	_		6	•	
Actuated Green, G (s)	42.5	37.4		45.9	39.1		34.4	29.1		40.6	32.2	
Effective Green, g (s)	44.5	38.9		47.9	40.6		36.4	30.6		42.6	33.7	
Actuated g/C Ratio	0.43	0.38		0.47	0.40		0.35	0.30		0.41	0.33	
Clearance Time (s)	5.0	5.5		5.0	5.5		5.0	5.5		5.0	5.5	
Vehicle Extension (s)	2.0	3.0		2.0	3.0		2.0	3.0		2.0	3.0	
Lane Grp Cap (vph)	216	613		428	626		314	878		259	1094	
v/s Ratio Prot	c0.04	0.16		c0.02	c0.34		0.02	c0.24		c0.04	0.12	
v/s Ratio Perm	0.23	00		0.12			0.09			0.13	V	
v/c Ratio	0.62	0.42		0.30	0.86		0.30	0.79		0.40	0.36	
Uniform Delay, d1	20.9	23.5		16.3	28.5		22.8	33.1		20.5	26.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.5		0.1	11.9		0.2	4.8		0.4	0.2	
Delay (s)	24.8	24.0		16.5	40.4		23.0	37.8		20.9	26.5	
Level of Service	С	С		В	D		С	D		С	С	
Approach Delay (s)		24.3			35.9			36.1			25.3	
Approach LOS		С			D			D			С	
Intersection Summary												
HCM 2000 Control Delay			31.8	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.77									
Actuated Cycle Length (s)			102.7	S	um of lost	time (s)			16.0			
Intersection Capacity Utiliza	ation		70.2%	IC	CU Level o	of Service	<u> </u>		С			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	₽		ሻ	₽		ሻ	∱ ኈ		ሻ	∱ ∱	
Traffic Volume (veh/h)	119	178	57	115	322	173	83	550	74	93	315	44
Future Volume (veh/h)	119	178	57	115	322	173	83	550	74	93	315	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	4707	No	4707	4707	No	4707	1001	No	4004	1011	No	1011
Adj Sat Flow, veh/h/ln	1707	1707	1707	1707	1707	1707	1604	1604	1604	1811	1811	1811
Adj Flow Rate, veh/h	134	200	0	129	362	0	93	618	83	104	354	49
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	13	13	13	13	13	13	20	20	20	6	6	6
Cap, veh/h	330	479	0.00	448	483	0.00	403	837	112	313	947	130
Arrive On Green	0.09	0.28	0.00	0.09	0.28	0.00	0.08	0.31	0.29	0.08	0.31	0.29
Sat Flow, veh/h	1626	1707	0	1626	1707	0	1527	2699	362	1725	3028	415
Grp Volume(v), veh/h	134	200	0	129	362	0	93	348	353	104	200	203
Grp Sat Flow(s), veh/h/ln	1626	1707	0	1626	1707	0	1527	1523	1538	1725	1721	1723
Q Serve(g_s), s	3.8	6.4	0.0	3.7	12.9	0.0	2.7	13.7	13.8	2.7	6.0	6.2
Cycle Q Clear(g_c), s	3.8	6.4	0.0	3.7	12.9	0.0	2.7	13.7	13.8	2.7	6.0	6.2
Prop In Lane	1.00	470	0.00	1.00	400	0.00	1.00	470	0.24	1.00	E20	0.24
Lane Grp Cap(c), veh/h	330	479 0.42		448	483		403	472	477	313	538	539
V/C Ratio(X)	0.41 330	1070		0.29 493	0.75 1121		0.23 469	0.74 727	0.74 734	0.33 743	0.37 1181	0.38
Avail Cap(c_a), veh/h HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1182 1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	19.7	0.00	15.0	21.9	0.00	14.1	20.7	20.9	15.3	17.9	18.1
Incr Delay (d2), s/veh	0.3	0.6	0.0	0.1	2.4	0.0	0.1	2.3	2.3	0.2	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.5	0.0	1.3	5.1	0.0	0.8	4.5	4.6	0.0	2.1	2.2
Unsig. Movement Delay, s/veh		2.0	0.0	1.0	J. I	0.0	0.0	4.0	4.0	0.9	۷.۱	۷.۷
LnGrp Delay(d),s/veh	16.6	20.2	0.0	15.2	24.2	0.0	14.2	22.9	23.1	15.5	18.3	18.5
LnGrp LOS	В	C	0.0	В	C C	0.0	В	C	C	В	В	В
Approach Vol, veh/h		334			491			794			507	
Approach Delay, s/veh		18.8			21.8			22.0			17.8	
Approach LOS		В			C C			C			В	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	24.8	10.2	22.8	9.1	25.0	10.0	23.0				
Change Period (Y+Rc), s	5.0	5.5	5.0	5.5	5.0	5.5	5.0	5.5				
Max Green Setting (Gmax), s	21.0	30.5	7.0	40.5	7.0	44.5	5.0	42.5				
Max Q Clear Time (g_c+l1), s	4.7	15.8	5.7	8.4	4.7	8.2	5.8	14.9				
Green Ext Time (p_c), s	0.1	3.5	0.0	1.2	0.0	2.3	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			20.5									
HCM 6th LOS			С									

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	↑ ↑		ሻ	∱ }	
Traffic Volume (vph)	17	2	19	109	0	236	0	442	78	63	440	1
Future Volume (vph)	17	2	19	109	0	236	0	442	78	63	440	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99			1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.93			0.91			0.98		1.00	1.00	
Flt Protected		0.98			0.98			1.00		0.95	1.00	
Satd. Flow (prot)		1520			1191			2990		1543	3084	
Flt Permitted		0.82			0.88			1.00		0.95	1.00	
Satd. Flow (perm)		1278			1070			2990		1543	3084	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	20	2	23	130	0	281	0	526	93	75	524	1
RTOR Reduction (vph)	0	14	0	0	95	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	31	0	0	316	0	0	603	0	75	525	0
Confl. Peds. (#/hr)	3		1	1		3	1					1
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	13%	13%	13%	41%	41%	41%	18%	18%	18%	17%	17%	17%
Turn Type	Perm	NA	10,0	Perm	NA	,•	Prot	NA	,	Prot	NA	77.70
Protected Phases	. 0	4		. 0	8		5	2		1	6	
Permitted Phases	4	•		8				=		•		
Actuated Green, G (s)	•	24.0			24.0			19.3		4.0	27.8	
Effective Green, g (s)		24.0			24.0			19.3		4.0	27.8	
Actuated g/C Ratio		0.39			0.39			0.32		0.07	0.46	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		504			422			949		101	1410	
v/s Ratio Prot		001			166			c0.20		c0.05	0.17	
v/s Ratio Perm		0.02			c0.30			00.20		00.00	0.17	
v/c Ratio		0.06			0.75			0.64		0.74	0.37	
Uniform Delay, d1		11.4			15.8			17.7		27.9	10.8	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.1			7.1			1.4		25.2	0.2	
Delay (s)		11.5			22.9			19.1		53.1	11.0	
Level of Service		В			C			В		D	В	
Approach Delay (s)		11.5			22.9			19.1			16.2	
Approach LOS		В			C			В			В	
Intersection Summary												
HCM 2000 Control Delay			18.8	H	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capacity	ratio		0.70	1.								
Actuated Cycle Length (s)			60.8	Sı	um of lost	time (s)			13.5			
Intersection Capacity Utilization	n		54.0%			of Service			А			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4		ሻ	ተ ኈ		ሻ	∱ ∱	
Traffic Volume (veh/h)	17	2	19	109	0	236	0	442	78	63	440	1
Future Volume (veh/h)	17	2	19	109	0	236	0	442	78	63	440	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1292	1292	1292	1633	1633	1633	1648	1648	1648
Adj Flow Rate, veh/h	20	2	23	130	0	281	0	526	93	75	524	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	13	13	13	41	41	41	18	18	18	17	17	17
Cap, veh/h	269	51	240	201	27	317	3	713	126	95	1311	3
Arrive On Green	0.44	0.44	0.44	0.44	0.00	0.44	0.00	0.27	0.27	0.06	0.41	0.41
Sat Flow, veh/h	411	117	551	274	62	727	1555	2636	464	1570	3206	6
Grp Volume(v), veh/h	45	0	0	411	0	0	0	309	310	75	256	269
Grp Sat Flow(s),veh/h/ln	1079	0	0	1063	0	0	1555	1552	1549	1570	1566	1647
Q Serve(g_s), s	0.0	0.0	0.0	16.2	0.0	0.0	0.0	10.5	10.6	2.7	6.7	6.7
Cycle Q Clear(g_c), s	1.0	0.0	0.0	20.5	0.0	0.0	0.0	10.5	10.6	2.7	6.7	6.7
Prop In Lane	0.44		0.51	0.32		0.68	1.00		0.30	1.00		0.00
Lane Grp Cap(c), veh/h	560	0	0	545	0	0	3	420	419	95	640	673
V/C Ratio(X)	0.08	0.00	0.00	0.75	0.00	0.00	0.00	0.74	0.74	0.79	0.40	0.40
Avail Cap(c_a), veh/h	881	0	0	822	0	0	134	738	736	231	839	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	14.8	0.0	0.0	0.0	19.2	19.2	26.8	12.1	12.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	2.2	0.0	0.0	0.0	2.5	2.6	13.4	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	4.4	0.0	0.0	0.0	3.4	3.5	1.3	1.9	2.0
Unsig. Movement Delay, s/veh		0.0	0.0	47.0	0.0	0.0	0.0	04.7	04.0	40.0	40.5	40.5
LnGrp Delay(d),s/veh	9.6	0.0	0.0	17.0	0.0	0.0	0.0	21.7	21.8	40.2	12.5	12.5
LnGrp LOS	Α	A	A	В	A	A	A	С	С	D	В	В
Approach Vol, veh/h		45			411			619			600	
Approach Delay, s/veh		9.6			17.0			21.8			15.9	
Approach LOS		Α			В			С			В	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	20.2		29.7	0.0	28.2		29.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.5	27.5		40.5	5.0	31.0		40.5				
Max Q Clear Time (g_c+I1), s	4.7	12.6		3.0	0.0	8.7		22.5				
Green Ext Time (p_c), s	0.0	3.0		0.2	0.0	2.8		2.8				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			В									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	^	7	ሻሻ	^	7	ሻሻ	ħβ		ሻሻ		7
Traffic Volume (vph)	99	877	268	55	895	92	148	269	78	203	288	169
Future Volume (vph)	99	877	268	55	895	92	148	269	78	203	288	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95		0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00		1.00	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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3367	3471	1533	3433	3539	1565	3335	3312		3433	1863	1566
FIt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3367	3471	1533	3433	3539	1565	3335	3312		3433	1863	1566
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)	102	904	276	57	923	95	153	277	80	209	297	174
RTOR Reduction (vph)	0	0	103	0	0	40	0	24	0	0	0	80
Lane Group Flow (vph)	102	904	173	57	923	55	153	333	0	209	297	94
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Confl. Bikes (#/hr)			1			2			1			2
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases			2			6						4
Actuated Green, G (s)	8.5	62.9	72.6	4.8	59.2	70.0	9.7	22.5		10.8	23.6	32.1
Effective Green, g (s)	8.5	64.4	72.6	4.8	60.7	70.0	9.7	24.0		10.8	25.1	32.1
Actuated g/C Ratio	0.07	0.54	0.60	0.04	0.51	0.58	0.08	0.20		0.09	0.21	0.27
Clearance Time (s)	4.0	5.5	4.0	4.0	5.5	4.0	4.0	5.5		4.0	5.5	4.0
Vehicle Extension (s)	1.5	4.5	1.5	1.5	4.5	1.5	1.5	2.0		1.5	2.0	1.5
Lane Grp Cap (vph)	238	1862	927	137	1790	912	269	662		308	389	471
v/s Ratio Prot	0.03	c0.26	0.02	0.02	c0.26	0.01	0.05	c0.10		0.06	c0.16	0.01
v/s Ratio Perm			0.10			0.03						0.05
v/c Ratio	0.43	0.49	0.19	0.42	0.52	0.06	0.57	0.50		0.68	0.76	0.20
Uniform Delay, d1	53.4	17.4	10.6	56.2	19.8	10.8	53.1	42.7		52.9	44.7	34.0
Progression Factor	0.84	0.61	0.30	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.8	0.0	0.7	1.1	0.0	1.6	0.2		4.6	7.8	0.1
Delay (s)	45.0	11.5	3.2	57.0	20.9	10.8	54.8	42.9		57.5	52.5	34.1
Level of Service	D	В	Α	Е	С	В	D	D		Е	D	С
Approach Delay (s)		12.4			21.9			46.5			49.3	
Approach LOS		В			С			D			D	
Intersection Summary												
HCM 2000 Control Delay			27.3	Н	CM 2000	Level of S	Service		С			
HCM 2000 Volume to Capac	city ratio		0.60									
Actuated Cycle Length (s)			120.0			st time (s)			16.0			
Intersection Capacity Utilizat	tion		65.5%	IC	CU Level	of Service			С			
Analysis Period (min)			15									
c Critical Lane Group												

	•	→	•	•	←	•	4	†	/	/	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	^	7	ሻሻ	^	7	ሻሻ	∱ ኈ		ሻሻ		7
Traffic Volume (veh/h)	99	877	268	55	895	92	148	269	78	203	288	169
Future Volume (veh/h)	99	877	268	55	895	92	148	269	78	203	288	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1826	1826	1826	1870	1870	1870
Adj Flow Rate, veh/h	102	904	261	57	923	23	153	277	59	209	297	153
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	2	2	2	5	5	5	2	2	2
Cap, veh/h	655	1917	925	122	1345	700	218	576	121	280	385	607
Arrive On Green	0.39	1.00	1.00	0.04	0.38	0.37	0.06	0.20	0.19	0.08	0.21	0.19
Sat Flow, veh/h	3401	3497	1539	3456	3554	1562	3374	2847	596	3456	1870	1560
Grp Volume(v), veh/h	102	904	261	57	923	23	153	167	169	209	297	153
Grp Sat Flow(s),veh/h/ln	1700	1749	1539	1728	1777	1562	1687	1735	1708	1728	1870	1560
Q Serve(g_s), s	2.4	0.0	0.0	1.9	26.2	0.4	5.3	10.2	10.5	7.1	18.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	0.0	1.9	26.2	0.4	5.3	10.2	10.5	7.1	18.0	0.0
Prop In Lane	1.00	0.0	1.00	1.00	20.2	1.00	1.00	10.2	0.35	1.00	10.0	1.00
Lane Grp Cap(c), veh/h	655	1917	925	122	1345	700	218	351	345	280	385	607
V/C Ratio(X)	0.16	0.47	0.28	0.47	0.69	0.03	0.70	0.48	0.49	0.75	0.77	0.25
Avail Cap(c_a), veh/h	655	1917	925	173	1481	759	337	463	455	374	514	715
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	0.0	0.0	56.8	31.3	6.8	55.0	42.3	42.6	53.9	45.0	25.0
Incr Delay (d2), s/veh	0.0	0.7	0.6	1.0	2.9	0.1	1.5	0.4	0.4	3.5	3.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.2	0.8	11.2	0.2	2.3	4.3	4.4	3.1	8.4	2.9
Unsig. Movement Delay, s/veh		0.2	0.2	0.0	11.2	0.2	2.0	7.0	7.7	0.1	0.4	2.5
LnGrp Delay(d),s/veh	30.6	0.7	0.6	57.8	34.2	6.9	56.5	42.6	43.0	57.4	48.4	25.1
LnGrp LOS	C	Α	Α	57.0 E	C	Α	50.5 E	42.0 D	45.0 D	57. 4	D	23.1 C
Approach Vol, veh/h		1267		<u> </u>	1003		<u> </u>	489	<u> </u>	<u> </u>	659	
		3.1			34.9			47.1			45.8	
Approach LOS		Δ.										
Approach LOS		А			С			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	69.8	13.3	28.7	28.6	49.4	13.7	28.3				
Change Period (Y+Rc), s	4.0	5.5	5.5	* 5.5	5.5	* 5.5	4.0	5.5				
Max Green Setting (Gmax), s	6.0	51.5	12.0	* 32	9.0	* 49	13.0	30.5				
Max Q Clear Time (g_c+l1), s	3.9	2.0	7.3	20.0	4.4	28.2	9.1	12.5				
Green Ext Time (p_c), s	0.1	34.3	0.5	3.1	0.3	15.8	0.6	3.5				
Intersection Summary												
HCM 6th Ctrl Delay			27.0									
HCM 6th LOS			С									
Notes												

^{*} HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.1					
		14/5-		NE =	05:	055
	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		7	Ατ			^
Traffic Vol, veh/h	0	111	409	18	0	568
Future Vol, veh/h	0	111	409	18	0	568
Conflicting Peds, #/hr	1	3	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage,	# 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	13	13	18	18	17	17
Mvmt Flow	0	132	487	21	0	676
					•	0.0
		_				
	linor1		/lajor1		/lajor2	
Conflicting Flow All	-	257	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.16	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	_
Follow-up Hdwy	_	3.43	_	_	_	-
Pot Cap-1 Maneuver	0	710	_	_	0	_
Stage 1	0	-	_	_	0	_
Stage 2	0	_	_	_	0	_
Platoon blocked, %	U		_	_	U	_
Mov Cap-1 Maneuver		708	_	<u>-</u>	-	-
	-	100		-		-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	11.2		0		0	
HCM LOS	В		- 0		U	
TOW LOO						
Minor Lane/Major Mvmt		NBT	NBRV	VBLn1	SBT	
Capacity (veh/h)		-	-	708	-	
HCM Lane V/C Ratio		-	-	0.187	-	
HCM Control Delay (s)		-	_		-	
HCM Lane LOS		_	_	В	_	
HCM 95th %tile Q(veh)		_	_	0.7	_	
HOW JOHN /OHIE Q(VEII)				0.1		

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Intersection: 1: SW Cipole Road & SW Herman Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	218	166	113	24
Average Queue (ft)	75	79	56	2
95th Queue (ft)	154	134	93	14
Link Distance (ft)	404	952	1232	158
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SW Tualatin Sherwood Road & SW Cipole Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR	
Maximum Queue (ft)	186	296	324	364	547	542	41	36	202	184	
Average Queue (ft)	86	116	140	63	277	291	12	11	70	71	
95th Queue (ft)	151	237	272	213	521	534	36	33	146	139	
Link Distance (ft)		2720	2720		784	784		553		1010	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	360			265			150		175		
Storage Blk Time (%)		0			12				1	1	
Queuing Penalty (veh)		0			7				1	1	

Intersection: 3: SW 124th Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR	
Maximum Queue (ft)	55	255	89	161	78	156	173	130	241	220	
Average Queue (ft)	17	124	30	74	21	47	63	54	102	60	
95th Queue (ft)	43	214	67	134	56	116	136	102	190	155	
Link Distance (ft)		1028		978		682	682		559	559	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225		125		115			180			
Storage Blk Time (%)		1	0	1	0	1			1		
Queuing Penalty (veh)		0	0	1	0	0			2		

Intersection: 4: SW 124th Avenue & SW Myslony Street

Movement	EB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	LTR	LTR	L	T	TR	L	T	TR	
Maximum Queue (ft)	57	140	57	99	128	169	172	161	
Average Queue (ft)	8	69	14	36	55	72	58	45	
95th Queue (ft)	33	122	41	82	109	132	132	117	
Link Distance (ft)	232	1180		446	446		682	682	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			200			200			
Storage Blk Time (%)						0	0		
Queuing Penalty (veh)						0	0		

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	104	261	415	372	100	50	106	329	332	76	226	267
Average Queue (ft)	31	63	213	222	27	8	42	184	172	27	97	157
95th Queue (ft)	78	157	356	360	68	32	89	287	284	63	213	247
Link Distance (ft)			784	784				1707	1707			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250			350	385	385			385	465	465
Storage Blk Time (%)			4	1				0				
Queuing Penalty (veh)			3	1				0				

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	L	Т	R
Maximum Queue (ft)	196	197	136	279	441	81
Average Queue (ft)	88	93	57	92	198	27
95th Queue (ft)	168	184	115	214	343	61
Link Distance (ft)	662	662			708	708
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			120	120		
Storage Blk Time (%)			0	1	28	
Queuing Penalty (veh)			1	3	40	

Zone Summary

Zone wide Queuing Penalty: 61

Intersection: 1: SW Cipole Road & SW Herman Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	95	170	113	6
Average Queue (ft)	41	90	49	0
95th Queue (ft)	77	145	83	6
Link Distance (ft)	404	952	1232	158
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SW Tualatin Sherwood Road & SW Cipole Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR	
Maximum Queue (ft)	101	312	345	110	386	411	97	102	263	298	
Average Queue (ft)	43	117	147	13	120	127	41	29	146	103	
95th Queue (ft)	80	235	278	67	283	298	84	70	242	216	
Link Distance (ft)		2734	2734		784	784		553		1010	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	360			265			150		175		
Storage Blk Time (%)		0			1			0	8	1	
Queuing Penalty (veh)		0			0			0	17	2	

Intersection: 3: SW 124th Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	TR	L	TR	L	Т	TR	L	Т	TR	
Maximum Queue (ft)	212	309	225	661	124	238	266	90	176	121	
Average Queue (ft)	66	105	98	280	24	120	128	38	70	30	
95th Queue (ft)	141	217	226	578	75	209	229	74	137	85	
Link Distance (ft)		1028		978		682	682		559	559	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225		125		115			180			
Storage Blk Time (%)	1	0	1	26		9			0		
Queuing Penalty (veh)	1	0	7	31		4			0		

Intersection: 4: SW 124th Avenue & SW Myslony Street

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	T	TR	L	T	TR
Maximum Queue (ft)	61	282	162	165	122	169	146
Average Queue (ft)	21	128	67	63	43	73	56
95th Queue (ft)	51	230	134	138	92	143	121
Link Distance (ft)	232	1180	446	446		682	682
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)					200		
Storage Blk Time (%)			0			0	
Queuing Penalty (veh)			0			0	

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	L
Maximum Queue (ft)	80	142	297	291	97	26	79	355	356	68	153	176
Average Queue (ft)	23	44	157	166	38	3	18	203	196	21	27	85
95th Queue (ft)	58	79	264	276	80	15	50	315	318	51	99	149
Link Distance (ft)			784	784				2371	2371			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250			350	385	385			385	465	465
Storage Blk Time (%)			1	0				0	0			
Queuing Penalty (veh)			1	0				0	0			

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	L	Т	R
Maximum Queue (ft)	220	210	134	227	330	127
Average Queue (ft)	101	82	65	91	165	45
95th Queue (ft)	179	164	119	165	272	100
Link Distance (ft)	662	662			704	704
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			120	120		
Storage Blk Time (%)			1	4	24	
Queuing Penalty (veh)			3	11	49	

Zone Summary

Zone wide Queuing Penalty: 126

Intersection: 1: SW Cipole Road & SW Herman Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	207	188	105	30
Average Queue (ft)	76	87	53	3
95th Queue (ft)	140	148	88	18
Link Distance (ft)	404	952	1232	158
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SW Tualatin Sherwood Road & SW Cipole Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	
Directions Served	L	T	TR	L	Т	TR	L	TR	L	TR	
Maximum Queue (ft)	217	326	337	306	501	507	49	52	247	204	
Average Queue (ft)	95	136	137	50	237	240	12	16	104	83	
95th Queue (ft)	177	276	285	175	468	484	38	40	193	160	
Link Distance (ft)		1620	1620		784	784		552		1011	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	360			265			150		175		
Storage Blk Time (%)		0			10				3	1	
Queuing Penalty (veh)		0			6				4	1	

Intersection: 3: SW 124th Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	TR	L	TR	L	Т	TR	L	Т	TR	
Maximum Queue (ft)	66	214	81	175	77	145	148	116	231	148	
Average Queue (ft)	20	111	28	74	23	41	57	52	100	52	
95th Queue (ft)	49	195	62	140	60	104	118	100	183	121	
Link Distance (ft)		1028		978		682	682		559	559	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225		125		115			180			
Storage Blk Time (%)		0		2		0			1		
Queuing Penalty (veh)		0		1		0			2		

Intersection: 4: SW 124th Avenue & SW Myslony Street

Movement	EB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	LTR	LTR	L	T	TR	L	T	TR	
Maximum Queue (ft)	45	190	59	133	151	180	168	149	
Average Queue (ft)	7	69	13	37	50	76	59	42	
95th Queue (ft)	31	130	40	92	110	138	130	109	
Link Distance (ft)	232	1180		446	446		682	682	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			200			200			
Storage Blk Time (%)						0	0		
Queuing Penalty (veh)						0	0		

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	T	Т	R	L	L	Т	Т	R	L	L
Maximum Queue (ft)	158	205	428	395	89	80	128	370	368	90	253	288
Average Queue (ft)	42	68	199	211	25	10	45	222	208	42	88	149
95th Queue (ft)	105	151	356	365	66	43	99	345	331	80	207	244
Link Distance (ft)			784	784				1694	1694			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250			350	385	385			385	465	465
Storage Blk Time (%)	0	0	4	1				0	0			
Queuing Penalty (veh)	0	0	6	1				0	0			

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	L	Т	R
Maximum Queue (ft)	212	252	162	280	434	98
Average Queue (ft)	90	115	60	100	193	29
95th Queue (ft)	170	206	126	221	347	72
Link Distance (ft)	662	662			708	708
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			120	120		
Storage Blk Time (%)			2	3	25	
Queuing Penalty (veh)			4	8	36	

Intersection: 6: SW 124th Avenue

Movement	WB	NB	NB	SB
Directions Served	R	T	TR	Т
Maximum Queue (ft)	62	9	60	26
Average Queue (ft)	14	0	3	1
95th Queue (ft)	43	6	27	12
Link Distance (ft)	498	959	959	190
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 69

Intersection: 1: SW Cipole Road & SW Herman Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	92	186	102	12
Average Queue (ft)	42	92	46	1
95th Queue (ft)	75	149	76	9
Link Distance (ft)	404	952	1232	158
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (yeh)				

Intersection: 2: SW Tualatin Sherwood Road & SW Cipole Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	
Directions Served	L	Т	TR	L	T	TR	L	TR	L	TR	
Maximum Queue (ft)	110	261	285	168	382	399	98	80	271	314	
Average Queue (ft)	44	121	147	17	133	135	38	29	158	131	
95th Queue (ft)	88	225	250	89	314	317	81	61	256	250	
Link Distance (ft)		2081	2081		784	784		552		1011	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	360			265			150		175		
Storage Blk Time (%)					3			0	9	4	
Queuing Penalty (veh)					1			0	21	8	

Intersection: 3: SW 124th Avenue & SW Herman Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	TR	L	TR	L	Т	TR	L	T	TR	
Maximum Queue (ft)	150	217	225	592	184	259	269	106	164	122	
Average Queue (ft)	65	103	104	270	48	126	128	38	78	32	
95th Queue (ft)	126	190	237	516	117	227	230	81	142	92	
Link Distance (ft)		1028		978		682	682		559	559	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225		125		115			180			
Storage Blk Time (%)	0	0	1	26	0	10			0		
Queuing Penalty (veh)	0	0	7	30	1	8			0		

124th Business Park
Lancaster Mobley
SimTraffic Report
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Intersection: 4: SW 124th Avenue & SW Myslony Street

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	T	TR	L	T	TR
Maximum Queue (ft)	73	299	204	198	117	156	132
Average Queue (ft)	18	133	74	85	48	64	48
95th Queue (ft)	54	252	158	169	99	129	108
Link Distance (ft)	232	1180	446	446		682	682
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)					200		
Storage Blk Time (%)			0			0	
Queuing Penalty (veh)			0			0	

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	L	Т	T	R	L	L	Т	Т	R	L	L
Maximum Queue (ft)	83	161	307	324	110	63	133	393	379	58	141	195
Average Queue (ft)	27	49	169	179	43	10	30	205	203	25	34	93
95th Queue (ft)	64	108	281	293	84	37	96	317	321	53	109	168
Link Distance (ft)			784	784				2371	2371			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250			350	385	385			385	465	465
Storage Blk Time (%)			1	0				0	1			
Queuing Penalty (veh)			1	0				0	0			

Intersection: 5: SW 124th Avenue & SW Tualatin Sherwood Road

Movement	NB	NB	SB	SB	SB	SB
Directions Served	T	TR	L	L	Т	R
Maximum Queue (ft)	184	217	136	258	361	141
Average Queue (ft)	100	96	66	97	172	48
95th Queue (ft)	171	179	118	186	294	107
Link Distance (ft)	662	662			704	704
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			120	120		
Storage Blk Time (%)			0	2	23	
Queuing Penalty (veh)			1	6	47	

124th Business Park
Lancaster Mobley
SimTraffic Report
Page 2

Intersection: 6: SW 124th Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	TR	T	T
Maximum Queue (ft)	90	12	5	32	21
Average Queue (ft)	43	0	0	1	1
95th Queue (ft)	76	6	4	17	11
Link Distance (ft)	498	959	959	190	190
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 134

124th Business Park
Lancaster Mobley
SimTraffic Report
Page 3

124TH AVENUE BUSINESS PARK

SW 124th Ave Tualatin, Oregon 97062

STORMWATER REPORT

VLMK Project Number: 20200748

04/13/23

O4/13/23

OFFE PROFESS

51395PE

OREGON

ON M. DUBP

RENEWS: 12/31/2023

Prepared By: Malee Garcia, El Match 31, 2022



Project: 124th Avenue Business Park

Project Address: SW 124th Ave

Tualatin, Oregon 97062

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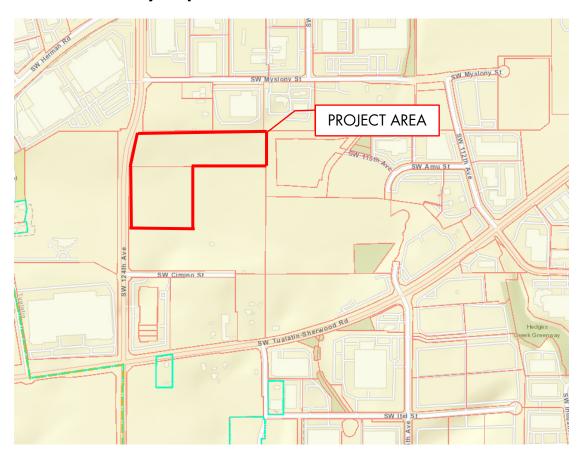
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D.	Hydromodification Analysis	7

Project Number:

20200748

I. STORMWATER REPORT

A. Site Vicinity Map



B. **Project Information**

124th Avenue Business Park is a 14.42 acre proposed development in Tualatin, Oregon. The site is zoned as General Manufacturing (GM). This development includes three buildings, Building B being owned by a tenant and Buildings A and C are shell buildings capable of multiple tenants. Building A is 70,670 sf, Building B is 76,000 sf, and Building C is 52,500 sf. The proposed development includes 2 driveway entrances; both are on the western boundary of the site accessing SW 124th Ave. Other new impervious areas on-site include trailer parking, auto parking and drive aisles and will be paved with asphalt concrete. This report describes the proposed stormwater management approach for this building.

The existing site is undeveloped comprised of trees, brush, and wetlands. The majority of the site flows to the southeast into the wetlands onsite. There is an existing ridge in the middle of the site which splits the southern portion from the northern portion. The existing wetlands were identified by Environmental Science & Assessment, LLC along the eastern boundary.

Survey information for the site is from a topographic survey provided by: <u>Weddle Surverying Inc.</u> (6950 SW Hampton St., Ste. 170, Tigard, OR 97223 (503)941-9585.

All stormwater facilities and conveyance systems for this development have been designed per the 2019 Clean Water Services Design & Construction Standards.

Additional design information was obtained from:

USDA NRCS Web Soil Survey of Washington County, Oregon

Software used in design:

- HydroCAD Stormwater Modeling Software
- Microsoft Excel
- AutoCAD Civil 3D 2020

C. Stormwater Narrative

Onsite stormwater runoff will be collected at various catch basins and roof drains located throughout the property. All stormwater runoff from pollution-generating surfaces (i.e. asphalt, roofs) will be treated on-site using Peak Diversion Stormfilter vaults manufactured by Contech.

The post development drainage areas are split into two sections between the north and south. Following treatment, stormwater from Building A will be routed to an underground detention facility consisting of (132) MC-3500 chambers manufactured by ADS and Buildings B and C will share another one consisting of (315) MC-4500 chambers. The 2-year storm will be attenuated to 50% of the pre-development flow rate. Post-development discharge rates from the 5 and 10-year storms will be reduced below pre-developed conditions as shown in the Hydro CAD report in the appendix.

Per Clean Water Services section 4.03.3, this development is classified as a Low Risk, Developed, and Large. Hydromodification will be addressed via CWS C&DS 4.03.5 (b). See the Appendix for a breakdown of this analysis.

D. Stormwater Treatment Methodology

Water Quality Treatment

The CWS water quality event used to size on-site water quality facilities is 0.36" developed over 4 hours. Please see the appendix for a WQ Basin Map delineating the treatment areas of the various treatment approaches, including sizing calculations for all treatment systems on-site.

The Stormwater Management StormFilter is an underground stormwater treatment system that utilizes rechargeable, media-filled cartridges that trap particulates and adsorb pollutants from stormwater runoff such as total suspended solids, hydrocarbons, nutrients, metals, and other common pollutants. The proposed site will utilize these filters in vaults shown on the Utility Plan.

Storm Quantity Control

Stormtech underground chambers have been proposed as a method for stormwater detention. An overflow manhole is located near the wetlands where the controlled flow will be released through a pip with a headwall. The design storms are controlled by an orifice and weir plate in the flow control manhole. The discharge from the proposed system will meet the hydromodification requirements set forth in Table 4-7 of the CWS Design and Construction Standards.

Conveyance

The proposed storm conveyance pipes will be sized to convey the peak flow from the 25-year design event (4.0") over 24 hours) as calculated using the Santa Barbara Unit Hydrograph (SBUH). The minimum time of concentration in the SBUH calculations is 5.0 minutes. A conservative Manning's coefficient (η) of 0.013 is used to size conveyance pipes. It is conservatively assumed that the entire site area is impervious for the conveyance calculations.

