



**Clackamas County Planning and Zoning Division
Department of Transportation and Development**

Development Services Building
150 Beavercreek Road | Oregon City, OR 97045

503-742-4500 | zoninginfo@clackamas.us
www.clackamas.us/planning

NOTICE OF LAND USE APPLICATION IN YOUR AREA

Date of Mailing of this Notice: 11/23/2022

Notice Mailed To: Property owners within 300 feet of the subject property
Community Planning Organizations (CPO)
Interested Agencies

File Number: Z0334-22

Application Type: Design Review

Proposal: DESIGN REVIEW - Proposal is for a new Drive-Thru Restaurant called Chick-fil-A. Site design includes new parking, circulation, landscape, etc. Two access points proposed, one from SE 82nd Ave and one from SE Glencoe Ave. Western sector of this site is reserved for future development at a later date. Please note, there is an associated land division (Partition) being reviewed with this project under file Z0462-22-M

The project will be presented to the Design Review Committee for review and feedback. The public is welcome to attend this meeting and provide comment. Please see the DRC website at <https://www.clackamas.us/planning/designreview.html>

Applicable Zoning and Development Ordinance (ZDO) Criteria: In order to be approved, this proposal must comply with ZDO Sections 202, 510, 827, 1001, 1002, 1003, 1005, 1006, 1007, 1009, 1015, 1021, 1102, 1307. The ZDO criteria for evaluating this application can be viewed at <https://www.clackamas.us/planning/zdo.html>

Applicant: SCHWARTZ, STEVE

Property Owner: GLENCOE INVESTMENTS LLC

Site Address: 0 NO SITUS

Location: Vacant lot at SE Glencoe Ave and SE 82nd Ave

Assessor's Map and Tax Lot: 12E29DD00100
12E29DD00190

Approximate Property Size: 3.20

Zoning: CC-CORRIDOR COMMERCIAL

Staff Contact: Benjamin Blessing 503 742 4521

E-mail: BBlessing@clackamas.us

File Number: Z0334-22

Community Planning Organization: The following recognized Community Planning Organization (CPO) has been notified of this application. This organization may develop a recommendation. You are welcome to contact the CPO and attend their meeting on this matter, if one is planned.

SOUTHGATE CPO
REED, TONYA 503-816-0378
SOUTHGATECPO@GMAIL.COM

If this CPO is currently inactive and you are interested in becoming involved in land use planning in your area, please contact Clackamas County Community Engagement at [503-655-8751](tel:503-655-8751). In some cases where there is an inactive CPO, a nearby active CPO may review the application. To determine if that applies to this application, call or email the staff contact.

How to Review this Application: A copy of the application, all documents and evidence submitted by or on behalf of the applicant, and applicable criteria are available for inspection at no cost. Copies may be purchased at the rate of \$2.00 per page for 8 1/2" x 11" or 11" x 14" documents, \$2.50 per page for 11" x 17" documents, \$3.50 per page for 18" x 24" documents and \$0.75 per sq ft with a \$5.00 minimum for large format documents. You may view or obtain these materials:

- Online at <https://accela.clackamas.us/citizenaccess/>. After selecting the Planning tab enter the file number to search. Select File Number and then select Attachments from the dropdown list, where you will find the submitted application; or
- By emailing or calling the staff contact.

Decision Process: Following the closing of the comment period, a written decision on this application will be made and a copy will be mailed to you. If you disagree with the decision, you may appeal to the Land Use Hearings Officer, who will conduct a public hearing. There is a \$250 appeal fee.

How to Comment on this Application:

To ensure your comments are considered prior to issuance of the decision, they must be received within 20 days of the date of this notice. Comments may be submitted by email to the staff contact or by regular mail to the address at the top of this notice. Please include the file number on all correspondence, and focus your comments on the approval criteria identified above or other criteria that you believe apply to the decision.

Comments:

Your Name/Organization

Telephone Number

Clackamas County is committed to providing meaningful access and will make reasonable accommodations, modifications, or provide translation, interpretation or other services upon request. Please contact us at least three (3) business days before the meeting at 503-742-4545 or DRenhard@clackamas.us.

¿Traducción e interpretación? | Требуется ли вам устный или письменный перевод? |
翻译或口译? | Cần Biên dịch hoặc Phiên dịch? | 번역 또는 통역?



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LAND USE APPLICATION

DEEMED COMPLETE

ORIGINAL DATE SUBMITTED: 7/12/22

FILE NUMBER: Z0334-22-D

APPLICATION TYPE: DESIGN REVIEW

The Planning and Zoning Division staff deemed this application complete for the purposes of Oregon Revised Statutes (ORS) 215.427 on: 11/15/2022

Ben Blessing

Staff Name

Sr. Planner, CFM

Title

Comments:

Check one:



The subject property is located inside an urban growth boundary. The 120-day deadline for final action on the application pursuant to ORS 215.427(1) is: 3/15/2023



The subject property is not located inside an urban growth boundary. The 150-day deadline for final action on the application pursuant to ORS 215.427(1) is:



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STAFF USE ONLY

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Jul 12 2022

Clackamas County
Planning & Zoning Division

Z0334-22-D

Staff Initials:

File Number:

Land use application for:

DESIGN REVIEW

Application Fee:

0.384% of construction cost, with \$785 minimum and \$36,835 maximum
(plus \$3,230 if Hydrogeologic Review is required)

APPLICANT INFORMATION

Applicant name: Chick-fil-A. Inc. (represented by Steve Schwartz)	Applicant email: Steve.Schwartz@cfacorp.com	Applicant phone: 303.519.7206
Applicant mailing address: 15635 Alton Parkway, Suite 350	City: Irvine	State: CA ZIP: 92618
Contact person name (if other than applicant): 4G Development (represented by Andrew Hunt)	Contact person email: AHunt@4Gdev.com	Contact person phone: 760.214.8362
Contact person mailing address: PO Box 270571	City: San Diego	State: CA ZIP: 92198

PROPOSAL

Brief description of proposal: A new 4,995 sq. ft. restaurant with dual drive through lanes, out door canopies and indoor/outdoor seating service (Chick-fil-A)	Estimated construction cost: \$1,100,000	Pre-application conference file number: ZPAC0013-22
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SITE INFORMATION

Site address: SE 82nd Avenue and SE Glencoe Road (No assigned address)	Comprehensive Plan designation: Commercial	Zoning district: Corridor Commercial
Map and tax lot #: Township: 1 Range: 2E Section: 29DD Tax Lot: 100 Township: 1 Range: 2E Section: 29DD Tax Lot: 190 Township: Range: Section: Tax Lot:	Land area: 3.2 acres	
Adjacent properties under same ownership: Township: Range: Section: Tax Lot: Township: Range: Section: Tax Lot:		

Printed names of all property owners:

Glencoe Investments

Signatures of all property owners:

[Signature]

Date(s):

7/5/22

I hereby certify that the statements contained herein, along with the evidence submitted, are in all respects true and correct to the best of my knowledge.

Applicant signature:

Date:

A. Complete a pre-application conference:

You must attend a pre-application conference with Planning and Zoning staff before filing this application. [Information about the pre-application conference](#) process and a request form are available from the Planning and Zoning website.

B. Review applicable land use rules:

This application is subject to the provisions of [Section 1102, Design Review](#) of the [Clackamas County Zoning and Development Ordinance](#) (ZDO).

It is also subject to the ZDO's definitions, procedures, and other general provisions, as well as to the specific rules of the subject property's zoning district and applicable development standards, as outlined in the ZDO.

C. Turn in all of the following:

- ☐ **Complete application form:** Respond to all the questions and requests in this application, and make sure all owners of the subject property sign the first page of this application. Applications without the signatures of *all* property owners are incomplete.
- ☐ **Application fee:** The cost of this application is **0.384% of construction cost, with a \$785 minimum and \$36,835 maximum**. Payment can be made by cash, by check payable to "Clackamas County", or by credit/debit card with an additional card processing fee using the [Credit Card Authorization Form](#) available from the Planning and Zoning website. Payment is due when the application is submitted. Refer to the FAQs at the end of this form and to the adopted [Fee Schedule](#) for refund policies.
- ☐ **Narrative describing the proposed use and demonstrating compliance with ZDO Section 1000, Development Standards, and the standards of the applicable zoning district(s)**
- ☐ **Engineering geologic study**, if required pursuant to [ZDO Section 1002, Protection of Natural Features](#), or [1003, Hazards to Safety](#)
- ☐ **Preliminary statements of feasibility from service providers and a Site Evaluation or Authorization Notice from the [Septic & Onsite Wastewater Program](#)**, as applicable and if required pursuant to [ZDO Section 1006, Utilities, Street Lights, Water Supply, Sewage Disposal, Surface Water Management, and Erosion Control](#) (forms for preliminary statements of feasibility are available at the Planning and Zoning [website](#))
- ☐ **Transportation impact study**, if required pursuant to [ZDO Section 1007, Roads and Connectivity](#)
- ☐ **Lot size and density calculations** showing compliance with [ZDO Section 1012, Lot Size and Density](#), if applicable to the proposal
- ☐ **Vicinity map:** The map must show the location of the subject property in relation to adjacent properties, roads, bikeways, pedestrian access, utility access, and manmade or natural site features that cross the boundaries of the subject property.
- ☐ **Existing conditions map:** The map must be drawn to a scale of not less than one inch = 50 feet, and must show all of the following, as listed in [ZDO Subsection 1102.02\(G\)](#):
 - Contour lines at two-foot intervals for slopes of 20% or less within an urban growth boundary (UGB); contour lines at five-foot intervals for slopes exceeding 20% within a UGB; contour lines at 10-foot intervals outside a UGB; and the source of contour information;

- Slope analysis designating portions of the site according to the following slope ranges and identifying the total land area in each category: zero to 20%, greater than 20% to 35%, greater than 35% to 50%, and greater than 50%;
- Drainage;
- Potential hazards to safety, including areas identified as mass movement, flood, soil, or fire hazards pursuant to [ZDO Section 1003](#);
- Natural features, such as rivers, streams, wetlands, underground springs, wildlife habitat, earth mounds, and large rock outcroppings;
- Wooded areas, significant clumps or groves of trees, and specimen conifers, oaks, and other large deciduous trees (where the site is heavily wooded, an aerial photograph, at a scale of not more than 1 inch = 400 feet, may be submitted and only those trees that will be affected by the proposed development need be sited accurately);
- Overlay zoning districts regulated by [ZDO Section 700, Special Districts](#);
- Noise sources;
- Sun and wind exposure;
- Significant views;
- Structures, impervious surfaces, utilities, onsite wastewater treatment systems, landscaping, driveways and easements (e.g. access, utility, storm drainage), with notes as to whether these will remain or be removed, and with dimensions of driveways and easements; and
- All of the following that are on or adjacent to the subject property, including dimensions and, if applicable, names: existing roads, platted unconstructed roads, railroad rights-of-way, bikeways, curbs, sidewalks, pedestrian pathways, accessways and trails.

☐ **Proposed site plan:** The map must be drawn to a scale of not less than one inch = 50 feet, and must show all of the following, as listed in [ZDO Subsection 1102.02\(H\)](#):

- The subject property, including contiguous property under the same ownership as the subject property, and adjacent properties;
- Property lines and dimensions for the subject property (indicate any proposed changes to these)
- Natural features to be retained;
- Location, dimensions, and names of all existing or platted roads or other public ways, easements, and railroad rights-of-way on or adjacent to the subject property;
- Location of at least one temporary benchmark and spot elevations;
- Location and dimensions of structures, impervious surfaces, and utilities, whether proposed or existing and intended to be retained (for phased developments, include future buildings);
- Approximate location and size of storm drainage facilities;
- Relation to transit; parking and loading areas, including dimensions and number of individual parking and load spaces and drive aisles; bicycle racks; walkways; and pedestrian crossings;
- Orientation of structures showing windows and doors;
- Location and type of lighting;
- Service areas for waste disposal, recycling, loading, and delivery;
- Location of mail boxes;
- Freestanding signs; and
- Pedestrian amenities.

- ☐ **Grading plan:** The plan must be drawn to a scale of not less than one inch = 50 feet, and must show the location and extent of proposed grading, general contour lines, slope ratios, slope stabilization proposals, and natural resources protection consistent with ZDO Sections 1002 and 1003
- ☐ **Architectural drawings:** The drawings must show all of the following, as listed in [ZDO Subsection 1102.02\(J\)](#):
 - Building elevations, including any building signs, with identifications of the dimensions, area, color, materials, and means of illumination of such signs and also identifying and showing dimensions of any electronic message center or other changeable copy sign areas;
 - Building sections;
 - Floor plans;
 - Color and type of building materials;
 - Elevation of freestanding sign(s) identifying the dimensions (including total height and height between the bottom of the sign and the ground), area, color, materials, and means of illumination, and also identifying and showing dimensions of any electronic message center or other changeable copy sign areas; and
 - Gross floor area, in square feet, of each structure; floor area ratio, if a minimum floor area ratio standard applies; and the number of dwellings.
- ☐ **General landscaping plan:** The plan must be drawn to a scale of not less than one inch = 50 feet, and must show the elements required on the proposed site plan and all of the following, as listed in [ZDO Subsection 1102.02\(K\)](#):
 - Existing plants and groups and plants proposed;
 - Description of soil conditions; plans for soil treatment such as stockpiling of topsoil or addition of soil amendments; and plant selection requirements relating to soil conditions;
 - Erosion controls, including plant materials and soil stabilization, if any;
 - Irrigation systems;
 - Landscape-related structures such as fences, terraces, decks, patios, shelters, and play areas; and
 - Open space and recreational areas and facilities, if applicable.
- ☐ **Transportation improvement plan:** The plan must include proposed cross-sections for roads to be constructed or improved, including widths of travel lanes, bikeways, sidewalks, curbs, pedestrian pathways, and landscape strips. Identify the proposed landscape plan for any landscape strips, including street tree types, size, and location, and identify any proposed dedication of right-of-way.
- ☐ **RCO District and PMU1 site master plan:** If the proposed development is in the Regional Center Office (RCO) District or a Planned Mixed Use 1 (PMU1) site, include any master plan required by [ZDO Subsection 1102.03\(B\)](#).
- ☐ **OA District master plan:** If the proposed development is in the Office Apartment (OA) District, include any master plan required by [ZDO Subsection 1102.03\(C\)](#).
- ☐ **Mobile vending unit narrative:** If the proposed development is for a mobile vending unit that exceeds the standards for both a level two and a level three mobile vending unit, include a narrative explaining how the proposal complies with the standards in [ZDO Subsection 837.05](#).

Note: Pursuant to [ZDO Subsection 1307.07\(C\)\(2\)](#), the Planning Director or designee may modify the preceding list of submittal requirements. Please consult the information provided in your pre-application conference.

FAQs

When is a Design Review permit required?

Approval of a Design Review permit is required by the Zoning and Development Ordinance (ZDO) for any development, redevelopment, expansions, and improvements in commercial and industrial zoning districts, except for uses approved through a zone change to Neighborhood Commercial (NC) District, and in the following residential zoning districts:

- High Density Residential (HDR)
- Medium Density Residential (MR-1)
- Medium High Density Residential (MR-2)
- Mountain Recreational Resort (MRR), except for detached single-family dwellings, manufactured homes, and their accessory uses if they are not part of a condominium development
- Planned Medium Density Residential (PMD)
- Regional Center High Density Residential (RCHDR)
- Special High Density Residential (SHD)
- Village Apartment (VA)
- Village Townhouse (VTH)

A Design Review permit is also required for specific types of residential development in other residential zoning districts, and for any other use as required by the Planning Director, the County Hearings Officer, or the Board of County Commissioners.

What is the permit application process?

Design Review permits are subject to a "Type II" land use application process, as provided for in [Section 1307](#) of the ZDO. Type II decisions include notice to owners of nearby land, the Community Planning Organization (if active), service providers (sewer, water, fire, etc.), and affected government agencies. If the application is approved, the applicant must comply with any conditions of approval identified in the decision. The application review procedure may be modified, pursuant to [Subsection 1102.04\(A\) or \(B\)](#), to include Design Review Committee review and recommendation to the Planning Director prior to issuance of the Planning Director's decision. The Planning Director's decision can be appealed to the County Land Use Hearings Officer.

What is needed for the County to approve a land use permit?

Applications for Design Review *may* be permitted after an evaluation by the County of applicable standards of the ZDO. The applicant is responsible for providing evidence that their proposal does or can meet those standards. In order to address the standards, the information requested in this application should be as thorough and complete as possible. A permit will only be approved or denied after a complete application is received and reviewed. The County approves an application only if it finds that the proposal meets the standards or can meet the standards with conditions.

Are all the submittal requirements listed in this application necessary?

County Staff, acting under the authority of the Planning Director per ZDO Subsection 1307.07(C)(2), has the ability to modify the submittal requirements for Design Review such that they are appropriate to the scope and context of the project. Any modifications to the submittal requirements should be discussed with Staff and identified through the required pre-application conference. Regardless of whether the submittal requirements are modified, it remains the applicant's obligation to demonstrate that all approval criteria are met.

FAQs continued

How long will it take the County to make a decision about an application?

The County makes every effort to issue a decision on a Type II land use application within 45 days of when we deem the application to be complete. State law generally requires a final County decision on a land use permit application in an urban area within 120 days of the application being deemed complete, and within 150 days for a land use permit in a rural area, although there are some exceptions.

If an application is submitted and then withdrawn, will a refund be given?

If a submitted Type II application is withdrawn before it is publicly noticed, 75% of the application fee paid will be refunded. If a submitted application is withdrawn after it is publicly noticed, but before a decision is issued, 50% of the application fee will be refunded. No refund will be given after a decision is issued.

Who can help answer additional questions?

For questions about the County's land use permit requirements and this application form, contact Planning and Zoning at **503-742-4500** or zoninginfo@clackamas.us. You can also find information online at the Planning and Zoning website: www.clackamas.us/planning.

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RECEIVED

By Ben Blessing at 4:27 pm, 11/15/22

#05098 Chick-Fil-A Restaurant

Clackamas County, Oregon

A Land Use Application For:
Type II Design Review

Submitted: November 4, 2022

Applicant:
4G Development and Consulting
P.O. Box 270571
San Diego, California 92198
Contact: Andrew Hunt
Phone: 760.214.8362

Prepared by:
DOWL
920 Country Club Road, Suite 100B
Eugene, Oregon 97401
Contact: Mariah Mitchell
Phone: 541.762.2096



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Exhibits

- A. Design Review Application Form
- B. Preliminary Statement(s) of Feasibility (WES)
 - Water Service
 - Sanitary Sewer Service
 - Surface Water Management, Treatment and Conveyance Service
- C. Zoning and Comprehensive Plan Map
- D. Plan Set
 - Sheet C0.0 – Cover Sheet
 - Sheet C1.0 – Existing Conditions
 - Sheet C2.0 – Site Plan
 - Sheet C3.0 – Grading Plan
 - Sheet C4.0 – Storm Plan
 - Sheet C5.0 – Utility Plan
 - Sheet L1.0 – Planting Plan
 - Sheet L1.1 – Planting Legend
- E. Architectural Plans
- F. Photometric Plan (Street Lighting on SE 82nd Avenue and SE Glencoe Road)
- G. Geotechnical Report
- H. Infiltration Testing Addendum (Terracon)
- I. Drainage Report
- J. Traffic Study
- K. Kittelson Supplemental Memo

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I. Introduction

General Information

Applicant:	4G Development and Consulting P.O. Box 270571 San Diego, California 92198 Contact: Andrew Hunt Phone: 760.214.8362 Email: ahunt@4Gdev.com
Prepared by:	DOWL 920 Country Club Road, Suite 100B Eugene, Oregon 97401 Contact: Mariah Mitchell Phone: 541.762.2096 Email: mmitchell@dowl.com
Project Location	SE Glencoe Road and SE 82 nd Avenue (no situs) Milwaukee, OR 97222
Parcel ID Numbers:	12E29DD00100 12E29DD00190
Zoning:	Corridor Commercial (CC)
Comprehensive Plan:	Commercial

II. Project Summary

Existing Conditions

Chick-fil-A's project site consists of two tax lots (12E29DD00100 and 12E29DD00190) totaling approximately 3.2 acres located at the corner of SE Glencoe Road and SE 82nd Avenue. The project site is currently a vacant asphalt lot with intermittent vegetative growth. Pre-existing site elements will be removed prior to Chick-fil-A's proposed redevelopment which includes reconstruction of the site access, as well as new paved circulation and parking areas, landscaping, and other site elements.

Access to the site is provided from SE Glencoe Road Via two driveways of varying widths. Current site conditions do not provide an indication of parking spaces, circulation, or drive aisle location within the project site. An existing conditions map is included as Sheet C1.0 of the plan, included as Exhibit D.

Both tax lots are current zoned Corridor Commercial (CC), have a comprehensive plan designation of Commercial and are within the Clackamas Regional Center Area Design Plan, as identified on Comprehensive Plan Map 10-CRC-1, included with this narrative as Exhibit C. A zoning map and copy of Comprehensive Plan Map 10-CRC-01 are included with this application as Exhibit C. Commercial areas within the Clackamas Regional Center Area are required to meet additional development standards to ensure efficient utilization of commercial areas while protecting adjacent properties and surrounding neighborhoods. Additional responses addressing the projects consistency with the Clackamas Regional Center Area Design Plan are provided later in this narrative.

Surrounding uses and their associated zoning designations are identified in Table 1 below. A zoning map is included with this narrative as Exhibit C.

Table 1: Surrounding Uses (12E29DD00100 and 12E29DD00190)

	Zoning	Use
North	CC	Corridor Commercial
South	MR-1, RTL	Medium Density Residential, Retail Commercial
East	CC, RTL	Corridor Commercial, Retail Commercial
West	HDR	High Density Residential

Project Description

The applicant proposes construction of a new 4,989 square foot Chick-fil-A restaurant building and 1,225 square foot patio area (6,214 square feet of leasable space) with dual 26-foot-wide drive-through lanes and associated site improvements. A future phase of development will likely include construction of an approximately 4,995 square foot commercial building. The applicant is seeking approval for the first phase of development only (Chick-fil-A restaurant and associated patio with drive-through lanes). The anticipated timeline for development of the future phase is unknown and will therefore be requested through a separate application in the future. Uses for the future building will be defined at the time of preliminary land use review.