II. APPENDIX

A. Basin Maps



3933 S Kelly Avenue Portland, Oreçon 97239 503 222.4453 VLMK.COM

ROJECT NAME

124th AVENUE BUSINESS PARK

124th AVENUE TUALATIN, OREGON

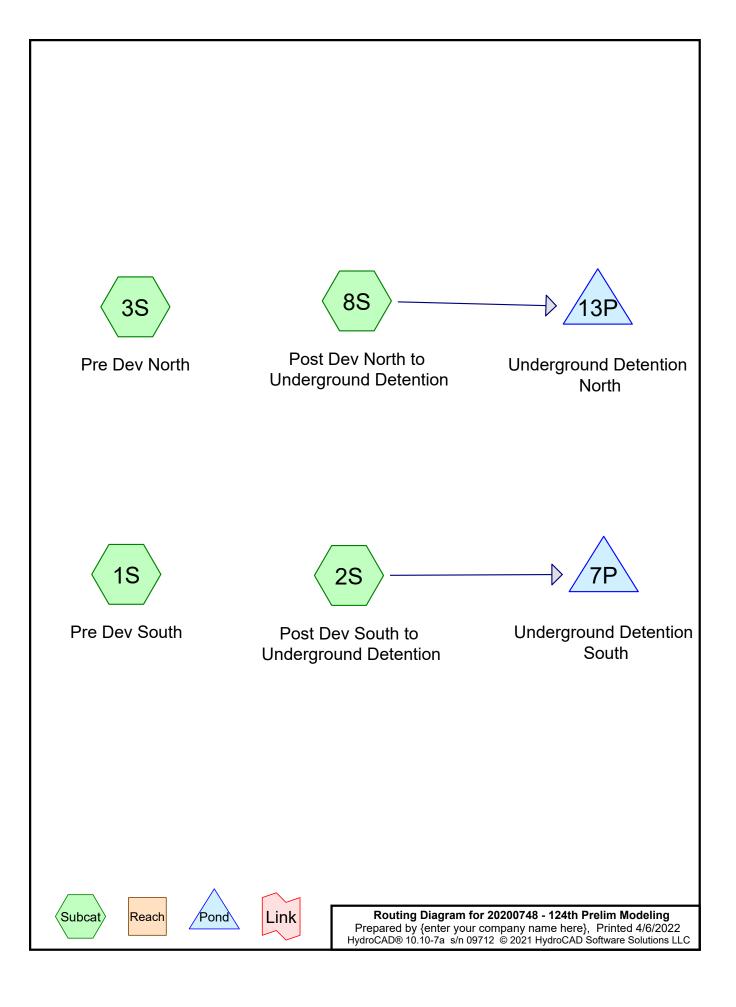


SCALE PROJ. NO. 20200748 DRAWN CHECKED	DATE DECEMBER 20	21
KAN HGK	DRAWN KAN	CHECKED HGK

POST DRAINAGE AREA MAP



B. Flow Attenuation: HydroCAD Calculations



20200748 - 124th Prelim Modeling
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Rainfall Events Listing (selected events)

Event#	Event	Storm Type	Curve	Mode	Duration	B/B	Depth	AMC
	Name				(hours)		(inches)	
1	2-year	Type IA 24-hr		Default	24.00	1	2.50	2
2	5-year	Type IA 24-hr		Default	24.00	1	3.10	2
3	10-year	Type IA 24-hr		Default	24.00	1	3.45	2
4	25-year	Type IA 24-hr		Default	24.00	1	3.90	2
5	100-year	Type IA 24-hr		Default	24.00	1	4.80	2

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Area Listing (all nodes)

Ar	ea C	N	Description
(acre	es)		(subcatchment-numbers)
12.3	04 7	5	(1S, 3S)
1.4	53 6	1	>75% Grass cover, Good, HSG B (2S, 8S)
11.0	34 9	8	Paved parking, HSG D (2S, 8S)
24.7	'91 8	4	TOTAL AREA

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Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
1.453	HSG B	2S, 8S
0.000	HSG C	
11.034	HSG D	2S, 8S
12.304	Other	1S, 3S
24.791		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	12.304	12.304		1S, 3S
0.000	1.453	0.000	0.000	0.000	1.453	>75% Grass cover, Good	2S, 8S
0.000	0.000	0.000	11.034	0.000	11.034	Paved parking	2S, 8S
0.000	1.453	0.000	11.034	12.304	24.791	TOTAL AREA	

20200748 - 124th Prelim Modeling

Type IA 24-hr 2-year Rainfall=2.50"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Pre Dev South Runoff Area=224,197 sf 0.00% Impervious Runoff Depth>0.64"

Flow Length=568' Tc=15.0 min CN=75/0 Runoff=0.41 cfs 0.276 af

Subcatchment2S: Post Dev South to Runoff Area=187,903 sf 88.45% Impervious Runoff Depth>2.03"

Tc=5.0 min CN=61/98 Runoff=2.20 cfs 0.729 af

Subcatchment3S: Pre Dev North Runoff Area=311,751 sf 0.00% Impervious Runoff Depth>0.64"

Flow Length=1,313' Tc=25.9 min CN=75/0 Runoff=0.46 cfs 0.381 af

Subcatchment8S: Post Dev North to Runoff Area=356,028 sf 88.31% Impervious Runoff Depth>2.02"

Tc=5.0 min CN=61/98 Runoff=4.16 cfs 1.379 af

Pond 7P: Underground Detention South Peak Elev=3.71' Storage=0.441 af Inflow=2.20 cfs 0.729 af

Outflow=0.20 cfs 0.288 af

Pond 13P: Underground Detention North Peak Elev=4.66' Storage=1.071 af Inflow=4.16 cfs 1.379 af

Outflow=0.22 cfs 0.308 af

Total Runoff Area = 24.791 ac Runoff Volume = 2.765 af Average Runoff Depth = 1.34" 55.49% Pervious = 13.757 ac 44.51% Impervious = 11.034 ac

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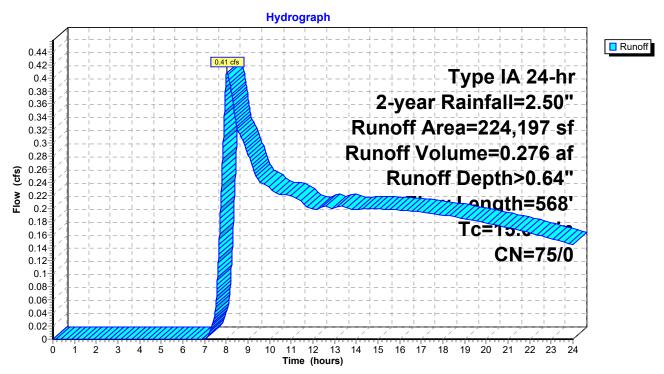
Summary for Subcatchment 1S: Pre Dev South

Runoff = 0.41 cfs @ 8.01 hrs, Volume= 0.276 af, Depth> 0.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 2-year Rainfall=2.50"

_	Α	rea (sf)	CN [Description		
*	2	24,197	75			
_	2	24,197	75 1	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	11.2	100	0.1400	0.15	,	Sheet Flow,
	3.8	468	0.0160	2.04		Woods: Light underbrush n= 0.400 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	15.0	568	Total			

Subcatchment 1S: Pre Dev South



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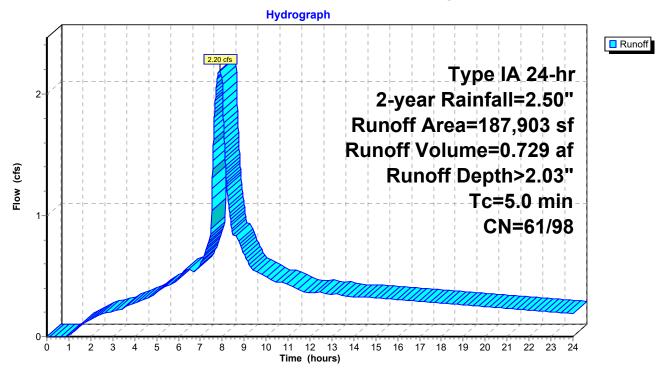
Summary for Subcatchment 2S: Post Dev South to Underground Detention

Runoff = 2.20 cfs @ 7.88 hrs, Volume= 0.729 af, Depth> 2.03" Routed to Pond 7P : Underground Detention South

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 2-year Rainfall=2.50"

Area (sf)	CN	Description	Description			
166,209	98	Paved park	ing, HSG D	D		
21,694	61	>75% Grass cover, Good, HSG B				
187,903 94 Weighted Average			verage			
21,694	11.55% Per	11.55% Pervious Area				
166,209	98	88.45% Impervious Area				
	0.1			D 1.0		
Tc Length		,	Capacity	·		
(min) (feet)) (ft/1	ft) (ft/sec)	(cfs)			
5.0				Direct Entry,		

Subcatchment 2S: Post Dev South to Underground Detention



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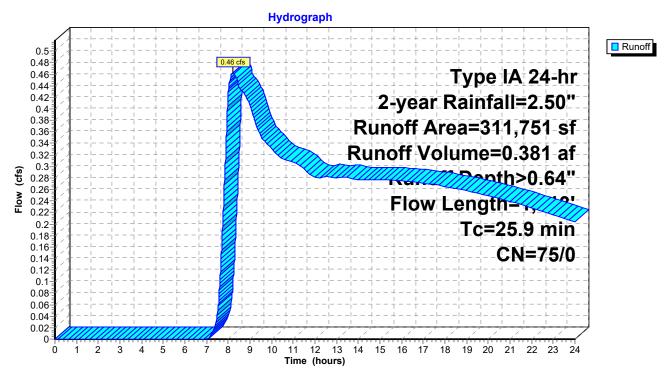
Summary for Subcatchment 3S: Pre Dev North

Runoff = 0.46 cfs @ 8.22 hrs, Volume= 0.381 af, Depth> 0.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 2-year Rainfall=2.50"

_	Aı	rea (sf)	CN [Description		
*	3	11,751	75			
	3	11,751	75 ´	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description
	14.8	100	0.0250	0.11	,	Sheet Flow,
	11.1	1,213	0.0127	1.81		Grass: Dense n= 0.240 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	25.9	1 313	Total			

Subcatchment 3S: Pre Dev North



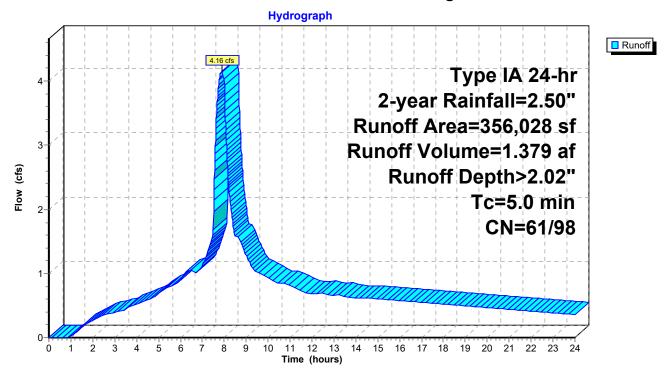
Summary for Subcatchment 8S: Post Dev North to Underground Detention

Runoff = 4.16 cfs @ 7.88 hrs, Volume= 1.379 af, Depth> 2.02" Routed to Pond 13P : Underground Detention North

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 2-year Rainfall=2.50"

_	Area (sf)	CN	Description			
	314,416	98	Paved parking, HSG D			
	41,612	61	>75% Grass cover, Good, HSG B			
356,028 94 Weighted Average			Weighted Average			
	41,612	61	11.69% Pervious Area			
314,416		98	88.31% Impervious Area			
	Tc Length	Slop	•			
_	(min) (feet)	(ft/	/ft) (ft/sec) (cfs)	_		
	5.0		Direct Entry,			

Subcatchment 8S: Post Dev North to Underground Detention



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Inflow Area = 4.314 ac, 88.45% Impervious, Inflow Depth > 2.03" for 2-year event

Inflow = 2.20 cfs @ 7.88 hrs, Volume= 0.729 af

Outflow = 0.20 cfs @ 23.20 hrs, Volume= 0.288 af, Atten= 91%, Lag= 919.0 min

Summary for Pond 7P: Underground Detention South

Primary = 0.20 cfs @ 23.20 hrs, Volume= 0.288 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 3.71' @ 23.20 hrs Surf.Area= 0.169 ac Storage= 0.441 af

Plug-Flow detention time= 511.0 min calculated for 0.288 af (39% of inflow)

Center-of-Mass det. time= 213.0 min (888.5 - 675.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.236 af	87.25'W x 84.57'L x 5.50'H Field A
			0.932 af Overall - 0.341 af Embedded = 0.590 af x 40.0% Voids
#2A	0.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 132 Inside #1
			Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
			Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
			132 Chambers in 12 Rows
			Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf
		0 E70 of	Total Available Ctarage

0.578 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	5.25'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.20 cfs @ 23.20 hrs HW=3.71' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.20 cfs @ 9.17 fps)

—2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

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Pond 7P: Underground Detention South - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

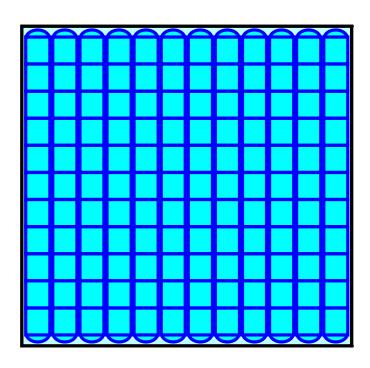
12 Rows x 77.0" Wide + 9.0" Spacing x 11 + 12.0" Side Stone x 2 = 87.25' Base Width 9.0" Stone Base + 45.0" Chamber Height + 12.0" Stone Cover = 5.50' Field Height

132 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 12 Rows = 14,871.3 cf Chamber Storage

40,583.0 cf Field - 14,871.3 cf Chambers = 25,711.8 cf Stone x 40.0% Voids = 10,284.7 cf Stone Storage

Chamber Storage + Stone Storage = 25,156.0 cf = 0.578 af Overall Storage Efficiency = 62.0% Overall System Size = 84.57' x 87.25' x 5.50'

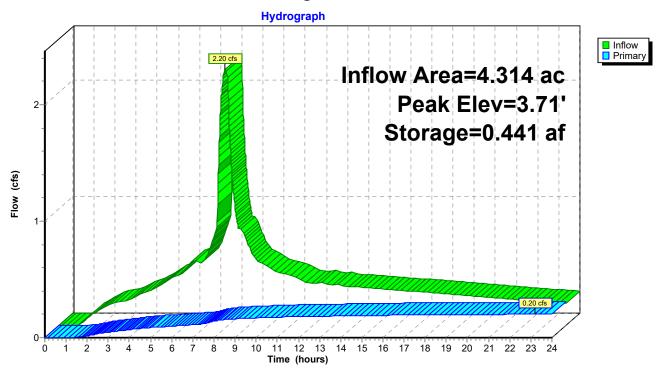
132 Chambers 1,503.1 cy Field 952.3 cy Stone





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Pond 7P: Underground Detention South



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Summary for Pond 13P: Underground Detention North

Inflow Area = 8.173 ac, 88.31% Impervious, Inflow Depth > 2.02" for 2-year event

Inflow = 4.16 cfs @ 7.88 hrs, Volume= 1.379 af

Outflow = 0.22 cfs @ 24.00 hrs, Volume= 0.308 af, Atten= 95%, Lag= 967.2 min

Primary = 0.22 cfs @ 24.00 hrs, Volume= 0.308 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 4.66' @ 24.00 hrs Surf.Area= 0.316 ac Storage= 1.071 af

Plug-Flow detention time= 589.0 min calculated for 0.308 af (22% of inflow)

Center-of-Mass det. time= 220.7 min (896.2 - 675.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.504 af	137.50'W x 100.04'L x 6.75'H Field A
			2.132 af Overall - 0.871 af Embedded = 1.261 af x 40.0% Voids
#2A	0.75'	0.871 af	ADS_StormTech MC-4500 b +Capx 345 Inside #1
			Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
			Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
			345 Chambers in 15 Rows
			Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf
		4.0== 5	

1.375 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads	
#2	Primary	6.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)	

Primary OutFlow Max=0.22 cfs @ 24.00 hrs HW=4.66' (Free Discharge)

-1=Orifice/Grate (Orifice Controls 0.22 cfs @ 10.30 fps)

—2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

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Pond 13P: Underground Detention North - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

23 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 98.04' Row Length +12.0" End Stone x 2 = 100.04' Base Length

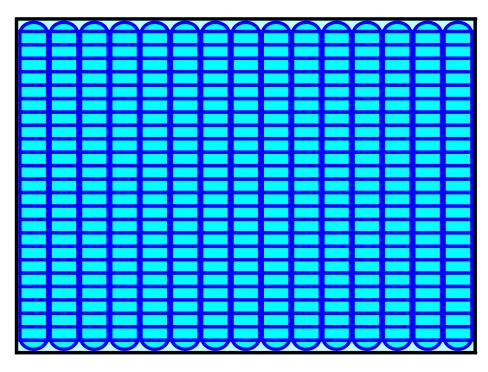
15 Rows x 100.0" Wide + 9.0" Spacing x 14 + 12.0" Side Stone x 2 = 137.50' Base Width 9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

345 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 15 Rows = 37,924.2 cf Chamber Storage

92,851.2 cf Field - 37,924.2 cf Chambers = 54,927.0 cf Stone x 40.0% Voids = 21,970.8 cf Stone Storage

Chamber Storage + Stone Storage = 59,895.0 cf = 1.375 af Overall Storage Efficiency = 64.5% Overall System Size = 100.04' x 137.50' x 6.75'

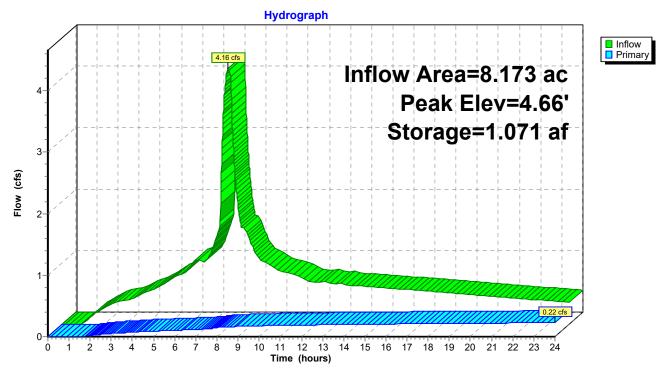
345 Chambers 3,438.9 cy Field 2,034.3 cy Stone





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Pond 13P: Underground Detention North



20200748 - 124th Prelim Modeling

Type IA 24-hr 5-year Rainfall=3.10"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Pre Dev South Runoff Area=224,197 sf 0.00% Impervious Runoff Depth>1.02"

Flow Length=568' Tc=15.0 min CN=75/0 Runoff=0.83 cfs 0.436 af

Subcatchment2S: Post Dev South to Runoff Area=187,903 sf 88.45% Impervious Runoff Depth>2.58"

Tc=5.0 min CN=61/98 Runoff=2.76 cfs 0.927 af

Subcatchment3S: Pre Dev North Runoff Area=311,751 sf 0.00% Impervious Runoff Depth>1.01"

Flow Length=1,313' Tc=25.9 min CN=75/0 Runoff=0.94 cfs 0.602 af

Subcatchment8S: Post Dev North to Runoff Area=356,028 sf 88.31% Impervious Runoff Depth>2.58"

Tc=5.0 min CN=61/98 Runoff=5.22 cfs 1.754 af

Pond 7P: Underground Detention South Peak Elev=5.28' Storage=0.563 af Inflow=2.76 cfs 0.927 af

Outflow=0.33 cfs 0.366 af

Pond 13P: Underground Detention North Peak Elev=6.57' Storage=1.352 af Inflow=5.22 cfs 1.754 af

Outflow=0.50 cfs 0.403 af

Total Runoff Area = 24.791 ac Runoff Volume = 3.719 af Average Runoff Depth = 1.80" 55.49% Pervious = 13.757 ac 44.51% Impervious = 11.034 ac

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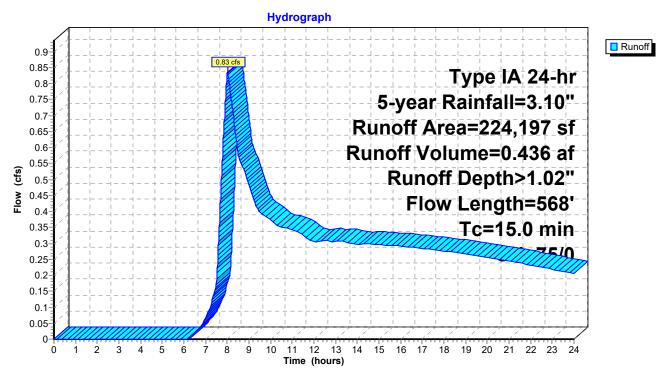
Summary for Subcatchment 1S: Pre Dev South

Runoff = 0.83 cfs @ 8.01 hrs, Volume= 0.436 af, Depth> 1.02"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 5-year Rainfall=3.10"

_	Α	rea (sf)	CN E	Description		
7	. 2	24,197	75			
_	224,197 75 100.00% Pervious Are			00.00% Pe	ervious Are	ea
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	11.2	100	0.1400	0.15		Sheet Flow,
	3.8	468	0.0160	2.04		Woods: Light underbrush n= 0.400 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	15.0	568	Total			

Subcatchment 1S: Pre Dev South



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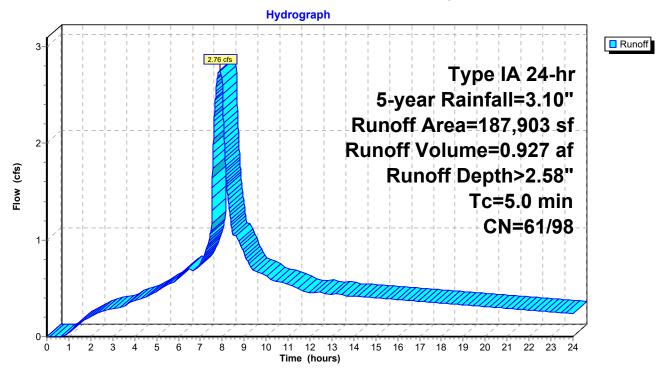
Summary for Subcatchment 2S: Post Dev South to Underground Detention

Runoff = 2.76 cfs @ 7.88 hrs, Volume= 0.927 af, Depth> 2.58" Routed to Pond 7P : Underground Detention South

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 5-year Rainfall=3.10"

_	Area (sf)	CN	Description				
166,209 98 Paved pa			Paved parking, HSG D				
			>75% Grass cover, Good, HSG B				
_	187,903	94	Weighted Average				
	21,694	61	11.55% Pervious Area				
166,209		98	88.45% Impervious Area				
	Tc Length	Slo					
_	(min) (feet)	(ft/	ft) (ft/sec) (cfs)				
	5.0		Direct Entry,				

Subcatchment 2S: Post Dev South to Underground Detention



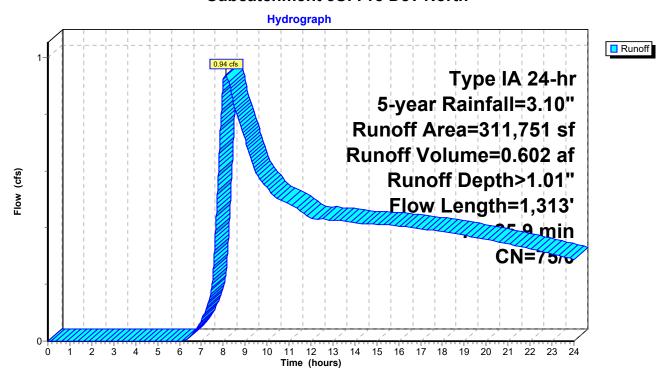
Summary for Subcatchment 3S: Pre Dev North

Runoff = 0.94 cfs @ 8.10 hrs, Volume= 0.602 af, Depth> 1.01"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 5-year Rainfall=3.10"

_	Aı	rea (sf)	CN [Description		
*	3	11,751	75			
	3	11,751	75 ´	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description
	14.8	100	0.0250	0.11	,	Sheet Flow,
	11.1	1,213	0.0127	1.81		Grass: Dense n= 0.240 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	25.9	1 313	Total			

Subcatchment 3S: Pre Dev North



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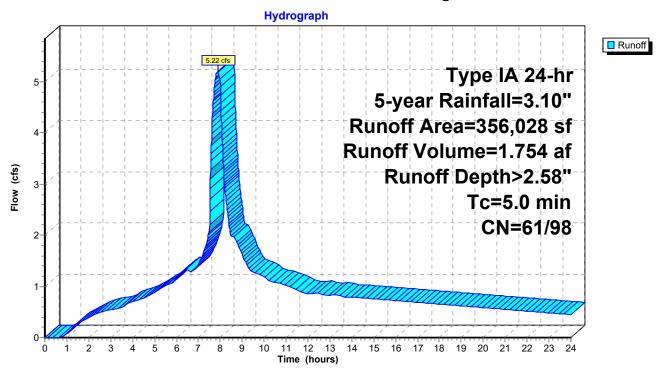
Summary for Subcatchment 8S: Post Dev North to Underground Detention

Runoff = 5.22 cfs @ 7.88 hrs, Volume= 1.754 af, Depth> 2.58" Routed to Pond 13P : Underground Detention North

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 5-year Rainfall=3.10"

_	Area (sf)	CN	Description				
314,416 98 Paved parkir			Paved parking, HSG D				
			>75% Grass cover, Good, HSG B				
	356,028	94	Weighted Average				
	41,612	61	11.69% Pervious Area				
314,416		98	88.31% Impervious Area				
	Tc Length	Slop	•				
_	(min) (feet)	(ft/	/ft) (ft/sec) (cfs)	_			
	5.0		Direct Entry,				

Subcatchment 8S: Post Dev North to Underground Detention



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Summary for Pond 7P: Underground Detention South

Inflow Area = 4.314 ac, 88.45% Impervious, Inflow Depth > 2.58" for 5-year event

Inflow = 2.76 cfs @ 7.88 hrs, Volume= 0.927 af

Outflow = 0.33 cfs @ 18.92 hrs, Volume= 0.366 af, Atten= 88%, Lag= 662.4 min

Primary = 0.33 cfs @ 18.92 hrs, Volume= 0.366 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 5.28' @ 18.92 hrs Surf.Area= 0.169 ac Storage= 0.563 af

Plug-Flow detention time= 544.2 min calculated for 0.366 af (40% of inflow)

Center-of-Mass det. time= 244.5 min (915.0 - 670.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.236 af	87.25'W x 84.57'L x 5.50'H Field A
			0.932 af Overall - 0.341 af Embedded = 0.590 af x 40.0% Voids
#2A	0.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 132 Inside #1
			Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
			Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
			132 Chambers in 12 Rows
			Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf
		0 E70 of	Total Available Ctarage

0.578 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	5.25'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.32 cfs @ 18.92 hrs HW=5.28' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.24 cfs @ 10.98 fps)

-2=Sharp-Crested Rectangular Weir (Weir Controls 0.09 cfs @ 0.61 fps)

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Pond 7P: Underground Detention South - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

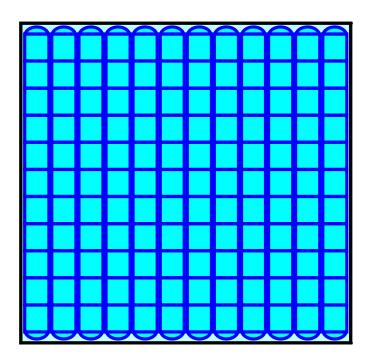
12 Rows x 77.0" Wide + 9.0" Spacing x 11 + 12.0" Side Stone x 2 = 87.25' Base Width 9.0" Stone Base + 45.0" Chamber Height + 12.0" Stone Cover = 5.50' Field Height

132 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 12 Rows = 14,871.3 cf Chamber Storage

40,583.0 cf Field - 14,871.3 cf Chambers = 25,711.8 cf Stone x 40.0% Voids = 10,284.7 cf Stone Storage

Chamber Storage + Stone Storage = 25,156.0 cf = 0.578 af Overall Storage Efficiency = 62.0% Overall System Size = 84.57' x 87.25' x 5.50'

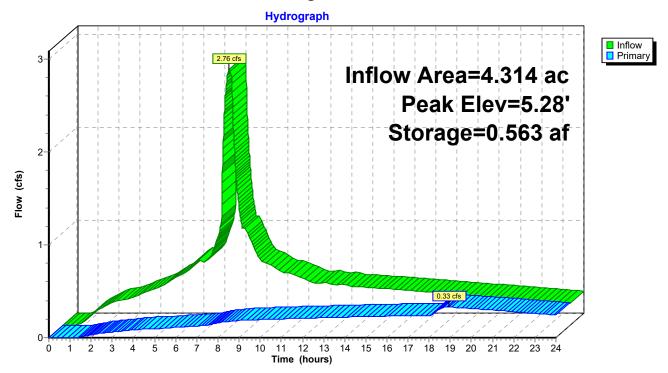
132 Chambers 1,503.1 cy Field 952.3 cy Stone





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Pond 7P: Underground Detention South



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Summary for Pond 13P: Underground Detention North

Inflow Area = 8.173 ac, 88.31% Impervious, Inflow Depth > 2.58" for 5-year event

Inflow = 5.22 cfs @ 7.88 hrs, Volume= 1.754 af

Outflow = 0.50 cfs @ 22.43 hrs, Volume= 0.403 af, Atten= 90%, Lag= 873.3 min

Primary = 0.50 cfs @ 22.43 hrs, Volume= 0.403 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 6.57' @ 22.43 hrs Surf.Area= 0.316 ac Storage= 1.352 af

Plug-Flow detention time= 649.5 min calculated for 0.403 af (23% of inflow)

Center-of-Mass det. time= 279.9 min (950.4 - 670.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.504 af	137.50'W x 100.04'L x 6.75'H Field A
			2.132 af Overall - 0.871 af Embedded = 1.261 af x 40.0% Voids
#2A	0.75'	0.871 af	ADS_StormTech MC-4500 b +Capx 345 Inside #1
			Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
			Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
			345 Chambers in 15 Rows
			Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf
•			

1.375 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.49 cfs @ 22.43 hrs HW=6.57' (Free Discharge)

-1=Orifice/Grate (Orifice Controls 0.27 cfs @ 12.26 fps)

—2=Sharp-Crested Rectangular Weir (Weir Controls 0.22 cfs @ 0.84 fps)

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Pond 13P: Underground Detention North - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

23 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 98.04' Row Length +12.0" End Stone x 2 = 100.04' Base Length

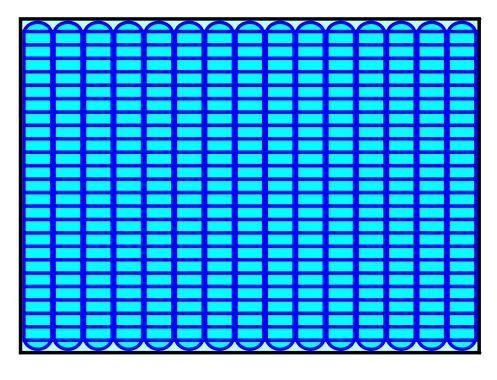
15 Rows x 100.0" Wide + 9.0" Spacing x 14 + 12.0" Side Stone x 2 = 137.50' Base Width 9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

345 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 15 Rows = 37,924.2 cf Chamber Storage

92,851.2 cf Field - 37,924.2 cf Chambers = 54,927.0 cf Stone x 40.0% Voids = 21,970.8 cf Stone Storage

Chamber Storage + Stone Storage = 59,895.0 cf = 1.375 af Overall Storage Efficiency = 64.5% Overall System Size = 100.04' x 137.50' x 6.75'

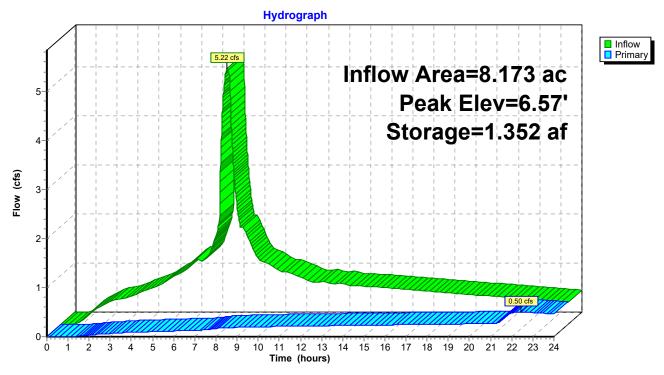
345 Chambers 3,438.9 cy Field 2,034.3 cy Stone





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Pond 13P: Underground Detention North



20200748 - 124th Prelim Modeling

Type IA 24-hr 10-year Rainfall=3.45"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Pre Dev South Runoff Area=224,197 sf 0.00% Impervious Runoff Depth>1.25"

Flow Length=568' Tc=15.0 min CN=75/0 Runoff=1.11 cfs 0.538 af

Subcatchment2S: Post Dev South to Runoff Area=187,903 sf 88.45% Impervious Runoff Depth>2.90"

Tc=5.0 min CN=61/98 Runoff=3.09 cfs 1.044 af

Subcatchment3S: Pre Dev North

Runoff Area=311,751 sf 0.00% Impervious Runoff Depth>1.25"

Flow Length=1,313' Tc=25.9 min CN=75/0 Runoff=1.26 cfs 0.743 af

Subcatchment8S: Post Dev North to Runoff Area=356,028 sf 88.31% Impervious Runoff Depth>2.90"

Tc=5.0 min CN=61/98 Runoff=5.84 cfs 1.975 af

Pond 7P: Underground Detention South Peak Elev=5.32' Storage=0.565 af Inflow=3.09 cfs 1.044 af

Outflow=0.47 cfs 0.482 af

Pond 13P: Underground Detention North Peak Elev=6.61' Storage=1.358 af Inflow=5.84 cfs 1.975 af

Outflow=0.76 cfs 0.623 af

Total Runoff Area = 24.791 ac Runoff Volume = 4.300 af Average Runoff Depth = 2.08" 55.49% Pervious = 13.757 ac 44.51% Impervious = 11.034 ac

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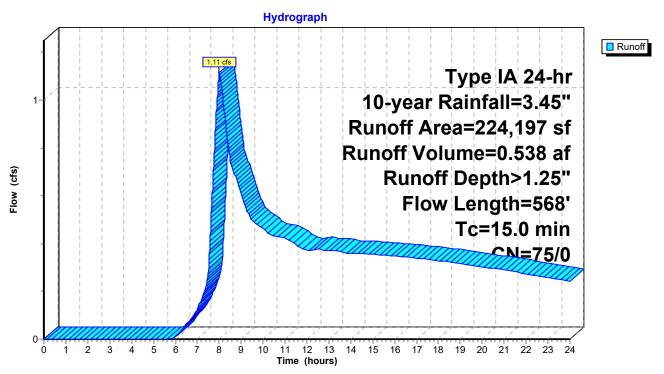
Summary for Subcatchment 1S: Pre Dev South

Runoff = 1.11 cfs @ 8.01 hrs, Volume= 0.538 af, Depth> 1.25"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 10-year Rainfall=3.45"

_	Α	rea (sf)	CN E	Description		
7	. 2	24,197	75			
_	2	24,197	75 1	00.00% Pe	ervious Are	ea
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	11.2	100	0.1400	0.15		Sheet Flow,
	3.8	468	0.0160	2.04		Woods: Light underbrush n= 0.400 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	15.0	568	Total			

Subcatchment 1S: Pre Dev South



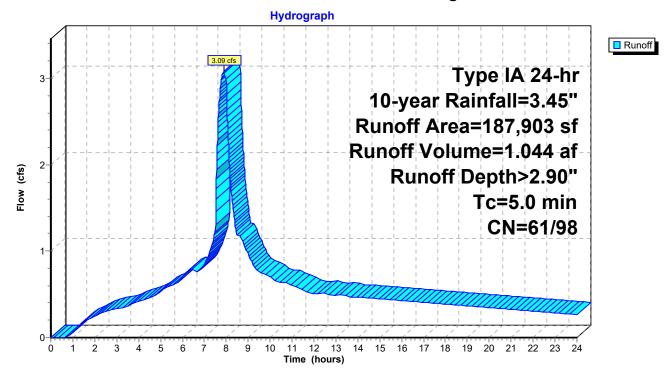
Summary for Subcatchment 2S: Post Dev South to Underground Detention

Runoff = 3.09 cfs @ 7.88 hrs, Volume= 1.044 af, Depth> 2.90" Routed to Pond 7P : Underground Detention South

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 10-year Rainfall=3.45"

Area (sf)	CN	Description	Description				
166,209	98	Paved parki	Paved parking, HSG D				
21,694	61	61 >75% Grass cover, Good, HSG B					
187,903	187,903 94 Weighted Average						
21,694	61	11.55% Pervious Area					
166,209	98	98 88.45% Impervious Area					
Tc Length (min) (feet)		,	Capacity (cfs)	•			
5.0	(-, (: :: 0 0 0)	(0.0)	Direct Entry.			

Subcatchment 2S: Post Dev South to Underground Detention



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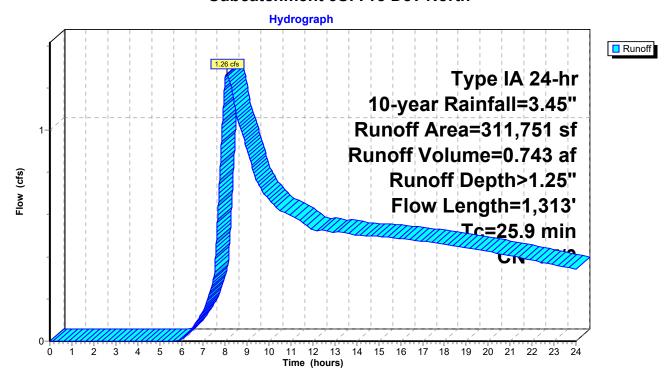
Summary for Subcatchment 3S: Pre Dev North

Runoff = 1.26 cfs @ 8.07 hrs, Volume= 0.743 af, Depth> 1.25"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 10-year Rainfall=3.45"

_	Α	rea (sf)	CN E	Description		
*	3	311,751	75			
	3	311,751	75 1	00.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	14.8	100	0.0250	0.11	, ,	Sheet Flow,
_	11.1	1,213	0.0127	1.81		Grass: Dense n= 0.240 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	25.9	1,313	Total			

Subcatchment 3S: Pre Dev North



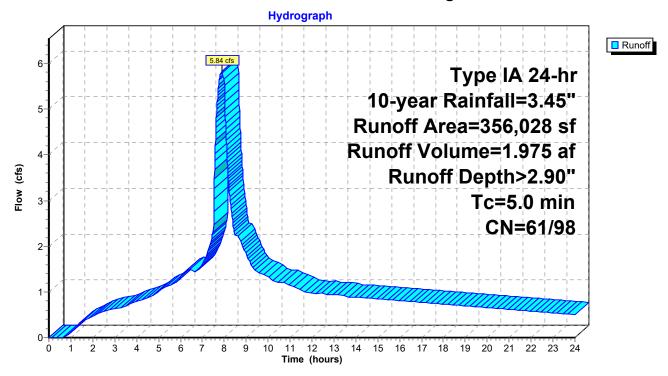
Summary for Subcatchment 8S: Post Dev North to Underground Detention

Runoff = 5.84 cfs @ 7.88 hrs, Volume= 1.975 af, Depth> 2.90" Routed to Pond 13P : Underground Detention North

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 10-year Rainfall=3.45"

_	Area (sf)	CN	Description				
314,416 98 Paved parkir			Paved parking, HSG D				
			>75% Grass cover, Good, HSG B				
	356,028	94	Weighted Average				
	41,612	61	11.69% Pervious Area				
314,416		98	88.31% Impervious Area				
	Tc Length	Slop	•				
_	(min) (feet)	(ft/	/ft) (ft/sec) (cfs)	_			
	5.0		Direct Entry,				

Subcatchment 8S: Post Dev North to Underground Detention



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Type IA 24-hr 10-year Rainfall=3.45"

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Summary for Pond 7P: Underground Detention South

Inflow Area = 4.314 ac, 88.45% Impervious, Inflow Depth > 2.90" for 10-year event

Inflow = 3.09 cfs @ 7.88 hrs, Volume= 1.044 af

Outflow = 0.47 cfs @ 13.64 hrs, Volume= 0.482 af, Atten= 85%, Lag= 345.4 min

Primary = 0.47 cfs @ 13.64 hrs, Volume= 0.482 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 5.32' @ 13.64 hrs Surf.Area= 0.169 ac Storage= 0.565 af

Plug-Flow detention time= 532.1 min calculated for 0.482 af (46% of inflow)

Center-of-Mass det. time= 252.4 min (920.6 - 668.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.236 af	87.25'W x 84.57'L x 5.50'H Field A
			0.932 af Overall - 0.341 af Embedded = 0.590 af x 40.0% Voids
#2A	0.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 132 Inside #1
			Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
			Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
			132 Chambers in 12 Rows
			Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf
		0 E70 of	Total Available Ctarana

0.578 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	5.25'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.46 cfs @ 13.64 hrs HW=5.32' (Free Discharge)

-1=Orifice/Grate (Orifice Controls 0.24 cfs @ 11.01 fps)

—2=Sharp-Crested Rectangular Weir (Weir Controls 0.22 cfs @ 0.84 fps)

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Pond 7P: Underground Detention South - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

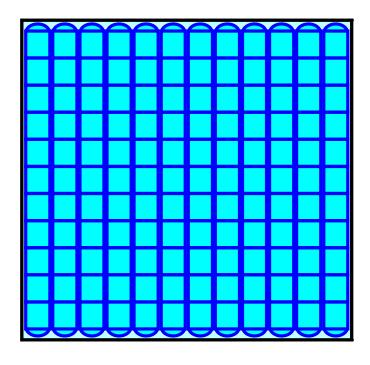
12 Rows x 77.0" Wide + 9.0" Spacing x 11 + 12.0" Side Stone x 2 = 87.25' Base Width 9.0" Stone Base + 45.0" Chamber Height + 12.0" Stone Cover = 5.50' Field Height

132 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 12 Rows = 14,871.3 cf Chamber Storage

40,583.0 cf Field - 14,871.3 cf Chambers = 25,711.8 cf Stone x 40.0% Voids = 10,284.7 cf Stone Storage

Chamber Storage + Stone Storage = 25,156.0 cf = 0.578 af Overall Storage Efficiency = 62.0% Overall System Size = 84.57' x 87.25' x 5.50'

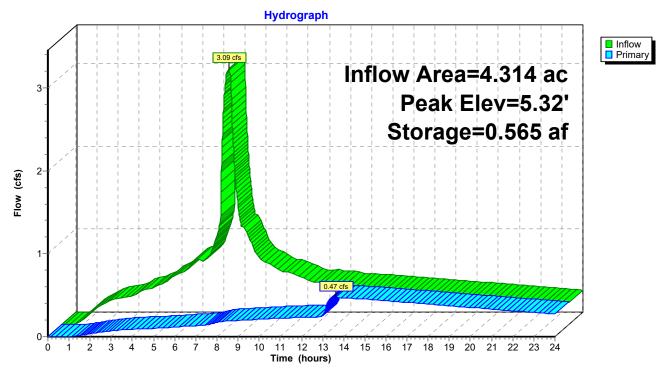
132 Chambers 1,503.1 cy Field 952.3 cy Stone





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Pond 7P: Underground Detention South



20200748 - 124th Prelim Modeling

Type IA 24-hr 10-year Rainfall=3.45"

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Summary for Pond 13P: Underground Detention North

Inflow Area = 8.173 ac, 88.31% Impervious, Inflow Depth > 2.90" for 10-year event

Inflow = 5.84 cfs @ 7.88 hrs, Volume= 1.975 af

Outflow = 0.76 cfs @ 17.36 hrs, Volume= 0.623 af, Atten= 87%, Lag= 568.4 min

Primary = 0.76 cfs @ 17.36 hrs, Volume= 0.623 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 6.61' @ 17.36 hrs Surf.Area= 0.316 ac Storage= 1.358 af

Plug-Flow detention time= 667.7 min calculated for 0.623 af (32% of inflow)

Center-of-Mass det. time= 339.0 min (1,007.3 - 668.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.504 af	137.50'W x 100.04'L x 6.75'H Field A
			2.132 af Overall - 0.871 af Embedded = 1.261 af x 40.0% Voids
#2A	0.75'	0.871 af	ADS_StormTech MC-4500 b +Capx 345 Inside #1
			Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
			Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
			345 Chambers in 15 Rows
			Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf
		4 27E of	Total Available Ctarage

1.375 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads	
#2	Primary	6.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)	

Primary OutFlow Max=0.76 cfs @ 17.36 hrs HW=6.61' (Free Discharge)

-1=Orifice/Grate (Orifice Controls 0.27 cfs @ 12.30 fps)

-2=Sharp-Crested Rectangular Weir (Weir Controls 0.49 cfs @ 1.10 fps)

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Pond 13P: Underground Detention North - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

23 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 98.04' Row Length +12.0" End Stone x 2 = 100.04' Base Length

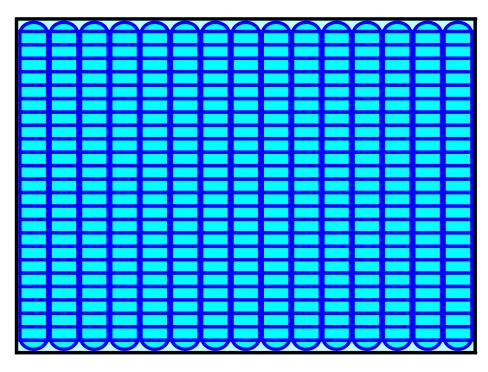
15 Rows x 100.0" Wide + 9.0" Spacing x 14 + 12.0" Side Stone x 2 = 137.50' Base Width 9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

345 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 15 Rows = 37,924.2 cf Chamber Storage

92,851.2 cf Field - 37,924.2 cf Chambers = 54,927.0 cf Stone x 40.0% Voids = 21,970.8 cf Stone Storage

Chamber Storage + Stone Storage = 59,895.0 cf = 1.375 af Overall Storage Efficiency = 64.5% Overall System Size = 100.04' x 137.50' x 6.75'

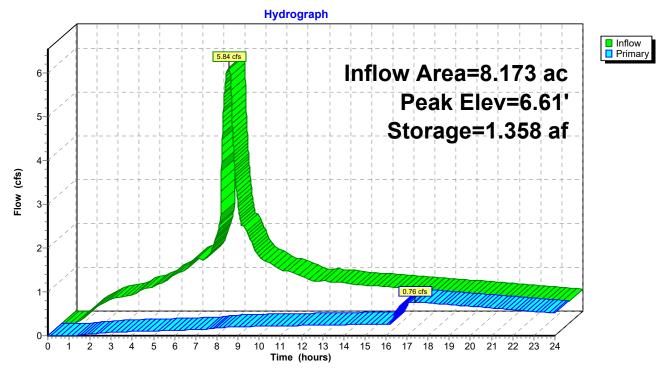
345 Chambers 3,438.9 cy Field 2,034.3 cy Stone





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Pond 13P: Underground Detention North



20200748 - 124th Prelim Modeling

Type IA 24-hr 25-year Rainfall=3.90"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Pre Dev South Runoff Area=224,197 sf 0.00% Impervious Runoff Depth>1.58"

Flow Length=568' Tc=15.0 min CN=75/0 Runoff=1.50 cfs 0.677 af

Subcatchment2S: Post Dev South to Runoff Area=187,903 sf 88.45% Impervious Runoff Depth>3.32"

Tc=5.0 min CN=61/98 Runoff=3.52 cfs 1.195 af

Subcatchment3S: Pre Dev North

Runoff Area=311,751 sf 0.00% Impervious Runoff Depth>1.57"

Runoff Area=311,751 sf 0.00% Impervious Runoff Depth>1.57"

Flow Length=1,313' Tc=25.9 min CN=75/0 Runoff=1.71 cfs 0.935 af

Subcatchment8S: Post Dev North to Runoff Area=356,028 sf 88.31% Impervious Runoff Depth>3.32"

Tc=5.0 min CN=61/98 Runoff=6.67 cfs 2.261 af

Pond 7P: Underground Detention South Peak Elev=5.36' Storage=0.568 af Inflow=3.52 cfs 1.195 af

Outflow=0.72 cfs 0.632 af

Pond 13P: Underground Detention North Peak Elev=6.65' Storage=1.362 af Inflow=6.67 cfs 2.261 af

Outflow=1.03 cfs 0.908 af

Total Runoff Area = 24.791 ac Runoff Volume = 5.068 af Average Runoff Depth = 2.45" 55.49% Pervious = 13.757 ac 44.51% Impervious = 11.034 ac

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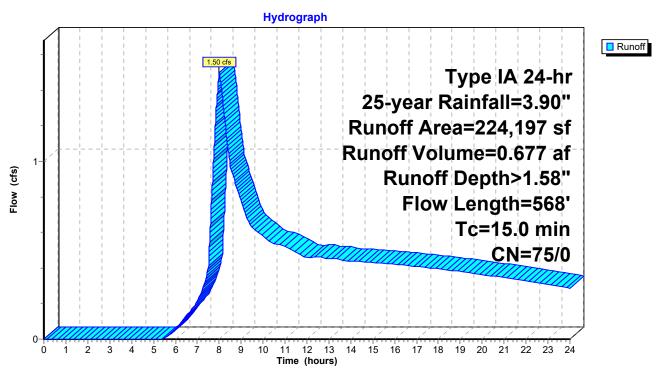
Summary for Subcatchment 1S: Pre Dev South

Runoff = 1.50 cfs @ 8.01 hrs, Volume= 0.677 af, Depth> 1.58"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 25-year Rainfall=3.90"

_	Α	rea (sf)	CN [Description		
*	2	24,197	75			
_	2	24,197	75 1	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
-	11.2	100	0.1400	0.15	, ,	Sheet Flow,
	3.8	468	0.0160	2.04		Woods: Light underbrush n= 0.400 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	15.0	568	Total			

Subcatchment 1S: Pre Dev South



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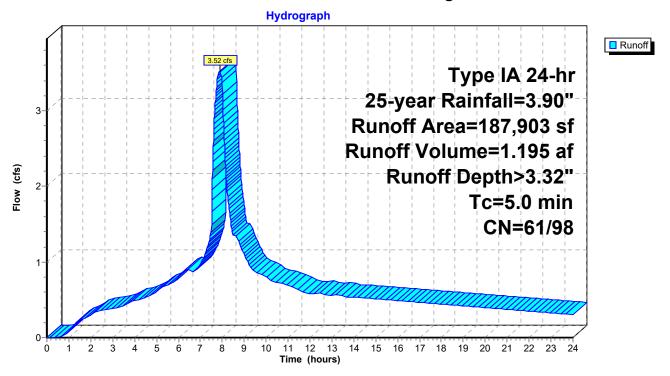
Summary for Subcatchment 2S: Post Dev South to Underground Detention

Runoff = 3.52 cfs @ 7.88 hrs, Volume= 1.195 af, Depth> 3.32" Routed to Pond 7P : Underground Detention South

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 25-year Rainfall=3.90"

	Area (sf)	CN	Description				
	166,209	98	Paved parki	ng, HSG D	D		
	21,694	61	>75% Grass	s cover, Go	Good, HSG B		
	187,903	94 Weighted Average					
21,694 61 11.55% Pervious Area					a		
	166,209	98	88.45% Imp	rea			
	Tc Length	Slop	pe Velocity	Capacity	Description		
	(min) (feet)	(ft/	ft) (ft/sec)	(cfs)			
	5.0		·		Direct Entry.		

Subcatchment 2S: Post Dev South to Underground Detention



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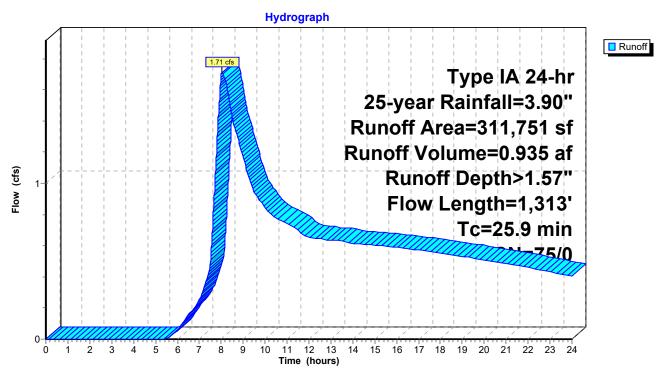
Summary for Subcatchment 3S: Pre Dev North

Runoff = 1.71 cfs @ 8.03 hrs, Volume= 0.935 af, Depth> 1.57"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 25-year Rainfall=3.90"

_	Α	rea (sf)	CN E	Description		
*	3	311,751	75			
	3	311,751	75 1	00.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	14.8	100	0.0250	0.11	, ,	Sheet Flow,
_	11.1	1,213	0.0127	1.81		Grass: Dense n= 0.240 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	25.9	1,313	Total			

Subcatchment 3S: Pre Dev North



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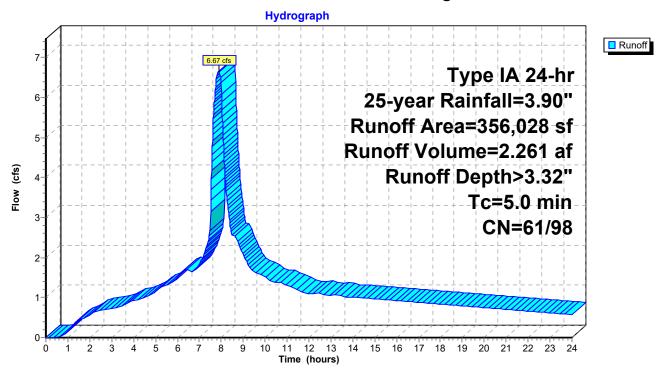
Summary for Subcatchment 8S: Post Dev North to Underground Detention

Runoff = 6.67 cfs @ 7.88 hrs, Volume= 2.261 af, Depth> 3.32" Routed to Pond 13P : Underground Detention North

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 25-year Rainfall=3.90"

Area (s	sf) CN	Description							
314,41	16 98	Paved park	Paved parking, HSG D						
41,61	12 61	>75% Gras	s cover, Go	ood, HSG B					
356,02	6,028 94 Weighted Average								
41,61	12 61	11.69% Pervious Area							
314,41	4,416 98 88.31% Impervious Area			ea					
Tc Len		. ,	Capacity	Description					
(min) (fe	et) (ft/	/ft) (ft/sec)	(cfs)						
5.0				Direct Entry.					

Subcatchment 8S: Post Dev North to Underground Detention



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Type IA 24-hr 25-year Rainfall=3.90"

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Summary for Pond 7P: Underground Detention South

Inflow Area = 4.314 ac, 88.45% Impervious, Inflow Depth > 3.32" for 25-year event

Inflow = 3.52 cfs @ 7.88 hrs, Volume= 1.195 af

Outflow = 0.72 cfs @ 10.79 hrs, Volume= 0.632 af, Atten= 80%, Lag= 174.6 min

Primary = 0.72 cfs @ 10.79 hrs, Volume= 0.632 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 5.36' @ 10.79 hrs Surf.Area= 0.169 ac Storage= 0.568 af

Plug-Flow detention time= 485.1 min calculated for 0.632 af (53% of inflow)

Center-of-Mass det. time= 226.7 min (892.6 - 665.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.236 af	87.25'W x 84.57'L x 5.50'H Field A
			0.932 af Overall - 0.341 af Embedded = 0.590 af x 40.0% Voids
#2A	0.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 132 Inside #1
			Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
			Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
			132 Chambers in 12 Rows
			Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf
		0 E70 of	Total Available Storage

0.578 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	5.25'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.70 cfs @ 10.79 hrs HW=5.36' (Free Discharge)

-1=Orifice/Grate (Orifice Controls 0.24 cfs @ 11.06 fps)

-2=Sharp-Crested Rectangular Weir (Weir Controls 0.46 cfs @ 1.08 fps)

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Pond 7P: Underground Detention South - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

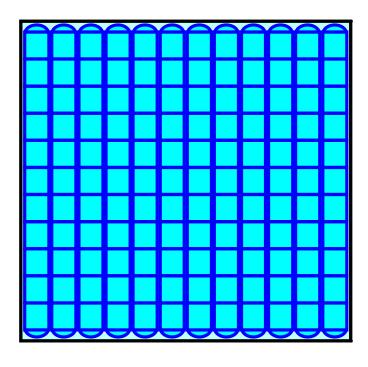
12 Rows x 77.0" Wide + 9.0" Spacing x 11 + 12.0" Side Stone x 2 = 87.25' Base Width 9.0" Stone Base + 45.0" Chamber Height + 12.0" Stone Cover = 5.50' Field Height

132 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 12 Rows = 14,871.3 cf Chamber Storage

40,583.0 cf Field - 14,871.3 cf Chambers = 25,711.8 cf Stone x 40.0% Voids = 10,284.7 cf Stone Storage

Chamber Storage + Stone Storage = 25,156.0 cf = 0.578 af Overall Storage Efficiency = 62.0% Overall System Size = 84.57' x 87.25' x 5.50'

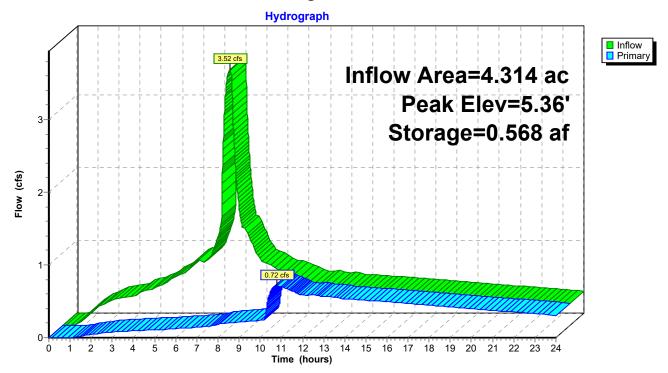
132 Chambers 1,503.1 cy Field 952.3 cy Stone





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Pond 7P: Underground Detention South



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Type IA 24-hr 25-year Rainfall=3.90"

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Summary for Pond 13P: Underground Detention North

Inflow Area = 8.173 ac, 88.31% Impervious, Inflow Depth > 3.32" for 25-year event

Inflow = 6.67 cfs @ 7.88 hrs, Volume= 2.261 af

Outflow = 1.03 cfs @ 13.54 hrs, Volume= 0.908 af, Atten= 85%, Lag= 339.3 min

Primary = 1.03 cfs @ 13.54 hrs, Volume= 0.908 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 6.65' @ 13.54 hrs Surf.Area= 0.316 ac Storage= 1.362 af

Plug-Flow detention time= 615.6 min calculated for 0.908 af (40% of inflow)

Center-of-Mass det. time= 316.2 min (982.2 - 666.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.504 af	137.50'W x 100.04'L x 6.75'H Field A
			2.132 af Overall - 0.871 af Embedded = 1.261 af x 40.0% Voids
#2A	0.75'	0.871 af	ADS_StormTech MC-4500 b +Capx 345 Inside #1
			Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
			Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
			345 Chambers in 15 Rows
			Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf
•			

1.375 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads	
#2	Primary	6.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)	

Primary OutFlow Max=1.02 cfs @ 13.54 hrs HW=6.65' (Free Discharge)

-1=Orifice/Grate (Orifice Controls 0.27 cfs @ 12.34 fps)

-2=Sharp-Crested Rectangular Weir (Weir Controls 0.75 cfs @ 1.26 fps)

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Pond 13P: Underground Detention North - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

23 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 98.04' Row Length +12.0" End Stone x 2 = 100.04' Base Length

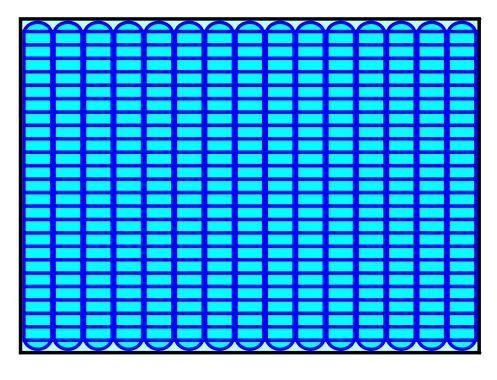
15 Rows x 100.0" Wide + 9.0" Spacing x 14 + 12.0" Side Stone x 2 = 137.50' Base Width 9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

345 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 15 Rows = 37,924.2 cf Chamber Storage

92,851.2 cf Field - 37,924.2 cf Chambers = 54,927.0 cf Stone x 40.0% Voids = 21,970.8 cf Stone Storage

Chamber Storage + Stone Storage = 59,895.0 cf = 1.375 af Overall Storage Efficiency = 64.5% Overall System Size = 100.04' x 137.50' x 6.75'

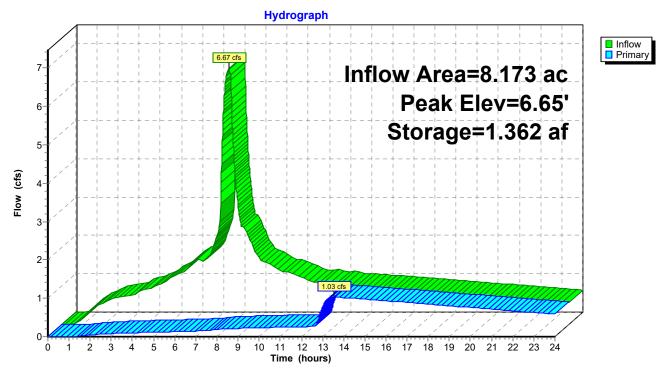
345 Chambers 3,438.9 cy Field 2,034.3 cy Stone





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Pond 13P: Underground Detention North



20200748 - 124th Prelim Modeling

Type IA 24-hr 100-year Rainfall=4.80"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Pre Dev South Runoff Area=224,197 sf 0.00% Impervious Runoff Depth>2.27"

Flow Length=568' Tc=15.0 min CN=75/0 Runoff=2.34 cfs 0.973 af

Subcatchment2S: Post Dev South to Runoff Area=187,903 sf 88.45% Impervious Runoff Depth>4.17"

Tc=5.0 min CN=61/98 Runoff=4.41 cfs 1.500 af

Subcatchment3S: Pre Dev North Runoff Area=311,751 sf 0.00% Impervious Runoff Depth>2.26"

Flow Length=1,313' Tc=25.9 min CN=75/0 Runoff=2.70 cfs 1.345 af

Subcatchment8S: Post Dev North to Runoff Area=356,028 sf 88.31% Impervious Runoff Depth>4.17"

Tc=5.0 min CN=61/98 Runoff=8.34 cfs 2.840 af

Pond 7P: Underground Detention South Peak Elev=5.47' Storage=0.576 af Inflow=4.41 cfs 1.500 af

Outflow=1.63 cfs 0.937 af

Pond 13P: Underground Detention North Peak Elev=6.75' Storage=1.375 af Inflow=8.34 cfs 2.840 af

Outflow=1.87 cfs 1.483 af

Total Runoff Area = 24.791 ac Runoff Volume = 6.659 af Average Runoff Depth = 3.22" 55.49% Pervious = 13.757 ac 44.51% Impervious = 11.034 ac

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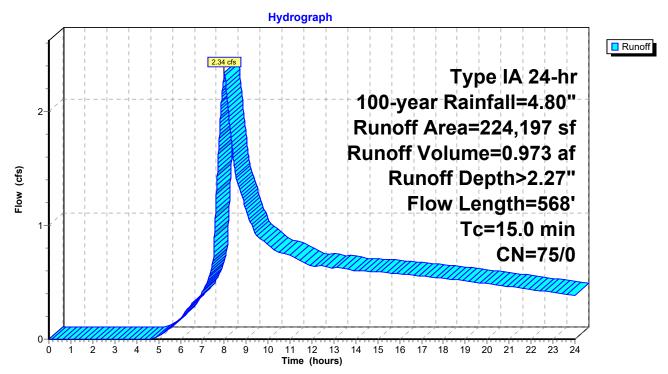
Summary for Subcatchment 1S: Pre Dev South

Runoff = 2.34 cfs @ 8.00 hrs, Volume= 0.973 af, Depth> 2.27"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 100-year Rainfall=4.80"

_	Α	rea (sf)	CN E	Description		
*	2	24,197	75			
	2	24,197	75 1	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	11.2	100	0.1400	0.15	,	Sheet Flow,
	3.8	468	0.0160	2.04		Woods: Light underbrush n= 0.400 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	15.0	568	Total			

Subcatchment 1S: Pre Dev South



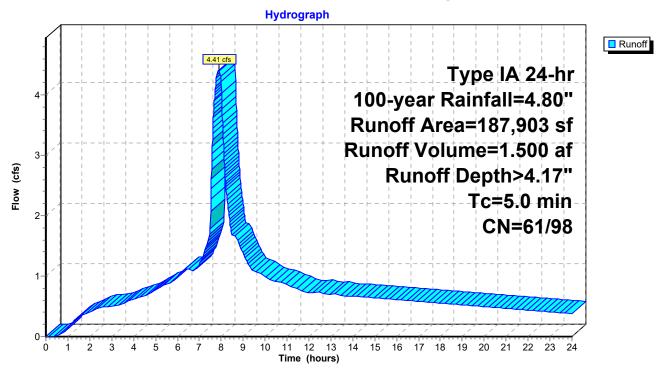
Summary for Subcatchment 2S: Post Dev South to Underground Detention

Runoff = 4.41 cfs @ 7.88 hrs, Volume= 1.500 af, Depth> 4.17" Routed to Pond 7P : Underground Detention South

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 100-year Rainfall=4.80"

Area (sf)	CN	Description					
166,209	98	Paved park	ing, HSG D	D			
21,694	61	>75% Gras	s cover, Go	Good, HSG B			
187,903 94 Weighted Average							
21,694	61	11.55% Per	11.55% Pervious Area				
166,209	98	88.45% Impervious Area					
	0.1			D 1.0			
Tc Length		,	Capacity	·			
(min) (feet)) (ft/1	ft) (ft/sec)	(cfs)				
5.0				Direct Entry,			

Subcatchment 2S: Post Dev South to Underground Detention



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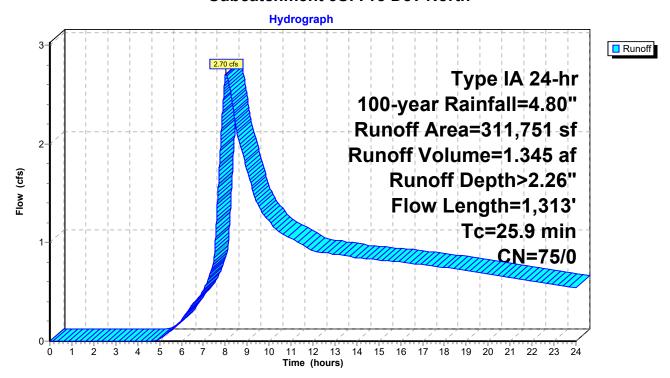
Summary for Subcatchment 3S: Pre Dev North

Runoff = 2.70 cfs @ 8.01 hrs, Volume= 1.345 af, Depth> 2.26"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 100-year Rainfall=4.80"

_	Aı	rea (sf)	CN [Description		
*	3	11,751	75			
	3	11,751	75 ´	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description
	14.8	100	0.0250	0.11	,	Sheet Flow,
	11.1	1,213	0.0127	1.81		Grass: Dense n= 0.240 P2= 2.50" Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
	25.9	1 313	Total			

Subcatchment 3S: Pre Dev North



Prepared by {enter your company name here}

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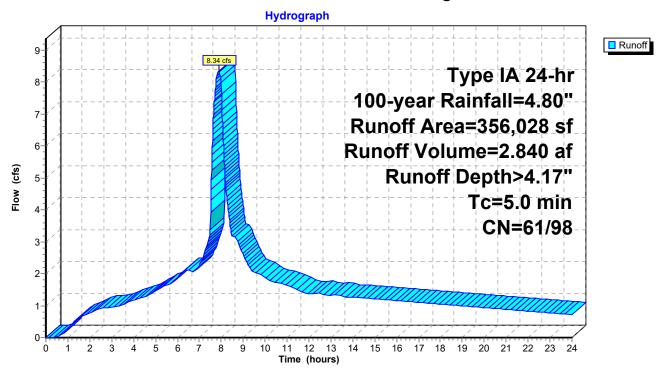
Summary for Subcatchment 8S: Post Dev North to Underground Detention

Runoff = 8.34 cfs @ 7.88 hrs, Volume= 2.840 af, Depth> 4.17" Routed to Pond 13P : Underground Detention North

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type IA 24-hr 100-year Rainfall=4.80"

Area (s	sf) CN	Description							
314,41	16 98	Paved park	Paved parking, HSG D						
41,61	12 61	>75% Gras	s cover, Go	ood, HSG B					
356,02	6,028 94 Weighted Average								
41,61	12 61	11.69% Pervious Area							
314,41	4,416 98 88.31% Impervious Area			ea					
Tc Len		. ,	Capacity	Description					
(min) (fe	et) (ft/	/ft) (ft/sec)	(cfs)						
5.0				Direct Entry.					

Subcatchment 8S: Post Dev North to Underground Detention



20200748 - 124th Prelim Modeling

Type IA 24-hr 100-year Rainfall=4.80"

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Summary for Pond 7P: Underground Detention South

Inflow Area = 4.314 ac, 88.45% Impervious, Inflow Depth > 4.17" for 100-year event

Inflow = 4.41 cfs @ 7.88 hrs, Volume= 1.500 af

Outflow = 1.63 cfs @ 8.71 hrs, Volume= 0.937 af, Atten= 63%, Lag= 49.4 min

Primary = 1.63 cfs @ 8.71 hrs, Volume= 0.937 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 5.47' @ 8.71 hrs Surf.Area= 0.169 ac Storage= 0.576 af

Plug-Flow detention time= 400.6 min calculated for 0.937 af (62% of inflow)

Center-of-Mass det. time= 177.9 min (840.2 - 662.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.236 af	87.25'W x 84.57'L x 5.50'H Field A
			0.932 af Overall - 0.341 af Embedded = 0.590 af x 40.0% Voids
#2A	0.75'	0.341 af	ADS_StormTech MC-3500 d +Capx 132 Inside #1
			Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf
			Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap
			132 Chambers in 12 Rows
			Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf
		0 570 of	Total Available Ctare se

0.578 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	5.25'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.62 cfs @ 8.71 hrs HW=5.47' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.24 cfs @ 11.18 fps)

-2=Sharp-Crested Rectangular Weir (Weir Controls 1.38 cfs @ 1.55 fps)

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Pond 7P: Underground Detention South - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech® MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap Cap Storage= 14.9 cf x 2 x 12 rows = 357.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

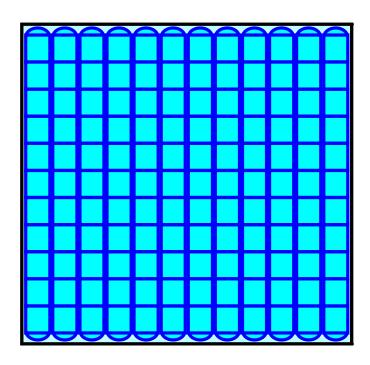
12 Rows x 77.0" Wide + 9.0" Spacing x 11 + 12.0" Side Stone x 2 = 87.25' Base Width 9.0" Stone Base + 45.0" Chamber Height + 12.0" Stone Cover = 5.50' Field Height

132 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 12 Rows = 14,871.3 cf Chamber Storage

40,583.0 cf Field - 14,871.3 cf Chambers = 25,711.8 cf Stone x 40.0% Voids = 10,284.7 cf Stone Storage

Chamber Storage + Stone Storage = 25,156.0 cf = 0.578 af Overall Storage Efficiency = 62.0% Overall System Size = 84.57' x 87.25' x 5.50'

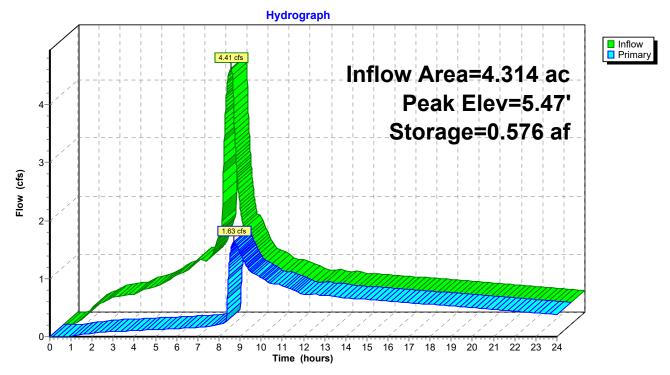
132 Chambers 1,503.1 cy Field 952.3 cy Stone





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Pond 7P: Underground Detention South



20200748 - 124th Prelim Modeling

Type IA 24-hr 100-year Rainfall=4.80"

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Summary for Pond 13P: Underground Detention North

Inflow Area = 8.173 ac, 88.31% Impervious, Inflow Depth > 4.17" for 100-year event

Inflow = 8.34 cfs @ 7.88 hrs, Volume= 2.840 af

Outflow = 1.87 cfs @ 10.03 hrs, Volume= 1.483 af, Atten= 78%, Lag= 128.9 min

Primary = 1.87 cfs @ 10.03 hrs, Volume= 1.483 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Peak Elev= 6.75' @ 10.03 hrs Surf.Area= 0.316 ac Storage= 1.375 af

Plug-Flow detention time= 508.0 min calculated for 1.483 af (52% of inflow)

Center-of-Mass det. time= 246.3 min (908.7 - 662.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.504 af	137.50'W x 100.04'L x 6.75'H Field A
			2.132 af Overall - 0.871 af Embedded = 1.261 af x 40.0% Voids
#2A	0.75'	0.871 af	ADS_StormTech MC-4500 b +Capx 345 Inside #1
			Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
			Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
			345 Chambers in 15 Rows
			Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf
		4 27E of	Total Available Stare as

1.375 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	0.00'	2.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads	
#2	Primary	6.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)	

Primary OutFlow Max=1.87 cfs @ 10.03 hrs HW=6.75' (Free Discharge)

-1=Orifice/Grate (Orifice Controls 0.27 cfs @ 12.43 fps)

-2=Sharp-Crested Rectangular Weir (Weir Controls 1.60 cfs @ 1.63 fps)

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Pond 13P: Underground Detention North - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech®MC-4500 with cap volume)

Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap Cap Storage= 39.5 cf x 2 x 15 rows = 1,185.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

23 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 98.04' Row Length +12.0" End Stone x 2 = 100.04' Base Length

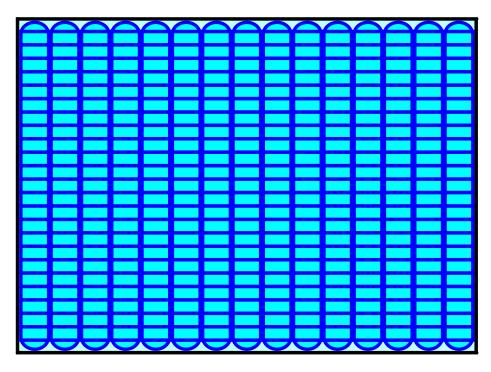
15 Rows x 100.0" Wide + 9.0" Spacing x 14 + 12.0" Side Stone x 2 = 137.50' Base Width 9.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 6.75' Field Height

345 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 15 Rows = 37,924.2 cf Chamber Storage

92,851.2 cf Field - 37,924.2 cf Chambers = 54,927.0 cf Stone x 40.0% Voids = 21,970.8 cf Stone Storage

Chamber Storage + Stone Storage = 59,895.0 cf = 1.375 af Overall Storage Efficiency = 64.5% Overall System Size = 100.04' x 137.50' x 6.75'

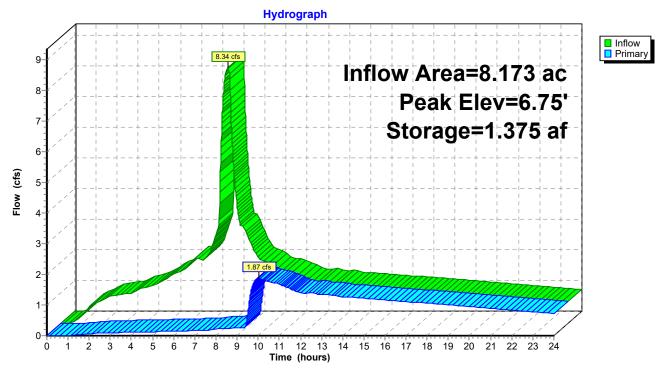
345 Chambers 3,438.9 cy Field 2,034.3 cy Stone





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Pond 13P: Underground Detention North



Project: 124th Ave Job #: 20200748 Date: Sheet #:

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Water Quality Calculations

Based on the CWS December 2019 Design and Construction Standards

Treat Using Contech StormFilter Vaults:

Each (Low Drop) Cartridge Treats 10 gpm (0.022 cfs)

SOUTH VAULT

166,209 sf of Impervious Surface Area

Water Quality Volume (V_{wq}):

 $V_{wq} = Impervious Area • 0.36"$

 $V_{wq} = 166,209$

0.36 in •

1/12

ft/in

 $\overline{V_{\text{wq}}} =$ 4,986

Water Quality Flowrate (Q wa):

 $Q_{wq} = V_{wq} / Time$

Time =

4 hours

0.346 cfs $Q_{wa} =$

16 low flow cartridges

Each (27") Cartridge Treats 22 gpm (0.05 cfs)

NORTH EAST VAULT

73,388 sf of Impervious Surface Area

Water Quality Volume (V wa):

 $V_{wq} = Impervious Area • 0.36"$

 $V_{wq} = 73,388$

sf •

0.36

1/12 ft/in

2,202 $V_{wq} =$ cf

Water Quality Flowrate (Q wa):

 $Q_{wq} = V_{wq} / Time$

Time =

4 hours

0.153 $Q_{wq} =$

cfs

Use 4 (27") flow cartridges

Water Quality Requirements Met





Job #:

Bν·

Date:

Sheet #:

Each (27") Cartridge Treats 22 gpm (0.05 cfs)

NORTH WEST VAULT 241,053 sf of Impervious Surface Area

VVater Quality Volume (V $_{\rm wq}$):

 V_{wq} = Impervious Area • 0.36"

 $V_{wq} = 241,053$

st •

0.36 in 6

1/12

tt/in

 $V_{wq} = 7,232$ ct

Water Quality Flowrate (Q $_{wq}$):

 $Q_{wq} = V_{wq} / Iime$

lime =

4 hours

 $Q_{wq} = 0.502$

Use 11 (27") cartridges

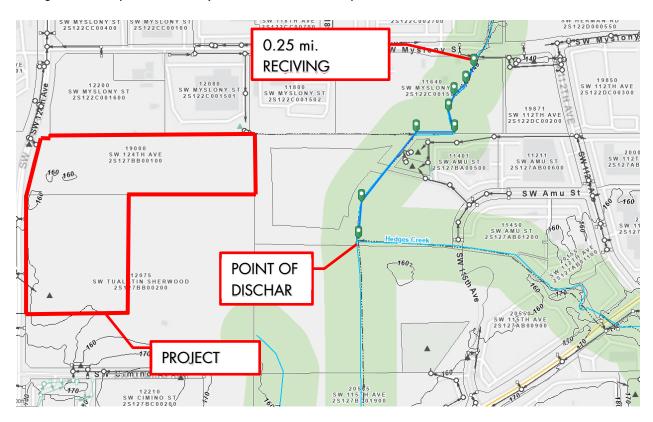
Water Quality Requirements Met



C. Water Quality Treatment Sizing Calculations

D. Hydromodification Analysis

Starting with CWS Design and construction Stds, section 4.03.3: Using the CWS public Sanitary and Storm sewer map:

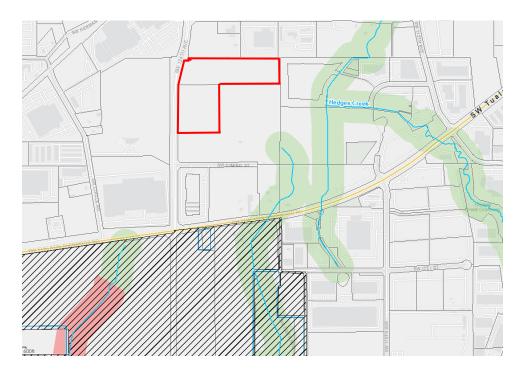




Per 4.03.3.a.3, the receiving reach is ¼ mile past the point of discharge, which as shown on the above map is green, and therefore we are **Low Risk.**

Using 4.03.3(b), the project site is not within the expansion areas, and is therefore designated as a **Developed Area:**





Per 4.03.3 (c), building's combined over 80,000 SF will be Project Size Category: Large

- A) Small: 1,000 to 12,000 square feet
- B) Medium: over 12,000 to 80,000 square feet
- C) Large: over 80,000 square feet and larger

Therefore, we are Low Risk, Developed, and Large \rightarrow Category 2: Hydromodification will be based on the below table.