Site improvements for the proposed restaurant include a new paved parking lot with 76 parking stalls, composed of 61 standard parking stalls, five (5) compact stalls, six (6) carpool stalls, and four (4) accessible parking stalls. Additional improvements include new curbing and traffic marking, new perimeter and

interior parking lot landscape planters, and a new sight-obscuring wall along the eastern property line between the drive-through and SE 82nd Avenue. Additional details surrounding parking totals and the proposed lease line between the Chick-fil-A site and future phase two site is provided later in this narrative and shown on Exhibit D.

Traffic will enter the site via SE Glencoe Road from a two-way drive aisle that passes through the center of the site and terminates at the drive-through entrance. The drive-through lanes run parallel to the northern property line, round the corner following the eastern property line to the service window on the northern side of the Chick-fil-A restaurant.

The proposed site plan is included with this application as Sheet C2.0 of Exhibit D demonstrating the location of on-site improvements. The proposed plans are supplemented by the following narrative responses further demonstrating the project's consistency with the county's development ordinance.

III. Applicable Review Criteria

The applicable Clackamas County Zoning and Development Ordinance (ZDO) provisions are set forth below with responses demonstrating the project's consistency with these provisions.

Clackamas County Zoning and Development Ordinance (ZDO)

510 Corridor Commercial (CC)

510.03 Uses Permitted

Uses permitted in each zoning district are listed in Table 510-1, Permitted Uses in the Urban Commercial and Mixed-Use Zoning Districts. In addition, uses similar to one or more of the listed uses for the applicable zoning district may be authorized pursuant to Section 106, Authorizations of Similar Uses.

A. As used in Table 510-1:

Use	NC	C-2	RCC	RTL	CC	C-3	PMU ¹	SCMU	OA ^{2,3}	OC	RCO
Civic and Cultural Facilities, including art galleries, museums, and visitor centers	P	P	P	P	P	P	P	P	P	P	P
Composting Facilities	X	X	X	X	X	X	X	X	X	X	X
Congregate Housing Facilities	X	X	P ^{7,8}	P ⁹	P ⁹	P ⁹	P	P	L	P ⁹	P ^{7,8}
Daycare Services, Adult	P	P	P	P	P	P	P	P	P	L ³ ,C	L ⁸ ,C
Dog Services, including boarding, daycare, and grooming	S	P	S	S	S	S	S	S	S	S	S
Drive-Thru Window Services, subject to Section 827	C	A	A ¹⁰	A	A	A	A ¹¹	X	X	A ¹¹	A ¹¹
Dwellings, Attached Single-Family	X	A	X	A	X	A	P	P	L ¹²	X	X
Dwellings, Detached Single-Family	A	A	X	A	X	A	X	X	X	X	X
Dwellings, Multifamily	X	X	P ⁷	P ⁹	P ⁹	P ⁹	P	P	L ¹³	P ⁹	P ⁷
Dwellings, Three-Family	X	X	X	P	P	P	P	P	L ¹³	P	X
Dwellings, Two-Family	X	A	X	P	P	P	P	P	L ¹³	P	X
Electric Vehicle Charging Stations	A,C	P	A	A,C	P	P	A	A	A	A	A
Employee Amenities, such as cafeterias, clinics, child care facilities, fitness facilities, lounges, and recreational facilities	A	A	A	A	A	A	A	A	A ¹⁴	A ¹⁴	A ¹⁴
Entertainment Facilities, including arcades, billiard halls, bowling alleys, miniature golf courses, and movie theaters	C ¹⁵	P ¹⁵	P ¹⁵	P	P	P	P ¹⁵	P ^{15,16}	S	C ^{15,17}	L ^{6,15}
Farmers' Markets, subject to Section 840	P	P	P	P	P	P	P	P	P	P	P
Financial Institutions, including banks, brokerages, credit unions, loan companies, and savings and loan associations	P	P	P	P	P	P	P	P	P	P	P

Use	NC	C-2	RCC	RTL	CC	C-3	PMU ¹	SCMU	OA ^{2,3}	OC	RCO
Recreational Sports Facilities for such sports as basketball, dance, gymnastics, martial arts, racquetball, skating, soccer, swimming, and tennis. These facilities may be used for any of the following: general recreation, instruction, practice, and competitions.	P ¹⁵	P ¹⁵	P ¹⁵	P	P	P	P ¹⁵	P ^{15,16}	S	C ¹⁵	L ^{15,19}
Recyclable Drop-Off Sites , subject to Section 819	A	A	A ³⁴	A ³⁴	A	A	A ³⁴	A ³⁴	A ³⁴	A ³⁴	A ³⁴
Research Facilities and Laboratories , including medical laboratories, medical research, product design and testing, and product research and development	S	S	S	S	P	P	P ²⁶	P	P ³⁵	P ³⁵	P ²⁶
Retailing —whether by sale, lease, or rent—of new or used products	S	S	P	P	P	P	P	P ¹⁶	S	C ¹⁷	L ⁶
Retailing —whether by sale, lease, or rent—of any of the following new or used products: apparel, appliances, art, art supplies, beverages, bicycle supplies, bicycles, books, cameras, computers, computer supplies, cookware, cosmetics, dry goods, electrical supplies, electronic equipment, firewood, flowers, food, furniture, garden supplies, gun supplies, guns, hardware, hides, interior decorating materials, jewelry, leather, linens, medications, music (whether recorded or printed), musical instruments, nutritional supplements, office supplies, optical goods, paper goods, periodicals, pet supplies, pets, plumbing supplies, photographic supplies, signs, small power equipment, sporting goods, stationery, tableware, tobacco, toiletries, tools, toys, vehicle supplies, and videos	P	P	P	P	P	P	P	P ¹⁶	L ^{18,36} ,S	L ^{5,36} ,C ¹⁷	L ⁶

Response: The subject lot is designated as Corridor Commercial (CC). The applicant proposes a new Chick-fil-A restaurant with drive-through window service. Restaurant uses are permitted in the CC district pursuant to Table 510-1. Drive-through window service is permitted as an accessory use subject to the additional standards outlined in Section 827. A review of the project's consistency with Section 827 is offered later in the narrative.

510.04 Dimensional Standards

Dimensional standards applicable in the urban commercial and mixed-use zoning districts are listed in Table 510-2, Dimensional Standards in the Urban Commercial and Mixed-Use Zoning Districts. Modifications to the standards of Table 510-2 are established by Sections 800, Special Use Requirements; 903, Setback Exceptions; 904, Height Exceptions; 1012, Lot Size and Density; 1107, Property Line Adjustments; and 1205, Variances. As used in Table 510-2, numbers in superscript correspond to the notes that follow Table 510-2.

Table 510-2: Dimensional Standards in the Urban Commercial and Mixed-Use Zoning Districts

Standard	NC	C-2	RCC	RTL	CC	C-3	PMU	SCMU	OA	OC	RCO
Minimum Lot Size	7,260 square feet ^{1,2}	None	1 acre ^{2,3}	½ acre ^{2,3}	None	None	PMU1: None PMU2: 2 acres PMU3: 3 acres PMU4: ½ acre PMU5: 10 acres PMU6: 5 acres	½ acre ^{2,4}	None	1 acre ^{2,3}	2½ acres ^{2,3}
Minimum Street Frontage	None	None	None	None	None	None	None	100 feet ⁵	None	None	None
Maximum Front Setback	20 feet ⁶	20 feet ⁶	20 feet ⁷	20 feet ⁶	20 feet ⁶	20 feet ⁶	20 feet ^{7,8}	See Subsection 1005.10	20 feet ⁶	20 feet ⁶	20 feet ⁷
Minimum Front Setback	0	15 feet	5 feet ⁹	15 feet	15 feet	15 feet	0	See Subsection 1005.10	10 feet	15 feet	5 feet ⁹

Standard	NC	C-2	RCC	RTL	CC	C-3	PMU	SCMU	OA	OC	RCO
Minimum Rear Setback	0	0 ¹⁰	0 ¹¹	0 ¹²	0 ¹²	0 ¹²	0 ^{8,10}	See Subsection 1005.10	10 feet ¹³	10 feet ¹¹	0 ¹⁴
Minimum Side Setback	0	0 ¹⁵	0 ¹⁵	0 ¹⁶	0 ¹⁶	0 ¹⁶	0 ^{8,15}	See Subsection 1005.10	6 feet ¹⁷	10 feet ¹⁸	0 ¹⁵
Maximum Building Height	35 feet	None ¹⁹	None	None	None	None	None	None	45 feet	None ²⁰	None
Minimum Floor Area Ratio	None	None	0.3 for a retail development; 0.5 for an office development ²¹	None	None	None	See Table 510-3.	None	None	None	0.5 for primary office uses on lots of 2½ acres or less; 1.0 for primary office uses on lots greater than 2½ acres ^{21, 22, 23}
Maximum Building Floor Area per Use	5,000 square feet	None	None	None	None	None	None	None	None	None	None

Response: The proposed restaurant and other permanent site improvements will be located 36-feet from the front property line (adjacent SE Glencoe Road), 34-feet from the rear property line, 6-feet from the eastern side property line (adjacent SE 82nd Avenue), and 305-feet from the western property line. Therefore, the location of the proposed Chick-fil-A restaurant will comply with the dimensional standards established in Table 510-2.

Notes to Table 510-2:

16 If the side lot line abuts a residential zoning district, the minimum side yard setback shall be 15 feet plus one foot for each one-foot increase in building height over 35 feet. Height increments of less than one foot shall be rounded up to the nearest foot. For example, if the building height is 38.8 feet, the minimum setback shall be 19 feet.

Response: Property to the west of the site is zoned residential. The Chick-fil-A building is proposed roughly 305 feet from the western property line. Additionally, the Chick-fil-A restaurant building is designed to be 20'5" in height on the architectural plans and is not anticipated to exceed 35-foot in height. Architectural plans are included with this application as Exhibit E. Therefore, the location and height of the proposed Chick-fil-A restaurant is not anticipated to impact the residential zoned property to the west.

827 Drive-Thru Window Services**827.01 Standards****Drive-thru window services:**

A. Shall not limit the development of pedestrian-oriented or transit-supportive uses, or adversely impact such uses on adjacent lots. This criterion does not apply in the RC District;

Response: The drive-through will not limit the development of pedestrian-oriented or transit-supportive uses, or adversely impact such uses on adjacent lots for the following reasons and through the following measures:

- The drive-through's location is planned in the northeastern corner of the project site. Vehicles will access the site and drive-through via driveways on SE Glencoe Road. SE Glencoe Road is functionally classified as a local road according to the Clackamas County Transportation System Plan, Map 5-4a Road Functional Classification (Urban).
- Vehicular access is not provided from SE 82nd Avenue. SE 82nd Avenue is considered a Principal Arterial according to the Clackamas County Transportation System Plan, Map 5-4a Road Functional Classification (Urban).
- A Tri-Met frequent service bus route exists along SE 82nd Avenue and provides two major bus stops immediately adjacent the project site (Stop ID 14028 and 8016). As previously mentioned, no access to the project site is proposed from SE 82nd Avenue therefore, continuous pedestrian-oriented or transit-oriented access will remain unchanged on SE 82nd Avenue.
- The drive-through's location is planned in the northeastern corner of the project site and will not be visible from SE 82nd Avenue due to a sight-obscuring wall and landscape improvements. Landscaping improvements along the eastern property line include nine Pyramidal European Hornbeams and perimeter planters containing Blue Pacific Shore Juniper. A Planting Plan is included with this application as Sheet L1.1 of Exhibit D.
- Pedestrian crosswalks across the drive-through will be clearly marked and signage will be provided to notify queuing vehicles of pedestrian walkways to the restaurant.

- Vehicle queuing for the proposed drive-through will be located on the project site. No queuing is anticipated along SE Glencoe Road or SE 82nd Avenue. In support of this conclusion, the traffic impact study and data provided from Chick-fil-A estimates that the average service wait time per vehicle during peak lunch hour is 4 minutes per vehicle. The dual lane drive-through and on-site drive aisles can accommodate the anticipated number of queued vehicles without overflow queuing occurring on -SE Glencoe Road or SE 82nd Avenue.
- There are no pedestrian sidewalks along the southern property line (SE Glencoe Road) and no street lighting along SE Glencoe Road or SE 82nd Avenue. Clackamas County and ODOT require that the property owner provide a new sidewalk along SE Glencoe and new street lighting along SE Glencoe Road or SE 82nd Avenue. The completion of sidewalks and street lighting in conjunction with this project will support the county's transportation and pedestrian access goals as well as provide safe access to the project site and adjacent lots.
- The development of private improvements within the site will not impact the ability to add sidewalk improvements to adjacent public roads.
- Adequate right-of-way is available on all frontages of the development which could accommodate transit services. The proposed development will not compromise future plans to add transit services.
- Parking spaces will be limited to only those spaces necessary for the proposed drive-through restaurant and future phase two development. Design approval for the future phase will be addressed with a separate application package. The remaining area on the project site will be dedicated to pedestrian walkways, landscaping, patio with outdoor seating and frontage improvements, consistent with the county's pedestrian-oriented goals.
- Outdoor tables and seating are proposed at the corner of SE Glencoe Road and SE 82nd Avenue, opposite the drive-through aisles in an effort to reduce motor vehicle and pedestrian interactions and exposure to transportation-related emissions.
- The amount of noise and emissions added as a result from the proposed project will be negligible by comparison to the existing noise and emissions associated with vehicular travel along SE 82nd Avenue and other public roadways adjacent to the project site.

B. Shall create minimal conflict with pedestrian access to the building from adjacent lots and roads;

Response:

The drive-through will create minimal conflict with pedestrian access to the building from adjacent lots and roads for the following reasons and through the following measures:

- There are no pedestrian sidewalks along the southern property line (SE Glencoe Road) and no street lighting along SE Glencoe Road or SE 82nd Avenue. Clackamas County and ODOT require that the property owner provide a new sidewalk along SE Glencoe and new street lighting along SE Glencoe Road or SE 82nd Avenue. The completion of sidewalks and street lighting will support the county's transportation and pedestrian access goals as well as provide safe access to the project site and adjacent lots.

- Queuing vehicles will be limited to the drive-through and parking areas and will not cross pedestrian walkways to the restaurant or adjacent uses and roads. Pedestrian crosswalks across the drive-through will be clearly marked and signage will be provided notifying queuing vehicles of pedestrian walkways to the restaurant.

C. Shall not attract vehicle traffic into existing or proposed pedestrian and transit service areas; and

Response: The drive-through will not attract vehicle traffic into existing or proposed pedestrian and transit areas for the following reasons and through the following measures:

- There are existing pedestrian and transit services along SE 82nd Avenue. No access to the project site will occur from SE 82nd Avenue. Therefore, continuous pedestrian-oriented or transit-oriented access will remain unchanged on SE 82nd Avenue.
- The drive-through's location is planned in the northeastern corner of the project site and will not be visible from SE 82nd Avenue. Queuing vehicles will be limited to the drive-through and parking areas and will not cross pedestrian or transit areas.
- Vehicle queuing for the proposed drive-through will be located on the project site. No queuing is anticipated along SE Glencoe Road or SE 82nd Avenue. In support of this conclusion, the traffic impact study and data provided from Chick-fil-A estimates that the average service wait time per vehicle is 4 minutes. Therefore, the project site can accommodate the anticipated number of queued vehicles on-site.

Therefore, the applicant concludes that the proposed drive-through will not attract vehicle traffic into existing or proposed pedestrian and transit areas.

D. Shall not create offsite congestion due to lack of onsite vehicle queuing area commensurate with the estimated volume of traffic to be generated.

Response: Vehicle queuing for the proposed drive-through will be located on the project site. No queuing is anticipated along SE Glencoe Road or SE 82nd Avenue. In support of this conclusion, the traffic impact study and data provided from Chick-fil-A estimates that the average service wait time per vehicle is 4 minutes. Therefore, the project site can accommodate the anticipated number of queued vehicles on-site and will not create offsite congestion.

E. In the Clackamas Regional Center Area, but outside the Clackamas Regional Center itself:

- 1. When drive-thru window service facilities are oriented toward front lot lines or street corners, pedestrian areas shall be buffered from the noise and exhaust of drive-thru vehicles.**

Response:

The project site is located in the Clackamas Regional Center Area and is subject to this provision. The drive-through facilities will be located in the northeastern corner of the project site, adjacent to the front lot line along SE 82nd Avenue. Pedestrian areas along SE 82nd Avenue will be buffered from the noise and exhaust of drive-through vehicles through the following measures:

- A 30-inch-high stucco wall will be provided between the proposed drive-through and SE 82nd Avenue. The wall's elevations and appearance are included as Exhibit E. A landscape buffer will also be provided between the wall and SE 82nd Avenue, consisting of pyramidal hornbeam and blue pacific shore juniper. The landscape plan is included as Sheets L1.0 and L1.1 of Exhibit D.
- An outdoor patio for restaurant customers is proposed in the southeastern corner of the project site. The combination of physical distance and building placement between the outdoor patio and drive-through will buffer the pedestrian area from noise and exhaust generated by drive-through vehicles.
- The amount of noise and emissions added as a result from the proposed project will be negligible by comparison to the existing noise and emissions associated with vehicular travel along SE 82nd Avenue.

- 2. When building entrances are separated from sidewalks by drive-thru window service facilities, special design features may be required to ensure safe, direct, and convenient crossings and to screen pedestrian areas from drive-thru window service facilities. These may include different paving types, raised elevation, warning signs, landscaping, walls, bollards, or other similar methods.**

Response:

The entrance to the new Chick-fil-A restaurant is located along the west side of the new building and will not be separated from sidewalks by the drive-through window service facilities. Safe, direct, and convenient access is available to the new Chick-fil-A restaurant from SE Glencoe Road and SE 82nd Avenue without crossing the drive-through.

- F. Inside the Clackamas Regional Center, drive-thru lanes are prohibited between the building and the street to which a building public entrance is oriented pursuant to Subsection 1005.09(B).**

Response:

The project site accesses from SE Glencoe Road. The main building entrance is located on the west side of the building, facing the new private parking lot. The drive-through lanes are accessed from the parking lot and run along the eastern property line up to the service window on the northern side of the building. No drive-through lanes is proposed between the building and the street to which a building public entrance. Therefore, the proposed building complies with this provision.

900 General Provisions and Exceptions**903 Setback Exceptions**

Response: The proposed development is not subject to any of the setback exemptions specified under Section 903. Therefore, the applicant has provided a site plan in Sheet C2.0 of Exhibit D and narrative responses within this report that identify building setbacks in the CC zoning district, consistent with Table 510-2.

904 Height Exceptions

Response: The proposed development is not subject to any of the building height exemptions specified under Section 904. Therefore, the applicant has provided architectural plans and narrative responses earlier in this report that identify height restrictions in the CC zoning district, consistent with Table 510-2.

1000 Development Standards**1001 General Provisions****1001.03 Applicability**

Section 1000 applies to all development, as identified in Table 1001-1, Applicability of Section 1000. If a section is identified as applicable with a “☐” in Table 1001-1, it does not necessarily mean that every subsection within that section will apply; rather, each applicable section must be reviewed to determine which, if any, provisions in that section are applicable to the proposed development.

Table 1001-1: Applicability of Section 1000¹

Type of Development	1002 Protection of Natural Features	1003 Hazards to Safety	1004 Historic Protection	1005 Site and Building Design	1006 Utilities, etc	1007 Roads & Connectivity	1009 Landscaping	1010 Signs	1011 Open Space and Parks	1012 Lot Size and Density	1013 Planned Unit Developments	1015 Parking and Loading	1017 Solar Access	1021 Solid Waste & Recyclable Material Collection
Partitions														
Subdivisions	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	
Replats														
Institutional														
Commercial ²	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓
Industrial														
Manufactured dwelling parks	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓		
Multifamily dwellings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓
Detached single-family dwellings	1002.01 1002.04 1002.05 1002.06		✓		✓	1007.04 1007.08		✓				1015.01(A) 1015.02(A)(2) & (4) 1015.02(B-D) Table 1015-2		
Manufactured dwellings	1002.07 1002.09 ³													
Middle housing in the R-5, R-7, R-8.5, R-10, R-15, R-20, R-30, VR-4/5, and VR-5/7 Districts														
Duplexes, Triplexes, and Townhouses	1002.01 1002.09 ³	✓	✓		✓	1007.04 1007.08		✓				1015.01(A) 1015.02(A)(2) & (4) 1015.02(B-D) Table 1015-2		
Quadplexes and Cottage Clusters	1002.01 1002.09 ³	✓	✓		✓	1007.04		✓						
Middle housing land divisions	✓	✓	✓		✓	✓		✓		✓				

Response: The applicant requests approval for a restaurant (commercial use). Therefore, the applicant has provided responses to the applicable development standards outlined in Table 1001-1.

1002 Protection of Natural Features

1002.03 Trees and Wooded Areas

A. Existing wooded areas, significant clumps or groves of trees and vegetation, consisting of conifers, oaks and large deciduous trees, shall be incorporated in the development plan wherever feasible. The preservation of these natural features shall be balanced with the needs of the development, but shall not preclude development of the subject property, or require a reduction in the number of lots or dwelling units that would otherwise be permitted. Site planning and design techniques which address incorporation of trees and wooded areas in the development plan include, but are not limited to, the following:

- 1. Siting of roadways and utility easements to avoid substantial disturbance of significant clumps or groves of trees;***

Response: The project site has three trees along the northern property line. The need to develop this site's roadways and utility easements (for the proposed drive-through) requires the removal of all three trees along the northern property line, as shown on the existing conditions plan Sheet C1.0 included with as Exhibit D. The resulting disturbance from removing trees will be mitigated through landscape improvements, as shown on Sheet L1.0 included with Exhibit D.

- 2. Preservation of existing trees within rights-of-way and easements when such trees are suitably located, healthy, and when approved grading allows;***

Response: There are no trees in the right-of-way or easements on the project site. Therefore, this provision does not apply.

- 3. Use of flexible road standards as provided in Subsection 1007.02(B)(3), including one-way roads or split-level roads, to preserve significant trees and avoid unnecessary disturbance of terrain;***

Response: The applicant has identified the need to remove five trees within the site in preparation for project development. The use of flexible road standards in Subsection 1007.02(B)(3) is not requested with this application. Therefore, this provision does not apply.