TABLE 4-2 HYDROMODIFICATION APPROACH PROJECT CATEGORY TABLE

Development Class/ Risk Level	Small Project 1,000 – 12,000 SF	Medium Project >12,000 – 80,000 SF	Large Project > 80,000 SF	
Expansion/High		Catagory 2		
Expansion/ Moderate		Category 3	G-t3	
Expansion/ Low	Category 1	Category 2	Category 3	
Developed/ High		Category 3		
Developed/ Moderate	Developed/ Moderate		Cotonoma	
Developed/ Low		Category 2	Category 2	

b. Category 2

Projects in Category 2 represent those with a moderate anticipated risk. Any of the following options may be used to address hydromodification:

- Infiltration facility, using the Standard Sizing, described in Section 4.08.5; or
- Peak-Flow Matching Detention, using design criteria described in Section 4.08.6; or
- Combination of Infiltration facility and Peak-Flow Matching Detention, using criteria described in Section 4.08.5 and 4.08.6; or
- Any option listed in Category 3.



Service Provider Letter

C <u>V</u>	VS File Number
ſ	22-002776

This form and the attached conditions will serve as your Service Provider Letter in accordance with Clean Water Services Design and Construction Standards (R&O 19-5, as amended by R&O 19-22).

Jurisdiction:	City of Tualatin	Review Type:	Tier 2 An	alysis	
Site Address / Location:	19000 SW 124th AVE Tualatin, OR 97062			uary 31, 2023 uary 30, 2025	
Applicant Info	rmation:	Owner Inform	ation:		
Name	JACK DALTON	Name	TRACY BOWERS		
Company	ENVIRONMENTAL SCIENCE & ASSESSMENT 4831 NE FREMONT ST SUITE 2B	Company TUALATIN 124		LLC	
Address	4631 NE FREMONT ST SUITE 2B	Address	9760 SW FERRMAN	DR	
	PORTLAND OR 97213		WILSONVILLE OR 9	7070	
Phone/Fax	(503) 478-0424	Phone/Fax	(503) 682-3633	1010	
E-mail:	jack@esapdx.com	E-mail:	tbowers@ssiworld.co	m	
2S127BB00	Tax lot ID 100, 200	Development Activity Industrial Development			
Sensitive Area Vegetated Corr	idor Width: 50 Good/Marginal/Degr	Sensitive Area Vegetated Co		ite X Off-Site	
Enhancement Vegetated Cor	of Remaining ridor Required:	Square Foot	age to be enhanced:	121,378	
	Encroachments into Pre-De	velopment Vegeta	ted Corridor:		
• •	on of Encroachment: ing Docks, Parking (Permanent Encroachment;	Mitigation Required)	Square Footage: 66,686	
	Mitigation F	Requirements:			
	acement (2S127BB00100 & 200) cement as public benefit mitigation			Sq. Ft./Ratio/Cost 67,804 59,048	
X Conditions	Attached X Development Figures Attached	(5) X Planting F	Plan Attached Geote	ch Report Required	

This Service Provider Letter does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered on your property.

In order to comply with Clean Water Services water quality protection requirements the project must comply with the following conditions:

- 1. No structures, development, construction activities, gardens, lawns, application of chemicals, uncontained areas of hazardous materials as defined by Oregon Department of Environmental Quality, pet wastes, dumping of materials of any kind, or other activities shall be permitted within the sensitive area or Vegetated Corridor which may negatively impact water quality, except those allowed in R&O 19-5, Chapter 3, as amended by R&O 19-22.
- 2. Prior to any site clearing, grading or construction the Vegetated Corridor and water quality sensitive areas shall be surveyed, staked, and temporarily fenced per approved plan. During construction the Vegetated Corridor shall remain fenced and undisturbed except as allowed by R&O 19-5, Section 3.06.1, as amended by R&O 19-22 and per approved plans.
- Prior to any activity within the sensitive area, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits.
- 4. An approved Oregon Department of Forestry Notification is required for one or more trees harvested for sale, trade, or barter, on any non-federal lands within the State of Oregon.
- 5. Prior to any ground disturbing activities, an erosion control permit is required. Appropriate Best Management Practices (BMP's) for Erosion Control, in accordance with Clean Water Services' Erosion Prevention and Sediment Control Planning and Design Manual, shall be used prior to, during, and following earth disturbing activities.
- 6. Prior to construction, a Stormwater Connection Permit from Clean Water Services or its designee is required pursuant to Ordinance 27, Section 4.B.
- 7. Activities located within the 100-year floodplain shall comply with R&O 19-5, Section 5.10, as amended by R&O 19-22.
- 8. Removal of native, woody vegetation shall be limited to the greatest extent practicable.
- 9. The water quality swale and detention pond shall be planted with Clean Water Services approved native species, and designed to blend into the natural surroundings.
- 10. Should final development plans differ significantly from those submitted for review by Clean Water Services, the applicant shall provide updated drawings, and if necessary, obtain a revised Service Provider Letter.
- 11. The Vegetated Corridor width for sensitive areas within the project site shall be a minimum of 50 feet wide, as measured horizontally from the delineated boundary of the sensitive area.
- 12. The applicant shall enhance all remaining existing Vegetated Corridor areas and the Vegetated Corridor replacement mitigation areas on tax lots 100 and 200 to meet or exceed good corridor condition as defined in R&O 19-5, Section 3.14.2, Table 3-3, as amended by R&O 19-22.
- 13. Removal of invasive non-native species by hand is required in all Vegetated Corridors rated ""good."" Replanting is required in any cleared areas larger than 25 square feet using low impact methods. The applicant shall calculate all cleared areas larger than 25 square feet prior to the preparation of the required Vegetated Corridor enhancement/restoration plan.
- 14. Prior to any site clearing, grading or construction, the applicant shall provide Clean Water Services with a Vegetated Corridor enhancement/restoration plan. Enhancement/restoration of the Vegetated Corridor shall be provided in accordance with R&O 19-5, Appendix A, as amended by R&O 19-22, and shall include planting specifications for all Vegetated Corridor, including any cleared areas larger than 25 square feet in Vegetated Corridor rated ""good.""
- 15. Prior to installation of plant materials, all invasive vegetation within the Vegetated Corridor shall be removed per methods described in Clean Water Services' Integrated Pest Management Plan, 2019. During removal of invasive vegetation care shall be taken to minimize impacts to existing native tree and shrub species.

- 16. Clean Water Services and/or City shall be notified 72 hours prior to the start and completion of enhancement/restoration activities. Enhancement/restoration activities shall comply with the guidelines provided in Planting Requirements (R&0 19-5, Appendix A, as amended by R&O 19-22).
- 17. Maintenance and monitoring requirements shall comply with R&O 19-5, Section 2.12.2, as amended by R&O 19-22. If at any time during the warranty period the landscaping falls below the 80% survival level, the owner shall reinstall all deficient planting at the next appropriate planting opportunity and the two year maintenance period shall begin again from the date of replanting.
- 18. Performance assurances for the Vegetated Corridor shall comply with R&O 19-5, Section 2.07.2, Table 2-1 and Section 2.11, Table 2-2, as amended by R&O 19-22.
- 19. Clean Water Services shall require an easement over the Sensitive Area and Vegetated Corridor conveying storm and surface water management to Clean Water Services or the City that would prevent the owner of the Vegetated Corridor from activities and uses inconsistent with the purpose of the corridor and any easements therein.

FINAL PLANS

- 20. **Final construction plans shall include landscape plans**. In the details section of the plans, a description of the methods for removal and control of exotic species, location, distribution, condition and size of plantings, existing plants and trees to be preserved, and installation methods for plant materials is required. Plantings shall be tagged for dormant season identification and shall remain on plant material after planting for monitoring purposes.
- 21. A Maintenance Plan shall be included on final plans including methods, responsible party contact information, and dates (minimum two times per year, by June 1 and September 30).
- 22. Final construction plans shall clearly depict the location and dimensions of the sensitive area and the Vegetated Corridor (indicating good, marginal, or degraded condition). Sensitive area boundaries shall be marked in the field.
- 23. Protection of the Vegetated Corridors and associated sensitive areas shall be provided by the installation of permanent fencing and signage between the development and the outer limits of the Vegetated Corridors. Fencing and signage details to be included on final construction plans.

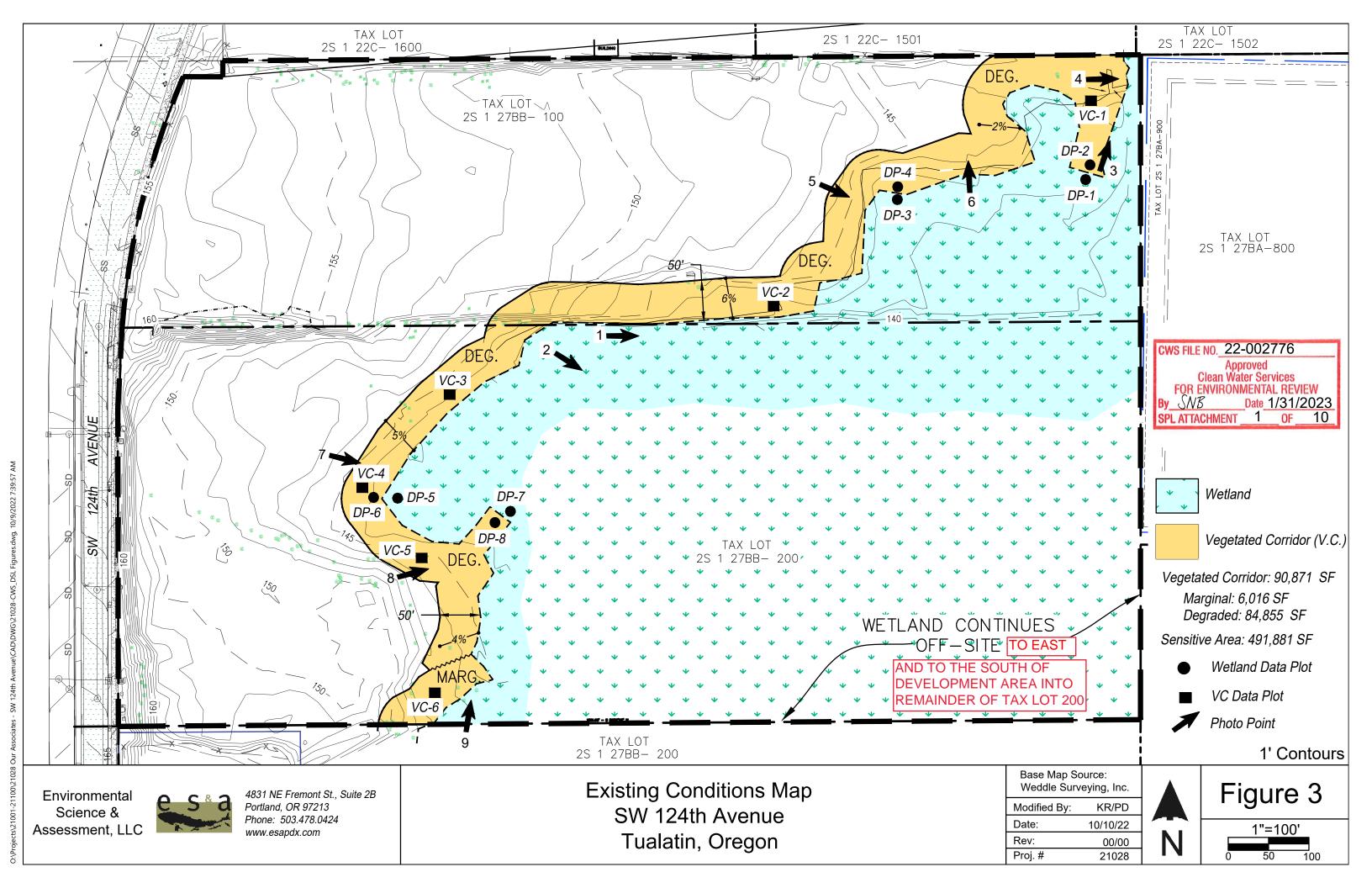
This Service Provider Letter is not valid unless CWS-approved site plan is attached.

Stacy Benjamin

Environmental Plan Review

Stacy Benjamin

Attachments (10)



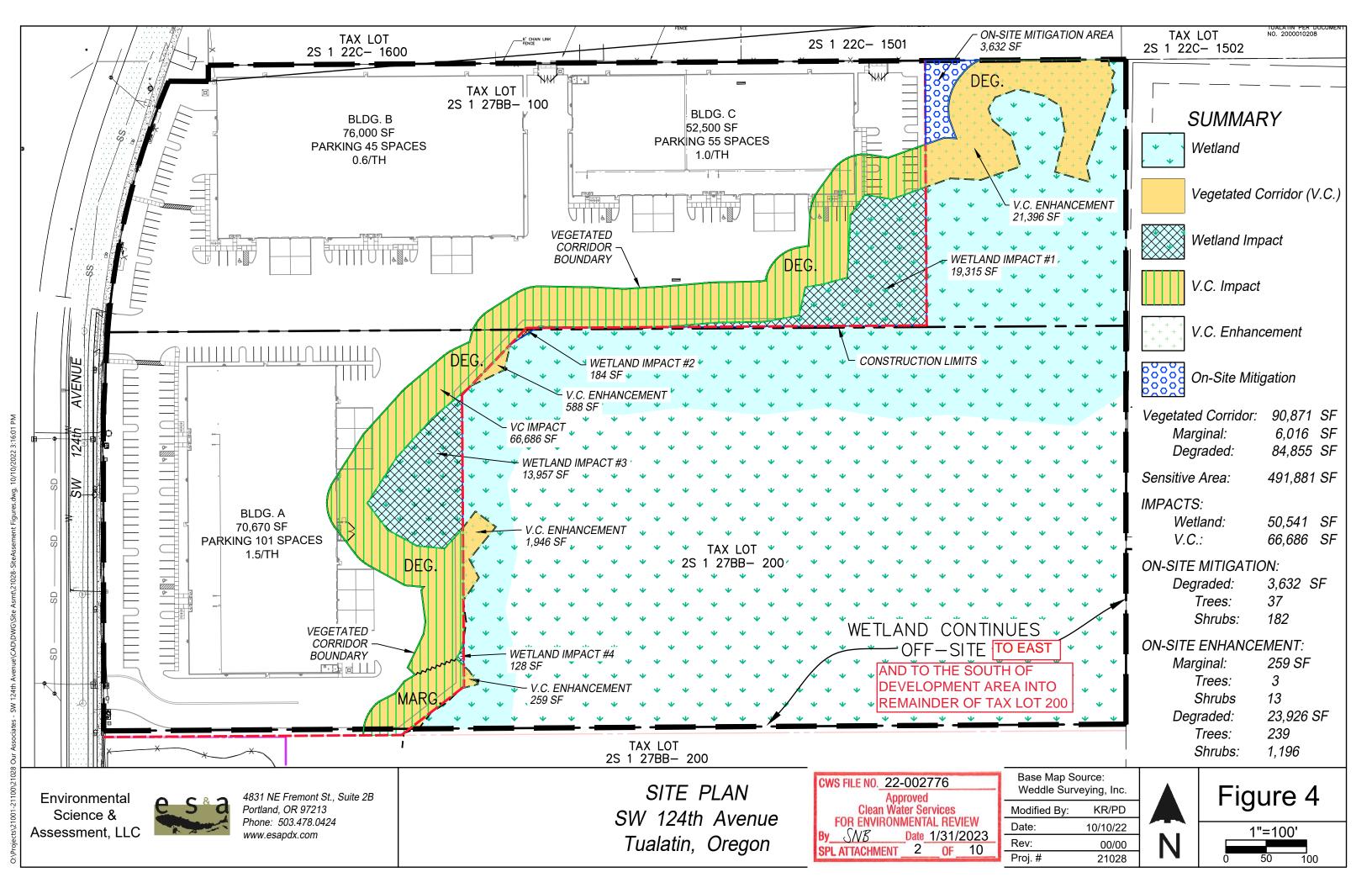


Figure 5

SPL ATTACHMENT 4 OF 10

Figure 3

Table 2. Plant List for VC Enhancement/Mitigation Area

Common Name	Scientific Name	Plant Form/Size ¹	Plant Spacing (ft on center)	Total Number of plants
VC ENHANCEMENT	AREAS (24,185 SF	5)		
Trees		0 1/00"	40.50.0	2
Western red cedar	Thuja plicata	2 gal/36"	10 ft O.C.	2 2
Big leaf maple	Acer macrophyllum	2 gal/36"	10 ft O.C.	2
Vine maple	Acer circinatum	2 gal/24"	10 ft O.C	²
Douglas fir	Pseudotsuga menziesii	2 gal/36"	10 ft O.C.	2
Cascara	Rhamnus purshiana	2 gal/24"	10 ft O.C.	2
			Subtotal	242
Shrubs				
Serviceberry	Amelanchier alnifolia	1 gal/2'	single	2
Twinberry	Lonicera involucrata	1 gal/18"	4-5 ft O.C.	2
Tall Oregon-grape	Mahonia aquifolium	1 gal/18"	4-5 ft O.C.	2
Snowberry	Symphoricarpos albus	1 gal/18"	4-5 ft O.C.	2
Red-osier dogwood	Cornus sericea	Bare root/18"	single	2
Clustered rose	Rosa pisocarpa	1 gal/1.5'	cluster	2
Red flowering current	Ribes sanguineum	1 gal/1.5'	cluster	2
Pacific ninebark	Physocarpus capitatus	1 gal/24"	single	2
	504		Subtotal	1,209
VC MITIGATION AR	EAS (3632 SF)			,
Trees	, ,			
Big leaf maple	Acer macrophyllum	2 gal/36"	10 ft O.C.	2
Vine maple	Acer circinatum	2 gal/24"	10 ft O.C	2
Douglas fir	Pseudotsuga menziesii	2 gal/36"	10 ft O.C.	2
Cascara	Rhamnus purshiana	2 gal/24"	10 ft O.C.	2
			Subtotal	37
Shrubs				
Red-osier dogwood	Cornus sericea	Bare root/18"	single	2
Clustered rose	Rosa pisocarpa	1 gal/1.5'	cluster	2
Snowberry	Symphoricarpos albus	1 gal/18"	4-5 ft O.C.	2
Tall Oregon-grape	Mahonia aquifolium	1 gal/18"	4-5 ft O.C.	2
ran Orogon grapo	Mariorila agairollani	1 941/10	Subtotal	182
			TOTAL	1,670

NOTES: ¹ Substitutes for plant form (e.g. bare root) and species may be used based on availability. ² *Individual species quantities to be determined in landscape.*

CWS FILE NO. 22-002776

Approved
Clean Water Services
FOR ENVIRONMENTAL REVIEW
By SNB Date 1/31/2023
SPL ATTACHMENT 6 OF 10

Table 3. VC Enhancement/Mitigation Area Seed Mix

rabio or to Emigriconomismingation / troa cood mix					
Common Name	Scientific Name	Percentage of Seed Mix **			
Native Wildflower/Grass Mix					
Native California brome	Bromus carinatus	15			
Blue wildrye	Elymus glaucus	30			
Meadow barley	Hordeum brachyantherum	15			
Spike bentgrass	Agrostis exarata	20			
California Oat Grass	Danthonia californica	20			
	TOTAL	L 100			

^{*}Seeding rate of pure live seed (PLS), 35 pounds per acre for hydroseed application. **Seed mix application quantity is to be calculated for VC planting area and is subject to availability and measure PLS.

Table 4. Plant List for Wetland Enhancement

Common Name	Scientific Name	Plant Form/Size ¹	Plant Spacing (ft on center)	Total Number of plants
WETLAND ENHANC	EMENT AREAS (59	,048 SF)		
Trees				
Western red cedar	Thuja plicata	2 gal/36"	10 ft O.C.	2
Oregon ash	Fraxinus latifolia	1 gal/36"	10 ft O.C.	2
Pacific dogwood	Conus nuttallii	1 gal/2'	10 ft O.C	2
Red alder	Alnus rubra	1 gal/36"	10 ft O.C.	2
			Subtotal	164
Shrubs				
Pacific willow	Salix lucida	1 gal/2'/2" caliper	single	2
Scouler's willow	Salix scouleriana	1 gal/18"	4-5 ft O.C.	2
Tall Oregon-grape	Mahonia aquifolium	1 gal/18"	4-5 ft O.C.	2
Snowberry	Symphoricarpos albus	1 gal/18"	4-5 ft O.C.	2
Red-osier dogwood	Cornus sericea	1 gal/18"	single	2
Clustered rose	Rosa pisocarpa	1 gal/1.5'	cluster	2
Red flowering current	Ribes sanguineum	1 gal/1.5'	cluster	2
Pacific ninebark	Physocarpus capitatus	1 gal/24"	single	2
			Subtotal	2,046
		·	TOTAL	

NOTES: ¹ Substitutes for plant form (e.g. bare root) and species may be used based on availability. ² *Individual species quantities to be determined in landscape.*

CWS FILE NO. 22-002776

Approved
Clean Water Services
FOR ENVIRONMENTAL REVIEW
By \(\int \mathcal{V} \mathcal{B} \)
SPL ATTACHMENT \(7 \)
OF \(10 \)

Table 1. Plant List for VC Enhancement - Mitigation Area

Common Name	Scientific Name	Plant Form/Size ¹	Plant Spacing (ft on center)	Total Number of plants
VC AREAS (97,193	SF)			
Trees				
Western red cedar	Thuja plicata	2 gal/36"	10 ft O.C.	 ²
Big leaf maple	Acer macrophyllum	2 gal/36"	10 ft O.C.	2
Vine maple	Acer circinatum	2 gal/24"	10 ft O.C	2
Douglas fir	Pseudotsuga menziesii	2 gal/36"	10 ft O.C.	2
Oregon ash	Fraxinus latifolia	1 gal/36"	10 ft O.C.	2
Pacific dogwood	Conus nuttallii	1 gal/2'	10 ft O.C	2
Red alder	Alnus rubra	1 gal/36"	10 ft O.C.	 ²
Cascara	Rhamnus purshiana	2 gal/24"	10 ft O.C.	2
			Subtotal	972
Shrubs	T			
Serviceberry	Amelanchier alnifolia	1 gal/2'	single	2
Twinberry	Lonicera involucrata	1 gal/18"	4-5 ft O.C.	2
Tall Oregon-grape	Mahonia aquifolium	1 gal/18"	4-5 ft O.C.	2
Osoberry	Oemleria cerasiformis	1 gal/18"	4-5 ft O.C.	2
Thimbleberry	Rubus parviflorus	1 gal/18"	4-5 ft O.C.	2
Salmonberry	Rubus spectabilis	1 gal/1.5'	cluster	2
Snowberry	Symphoricarpos albus	1 gal/18"	4-5 ft O.C.	2
Red-osier dogwood	Cornus sericea	Bare root/18"	single	2
Clustered rose	Rosa pisocarpa	1 gal/1.5'	cluster	2
Baldhip rose	Rosa gymnocarpa	1 gal/1.5'	cluster	2
Swordfern	Polystichum munitum	2 gallon	cluster	2
Red flowering current	Ribes sanguineum	1 gal/1.5'	cluster	2
Pacific ninebark	Physocarpus capitatus	1 gal/24"	single	2
Red huckleberry	Vaccinium parvifolium	1 gal/1.5'	single ²	
	· · · · · · · · · · · · · · · · · · ·		Subtotal	4680
			TOTAL	5,652

NOTES: ¹ Substitutes for plant form (e.g. bare root) and species may be used based on availability. ² Individual species quantities to be determined in landscape.

CWS FILE NO. 22-002776

Approved
Clean Water Services
FOR ENVIRONMENTAL REVIEW
By NB Date 1/31/2023
SPL ATTACHMENT 8 OF 10

Table 2. Plant List for Mitigation Area

Common Name	Scientific Name	Plant Form/Size ¹	Plant Spacing (ft on center)	Total Number of plants
VC AREAS (40,916	SF)			
Trees	T			
Western red cedar	Thuja plicata	2 gal/36"	10 ft O.C.	2
Big leaf maple	Acer macrophyllum	2 gal/36"	10 ft O.C.	2
Vine maple	Acer circinatum	2 gal/24"	10 ft O.C	2
Douglas fir	Pseudotsuga menziesii	2 gal/36"	10 ft O.C.	2
Oregon ash	Fraxinus latifolia	1 gal/36"	10 ft O.C.	2
Pacific dogwood	Conus nuttallii	1 gal/2'	10 ft O.C	2
Red alder	Alnus rubra	1 gal/36"	10 ft O.C.	2
Cascara	Rhamnus purshiana	2 gal/24"	10 ft O.C.	2
			Subtotal	164
Shrubs				
Serviceberry	Amelanchier alnifolia	1 gal/2'	single	2
Twinberry	Lonicera involucrata	1 gal/18"	4-5 ft O.C.	2
Tall Oregon-grape	Mahonia aquifolium	1 gal/18"	4-5 ft O.C.	2
Osoberry	Oemleria cerasiformis	1 gal/18"	4-5 ft O.C.	2
Thimbleberry	Rubus parviflorus	1 gal/18"	4-5 ft O.C.	2
Salmonberry	Rubus spectabilis	1 gal/1.5'	cluster	2
Snowberry	Symphoricarpos albus	1 gal/18"	4-5 ft O.C.	2
Red-osier dogwood	Cornus sericea	Bare root/18"	single	2
Clustered rose	Rosa pisocarpa	1 gal/1.5'	cluster	2
Baldhip rose	Rosa gymnocarpa	1 gal/1.5'	cluster	2
Swordfern	Polystichum munitum	2 gallon	cluster	2
Red flowering current	Ribes sanguineum	1 gal/1.5'	cluster	2
Pacific ninebark	Physocarpus capitatus	1 gal/24"	single	2
Red huckleberry	Vaccinium parvifolium	1 gal/1.5'	single	2
	•		Subtotal	2,046
			TOTAL	2,210

NOTES: ¹ Substitutes for plant form (e.g. bare root) and species may be used based on availability. ² Individual species quantities to be determined in landscape.

CWS FILE NO. 22-002776

Approved
Clean Water Services
FOR ENVIRONMENTAL REVIEW
By NB Date 1/31/2023
SPL ATTACHMENT 9 OF 10

Table 3. VC Mitigation Area Seed Mix

Common Name	Scientific Name	Percentage of Seed Mix **		
Native Wildflower/Grass Mix				
Native California brome	Bromus carinatus	15		
Blue wildrye	Elymus glaucus	30		
Meadow barley	Hordeum brachyantherum	15		
Spike bentgrass	Agrostis exarata	20		
California Oat Grass	Danthonia californica	20		
	TOTAL	L 100		

^{*}Seeding rate of pure live seed (PLS), 35 pounds per acre for hydroseed application. **Seed mix application quantity is to be calculated for VC planting area and is subject to availability and measure PLS.





FIRE CODE / LAND USE / BUILDING REVIEW **APPLICATION**

North Operating Center 11945 SW 70th Avenue Tigard, OR 97223 Phone: 503-649-8577

South Operating Center 8445 SW Elligsen Rd Wilsonville, OR 97070 Phone: 503-649-8577

REV 6-30-20

Project Information

Applicant Name: VLMK - Jennifer Kimura

Address: 3933 S Kelly Ave Portland, Oregon 97239

Phone: 971.254.8300

Email: jenniferk@vlmk.com

Site Address: 19000 SW 124th Ave & 12075 SW TS Rd

City: Tualatin, Oregon 97062

Map & Tax Lot #: 2S127BB00100 2S127BB00200

Business Name: 124th Ave Business Park

Land Use/Building Jurisdiction: City of Tualatin

AR23-0004/PLA23-0003 Land Use/ Building Permit#

Choose from: Beaverton, Tigard, Newberg, Tualatin, North Plains, West Linn, Wilsonville, Sherwood, Rivergrove, Durham, King City, Washington County, Clackamas County. Multnomah County, Yamhill County

Project Description

Proposed construction of (3) Shell Buildings and associated site work.

☑Land Use / Building Review - Service Provider Permit

□Emergency Radio Responder Coverage Install/Test

□LPG Tank (Greater than 2,000 gallons)

☐Flammable or Combustible Liquid Tank Installation (Greater than 1,000 gallons)

Exception: Underground Storage Tanks (UST) are deferred to DEQ for regulation.

□Explosives Blasting (Blasting plan is required)

□Exterior Toxic, Pyrophoric or Corrosive Gas Installation (in excess of 810 cu.ft.)

☐Tents or Temporary Membrane Structures (in excess of 10,000 square feet)

□Temporary Haunted House or similar

□OLCC Cannabis Extraction License Review

□Ceremonial Fire or Bonfire (For gathering, ceremony or other assembly)

For Fire Marshal's Office Use Only

TVFR Permit # 2023-0103

Permit Type: SPP - Tualatin

Submittal Date: July 18, 2023

Assigned To: McGladrey

Due Date: July 19, 2023

Fees Due: N/A

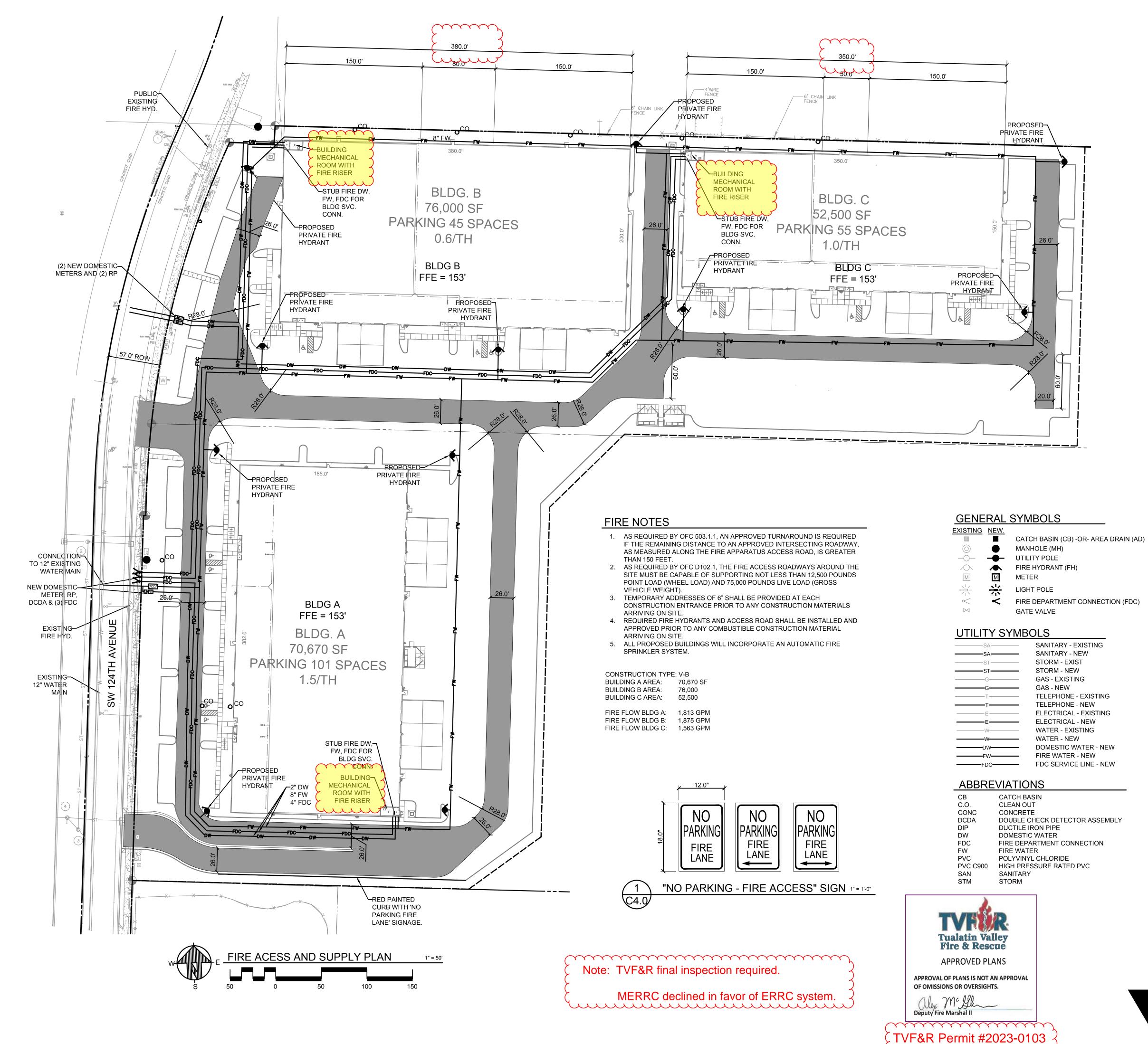
Fees Paid: \$0.00

Approval/Inspection Conditions

Office Use Only)

(For Fire Marshal)
This section is for application approval only
July 19, 2023 Fire Marshal or Designee Date
Conditions: TVF&R final inspection required.
MERRC declined in favor of ERRC system.
See Attached Conditions: ☐ Yes ☐ No
Site Inspection Required: Yes

7.1100 000 0111y)	
This section used when site inspection is	required
Inspection Comments:	
Final TVFR Approval Signature & Emp ID	Date