- 4. Retention of specimen trees or clumps of trees in parking area islands or future landscape areas of the site as provided for in Section 1009, Landscaping.***

Response: The applicant has identified the need to remove all five trees in preparation for project development. None of the existing trees proposed for removal are in a future landscape area. Therefore, this provision does not apply.

- 5. *Use of wooded areas of the site for recreation, or other low-intensity uses, or structures, not requiring extensive clearing of large trees, grading, or filling activity which substantially alters the stability or character of the wooded area;***

Response: The project site is a vacant lot. No portion of this site is considered a wooded area suitable for recreation, or other low intensity uses. Therefore, this provision does not apply.

- 6. *Retention of trees which are necessary to ensure the stability of clumps or groves of trees considering the type of trees, soil and terrain conditions, exposure to prevailing winds, and other site-specific considerations;***

Response: The five trees identified on this site are scattered throughout the site and are not likely to ensure soil stability or reduce exposure to prevailing winds. Additionally, the resulting disturbance from removing existing trees will be mitigated through landscape improvements, as shown on Sheet L1.0 included with Exhibit D.

- 7. *Use of trees and wooded areas to buffer, screen, or provide transitions between different or conflicting uses on and off the site;***

Response: The applicant has identified the need to remove all five trees in preparation for project development. None of the existing trees proposed for removal are in an area identified as appropriate for buffering, screening or providing transition between the proposed use and adjacent uses. Therefore, this provision does not apply.

- 8. *Use of flexible-lot-size and planned unit development designs to minimize disturbance of wooded areas;***

Response: The applicant is not requesting the use of flexible lot size or planned unit development design standards. Therefore, this provision does not apply.

- 9. *Siting of uses and structures to utilize the natural microclimates created by wooded areas and trees to reduce extremes in temperature, provide wind protection, filter pollutants, and replenish oxygen and moisture to the air; and***

Response: The applicant proposes replacing the five trees with 74 new trees of varying size and species, as shown on Sheet L1.0 and L1.1 of Exhibit D. The newly landscaped areas will provide shade that will reduce extreme temperatures, provide wind protection, filter pollutants, and replenish oxygen and moisture to the air, as suggested in this provision.

- 10. *Use of other development techniques described in Subsection 1011.02(C).***

Response: The project site does not have any open space resources as specified in Subsection 1011.01 and therefore, would not be suitable for the uses outlined in Subsection 1011.02(C).

B. Trees and wooded areas to be retained shall be protected during site preparation and construction according to County design and specifications by:

Response: The site does not contain any wooded areas. The removal of all five trees is necessary for the proposed development. No existing trees are being retained. Therefore, this provision and associated subsections do not apply.

1003 Hazards to Safety

1003.01 Purpose

- A. To protect lives and property from natural or man-induced geologic or hydrologic hazards and disasters.***
- B. To protect property from damage due to soil hazards.***
- C. To protect lives and property from forest and brush fires.***
- D. To avoid financial loss resulting from development in hazard areas***

Response: A geotechnical report is included with this application that concludes seismic hazards such as liquefaction, expected earthquake shaking and landslide susceptibility are very low, as confirmed by the Statewide GeoHazards Viewer (Hazvu) published by the Oregon Department of Geology and Mineral Studies (DOGAMI). Additionally, the project site is not located in a flood hazard area, forested area subject to increased fire risk, or soil hazard area. Therefore, the applicant concludes that the standards outlined in Section 1003 are not applicable to the project site.

1005 Site Building and Design

1005.03 General Site Design Standards

The following site design standards apply:

- A. Where feasible, cluster buildings within single and adjacent developments for efficient sharing of walkways, on-site vehicular circulation, connections to adjoining sites, parking, loading, transit-related facilities, plazas, recreation areas, and similar amenities.***

Response: As established in Table 1015-1, the applicant will need to provide a minimum of 9 parking spaces per 1,000 square feet of gross leasable land (or a minimum of 55 parking spaces) and a maximum of 12.4 parking spaces per 1,000 feet (or 77 parking spaces). The applicant will provide 76 parking stalls, composed of 61 standard parking stalls, five (5) compact stalls, six (6) carpool stalls, and four (4) accessible parking stalls. The applicant plans to pave the area between the restaurant and future phase two development, but will only stripe and mark parking and access aisles used for the requested restaurant use, as shown in the revised plan set, included with this narrative as Exhibit D. If required, the unmarked

paved area to serve the future use on lot two can be blocked off in order to facilitate safe vehicular access and queuing on-site.

B. Where feasible, design the site so that so that the longest building elevations can be oriented within 20 degrees of true south in order to maximize the south-facing dimensions.

Response: Due to the location of the drive-through lanes, design requirements outlined in Section 827, and existing elevations, it is not feasible to design the Chick-fil-A restaurant to be oriented within 20 degrees of true south to have south-facing dimensions.

C. Minimum setbacks may be reduced by up to 50 percent as needed to allow improved solar access when solar panels or other active or passive solar use is incorporated into the building plan.

Response: The applicant is not requesting a reduction from the minimum setback requirements to allow for improved solar access. No active or passive solar use is proposed with this application. Therefore, this provision does not apply.

D. A continuous, interconnected on-site walkway system meeting the following standards shall be provided.

1. Walkways shall directly connect each building public entrance accessible to the public to the nearest sidewalk or pedestrian pathway, and to all adjacent streets, including streets that dead-end at the development or to which the development is not oriented.

Response: A walkway is provided from the Chick-fil-A's public entrance that connects to the pedestrian walkway along SE 82nd Avenue and SE Glencoe Road. The walkway location is identified as Construction Note 2 on Sheet C2.0 of Exhibit D.

2. Walkways shall connect each building to outdoor activity areas including parking lots, transit stops, children's play areas and plazas.

Response: The proposed walkway connects Chick-fil-A's public entrance to outdoor activity areas, including parking lots and will provide new walkways on SE 82nd Avenue and SE Glencoe Road. Currently, there are no transit stops or children's play areas and plazas on or adjacent to the subject property. The addition of sidewalk along SE 82nd Avenue and SE Glencoe Road will provide access to adjacent uses off-site. The proposed walkway location is identified as Construction Note 2 on Sheet C2.0 of Exhibit D.

3. Walkways shall be illuminated. Separate lighting shall not be required if existing lighting adequately illuminates the walkway.

Response: Currently, there is no street lighting on SE 82nd Avenue or SE Glencoe Road. During the pre-application conference (ZPAC0013-22) the applicant was informed that the project will need to provide new streetlights on SE 82nd Avenue and SE Glencoe Road. A photometric plan for SE 82nd Avenue and SE Glencoe Road is provided with this application as Exhibit I to demonstrate that walkways will be adequately illuminated.

4. Walkways shall be constructed with a well-drained, hard-surfaced material or porous pavement and shall be at least five feet in unobstructed width.

Response: The pedestrian walkways proposed on SE 82nd Avenue and SE Glencoe Road will be constructed with concrete and exceed the minimum five-foot width. Specifically, new walkways along SE 82nd Avenue will be 8-foot-wide sidewalk per ODOT Standards and new walkways along SE Glencoe Road will be 5-foot-wide.

5. Standards for walkways through vehicular areas:

a. Walkways crossing driveways, parking areas and loading areas shall be constructed to be clearly identifiable to motorists through the use of different paving material, raised elevation, warning signs or other similar methods.

Response: There are two pedestrian walkways that cross the proposed drive-through. The first walkway will serve as a path for food service employees to remove garbage and connects Chick-fil-A's service entrance to the parking lot, where the trash enclosure is located. This walkway will be identified by painted crosswalk striping and is not intended for use by the public. The second walkway is located at the end of the drive-through lanes and will direct pedestrian traffic across the drive-through lanes to the building front. This walkway will have painted crosswalk striping to identify the walkway to motorists.

b. Where walkways are adjacent to driveways, they shall be separated by a raised curb, bollards, landscaping or other physical barrier.

Response: Pedestrian walkways adjacent to the drive-through will be separated by curbing, and landscaping. Along SE Glencoe Road, a 5-foot-wide landscaping buffer will be installed between the sidewalk and driveways/parking lot. Along SE 82nd Avenue, a 5.5-foot-wide landscaping buffer will be installed between the sidewalk and driveways/parking lot.

c. Inside the Portland Metropolitan Urban Growth Boundary (UGB), if the distance between the building public entrance and street is 75 feet or greater and located adjacent to a driveway or in a parking lot, the walkway shall be raised, with curbs, a minimum four-foot-wide landscape strip and shade trees planted a maximum of 30 feet on center.

Response: The subject property is identified within the Portland Metropolitan Urban Growth Boundary (UGB). The restaurant building entrance is not 75 feet or more from SE Glencoe Road or SE 82nd Avenue therefore this provision does not apply.

- d. The exclusive use of a painted crossing zone to make walkways identifiable to motorists may be used only for portions of walkways which are shorter than 30 feet and located across driveways, parking lots, or loading areas.***

Response: There are two pedestrian walkways that cross the proposed drive-through lanes. The first crosswalk will serve as a path for food service employees to remove garbage and connects Chick-fil-A's service entrance to the parking lot, where the trash enclosure is located. This crosswalk is not intended for use by the public. The 35-foot long crosswalk exceeds the 30-foot measurement and will provide a painted crosswalk area and will have posted signage cautioning motorists around pedestrian crosswalks. The second walkway is located at the end of the drive-through lanes and will direct pedestrian traffic across the drive-through lanes to the building front. This walkway is 25-feet and will have painted crosswalk striping to identify the walkway to motorists.

- e. Walkways bordering parking spaces shall be at least seven feet wide or a minimum of five feet wide when concrete bumpers, bollards, curbing, landscaping, or other similar improvements are provided which prevent parked vehicles or opening doors from obstructing the walkway.***

Response: Proposed walkways will not border or run parallel to parking stalls as illustrated on Sheet C2.0 included in Exhibit D.

- 6. The interconnected onsite walkway system shall connect to walkways in adjacent developments, or stub to the adjacent property line if the adjacent land is vacant or is developed without walkways.***

- a. Walkway stubs shall be located in consideration of topography and eventual redevelopment of the adjacent property.***

Response: The adjacent site to the north is developed with a Goodwill. Currently, the Goodwill site is not developed with walkways along the shared property boundary, with the exception of an ADA ramp in the southeastern corner of the Goodwill site. Therefore, the applicant proposes putting in a new 8-foot-wide, 300-foot-long sidewalk along SE 82nd Avenue that ties into the existing ADA ramp in the northeastern corner of the project site (southeastern corner of the Goodwill site).

The adjacent site to the west is developed with high density residential housing and is not developed with walkways. Therefore, the applicant proposes putting in a new 5-foot-wide, 370-foot-long walkway along SE Glencoe Road that stubs to the western property line. New walkways are shown on the site plan included with this application as Sheet C2.0 in Exhibit D.

- b. Notwithstanding the remainder of Subsection 1005.03(D)(6), walkway linkages to adjacent development shall not be required within industrial developments, to industrial developments, or to vacant industrially zoned land.***

Response: The project site and lands adjacent to the site are not zoned for industrial development. Therefore, this provision does not apply.

E. Inside the UGB, except for industrial developments, a minimum of 50 percent of the street frontage of the development site shall have buildings located at the minimum front yard depth line.

1. If the minimum front yard depth standard is less than 20 feet, the front yard depth may be increased to 20 feet provided pedestrian amenities are developed within the yard.

Response: The minimum front yard depth in the CC District is 15 feet. Pedestrian amenities including new walkways are provided along SE Glencoe Road and SE 82nd Avenue, therefore the building is located 36 feet from the front property line.

2. Primary building entrances for buildings used to comply with Subsection 1005.03(E), shall:
a. Face the street;

Response: The new restaurant building entrance will be oriented to face the western property line. Therefore, this provision does not apply.

b. Be located at an angle facing both the street and a parking lot; or

Response: The new restaurant building entrance will be oriented to face the western property line. Therefore, this provision does not apply.

c. Be located to the side of the building, provided that the walkway connecting to the street is a minimum of eight feet wide and is developed with landscaping and pedestrian amenities.

Response: The building entrance will be located on the western facing side of the building and therefore, will provide a minimum of eight-foot-wide walkways connecting the street and entrance along with landscaping. Walkways are shown on Sheet C2.0 and landscaping plans are shown on Sheet L1.0 in Exhibit D.

3. If a development has frontage on more than one street, Subsection 1005.03(E) must be met on only one frontage, as follows:

a. If one of the streets is a major transit street, the standard shall be met on that street.

Response: The Clackamas County Transportation System Plan defines a major transit street as “a street with a frequent service bus line, as identified on Comprehensive Plan Map 5-8a, Transit, Urban; existing or planned High-Capacity Transit, as identified on Comprehensive Plan Map 5-8c, High-Capacity Transit (HTC) System Plan; or both.” SE 82nd Avenue is identified in Comprehensive Plan Map 5-8a, Transit, Urban as “TriMet Frequent Service Line.” Therefore, the subject lot is adjacent to a major transit street (SE 82nd Avenue)

according to this provision. Therefore, the standard shall be met for only one frontage, specifically the frontage along SE 82nd Avenue. Therefore, Subsections b and c of this provision do not apply.

1005.04 Building Design

A. The following standards apply to building facades visible from a public or private street or accessway and to all building façades where the primary entrance is located.

- 1. Building facades shall be developed with architectural relief, variety and visual interest and shall avoid the effect of a single, long or massive wall with no relation to human size. Examples of elements that subdivide the wall: change in plane, texture, masonry pattern or color, or windows.**

Response: The Chick-fil-A building façade is designed to provide variety and visual interest. Specifically, the white stucco siding will be visually broken up by tan stucco on sides with east and west facing windows, glossy dark bronze framing around windows, doors, and drive-through canopy, and along the top of the roof, and grey brick veneer along the lower 3-feet of the building. An architectural plan demonstrating the project's consistency with this provision is provided as Exhibit E.

- 2. Building facades shall have particular architectural emphasis at entrances and along sidewalks and walkways.**

Response: The Chick-fil-A building façade will provide glossy dark bronze overhangs above windows and an outdoor patio area adjacent to the walkway along the southern property line.

- 3. Provide visual interest through use of articulation, placement and design of windows and entrances, building trim, detailing, ornamentation, planters or modulating building masses.**

Response: The Chick-fil-A building façade is designed to provide variety and visual interest. Specifically, the white stucco siding will be visually broken up by tan stucco on sides with east and west facing windows, glossy dark bronze framing around windows, doors, and along the drive-through canopy and top of the roof, and grey brick veneer along the lower 3-feet of the building. An architectural plan demonstrating the project's consistency with this provision is provided as Exhibit E.

- 4. Utilize human scale, and proportion and rhythm in the design and placement of architectural features.**

Response: The Chick-fil-A building façade has evenly spaced windows around the entire building, at a height appropriate for seeing into the restaurant lobby. As mentioned, window frames will have dark bronze framing, juxtaposed with the grey brick veneer on the lower extent of the window and white stucco on the upper extent of the window. Landscaping features will emphasize architectural detailing by drawing the eyes to the lower level of the building and ground cover.

- 5. Use architectural features which are consistent with the proposed use of the building, level and exposure to public view, exposure to natural elements, and ease of maintenance.**

Response: The proposed use as a restaurant warrants architectural features that are level and easy to maintain. The white and tan stucco and grey brick veneer are anticipated to age well when exposed to the elements.

- 6. When uses between ground-level spaces and upper stories differ, provide differentiation through use of bays or balconies for upper stories, and awnings, canopies, trim and other similar treatments for lower levels.**

Response: The Chick-fil-A building will be for a single use and will not have multiple uses or stories. Therefore, this provision does not apply.

B. Requirements for building entries:

- 1. Public entries shall be clearly defined, highly visible and sheltered with an overhang or other architectural feature, with a depth of at least four feet.**

Response: The canopy over the building entrance (identified as construction note C1-Q in Exhibit E) will be seven feet four inches wide and four feet deep with integral lighting. The entrance will be clearly defined by the overhang as well as walkways and landscaping leading to the restaurant entrance.

- 2. Commercial, mixed-use and institutional buildings sited to comply with 1005.03(E) shall have public entries that face streets and are open to the public during all business hours.**

Response: The building entrance will be located on the western facing side of the building and therefore, will provide a minimum of eight-foot-wide walkways connecting the street and entrance along with landscaping. Walkways are shown on Sheet C2.0 and landscaping plans are shown on Sheet L1.0 in Exhibit D.

C. The street-facing façade of commercial, mixed-use and institutional buildings sited to comply with 1005.03(E) shall meet the following requirements:

- 1. Facades of buildings shall have transparent windows, display windows, entry areas, or arcades occupying a minimum of 60 percent of the first floor linear frontage.**

Response: The commercial building faces SE Glencoe Road to the south and SE 82nd Avenue to the East. Transparent windows are provided along both sides of the building and occupy a minimum of 60 percent of the first-floor linear frontage.

- 2. Transparent windows shall occupy a minimum of 40 percent of the first floor linear frontage. Such windows shall be designed and placed for viewing access by pedestrians.**

Response: Transparent windows are provided along all sides of the first floor to provide viewing access by pedestrians. Architectural plans showing the location and elevation of windows is included with this application as Exhibit E.

- 3. For large-format retail buildings greater than 50,000 square feet, features to enhance the pedestrian environment, other than transparent window, may be approved through design review. Such items may include, but are not limited to display cases, art, architectural features, wall articulation, landscaping, or seating, provided they are attractive to pedestrians, are built to human scale, and provide safety through informal surveillance.**

Response: The building will not be a large-format retail building greater than 50,000 square feet. Therefore, this provision does not apply.

D. Requirements for roof design:

- 1. For buildings with pitched roofs:**

Response: The proposed building does not have a pitched roof. Instead, the roof will be flat. Therefore, this provision and Subsections a and b do not apply.

- 2. For buildings, other than industrial buildings, with flat roofs or without visible roof surfaces, a cornice or other architectural treatment shall be used to provide visual interest at the top of the building.**

Response: The proposed building will have a flat roof. Dark bronze T-framing is provided at the top of the building to provide visual interest. Architectural plans demonstrating exterior facades and framing are included with this application as Exhibit E.

E. Requirements for exterior building materials:

- 1. Use architectural style, concepts, colors, materials and other features that are compatible with the neighborhood's intended visual identity.**

Response: The Chick-fil-A building façade is designed to provide variety and visual interest. Specifically, the white stucco siding will be visually broken up by tan stucco on sides with east and west facing windows, glossy dark bronze framing around windows, doors, and drive-through canopy, and along the top of the roof, and grey brick veneer along the lower 3-feet of the building. An architectural plan demonstrating the project's consistency with this provision is provided as Exhibit E.

- 2. Building materials shall be durable and consistent with the proposed use of the building, level and exposure to public view, exposure to natural elements, and ease of maintenance.**

Response: The proposed use as a restaurant warrants architectural features that are level and easy to maintain. The white and tan stucco and grey brick veneer are anticipated to age well when exposed to the elements.

- 4. Walls shall be surfaced with brick, tile, masonry, stucco, stone or synthetic equivalent, pre-cast masonry, gypsum reinforced fiber concrete, wood lap siding, architecturally treated concrete, glass, wood, metal, or a combination of these materials.**

Response: The Chick-fil-A building façade is designed to provide variety and visual interest. Specifically, the white stucco siding will be visually broken up by tan stucco on sides with east and west facing windows, glossy dark bronze framing around windows, doors, and drive-through canopy, and along the top of the roof, and grey brick veneer along the lower 3-feet of the building. An architectural plan demonstrating the project's consistency with this provision is provided as Exhibit E.

- 5. The surfaces of metal exterior building materials that are subject to rust or corrosion shall be coated to inhibit such rust and corrosion, and the surfaces of metal exterior building materials with rust or corrosion shall be stabilized and coated to inhibit future rust and corrosion.**

Response: Metal exteriors will have a finished coat that inhibits rust or corrosion.

- E. Additional building design requirements for multifamily dwellings, two- and three-family dwellings, and attached single-family dwellings:**

Response: No multifamily or residential family dwellings are proposed with this application. Therefore, this provision and Subsections one (1) through five (5) do not apply.

- G. Requirements to increase safety and surveillance:**

- 1. Locate buildings and windows to maximize potential for surveillance of entryways, walkways, parking, recreation and laundry areas.**

Response: The building will have windows provided at eye level to maximize the potential for surveillance of entryways, walkways, and parking areas.

2. Provide adequate lighting for entryways, walkways, parking, recreation and laundry areas.

Response: Adequate lighting will be provided along entryways, walkways, and parking areas. No recreational or laundry areas are proposed with this application. Therefore, this provision does not apply.

4. Locate parking and automobile circulation areas to permit easy police patrol.

Response: Parking areas will be accessible from NE Glencoe Road and will provide proper circulation to permit easy police patrol.

5. Design landscaping to allow for surveillance opportunities.

Response: Landscaping will be designed to allow for surveillance opportunities.

6. Locate mail boxes where they are easily visible and accessible.

Response: Mail for the new building will not be processed through a mailbox. Therefore, this provision does not apply.

7. Limit fences, walls and, except for trees, landscaping between a parking lot and a street to a maximum of 30 inches in height.

Response: No fences are proposed with this application. A sight-obscuring wall is proposed between the drive-through and SE 82 Avenue to shield pedestrians from noise, emissions, and visual effects of drive-through traffic. The wall will be a maximum of 30-inches high, consistent with this provision.

8. Locate play areas for clear parental monitoring.

Response: No play areas are proposed with this application. Therefore, this provision does not apply.

H. Solar access requirements:

1. Except for uses with greater cooling needs than heating needs, such as many retail uses, concentrate window areas on the south side of buildings (within 20 degrees of due south) where there is good southern exposure.

Response: Windows have been evenly spaced around the building, including windows along the south side of the building.

2. Provide overhangs, balconies, or other shading devices to prevent excessive summer heat gains.

Response: Overhangs are provided above the entryways and exits for the building. Framing around windows and pull-down shades will prevent excessive summer heat gains.

- 3. Use architectural features, shape of buildings, fences, natural landforms, berms, and vegetation to catch and direct summer breezes for natural cooling, and minimize effects of winter winds.***

Response: A planting plan is included with this application as Sheet L1.0 of Exhibit D, that proposes planting of evergreen and deciduous trees for natural cooling in the summer and minimizing effects of winter winds.

- I. Requirements for compatibility with the intent of the design type or with the surrounding area. For purposes of Subsection 1005.04(I), design types are Centers, Station Communities or Corridor Streets as identified on Comprehensive Plan Map IV-8, Urban Growth Concept; X-CRC-1, Clackamas Regional Center Area Design Plan, Regional Center, Corridors and Station Community; X-SC-1, Sunnyside Corridor Community Plan, Community Plan Area and Corridor Design Type Location; or X-MC-1, McLoughlin Corridor Design Plan, Design Plan Area. The intent of these design types is stated in Chapter 4 or 10 of the Comprehensive Plan.***

- 1. Use shapes, colors, materials, textures, lines, and other architectural design features that enhance the design type area and complement the surrounding area and development.***

Response: The proposed building is adjacent to a Goodwill to the north, high-density residential to the west, Carl's Junior to the east, and a vacant structure to the south. Generally, surrounding commercial buildings have stucco siding that is either a neutral beige/cream or grey intermixed with brick siding. The proposed building will have white and beige stucco siding and grey brick veneer, similar to the surrounding area and development. The proposed building will also have a flat roof, similar to other adjacent commercial buildings. An architectural plan demonstrating the project's consistency with this provision is provided as Exhibit E.

- 2. Use colors, materials and scale, as appropriate, to visually connect building exteriors to adjoining civic/public spaces such as gateways, parks, plazas and transit stations.***

Response: The project is not adjacent to a civic/public space such as a gateway, park, plaza, or transit station. Therefore, this provision does not apply.

- 3. Use building orientation and physical design, including setbacks and modulations, to ensure a development is compatible with other activities onsite, nearby properties, intended uses and the intent of the design type.***

Response: The proposed building has been oriented to provide patio seating at the corner of two streets which is physically separated from the drive-through lanes by the building. New walkways both on and off-site will connect on-site activities to adjacent uses. The drive-

through lanes will also be screened from SE 82nd Avenue by a short wall and landscaping. These physical design choices will ensure development is compatible with adjacent pedestrian-oriented uses, and nearby properties.

- 4. *Orient loading and delivery areas and other major service activity areas of the proposed project away from existing dwellings. Loading areas shall be located to the side or rear of buildings unless topography, natural features, rail service, or other requirements of this Ordinance dictate front-yard loading bays.***

Response: Loading areas and delivery areas are located on the north side of the building, away from the existing dwellings.

- 5. *In industrial zoning districts, site areas used for vehicular operations, outdoor storage, and outdoor processing to minimize the impacts on adjacent dissimilar uses.***

Response: The project site and land adjacent the site is not zoned for industrial development. Therefore, this provision does not apply.

- 6. *Inside the Portland Metropolitan Urban Growth Boundary, use colors, materials and architectural designs to visually reduce the impact of large buildings.***

Response: The project site is within the Portland Metropolitan Urban Growth Boundary according to the Clackamas County zoning map included with this application as Exhibit C. Colors, materials, and architectural designs were chosen to reflect the character of surrounding development while reducing the impact of a new building.

- 7. *In unincorporated communities, design structures to reflect and enhance the local character and to be in scale with surrounding development.***

Response: The proposed building is designed to reflect and enhance the local character and scale of the surrounding area through similar architectural features and building orientation and footprint.

- 8. *In rural and natural resource areas, use materials, colors and shapes that imitate or complement those in the surrounding areas, such as those used in typical farm structures.***

Response: The project site is not located in a rural or natural resource area. Therefore, this provision does not apply.

- 9. *In open space or scenic areas, use natural color tones, lines and materials which blend with the natural features of the site or site background.***

Response: The project site is not located in a scenic area or adjacent open space. Therefore, this provision does not apply.

J. Requirements for screening mechanical equipment:

- 1. Rooftop mechanical equipment, except for solar energy systems, shall be screened from view by the use of parapet walls or a sight-obscuring enclosure around the equipment. The screen shall be constructed of one of the primary materials used on the primary facades, and shall be an integral part of the building's architectural design.**

Response: Rooftop mechanical equipment will be screened from view by parapet walls around equipment. The screening materials will be integral to the buildings architectural design.

- 2. Ground mounted mechanical equipment shall be located away from the intersection of two public streets, to the extent practicable, and shall be screened by ornamental fences, screening enclosures, or landscaping that blocks at least 80% of the view.**

Response: No ground mounted mechanical equipment is anticipated. Therefore, this provision does not apply.

- 3. Wall mounted mechanical equipment shall not be placed on the front of a building or on a façade that faces a street. Wall mounted mechanical equipment that extends six inches or more from the outer building wall shall be screened from view from the streets; from residential, public, and institutional properties; and from public areas of the site or adjacent sites through one of the screening techniques used in 1005.04(J)(1) or (2).**

Response: No wall mounted mechanical equipment is anticipated for this project. Therefore, this provision does not apply.

K. Requirements for specialized structures in industrial zoning districts:

Response: The project site is not located in the industrial zoning district. Therefore, this provision and Subsections one (1) and two (2) do not apply.

L. Facades in the OA District: In the OA District, facades are subject to the following standards:

Response: The project site is not located in the Office Administrative (OA) zoning district. Therefore, this provision and Subsections one (1) through three (3) do not apply.

1005.05 Outdoor Lighting**A. Outdoor lighting devices:**

- 1. Shall be architecturally integrated with the character of the associated structures, site design and landscape.**

Response: Outdoor lighting will be integrated with exterior canopies, identified as items C4-B, C4-Q, and C5-A on the architectural plan included with this application as Exhibit E. Other exterior lights including lighting along the parking area, drive-through and along the store front will be integrated with the associated structure.

- 2. Shall not direct light skyward.**

Response: All lighting will be shielded and directed downward.

- 3. Shall direct downward and shield light; or direct light specifically toward walls, landscape elements or other similar features, so that light is directed within the boundaries of the subject property;**

Response: All lighting will be shielded and directed downward.

- 4. Shall be suitable for the use they serve, e.g. bollard lights along walkways, pole mounted lights for parking lots;**

Response: Lighting will be designed to suite the proposed use including pole mounted lights for parking areas, integrated lighting for canopy cover and (if applicable) bollard lights along the walkways. A photometric plan is included with this report as Exhibit F. It is anticipated that these plans will be available prior to the issuance of building permits.

- 5. Shall be compatible with the scale and intensity of uses they are serving. Height of pole mounted fixtures shall not exceed 25 feet or the height of the tallest structure onsite, whichever is less; and**

Response: Lighted poles are not anticipated to exceed the height of the Chick-fil-A building.

- 6. At entrances, shall be glare-free. Entrance lighting may not exceed a height of 12 feet and must be directed downward.**

Response: Lighting at entrances will be glare free and will not exceed 12 feet in height.

B. The following are exempt from Subsection 1005.05(A):

- 1. Temporary lights used for holiday decorations;**

Response: No temporary lighting is proposed with this application. Therefore, this exemption is not relevant to the current application.

2. Street lights regulated in Section 1006, Utilities, Street Lights, Water Supply, Sewage Disposal, Surface Water Management, and Erosion Control; and

Response: Currently, there is no street lighting on SE 82nd Avenue or SE Glencoe Road. During the pre-application conference (ZPAC0013-22) the applicant was informed that the project will need to provide new streetlights on SE 82nd Avenue and SE Glencoe Road. A photometric plan for SE 82nd Avenue and SE Glencoe Road is provided with this application as Exhibit I to demonstrate that streetlights comply with Section 1006.

3. Lighting associated with outdoor recreation uses such as ball fields or tennis courts.

Response: This application does not include outdoor recreational uses. Therefore, this exemption is not relevant to the current application.

1005.06 Additional Requirements

Development shall comply with a minimum of one of the following techniques per 20,000 square feet of site area. Regardless of site size, a minimum of one and a maximum of five techniques are required. Partial site area numbers shall be rounded.

Response: The applicant's site is approximately 87,237 square feet of net development area. According to this provision, the applicant must provide at least five of the following techniques. Techniques B, C, D, G, and L were chosen to comply with this provision. Responses to each development technique are provided below.

B. Use passive solar heating or cooling techniques to reduce energy consumption.
1. Modulate building masses to maximize solar access.

Response: The new building will be oriented such that adjacent pedestrian amenities and buildings receive sunlight without obstruction thus complying with this section.

5. Utilize deciduous trees to provide summer shade and allow winter sun.

Response: The landscaping plan will utilize deciduous trees to provide summer shade and allow winter sun. Specifically, 74 deciduous trees will be planted throughout the site. Tree species, quantity, and location are showing on Sheets L1.0 and L1.1

C. Use highly reflective (high albedo) materials on roof surfaces.

Response: The Chick-fil-A building will provide a white reflective roof as specified in this provision.

D. Place major outdoor use areas such as plazas, playgrounds, gardens, etc. on the south side of buildings.

Response: The outdoor patio area is located on the south side of the building in compliance with this standard.

- G. Provide additional landscaping area at least 10 percent above the requirements for the site pursuant to Table 1009-1. For example, if the minimum area requirement is 20 percent, then 22 percent shall be provided. Credit shall be given for green roofs or other areas of vegetation that exceed the minimum area requirements.***

Response: The minimum landscape area in the CC zoning district is 10-percent. Therefore, according to this provision the applicant will need to provide 10 percent more landscaping than the minimum area requirements or 11 percent. Landscaping will cover 17 percent of the entire site (11,644 square feet) as noted in the upper right-hand corner of Sheet L1.0 included as Exhibit D.

- L. Enhance sidewalks and/or walkways by providing additional width, using higher quality materials; shielding from vehicular traffic with enhanced planting strips, street trees and on-street parking, and/or providing pedestrian amenities that are compatible with the design of the development as well as the neighborhood as a whole.***

Response: The applicant was informed during a pre-application conference that frontage improvements, including new sidewalks and street lighting, will be required as a condition of approval for developing this site. Landscaping is proposed within the public right of way and within the site along much of the site's frontage with SE 82nd Avenue and SE Glencoe Road. Additionally, the applicant will construct a wall that shields drive-through traffic from pedestrian walkways.

1005.07 Modifications

Modification of any standard identified in Subsections 1005.03 and 1005.04 may be approved as part of design review if the proposed modification will result in a development that achieves the purposes stated in Subsection 1005.01 as well or better than the requirement listed.

Response: No modification is requested with this application. Therefore, this provision does not apply.

1005.08 Clackamas Regional Center Area Design Standards

Subsection 1005.08 applies in the Clackamas Regional Center Area, including the Regional Center and the Fuller Road Station Community, as identified on Comprehensive Plan Map X-CRC-1, Clackamas Regional Center Area Design Plan Regional Center, Corridors, and Station Community. Where these standards conflict with other provisions in Section 1000, Subsection 1005.08 shall take precedence.

A. Clackamas Regional Center Area Design Plan: Development is subject to the Clackamas Regional Center Area Design Plan in Chapter 10 of the Comprehensive Plan.

Response: The project site is located within the Clackamas Regional Center Area Design Plan, specifically in the corridor along SE 82nd Avenue. The proposed redevelopment is consistent with Chapter 10 of the Clackamas County Comprehensive Plan, as it applies to the corridor area for the following reasons and through the following measures:

- Development will use land efficiently through efficient parking, attractive landscaping, and a pleasant outdoor patio.
- The development will provide new sidewalks and street lighting along SE 82nd Avenue and SE Glencoe Road, consistent with the comprehensive plan goal to provide attractive streetscapes.

B. Urban Design Elements: New development is subject to the urban design elements shown on Comprehensive Plan Map X-CRC-3, Clackamas Regional Center Area Design Plan Urban Design Elements. The urban design elements are described in the Clackamas Regional Center Area Design Plan in Chapter 10 of the Comprehensive Plan.

Response: The project site is subject to the urban design elements shown in Comprehensive Plan Map 10-CRC-3. The site is located adjacent to SE 82nd Avenue, identified in the map as having special street design standards. The applicant will provide frontage improvements that improve corridor land use policies.

1. Urban design elements provided in a development may be used to reduce gross site area for calculating minimum density requirements in Subsection 1012.08, and to meet minimum landscaping requirements in Section 1009, Landscaping.

Response: No residential development is proposed with this application. Therefore Subsection 1012.08 does not apply. The applicant meets the landscaping requirements in Section 1009. Responses are provided later in this narrative.

2. For phased development approved through a master plan, requirements for the urban design elements may be roughly

proportional to the amount of the master planned approved development being developed in any one phase.

Response: The applicant is not requesting approval for the phased development through a master plan. Therefore, this provision does not apply.

C. Parking Structure Orientation: Entrances for ground-level retail uses in parking structures located within 20 feet of a street shall be oriented to a street.

Response: No parking structure is proposed with this application. Therefore, this provision does not apply.

D. Corner Lot Buildings:

1. A corner lot is a lot, parcel, tax lot, or land area created by a lease agreement at the intersection of two streets.

Response: The project site is a corner lot at the intersection of SE 82nd Avenue and SE Glencoe Road.

2. Buildings on street corners shall have corner entrances or other architectural features to enhance the pedestrian environment at the intersection.

Response: The project site provides an outdoor patio area at the street corner. Landscaping will be provided adjacent to the patio area to enhance the pedestrian environment.

3. Development on lots at a Gateway intersection as shown on Comprehensive Plan Map X-CRC-3, and Comprehensive Plan Figure X-CRC-7, Clackamas Regional Center Area Design Plan Gateway Intersection (Boulevard and Main Street), shall be designed to accommodate future Gateway improvements.

Response: The project site is not located adjacent to the Boulevard and Main Street intersection, as identified in Figure 10-CRC-7. Therefore, this provision does not apply.

E. Building Setbacks from Private Streets: Where a setback from a private street, as defined in Subsection 1005.08(G), is required by the standards of the applicable zoning district, the setback shall be measured from the back edge of the sidewalk.

Response: The project site is not adjacent to a private street. Therefore, this provision does not apply.

F. Parking Structures: If a parking structure, including understructure parking, abuts a street, appropriate features shall be provided to create a transition

between the parking structure, or the entrance to understructure parking, and the abutting street. Examples of appropriate features include, but are not limited to, landscape planters and trellises, awnings, canopies, building ornamentation, and art. As used in Subsection 1005.08(F), a parking structure “abuts a street” if no other building is sited between the parking structure and the street.

Response: No parking structures are proposed with this application. Therefore, this provision does not apply.

G. Private Streets: Private streets used to meet the structure orientation and/or yard depth standards shall include:

Response: The project site does not propose a private street, nor does this application intend to use private streets to meet the structure orientation and/or yard depth standards.

H. Internal Streets:

Response: No internal streets are proposed with this application. Therefore, this provision and Subsections one (1) through (three) (3) do not apply.

I. New development shall not be sited such that it precludes the construction of the new walkways, or eliminates the existing walkways, that are shown on Comprehensive Plan Map X-CRC-7a, Clackamas Regional Center Area Design Plan Walkway Network, or identified in the Clackamas Regional Center Pedestrian/Bicycle Plan adopted by reference in Appendix A of the Comprehensive Plan, unless an alternative walkway location that provides a similar connection is established. An alternative walkway location shall not be deemed “similar” to a planned or existing location unless:

- 1. It provides comparably safe, direct, and convenient pedestrian access to significant destinations, such as transit facilities, major employers, multifamily dwelling complexes, and retail and service establishments; and***

Response: The applicant was informed during a pre-application conference that new sidewalks and street lighting are required on SE 82nd Avenue and SE Glencoe Road as a condition of approval. These sidewalks will be safer, more direct, and convenient for pedestrian access compared to the nonexistent sidewalks. Sidewalks will terminate at the property line in a manner that allows future development to stub into existing improvements at such time new sidewalks are constructed adjacent to the site.

- 2. It fulfills a comparable function in terms of filling gaps in the pedestrian circulation system planned for the Clackamas Regional Center Area.***

Response: The addition of new sidewalks along the project's frontage on SE 82nd Avenue and SE Glencoe Road will fill in pedestrian circulation gaps and advance pedestrian access and transportation goals, consistent with the Clackamas Regional Center Area Plan and Clackamas County Comprehensive Plan.

1005.09 REGIONAL CENTER DESIGN STANDARDS

Subsection 1005.09 applies in the Regional Center, as identified on Comprehensive Plan Map X-CRC-1, Clackamas Regional Center Area Design Plan Regional Center, Corridors, and Station Community. Where these standards conflict with other provisions in Section 1000, Subsection 1005.09 shall take precedence.

Response: The project site is not located in the Regional Center according to Comprehensive Plan Map 10-CRC-1, included with this application as the second page of Exhibit C. Therefore, this provision and Subsections A-E do not apply.

1005.10 FULLER ROAD STATION COMMUNITY DIMENSIONAL AND DESIGN STANDARDS

Subsection 1005.10 applies in the Fuller Road Station Community, as shown on Comprehensive Plan Map X-CRC-1, Clackamas Regional Center Area Design Plan Regional Center, Corridors and Station Community. Where these standards conflict with other provisions in Section 1000, Subsection 1005.10 shall take precedence. If the text of Subsection 1005.10 is unclear as applied to a specific development, Figures 1005-1 through 1005-11, as applicable, may be used to resolve the ambiguity.

Response: The project site is not located in the Fuller Road Station Community according to Comprehensive Plan Map 10-CRC-1, included with this application as the second page of Exhibit C. Therefore, this provision and Subsections A-M do not apply.

1005.11 PMU DISTRICT STANDARDS

Subsection 1005.11 applies in the PMU District. Where these standards conflict with other provisions of Section 1000, Subsection 1005.11 shall take precedence.

Response: The project site is not located in the Planned Mixed Use (PMU) zoning district. Therefore, this provision and Subsections A-C do not apply.

1005.12 SUNNYSIDE VILLAGE STANDARDS

Subsection 1005.12 applies in Sunnyside Village, as identified on Comprehensive Plan Map X-SV-1, Sunnyside Village Plan Land Use Plan Map. Where these standards conflict with other provisions in Section 1000, Subsection 1005.12 shall take precedence

Response: The project site is not located in the Sunnyside Village, as noted in Comprehensive Plan Map 10-SV-1. Therefore, this provision and Subsections A-M do not apply.

1005.13 GOVERNMENT CAMP STANDARDS

Subsection 1005.13 applies in Government Camp. Where these standards conflict with other provisions in Section 1000, Subsection 1005.13 shall take precedence.

Response: The project site is not located in Government Camp, as noted in Comprehensive Plan Map 10-MH-4. Therefore, this provision and Subsections A-B do not apply.

1006 Utilities, Street Lights, Water Supply, Sewage Disposal, Surface Water Management and Erosion Control

1006.01 General Standards

A. The location, design, installation, and maintenance of all utility lines and facilities shall be carried out with minimum feasible disturbance of soil and site consistent with the rules and regulations of the surface water management regulatory authority.

Response: The disturbance of soil and site will be limited to only that which is necessary for the installation and maintenance of new streetlights, walkways, landscaping, and development. Consistent with this provision, best practices for managing surface water will be implemented.

B. All development that has a need for electricity, natural gas, and communications services shall install them pursuant to the requirements of the utility district or company serving the development. Except where otherwise prohibited by the utility district or company, all such facilities shall be installed underground.

Response: New electricity, natural gas, and communication services are anticipated to comply with the standards set out by the utility district or company. A utility plan is included with this application as Sheet C5.0 in Exhibit D.

C. Coordinated installation of necessary water, sanitary sewer, and surface water management and conveyance facilities is required.

Response: New water, sanitary sewer, and surface water management and conveyance facilities are anticipated to comply with the standards set out by the utility district or company. A utility plan is included with this application as Sheet C5.0 in Exhibit D. Additionally, preliminary statements of feasibility issued by Water Environmental Services (WES) are included with this application as Exhibit B.

- D. Easements shall be provided along lot lines as deemed necessary by the County, special districts, and utility companies. Easements for special purpose uses shall be of a width deemed appropriate by the responsible agency.***

Response: The applicant anticipates that an easement will be dedicated to the responsible agency for all public utilities. The easement widths are unknown at this time and will be discussed in greater detail with the responsible agency.

1006.02 *Street Lights*

Streetlights are required for all development inside the Portland Metropolitan Urban Growth Boundary. The following standards apply:

- A. Street lighting shall be installed pursuant to the requirements of Clackamas County Service District No. 5 and the electric company serving the development. A streetlight shall be installed where a new road intersects a County Road right-of-way and, in the case of subdivisions, at every intersection within the subdivision.***

Response: No new road is proposed. However, the applicant was informed that new street lighting will be required as a condition of approval for development of the project site. Therefore, the applicant has included a photometric plan (Exhibit I) with this application to demonstrate consistency with Clackamas County Service District No. 5's and Portland General Electric's (PGE) development standards.

- B. Areas outside Clackamas County Service District No. 5 shall annex to the district through petition to the district.***

Response: It is unknown if the project site is located within Clackamas County Service District No. 5. The applicant anticipates that if the project is currently outside of the Clackamas County Service District No. 5, the property can annex into the district if necessary.

1006.03 *Water Supply*

- A. All development which has a need for, or will be provided with, public or community water service shall install water service facilities and grant necessary easements pursuant to the requirements of the district or company serving the development.***

Response: Public water service can be extended to serve this site. It is anticipated that water service facilities and all necessary easements will be provided pursuant to the requirements of the district.

- B. Approval of a development that requires public or community water service shall be granted only if the applicant provides a preliminary statement of feasibility from the water system service provider.***

- 1. The statement shall verify that water service, including fire flows, is available in levels appropriate for the development and that adequate water system capacity is available in source, supply, treatment, transmission, storage and distribution. Alternatively, the statement shall verify that such levels and capacity can be made available through improvements completed by the developer or the system owner.**

Response: A Preliminary Statement of Feasibility from Clackamas River Water is included with this application as Exhibit B. The feasibility letter indicates that water service, including fire flows, is available in levels appropriate for development, supplemented by an additional attachment with comments from Betty Johnson with Clackamas River Water for development requirements.

- 2. If the statement indicates that water service is adequate with the exception of fire flows, the applicant shall provide a statement from the fire district serving the subject property that states that an alternate method of fire protection, such as an on-site water source or a sprinkler system, is acceptable.**

Response: Statement indicates water service is adequate including fire flows. Therefore, this provision does not apply.