VLMK

ENGINEERING + DESIGN

3933 S Kelly Avenue Portland, Oregon 97239 503.222.4453 **VLMK.COM**

PROJECT NAME

124th AVENUE BUSINESS PARK

124th AVENUE TUALATIN, OREGON

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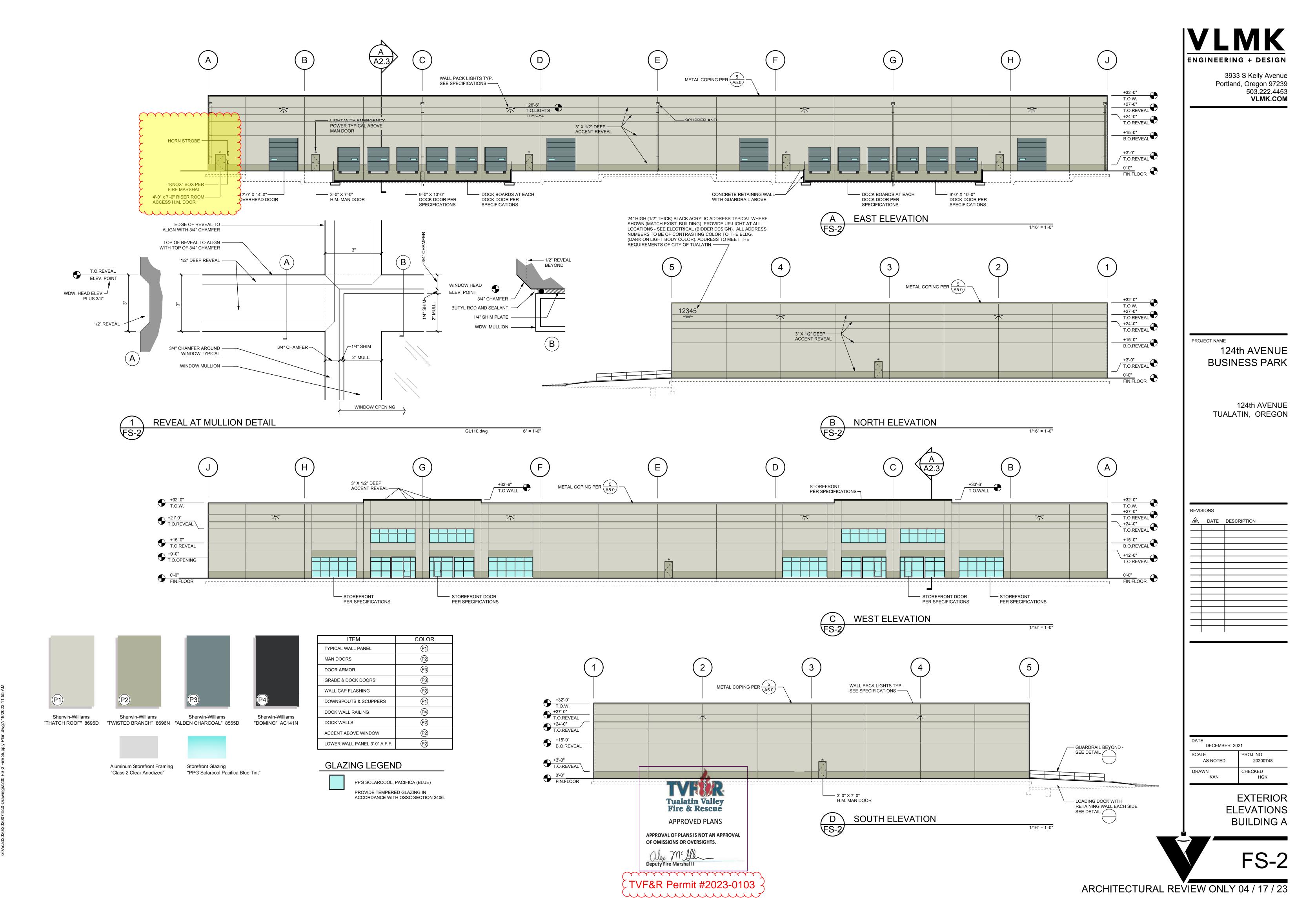
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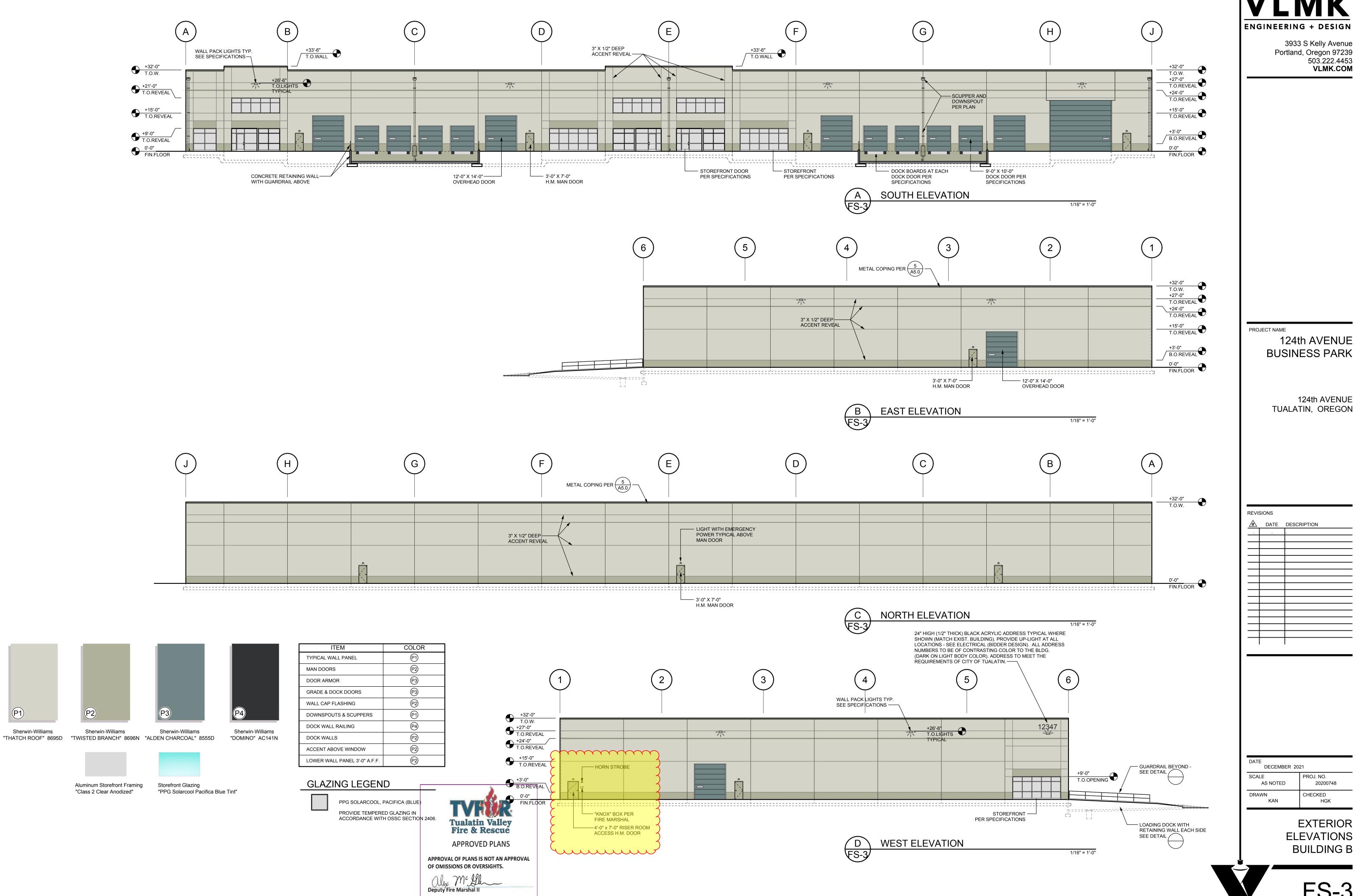
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ARCHITECTURAL REVIEW ONLY 04 / 17 / 23





TVF&R Permit #2023-0103

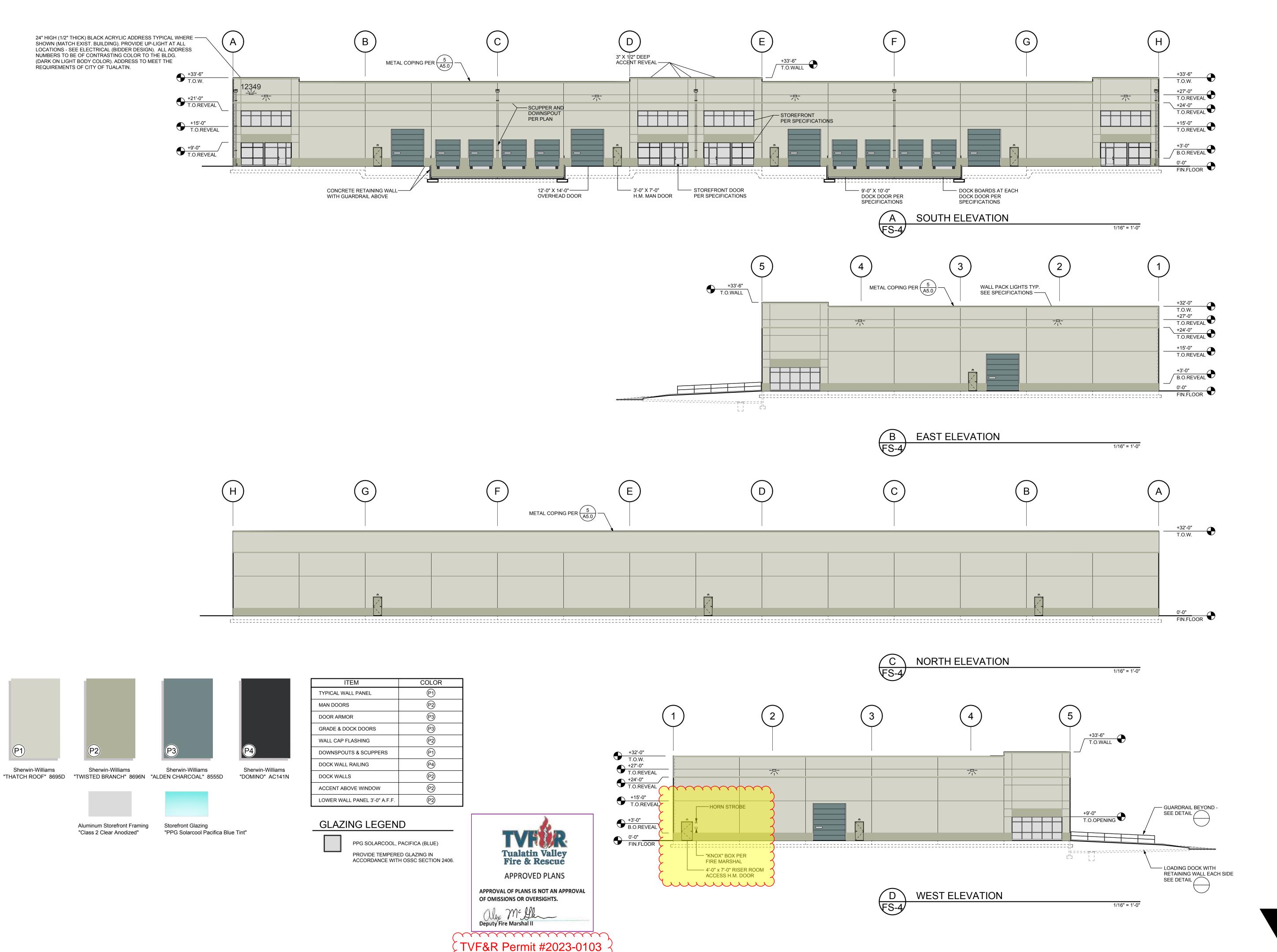
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124th AVENUE

124th AVENUE

20200748

EXTERIOR ELEVATIONS



ENGINEERING + DESIGN

3933 S Kelly Avenue Portland, Oregon 97239 503.222.4453

VLMK.COM

PROJECT NAME

124th AVENUE BUSINESS PARK

124th AVENUE TUALATIN, OREGON

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ARCHITECTURAL REVIEW ONLY 04 / 17 / 23



Amy Tallent VLMK Engineering + Design

Re: 124th Business Park 1900 SW 124th Ave, Tualatin, OR 97062

Dear Amy,

Thank you, for sending us the preliminary site plans for this proposed development in Tualatin Oregon.

My Company: Republic Services of Clackamas and Washington Counties has the franchise agreement to service this area with the City of Tualatin. We will provide complete commercial waste removal and recycling services as needed on a weekly basis for this location

The commercial design plan that your firm provided on 5/25/2023 which includes a standard trash/recycle enclosure design of 10' x 20' ID clear space, three enclosures, one per building, will provide adequate space for our trash and recycling receptacles and are accessible for our collection trucks to provide service. Each enclosure will have double gates equipped with cane poles, and the surface will be drilled to accept the cane poles and secure the gates in the open and closed positions. Ingress, egress to the site will be at SW 124th Ave. North of Building A.

Front Load service will be sufficient to maintain the anticipated waste levels generated for this site. Service levels are available as follows:

Trash -

6 days per week

Recycle –

5 days per week

Food Waste -

Glass -

5 days per week 1 day per week

Drop Box service is also available 5 days per week for high-volume generation of trash and recycling if needed.

Thanks, for your help and concerns for our services prior to this project being developed.

Sincerely,

Kelly Herrod

Operations Supervisor

Republic Services Inc.



Land Use Application

Project Information		2 2 3	450	
Project Title: 124th Ave Development				
Brief Description: Proposed construction of (3) speculative	, concrete tilt up t	ouildings and as	sociated site w	vork.
Property Information	TOTAL TOTAL		NI COLD II	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Address: 19000 SW 124th Ave - 12075 SW	/ Tualatin Sherwo	ood RD		
Assessor's Map Number and Tax Lots: 2S127BE	30100 - 2S127BB	0200		
Applicant/Primary Contact				
Name: Jennifer Kimura		Company Name: V	LMK Engineer	ring + Design
Address: 3933 S Kelly Ave				
City: Portland		State: OR		ZIP: 97239
Phone: 971.254.8300		Email: jenniferk@	vlmk.com	
Property Owner		O'CHE		
Name: Tualatin 124, LLC				
Address: 9760 SW Freeman Drive				
City: Wilsonville		State: OR		zip: 97070
Phone: 503.816.7719		Email: tbowers@ssiworld.com		
Property Owner's Signature:	3	Date: 4/13/2023		
(Note: Letter of authorization is required if not sign				
AS THE PERSON RESPONSIBLE FOR THIS APPLICATION IN AND INCLUDED WITH THIS AFTER COUNTY ORDINANCES AND STATE LAWS REGARD	PPLICATION IN ITS EN	TIRETY IS CORRECT	. I AGREE TO COM	
Applicant's Signature:				Date:
Land Use Application Type:				
☐ Annexation (ANN)	☐ Historic Landma	ırk (HIST)		Minor Architectural Review (MAR)
Architectural Review (AR)	☐ Industrial Maste	er Plan (IMP)		Minor Variance (MVAR)
☐ Architectural Review—Single Family (ARSF)	Plan Map Amen	dment (PMA)		Sign Variance (SVAR)
☐ Architectural Review—ADU (ARADU)	☐ Plan Text Amen	dment (PTA)		
☐ Conditional Use (CUP)	☐ Tree Removal/R	leview (TCP)	riew (TCP)	
Office Use		STATE		30 K3 C 19 M 31 2 8
Case No:	Date Received:		Re	eceived by:
Fee:		Receipt No:		



25 NW 23rd Place Suite 1 / Commercial Dept Portland, OR 97210 Phone (503) 219-9088 Fax (503) 477-6476

WFG National Title Insurance Company Trevor Cheyne 25 NW 23rd Place Suite 1 / Commercial Dept Portland, OR 97210

Date Prepared: November 8, 2018

PRELIMINARY TITLE REPORT

Order Number: **18-230918**Escrow Officer: Trevor Cheyne
Phone: (503) 444-7047
Fax: (503) 296-5869

Email: tcheyne@wfgnationaltitle.com

Seller(s): Franklin Business Park, LLC

Buyer(s): Our Associates, LLC

Property: 19000 SW 124th Avenue, Tualatin, OR 97062

WFG National Title Insurance Company, is prepared to issue a title insurance policy, as of the effective date and in the form and amount shown on Schedule A, subject to the conditions, stipulations and exclusions from coverage appearing in the policy form and subject to the exceptions shown on Schedule B. This Report (and any Amendments) is preliminary to and issued solely for the purpose of facilitating the issuance of a policy of title insurance at the time the real estate transaction in question is closed and no liability is assumed in the Report. The Report shall become null and void unless a policy is issued and the full premium paid.

This report is for the exclusive use of the person to whom it is addressed. Title insurance is conditioned on recordation of satisfactory instruments that establish the interests of the parties to be insured; until such recordation, the Company may cancel or revise this report for any reason.

Order No. 18-230918 Preliminary
Title Report

SCHEDULE A

- 1. The effective date of this preliminary title report is 8:00 A.M. on 1st day of May, 2018
- 2. The policies and endorsements to be insured and the related charges are:

Policy/Endorsement Description	<u>Liability</u>	<u>Charge</u>
ALTA 2006 Owners Policy	\$1,450,000.00	\$2,775.00
Basic Owner's Rate	\$2,775.	.00

Proposed Insured: Our Associates, LLC

Government Service Fee:

\$25.00

This is a preliminary billing only, a consolidated statement of charges, credits and advances, if any, in connection with this order will be provided at closing.

3. Title to the land described herein is vested in:

Franklin Business Park LLC, an Oregon limited liability company

4. The estate or interest in land is:

Fee Simple

5. The land referred to in this report is descried as follows:

SEE ATTACHED EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

EXHIBIT "A" LEGAL DESCRIPTION

A portion of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, County of Washington and State of Oregon, described as follows:

Beginning at the Northwest corner of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, and running thence East along the North line of said section 80.0 rods; thence South, parallel with the West line of said section, 20.0 rods; thence West 80.0 rods to said West line; thence North 20.0 rods to the place of beginning.

EXCEPTING THEREFROM the West 20.00 feet and the West 185.0 feet of the North 20.0 feet thereof.

FURTHER EXCEPTING THEREFROM that portion described in Deed of Dedication granted to the City of Tualatin for use of public as public way for street, road, right-of-way and public utility purposes by Deed recorded April 10, 2008, Recording No. 2018-032336.

SCHEDULE B

GENERAL EXCEPTIONS

- 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; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
- 2. 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, or claims of easement, not shown by the public records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
- 4. Any encroachment (of existing improvements located on the subject land onto adjoining land or of existing improvements located on adjoining land onto the subject land), encumbrance, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey of the subject land.
- 5. Any lien, or right to a lien, for services, labor, material, equipment rental or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the public records.

SPECIAL EXCEPTIONS

6. Easement, including the terms and provisions thereof:

For : Slope and public utility
Granted to : the City of Tualatin
Recorded : April 1, 2008
Recording No(s) : 2008-032337

Affects : the Westerly 12 feet abutting SW 124th Avenue

7. Unpaid Taxes for 2018 -2019:

Levied Amount : \$7,055.03, plus interest and fees, if any

Property ID No. : <u>R546653</u> Levy Code : <u>088.15</u>

Map Tax Lot No. : 2S127BB-00100

- 8. City liens, if any, of the City of Tualatin. We find none as of November 8, 2008.
- Resolution No. 5023-11 establishing a zone of benefit recovery charge for street improvements on SW 124th Avenue between SW Myslony Street and SW Tualatin-Sherwood Road, including the terms and provisions thereof:

Recorded : November 2, 2011 Recording No. : 2011-077061

Proposed Recovery Charge \$21,740.34 for 2S1B00200 (now known 2S127BB00100).

Please contact the City of Tualatin for further information.

- 10. This Commitment is subject to approval by personnel of WFG National Title Insurance Company and any additional limitations, requirements or exceptions made by WFG National Title Insurance Company.
- 11. Any unrecorded leases or rights of tenants in possession.

LINKS FOR ADDITIONAL SUPPORTING DOCUMENTS:

Assessor's map

Taxes

Vested Deed

Dedication Deed 2008 032336 ref in legal

END OF EXCEPTIONS

NOTE: We find NO judgments or Federal Tax Liens against the name(s) of Our Associates, LLC.

NOTE: In no event shall WFG National Title Insurance Company have any liability for the tax assessor's imposition of any additional assessments for omitted taxes unless such taxes have been added to the tax roll and constitute liens on the property as of the date of closing. Otherwise, such omitted taxes shall be the sole, joint and several responsibility of seller(s) and buyer(s), as they may determine between themselves.

NOTE: No search has been made for Financing Statements filed in the office of the Secretary of State. Exception may be taken to such matters as may be shown thereby. No liability is assumed if a Financing Statement is filed in the office of the County Recorder covering timber, crops, fixtures or contracts 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.

NOTE: The Oregon Corporation Commission disclosed that Franklin Business Park LLC, is an active Oregon

limited liability company:

Filed : March 14, 2000

Member : Marlborough Enterprises, Inc.

Registered Agent : Jonathan A. Bennett

NOTE: The Oregon Corporation Commission disclosed that Marlbourough Enterprises, Inc., is an active Oregon

corporation:

Filed : December 28, 1977
President : Amy Drake Reeves
Secretary : Matthew Bouvy Drake

Registered Agent : Franklin Drake (deceased) unknown at this time

(Affects Member of Franklin Business Park LLC)

NOTE: The requirement that a copy of the Operating Agreement of Our Associates, LLC, an Oregon limited liability company be submitted to us for examination. Any conveyance or encumbrance by said Company should be executed in accordance with the Operating Agreement of said Company.

NOTE: The Oregon Corporation Commission disclosed that Our Associates, LLC, is an active Oregon limited

liability company:

Filed : September 21, 2001
Member : Thomas J. Garnier
Registered Agent : Thomas Garnier

NOTE: The following is incorporated herein for information purposes only and is not part of the exception from coverage (Schedule B-II of the prelim and Schedule B of the policy): The following instrument(s), affecting said property, is (are) the last instrument(s) conveying subject property filed for record within 24 months of the effective date of this preliminary title report:

None of Record

NOTE: Due to current conflicts or potential conflicts between state and federal law, which conflicts may extend to local law, regarding marijuana, if the transaction to be insured involves property which is currently used or is to be used in connection with a marijuana enterprise, including but not limited to the cultivation, storage, distribution, transport, manufacture, or sale of marijuana and/or products containing marijuana, the Company declines to close or insure the transaction, and this Preliminary Title Report shall automatically be considered null and void and of no force and effect.

NOTE: The following applicable recording fees will be charged by the county:

Multnomah County-First Page	\$82.00
Washington County-First Page	\$81.00
Clackamas County-First Page	\$93.00
Each Additional Page	\$ 5.00
Non-standard Document Fee	\$20.00
E-recording Fee	\$ 3.00

Washington County Ordinance No. 193, recorded May 13, 1977 in Washington County, Oregon imposes a tax of \$1.00 per \$1,000.00 or fraction thereof on the transfer of real property located within Washington County.

NOTE: IMPORTANT INFORMATION REGARDING PROPERTY TAX PAYMENTS

Fiscal Year: July 1st through June 30th

Taxes become a lien on real property, but are not yet payable.

Taxes become certified and payable (approximately on this date)

First one third payment of taxes are due

Second one third payment of taxes are due

Final payment of taxes are due

May 15th

May 15th

Discounts: If two thirds are paid by November 15th, a 2% discount will apply.

If the full amount of the taxes are paid by November 15th, a 3% discount will apply.

Interest: Interest accrues as of the 15th of each month based on any amount that is unpaid by the due date.

No interest is charged if the minimum amount is paid according to the above mentioned payment

schedule.

NOTE: THE FOLLOWING NOTICE IS REQUIRED BY STATE LAW: YOU WILL BE REVIEWING, APPROVING AND SIGNING IMPORTANT DOCUMENTS AT CLOSING. LEGAL CONSEQUENCES FOLLOW FROM THE SELECTION AND USE OF THESE DOCUMENTS. YOU MAY CONSULT AN ATTORNEY ABOUT THESE DOCUMENTS. YOU SHOULD CONSULT AN ATTORNEY IF YOU HAVE QUESTIONS OR CONCERNS ABOUT THE TRANSACTION OR ABOUT THESE DOCUMENTS. IF YOU WISH TO REVIEW TRANSACTION DOCUMENTS THAT YOU HAVE NOT SEEN, CONTACT THE ESCROW AGENT.

End of Report

Your Escrow Officer

Trevor Cheyne
WFG National Title Insurance Company
25 NW 23rd Place Suite 1 / Commercial Dept
Portland, OR 97210

Phone: (503) 444-7047 Fax: (503) 296-5869

Email: tcheyne@wfgnationaltitle.com



WFG National Title Insurance Company is prepared to issue, as of the date specified in the attached Preliminary Title Report (the Report), a policy or policies of title insurance as listed in the Report and describing the land and the estate or interest set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as a General or Specific Exception or not excluded from coverage pursuant to the printed Exclusions and Conditions of the policy form(s).

The printed General Exceptions and Exclusions from the coverage of the policy or policies are listed in Exhibit One to the Report. In addition, the forms of the policy or policies to be issued may contain certain contract clauses, including an arbitration clause, which could affect the party's rights. Copies of the policy forms should be read. They are available from the office which issued the Report.

The Report (and any amendments) is preliminary to and issued solely for the purpose of facilitating the issuance of a policy of title insurance at the time the real estate transaction in question is closed and no liability is assumed in the Report.

The policy(s) of title insurance to be issued will be policy(s) of WFG National Title Insurance Company.

Please read the Specific Exceptions shown in the Report and the General Exceptions and Exclusions listed in Exhibit One carefully. The list of Specific and General Exceptions and Exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy to be issued and should be read and carefully considered.

It is important to note that the Report is not an abstract of title, a written representation as to the complete condition of the title of the property in question, and may not list all liens, defects and encumbrances affecting title to the land.

The Report is for the exclusive use of the parties to this transaction, and the Company does not have any liability to any third parties or any liability under the terms of the policy(s) to be issued until the full premium is paid. Until all necessary documents are recorded in the public record, the Company reserves the right to amend the Report.

Countersigned



Exhibit One 2006 American Land Title Association Loan Policy 6-17-06 EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

- 1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;
 - or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
 - (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
- 2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
- . Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant:
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
- 4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
- 5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
- 6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
- 7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

THE ABOVE POLICY FORM MAY BE ISSUED TO AFFORD EITHER Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

SCHEDULE B - GENERAL EXCEPTIONS FROM COVERAGE

- 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; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
- 2. 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, or claims of easement, not shown by the public records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
- 4. Any encroachment (of existing improvements located on the subject land onto adjoining land or of existing improvements located on adjoining land onto the subject land), encumbrance, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey of the subject land.
- 5. Any lien, or right to a lien, for services, labor, material, equipment rental or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the public records.

2006 AMERICAN LAND TITLE ASSOCIATION OWNER'S POLICY 6-17-06 EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

- 1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land:
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land: or
 - (iv) environmental protection;
 - or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
 - (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
- 2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
- Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10; or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
- 4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
 - (a) a fraudulent conveyance or fraudulent transfer; or
 - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
- 5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

SCHEDULE B - GENERAL EXCEPTIONS FROM COVERAGE

- 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; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
- 2, 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, or claims of easement, not shown by the public records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
- 4. Any encroachment (of existing improvements located on the subject land onto adjoining land or of existing improvements located on adjoining land onto the subject land), encumbrance, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey of the subject land.

Any lien, or right to a lien, for services, labor, material, equipment rental or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the public records.



ABOUT YOUR PRIVACY

At WFG, we believe it is important to protect the privacy and confidences of our customers. This notice is intended to explain how we collect, use, and protect any information that we may collect. It will explain the choices you may make about the use of that information.

What Information Do We Collect About You?

We collect certain types of information about you. This may consist of:

- Your name, address, and telephone number.
- · Your email address.
- Your social security or government ID numbers.
- Your financial information.

We collect this information from:

- The application or other forms you fill out with us.
- The correspondence you and others direct to us.
- Our transactions with you.
- Others involved in your transaction, including the real estate agent or lender.

In some cases, we collect information from third parties. For instance, we may receive real estate information from local assessor's offices.

How Do We Use This Information?

We use the information we collect to respond to your requests. **WE DO NOT SHARE** your information with other companies.

How Can You "Opt Out?"

We do not share your information so there is no need to opt out.

The information We Collect About You On Our Website

When you enter our website, we automatically collect and store certain information. This consists of:

- Your IP Address
- (Internet Protocol Address) and domain name.
- The type of browser and operating system you use.
- The time of your visit.
- The pages of our site you visit.

If you register with us or fill out an on online survey, we will collect additional personal information, such as your name, telephone number, email address and mailing address.

Cookie Usage

In order to provide you with customized service, we make use of "cookies." Cookies are essentially files that help us identify your computer and respond to it. You may disable cookies on your own computer, but you may not be able to download online documents unless cookies are enabled.

How We Use Information

The information we collect concerning:

- Your browser
- The time and date of your visit
- The web pages or services you accessed

is used for administrative and technical purposes. For instance, we may use it to count the number of visitors to our site and determine the most popular pages. We may also use it to review types of technology you are using, determine which link brought you here, assess how our advertisements on other sites are working, and to help with maintenance.

We use information contained in your emails only for the purpose of responding to those emails. If we ask you to fill out any forms or surveys, we will use the information we receive only for the specific purposes indicated in those forms or surveys.

Your Right to See and Correct Information

If you wish to see the information collected about you, please contact your settlement agent.

Children's Policy

We do not knowingly collect information from children under the age of 18. We delete any information that we discover has been provided by children.

Security

--Generally

We make every effort to protect the integrity of your information. Any personal information you enter into online forms or surveys will be encrypted to ensure it remains private. We limit the right of access to your information to employees that need to use the information to respond to or process your request or transaction. We also take industry standard (IPSEC) measures to protect our sites from malicious intrusions or hacking.

-- Phishing and Pretexting

As you know, consumers are increasingly targeted by unscrupulous persons attempting to acquire sensitive personal or financial information, by impersonating legitimate businesses. We will never send you an unsolicited email or other communication requesting your private information. If you receive a communication directing you to enter your personal information, please disregard the instruction and contact us immediately at Compliance@wfgnationaltitle.com.

Oregon Residents

We may not disclose personal or privileged information about you unless we provide you with a disclosure authorization form that is executed by you or your representative and otherwise complies with certain statutory requirements. Any such authorization is not valid for more than 24 months and may be revoked by you at any time, subject to the rights of anyone who relied on the authorization prior to your notice of revocation.

In addition, if your personal or privileged information was collected or received by us in connection with a title insurance transaction, we cannot disclose such information if the disclosure authorization form that you executed is more than one year old or if the requested disclosure is for a purpose other than a purpose expressly permitted by statute.

You have the right at any time to request in writing access to recorded personal information about you that is reasonably described by you and reasonably available to us. Within 30 days of the date of our receipt of any such written request from you, we will inform you of the nature and substance of any such information, permit you to see and copy that information or obtain a copy by mail, disclose the identity, if recorded, of the persons to whom we have disclosed such information during the previous two years, and provide you with a summary of the procedures by which you may request that such information be corrected, amended or deleted.

Do Not Track

Because there is not an industry-standard process or defined criteria to permit a user to opt out of tracking their internet access (Do Not Track or DNT), we do not currently respond to the various DNT signals.

How to Contact Us

If you have any questions about our privacy policy, please contact WFG:

By email: Compliance@wfgnationaltitle.com

By telephone: 800-385-1590

By fax: 503-974-9596

By mail: 12909 SW 68th Pkwy, Suite 350, Portland, OR 97223

In person: 12909 SW 68th Pkwy, Suite 350, Portland, OR 97223

WFG FAMILY

WILLISTON FINANCIAL GROUP LLC
WFG NATIONAL TITLE INSURANCE COMPANY
WFG LENDER SERVICES, LLC
WFGLS TITLE AGENCY OF UTAH, LLC
WFG NATIONAL TITLE COMPANY OF WASHINGTON, LLC
WFG NATIONAL TITLE COMPANY OF CALIFORNIA
WFG NATIONAL TITLE COMPANY OF TEXAS, LLC D/B/A WFG NATIONAL TITLE COMPANY
UNIVERSAL TITLE PARTNERS, LLC
VALUTRUST SOLUTIONS, LLC
WILLISTON ENTERPRISE SOLUTIONS & TECHNOLOGY, LLC
WFG NATIONAL TITLE COMPANY OF CLARK COUNTY, WA, LLC D/B/A WFG NATIONAL TITLE
INLAND PROFESSIONAL TITLE LLC D/B/A WFG NATIONAL TITLE COMPANY OF EASTERN WA
WFG NATIONAL TITLE COMPANY OF COLORADO



RECORDING REQUESTED BY: Fidelity National Title

900 SW 5th Avenue Portland, OR 97204

GRANTOR'S NAME:

Edward J. Wager

GRANTEE'S NAME:

Tualatin 124, LLC, an Oregon limited liability company

AFTER RECORDING RETURN TO:

Thomas J. Garnier Tualatin 124, LLC 9760 SW Freeman Drive Wilsonville, OR 97070

SEND TAX STATEMENTS TO:

Tualatin 124, LLC 9760 SW Freeman Drive Wilsonville, OR 97070

APN: R546662 R2184890

12075 SW Tualatin Sherwood Road, Tualatin, OR 97062

Washington County, Oregon D-DW

2019-062466

Stn=16 M LOPEZ

09/13/2019 09:45:12 AM

\$20.00 \$11.00 \$5.00 \$60.00 \$1,525.00

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

SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

Edward J. Wager, Grantor, conveys and warrants to Tualatin 124, LLC, an Oregon limited liability company, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Washington, State of Oregon:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS ONE MILLION FIVE HUNDRED TWENTY-FIVE THOUSAND AND NO/100 DOLLARS (\$1,525,000.00). (See ORS 93.030).

Subject to:

SEE EXHIBIT "B" ATTACHED HERETO AND MADE A PART HEREOF

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES 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 THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: September

State of Oregon

County of CLACKAMA

This instrument was acknowledged before me on September 13, 2019 by Edward J. Wager.

Notary Public - State of Oregon

My Commission Expires: 10-27-2019

OFFICIAL STAM LORI E MEDAK NOTARY PUBLIC-OREGON COMMISSION NO. 944308
MY COMMISSION EXPIRES OCTOBER 27, 2019

EXHIBIT "A"

Legal Description

PARCEL I:

A parcel of land in the Northwest quarter of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, Washington County, Oregon, described as follows:

Beginning at a point which is North 537.24 feet and North 82° 04' East 803.1 feet and North 85° 20' East 278.78 feet from the quarter section corner between Sections 27 and 28, Township 2 South, Range 1 West of the Willamette Meridian, from said beginning point; thence running North 0° 17' East 649.44 feet to a point; thence North 89° 52' East 238.2 feet to a point; thence South 0° 03' East 627 feet to a point; thence South 85° 20' West 238.92 feet to the place of beginning.

ALSO: A parcel of land in the Northwest quarter of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, Washington County, Oregon, described as follows:

Beginning at the Northeast corner of 17.53 acre tract of land belonging to Grace H. Robinson located in the Southwest one-quarter of the Northwest one-quarter of Section 27, Township 2 South, Range 1 West of the Willamette Meridian; thence running West along the North line of said tract 36 feet; thence South parallel with the East line of said tract 600 feet to the County Road; thence East along the County Road 36 feet to the Southeast corner of said tract; thence North along the East line of said tract 600 feet to the point of beginning.

EXCEPTING THEREFROM that portion thereof conveyed to Joseph L. Itel and others by deed recorded October 26, 1973 in Book 950, Page 861, described as follows:

Beginning at the Southeast corner of that certain tract of land recorded in Book 750, Page 279, said Deed Records, conveying one-half interest to Earl J. Itel, which point is in the center of S.W. Tualatin-Sherwood Road (County Road No. 492) and which bears South 2065.56 feet and East 1061.58 feet from the Northwest corner of said Section 27; thence running along the line common to Itel and Wager tracts, North 00° 27' East 301.79 feet to a point; thence South 89° 33' East 20.00 feet to a point; thence parallel with said common line, South 0° 27' West 300.00 feet to a point in the center line of said S.W. Tualatin-Sherwood Road; thence in the center thereof, South 85° 20' West 20.08 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM that portion described as Parcel I (Take - Dedication of right-of-Way) in Dedication Deed to Washington County, for public road purposes, recorded April 4, 1990, Recorder's No. 90-16553.

PARCEL II:

A parcel of land in Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, Washington County, Oregon, described as follows:

Commencing at an iron bar at the corner of Sections 21, 22, 27 and 28, Township 2 South, Range 1 West, of the Willamette Meridian; thence South 0° 27' West along the West line of said Section 27, 231.14 feet to the point of beginning of the tract of land to be described, and from said beginning point; thence running South 89° 58-1/2' East 1344.18 feet to a point; thence South 1° 35-1/2' West 595.87 feet to a point; thence North 89° 55' West 1328.63 feet to a point; thence North 0° 27' East 594.36 feet to the place of beginning.

ALSO the South 15 acres of the Northwest quarter of the Northwest quarter of Section 27 in Township 2 South, Range 1 West of the Willamette Meridian, more particularly described as:

Beginning at the Southwest corner of said Northwest quarter of the Northwest quarter of Section 27; thence North along the West line of said Section 27 a distance of 30 rods to a point; thence East on a line parallel with the South line of said Northwest quarter of the Northwest quarter of said Section 27 a distance of 80 rods to the East line of said Northwest quarter of the Northwest quarter of Section 27; thence South along the East line of said subdivision 30 rods to the Southeast corner thereof; thence West along the South line of said subdivision 80 rods to the place of beginning.

EXCEPTING THEREFROM a certain tract of land conveyed by D.V. Jennings and Margaret Jennings, his wife, to Grace H. Robinson by deed recorded March 28, 1918 in Book 109 on Page 556, records of deed of Washington County, Oregon.

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, for the use of the public as a public way, for street, road, right-of-way and public utility purposes, recorded November 1, 2007, as Document No. 2007-115253, Records of the County of Washington and State of Oregon.

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, for the use of the public as a water quality and detention facility, recorded April 23, 2009, as Document No. 2009-034873, Records of the County of Washington and State of Oregon.