- 3. The statement shall be dated no more than one year prior to the date a complete land use application is filed and need not reserve water system capacity for the development.**

Response: The statement is dated February 22, 2022, well within one year of filing the Type II Design Review application.

- C. Prior to final approval of any partition or subdivision, the applicant shall provide evidence that any wells in the tract subject to temporary or permanent abandonment under Oregon Revised Statutes (ORS) 537.665 have been properly abandoned.**

Response: No partition of subdivision is proposed with this application. Therefore, this provision does not apply.

- D. The following standards apply inside the Portland Metropolitan Urban Growth Boundary, Government Camp, Rhododendron, Wemme/Welches, Wildwood/Timberline, and Zigzag Village:**

Response: The project site is located in the Portland Metro UGB. Therefore, this provision and Subsections one (1) through four (4) apply.

- 1. Land divisions or other development requiring water service shall not be approved, except as provided in Subsection 1006.03(D)(4), unless they can be served by a public water system in compliance with drinking water standards as determined by the Oregon Health Authority.**

Response: The proposed restaurant will connect to public water service. A Preliminary Letter of Feasibility is included with this application as Exhibit B.

- 2. New development requiring water service within the boundaries of a water service system, created pursuant to ORS Chapters 264, 450, or 451, shall receive service from this system.**

Response: The proposed restaurant will connect to public water service. A Preliminary Letter of Feasibility is included with this application as Exhibit B.

- 3. New public water systems shall not be created unless formed pursuant to ORS Chapters 264, 450, or 451.**

Response: The project site will use public water from the existing public water system running within SE Glencoe Road from SE 82nd Avenue. No new public water system is proposed with this application. Therefore, this provision does not apply.

- 4. A lot of record not located within the approved boundaries of a public water system may be served by an alternative water source.**

Response: The project site is located within the approved boundaries of the public water system. Therefore, this provision does not apply.

F. The following standards apply outside the Portland Metropolitan Urban Growth Boundary, Government Camp, Rhododendron, Wemme/Welches, Wildwood/Timberline, and Zigzag Village:

- 1. Applicants shall specify a lawful water source for the proposed development, such as a public or community water system, certificated water right, or exempt-use well.**

Response: The project site is in the Portland Metro UGB but not located in Government Camp, Rhododendron, Wemme/Welches, Wildwood/Timberline, or Zigzag Village. Exhibit B includes a Preliminary Statement of Feasibility for water, wastewater, and stormwater. Water service feasibility is provided by Clackamas River Water Authority. The attached water service suitability letter indicates that water service, including fire flows, is available

in levels appropriate for the development and adequate water system capacity is available in source, supply, treatment, transmission, storage, and distribution.

- 2. All subdivisions proposing to use an exempt-use well or wells and all land divisions, and new industrial, commercial, or institutional development located within a sensitive groundwater area and proposing to use an exempt use well or wells must affirmatively demonstrate that:***

Response: All proposed development will connect with the nearest public water supply, as specified above. No groundwater or wells will be used for the proposed commercial restaurant. Therefore, this provision does not apply.

- 3. Unless waived by the Planning Director, an applicant for any proposed development subject to Subsection 1006.03(F)(2) shall submit a hydrogeologic review with the subject application. The purposes of a hydrogeologic review are to provide information and professional analysis regarding the geology and hydrogeology of the area in the immediate vicinity of the proposed development for the County to determine compliance with Subsection 1006.03(F)(2). Study findings, maps, and conclusions shall be presented in a clear and understandable report.***

Response: No partitions or subdivisions are proposed with this application. Therefore, this provision and Subsections a – c and provisions four (4) through eight (8) do not apply.

1006.04 Sanitary Sewer Service

- A. All development that has a need for sanitary sewers shall install the facilities pursuant to the requirements of the district or company serving the development.***

Response: The project site will require sanitary sewer service. A preliminary feasibility statement is provided from WES, verifying sanitary sewer capacity in the wastewater treatment system and the sanitary sewage collection system. A second page is included with the feasibility letter with additional development comments.

- B. Approval of a development that requires sanitary sewer service shall be granted only if the applicant provides a preliminary statement of feasibility from the sanitary sewage treatment service provider and the collection system service provider.***

- 1. The statement shall verify that sanitary sewer capacity in the wastewater treatment system and the sanitary sewage collection system is available to serve the development or can be made available***

through improvements completed by the developer or the system owner.

Response: The project site will require sanitary sewer service. A preliminary feasibility statement is provided from WES, verifying sanitary sewer capacity in the wastewater treatment system and the sanitary sewage collection system. A second page is included with the feasibility letter with additional development comments.

2. The service provider may require preliminary sanitary sewer system plans and calculations for the proposed development prior to signing a preliminary statement of feasibility.

Response: Preliminary sanitary sewer system plans, and calculations were provided to the service provider as part of this approval. The signed preliminary statement of feasibility and comments from the provider are included with this application as Exhibit B.

3. The statement shall be dated no more than one year prior to the date a complete land use application is filed and need not reserve sanitary sewer system capacity for the development.

Response: The applicant understands the statement will be valid one year from the approval date of a complete land use application.

C. Hotels and motels are permitted in unincorporated communities only if served by a community sewer system as defined by Oregon Administrative Rules 660-022- 0010(2).

Response: The project site is not located within an unincorporated community. Therefore, this provision does not apply.

1006.06 *Surface Water Management and Erosion Control*

The following surface water management and erosion control standards apply:

A. Positive drainage and adequate conveyance of surface water shall be provided from roofs, footings, foundations, and other impervious or near-impervious surfaces to an appropriate discharge point.

Response: The restaurant with drive-through service, hotel, and parking will amount to approximately 106,432 square feet of impervious surface. The proposed improvements will require stormwater mitigation facilities that will ensure water quality and quantity standards are met. The proposed stormwater design will meet water quality by installing a Hydro International Defender manhole to mitigate flows leaving the site. Conveyance of surface water is shown on the Sheet C4.0 included with Exhibit D. A preliminary

feasibility report and signed statement of feasibility are included with this application as Exhibit B.

B. The requirements of the surface water management regulatory authority apply. If the County is the surface water management regulatory authority, the surface water management requirements of the Clackamas County Roadway Standards apply.

Response: The project site is located within the County's surface water management regulatory authority and is subject to this section.

D. Approval of a development shall be granted only if the applicant provides a preliminary statement of feasibility from the surface water management regulatory authority. The statement shall verify that adequate surface water management, treatment and conveyance is available to serve the development or can be made available through improvements completed by the developer or the system owner.

1. The surface water management regulatory authority may require a preliminary surface water management plan and report, natural resource assessment, and buffer analysis prior to signing the preliminary statement of feasibility.

Response: Preliminary stormwater plans, and feasibility report were provided to the service provider as part of this request. The signed preliminary statement of feasibility and comments from the provider are included with this application as Exhibit B along with DOWL's stormwater feasibility report included with Exhibit B.

2. The statement shall be dated no more than one year prior to the date a complete land use application is filed and need not reserve surface water treatment and conveyance system capacity for the development.

Response: The applicant understands the statement will be valid one year from the approval date of a complete land use application.

D. Development shall be planned, designed, constructed, and maintained to:

1. Protect and preserve existing natural drainage channels to the maximum practicable extent;

Response: The project site has no existing natural drainage channels. Therefore, this provision does not apply.

2. Protect development from flood hazards;

Response: The project site is not located within a special flood hazard area according to FIRM panel 41005C0029D, effective June 17, 2018. Additionally, the surface water disposal system is designed to convey flows up to a 25-year storm event.

3. Provide a system by which water within the development will be controlled without causing damage or harm to the natural environment, or to property or persons within the drainage basin;

Response: The proposed stormwater system design will meet Clackamas County Stormwater Design standards. Flow will be controlled to reduce the potential for damage or harm to the natural environment, or to property or persons within the drainage basin. The signed preliminary statement of feasibility and comments from the provider and DOWL's stormwater feasibility report are included with this application as Exhibit B.

4. Ensure that waters drained from the development are substantially free of pollutants, including sedimentary materials, through such construction and drainage techniques as sedimentation ponds, reseeded, and phasing of grading; and

Response: The proposed stormwater system design will meet Clackamas County Stormwater Design standards. The proposed stormwater design will meet water quality by installing a Hydro International Downstream Defender manhole to ensure waters are substantially free of pollutants, including sedimentary materials, before leaving the site. The signed preliminary statement of feasibility and comments from the provider and DOWL's stormwater feasibility report are included with this application as Exhibit B.

5. Ensure that waters are drained from the development in such a manner that will not cause erosion to any greater extent than would occur in the absence of development.

Response: Surface water will be conveyed through a series of catch basins to the underground ADS MC-3500 storage chambers, sized to release the stormwater into the municipal stormwater system located in SE 82nd Avenue at or below predevelopment conditions. The signed preliminary statement of feasibility and comments from the provider are included with this application as Exhibit B along with DOWL's stormwater feasibility report.

E. Where culverts cannot provide sufficient capacity without significant environmental degradation, the County may require the watercourse to be bridged or spanned.

Response: Culverts will provide sufficient capacity without significant environmental degradation.

F. If a development, or any part thereof, is traversed by any watercourse, channel, stream, creek, gulch, or other natural drainage channel, adequate easements for surface water management purposes shall be provided to the surface water management regulatory authority.

Response: The project site is not traversed by any watercourse, channel, stream, creek, gulch, or natural drainage channel. Therefore, this provision does not apply.

G. Channel obstructions are not allowed, except as approved for the creation of detention, retention, or hydropower facilities approved under this Ordinance. Fences with swing gates may be utilized.

Response: The project site is not traversed by any watercourse, channel, stream, creek, gulch, or natural drainage channel. Therefore, this provision does not apply.

H. The natural drainage pattern shall not be substantially altered at the periphery of the subject property. Greatly accelerated release of stored water is prohibited. Flow shall not be diverted to lands that have not previously encountered overland flow from the same upland source unless adjacent downstream owners agree.

Response: All surface waters will be disposed on on-site before entering the city's storm drain on SE 82nd Avenue. No flow is anticipated to be diverted to lands that have not previously encountered overland flow from the same upland source unless adjacent downstream owners agree. The signed preliminary statement of feasibility and comments from the provider are included with this application as Exhibit B along with DOWL's stormwater feasibility report. The storm plan is included with this application as Sheet C4.0, Exhibit D.

I. A surface water management and erosion control plan is required for significant residential, commercial, industrial, and institutional development. The plan shall include:

Response: No surface water management and erosion control plan is available at this time. However, the applicant anticipates preparing a surface water management and erosion control plan after land use approval but before the issuance of building permits.

1007 Roads and Connectivity**1007.06 STREET TREES**

A. Within the Portland Metropolitan Urban Growth Boundary, street trees are required on all road frontage—except frontage on private roads or access drives-- for subdivisions, partitions, multifamily dwellings, three-family dwellings, attached single-family dwellings where three or more dwelling units are attached to one another, and commercial, industrial, or institutional developments, except that for structural additions to existing commercial, industrial, or institutional buildings, street trees are required only if the addition exceeds 10 percent of the assessed value of the existing structure, or 999 square feet. Street trees shall comply with the following standards:

- 1. Partial or complete exemptions from the requirement to plant street trees may be granted on a case-by-case basis. Exemptions may be granted, for example, if the exemption is necessary to save existing significant trees which can be used as a substitute for street trees.**

Response: Pre-application conference notes indicate this project is required to provide street trees. No exemption is requested from this provision.

- 2. Street trees to be planted shall be chosen from a County-approved list of street trees (if adopted), unless approval for planting of another species is given by the Department of Transportation and Development.**

Response: The applicant proposes adding nine (9) *Capinus betulus 'Fastigiata'* along SE 82nd Avenue in planters which vary in width from 3.6-foot wide to 6-foot-wide. Additionally, the applicant proposes nine (9) *Acer Griseum* along SE Glencoe Road due to their drought tolerance and height clearance from overhead power lines.

- 3. Location and planting of street trees may be influenced by such conditions as topography, steep terrain, soil conditions, existing trees and vegetation, preservation of desirable views, and solar access.**

Response: The applicant considered topography, steep terrain, soil conditions and existing trees and vegetation when deciding location of trees.

- 4. Planting of street trees shall be coordinated with other uses which may occur within the street right-of-way, such as bikeways, pedestrian paths, storm drains, utilities, street lights, shelters, and bus stops.**

Response: Street trees are located in coordination with established rights-of-way, improved pedestrian walkways, utilities, and new streetlights.

- 5. *Street trees at maturity shall be of appropriate size and scale to complement the width of the street or median area.***

Response: The size and scale of mature trees was considered when selecting tree species.

- B. *Street trees required for developments in the Clackamas Regional Center Area shall comply with the following standards:***

- 1. *Street trees are required along all streets, except for drive aisles in parking lots.***

Response: The applicant proposes adding nine (9) *Capinus betulus 'Fastigiata'* along SE 82nd Avenue in planter strips which vary in width from 3.6-foot wide to 6-foot-wide. Additionally, the applicant proposes nine (9) *Acer Griseum* along SE Glencoe Road due to their drought tolerance and height clearance from overhead power lines.

- 2. *When determining the location of street trees, consideration should be given to accommodating normal retail practices in front of buildings such as signage, outdoor display, loading areas, and pullout lanes.***

Response: The location of street trees was selected after considering the location of proposed signage, loading areas, setback from fire hydrants, and intersection sight distance.

- 3. *Street trees are required along private access streets under the following conditions:***

Response: The project site is not located along a private access street. Therefore, this provision and Subsections (a) through (e) do not apply.

- 4. *In the Fuller Road Station Community, as identified on Comprehensive Plan Map X-CRC-1, street trees are required along both sides of all street types, and as shown in Comprehensive Plan Figure X-CRC-11, Clackamas Regional Center Area Design Plan Fuller Road Station Community, Type "E" Pedestrian/Bicycle Connection, for Type E pedestrian/bicycle connections. Street trees shall be spaced from 25 to 40 feet on center, based on the selected tree species and any site constraints. Street trees shall otherwise comply with the other provisions of Subsections 1007.06(A) and (B).***

Response: The project site is not located in the Fuller Road Station Community, as identified on Comprehensive Plan Map 10-CRC-1. Therefore, this provision does not apply.

- C. *In the Business Park District, street trees are required at 30- to 40-foot intervals along periphery and internal circulation roads, except where significant trees already exist.***

Response: The project site is not located in the Business Park District. Therefore, this provision does not apply.

D. Street trees are required for developments in Sunnyside Village along both sides of all connector and local streets, and as set forth in Subsection 1007.09. In addition:

Response: The project site is not located in Sunnyside Village. Therefore, this provision does not apply.

1009 Landscaping

1009.01 GENERAL PROVISIONS

A. Landscaping materials shall be selected and sited to produce a hardy and low maintenance landscaped area with an emphasis on fast-growing plants. Selection shall include consideration of soil type and depth, spacing, exposure to sun and wind, slope and contours of the subject property, building walls and overhangs, and compatibility with existing vegetation to be preserved. Notwithstanding the requirement for hardiness, annuals are permitted as provided in Subsection 1009.01(B).

Response: Landscaping materials were selected to be low maintenance, and drought/heat tolerant. Other characteristics and requirements including soil type, depth, spacing, exposure to sun and wind, slope and contours, and proximity to building walls and overhangs were considered when selecting plant species.

B. A variety of plants, intermixed throughout landscaped areas, shall be provided, as follows:

- 1. Evergreen and deciduous;***
- 2. Trees, shrubs, and groundcover;***
- 3. Plants of varying textures;***
- 4. Plants of varying widths and heights at maturity; and***
- 5. Plants with seasonal color interest (e.g., foliage, flowering perennials, annuals).***

Response: The applicant has proposed a variety of plants, of different species, featuring varied textures, widths and heights at maturity, and seasonal color. Planting totals are included with this application as Sheet L1.1 of Exhibit D.

C. The planting of invasive non-native or noxious vegetation shall be prohibited, and existing invasive non-native or noxious vegetation shall be removed.

Response: No invasive non-native or noxious vegetation is proposed with this application. Plant species are included with this application as Sheet L1.1 of Exhibit D.

D. Landscaped areas shall not be used for other purposes, such as storage or display of automobiles, equipment, merchandise, or materials.

Response: No invasive non-native or noxious vegetation is proposed.

- E. Landscaping of the unimproved area between a lot line and the improved portion of an adjacent road right-of-way shall be required when there are no immediate plans to develop or otherwise disturb the unimproved area, and one or more of the following apply:***

Response: No landscaping in the adjacent right-of-way is proposed.

- 1. The subject property is located inside the Portland Metropolitan Urban Growth Boundary;***

Response: The subject property is located within the Portland Metropolitan Urban Growth Boundary. Landscaping improvements between the lot line and adjacent road rights-of-way for SE Glencoe Road and SE 82nd Avenue are provided and shown on the planting plan included with this application as Sheet L1.0 of Exhibit D.

- 2. Landscaping is necessary to present an appearance consistent with the proposed development as viewed from the road;***

Response: The subject property is located within the Clackamas Regional Center Area and as such, has provided street trees along SE 82nd Avenue and SE Glencoe Road consistent with Section 1007.06.

- 3. Landscaping is necessary to reduce dust, noise, erosion, or fire hazard; or***

Response: There is no indication from the County that landscaping is necessary to reduce dust, noise, erosion, or fire hazard for this project site.

- 4. The road is designated as a scenic road on Comprehensive Plan Map 5-1, Scenic Roads.***

Response: SE 82nd Avenue is not designated as a scenic road on Comprehensive Plan Map 5-1, Scenic Roads.

- F. Landscaping shall be used to highlight public entrances to buildings. If—due to the depth of a front setback, a required walkway, or both—there is insufficient area to permit a typical, in-ground landscaping bed between a public entrance and a front lot line, this requirement may be met with trellises, hanging baskets, or planters, any of which shall include plants.***

Response: Typical in-ground landscaping beds are provided on either side of the buildings entrance and include several tree species, shrub coverage, and decorative rock.

- G. Where feasible, landscaping shall be required adjacent to walkways and other areas intended for pedestrian use. H. Existing significant plants, terrain, and other natural features shall be incorporated into the landscaping design and development if such features are required to be retained by other provisions of this Ordinance or if otherwise feasible.***

Response: Typical in-ground landscaping beds are provided to either side of the buildings entrance and include several tree species, shrub coverage, and decorative rock. Landscaping is proposed adjacent to public sidewalks and the patio proposed south of the building.

Table 1009-1: Minimum Landscaped Area

Zoning District	Minimum Landscaped Area
CC, PMU, RCC, RCO, RTL	10 percent
RTC	<ul style="list-style-type: none"> • 15 percent outside Government Camp • 10 percent in Government Camp
SCMU	<ul style="list-style-type: none"> • 15 percent for developments of three-family or multifamily dwellings, including mixed-use developments that include these uses • 10 percent for all other developments
BP, C-2, C-3, GI, LI, NC, RC, RI, VCS, VO	15 percent
OA, OC, RCHDR	20 percent
HDR, MR-1, MR-2, MRR, PMD, VA, VTH	25 percent except 20 percent for attached single-family dwellings in the MR-1 and MR-2 Districts
HR	<ul style="list-style-type: none"> • 25 percent for conditional uses • 20 percent for attached single-family dwellings if three or more dwelling units are attached in succession
FF-10, FU-10, R-2.5 through R-30, RA-1, RA-2, RR, RRFF-5, VR-4/5, and VR-5/7	25 percent for conditional uses and for primary-use attached single-family dwellings in the VR-4/5 District if three or more dwelling units are attached in succession
SHD	40 percent

Response: The project site is located in the CC zoning district and is required to provide a minimum of 10-percent landscaped area. In addition to the minimum 10 percent established here, the applicant intends to comply with innovative development technique 1005.05 (G) and will provide 11 percent minimum landscaped area. Landscape area and percent coverage are calculated in the upper right-hand corner of Sheet L1.0. Of the 87,237 square foot area in phase one, 12,534 square feet will be landscaped (or 14%). Therefore, the applicant exceeds the minimum planting requirements.

1009.03 SURFACE PARKING AND LOADING AREA LANDSCAPING

Surface parking and loading areas shall be landscaped as follows:

A. Surface parking areas that include more than 15 parking spaces shall comply with the following landscaping requirements:

1. Twenty-five square feet of landscaping per parking space, excluding perimeter parking spaces, shall be provided, except that the standard shall be reduced to 20 square feet for each parking space developed entirely with porous pavement.

Response: The project site (phase one/Chick-fil-A building) will provide 76 parking spaces and require a minimum of 1,900 square feet of interior landscaping in the parking area. The landscaping plan provides 4,401 square feet of interior landscaped area, and therefore exceeds the minimum requirement specified in this provision. No exceptions from this provision are requested. A landscape plan is included with this application as Sheet L1.0 in Exhibit D.

2. One landscape swale located between two rows of parking spaces, as shown in Figure 1009-1, is required for every six rows of parking spaces, unless all parking spaces are developed entirely with porous pavement. Additional swales beyond the minimum requirement are allowed.

- a. For the purpose of Subsection 1009.03(A)(2), a "row" of parking spaces is one space deep, meaning that where two spaces abut at their ends, it is considered two "rows".***
- b. Parking spaces separated by pedestrian or vehicle crossings perpendicular to the row of parking spaces are considered to be part of a single row.***

Response: Landscape swales are provided between two rows of parking towards the center of the project site and immediately adjacent to a single row of five parking spaces. A landscape plan is included with this application as Sheet L1.0 in Exhibit D.

c. The first required swale shall be developed for the entire length of the longest row of parking spaces.

Response: The first landscape swale is provided for the entire length of the longest row of parking spaces. A landscape plan is included with this application as Sheet L1.0 in Exhibit D.

d. Gaps in a required swale are permitted only to provide for pedestrian and vehicle crossings.

Response: Gaps are present within the landscape swale to allow vehicle crossing. No other gaps are provided. A landscape plan is included with this application as Sheet L1.0 in Exhibit D.

e. The parking lot shall be graded to allow surface water to flow into a swale. Curbs shall not separate parking spaces from the swale, and gaps between parking space tire stops are required to allow surface water to flow into a swale.

Response: The landscape swale is graded to allow surface water to flow into it, as shown on the grading plan (Sheet C3.0) and storm plan (Sheet C4.0) in Exhibit D.

f. Swales shall be a minimum of four feet wide.

Response: The landscape swale is designed to be a minimum of four feet wide at all portions, as shown on the landscape plan (Sheet L1.0) in Exhibit D.

g. If the front portions of parking spaces are landscaped as allowed by Subsection 1015.02(A)(10), the landscaped portion of the parking space shall be adjacent and in addition to the swale, as shown in Figure 1009-1.

Response: Landscaped portions are proposed at the end of each parking space row. Additional landscaping portions are proposed adjacent to the main landscape swale, as shown on the landscape plan (Sheet L1.0) in Exhibit D.

h. Turf lawn is prohibited in swales.

Response: No turf lawn is provided in the landscape swales.

3. Interior landscaping not developed as swales pursuant to Subsection 1009.03(A)(2) shall comply with the following standards:

a. It shall be arranged in areas at the ends of rows of parking or between parking spaces within rows of parking. See Figure 1009-2.

Response: Other interior landscaping areas include landscaped islands at the end of parking rows as shown on the landscape plan (Sheet L1.0) in Exhibit D.

b. It may join perimeter landscaping as long as the interior landscape area extends at least four feet into the parking area from the perimeter landscape line. See Figure 1009-2.

Response: Interior landscaping joins the perimeter landscaping at least four feet into the parking area from the perimeter parking landscape line, as shown on the landscape plan (Sheet L1.0) in Exhibit D.

c. Landscaping that abuts, but does not extend into, the parking area may be included as interior landscaping if all of the following are met:

i. The abutting landscaped area must be in addition to required perimeter landscaping;

Response: The abutting landscaped area is not included in the area considered perimeter landscaping, consistent with this provision.

- ii. Only the first 10 feet of the abutting landscaped area, measured from the edge of the parking area, may be included as interior landscaping; and***

Response: Only the first ten feet of abutting landscaped area is included as the interior landscaping, consistent with this provision.

- iii. The landscaped area is not abutting and parallel to required perimeter landscaping. See Figure 1009-2.***

Response: Counts for interior landscaping exclude landscaped area not located within 5 feet of the perimeter landscaping, consistent with this provision.

- d. The interior length and width of landscaped areas shall be a minimum of four feet.***

Response: The length and width of all landscaped areas are a minimum of four feet, consistent with this provision.

- 4. Interior landscaped areas, including swales, shall include a minimum of one tree located every eight interior parking spaces, or fraction thereof, except in the OA, VA, VCS, and VO Districts, where a minimum of one tree shall be located every six interior parking spaces.***

- a. Where necessary to accommodate other design considerations, variable spacing of the trees required by Subsection 1009.03(A)(4) is allowed, but in no case shall there be less than one tree planted in every 12 parking spaces.***

Response: Two trees are located at the end of every planter and two trees are located in the dividing island between parking rows, consistent with this provision. No variable tree spacing is requested with this application.

- b. The species of trees required shall be determined on the basis of the growth habit and the need to provide maximum shading of surface parking areas.***

Response: The tree species proposed for the interior landscaped areas were selected based upon growth habit and branching height, which is assumed to provide adequate shading of surface parking areas.

- B. Perimeter landscaping requirements for surface parking and loading areas adjacent to abutting lots or rights-of-way are as follows:***

- 1. A landscaping strip with a minimum width of five feet shall be provided adjacent to the perimeter of the surface parking or loading area, except:***

Response: A landscaping strip with a minimum width of five feet is provided adjacent the perimeter of the parking area, consistent with this provision.

a. In the OA, VA, VCS, and VO Districts, the minimum width shall be 10 feet;

Response: The project site is located in the CC zoning district. Therefore, this provision does not apply.

b. In the BP and LI Districts, the minimum width shall be 15 feet abutting a front lot line; and

Response: The project site is located in the CC zoning district. Therefore, this provision does not apply.

c. In the GI District, the minimum width shall be 10 feet abutting a front lot line.

Response: The project site is located in the CC zoning district. Therefore, this provision does not apply.

2. The required landscaping strips shall comply with the following standards:

a. Sufficient low shrubs shall be planted to form a continuous screen three feet high and 95 percent opaque, year-round; or a three-foot-high masonry wall or berm may be substituted for the shrubs. When applied along front lot lines, the screen or wall is to be placed along the interior side of the landscaping strip and shall be 30 inches high instead of three feet high.

Response: Perimeter landscaping will consist of 30-inch high and 95-percent opaque evergreen shrubs, planted to provide a continuous screen, consistent with this provision.

b. In addition, one tree is required for every 30 linear feet of landscaping strip, or as otherwise required to provide a tree canopy over the landscaping strip.

Response: One tree is proposed every 30 linear feet to provide a consistent tree canopy over the landscaping strip.

c. Ground cover plants must fully cover the remainder of the landscaped area.

Response: Ground cover plants were chosen to provide full coverage for the remaining landscape areas.

3. A perimeter landscape strip is not required for a surface parking or loading area adjacent to an abutting lot if one or more interior driveways connect the two lots and if the abutting lot also is developed with a surface parking or loading area adjacent to the shared lot line.

Response: The abutting lot does not have one or more interior driveways connecting the two lots with abutting development and/or surface parking. Therefore, the applicant has provided the perimeter landscaping required under section 1009.03(B).

4. Required walkways may cross perimeter landscaping strips

Response: Pedestrian walkways are designed to cross perimeter landscaping strips, consistent with this provision.

1009.04 SCREENING AND BUFFERING

A. Screening shall be used to eliminate or reduce the visual impacts of the following:

1. Service areas and facilities, such as loading areas and receptacles for solid waste or recyclable materials;

Response: The refuse and recycling enclosure will be screened to reduce visual impacts. Specifically, screening will be prefinished metal coping around the entire recycling and garbage area.

2. Storage areas;

Response: No outdoor storage areas are proposed with this application. Therefore, this provision does not apply.

3. Ground-mounted rainwater collection facilities with a storage capacity of more than 100 gallons;

Response: No ground-mounted rainwater collection facilities are proposed with this application. Therefore, this provision does not apply.

4. Parking lots within or adjacent to an Urban Low Density Residential, VR-5/7, VR-4/5, RA-1, RA-2, RR, RRFF-5, FF-10, FU-10, or HR District; and

Response: The parking lot is located over 40-feet from the high-density residential property to the west. This application is requesting approval for phase one only. A separate design review application will be submitted in the future to address Phase Two, which is adjacent the high-density residential development.

5. Any other area or use, as required by this Ordinance.

Response: The applicant is not aware of any other areas or uses that require screening. However, should areas or uses be identified by the city as part of the completeness review or be included as a condition of approval.

B. Screening shall be accomplished by the use of sight-obscuring evergreen plantings, vegetated earth berms, masonry walls, sight-obscuring fences, proper siting of disruptive elements, building placement, or other design techniques.

Response: A three (3) foot high screen wall with pilasters will be provided along the eastern property line, adjacent SE 82nd Avenue. The wall will be white stucco and designed to complement the exterior architectural features of the Chick-fil-A building.

- C. Screening shall be required to substantially block any view of material or equipment from any point located on a street or accessway adjacent to the subject property. Screening from walkways is required only for receptacles for solid waste or recyclable materials. A sight-obscuring fence at least six feet in height and up to a maximum of 10 feet in height shall be required around the material or equipment.***

Response: No material or equipment will be stored on the project site outside of the construction window. A temporary sight obscuring fence with privacy slats or screening will be provided during construction to substantially block the view of construction materials and equipment. Screening around the drive-through will consist of a permanent 30-inch-high stucco wall and screening around the solid waste receptacles will consist of solid prefinished metal coping.

- D. Buffering shall be used to mitigate adverse visual impacts, dust, noise, or pollution, and to provide for compatibility between dissimilar adjoining uses. Special consideration shall be given to buffering between residential uses and commercial or industrial uses, and in visually sensitive areas.***

Response: A temporary sight obscuring fence with privacy slats or screening will be provided during construction to substantially block the view of construction materials and equipment. Screening around the drive-through will consist of a permanent 30-inch-high stucco wall and screening around the solid waste receptacles will consist of solid prefinished metal coping. The combination of temporary and permanent fencing will lessen the visual impacts, dust, and noise.

- E. Buffering shall be accomplished by one of the following:***

- 1. A landscaping strip with a minimum width of 15 feet and planted with:***
 - a. A minimum of one row of deciduous and evergreen trees staggered and spaced a maximum of 30 feet apart;***
 - b. A perennial, evergreen planting with sufficient foliage to obscure vision and which will grow to form a continuous hedge a minimum of six feet in height within two years of planting; and***
 - c. Low-growing evergreen shrubs and evergreen ground cover covering the balance of the area;***

Response: Screening around the solid waste receptacle will consist of solid prefinished metal coping and landscaping as outlined under subsection 3.

- 2. A berm with a minimum width of ten feet, a maximum slope of 40 percent on the side away from the area screened from view, and planted with:***
 - a. A perennial, evergreen planting with sufficient foliage to obscure vision and which will grow to form a continuous hedge within two years of planting. The minimum combined height of the berm and planting shall be six feet; and***
 - b. Low-growing evergreen shrubs and evergreen ground cover covering the balance of the area;***

Response: Buffering around the solid waste receptacles will consist of solid prefinished metal coping and landscaping as outlined under subsection 3.

3. A landscaping strip with a minimum width of five feet and including:

- a. A masonry wall or sight-obscuring fence a minimum of six feet in height. The wall or fence is to be placed along the interior side of the landscaping strip;**
- b. Evergreen vines, evergreen trees, or evergreen shrubs, any of which shall be spaced not more than five feet apart; and**
- c. Low-growing evergreen shrubs and evergreen ground cover covering the balance of the area; or**

Response: Buffering around the solid waste receptacles will consist of solid prefinished metal coping, at least five feet in height on the interior side of a landscaping strip containing mass kinnikinic.

4. Another method that provides an adequate buffer considering the nature of the impacts to be mitigated.

Response: No alternative methods are being requested. Buffering will comply with Subsection 3 immediately above this provision.

F. Required walkways shall be accommodated, even if such accommodation necessitates a gap in required screening or buffering.

Response: Required walkways are accommodated without compromising buffering requirements outlined in this provision.

1009.06 LANDSCAPING STRIPS

A. In the BP and LI Districts, a landscaping strip a minimum of 15 feet wide shall be provided abutting front lot lines.

Response: A three (3) foot high screen wall with pilasters will be provided along the eastern property line, adjacent SE 82nd Avenue. The wall will be white stucco and designed to complement the exterior architectural features of the Chick-fil-A building.

1009.07 FENCES AND WALLS

A. Fences and walls shall be of a material, color, and design complementary to the development.

Response: A three (3) foot high screen wall with pilasters will be provided along the eastern property line, adjacent SE 82nd Avenue. The wall will be white stucco and designed to complement the exterior architectural features of the Chick-fil-A building.

B. In the BP and LI Districts, the minimum front setback for fences and walls is 15 feet.

Response: The project site is located in the CC zoning district. Therefore, this provision does not apply.

C. In the GI District, the minimum front setback for fences and walls is 10 feet.

Response: The project site is located in the CC zoning district. Therefore, this provision does not apply.

1009.09 EROSION CONTROL

A. Graded areas shall be re-vegetated with suitable plants to ensure erosion control.

Response: Re-vegetated areas are planted with suitable plants, consistent with this provision. A Landscape plan is provided with this application as Sheet L1.0 in Exhibit D.

B. Netting shall be provided, where necessary, on sloped areas while ground cover is being established.

Response: The applicant anticipates that netting will be provided on sloped areas while ground cover is being established.

1009.10 PLANTING AND MAINTENANCE

A. Impervious weed barriers (e.g, plastic sheeting) are prohibited.

Response: No impervious weed barriers are proposed.

B. Plants shall not cause a hazard. Plants over walkways, sidewalks, pedestrian pathways, and seating areas shall be pruned to maintain a minimum of eight feet below the lowest hanging branches. Plants over streets, bikeways, accessways, and other vehicular use areas shall be pruned to maintain a minimum of 15 feet below the lowest hanging branches.

Response: The applicant anticipates that plants will be maintained to prevent hazards along walkways, sidewalks, pedestrian pathways, and seating areas, consist with this provision.

C. Plants shall be of a type that, at maturity, typically does not interfere with above or below-ground utilities or paved surfaces.

Response: Plant species were selected for their suitability given sun exposure, height, and planter size. Similarly, the applicant anticipates the selected tree and shrub species are unlikely to interfere with above or below-ground utilities or paved surfaces.

D. Plants shall be installed to current nursery industry standards.

Response: The applicant anticipates that plants will be installed to current nursery standards, consist with this provision.

- E. Plants shall be properly guyed and staked to current nursery industry standards as necessary. Stakes and guys shall not interfere with vehicular or pedestrian traffic, shall be loosened as needed to prevent girdling of trunks, and shall be removed as soon as sufficient trunk strength develops, typically one year after planting.***

Response: The applicant anticipates that plants will be properly guyed and staked to current nursery standards, consist with this provision.

- F. Landscaping materials shall be guaranteed for a period of one year from the date of installation. The developer shall either submit a signed maintenance contract for the one-year period or provide a performance surety pursuant to Section 1311, Completion of Improvements, Sureties, and Maintenance, covering the landscape maintenance costs for the one-year period.***

Response: The applicant anticipates that a signed maintenance agreement contract will be submitted to the county.

- G. Plants shall be suited to the conditions under which they will be growing. As an example, plants to be grown in exposed, windy areas that will not be irrigated shall be sufficiently hardy to thrive under these conditions. Plants shall have vigorous root systems, and be sound, healthy, and free from defects and diseases.***

Response: Plants were chosen based on their growing requirements, drought tolerance, and size at maturity. The applicant anticipates landscaping will be consistent with this provision.

- H. When planted, deciduous trees shall be fully branched, have a minimum caliper of two inches, and have a minimum height of eight feet.***

Response: The applicant anticipates that deciduous tree species will have a minimum branching height of five feet and a mature height of 25 to 40-feet.

- I. When planted, evergreen trees shall be fully branched, have a minimum height of eight feet, and have only one leader.***

Response: No evergreen trees are proposed with this application.

- J. Shrubs shall be supplied in minimum one-gallon containers or eight-inch burlap balls with a minimum spread of 12 inches.***

Response: Shrubs are supplied in minimum one-gallon containers as shown on Sheet L1.1.

- K. Ground cover shall be planted a maximum of 30 inches on center with a maximum of 30 inches between rows. Rows of plants shall be staggered. Ground cover shall be supplied in minimum four-inch containers, except that the minimum shall be reduced to two and one-quarter inches or equivalent if the ground cover is planted a minimum of 18 inches on center.***

Response: The applicant anticipates that ground cover will be miscellaneous plants staggered and spaced out 30-inches on center to prevent overcrowding of plants.

- L. Plants shall be spaced so that ground coverage three years after planting is expected to be 90 percent, except where pedestrian amenities, rainwater collection systems, or outdoor recreational areas count as landscaping pursuant to Subsection 1009.02. Areas under tree drip lines count as ground coverage.***

Response: The applicant anticipates that ground cover will be miscellaneous plants staggered and spaced out 30-inches on center to prevent overcrowding of plants.

- M. Irrigation of plants shall be required, except in wooded areas, wetlands, and in river and stream buffers. The irrigation system shall be automatic, except that hose bibs and manually operated methods of irrigation may be permitted in small landscaped areas close to buildings. Automatic irrigation systems are subject to the following standards:***

- 1. An automatic irrigation controller shall be required for irrigation scheduling.***
- 2. The system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.***
- 3. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.***
- 4. Narrow or irregularly shaped areas, including turf lawn, less than eight feet in width in any direction shall be irrigated with subsurface or low volume irrigation.***
- 5. Overhead sprinkler irrigation is prohibited within two feet of any impervious surface unless:***
 - a. The landscaped area is adjacent to permeable surfacing and no runoff occurs; or***
 - b. The adjacent impervious surfaces are designed and constructed to drain entirely to landscaping; or***
 - c. The irrigation designer specifies an alternative design or technology that complies with Subsection 1009.10(M)(2).***

Response: The applicant anticipates landscaped areas will be watered between May and October using a fully automatic subsurface irrigation system and maintained for a minimum of one full growing season after the date of substantial completion. Trees shall be watered at a rate of 15 gallons per tree once per week, shrubs, and groundcovers at a rate of 1-inch per week or as necessary to maintain vigorous healthy growth. Irrigation notes are included on Sheet L1.0 of Exhibit D.

N. Appropriate methods of plant care and landscaping maintenance shall be provided by the property owner. Pruning shall be done to current nursery industry standards.

Response: The applicant anticipates proposed plant materials will be cared for and maintained in accordance with this provision.

O. Plants shall be protected from damage due to heavy foot traffic or vehicular traffic by protective tree grates, pavers, or other suitable methods.

Response: The applicant anticipates proposed plant materials will be protected from heavy foot and vehicular traffic by curbing, protective tree grates, pavers, etc. in accordance with this provision.

1010 Signs

1010.02 GENERAL PROVISIONS

Response: Signage plans, including location, size, height, and type of size are unknown at this time. It is anticipated that signs will comply with this ordinance and be submitted for review at a later point in time.

1015 Parking and Loading

1015.01 GENERAL STANDARDS

A. Inside the Portland Metropolitan Urban Growth Boundary (UGB), parking, loading, and maneuvering areas shall be hard-surfaced, unless a permeable surface is required for surface water management pursuant to the regulations of the surface water management authority or in order to comply with Subsection 1006.06.

Response: The project site is located inside the Portland Metro UGB. Therefore, the applicant will provide paved parking consistent with this provision.

B. Outside the UGB, areas used for parking, loading, and maneuvering of vehicles shall be surfaced with screened gravel or better, and shall provide for suitable drainage.

Response: The project site will provide paved parking consistent with 1015.01(A).

C. Parking and loading requirements for uses and structures not specifically listed in Tables 1015-1, Automobile Parking Space Requirements; 1015-2, Minimum Required Bicycle Parking Spaces; and 1015-3, Minimum Required Off-Street Loading Berths shall be subject to the requirements for the most similar use.

Response: The parking and loading requirements for the restaurant use are outlined in Table 1015-1, 1015-2, and 1015-3. Therefore, this provision does not apply.

D. Motor vehicle parking, bicycle parking, and loading areas shall be separated from one another.

Response: Motor vehicle parking, bicycle parking, and loading areas are all separated from one another, consistent with this provision. Vehicle parking and bicycle parking are shown on the site plan, included with this application as Sheet C2.0 in Exhibit D.

E. Required parking spaces and loading berths shall not be:

- a. Rented, leased, or assigned to any other person or organization, except as provided for under Subsection 1015.02(D)(3)(a) for shared parking or Subsection 1015.04(C) for shared loading berths.***

Response: No parking spaces will be rented, leased, or assigned, except as provided for Subsection 1015.02(D)(3)(a).

- b. Used for storing or accumulating goods or storing a commercial or recreational vehicle, camper, or boat, rendering the space(s) useless for parking or loading operations.***

Response: The applicant anticipates parking spaces will only be used for the restaurant and eventually the hotel contemplated as future phase two. No parking spaces will be used for the storage of commercial or recreational vehicles, campers, boats, etc.

- c. Occupied by the conducting of any business activity, except for permitted temporary uses (e.g., farmers' markets).***

Response: The applicant anticipates parking spaces will be used for the restaurant only, consistent with this provision.

1015.02 MOTOR VEHICLE PARKING AREA STANDARDS

A. Off-street parking areas shall be designed to meet the following requirements:

- 1. Off-street motor vehicle parking areas shall be provided in defined areas of the subject property. No area shall be considered a parking space unless it can be shown that the area is accessible and usable for that purpose and has required maneuvering area for vehicles. Required backing and maneuvering areas shall be located entirely onsite.***

Response: Off-street parking is provided adjacent to the proposed restaurant building. The location of off-street parking spaces are shown on the plans included in Exhibit D, including a summary of parking spaces in the upper right-hand corner of Sheet C0.0. All parking spaces and backing and maneuvering areas are located entirely onsite.

- 2. *Automobile parking spaces shall be a minimum of 8.5 feet wide and 16 feet long, except that parallel spaces shall be a minimum of 8.5 feet wide and 22 feet long.***

Response: Automobile parking spaces are consistent with this provision and are designed to be 8.5 feet wide and 16-feet long. No parallel parking spaces are provided at this time.

- 3. *A minimum of 25 percent of required parking spaces shall be no larger than 8.5 feet wide and 16 feet long.***

Response: All parking spaces, except ADA parking and carpool parking, will be no larger than 8.5 feet wide and 16 feet long, consistent with this provision and 1015.02.A.2.

- 4. *Parking areas shall comply with minimum dimensions for curb length, stall depth, and aisle width established by the Clackamas County Roadway Standards; these dimensions are based on the orientation (e.g., 45-degree, 90-degree), length, and width of the spaces.***

Response: Parking spaces are 90 degrees and 8.5-feet wide and 16 feet long with 24-foot maneuvering aisles, consistent with Clackamas County roadway standards for parking and aisle layout details (P200).

- 5. *Double-loaded, ninety-degree angle parking bays shall be utilized where possible.***

Response: Double-loaded, 90-degree parking bays are provided, consistent with this provision as shown of Exhibit D.

- 6. *A minimum of one parking space or five percent of the required spaces, whichever is greater, shall be marked and signed for use as carpool/vanpool spaces. These spaces shall be the closest employee automobile parking spaces to the building entrances normally used by employees, but shall not take priority over any spaces required for individuals with disabilities.***

Response: The project provides 76 parking spaces of which, five percent (or three) carpool/vanpool spaces are required to serve proposed phase one development. Six carpool/vanpool parking spaces are provided for restaurant customers/ employees. Parking totals and parking space designations are provided on Sheet C0.0 of Exhibit D.

7. *In parking lots greater than one acre, major onsite circulation drive aisles and lanes crossing to adjacent developments shall not have parking spaces accessing directly onto them.*

Response: No parking spaces access from the drive aisles and lanes connecting to SE Glencoe Road or the adjacent property to the north (Goodwill).