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, for the use of the public as a public way, for street, road, right-of-way and public utility purposes, recorded April 23, 2009, as Document No. 2009-034874, Records of the County of Washington and State of Oregon.

EXHIBIT "A"

Legal Description

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, a perpetual right-of-way for street, road, public utility, and pedestrian purposes, recorded February 5, 2018, as Document No. 2018-008704, Records of the County of Washington and State of Oregon.

EXHIBIT "B"

Exceptions

Subject to:

- Property taxes in an undetermined amount, which are a lien but not yet payable, including any 1 assessments collected with taxes to be levied for the fiscal year 2019-2020.
- 2. Omitted taxes, if any, as no improvements are assessed. No liability is assumed for later additions to the tax roll.

Account No.: M931576 / Manufactured Structure

Affectst:

Parcel I

3. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:

Washington County

Purpose:

Drainage and slopes

Recording Date: Recording No:

April 4, 1990 90-16553

Affects:

Parcel I, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 4.

Granted to:

City of Tualatin Sanitary sewer

Purpose: Recording Date:

November 22, 1991

Recording No:

91-065142

Affects:

Parcel II, reference is hereby made to said document for full particulars

5. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:

City of Tualatin Storm drainage

Purpose: Recording Date:

November 22, 1991

Recording No:

91-065143

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 6.

Granted to:

City of Tualatin

Purpose:

Slopes

Recording Date:

November 22, 1991

Recording No:

91-065144

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 7.

Granted to: Purpose:

City of Tualatin Slopes and utilities November 1, 2007

Recording Date: Recording No:

2007-115254

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 8.

Granted to:

City of Tualatin

Purpose:

Water quality and mitigation

Recording Date: Recording No:

November 1, 2007 2007-115255

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 9.

Granted to:

City of Tualatin

Purpose:

Access

Recording Date: Recording No:

April 23, 2009 2009-034875

Affects:

Parcel II, reference is hereby made to said document for full particulars

Fence encroachment agreement, including the terms and provisions thereof 10.

Recording Date:

June 30, 2009

Recording No.:

2009-059448

Rights of tenants, as tenants only, in unrecorded leaseholds. 11.

File No.: 18-230918

Grantor Franklin Business Park LLC Grantee Tualatin 124, LLC After recording return to Tualatin 124, LLC, an Oregon limited liability company 9760 SW Freeman Drive Wilsonville, OR 97070 Until requested, all tax statements shall be sent to Tualatin 124, LLC, an Oregon limited liability company 9760 SW Freeman Drive Wilsonville, OR 97070 Tax Acct No(s): 2S127BB-00100, R546653

Washington County, Oregon D-DW

2018-084483

12/18/2018 08:43:16 AM

Stn=7 C LOUCKS \$20.00 \$11.00 \$5.00 \$60.00 \$1,450.00

, 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

Reserved for Recorder's Use

STATUTORY WARRANTY DEED

Franklin Business Park LLC, an Oregon limited liability company, Grantor(s) convey and warrant to Tualatin 124, LLC, an Oregon limited liability company, Grantee(s), the real property described in the attached Exhibit A, subject only to those liens and encumbrances set forth on the attached Exhibit B.

The true consideration for this conveyance is \$1,450,000.00. (Here comply with requirements of ORS 93.030)

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855. OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES 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 THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009 AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

File No.: 18-230918

Grantor
Franklin Business Park LLC
Grantee
Tualatin 124, LLC
After recording return to
Tualatin 124, LLC, an Oregon limited liability company
9760 SW Freeman Drive
Wilsonville, OR 97070
Until requested, all tax statements shall be sent to
Tualatin 124, LLC, an Oregon limited liability company
9760 SW Freeman Drive
Wilsonville, OR 97070

Tax Acct No(s): 2S127BB-00100, R546653

Reserved for Recorder's Use

STATUTORY WARRANTY DEED

Franklin Business Park LLC, an Oregon limited liability company, Grantor(s) convey and warrant to Tualatin 124, LLC, an Oregon limited liability company, Grantee(s), the real property described in the attached Exhibit A, subject only to those liens and encumbrances set forth on the attached Exhibit B.

The true consideration for this conveyance is **\$1,450,000.00**. (Here comply with requirements of ORS 93.030)

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES 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 THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009 AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

Executed this day of December, 2018
Franklin Business Park LLC, an Oregon limited liability company
By: Marlborough Enterprises, Inc., an Oregon Corporation Its: Manager
By Murky B. Drake Name: Matthew B. Drake Its: Vice President and Secretary
STATE OF OREGON COUNTY OF MULTNOMAH
This instrument was acknowledged before me this day of December, 2018 by Amy Drake Reeves as President and Matthew B. Drake as Vice President and Secretary, of Marlborough Enterprises, Inc., an Oregon Corporation, Manager of Franklin Business Park LLC, an Oregon limited liability company, on behalf of the limited liability company.
Print Name Tokka Garrett Cheque Notary Public for Oregon My Commission Expires: 10/15/2/ TREVOR GARRETT CHEYNE NOTARY PUBLIC-OREGON COMMISSION NO. 922330 MY COMMISSION EXPIRES NOVEMBER 20, 2017

EXHIBIT "A" LEGAL DESCRIPTION

A portion of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, County of Washington and State of Oregon, described as follows:

Beginning at the Northwest corner of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, and running thence East along the North line of said section 80.0 rods; thence South, parallel with the West line of said section, 20.0 rods; thence West 80.0 rods to said West line; thence North 20.0 rods to the place of beginning.

EXCEPTING THEREFROM the West 20.00 feet and the West 185.0 feet of the North 20.0 feet thereof.

FURTHER EXCEPTING THEREFROM that portion described in Deed of Dedication granted to the City of Tualatin for use of public as public way for street, road, right-of-way and public utility purposes by Deed recorded April 10, 2008, Recording No. 2018-032336.

EXHIBIT "B" Exceptions

Easement, including the terms and provisions thereof: 1.

Slope and public utility the City of Tualatin April 1, 2008 For Granted to

Recorded Recording No(s) 2008-032337

Affects the Westerly 12 feet abutting SW 124th Avenue

RECORDING COVER SHEET (Per ORS 205.234)

This cover sheet has been prepared by the person presenting the attached instrument for recording. Any errors in this cover sheet <u>Do Not</u> effect the transaction(s) contained In this instrument itself.

After recording return to:
Tualatin 124, LLC,
9760 SW Freeman Drive
Wilsonville, OR 97070
Mail Tax statements to:
NO CHANGE

Washington County, Oregon

2019-001637

D-DW

01/11/2019 09:20:19 AM

Stn=2 S AKINS \$30.00 \$11.00 \$5.00 \$60.00

\$106,00

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 reco

Richard Hobernicht, Director of Assessment and Taxation, Ex-Officio

N	ıa	n	<u>1e</u>	(5) (ЭŢ	ra	П	<u>ısac</u>	:tic	วท	(S):	

Described in the attached instrument and required by ORS 205.234(a) (i.e. Warranty Deed) STATUTORY WARRANTY DEED

Direct Party (per ORS 205.125 [1][b]) /Grantor (per ORS 205.160):

Franklin Business Park LLC, an Oregon limited liability company

Indirect Party (per ORS 205,125[1][a]/Grantee (per ORS 205.160):

Tualatin 124, LLC, an Oregon limited liability company

Consideration Paid (per ORS 93.030):

\$1,450,000.00

Rerecorded at the request of <u>WFG</u> to correct <u>To correct deed reference in legal</u> Previously recorded as Fee No. <u>12/18/18</u> as <u>2018-084483</u>.

(Legal description if corrected is attached to included certified document of the original)

RECORDING COVER SHEET (Per ORS 205.234)

This cover sheet has been prepared by the person presenting the attached instrument for recording. Any errors in this cover sheet <u>Do Not</u> effect the transaction(s) contained In this instrument itself.

A.C. 12	
After recording return to:	
Tualatin 124, LLC,	
9760 SW Freeman Drive	
Wilsonville, OR 97070	
Mail Tax statements to:	
NO CHANGE	
Name(s) of Transaction(s):	
	and required by ORS 205.234(a) (i.e. Warranty Deed)
STATUTORY WARRANTY DEED	
Direct Party (per ORS 205.125 [1][b]) / Grantor (per ORS 205.160):
	Oregon limited liability company
Indirect Party (per ORS 205.125[1][al/ Grantee (per ORS 205.160):
Tualatin 124, LLC, an Oregon li	
Tualatili 124, LLC, all Oregoli li	inited liability company
- 11 11 - 11	44 450 000 00
Consideration Paid (nor ORS 93 03	30* \$1.450.000.00

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Previously recorded as Fee No. <u>12/18/18 as 2018-084483</u>.

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FURTHER EXCEPTING THEREFROM that portion described in Deed of Dedication granted to the City of Tualatin for use of public as public way for street, road, right-of-way and public utility purposes by Deed recorded April 10, 2008, Recording No. 2008-032336.

File No.: 18-230918

Grantor	
Franklin Business Park LLC	
Grantee	
Tualatin 124, LLC	
After recording return	to
Tualatin 124, LLC, an Oregon limited lia	bility company
9760 SW Freeman Drive	
Wilsonville, OR 97070	
Until requested, all tax statements	shall be sent to
Tualatin 124, LLC, an Oregon limited lia	bility company
9760 SW Freeman Drive	
Wilsonville, OR 97070	

Tax Acct No(s): 2S127BB-00100, R546653

Washington County, Oregon

2018-084483

D-DW

12/18/2018 08:43:16 AM

Stn=7 C LOUCKS 12/18/20 \$20.00 \$11.00 \$5.00 \$60.00 \$1,450.00

\$1,546.00

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

Reserved for Recorder's Use

STATUTORY WARRANTY DEED

Franklin Business Park LLC, an Oregon limited liability company, Grantor(s) convey and warrant to Tualatin 124, LLC, an Oregon limited liability company, Grantee(s), the real property described in the attached Exhibit A, subject only to those liens and encumbrances set forth on the attached Exhibit B.

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BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES 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 THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009 AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

Executed this day of December, 2018
Franklin Business Park LLC, an Oregon limited liability company
By: Marlborough Enterprises, Inc., an Oregon Corporation Its: Manager
Name: Amy Drake Reeves Its: President By Marker Reves Name: Matthew B. Drake Its: Vice President and Secretary
STATE OF OREGON COUNTY OF MULTNOMAH
This instrument was acknowledged before me this day of December, 2018 by Amy Drake Reever as President and Matthew B. Drake as Vice President and Secretary, of Marlborough Enterprises, Inc., an Oregon Corporation, Manager of Franklin Business Park LLC, an Oregon limited liability company, or behalf of the limited liability company.
Print Name There Gavett Chemo Notary Public for Oregon My Commission Expires: 10/15/2/ TREVOR GARRETT CHEYNE NOTARY PUBLIC-OREGON COMMISSION NO. 922330 MY COMMISSION EXPIRES NOVEMBER 20, 2017

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EXHIBIT "B" Exceptions

1. Easement, including the terms and provisions thereof:

Slope and public utility the City of Tualatin April 1, 2008 Granted to Recorded

Recording No(s) 2008-032337

Affects the Westerly 12 feet abutting SW 124th Avenue



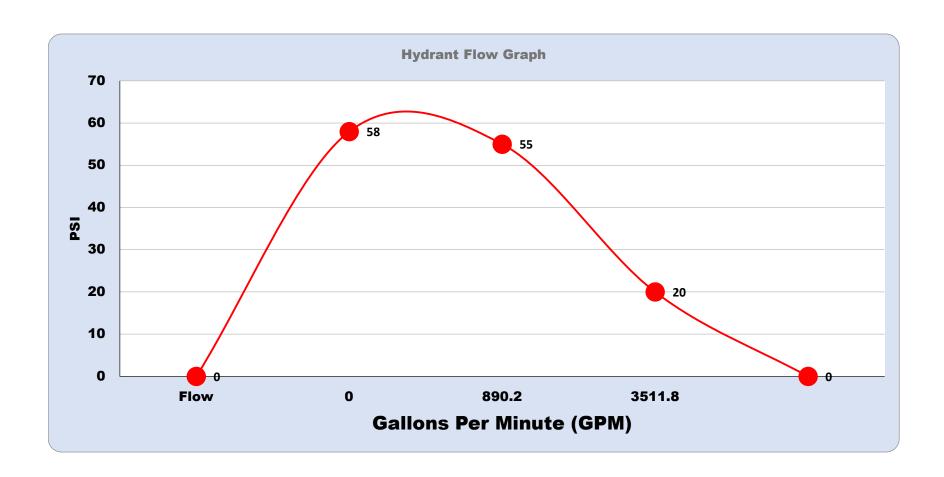
I, Richard W. Hobernicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify this to be a true and correct copy of the original.

Witness my hand this 9th of January, 2019

C. Loucks - Deputy



NAME OF FACILITY	: Broadleaf	Arbor					ATE:	3/27/2023				
FACILITY ADDRESS	: 124th Ave	Business Park				J	OB #:	32-16986				
INSPECTOR	: CARL MA	AK CERT #:										
			Ш			_						
						_						
			Щ	\vdash	-	_						
			H	\vdash	┨	_						
			Н			_						
					FLOW	TEST						
HYDRANT TYPE HYDRANT # FH-27-0095												
HYDRANT LOCATION	20400 SW	/ Cipole Rd. Tualatian, C	R - HO	SE MC	NSTER							
STATIC PSI	58	RESIDUAL PSI	5	55					RESULT	<u>s</u>		
PITOT PSI	28	NUMBER OF OUTLETS	5	1	GPM FL	OWED		890.2				
					_							
SIZE OF OUTLETS	2.495	COEFFICIENT	0.9	906	GMP @	20 PSI		3511.8				
					_							





Hydraulic Modeling Fee

Water supply modeling is necessary for larger projects to determine the impact of the project's water demand on the water supply system. Water supply modeling will be performed by a consulting engineer based on the most recent version of the Tualatin Water System Master Plan.

Due to possible impacts to the water supply system, the following projects in Tualatin require hydraulic modeling based on the size and type of the project and projected water use for the finished project. The outcome of modeling could require offsite improvements to the water supply system in order to ensure that adequate water supply is available to serve the project and reduce impacts to the overall system.

Hydraulic modeling of the water supply system is required for the following project type/sizes/demand:

Project Type	Criteria	Permit Fee	
Commercial or Industrial	Building floor area greater than 48,300 square feet		
Building	<u>or</u>	\$ 300 _	<u>ተ</u> ር ር (
	Anticipated daily water demand greater than 870 gallons	per building	\$500
	per acre per day		
Residential development	More than 49 dwelling units	\$ 1,000	_
Multi-family development	More than 49 dwelling units		
	<u>or</u>	\$ 300	
	a combined building floor area greater than 48,300	per building	
	square feet		

Please complete this form and submit the form <u>and</u> required fee (if applicable) with your land-use application (architectural review, subdivision, etc.).

Building floor area 199,170 - total for (3) bldgs	square feet
 Anticipated water demand (if known) 	gallons per day
Described planned building use Shell/Speculate	ive buildings - no tenants at this time
Residential Development	
Number of dwelling units or single family	home lots
Multi-Family Residential Development	
Number of dwelling units	
 Building floor area (sum of all building) 	
 Number of multi-family buildings 	

If no fee is required, enter \$0.

NOTE: Water Supply Modeling does not replace the requirement for fire hydrant flow testing. Flow testing of fire hydrants will still be required to verify adequate fire flow of finished system



Neighborhood Meeting Notes 124th Ave Development Park 12075 SW Tualatin Sherwood Road

Notices were sent to the Neighboring properties as required. No comments nor questions were received during the Notice Period prior to the meeting.

The Neighborhood Meeting was held remotely, via TEAMS, for the proposed 124th Ave Development Park at 12075 SW Tualatin Sherwood Road on Thursday, April 21, 2022. The meeting started at 6:00pm. The following people were in attendance and their contact information is shown on the attached Sign In Sheet:

- 1. Havlin G Kemp PE, VLMK Engineering + Design. Meeting Presenter.
- 2. Amy Tallent, VLMK Engineering + Design
- 3. Jennifer Kimura, VLMK Engineering + Design
- 4. Kurt Nakashima, VLMK Engineering + Design
- 5. Tony Jenkins, VLMK Engineering + Design
- 6. Tracy Bowers, Tualatin 124, LLC

Introductions of all attendees were made.

The meeting started at 6:00pm and <u>no interested parties</u> joined the meeting. The meeting was held open until 6:30pm and then closed.

Subsequent to the meeting, on Friday, April 22, 2022, a neighbor called to inquire about the project. Skip Stanaway, A&I Distribution, noted that he is the neighbor to the north and owns the building at the corner of SW 124th and Myslony. Havlin Kemp spoke with Mr. Stanaway and answered his questions concerning:

- 1. the two proposed driveways onto SW 124th
- 2. the method of stormwater treatment and detention and
- 3. the grading and landscaping north of Buildings B and C between Mr. Stanaway's property and the buildings.

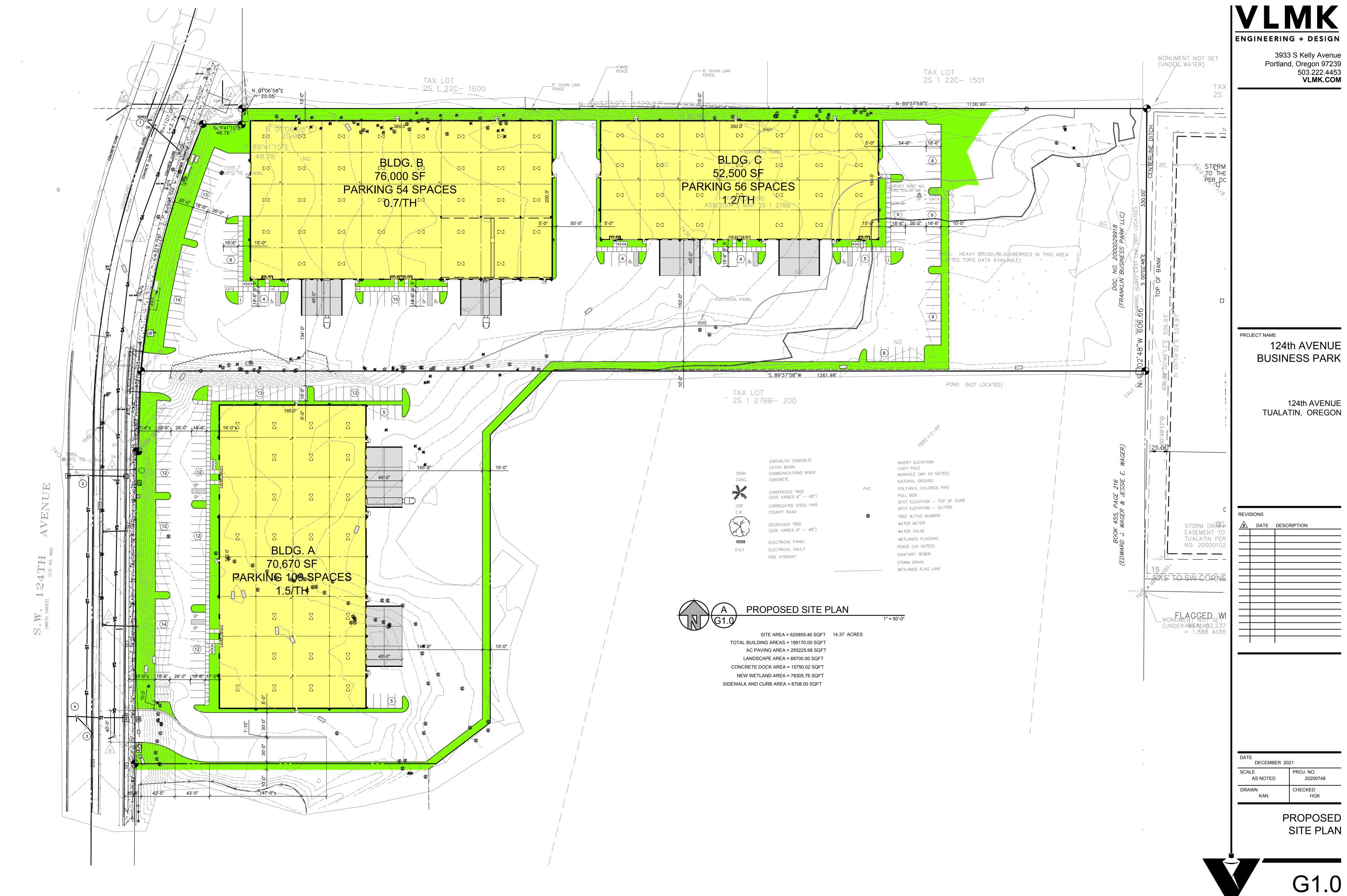
In addition to the above questions, Mr. Stanaway asked if this project needed fill dirt. He noted that he had between 300 and 3000 cyds. of fill material stockpiled to the east of his building that he could sell for use on our project. Mr. Kemp noted that the project will need fill material and would contact Mr. Stanaway in the future once the projects receives the required approvals and permits.

Submitted by: VLMK Engineering + Design

Havlin G. Kemp PE Principal

Enclosures:

- 1. Proposed Site Plan
- 2. Sign In Sheet



\Acad2020\20200748\0-Drawings\100 G1.0 Site Plan.dwg4/4/2022 1

NOT FOR CONSTRUCTION

Neighborhood Meeting Roster for 124th Ave Development Virtual Meeting April 21, 2022 @ 6:00pm

Name:	Address:	Phone #:	Email address:
Havlin Kemp		503-222-4453	havlin@vlmk.com
Amy Tallent		503-222-4453	amyt@vlmk.com
Jennifer Kimura		503-222-4453	jenniferk@vlmk.com
Kurt Nakashima		503-222-4453	kurtn@vlmk.com
Tony Jenkins		503-222-4453	tonyj@vlmk.com
Tracy Bowers		503-682-3633	tbowers@ssiworld.com









CERTIFICATION OF SIGN POSTING

NOTICE		
NEIGHBORHOOD / DEVELOPER MEETING		
//2010 _:m.		
503		

In addition to the requirements of TDC 32.150, the 18" x 24" sign must display the meeting date, time, and address as well as a contact phone number. The block around the word "NOTICE" must remain **orange** composed of the **RGB color values Red 254, Green 127, and Blue 0**. A PowerPoint template of this sign is available at: https://www.tualatinoregon.gov/planning/land-use-application-sign-templates.

As the applicant for the	_ project, I hereby
certify that on this day, $\frac{4}{7}$ sign(s) was/were posted on the subject property	in accordance with
the requirements of the Tualatin Development Code and the Community Development Division.	
Applicant's Name: Amy Tallent	
Applicant's Signature: (Please Print)	_
Applicant's Signature:	_
Pate: 4/7/22	

AFFIDAVIT OF MAILING NOTICE

STATE OF OREGON)		
COUNTY OF WASHINGTON) SS)		
I, _Amy Tallent	being first	duly sworn, depose and say:	
(Mailing Area List), attach Neighborhood/Developer N herein, by mailing to them a on said Exhibit "A" are the	ed hereto and by this Meeting marked Exhibit true and correct copy of ir regular addresses as a County Departments of A	, 20 22, I served upon the persons shown on Exhib reference incorporated herein, a copy of the Notice "B," attached hereto and by this reference incorporate original hereof. I further certify that the addresses of the original hereof hereto and records of the Washir Assessment and Taxation Tax Rolls, and that said envertilly prepared thereon.	ce of rated hown ngton
		amy Jack t	
SUBSCRIBED AND SWORN to	o before me this	day of $April$, 20 22.	
KIMBERL' NOTARY COMMIS	FICIAL STAMP Y ELLEN ALLMARAS PUBLIC - OREGON SSION NO. 1013096 PIRES JUNE 03, 2025	Notary Public for Oregon My commission expires: 6/3/2025	

RE: Neighborhood Meeting Notice

Janine Wilson 18325 SW 135th Terrace	Margarita Crowell 7237 SW Delaware Ct.	Ed Casey 22255 SW 102nd Pl.
Tualatin, OR 97062	Tualatin, OR 97062	Tualatin, OR 97062
Chris Tunstall	Sallie Olson	Julie Makarowsky
17400 SW Cheyenne Way	8960 SW Arapaho Rd	10775 SW Willow St.
Tualatin, OR 97062	Tualatin, OR 97062	Tualatin, OR 97062
Dan Hardy	Del Moore	
23070 SW Lodgepole Ave	8790 SW Nisqually Ct	Alex Thurber
Tualatin, OR 97062	Tualatin, OR 97062	9875 SW Iowa Dr
radiatilly SN 37002		Tualatin, OR 97062
Kate Pinamonti	Jamison Shields	Mary Lyn Westenhaver
10240 SW Fulton Drive	8182 SW Paiute	9845 SW Iowa Dr
Tualatin, OR 97062	Tualatin, OR 97062	Tualatin, OR 97062
	Claudia Sterling	
Jeanne Raikoglo	20600 SW Shoshone Dr	Susan Humphrey
17630 SW Shawnee Trail	Tualatin, OR 97062	8801 SW Stono Dr.
Tualatin, OR 97062		Tualatin, OR 97062
Daniel Bachhuber	Janet Gilkey	Deb Fant
10205 SW Casteel Ct	21132 SW 86th Ct	22680 SW Eno Pl.
Tualatin, OR 97062	Tualatin, OR 97062	Tualatin, OR 97062
Doug Ulmer	Roy Loop	Cathy Holland
7237 SW Delaware Ct.	20190 SW 86th Ct	10740 SW Lucas Dr.
Tualatin, OR 97062	Tualatin, OR 97062	Tualatin, OR 97062
Scott Miller	Chris Tunstall	Brian Fant
12976 SW Hillside Terrace	17400 SW Cheyenne Way	22680 SW Eno Place
12970 3W Hillistide Tellace	Tablic OB 07062	ZZUGU SW EIIU FIACE

Tualatin, OR 97062

Tualatin, OR 97062

Tualatin, OR 97062

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TLID	OWNER1
	WILSHIRE SHERWOOD OWNER LLC
	WASHINGTON COUNTY FACILITIES MGMT VERUS PROPERTIES LLC
	TUALATIN YARDS LLC TUALATIN SLEEP LLC
	TUALATIN CITY OF TUALATIN 124 LLC
	TUALATIN 124 LLC
	TUALATIN 124 LLC
	TUALATIN CITY OF
	TRUTH-WEST INC
	THOMAS TUALATIN ONE LLC
	SHERWOOD SCHOOL DIST #88J
	RICHARDS PROPERTY LLC
	PORTLAND GENERAL ELECTRIC CO
	OFIPLEX OR LLC
	NORSTAR BUSINESS CENTER WEST #2 LLC
2S122C002700	
2S127BD00200	MILGARD MANUFACTURING INC
2S122C001502	MARINE LUMBER COMPANY
2S127BA00400	LU PACIFIC BUILDING #2 LLC
2S127BD01900	LU PACIFIC BUILDING #2 LLC
2S122CC00600	IVY JERRY SEP PROP REV TRUST
2S127BC90000	ITEL CORPORATE CENTER CONDOMINIUMS OWNERS OF ALL UNITS
2S127BD01300	ITEL MICHAEL
	IPT TUALATIN DC LLC
	INDOOR ARENA INVESTORS LLC
2S127BC90111	
2S127BC90121	
2S127BC90131	
	HEDGES C AN LLC
	HEDGES D AN LLC
	HEDGES D AN LLC
	HAGG JOHN D & HAGG DENISE C HAGG JOHN D JR & HAGG DENISE C
	G & S FAMILY LP
	G & S FAMILY LP
	G & S FAMILY LP
	FRANKLIN BUSINESS PARK OWNERS OF LOTS 1-4
	FOUR-S CORP & STANAWAY DONALD F II
	FORE-SIGHT BALBOA LLC
	EXETER 19855 SW 124TH LP
	EXETER 19855 SW 124TH LP
2S127C000700	DTI PROPERTIES LLC
2S122CC00800	COLUMBIA OREGON MYSLONY INDUSTRIAL LLC
2S128A000300	COLUMBIA CORRUGATED BOX CO INC
2S122C001501	ALBINA PIPE BENDING CO INC
	2003-042 PARTITION PLAT OWNER OF LOT 1
	2002-066 PARTITION PLAT OWNER OF LOT 2
	2002-066 PARTITION PLAT OWNER OF LOT 2
2S122CC00700	118TH AVENUE LLC

OWNER ARRE	OWNEDCITY	OWNEDGTATE	OWNEDZIO
OWNERADDR 100 WILSHIRE BLVD STE 940	OWNERCITY SANTA MONICA	OWNERSTATE CA	90401
169 N 1ST AVE #42	HILLSBORO	OR	97124
12345 SW MYSLONY ST	TUALATIN	OR	97124
19100 SW 51ST AVE	TUALATIN	OR	97062
PO BOX 605		OR	97062
18880 SW MARTINAZZI AVE	TUALATIN TUALATIN	OR	97062
9760 SW FREEMAN DR	WILSONVILLE	OR	97002
9760 SW FREEMAN DR	WILSONVILLE	OR	97070
9760 SW FREEMAN DR	WILSONVILLE	OR	97070
18880 SW MARTINAZZI AVE	TUALATIN	OR	97062
26909 SW LABROUSSE RD	SHERWOOD	OR	97140
5122 NE WISTARIA DR	PORTLAND	OR	97213
23295 SW MAIN ST	SHERWOOD	OR	97140
12250 SW MYSLONY RD	TUALATIN	OR	97062
121 SW SALMON ST	PORTLAND	OR	97204
5348 VEGAS DR	LAS VEGAS	NV	89108
PO BOX 1696	BEAVERTON	OR	97075
11555 SW MYSLONY ST	TUALATIN	OR	97062
PO BOX 4900	SCOTTSDALE	AZ	85261
11800 SW MYSLONY ST	TUALATIN	OR	97062
PO BOX 483	TUALATIN	OR	97062
PO BOX 483	TUALATIN	OR	97062
450 FERGUSON DR	MOUNTAIN VIEW	CA	94043
450 I ENGOSON DIN	MOONTAIN VILV	OR	00000
20900 SW 120TH AVE	TUALATIN	OR	97062
2151 MICHELSON DR STE #282	IRVINE	CA	92612
11883 SW ITEL ST	TUALATIN	OR	97062
1101 SE TECH CENTER DR STE 160	VANCOUVER	WA	98683
1101 SE TECH CENTER DR STE 160	VANCOUVER	WA	98683
1101 SE TECH CENTER DR STE 160	VANCOUVER	WA	98683
PO BOX 15523	SEATTLE	WA	98115
PO BOX 15523	SEATTLE	WA	98115
PO BOX 15523	SEATTLE	WA	98115
20340 SW CIPOLE RD	TUALATIN	OR	97062
20340 SW CIPOLE RD	TUALATIN	OR	97062
20752 SW 120TH AVE	TUALATIN	OR	97062
20752 SW 120TH AVE	TUALATIN	OR	97062
20752 SW 120TH AVE	TUALATIN	OR	97062
		OR	00000
900 FIRST AVE N	BILLINGS	MT	59101
20400 SW CIPOLE RD	TUALATIN	OR	97062
101 W ELM ST STE 600	CONSHOHOCKEN	PA	19428
101 W ELM ST STE 600	CONSHOHOCKEN		19428
25652 SW CANYON CREEK RD #Q104	WILSONVILLE	OR	97070-5661
120 N LASALLE ST STE 1750	CHICAGO	IL	60602
12777 SW TUALATIN-SHERWOOD RD	TUALATIN	OR	97062
12080 SW MYSLONY ST	TUALATIN	OR	97062
19695 SW 118TH AVE	TUALATIN	OR	97062

May 30, 2023

CITY OF TUALATIN

City of Tualatin 18880 SW Martinazzi Avenue Tualatin, OR 97062

Re: Citizen Involvement Organization Statement

Project: 1900 SW 124th Avenue

To whom it may concern:

As of the date of this letter, the only contact this project has had with any Citizen Involvement Organizations (CIO) has been to invite all entities that are required to be invited to the Neighborhood Meeting per the list provided to us by the City of Tualatin.

The neighborhood meeting for this project was held virtually via "teams" on April 21, 2022. There were no attendees not associated with the development team.

One neighbor reached out to VLMK prior to the neighborhood meeting. Skip Stanaway, with A&I Distribution's concerns and questions are documented in the neighborhood meeting notes that were included in the architectural review submittal.

Sincerely,

VLMK Engineering + Design

BRIAN M DUBAL, P.E.

Principal



Amy Tallent

From: Lindsey Hagerman < lhagerman@tualatin.gov>

Sent: Friday, April 8, 2022 9:49 AM

To: Amy Tallent

Subject: RE: Neighborhood Meeting Notice 124th Ave Development

Attachments: CIO List Labels_pdf.pdf

Thanks Amy,

I'll update our website with your information!

I've attached our CIO mailing labels, thanks for checking in on that important info as well.

Thanks again, Lindsey Hagerman

Office Coordinator
City of Tualatin | Community Development Department
503.691.3053 | <u>Ihagerman@tualatin.gov</u>

From: Amy Tallent <amyt@vlmk.com> Sent: Friday, April 08, 2022 8:35 AM

To: Lindsey Hagerman < lhagerman@tualatin.gov>

Subject: FW: Neighborhood Meeting Notice 124th Ave Development



Amy Tallent | Permit Coordinator VLMK Engineering + Design

3933 S Kelly Avenue | Portland, OR 97239 | tel: 503.222.4453 | VLMK.COM

direct: 971-254-8307 | cell: 503.481.3668 | email: amyt@vlmk.com

From: Amy Tallent

Sent: Friday, April 8, 2022 8:31 AM

To: lsanford@tualatin.gov

Cc: Jennifer Kimura < jenniferk@vlmk.com>

Subject: Neighborhood Meeting Notice 124th Ave Development

Lynette,

Per the Temporary Guidance for Neighborhood Meetings please see the attached notice and site plan that was mailed out yesterday for the Neighborhood Meeting. Please let me know if you need anything else.

Thanks,



CERTIFICATION OF SIGN POSTING



ARCHITECTURAL REVIEW AR-[YY]-__

For more information call 503-691-3026 or visit www.tualatinoregon.gov

The applicant must provide and post a sign pursuant to Tualatin Development Code (TDC 32.150). The block around the word "NOTICE" must remain yellow composed of the RGB color values Red 255, Green 255, and Blue 0. A template is available at:

For larger projects, the Community Development Department may require the posting of

https://www.tualatinoregon.gov/planning/land-use-application-sign-templates

Applicant's Name: Amy Tallent

As the applicant for the 124th Ave Development project,

I hereby certify that on this day, April 19, 2023 sign(s) was/were posted on the subject property in accordance with the requirements of the Tualatin Development Code and the Community Development Division.

Applicant's Signature: Umy Jallest

Date: 4/19/23

NOTE:

(Please Print)

additional signs in conspicuous locations.









CERTIFICATION OF SIGN POSTING



In addition to the requirements of TDC 32.150, the 18" x 24" sign must display the meeting date, time, and address as well as a contact phone number.

As the applicant for the 124th Ave Development	project, I
hereby certify that on this day, 10/6/23	sign(s) was/were posted on the subject property in
accordance with the requirements of the Tualatin De	evelopment Code and the Community Development
Division.	
Applicant's Name: Amy Tallent	
(Please Print)	
Applicant's Signature:	Jallest
	Pate: 10/6/23

Madeleine Nelson

Subject:

From: Madeleine Nelson

Sent: Monday, October 2, 2023 10:35 AM

To: Alyssa Kerr; Kevin McConnell; Don Hudson; Sherilyn Lombos; Kim McMillan; Steve

Koper; Mike McCarthy; Tony Doran; Hayden Ausland; Rich Mueller; Ross Hoover; Tom Steiger; Martin Loring; Tom Scott; Terrance Leahy; Keith Leonard; Erin Engman; Lindsey

Hagerman

Cc: planning@sherwoodoregon.gov; Naomi Vogel; theresa_cherniak@co.washington.or.us;

deginfo@deg.state.or.us; landusenotifications@oregonmetro.gov; ODOT R1

_DevRev@odot.oregon.gov; baldwinb@trimet.org;

LUComments@cleanwaterservices.org; McGladrey, Alexander M.;

KHerrod@republicservices.com; gbennett@sherwood.k12.or.us; info@theintertwine.org;

Anneleah@tualatinchamber.com; OR.METRO.ENGINEERING@ZIPLY.COM;

tod.shattuck@pgn.com; brandon.fleming@pgn.com; kenneth.spencer@pgn.com; David

Underwood; richard.girard@nwnatural.com; icrawford@wccca.com Notice of Hearing: AR23-0004 "124th Ave Industrial Development"

Attachments: AR23-0004 Notice of Hearing.pdf



NOTICE OF HEARING AND OPPORTUNITY TO COMMENT

NOTICE IS HEREBY GIVEN that a public hearing will be held before the City of Tualatin Architectural Review Board at 6:30 p.m., **Wednesday, November 8, 2023**, held online over Zoom and additionally accessible at the Tualatin City Services Building (10699 SW Herman Road).

VLMK Engineering + Design, on behalf of Tualatin 124, LLC, is requesting approval to construct a three-building industrial development. The three buildings would total 199,170 square feet on a 23.9-acre site zoned General Manufacturing (MG). The site is located at 19000 SW 124th Avenue, Tax Lot: 2S127BB00100.