8. *Where feasible, shared driveway entrances, shared parking and maneuvering areas, and interior driveways between adjacent parking lots shall be required.*

Response: Shared parking and maneuvering areas are provided between phase one (the proposed Chick-fil-A described in this application) and phase two (future development). Additionally, a drive aisle is provided to the north connecting the existing Goodwill site and the project site.

9. *Except for parallel spaces, parking spaces heading into landscaped areas or along the perimeter of a parking lot shall be provided with a sturdy tire stop at least four inches high and located two feet within the space to prevent any portion of a car within the lot from extending over the property line.*

Response: The applicant anticipates a tire stop at least four inches in height and located two feet will be provided within the space to prevent any portion of the car from extending over the property line.

10. *For parking spaces heading into a landscaped area, the area in front of the tire stop that is included in the parking space dimension may be landscaped instead of paved or graveled according to the following standards:*

Response: The parking spaces heading into a landscaped area will be paved. Therefore, this provision and Subsections (a) through (c) do not apply.

- B. Parking Minimums: The minimum number of parking spaces listed in Table 1015-1, Automobile Parking Space Requirements, applies unless modified in Subsection 1015.02(D).***

Response: The proposed Chick-fil-A is considered new development and is therefore required to provide new parking spaces based on the minimum requirements listed in Table 1015-2. No expansion of a building or use is requested with this application. Therefore, Subsection one (1) does not apply.

2. *In the event more than one use occupies a single structure or parcel, the total minimum requirement for parking shall be the sum of the minimum requirements of the several uses computed separately.*

Response: As established in Table 1015-1, the applicant will need to provide a minimum of 9 parking spaces per 1,000 square feet of gross leasable land (or a minimum of 55 parking spaces) and a maximum of 12.4 parking spaces per 1,000 feet (or 77 parking spaces). The applicant will provide 76 parking stalls, composed of 61 standard parking stalls, five (5) compact

stalls, six (6) carpool stalls, and four (4) accessible parking stalls. The applicant plans to pave the area between the restaurant and future phase two development, but will only mark parking stalls and drive aisles meant to serve the proposed restaurant use, as shown in the revised plan set, included with this narrative as Exhibit D.

C. Parking Maximums:

- 1. *Within the UGB, the parking maximums listed in Table 1015-1, Urban Zone A, apply when an area has 20-minute peak hour transit service within one quarter mile walking distance for bus transit or one-half mile walking distance for light rail transit.***

Response: Parking maximums (77 spaces) under Zone A were specified as applicable to the project site during the pre-application conference (ZPAC0013-22). The applicant has submitted a revised narrative and plan set showing 76 parking stalls, a total which is below the maximum allowed.

- 2. *Within the UGB, areas not meeting the requirements of Subsection 1015.02(C)(1), are subject to the parking maximums listed in Table 1015-1, Urban Zone B.***

Response: The project site meets the requirements of Subsection 1015.02(C)(1). Therefore, this provision does not apply.

- 3. *In case of expansion of a building or use with more parking spaces than the maximum allowed by Table 1015-1:***

- a. *Existing parking spaces may be retained, replaced, or eliminated, provided that after the expansion, the total number of remaining spaces complies with the minimum parking space requirement of Table 1015-1 for the entire development; and***

Response: The project site will not involve the replacement or elimination of parking, given no parking spaces are currently provided.

- b. *Additional parking spaces are allowed only if required to comply with the minimum parking space requirement of Table 1015-1 for the entire development after the expansion.***

Response: As established in Table 1015-1, the applicant will need to provide a minimum of 9 parking spaces per 1,000 square feet of gross leasable land (or a minimum of 55 parking spaces) and a maximum of 12.4 parking spaces per 1,000 feet (or 77 parking spaces). The applicant will provide 76 parking stalls, composed of 61 standard parking stalls, five (5) compact stalls, six (6) carpool stalls, and four (4) accessible parking stalls. The applicant plans to pave the area between the restaurant and future phase two development, as shown in the revised plan set, included with this narrative as Exhibit D.

Land Use Category	Minimum Parking Spaces	Maximum Parking Spaces (Urban Zone A)	Maximum Parking Spaces (Urban Zone B)
Places of Worship (per seat located in main assembly room), unless a school, daycare, or similar facility is proposed in conjunction with primary use, in which case it shall have separate parking requirement	0.5, or 1 per 5.3 feet of bench length in main assembly room	0.6	0.8
Produce Stands (per stand)	4	None	None
Recreational Vehicle Camping Facilities	1 per campsite (in addition to the space required for parking the recreational vehicle) and 1 per employee at peak employment period	None	None
Restaurants: Fast Food with drive-thru window service	9	12.4	14.9
Restaurants: With no drive-thru window service, Taverns	15	19.1	23

Table footnotes:

- 1 *Parking ratios are based on spaces per 1,000 square feet of gross leasable area, unless otherwise stated.*
- 2 *On land above 3,500 feet in elevation, covered parking shall be provided for structures containing three or more dwelling units.*

Response: As established in Table 1015-1, the applicant will need to provide a minimum of 9 parking spaces per 1,000 square feet of gross leasable land (or a minimum of 55 parking spaces) and a maximum of 12.4 parking spaces per 1,000 feet (or 77 parking spaces). The applicant will provide 76 parking stalls, composed of 61 standard parking stalls, five (5) compact stalls, six (6) carpool stalls, and four (4) accessible parking stalls. The applicant plans to pave the area between the restaurant and future phase two development, as shown in the revised plan set, included with this narrative as Exhibit D.

D. Exceptions to Parking Requirements:

Response: No exceptions to parking requirements are requested since future phase two development has no maximum parking stall requirements. Therefore, this provision and Subsections one (1) through four (4) do not apply.

1015.03 BICYCLE PARKING STANDARDS**A. Bicycle parking areas shall meet the following on-site locational requirements:**

1. *Bicycle parking racks shall be located in proximity to an entrance but shall not conflict with pedestrian needs.*

Response: Bicycle parking racks are provided adjacent the restaurant entrance in the outdoor patio area. Bicycle parking rack location and totals are shown in Exhibit E.

2. *At least 75 percent of the bicycle parking spaces shall be located within 50 feet of a public entrance to the building.*

Response: All bicycle parking is within 50-feet of the public building entrance.

3. *Bicycle parking may be provided within a building, if the location is easily accessible for bicycles.*

Response: No bicycle parking is provided within the building. Therefore, this provision does not apply.

4. *Bicycle parking for multiple uses, or a facility with multiple structures, may be clustered in one or several locations within 50 feet of each building's entrance.*

Response: The applicant proposes bicycle parking within 50-feet of each building entrance.

5. *If the bicycle parking is not easily visible from the street or main building entrance, then a sign must be posted near the building entrance indicating the location of the parking facilities.*

Response: Bicycle parking will be easily visible from the street and main building entrance.

B. Bicycle parking shall be designed to meet the following requirements:

1. *When more than seven bicycle parking spaces are required, a minimum of 50 percent of the spaces shall be covered. All of the required bicycle spaces for schools, park-and-ride lots, congregate housing facilities, and multifamily dwellings shall be covered.*

Response: The proposed Chick-fil-A will be approximately 4,989 square feet and must provide a minimum of two bicycle parking spaces as required in 1015.03.B.7. Exhibit E shows four bicycle parking spaces, exceeding the minimum standard but not exceeding seven bicycle parking spaces. Therefore, this provision does not apply.

2. *Cover for bicycle parking may be provided by building or roof overhangs, awnings, bicycle lockers, bicycle storage within buildings, or freestanding shelters.*

Response: Architectural plans currently show bike parking as uncovered. If applicable, the applicant anticipated that covered bicycle parking, bicycle storage within the building, or freestanding shelters will be specified as a condition of approval.

- 3. *When more than 15 covered bicycle parking spaces are required, 50 percent of the required covered spaces shall be enclosed and offer a high level of security, e.g., bicycle lockers or a locked cage or room with locking facilities inside, to provide safe long-term parking.***

Response: The proposed Chick-fil-A will be approximately 4,989 square feet and must provide a minimum of two bicycle parking spaces as required in 1015.03.B.7. Exhibit E shows four bicycle parking spaces. The applicant's bicycle parking requirement will not exceed 15 bicycle parking spaces. Therefore, this provision does not apply.

- 4. *Required bicycle parking spaces shall be illuminated.***

Response: Bicycle parking is proposed within the illuminated patio area, as shown on Exhibit E.

- 5. *Required bicycle parking areas shall be clearly marked and reserved for bicycle parking only.***

Response: Bicycle parking areas are clearly marked and reserved for bicycle parking, as shown on Exhibit E.

- 6. *Bicycle parking space dimensions and standards:***

- a. *Bicycle parking spaces must be at least six feet long and two feet wide, and in covered situations the overhead clearance must be at least seven feet.***

Response: The bike rack will be surface mounted in an area that is at least six feet long and two feet wide with no covered overhang.

- b. *An aisle a minimum of five feet wide must be provided for bicycle maneuvering.***

Response: The bicycle parking area has a parking aisle of five feet wide to provide bicycle maneuvering, as shown on Exhibit E.

- c. *Bicycle racks must hold bicycles securely by the frame and be securely anchored.***

Response: Two steel surface mounted racks will be securely anchored.

- d. *Hanging bicycle racks and/or enclosed, stackable bike lockers may be substituted for surface racks if comparable dimensions, maneuvering, and clearance are provided to the user.***

Response: No hanging bicycle racks, enclosed bicycle racks, or stackable bike lockers are proposed with this application.

e. Bicycle racks must accommodate both:

i. Locking the frame and one wheel to the rack with a high-security U-shaped shackle lock; and

Response: The circular bicycle rack will allow for the frame and one wheel of the bike to be locked with a high-security U-shaped shackle lock.

ii. Locking the frame and both wheels without removal of wheels to the rack with a chain or cable not longer than six feet.

Response: The circular bicycle rack will allow for the frame and both wheels of the bike to be locked with a chain or cable lock.

7. The minimum number of bicycle parking spaces listed in Table 1015-2, Minimum Required Bicycle Parking Spaces, are required. If a listed use is located within the Portland Metropolitan Urban Growth Boundary (UGB), it shall have a minimum of two bicycle parking spaces or the number required by Table 1015-2, whichever is greater.

Response: The project site is located within the Portland Metro UGB. Therefore, the applicant's plans provide two bike racks, with four bicycle parking spaces.

8. New multifamily residential, commercial, and institutional developments within the UGB shall designate short-term bicycle parking (less than four hours) and long-term bicycle parking (four or more hours) spaces as needed for the development.

Response: No multifamily residential or institutional development is proposed with this application. The project site and proposed commercial use will provide bicycle parking and anticipates that parking will be evenly split between short-term and long-term bicycle parking.

Table 1015-2: Minimum Required Bicycle Parking Spaces

Land Use Category	Minimum Bicycle Parking Spaces¹
Elementary Schools, Junior High Schools, Middle Schools, Senior High Schools, and Colleges (per classroom)	2 (maximum required spaces – 100)
Multifamily Dwellings (per dwelling unit)	0.5
Park-and-Ride Lots, Transit Centers, and Community Parks (per acre)	5
Preschools	4
Residential Care Facilities, Nursing Homes, and Hospitals (per 8 beds)	1
Retail and Commercial including offices and clinics	
Per 2,500 square feet, up to 50,000 square feet	1
Per each additional 5,000 square feet	1
Theaters, Places of Worship, Auditoriums, Dance Halls and other Public Assembly Places (per 40 seats or per 40 persons of design capacity, whichever is greater)	1
Warehouses and industrial buildings without attached offices, automotive service uses such as service stations and tire stores, and businesses selling large items such as major appliances, furniture, cars, or boats (per 10,000 square feet of building area)	1

1015.04 OFF-STREET LOADING STANDARDS

- A. No area shall be considered a loading berth unless it can be shown that the area is accessible and usable for that purpose, and has maneuvering area for vehicles.**

Response: The loading berth is located north of the building and drive-through aisles and will be accessed from the service crosswalk to the service entrance. The applicant anticipates this will provide easy maneuvering for vehicles.

- B. In cases of expansion of a building or use, that prior to the expansion, does not meet the minimum loading berth requirements in Table 1015-3, Minimum Required Off-Street Loading Berths, the following provisions shall apply:**

Response: The project site is currently vacant, with no existing building or use. Therefore, this provision and Subsection one (1) through two (2) do not apply.

C. In the event several uses occupy a single structure or parcel of land and share the same loading berths, the total requirement for off-street loading shall be reduced by up to 25 percent of the sum of the requirements of the several uses computed separately.

Response: The anticipates that each building will have its own loading berth and that this provision does not apply to Phase One.

D. The minimum off-street loading berths listed in Table 1015-3 are required.

Response: Pursuant to Table 1015-3 an off-street loading berth is not required. However, discussions with the county during the pre-application conference indicate the county considers this building to fall within the 5,000 square foot to 24,999 square foot category with a minimum required one loading berth. The applicant has therefore provided one loading berth north of the building and drive-through lanes. The loading berth will be a 35 foot long, 12-foot-wide area with no cover.

Land Use Category	Unit of Measurement	Number of Loading Berths	Minimum Required Dimension
Hospitals	Square feet of floor area		35 feet x 12 feet x 14 feet high
	Under 5,000	None	
	5,000 to 16,000	1	
	16,001 to 40,000	2	
	40,001 to 64,000	3	
	64,001 to 96,000	4	
	96,001 to 128,000	5	
	128,001 to 160,000	6	
	160,001 to 196,000	7	
	For each additional 36,000	1 additional berth	
Commercial Uses	Square feet of floor area		35 feet x 12 feet x 14 feet high
	Under 5,000	None	
	5,000 to 24,999	1	
	25,000 to 49,999	2	
	50,000 to 100,000	3	
	Each additional 50,000	1	

1021 Solid Waste and Recyclable Material Collection**1021.03 GENERAL STANDARDS**

- A. Pads: Compactors, containers, and drop boxes shall be located on a level Portland Cement concrete pad, a minimum four inches thick, at ground level or other location compatible with the local collection service franchisee's equipment at the time of construction. The pad shall be designed to discharge surface water runoff to avoid ponding.**

Response: Currently, architectural plans for the trash enclosure provide a perspective view only. The applicant anticipates trash receptacles and enclosure will be located on a level Portland Cement concrete pad, a minimum of four inches thick and designed to discharge surface water runoff to avoid ponding.

B. Recycling and Solid Waste Service Areas:

- 1. Recycling receptacles shall be designed and located to serve the collection requirements for the specific type of material.**

Response: The inclusion of a recycling receptacle is unknown at this time. The applicant anticipates that the county will note this requirement as a condition of approval.

- 2. Recycling service areas shall be located in close proximity to the solid waste container areas and be accessible to the local collection service franchisee's equipment.**

Response: The recycling service area is anticipated in the same enclosure as the solid waste container.

- 3. Recycling receptacles or shelters located outside a structure shall have lids and be covered by a roof constructed of water- and insect-resistive material.**

Response: The inclusion of a recycling receptacle is unknown at this time. The applicant anticipates that the county will note this requirement as a condition of approval.

- 4. The location of recycling service areas and method of storage shall be approved by the local fire marshal.**

Response: The recycling and solid waste receptacles will be stored in an enclosed area along the northern extent of the project site. Approval by the local fire marshal for the location of the recycling service area is anticipated during the county review process.

- 5. Recycling and solid waste service areas shall be at ground level and be accessible to the local collection service franchisee.**

Response: The recycling and solid waste receptacles will be stored at ground level and be accessible to the local collection service franchisee (Sunset Garbage Collection).

- 6. *Recycling and solid waste service areas shall be used only for storing solid waste and recyclable materials.***

Response: The recycling and solid waste receptacles will be exclusively used for storing solid waste and recyclable materials.

- 7. *Recycling and solid waste service areas and equipment shall be maintained in a clean and safe condition pursuant to Chapter 10.03, Solid Waste and Wastes Management, of the Clackamas County Code.***

Response: The applicant anticipates that recycling and solid waste service areas and equipment will be maintained in a clean and safe condition, consistent with Chapter 10.03 Solid Waste and Wastes Management, of the Clackamas County Code and Chick-fil-A's internal policies.

C. *Special Wastes or Recyclable Materials:*

- 1. *Hazardous wastes defined in Oregon Revised Statutes 466.005 shall be located, prepared, stored, maintained, collected, transported, and disposed in a manner acceptable to the Oregon Department of Environmental Quality.***

Response: If applicable, the applicant anticipates that hazardous wastes will be located, prepared, stored, collected, transported, and disposed of in a manner acceptable to the Oregon Department of Environmental Quality (DEQ).

- 2. *Containers used to store cooking oils, grease, or animal renderings for recycling or disposal shall not be located in the principal recyclable materials or solid waste storage areas. These materials shall be stored in a separate storage area designed for such purpose.***

Response: A sub-surface grease interceptor is proposed near the restaurant entrance and is noted on Sheet C5.0 as Construction Note 1.

1021.04 ENCLOSURE AND GATE STANDARDS

- A. *Gate Access: Gates shall be designed to permit sufficient service access for the local collection service franchisee's equipment and personnel.***

Response: The applicant anticipates the gate will be designed to permit sufficient service access for the local collection service franchisee's equipment and personnel.

- B. *Gate Swing: The gate swing shall be free of obstructions and have restrainers in the open and closed positions.***

Response: The applicant anticipates that the recycling and solid waste receptacle enclosure gate will be unobstructed and have restrainers in the open- and closed-door positions.

- C. *Bumper Curb: Enclosures constructed of wood or chain link fencing material shall contain a two- to four-inch high bumper curb at ground level located 12 inches inside the perimeter walls of the enclosure or fencing to prevent damage from container impacts.***

Response: The applicant anticipates that the recycling and solid waste receptacle enclosure will be designed with brick and metal coping. The location and height of the bumper curb is unknown at this time.

- D. *Bumper Rail: Enclosures constructed of concrete, brick, and masonry block or similar materials shall contain a bumper curb described in Subsection 1021.04(C) or a bumper rail to prevent damage from container impacts. The rail shall be secured by anchor bolts recessed in the rail within the perimeter walls of the enclosure at a height compatible with the receptacle.***

Response: The applicant anticipates that the recycling and solid waste receptacle enclosure will be designed with brick and metal coping. The location and height of the bumper curb is unknown at this time.

- E. *Obstructions and Accumulations: All areas around the receptacles shall be kept free of obstructions and accumulations of waste matter, grease, oil, water, and standing water.***

Response: The applicant anticipates that recycling and solid waste service areas and equipment will be maintained in a clean and safe condition, consistent with Chapter 10.03 Solid Waste and Wastes Management, of the Clackamas County Code and Chick-fil-A's internal policies. This includes keeping the area free of obstructions and accumulations of waste matter, grease, oil, and standing water.

1021.05 RECEPTACLE STANDARDS

- A. *Containers: Enclosures shall be designed consistent with the following standards:***

- 1. *Length and width of the service container.***

Response: The length and width of the service containers are shown on the architectural plans included with this application as Exhibit E.

- 2. *A minimum of two feet, including pad area, shall be provided around the sides and rear of each container.***

Response: The pad area provides a minimum of two feet between the sides and rear of each container. The dimensions of the concrete pad area are shown on the architectural plans included with this application as Exhibit E.

- 3. *A minimum three feet, including pad area, shall be provided in front of each container for maneuverability in depositing solid waste or recyclable materials. In cases where the containers face each other, a minimum four feet shall be provided.***

Response: The pad area provides a minimum of three feet in front of each container. The dimensions in front of the solid waste and recycling containers are shown on the architectural plans included with this application as Exhibit E.

- 4. Containers two cubic yards or less in size shall be provided with a minimum nine feet of unobstructed overhead or vertical clearance for servicing.**

Response: The recycling and solid waste receptacle will not have a roof and therefore, exceeds nine feet of unobstructed overhead or vertical clearance for servicing. The applicant does not anticipate any overhead power or telephone lines above the recycling and solid waste receptacle enclosure.

- 5. Containers greater than two cubic yards in size shall be provided with a minimum 20 feet of unobstructed overhead or vertical clearance for servicing.**

Response: The recycling and solid waste receptacle will not have a roof and therefore, exceeds nine feet of unobstructed overhead or vertical clearance for servicing. The applicant does not anticipate any overhead power or telephone lines above the recycling and solid waste receptacle enclosure.

B. Drop Boxes and Compactors:

Response: No drop boxes or compactors are included with this request. Therefore, this provision and Subsections one (1) through five (5) do not apply.

1021.06 VEHICLE ACCESS

- A. Vehicular access to the front of a container pad, shelter, or enclosure shall be a minimum of 45 feet long and a minimum of 12 feet wide.**

Response: Vehicular access will be from a drive aisle that exceeds the minimum 45-foot-long and 12-foot-wide minimum requirement to access the recycling and solid waste enclosure. The vehicular access area is noted on Sheet C2.0 of Exhibit D.

- B. Vehicular access to service a drop box or compactor shall include the pad length required in Subsection 1021.06(A) plus a minimum of 65 feet in front of the loading hook placement position.**

Response: No drop boxes or compactors are included with this request. Therefore, this provision and does not apply

- C. The vehicular access to a pad or enclosure shall be hard-surfaced consistent with the off-street parking provisions of Section 1015, Parking and Loading.**

Response: Vehicular access to the recycling and solid waste enclosure will be paved with concrete, consistent with this provision and Section 1015. The vehicular access area and surfacing is noted on Sheet C2.0 of Exhibit D.

- D. In the absence of an on-site through street or driveway, a cul-de-sac with a minimum 50-foot turning radius shall be provided for vehicle maneuvering at the end of a private dead-end street or driveway. A standard emergency services hammerhead turnaround, consistent with the County's standards for road improvements, may be granted in lieu of the cul-de-sac if the local fire district approves the design.***

Response: No dead-end streets or driveways are present on the project site. Access by emergency vehicles is provided through the site from SE Glencoe Road and from a service aisle to the north, connecting the project site to the adjacent property (Goodwill).

- E. The grade for access to the pad or enclosure shall not exceed three percent. Exceptions may be granted when compatible with the equipment manufacturer's specifications and consistent with Subsection 1021.08.***

Response: The applicant anticipates that the grade for access to the pad or enclosure will not exceed three percent.