You may view the application materials on our Projects web page: https://www.tualatinoregon.gov/planning/ar23-0004-124th-ave-industrial-development

Individuals wishing to comment may do so in writing to the Planning Division prior to the hearing and/or present written and/or verbal testimony to the Architectural Review Board at the hearing. To be included in the materials packet published ahead of the hearing, comments must be received by October 25, 2023. Hearings begin with a staff presentation, followed by testimony by proponents, testimony by opponents, and rebuttal. The time of individual testimony may be limited. If a participant requests before the hearing is closed, the record shall remain open for at least 7 days after the hearing.

All citizens are invited to attend and be heard: Failure of an issue to be raised in the hearing, in person, or by letter, or failure to provide sufficient specificity to afford the decision maker an opportunity to respond to the issue precludes appeal to the State Land Use Board of Appeals (LUBA) based on that issue. The failure of the applicant to raise

constitutional or other issues relating to the proposed conditions of approval with sufficient specificity to the decision maker to respond to the issue precludes an action for damages in circuit court.

Type III Architectural Review Criteria: Development Code Chapters: 32, 33, 61, 63, 73A-D, 74, 75

A staff report will be available seven days prior to the public hearing, published at www.tualatinoregon.gov/meetings. This meeting and any materials being considered can be made accessible upon request.

Written comments and questions can be submitted to: mnelson@tualatin.gov

Madeleine Nelson

From: Madeleine Nelson

Sent: Monday, October 2, 2023 10:34 AM

To: Amy Tallent; Jennifer Kimura; Havlin Kemp; tbowers@ssiworld.com

Cc: Steve Koper

Subject: Notice of Hearing: AR23-0004 "124th Ave Industrial Development"

Attachments: AR23-0004 Notice of Hearing.pdf



NOTICE OF HEARING AND OPPORTUNITY TO COMMENT

NOTICE IS HEREBY GIVEN that a public hearing will be held before the City of Tualatin Architectural Review Board at 6:30 p.m., **Wednesday, November 8, 2023**, held online over Zoom and additionally accessible at the Tualatin City Services Building (10699 SW Herman Road).

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Written comments and questions can be submitted to: mnelson@tualatin.gov

Madeleine Nelson

From: Madeleine Nelson

Sent: Monday, October 2, 2023 10:35 AM

To:riverparkcio@gmail.com; jasuwi7@gmail.com; christine@newmountaingroup.com;
dan@danhardyproperties.com; katepinamonti@hotmail.com; cynmartz12@gmail.com;

daniel@bachhuber.co; cio.east.west@gmail.com; doug_ulmer@comcast.net; keenanwoods7@gmail.com; keenanwoods7@gmail.com; dana476@gmail.com;

crowell248@gmail.com; tualatinmidwestcio@gmail.com; dikkusan@live.com;

tmpgarden@comcast.net; snoelluwcwle@yahoo.com; MartinazziWoodsCIO@gmail.com;

solson.1827@gmail.com; delmoore@frontier.com; jamison.l.shields@gmail.com; ClaudiaSterling68@gmail.com; abuschert@gmail.com; roydloop@gmail.com; Tualatinibachcio@gmail.com; Parsons.Patricia@outlook.com; afbohn@gmail.com;

edkcnw@comcast.net; rwcleanrooms@gmail.com; byromcio@gmail.com;

timneary@gmail.com; jujuheir@aol.com; kapaluapro@aol.com; katzmari22@gmail.com;

mwestenhaver@hotmail.com; tualatincommercialcio@gmail.com; tualatincommercialcio@gmail.com; scottm@capacitycommercial.com; scottm@capacitycommercial.com; robertekellogg@yahoo.com;

christine@newmountaingroup.com; sonyanybergrygh@gmail.com

Cc: Megan George; tualatincio@gmail.com; Steve Koper

Subject: Notice of Hearing: AR23-0004 "124th Ave Industrial Development"

Attachments: AR23-0004 Notice of Hearing.pdf



NOTICE OF HEARING AND OPPORTUNITY TO COMMENT

NOTICE IS HEREBY GIVEN that a public hearing will be held before the City of Tualatin Architectural Review Board at 6:30 p.m., **Wednesday, November 8, 2023**, held online over Zoom and additionally accessible at the Tualatin City Services Building (10699 SW Herman Road).

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Type III Architectural Review Criteria: Development Code Chapters: 32, 33, 61, 63, 73A-D, 74, 75

A staff report will be available seven days prior to the public hearing, published at www.tualatinoregon.gov/meetings. This meeting and any materials being considered can be made accessible upon request.

Written comments and questions can be submitted to: mnelson@tualatin.gov



STATE OF OREGON)

AFFIDAVIT OF MAILING

) ss			
COUNTY OF WASHINGTON)			
I, Lindsey Hagerman being first duly sworn, depose and say:			
That on the _2day of _October_, I served upon the persons shown on Exhibit A, attached hereto and by this reference incorporated herein, a copy of a Notice of Hearing/Application/Decision marked Exhibit B, attached hereto and by this reference incorporated herein, by mailing to them a true and correct copy of the original hereof. I further certify that the addresses reflect information received from the relevant party or agency, and that said envelopes were placed in the United States Mail at Tualatin, Oregon, prepared to receive postage administered by city staff.			
Dated this 2 of, October 2023 Signature			

Notary Public for Oregon

My commission expires: August 30,7074

RE: AR23-0004 124™ INDUSTRIAL DEVELOPMENT

Notice of Hearing

OFFICIAL STAMP

GLADYS GOMEZ NOTARY PUBLIC - OREGON

COMMISSION NO. 1003223 MY COMMISSION EXPIRES AUGUST 30, 202

SUBSCRIBED AND SWORN to before me this ______

TLID	OWNER1	OWNERADDR	
2S122CC00700	118TH AVENUE LLC	19695 SW 118TH AVE	
2S122C001501	ALBINA PIPE BENDING CO INC	12080 SW MYSLONY ST	
2S122CC00800	COLUMBIA OREGON MYSLONY INDUSTRIAL LLC	120 N LASALLE ST STE 1750	
2S128A000300	COLUMBIA CORRUGATED BOX CO INC	12777 SW TUALATIN-SHERWOOD RD	
2S121DD00201	EXETER 19855 SW 124TH LP	101 W ELM ST STE 600	
2S128A000100	FORE-SIGHT BALBOA LLC	20400 SW CIPOLE RD	
2S122C001600	FOUR-S CORP & STANAWAY DONALD F II	900 FIRST AVE N	
2S127BA00300	FRANKLIN BUSINESS PARK OWNERS OF LOTS 1-4		
2S127BA00600	HEDGES C AN LLC	PO BOX 15523	
	HEDGES D AN LLC	PO BOX 15523	
	HEDGES D AN LLC	PO BOX 15523	
	IVY JERRY SEP PROP REV TRUST	450 FERGUSON DR	
	LU PACIFIC BUILDING #2 LLC	PO BOX 483	
	LU PACIFIC BUILDING #2 LLC	PO BOX 483	
	MARINE LUMBER COMPANY	11800 SW MYSLONY ST	
	MYSLONY LLC	11555 SW MYSLONY ST	
	NORSTAR BUSINESS CENTER WEST #2 LLC	PO BOX 1696	
	OFIPLEX OR LLC	5348 VEGAS DR	
	RICHARDS PROPERTY LLC	12250 SW MYSLONY RD	
	SHERWOOD SCHOOL DIST #88J	23295 SW MAIN ST	
	THOMAS TUALATIN ONE LLC	5122 NE WISTARIA DR	
	TUALATIN YARDS LLC	19100 SW 51ST AVE	
	TUALATIN SLEEP LLC	PO BOX 605	
	TUALATIN CITY OF	18880 SW MARTINAZZI AVE	
	TUALATIN 124 LLC	9760 SW FREEMAN DR	
	TUALATIN 124 LLC	9760 SW FREEMAN DR	
	TUALATIN 124 LLC	9760 SW FREEMAN DR	
2S122CC00400	VERUS PROPERTIES LLC	12345 SW MYSLONY ST	
	VLMK ENGINEERING & DESIGN, ATTN: JENNIFER KIMI 3933 S KELLY AVE		

OWNERCITY	OWNERSTATE	
TUALATIN	OR	97062
TUALATIN	OR	97062
CHICAGO	IL	60602
TUALATIN	OR	97062
CONSHOHOCKEN	PA	19428
TUALATIN	OR	97062
BILLINGS	MT	59101
	OR	00000
SEATTLE	WA	98115
SEATTLE	WA	98115
SEATTLE	WA	98115
MOUNTAIN VIEW	CA	94043
TUALATIN	OR	97062
TUALATIN	OR	97062
TUALATIN	OR	97062
TUALATIN	OR	97062
BEAVERTON	OR	97075
LAS VEGAS	NV	89108
TUALATIN	OR	97062
SHERWOOD	OR	97140
PORTLAND	OR	97213
TUALATIN	OR	97062
TUALATIN	OR	97062
TUALATIN	OR	97062
WILSONVILLE	OR	97070
WILSONVILLE	OR	97070
WILSONVILLE	OR	97070
TUALATIN	OR	97062
PORTLAND	OR	97239



NOTICE IS HEREBY GIVEN that a public hearing before the Architectural Review Board will be held:

Wednesday, November 8, 2023 at 6:30 pm

Tualatin City Services Building 10699 SW Herman Road

To view the application materials visit: www.tualatinoregon.gov/projects

TO PROVIDE COMMENTS:

Email: mnelson@tualatin.gov
Mail: Planning Division

Attn: Madeleine Nelson 10699 SW Herman Road Tualatin, OR 97062

To attend the hearing, there are two options:

- Zoom Teleconference. Details at: www.tualatinoregon.gov/meetings
- Attend in person at the Tualatin City Services Building.

VLMK Engineering + Design, on behalf of Tualatin 124, LLC, is requesting approval to construct a three-building industrial development. The three buildings would total 199,170 square feet on a 23.9-acre site zoned General Manufacturing (MG).



The property is located at: 19000 SW 124th Ave Tax Lot: 2S127BB00100

- Type III Architectural Review Criteria: Tualatin Development Code Chapters: 32, 33, 61, 63, 73A-D, 74, 75
- Staff report will be available at least seven days before the hearing for inspection at no cost, and copies will be provided at a reasonable cost.
- **Print copies** of the application are available at a reasonable cost.
- Individuals wishing to comment on the application must do so in writing to the Planning Division prior to the hearing, or in writing and/or



NOTICE OF APPLICATION SUBMITTAL AND OPPORTUNITY TO COMMENT CASE FILE: AR 23-0004 — 124TH AVE INDUSTRIAL DEVELOPMENT

NOTICE IS HEREBY GIVEN that a public hearing before the Architectural Review Board will be held:

Wednesday, November 8, 2023 at 6:30 pm

Tualatin City Services Building 10699 SW Herman Road

To view the application materials visit: www.tualatinoregon.gov/projects

TO PROVIDE COMMENTS:

Email: mnelson@tualatin.gov
Mail: Planning Division

Attn: Madeleine Nelson 10699 SW Herman Road Tualatin, OR 97062

To attend the hearing, there are two options:

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orally at the hearing. Materials must be received by October 25, 2023 to be included in the hearing packet.

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- Notice of the Decision will only be provided to those who submit written comments regarding that application or testify at the hearing.

You received this mailing because you own property within 1,000 feet (ft) of the site or within a residential subdivision which is partly within 1,000 ft.

For additional information contact:

Madeleine Nelson, Assistant Planner, mnelson@tualatin.gov and 503-691-3027



10699 SW Herman Road, Tualatin, Oregon 97062

TUALATINOREGON.GOV/PLANNING





orally at the hearing. Materials must be received by October 25, 2023 to be included in the hearing packet.

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You received this mailing because you own property within 1,000 feet (ft) of the site or within a residential subdivision which is partly within 1,000 ft.

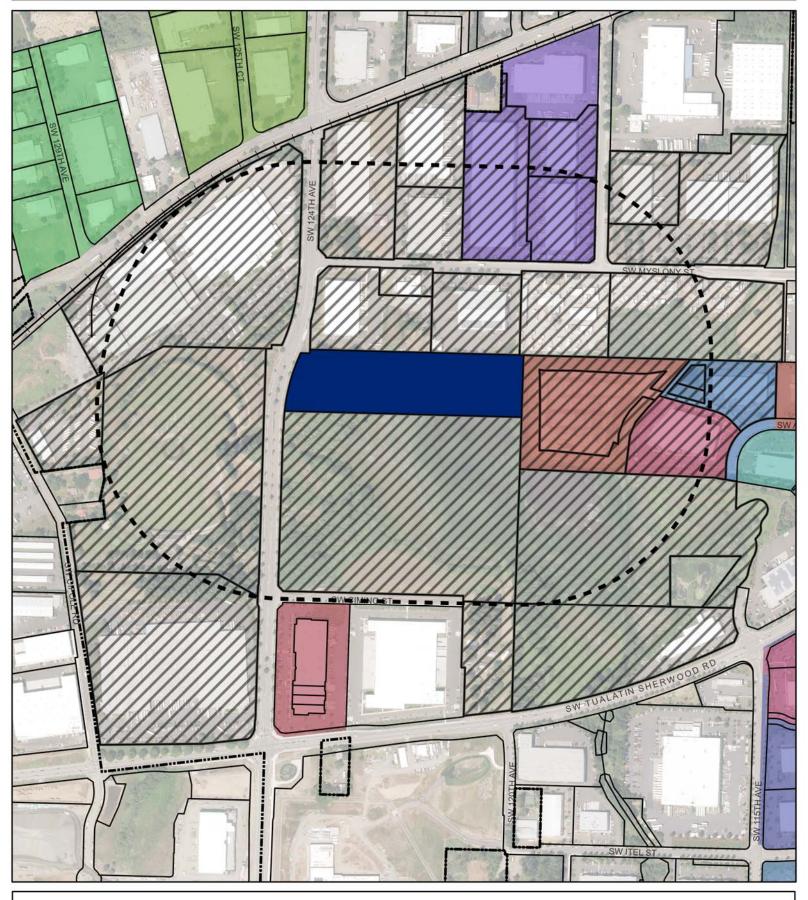
For additional information contact:

Madeleine Nelson, Assistant Planner, mnelson@tualatin.gov and 503-691-3027



Mailing List - TLID 2S127BB00100 (19000 SW 124th Ave)









12080 SW Myslony St. • Tualatin, OR. 97062 Phone: 503-692-6010 • Fax: 503-692-6020 • Toll-Free: 866-ALBINA8 (866-252-4628) www.albinaco.com

Date:

11/10/23

To:

Tualatin City Planner

From:

Brian Smith

Subject:

Arch Review application (AR 23-0004), Tax Lot #2S127BB00100

The purpose of this memo to is convey some concerns I have regarding the proposed development at 19000 SW 124th Ave (Tax Lot #2S127BB00100). I am the President and Owner of Albina Co., Inc. located at 12080 SW Myslony St. My southern property line is the northern property line for the proposed project. I may not be able to attend the Architectural Review meeting scheduled for 12/13/23 at 6:30 pm, so I am sending my thoughts and concerns to be addressed at that meeting.

After my initial review of the proposed plans my concerns are as follows:

- 1. Adding 201 parking spaces along with added truck traffic is going to have a significant impact on 124th.
 - a. It is already difficult and unsafe to merge onto 124th off Myslony St and out of the Nortek east exit.
 - i. Factors resulting in the unsafe conditions: Poor visibility, fast-moving traffic, and an increasing number of vehicles after the 124th extension project.
 - b. The traffic backup at 124th and Tualatin Sherwood Highway is also terrible (without the added traffic).
- 2. With the added blacktop and concrete required for this large development I am concerned about:
 - a. Runoff / erosion impacting my property.
 - b. The impact on the wetland and in turn the impact on my water retention pond
 - c. My water retention pond was already negatively impacted by the development to the southeast of our property. The excess water in the wetland is now higher than the lower drain in my retention pond. Instead of water flowing OUT of my retention pond to the wetland, water is now flowing IN to my retention pond from the wetland. If the wetland grade continues to get higher, or if there is more standing water, then my upper drain may not properly drain. This would cause significant flooding on my property and the neighboring property (Marine Lumber).
- 3. Insufficient number of ground drains to the North of Buildings B and C

a. There are only 3 drains on the north side of Buildings B and C. Two behind Building B and 1 behind Building C. That is concerning. How do they plan to control the ground water / drainage so it is not flowing to neighboring properties or the wetland?

I am a proponent of development and making the city better, I just want to make sure the development does not have a negative impact on the surrounding properties or the wetland.

My contact information is:

Albina Co., Inc. 12080 SW Myslony St. Tualatin, OR 97062

Email: <u>bsmith@albinaco.com</u> Company phone: 503-692-6010 Cell phone: 503-997-6464

Thank you for addressing my concerns.

Sincerely,

Brian Smith President

Madeleine Nelson

From: Havlin Kemp <havlin@vlmk.com>

Sent: Wednesday, November 29, 2023 3:01 PM

To: Madeleine Nelson

Cc:Malee Garcia; Jennifer Kimura; Brian Dubal; tbowers@ssiworld.comSubject:RE: Public Comment AR23-0004 "124th Ave Industrial Development"

Attachments: Brian Smith Comment - 11.20.2023.pdf

Madeleine,

Thank you very much for forwarding Mr. Smith's comments regarding our proposed development.

We have the following responses to his comments:

1. We have submitted a Traffic Impact analysis that examined the added traffic from this development and its impact on the traffic at SW 124th and the adjacent intersections at SW Tualatin Sherwood Hwy and a SW Myslony.

The TIA noted that "the study intersections are anticipated to operate within the acceptable jurisdiction standards. Therefore, no mitigation for traffic operations is required or recommended." Thus, while traffic at the two noted intersections does back up and merging onto SW 124th from Myslony is worse than it used to be, the intersections will still operate at acceptable levels (as required by The City of Tualatin) with no changes to the intersections.

- 2. Stormwater runoff from the site will be controlled by treatment and detention as required by Clean Water Services. The stormwater from this site currently flows overland to the wetland at the east side of the site. This development will not create any more stormwater than currently flows to the wetland. The stormwater from the building roofs and pavement will be treated, then detained onsite. The detained water will then be metered out, into the wetland, at the same rate as the undeveloped flow to the wetland. Thus, the wetland will not receive any more stormwater than it currently sees and the stormwater will flow to the wetland at the current rate. Albina Pipe's stormwater pond should not be impacted by this development.
- 3. Building B is approximately 4-feet lower than the property to the north. The area from the paved parking lot at the north to the proposed building B is approximately 45 feet and will be landscaped with groundcover. Building C is approximately 4 to 6-feet above the Albina Pipe site. The area from building C to the paved storage yard at Albina Pipe is approximately 20-feeet. This area will also be landscaped with groundcover. The slopes in both these areas will be graded at less than 2H:1V. No stormwater runoff is anticipated in these landscaped areas. We will install a few area drains in case of incidental ponding of water near the buildings. All other paved areas will be graded to direct stormwater to catchbasins and into the treatment and detention system so no water flows directly to the wetland. Perimeter areas of the site adjacent to the wetlands will be planted and sloped at 2H:1V maximum, limiting the flow of surface water to the wetland.

We appreciate Mr. Smith's support of this project and hope that these explanations satisfy his concerns for this
project.

Thank you,

Havlin

Havlin Kemp, P.E. | Principal VLMK Engineering + Design

Portland, OR | Vancouver, WA | Phoenix, AZ 3933 S Kelly Avenue | Portland, OR 97239 | tel: 503.222.4453 | VLMK.COM direct: 971.254.8289 | cell: 503.720.2933 | email: havlin@vlmk.com

Madeleine Nelson

From: Brian Smith <bsmith@albinaco.com>
Sent: Thursday, November 30, 2023 2:42 PM

To: havlin@vlmk.com
Cc: Madeleine Nelson

Subject: RE: Public Comment AR23-0004 "124th Ave Industrial Development"

Attachments: Applicant Response to Brian Smith Comment 11.29.2023.pdf

Havlin,

Thank you for your reply. It is very much appreciated.

- 1. I have reviewed the TIA. I didn't really get much tangible information from the detailed report, as this type of data is not something I am familiar with. I remain very skeptical about the added (right turn only) traffic on 124th, and how that traffic will negatively impact vehicles merging to 124th from Myslony. Visibility is already very poor at this intersection, making it very dangerous to merge with traffic moving in excess of 45 mph. How adding the right turn only traffic from the new development will make this intersection even more dangerous. I see this being an issue, but I am far from an expert.
- 2. Thank you for your explanation as to how stormwater runoff will be controlled at this new development.
- 3. Thank you for your consideration and offer to "install a few area drains in case of incidental ponding of water near the buildings".
 - 1. I would be curious to learn where those drains will be installed.

Respectfully,

Brian Smith

President Albina Co. Inc.

Phone: 503-692-6010 Ext. 105

Fax: 503-692-6020 Cell: 503-997-6464 bsmith@albinaco.com https://www.albinaco.com



Madeleine Nelson

From: Madeleine Nelson

Sent: Wednesday, December 13, 2023 9:56 AM

To: Brian Smith; havlin@vlmk.com

Subject: RE: Public Comment AR23-0004 "124th Ave Industrial Development"

Good Morning Brian,

I am confirming that all correspondence will be included in the public record.

Madeleine Nelson

Assistant Planner
City of Tualatin | Planning Division
503.691.3027 | www.tualatinoregon.gov

From: Brian Smith <bsmith@albinaco.com> Sent: Thursday, December 7, 2023 8:48 AM

To: havlin@vlmk.com

Cc: Madeleine Nelson <mnelson@tualatin.gov>

Subject: RE: Public Comment AR23-0004 "124th Ave Industrial Development"

Good morning, I am following-up to make sure my email from last Thursday was received. Sincerely,

Brian Smith

President
Albina Co. Inc.

Phone: 503-692-6010 Ext. 105

Fax: 503-692-6020 Cell: 503-997-6464 bsmith@albinaco.com https://www.albinaco.com





IMPORTANT NOTICE: This communication, including any attachments, contains information that may be confidential or privileged, and is intended solely for the named designated recipient to whom it is addressed and for the specific purpose intended. If the reader of this message is not the intended recipient, you should delete this message and are hereby notified that any review, disclosure, dissemination, copying, or distribution of this message is strictly prohibited. If you have received this communication in error, please notify us immediately at the e-mail address set forth.

From: Brian Smith < bsmith@albinaco.com > Sent: Thursday, November 30, 2023 2:42 PM

To: havlin@vlmk.com



Emailed: October 9, 2023

Jennifer Kimura VLMK Engineering + Design 3933 S Kelly Ave Portland, OR 97239 jenniferk@vlmk.com

Property Line Adjustment (PLA23-0003) for adjustment of property lines at 19000 SW 124th Ave RE: (Tax Lot: 2S127BB00100) and 12075 SW Tualatin Sherwood Rd (Tax Lot: 2S127BB00200)

Jennifer,

Thank you for submitting a Property Line Adjustment (PLA) application to the City of Tualatin Planning Division to relocate a property line between Tax Lots: 2S127BB00100 and 2S127BB00200 at 19000 SW 124th Avenue and 12075 SW Tualatin Sherwood Road. The following criteria from Tualatin Development Code 36.100(4) are applicable to the proposed Property Line Adjustment to adjust the aforementioned lots.

Findings

TDC 36.100. - Property Line Adjustments.

10699 SW Herman Road, Tualatin, Oregon 97062

- (4) Approval Criteria. A property line adjustment must be approved if all of the following criteria are met:
 - (a) The property line adjustment will not create an additional unit of land;

Finding:

The property line adjustment is between two existing lots and proposes to move the property line to the south remaining as two lots. The property line adjustment will not create an additional unit of land. This standard is met.

(b) The property line adjustment will not create nonconforming units of land or nonconforming development, or increase the degree of nonconformity in existing units of land or existing development;

Finding:

The property line adjustment will not create nonconforming units of land. The General Manufacturing (MG) Planning District requires the minimum lot size to be 20,000 square feet and a minimum lot width of 100 feet. The proposed lots will exceed the minimum requirements. There are no existing developments on either site at this time. The proposed development at 19000 SW 124th Avenue will be reviewed for compliance with all applicable development standards of the General Manufacturing (MG) Zone under a separate Architectural Review. This standard is met.

(c) The property line adjustment involves only units of land that were lawfully established, where the instruments creating the units of land have been properly recorded;

Finding:

The applicant has provided statutory warrant deeds (Exhibit B) which describe and illustrate the current property lines and easements for the subject properties. Both documents are signed and recorded by the Washington County Clerk's Office and illustrate lawfully established units of land based on the material submitted by the applicant. This standard is met.

(d) The property line adjustment is not prohibited by any existing City land use approval, or previous condition of approval, affecting one or both of the units of land;

Finding:

There are no previous land use approvals or conditions of approval affecting either lot. This standard is met.

(e) The property line adjustment does not involve the relocation or elimination of any public easement or right-of-way; and

Finding:

No relocation or elimination of any public easement or right-of-way is proposed. The applicant will be required to record all public easements or rights-of-way. With Condition of Approval A1, this standard is met.

(f) The property line adjustment does not adversely impact the availability or access to public and private utilities or streets.

Finding:

The property line adjustment will not adversely impact the availability or access to public and private utilities or streets. This standard is met.

Decision

Pursuant to Tualatin Development Code (TDC), the City of Tualatin Planning Division approves the proposal as described, illustrated, and sited by the application materials with the following conditions:

PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY AND/OR CERTIFICATE OF COMPLETION:

A1. Finalization of the property line adjustment approval including evidence demonstrating that the property line adjustment deed and all public easements described has been recorded the appropriate county must be provided to the City Manager after recording.

EXPIRATION OF APPROVAL:

A2. This approval expires two years from the effective date of October 9, 2023, unless the property line adjustment has been finalized as described in Condition A1.

Attachments:

Exhibit A: Site Plan

Exhibit B: Statutory Warranty Deeds

Please contact me with any questions at 503.691.3027 or mnelson@tualatin.gov.

Thank you,

Madeleine Nelson

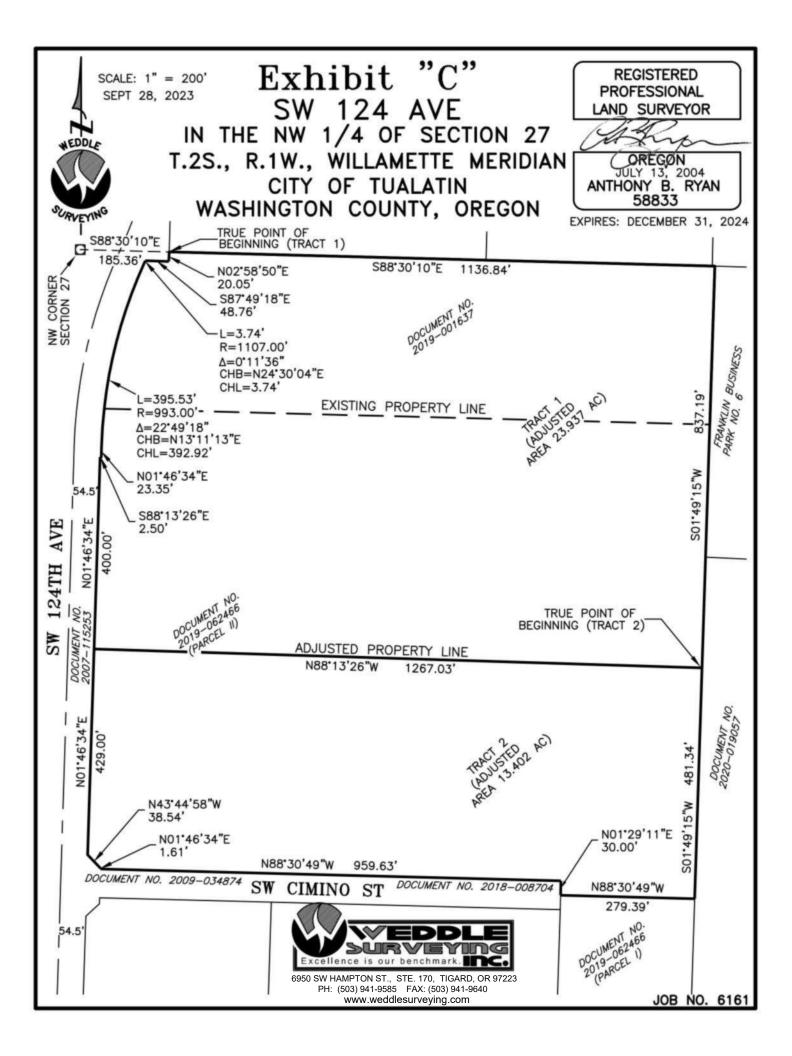
Madellein Melson

Assistant Planner

cc: Steve Koper, AICP, Assistant Community Development Director

Mike McCarthy, City Engineer Tony Doran, Engineering Associate Lindsey Hagerman, Office Coordinator

File: PLA23-0003



File No.: 18-230918

Grantor
Franklin Business Park LLC
Grantee
Tualatin 124, LLC
After recording return to
Tualatin 124, LLC, an Oregon limited liability company
9760 SW Freeman Drive
Wilsonville, OR 97070
Until requested, all tax statements shall be sent to
Tualatin 124, LLC, an Oregon limited liability company
9760 SW Freeman Drive
Wilsonville, OR 97070
Tax Acct No(s): 2S127BB-00100, R546653

Washington County, Oregon

2018-084483

D-DW

12/18/2018 08:43:16 AM

Stn=7 C LOUCKS \$20.00 \$11.00 \$5.00 \$60.00 \$1,450.00

, 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

Reserved for Recorder's Use

STATUTORY WARRANTY DEED

Franklin Business Park LLC, an Oregon limited liability company, Grantor(s) convey and warrant to Tualatin 124, LLC, an Oregon limited liability company, Grantee(s), the real property described in the attached Exhibit A, subject only to those liens and encumbrances set forth on the attached Exhibit B.

The true consideration for this conveyance is \$1,450,000.00. (Here comply with requirements of ORS 93.030)

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855. OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES 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 THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009 AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

File No.: 18-230918

Grantor
Franklin Business Park LLC
Grantee
Tualatin 124, LLC
After recording return to
Tualatin 124, LLC, an Oregon limited liability company
9760 SW Freeman Drive
Wilsonville, OR 97070
Until requested, all tax statements shall be sent to
Tualatin 124, LLC, an Oregon limited liability company
9760 SW Freeman Drive
Wilsonville, OR 97070

Tax Acct No(s): 2S127BB-00100, R546653

Reserved for Recorder's Use

STATUTORY WARRANTY DEED

Franklin Business Park LLC, an Oregon limited liability company, Grantor(s) convey and warrant to Tualatin 124, LLC, an Oregon limited liability company, Grantee(s), the real property described in the attached Exhibit A, subject only to those liens and encumbrances set forth on the attached Exhibit B.

The true consideration for this conveyance is **\$1,450,000.00**. (Here comply with requirements of ORS 93.030)

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Executed this day of December, 2018
Franklin Business Park LLC, an Oregon limited liability company
By: Marlborough Enterprises, Inc., an Oregon Corporation Its: Manager
Name: Amy Drake Reeves Its: President By Murky A County Name: Matthew B. Drake Its: Vice President and Secretary
STATE OF OREGON
COUNTY OF MULTNOMAH
This instrument was acknowledged before me this day of December, 2018 by Amy Drake Reeves as President and Matthew B. Drake as Vice President and Secretary, of Marlborough Enterprises, Inc., an Oregon Corporation, Manager of Franklin Business Park LLC, an Oregon limited liability company, on behalf of the limited liability company.
Print Name Tolkia Garrett Cheque Notary Public for Oregon My Commission Expires: 10/15/2/
My Commission Expires: // _/ /
OFFICIAL STAMP TREVOR GARRETT CHEYNE NOTARY PUBLIC-OREGON COMMISSION NO. 922330 MY COMMISSION EXPIRES NOVEMBER 20, 2017

EXHIBIT "A" LEGAL DESCRIPTION

A portion of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, County of Washington and State of Oregon, described as follows:

Beginning at the Northwest corner of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, and running thence East along the North line of said section 80.0 rods; thence South, parallel with the West line of said section, 20.0 rods; thence West 80.0 rods to said West line; thence North 20.0 rods to the place of beginning.

EXCEPTING THEREFROM the West 20.00 feet and the West 185.0 feet of the North 20.0 feet thereof.

FURTHER EXCEPTING THEREFROM that portion described in Deed of Dedication granted to the City of Tualatin for use of public as public way for street, road, right-of-way and public utility purposes by Deed recorded April 10, 2008, Recording No. 2018-032336.

EXHIBIT "B" Exceptions

Easement, including the terms and provisions thereof: 1.

Slope and public utility the City of Tualatin April 1, 2008 For Granted to

Recorded Recording No(s) 2008-032337

Affects the Westerly 12 feet abutting SW 124th Avenue RECORDING REQUESTED BY: Fidelity National Title

900 SW 5th Avenue Portland, OR 97204

GRANTOR'S NAME:

Edward J. Wager

GRANTEE'S NAME:

Tualatin 124, LLC, an Oregon limited liability company

AFTER RECORDING RETURN TO:

Thomas J. Garnier Tualatin 124, LLC 9760 SW Freeman Drive Wilsonville, OR 97070

SEND TAX STATEMENTS TO:

Tualatin 124, LLC 9760 SW Freeman Drive Wilsonville, OR 97070

APN: R546662 R2184890

12075 SW Tualatin Sherwood Road, Tualatin, OR 97062

Washington County, Oregon D-DW

2019-062466

Stn=16 M LOPEZ

09/13/2019 09:45:12 AM

\$20.00 \$11.00 \$5.00 \$60.00 \$1,525.00

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

SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

Edward J. Wager, Grantor, conveys and warrants to Tualatin 124, LLC, an Oregon limited liability company. Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Washington, State of Oregon:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS ONE MILLION FIVE HUNDRED TWENTY-FIVE THOUSAND AND NO/100 DOLLARS (\$1,525,000.00). (See ORS 93.030).

Subject to:

SEE EXHIBIT "B" ATTACHED HERETO AND MADE A PART HEREOF

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES 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 THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: September

State of Oregon

County of CLACKAMA

This instrument was acknowledged before me on September 13, 2019 by Edward J. Wager.

Notary Public - State of Oregon

My Commission Expires: 10-27-2019

OFFICIAL STAM **LORI E MEDAK** NOTARY PUBLIC-OREGON COMMISSION NO. 944308
MY COMMISSION EXPIRES OCTOBER 27, 2019

EXHIBIT "A"

Legal Description

PARCEL I:

A parcel of land in the Northwest quarter of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, Washington County, Oregon, described as follows:

Beginning at a point which is North 537.24 feet and North 82° 04' East 803.1 feet and North 85° 20' East 278.78 feet from the quarter section corner between Sections 27 and 28, Township 2 South, Range 1 West of the Willamette Meridian, from said beginning point; thence running North 0° 17' East 649.44 feet to a point; thence North 89° 52' East 238.2 feet to a point; thence South 0° 03' East 627 feet to a point; thence South 85° 20' West 238.92 feet to the place of beginning.

ALSO: A parcel of land in the Northwest quarter of Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, Washington County, Oregon, described as follows:

Beginning at the Northeast corner of 17.53 acre tract of land belonging to Grace H. Robinson located in the Southwest one-quarter of the Northwest one-quarter of Section 27, Township 2 South, Range 1 West of the Willamette Meridian; thence running West along the North line of said tract 36 feet; thence South parallel with the East line of said tract 600 feet to the County Road; thence East along the County Road 36 feet to the Southeast corner of said tract; thence North along the East line of said tract 600 feet to the point of beginning.

EXCEPTING THEREFROM that portion thereof conveyed to Joseph L. Itel and others by deed recorded October 26, 1973 in Book 950, Page 861, described as follows:

Beginning at the Southeast corner of that certain tract of land recorded in Book 750, Page 279, said Deed Records, conveying one-half interest to Earl J. Itel, which point is in the center of S.W. Tualatin-Sherwood Road (County Road No. 492) and which bears South 2065.56 feet and East 1061.58 feet from the Northwest corner of said Section 27; thence running along the line common to Itel and Wager tracts, North 00° 27' East 301.79 feet to a point; thence South 89° 33' East 20.00 feet to a point; thence parallel with said common line, South 0° 27' West 300.00 feet to a point in the center line of said S.W. Tualatin-Sherwood Road; thence in the center thereof, South 85° 20' West 20.08 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM that portion described as Parcel I (Take - Dedication of right-of-Way) in Dedication Deed to Washington County, for public road purposes, recorded April 4, 1990, Recorder's No. 90-16553.

PARCEL II:

A parcel of land in Section 27, Township 2 South, Range 1 West of the Willamette Meridian, in the City of Tualatin, Washington County, Oregon, described as follows:

Commencing at an iron bar at the corner of Sections 21, 22, 27 and 28, Township 2 South, Range 1 West, of the Willamette Meridian; thence South 0° 27' West along the West line of said Section 27, 231.14 feet to the point of beginning of the tract of land to be described, and from said beginning point; thence running South 89° 58-1/2' East 1344.18 feet to a point; thence South 1° 35-1/2' West 595.87 feet to a point; thence North 89° 55' West 1328.63 feet to a point; thence North 0° 27' East 594.36 feet to the place of beginning.

ALSO the South 15 acres of the Northwest quarter of the Northwest quarter of Section 27 in Township 2 South, Range 1 West of the Willamette Meridian, more particularly described as:

Beginning at the Southwest corner of said Northwest quarter of the Northwest quarter of Section 27; thence North along the West line of said Section 27 a distance of 30 rods to a point; thence East on a line parallel with the South line of said Northwest quarter of the Northwest quarter of said Section 27 a distance of 80 rods to the East line of said Northwest quarter of the Northwest quarter of Section 27; thence South along the East line of said subdivision 30 rods to the Southeast corner thereof; thence West along the South line of said subdivision 80 rods to the place of beginning.

EXCEPTING THEREFROM a certain tract of land conveyed by D.V. Jennings and Margaret Jennings, his wife, to Grace H. Robinson by deed recorded March 28, 1918 in Book 109 on Page 556, records of deed of Washington County, Oregon.

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, for the use of the public as a public way, for street, road, right-of-way and public utility purposes, recorded November 1, 2007, as Document No. 2007-115253, Records of the County of Washington and State of Oregon.

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, for the use of the public as a water quality and detention facility, recorded April 23, 2009, as Document No. 2009-034873, Records of the County of Washington and State of Oregon.

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, for the use of the public as a public way, for street, road, right-of-way and public utility purposes, recorded April 23, 2009, as Document No. 2009-034874, Records of the County of Washington and State of Oregon.

EXHIBIT "A"

Legal Description

FURTHER EXCEPTING THEREFROM that portion described in Dedication Deed to the City of Tualatin, a perpetual right-of-way for street, road, public utility, and pedestrian purposes, recorded February 5, 2018, as Document No. 2018-008704, Records of the County of Washington and State of Oregon.

EXHIBIT "B"

Exceptions

Subject to:

- Property taxes in an undetermined amount, which are a lien but not yet payable, including any 1 assessments collected with taxes to be levied for the fiscal year 2019-2020.
- 2. Omitted taxes, if any, as no improvements are assessed. No liability is assumed for later additions to the tax roll.

Account No.: M931576 / Manufactured Structure

Affectst:

Parcel I

3. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:

Washington County

Purpose:

Drainage and slopes

Recording Date: Recording No:

April 4, 1990 90-16553

Affects:

Parcel I, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 4.

Granted to:

City of Tualatin Sanitary sewer

Purpose: Recording Date:

November 22, 1991

Recording No:

91-065142

Affects:

Parcel II, reference is hereby made to said document for full particulars

5. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:

City of Tualatin Storm drainage

Purpose: Recording Date:

November 22, 1991

Recording No:

91-065143

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 6.

Granted to:

City of Tualatin

Purpose:

Slopes

Recording Date:

November 22, 1991

Recording No:

91-065144

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 7.

Granted to: Purpose:

City of Tualatin Slopes and utilities November 1, 2007

Recording Date: Recording No:

2007-115254

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 8.

Granted to:

City of Tualatin

Purpose:

Water quality and mitigation

Recording Date: Recording No:

November 1, 2007 2007-115255

Affects:

Parcel II, reference is hereby made to said document for full particulars

Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: 9.

Granted to:

City of Tualatin

Purpose:

Access April 23, 2009

Recording Date: Recording No:

2009-034875

Affects:

11.

Parcel II, reference is hereby made to said document for full particulars

Fence encroachment agreement, including the terms and provisions thereof 10.

Recording Date:

June 30, 2009 2009-059448

Recording No.:

Rights of tenants, as tenants only, in unrecorded leaseholds.



Technical Memorandum

Date: October 9, 2023

Project:

To: Mr. Tony Doran, Engineering Associate

City of Tualatin

From: Brian Ginter, PE

Re: HWM23-0001 - Water System Capacity Analysis

Introduction

As requested, this memorandum has been prepared to present the findings of our analysis of the water service to the proposed 124th Avenue Business Park located along SW 124th Avenue north of Tualatin-Sherwood Road. This memorandum presents the findings of this analysis for the City's use in determining the water system improvements necessary to meet fire flow and pressure requirements.

Background

The City's water system hydraulic model was used to perform a hydraulic analysis of pressure and fire flow performance in the City's water system under maximum day demand conditions with fire flow events evaluated at the site.

The proposed development is three large warehouses shell buildings for speculative warehousing or manufacturing tenants. The proposed development is located within the City's existing Pressure Zone A, served by the A level reservoirs at a nominal hydraulic grade of 296 feet above mean sea level (msl). Figure 1 illustrates the development site and adjacent water system infrastructure.

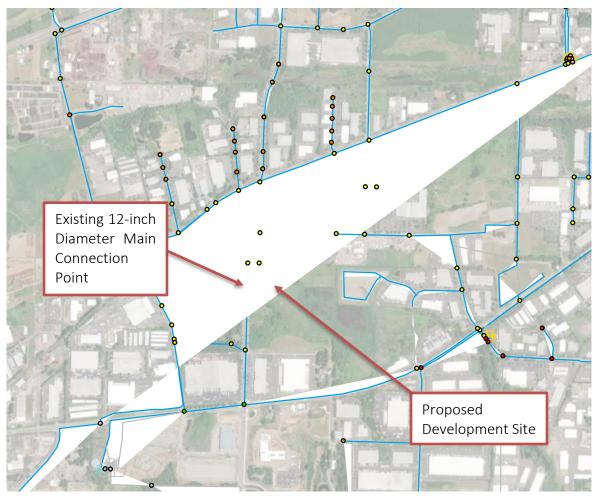


Figure 1. Proposed Development Site and Water System Infrastructure

Analysis and Findings

The hydraulic model was updated as described above and fire flow performance tested at one location onsite (shown in Figure 1).

A summary of specific model conditions for this analysis is presented below:

Demand Conditions: 2030 Maximum Day Demand

Fire Flow: 3,000 gpm

Projected Domestic Demand: 250 gpm Maximum Day Demand

Physical Condition: Existing facilities plus proposed connection

The hydrant location, fire flow capacity tested, and the calculated minimum pressure within the area influenced by the fire flow in Pressure Zone A are summarized in Table 1 below:

Table 1
Fire Flow Analysis Results

Location	Static Pressure (psi)	Residual Pressure at 3,000 gpm (psi)
Existing Public Hydrant @ SW 124 th Avenue adjacent to domestic/RP/FDC connections for proposed development	49	34

Based on the findings of this analysis and a review of overall system improvement needs presented in the Water System Master Plan, there are no required water distribution system improvements not located on the Business Park site necessary to serve domestic and fire suppression flows to the proposed development.

It is the developer's responsibility to size internal (private) fire and domestic mains for adequate service pressure, private hydrants and fire suppression sprinkler systems as these facilities are outside the scope of this analysis.

Please do not hesitate to contact us if you have any questions or comments in this regard. We would be happy to meet with you personally to discuss the findings presented in this memorandum.

MEMORANDUM

Date: October 24, 2023

To: Madeleine Nelson, Assistant Planner, City of Tualatin

From: Jackie Sue Humphreys, Clean Water Services (CWS)

Subject: 124th Avenue Industrial Development, AR23-0004, 2S127BB00100, 00200

Please include the following comments when writing your conditions of approval:

PRIOR TO ANY WORK ON THE SITE

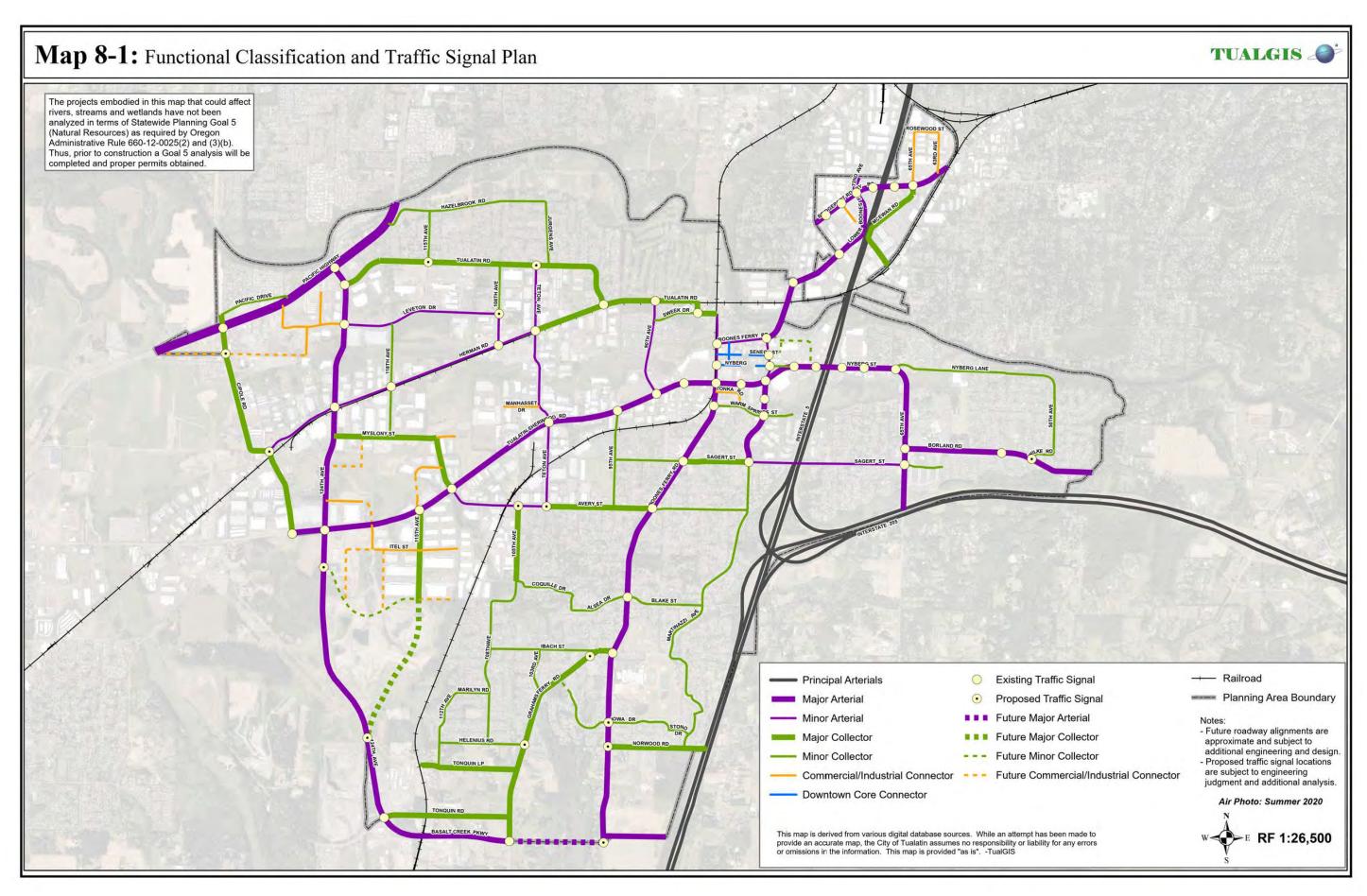
A Clean Water Services (CWS) Storm Water Connection Permit Authorization must be obtained. Application for CWS Permit Authorization must be in accordance with the requirements of the Design and Construction Standards, Resolution and Order No. 19-5 as amended by R&O 19-22, or prior standards as meeting the implementation policy of R&O 18-28, and is to include:

- a. Detailed plans prepared in accordance with Chapter 2, Section 2.04.
- b. Detailed grading and erosion control plan. An Erosion Control Permit will be required. Area of Disturbance must be clearly identified on submitted construction plans. If site area and any offsite improvements required for this development exceed one-acre of disturbance, project will require a 1200-CN Erosion Control Permit. If site area and any offsite improvements required for this development exceed five-acres of disturbance, project will require a 1200-C Erosion Control Permit.
- c. Detailed plans showing each lot within the development having direct access by gravity to public storm and sanitary sewer.
- d. Provisions for water quality in accordance with the requirements of the above named design standards. Water Quality is required for all new development and redevelopment areas per R&O 19-5, Section 4.04. Access shall be provided for maintenance of facility per R&O 19-5, Section 4.07.6.

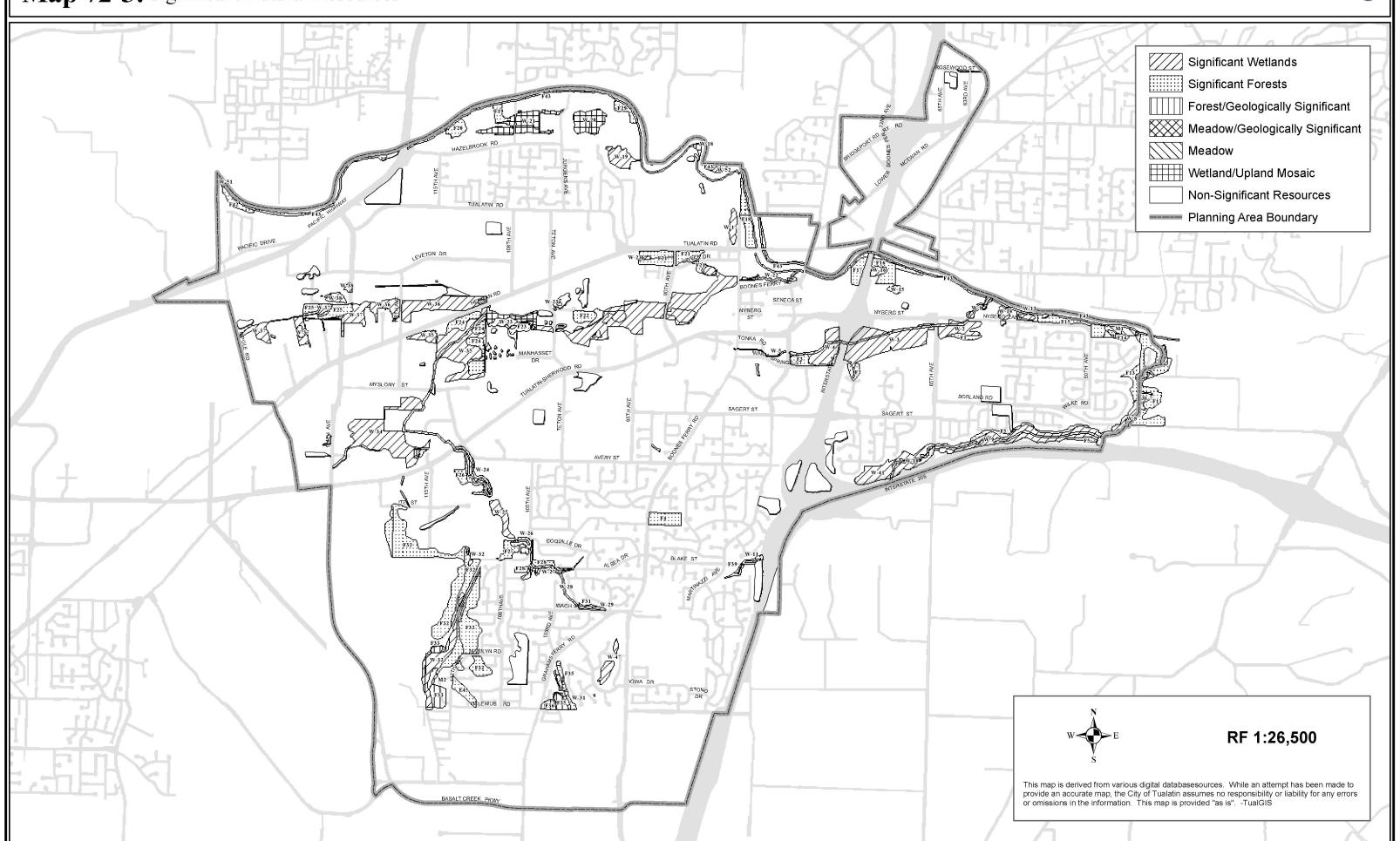
- e. If use of an existing offsite or regional Water Quality Facility is proposed, it must be clearly identified on plans, showing its location, condition, capacity to treat this site and, any additional improvements and/or upgrades that may be needed to utilize that facility.
- f. If private lot LIDA systems proposed, must comply with the current CWS Design and Construction Standards. A private maintenance agreement, for the proposed private lot LIDA systems, needs to be provided to the City for review and acceptance.
- g. Show all existing and proposed easements on plans. Any required storm sewer, sanitary sewer, and water quality related easements must be granted to the City.
- h. Application may require additional permitting and plan review from CWS Source Control Program. For any questions or additional information, please contact Source Control at (503) 681-5175.
- i. Applicant shall comply with the conditions as set forth in the Service Provider Letter No. 22-002776, dated January 31, 2023.
- j. Clean Water Services shall require an easement over the Vegetated Corridor conveying storm and surface water management to Clean Water Services that would prevent the owner of the Vegetated Corridor from activities and uses inconsistent with the purpose of the corridor and any easements therein.
- k. Detailed plans showing the sensitive area and corridor delineated, along with restoration and enhancement of the corridor.
- 1. If there is any activity within the sensitive area, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits.
- m. Any proposed offsite construction activities will require an update or amendment to the current Service Provider Letter for this project.

CONCLUSION

This Land Use Review does not constitute CWS approval of storm or sanitary sewer compliance to the NPDES permit held by CWS. CWS, prior to issuance of any connection permits, must approve final construction plans and drainage calculations.

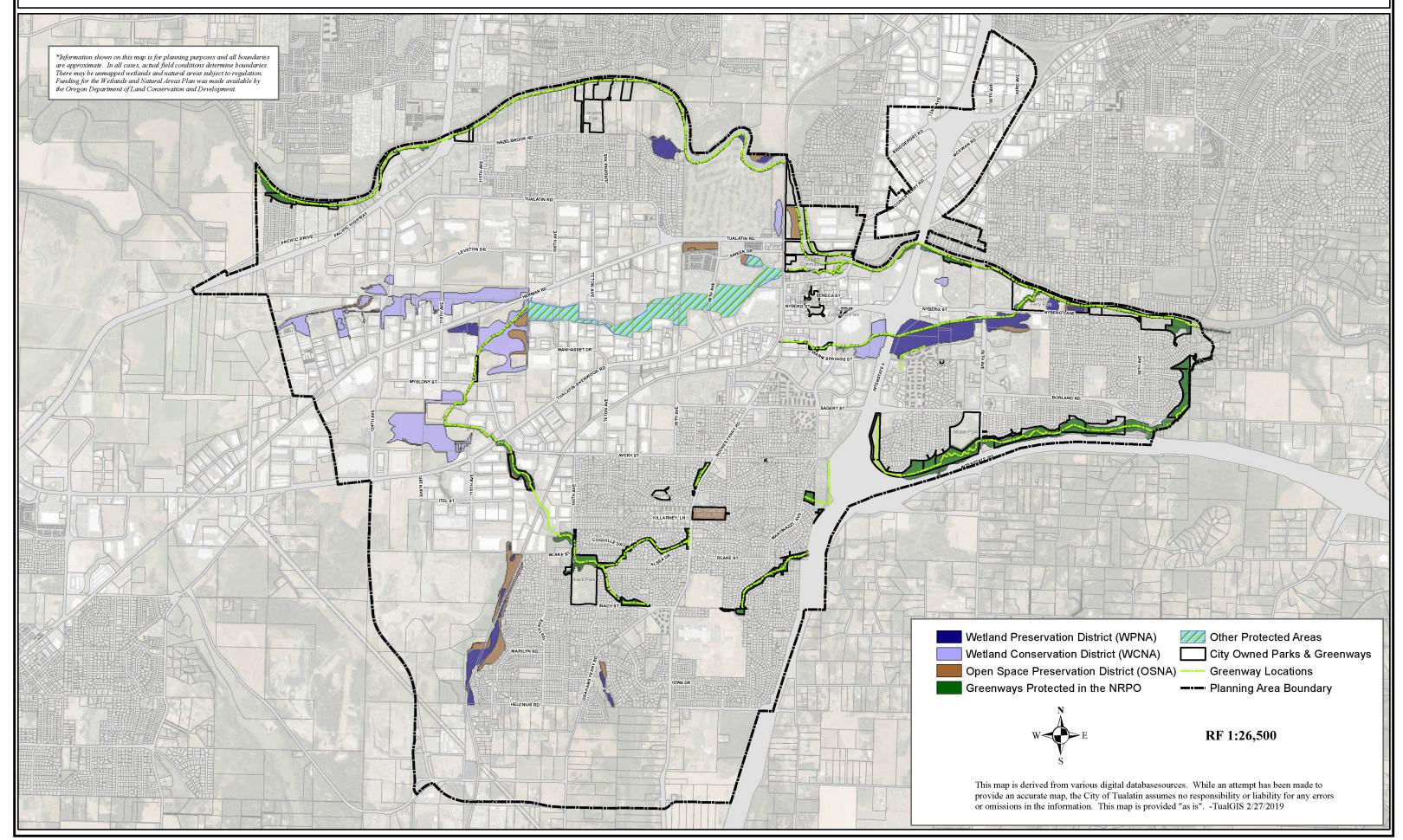






Map 72-1: Natural Resources Protection Overlay District (NRPO) and Greenway Locations







ARCHITECTURAL REVIEW BOARD DECISION

December 13, 2023

Case #: AR 23-0004

Project: 124th Avenue Industrial Development

Location: 19000 SW 124th Avenue, Tax Lot: 2S127BB00100 Applicant: Jennifer Kimura, VLMK Engineering + Design

Owner: Tualatin 124, LLC

I.FINDINGS

- A. An application for Architectural Review (AR 23-0004) was filed by VLMK Engineering + Design requesting approval for a three-building industrial development totaling 199,170 square feet 23.8acre site in the General Manufacturing (MG) zone at 19000 SW 124th Avenue (Tax Lot: 2S127BB00100).
- B. The Architectural Review Board (ARB) conducted a noticed quasi-judicial public hearing on December 13, 2023 in conformance with the laws of the State of Oregon and the City of Tualatin.

II.ACTION

The Architectural Review Board Decision approves AR 23-0004 and adopted the staff analysis and findings, dated December 13, 2023, with the following Conditions of Approval:

GENERAL:

A1. This Architectural Review approval expires after two years from the date of issuance unless a building, or grading permit submitted in conjunction with a building permit application, has been issued and substantial construction pursuant thereto has taken place and an inspection performed by a member of the Building Division, or an extension is granted under the terms of Section 33.020(10) or most current revision of the TDC.

PRIOR TO EROSION CONTROL, PUBLIC WORKS, AND WATER QUALITY PERMIT ISSUANCE:

- A2. Trees identified for preservation on the Erosion Control plan must be protected by chain link or other sturdy fencing placed around the tree at the drip line, pursuant to TDC 73B.080(3). Where site conditions make grading or other similar encroachment upon a preserved tree's drip-line area, such grading or similar encroachment must only be permitted under the direction of a qualified arborist.
- A3. Non-building development uses proposed in natural areas of the Natural Resource Protection Overlay District (NRPO) (Map 72-1) are subject to compliance with Clean Water Services standards stated in the Clean Water Services Service Provider letter dated January 31, 2023, and requirements stated in the Clean Water Services Memorandum dated October 24, 2023, to mitigate the impact of development to the extent necessary.



Submit to the Engineering Division via <u>eTrakit</u> for review and approval:

- A4. The applicant must apply for applicable Engineering Erosion Control, Water Quality, and Public Works permits:
 - a. Apply using eTrakit. With the initial Engineering permit(s) application(s) include:
 - i. One combined set of 22"x34" plans based on NAVD 1988 including all applicable Engineering permits attached to one Engineering permit. Include a note on other Engineering permits stating which application includes the set; and,
 - ii. Payment for an Erosion Control permit fee per the fee schedule; and,
 - iii. Engineering estimate and deposit for each Water Quality or Public Works permit per the <u>fee schedule</u>; and,
 - b. Deliver two 22"x34" hard copies of the combined Engineering permit plan sets to:

City of Tualatin

Attn: Engineering Division c/o Principal Engineer
10699 SW Herman Road
Tualatin, OR 97062

- A5. The applicant must submit Final Street Improvement Plans for SW 124th Avenue for the lot and Final Onsite Plans in accordance with applicable sections of Tualatin Development Code (TDC) 74 and 75 and Public Works Construction Code (PWCC) that show:
 - a. Dedication of a total of 55 feet of right-of-way from the centerline plus any additional right-of-way necessary to accommodate a 12-foot-wide multi-use path and to accommodate any final accepted future public stormwater LIDA management; and,
 - A 2-inch grind and inlay of existing pavement from the roadway centerline/median to the curb adjacent to the property frontage or a similar paving improvement as approved by the City Engineer; and,
 - c. Proposed driveways:
 - i. Right-in/right-out restricted; and,
 - ii. Approaches between 36 and 40 feet wide; and,
 - iii. Turning movement diagrams showing all proposed driveways operate without adverse impact as determined by the City Engineer to:
 - 1. Public rights-of-way and,
 - 2. The existing private access to SW 124th Avenue to the north of this development; and,
 - iv. Radii able to accommodate associated allowed vehicular movements as approved by the City Engineer; and,
 - v. Rolled curb and reinforced concrete planter strip as needed to support turning movements beyond the maximum 40-foot-wide approach; and,
 - d. A curb-tight 6-foot-wide planter strip:
 - i. With street trees spaced to allow vehicular sight distance and vision clearance at accesses; and,
 - ii. Widened as needed to accommodate any required LIDA street swales for public stormwater to meet current CWS requirements; and,
 - e. Existing public sidewalk within compliance of ADA standards or replacement of necessary driveways, ramps, and panels to bring into compliance; and,
 - f. A 12-foot-wide multi-use path east of the planter strip; and,
 - g. Dedication of right-of-way to accommodate any additional widening of the planter strip and 12-foot-wide multi-use path; and,
 - h. Street lighting improvements as necessary to meet City Engineer standards including PGE's Option A; and,

- i. An 8-foot-wide public utility easement and any required slope easement adjacent to SW 124th Avenue right-of-way, or as approved by the City Engineer and,
- j. Any proposed private retaining walls outside of public utility and slope easements; and,
- A6. The applicant must submit Final Sanitary Sewer System Plans in accordance with Tualatin Development Code (TDC) 74.620, Tualatin Municipal Code (TMC) 3-2, and Public Works Construction Code (PWCC) that show
 - a. Location of the lines, grade, materials, and other details; and,
 - b. Cleanouts adjacent to right-of-way; and,
 - c. Private sampling manholes located onsite outside of right-of-way and public easements. If located close to the property line private manholes may act as a cleanout.
- A7. The applicant must submit Final Water System Plans in accordance with Tualatin Development Code (TDC) 74.610, Tualatin Municipal Code (TMC) 3-3, and Public Works Construction Code (PWCC) that show:
 - a. Separate laterals to the main for each domestic and fire service; and,
 - b. Water meters located within the planter strip with:
 - i. Reduced pressure backflow prevention for the domestic lateral; and,
 - ii. Irrigation after a domestic meter and reduced pressure backflow device serving the planter strip adjacent to this development; and,
 - Disconnection of any existing public irrigation serving the planter strip adjacent to this
 development while retaining any remaining public planter strip irrigation connectivity;
 and,
 - d. A separate lateral and meter for any proposed public LIDA street swales; and,
 - e. Public utility easements outside existing public easements for all portions of water laterals ten feet wide to and surrounding any meter, reduced pressure backflow prevention, and fire vault by five feet.
- A8. The applicant must submit:
 - a. Final Stormwater System Calculations and Plans in accordance with Tualatin Development Code (TDC) 74.630 and 74.650, Tualatin Municipal Code (TMC) 3-5-200 through 3-5-430, Public Works Construction Code (PWCC), and Clean Water Services' (CWS) Design & Construction Standards (D&CS) Chapter 4 stamped by an Oregon registered, professional engineer in accordance with TMC 3-5-390(1) that:
 - i. Address runoff from all new and modified private and public impervious areas:
 - 1. Confirm the existing capacity within the basin's public facility for hydromodification, detention, and treatment to include new and modified impervious area within right-of-way; and,
 - 2. For any required increase in capacity propose:
 - a. Modification of the existing public stormwater facility for this basin; or,
 - b. New street LIDA facilities within planter strips:
 - i. Adjacent to this development; and,
 - ii. Include any widening of the 6-foot wide planter strip with associated dedication of right-of-way to accommodate the design; or,
 - c. A fee-in-lieu for any unaddressed capacity of public stormwater detention, hydromodification, and treatment as approved by the City Engineer; and,

- Treat new and modified impervious areas in accordance with CWS D&CS
 4.08.1.d meeting phosphorous removal in accordance with TMC 3-5-350 per the design storm in accordance with TMC 3-5-360 and CWS D&CS 4.08.2; and,
- iii. Prove any proposed infiltration rates in accordance with CWS D&CS 4.08.03; and,
- iv. Detain up to the 25-year storm event for conveyance with the City of Tualatin's stormwater system in accordance with, TMC 3-5-220, TMC 3-5-230, and CWS D&CS 4.08; and,
- v. Accommodate hydromodification including post-development runoff rates not exceeding pre-development runoff rates for proposed new and modified impervious areas in accordance with CWS D&CS 4.03.5; and,
- vi. Provide a downstream analysis and include solutions within final plans:
 - 1. For ¼ mile downstream from the release from the private development through the public stormwater system in accordance with TMC 3-5-210(4); and,
 - 2. Including but not limited to erosion; and,
 - Accommodate up to a 25-year storm event within the City of Tualatin's public stormwater system with a maximum capacity of 82% for Tualatin's lines in accordance with TDC 74.640, CWS D&CS 5.05.2.d, and the City Engineer; and,
- vii. Prove gravity flow five feet from the outside of the established line of the building to the public stormwater system or as otherwise approved by the City Engineer in accordance with CWS D&CS 1.03.39 and 5.09.3(a) (1) and (4); and,
- viii. Discharge to an approved public system; and,
- ix. In accordance with TDC 74.650(2) and CWS D&CS 3.01.2(d), comply with:
 - The submitted Clean Water Services' Service Provider Letter dated January 31, 2023 conditions to obtain a Stormwater Connection Permit Authorization Letter, and,
 - 2. Requirements stated within the Clean Water Services' Memorandum dated October 24, 2023; and,
- b. Financial assurance for construction performance in accordance with TMC 3-390(3), PWCC 102.14.00, and amount per CWS D&CS 2.07 Table 2-1; and,
- c. A copy of the recorded private stormwater maintenance agreement in accordance with TMD 3-5-390(4):
 - i. The agreement must assure the owner as responsible for maintenance of the constructed portions of private stormwater systems within their lot; and,
 - ii. The identified system must include all conveyance, detention, hydromodification, and treatment.
- A9. The applicant must submit Final Erosion Control Plans in accordance with Tualatin Development Code (TDC) 74.640, Tualatin Municipal Code (TMC) 3-5-050 and 3-5-060, Public Works Construction Code (PWCC), and Clean Water Services' (CWS) Design & Construction Standards (D&CS) Chapters 2 and 6 that:
 - a. Minimize the impact of stormwater from the development to adjacent properties; and,
 - b. Plans sufficient to obtain a National Pollution Discharge Elimination System (NPDES) 1200-C Construction Erosion Control permit from Oregon DEQ.

PRIOR TO BUILDING PERMIT ISSUANCE:

Submit to the Planning Division via <u>eTrakit</u> for review and approval:

- A10. The applicant must submit a Final Site Plan Set (in .pdf format) that is in substantial conformance to the submitted site plans and shows:
 - a. A revised grading plan with details to demonstrate;
 - Identified trees for removal and retention, tree protection measures, and complete tree inventory list in accordance with the Arborist Report submitted as Exhibit A3 and TDC 73B.080(3).
 - b. A revised landscape plan with details to demonstrate;
 - i. The minimum landscape area requirement of 15% of the total area to be developed is calculated on the plan in accordance with TDC 73B.020.
 - ii. The proposed chain link fence shown on the site plan in Exhibit A2 is included in the landscape plan in accordance with TDC 73B.080(2).
 - iii. Perimeter landscaping is the minimum five feet in width in all off-street parking and vehicular circulation areas, including loading areas in compliance with TDC 73C.240(3).
 - iv. A minimum of 25 square feet per parking stall is improved with landscape island areas is calculated on the plan and are compliant with the standards of TDC 73C.240(4).
 - v. Landscape area at least five feet in width on each side of an accessway in accordance with TDC 73C.200(5).
 - c. A revised site plan with details to demonstrate;
 - i. The proposed chain link fence shown on the site plan in Exhibit A2 is setback at least 10 feet from the public right-of-way in accordance with TDC 61.300.
 - ii. Bicycle parking locations and requirements are met in accordance with TDC 73C.050.
 - iii. The minimum number of off-street vanpool and carpool parking for industrial uses are met in accordance with TDC 73C.100(2).
 - iv. The minimum number of off-street loading berths for industrial uses, dimensions of berth, and unobstructed clearance of berths are met in accordance with TDC 73C.120.
 - v. The size and location of waste and recycling storage areas and the minimum storage area for industrial developments for warehousing/manufacturing are met in accordance with TDC 73D.030.
 - vi. The waste and recycling storage areas meet the design standards of TDC 73D.070.

Submit to the Engineering Division via eTrakit for review and approval:

- A11. The applicant must submit copies of recorded documents, as approved by the City Engineer, in accordance with Public Works Construction Code (PWCC) and Tualatin Development Code (TDC) 74.210, 74.330, and 75.040.
- A12. The applicant must obtain Erosion Control, Public Works, and Water Quality Permits from the City of Tualatin.

PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY AND/OR CERTIFICATE OF COMPLETION:

The applicant must contact the Planning Division (Madeleine Nelson, 503.691.3027 or mmelson@tualatin.gov) for a site inspection at least 72 hours prior to requesting a certificate of completeness. This inspection is separate from inspection(s) done by the Building Division. The following conditions must be satisfied:

A13. The applicant must install an identification system which clearly locates buildings and their entries for patrons and emergency services, pursuant to Section 73A.500(4)(d). Building

identification approved by TVF&R must be placed in a position that is plainly legible and visible from the street fronting the property. Numbers must contrast with their background, must be a minimum of 4 inches high, and must have a minimum stroke width of 1/2 inch. It is recommended to double this size on large buildings.

- A14. The applicant must screen with sight-obscuring fences or walls and landscaping, in accordance with TDC 73A.500(5) all above-grade and on-grade electrical and mechanical equipment, as well as, outdoor storage.
- A15. The applicant must construct all proposed site improvements as illustrated on the approved Final Site Plan Set.
- A16. The applicant must complete all the private stormwater and public improvements as shown on the approved permit plans. All improvements must also be accepted by the City in accordance with Tualatin Development Code (TDC) 74.120.
- A17. The applicant must submit paper and electronic as-builts of the Engineering permits along with maintenance bonds and any final fees for public and water quality improvements.

THE FOLLOWING ITEMS APPLY TO THE SITE IN AN ON-GOING MANNER:

- A18. Warehouse and Freight Movement including the storage, repackaging, delivery and movement of products are permitted on site, in accordance with Table 61-1. A Conditional Use Permit, subject to TDC 33.040, will be required prior to establishment of any warehousing of building materials and supplies on site.
- A19. All uses must be conducted wholly within a completely enclosed building, except off-street parking and loading, pursuant to TDC 61.310(1).
- A20. The proposed development must comply with the Environmental Regulations of TDC 63.
- A21. Artificial lighting must be deflected to not shine or create glare in residential zones, street right-of-way, a Natural Resource Protection Overlay District, Other Natural Areas, or a Clean Water Services Vegetated Corridor in accordance with TDC 73C.020(11).
- A22. All site, building exterior, and landscaping improvements approved through the AR process must be continually maintained, so as to remain substantially similar to original approval through the AR process, except as permitted under TDC 33.020(7) *Modifications to Previously Approved Final Architectural Review Decisions*.
- A23. If the use of the property changes, thereby increasing off-street parking or loading requirements, the increased parking/loading area must be provided prior to commencement of the new use, pursuant to TDC 73C.010(2)(a)(v).
- A24. Site landscaping must be maintained to meet the vision clearance requirements of TDC Figure 75-1.
- A25. Vegetation must be replanted in all areas where vegetation has been removed or damaged. The use of native plant material is encouraged.

- A26. Proposed landscaping must meet the minimum standards for trees and plants in accordance with TDC 73B.090.
- A27. All sign permits require separate sign permit approval per TDC Chapter 38. This approval does not constitute sign permit approval.

III.APPEAL

The applicant or any person who submitted written comments or testified orally or in writing at the Tualatin Architectural Review Board hearing and who may be adversely affected by the Board's decision may file a request for review of the final decision of the Tualatin Architectural Review Board to the City Council.

The Tualatin Architectural Review Board's decision will be final after 14 calendar days from the mailing of this order, unless a written appeal is received by the Tualatin Planning Division at 10699 SW Herman Road, Tualatin, Oregon, before 5:00 p.m., December _____, 2023. The appeal must be submitted on the City appeal form with all the information requested provided thereon, signed by the appellant, and include the applicable appeal fee. The plans and appeal forms are available at the Planning Division offices. The appeal forms must include reasons, current appeal fee, and meet the requirements of Section 32.310 of the Tualatin Development Code. The City Council will review and make a decision. The parties will be notified of the Council meeting date.

ADOP.	TED THIS DAY OF DECEMBER.
ARCHI	TECTURAL REVIEW BOARD
CITY C	OF TUALATIN
BY:	
	Cyndy Hillier, Chair
	Architectural Review Roard