1021.07 SIGNS

"No parking" signs shall be placed in a prominent location on the enclosure or shelter and painted on the pavement in front of the enclosure or shelter to provide unobstructed and safe access for servicing receptacles. Signs clearly identifying recycling containers and type of recyclable material shall be posted on each container.

Response: The applicant anticipates a "no parking" sign will be added to the trash and recycling receptacle enclosure, in accordance with this provision.

IV. Conclusion

As evidenced throughout this narrative and attached exhibits, the requested restaurant with drive-through lanes meets the governing approval criteria. Therefore, the applicant respectfully requests county approval of this request.

Exhibit A

Design Review Application Form



Planning and Zoning
Department of Transportation and Development
Development Services Building
150 Beavercreek Road | Oregon City, OR 97045
503-742-4500 | zoninginfo@clackamas.us
www.clackamas.us/planning

STAFF USE ONLY

Land use application for:

DESIGN REVIEW

Application Fee:

0.384% of construction cost, with \$785 minimum and \$36,835 maximum
(plus \$3,230 if Hydrogeologic Review is required)

Staff Initials:

File Number:

APPLICANT INFORMATION

Applicant name: Chick-fil-A. Inc. (represented by Steve Schwartz)	Applicant email: Steve.Schwartz@cfacorp.com	Applicant phone: 303.519.7206
Applicant mailing address: 15635 Alton Parkway, Suite 350	City: Irvine	State: CA ZIP: 92618
Contact person name (if other than applicant): 4G Development (represented by Andrew Hunt)	Contact person email: AHunt@4Gdev.com	Contact person phone: 760.214.8362
Contact person mailing address: PO Box 270571	City: San Diego	State: CA ZIP: 92198

PROPOSAL

Brief description of proposal: A new 4,995 sq. ft. restaurant with dual drive through lanes, out door canopies and indoor/outdoor seating service (Chick-fil-A)	Estimated construction cost: \$1,100,000	Pre-application conference file number: ZPAC0013-22
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SITE INFORMATION

Site address: SE 82nd Avenue and SE Glencoe Road (No assigned address)	Comprehensive Plan designation: Commercial	Zoning district: Corridor Commercial
Map and tax lot #: Township: 1 Range: 2E Section: 29DD Tax Lot: 100 Township: 1 Range: 2E Section: 29DD Tax Lot: 190 Township: Range: Section: Tax Lot:	Land area: 3.2 acres	
Adjacent properties under same ownership: Township: Range: Section: Tax Lot: Township: Range: Section: Tax Lot:		

Printed names of all property owners:

Glencoe Investments

Signatures of all property owners:

[Signature]

Date(s):

7/5/22

I hereby certify that the statements contained herein, along with the evidence submitted, are in all respects true and correct to the best of my knowledge.

Applicant signature:

Date:

A. Complete a pre-application conference:

You must attend a pre-application conference with Planning and Zoning staff before filing this application. [Information about the pre-application conference](#) process and a request form are available from the Planning and Zoning website.

B. Review applicable land use rules:

This application is subject to the provisions of [Section 1102, Design Review](#) of the [Clackamas County Zoning and Development Ordinance](#) (ZDO).

It is also subject to the ZDO's definitions, procedures, and other general provisions, as well as to the specific rules of the subject property's zoning district and applicable development standards, as outlined in the ZDO.

C. Turn in all of the following:

- ☐ **Complete application form:** Respond to all the questions and requests in this application, and make sure all owners of the subject property sign the first page of this application. Applications without the signatures of *all* property owners are incomplete.
- ☐ **Application fee:** The cost of this application is **0.384% of construction cost, with a \$785 minimum and \$36,835 maximum**. Payment can be made by cash, by check payable to "Clackamas County", or by credit/debit card with an additional card processing fee using the [Credit Card Authorization Form](#) available from the Planning and Zoning website. Payment is due when the application is submitted. Refer to the FAQs at the end of this form and to the adopted [Fee Schedule](#) for refund policies.
- ☐ **Narrative describing the proposed use and demonstrating compliance with ZDO Section 1000, Development Standards, and the standards of the applicable zoning district(s)**
- ☐ **Engineering geologic study**, if required pursuant to [ZDO Section 1002, Protection of Natural Features](#), or [1003, Hazards to Safety](#)
- ☐ **Preliminary statements of feasibility from service providers and a Site Evaluation or Authorization Notice from the [Septic & Onsite Wastewater Program](#)**, as applicable and if required pursuant to [ZDO Section 1006, Utilities, Street Lights, Water Supply, Sewage Disposal, Surface Water Management, and Erosion Control](#) (forms for preliminary statements of feasibility are available at the Planning and Zoning [website](#))
- ☐ **Transportation impact study**, if required pursuant to [ZDO Section 1007, Roads and Connectivity](#)
- ☐ **Lot size and density calculations** showing compliance with [ZDO Section 1012, Lot Size and Density](#), if applicable to the proposal
- ☐ **Vicinity map:** The map must show the location of the subject property in relation to adjacent properties, roads, bikeways, pedestrian access, utility access, and manmade or natural site features that cross the boundaries of the subject property.
- ☐ **Existing conditions map:** The map must be drawn to a scale of not less than one inch = 50 feet, and must show all of the following, as listed in [ZDO Subsection 1102.02\(G\)](#):
 - Contour lines at two-foot intervals for slopes of 20% or less within an urban growth boundary (UGB); contour lines at five-foot intervals for slopes exceeding 20% within a UGB; contour lines at 10-foot intervals outside a UGB; and the source of contour information;

- Slope analysis designating portions of the site according to the following slope ranges and identifying the total land area in each category: zero to 20%, greater than 20% to 35%, greater than 35% to 50%, and greater than 50%;
- Drainage;
- Potential hazards to safety, including areas identified as mass movement, flood, soil, or fire hazards pursuant to [ZDO Section 1003](#);
- Natural features, such as rivers, streams, wetlands, underground springs, wildlife habitat, earth mounds, and large rock outcroppings;
- Wooded areas, significant clumps or groves of trees, and specimen conifers, oaks, and other large deciduous trees (where the site is heavily wooded, an aerial photograph, at a scale of not more than 1 inch = 400 feet, may be submitted and only those trees that will be affected by the proposed development need be sited accurately);
- Overlay zoning districts regulated by [ZDO Section 700, Special Districts](#);
- Noise sources;
- Sun and wind exposure;
- Significant views;
- Structures, impervious surfaces, utilities, onsite wastewater treatment systems, landscaping, driveways and easements (e.g. access, utility, storm drainage), with notes as to whether these will remain or be removed, and with dimensions of driveways and easements; and
- All of the following that are on or adjacent to the subject property, including dimensions and, if applicable, names: existing roads, platted unconstructed roads, railroad rights-of-way, bikeways, curbs, sidewalks, pedestrian pathways, accessways and trails.



Proposed site plan: The map must be drawn to a scale of not less than one inch = 50 feet, and must show all of the following, as listed in [ZDO Subsection 1102.02\(H\)](#):

- The subject property, including contiguous property under the same ownership as the subject property, and adjacent properties;
- Property lines and dimensions for the subject property (indicate any proposed changes to these)
- Natural features to be retained;
- Location, dimensions, and names of all existing or platted roads or other public ways, easements, and railroad rights-of-way on or adjacent to the subject property;
- Location of at least one temporary benchmark and spot elevations;
- Location and dimensions of structures, impervious surfaces, and utilities, whether proposed or existing and intended to be retained (for phased developments, include future buildings);
- Approximate location and size of storm drainage facilities;
- Relation to transit; parking and loading areas, including dimensions and number of individual parking and load spaces and drive aisles; bicycle racks; walkways; and pedestrian crossings;
- Orientation of structures showing windows and doors;
- Location and type of lighting;
- Service areas for waste disposal, recycling, loading, and delivery;
- Location of mail boxes;
- Freestanding signs; and
- Pedestrian amenities.

Grading plan: The plan must be drawn to a scale of not less than one inch = 50 feet, and must show the location and extent of proposed grading, general contour lines, slope ratios, slope stabilization proposals, and natural resources protection consistent with ZDO Sections 1002 and 1003

Architectural drawings: The drawings must show all of the following, as listed in [ZDO Subsection 1102.02\(J\)](#):

- Building elevations, including any building signs, with identifications of the dimensions, area, color, materials, and means of illumination of such signs and also identifying and showing dimensions of any electronic message center or other changeable copy sign areas;
- Building sections;
- Floor plans;
- Color and type of building materials;
- Elevation of freestanding sign(s) identifying the dimensions (including total height and height between the bottom of the sign and the ground), area, color, materials, and means of illumination, and also identifying and showing dimensions of any electronic message center or other changeable copy sign areas; and
- Gross floor area, in square feet, of each structure; floor area ratio, if a minimum floor area ratio standard applies; and the number of dwellings.

General landscaping plan: The plan must be drawn to a scale of not less than one inch = 50 feet, and must show the elements required on the proposed site plan and all of the following, as listed in [ZDO Subsection 1102.02\(K\)](#):

- Existing plants and groups and plants proposed;
- Description of soil conditions; plans for soil treatment such as stockpiling of topsoil or addition of soil amendments; and plant selection requirements relating to soil conditions;
- Erosion controls, including plant materials and soil stabilization, if any;
- Irrigation systems;
- Landscape-related structures such as fences, terraces, decks, patios, shelters, and play areas; and
- Open space and recreational areas and facilities, if applicable.

Transportation improvement plan: The plan must include proposed cross-sections for roads to be constructed or improved, including widths of travel lanes, bikeways, sidewalks, curbs, pedestrian pathways, and landscape strips. Identify the proposed landscape plan for any landscape strips, including street tree types, size, and location, and identify any proposed dedication of right-of-way.

RCO District and PMU1 site master plan: If the proposed development is in the Regional Center Office (RCO) District or a Planned Mixed Use 1 (PMU1) site, include any master plan required by [ZDO Subsection 1102.03\(B\)](#).

OA District master plan: If the proposed development is in the Office Apartment (OA) District, include any master plan required by [ZDO Subsection 1102.03\(C\)](#).

Mobile vending unit narrative: If the proposed development is for a mobile vending unit that exceeds the standards for both a level two and a level three mobile vending unit, include a narrative explaining how the proposal complies with the standards in [ZDO Subsection 837.05](#).

Note: Pursuant to [ZDO Subsection 1307.07\(C\)\(2\)](#), the Planning Director or designee may modify the preceding list of submittal requirements. Please consult the information provided in your pre-application conference.

Exhibit B

Preliminary Statement(s) of Feasibility



**Planning and Zoning
Department of Transportation and Development**

Development Services Building
150 Beavercreek Road | Oregon City, OR 97045

503-742-4500 | zoninginfo@clackamas.us
www.clackamas.us/planning

PRELIMINARY STATEMENT OF FEASIBILITY

TO BE COMPLETED BY APPLICANT		
Applicant name:	Applicant email:	Applicant phone:
Project engineer:	Project engineer email:	Project engineer phone:
Site address:		
Map and tax lot #: Township: _____ Range: _____ Section: _____ Tax Lot: _____ Township: _____ Range: _____ Section: _____ Tax Lot: _____ Township: _____ Range: _____ Section: _____ Tax Lot: _____		

TO BE COMPLETED BY SERVICE PROVIDER / SURFACE WATER MANAGEMENT AUTHORITY	
Name of service provider / surface water management authority:	Name and title of authorized representative:
Representative email:	Representative phone:
Check all that apply: Water Service <input type="checkbox"/> Water service, <i>including fire flows</i> , is available in levels appropriate for the development and adequate water system capacity is available in source, supply, treatment, transmission, storage, and distribution, or such levels and capacity can be made available through improvements completed by the developer or the system owner. <input type="checkbox"/> Water service is adequate <i>with the exception of fire flows</i> . The applicant shall provide a statement from the fire district serving the subject property that states that an alternate method of fire protection, such as an on-site water source or sprinkler system, is acceptable. <input type="checkbox"/> Adequate water service <i>cannot</i> be provided. Sanitary Sewer Service <input type="checkbox"/> Sanitary sewer capacity in the wastewater treatment system and the sanitary sewage collection system is available to serve the development or can be made available through improvements completed by the developer or the system owner. <input type="checkbox"/> Adequate sanitary sewer service <i>cannot</i> be provided. Surface Water Management, Treatment, and Conveyance <input type="checkbox"/> Adequate surface water management, treatment, and conveyance is available to serve the development or can be made available through improvements completed by the developer or the system owner. <input type="checkbox"/> Adequate surface water management, treatment, and conveyance <i>cannot</i> be provided.	
Is this statement issued subject to any conditions of approval? <input type="checkbox"/> YES, and those conditions are attached. <input type="checkbox"/> NO	
Signature of authorized representative: <i>Betty A. Johnson</i>	Date of signature: 10-18-22

Attachment

County Preliminary Statement of Feasibility

To: Steve Schwartz, Chick-fil-A, Inc.

From: Betty Johnson

Date: October 10, 2022

Re: No Situs - 12E29DD00100 & 190

● Comments:

- A. *“Water service will be provided only from pipes or mains located within public street, alleys or rights-of-way, or within easements furnished to CRW, and to property or premises with frontage to such mains.... Each dwelling or building will be provided with its own water service connection and meter ...No person shall furnish water to other buildings or premises without the written approval of the Board, which may be granted in the sole discretion of the Board, and then only under the specific terms of an agreement approved by CRW”*
- B. Fire hydrant number and distribution shall be in accordance with the Oregon Fire Code C105.1
- C. Placement of fire hydrant systems shall be in accordance with the Oregon Fire Code 507.5.1
- D. Unless Noted on plans or specified otherwise, all construction and backflow devices are to be in accordance with the most recent version of Clackamas River Water standards and the Oregon Administration Rules (OAR), Chapter 333.
- E. All water facilities design, construction, testing and maintenance, where applicable, shall conform to the latest adopted revision of the Oregon state Health Division administrative Rules chapter 333 on Public water System except where provisions outlined in the Clackamas River Water rules and regulations.
- F. For design of District’s water system improvements, hydraulic system must be analyzed using the worst- case scenario envisioned in the district’s current Water System Facilities Plan. The water system analysis shall be conducted using a simultaneous demand for the maximum (peak) day demand or peak hour non-fire demand, whichever is greater, and the fire demand.
- G. Any substantial deviation from the approved construction plans must have prior approval of the Water District.
- H. Easements for water facilities shall be provided along property lines and designated on the final plat, as deemed necessary by the Water District.
- I. Resale of water purchased from the Water District will not be permitted. No user shall resell or permit resale of water directly to any person, or for any use.

- J. An approved water system capable of supplying required fire flow for fire protection shall be provided to all premises upon which buildings are to be constructed.
- K. If water service is adequate with the exception of fire flows, the applicant shall submit a statement to Clackamas River Water from the fire district serving the subject property that states that if and /or what alternate method of fire protection is acceptable.
- L. Upon plan review there may be additional requirements as set forth by the Water District.



**Planning and Zoning
Department of Transportation and Development**

Development Services Building
150 Beaver Creek Road | Oregon City, OR 97045
503-742-4500 | zoninginfo@clackamas.us
www.clackamas.us/planning

PRELIMINARY STATEMENT OF FEASIBILITY

TO BE COMPLETED BY APPLICANT		
Applicant name: Mike D. Towle, PE	Applicant email: MTOWLE@DOWL.COM	Applicant phone: 971.280.8645
Project engineer: Jenn L. Glueck, PE	Project engineer email: JGLUECK@DOWL.COM	Project engineer phone: 702.882.7602
Site address: Northeast corner of SE 82nd Avenue & SE Glencoe Road		
Map and tax lot #: Township: <u>1</u> Range: <u>2</u> Section: <u>29</u> Tax Lot: <u>12E29DD0</u> Township: <u>1</u> Range: <u>2</u> Section: <u>29</u> Tax Lot: <u>12E29DD0</u> Township: _____ Range: _____ Section: _____ Tax Lot: _____		

TO BE COMPLETED BY SERVICE PROVIDER / SURFACE WATER MANAGEMENT AUTHORITY	
Name of service provider / surface water management authority: Clackamas Water Environment Services	Name and title of authorized representative: Erik Bertram
Representative email: ebertram@clackamas.us	Representative phone:
Check all that apply: Water Service <input type="checkbox"/> Water service, <i>including fire flows</i> , is available in levels appropriate for the development and adequate water system capacity is available in source, supply, treatment, transmission, storage, and distribution, or such levels and capacity can be made available through improvements completed by the developer or the system owner. <input type="checkbox"/> Water service is adequate <i>with the exception of fire flows</i> . The applicant shall provide a statement from the fire district serving the subject property that states that an alternate method of fire protection, such as an on-site water source or sprinkler system, is acceptable. <input type="checkbox"/> Adequate water service <i>cannot</i> be provided. Sanitary Sewer Service <input checked="" type="checkbox"/> Sanitary sewer capacity in the wastewater treatment system and the sanitary sewage collection system is available to serve the development or can be made available through improvements completed by the developer or the system owner. <input type="checkbox"/> Adequate sanitary sewer service <i>cannot</i> be provided. Surface Water Management, Treatment, and Conveyance <input checked="" type="checkbox"/> Adequate surface water management, treatment, and conveyance is available to serve the development or can be made available through improvements completed by the developer or the system owner. <input type="checkbox"/> Adequate surface water management, treatment, and conveyance <i>cannot</i> be provided. <div style="float: right; font-size: small;"><p>1. Prior to WES plan approval, onsite infiltration testing results will be required.</p><p>2. Prior to WES plan approval, applicant to provide ODOT approval for discharge to storm line in SE 82nd Ave.</p><p>3. Due to downstream capacity limitations, additional flow control requirements will apply.</p></div>	
Is this statement issued subject to any conditions of approval? <div style="text-align: center;"><input checked="" type="checkbox"/> YES, and those conditions are attached. <input type="checkbox"/> NO</div>	
Signature of authorized representative: Erik Bertram <div style="text-align: center; font-size: x-small;">Digitally signed by Erik Bertram Date: 2022.06.23 11:07:12 -07'00'</div>	Date of signature:

Clackamas Fire District #1



Pre-Application Comments:

To: Anthony Riederer, Clackamas County

From: Alex McGladrey, Deputy Fire Marshal, Clackamas Fire District #1

Date: 2/3/2022

Re: ZPAC0013-22, Chick-Fil-A at 12E29DD00190 (NWC of SE 82nd Ave and Glencoe)

This review is based upon the current version of the Oregon Fire Code (OFC), as adopted by the Oregon State Fire Marshal's Office. The scope of review is typically limited to fire apparatus access and water supply, although the applicant must comply with all applicable OFC requirements. When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access and water supply may be modified as approved by the fire code official. The following items should be addressed by the applicant:

A Fire Access and Water Supply plan for subdivisions and commercial buildings over 1000 square feet in size or when required by Clackamas Fire District #1. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, and type of construction. The applicant shall provide fire flow tests per NFPA 291, and shall be no older than 12 months. Work to be completed by experienced and responsible persons and coordinated with the local water authority.

Submit Fire access/water supply site plan via CFD1 website <https://clackamasfire.com/access-and-water-supply-plan-review-submittal/>

COMMENTS:

Fire Department Apparatus Access

- 1) Provide address numbering that is clearly visible from the street and in a location first responders are most likely to see it once on site.
- 2) Fire apparatus access roads must be within 150' of all portions of a building.
- 3) Fire apparatus access roads shall have an unobstructed driving surface width of not less than 20 feet (26 feet adjacent to a fire hydrant) and an unobstructed vertical clearance of 13 feet 6 inches.
- 4) The inside turning radius and outside turning radius for a 20' wide road shall be not less than 28 feet and 48 feet respectively, measured from the same center point. This applies throughout site.

Water Supply

- 1) The minimum flow and duration for buildings other than one and two-family dwellings shall be determined according to OFC Appendix B. The required fire flow for a building shall not exceed the available GPM in the water delivery system at 20 psi.
 - a. It is the contractor's and designer's responsibility to ensure adequate fire flow is met.
Contact the local water authority for assistance.
- 2) Where a portion of the structure is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants shall be provided.
 - a. This distance may be increased to 600 feet when an approved NFPA 13 fire protection system is installed.
- 3) Fire department connections shall be located within 100 feet of a fire hydrant or in an approved location. FDC's shall be remote from building.
 - a. All FDC's shall be labeled appropriately to which the building that it serves.
- 4) The minimum number and distribution of fire hydrants shall in be in accordance with Table C105.1.
- 5) If private fire hydrants are required, all private fire hydrants to be painted red.
- 6) Prior to the start of combustible construction fire hydrants shall be operational and accessible.
 - a. All fire lines shall be flushed cleaned and witnesses by the Building Department and Clackamas Fire District #1.
- 7) The applicant must obtain a stamp of approval from Clackamas Fire District #1 indicating all access and water supply requirements have been met.

If you have any questions, Please contact me at 503-742-2662 or alex.mcgladrey@clackamasfire.com

Link to Fire Code Application Guide and Fire Flow/Hydrant Worksheet:

<https://clackamasfire.com/fire-prevention/new-construction-resources/>

the work standards that must be followed, maintenance responsibilities, and compliance with ORS 276.071, which includes State of Oregon prevailing wage requirements.

Note: If a CIA is required, it may take up to **6 months** to process.

- ☒ The applicant must obtain an ODOT permit to place trees in the state right of way. Tree spacing and design must be consistent with the ODOT Highway Design Manual section 4.2.6 (http://www.oregon.gov/ODOT/Engineering/Documents_RoadwayEng/HDM_04-Cross-Sections.pdf).

If proposed tree placement deviate from ODOT standards (such as placement in a planter strip), a Design Exception Request for clear zone must be prepared by a licensed engineer for review by ODOT Technical Services. Preparation of a Design Exception request does not guarantee its ultimate approval.

Note: It may take up to **3 months** to process a Design Exception.

- ☒ An ODOT Miscellaneous Permit is required for connection to state highway drainage facilities. Connection will only be considered if the site's drainage naturally enters ODOT right of way. The applicant must provide ODOT District with a preliminary drainage plan showing impacts to the highway right of way.

A drainage study prepared by an Oregon Registered Professional Engineer is usually required by ODOT if:

1. Total peak runoff entering the highway right of way is greater than 1.77 cubic feet per second; or
2. The improvements create an increase of the impervious surface area greater than 10,758 square feet.

Please send a copy of the Land Use Notice including conditions of approval to:

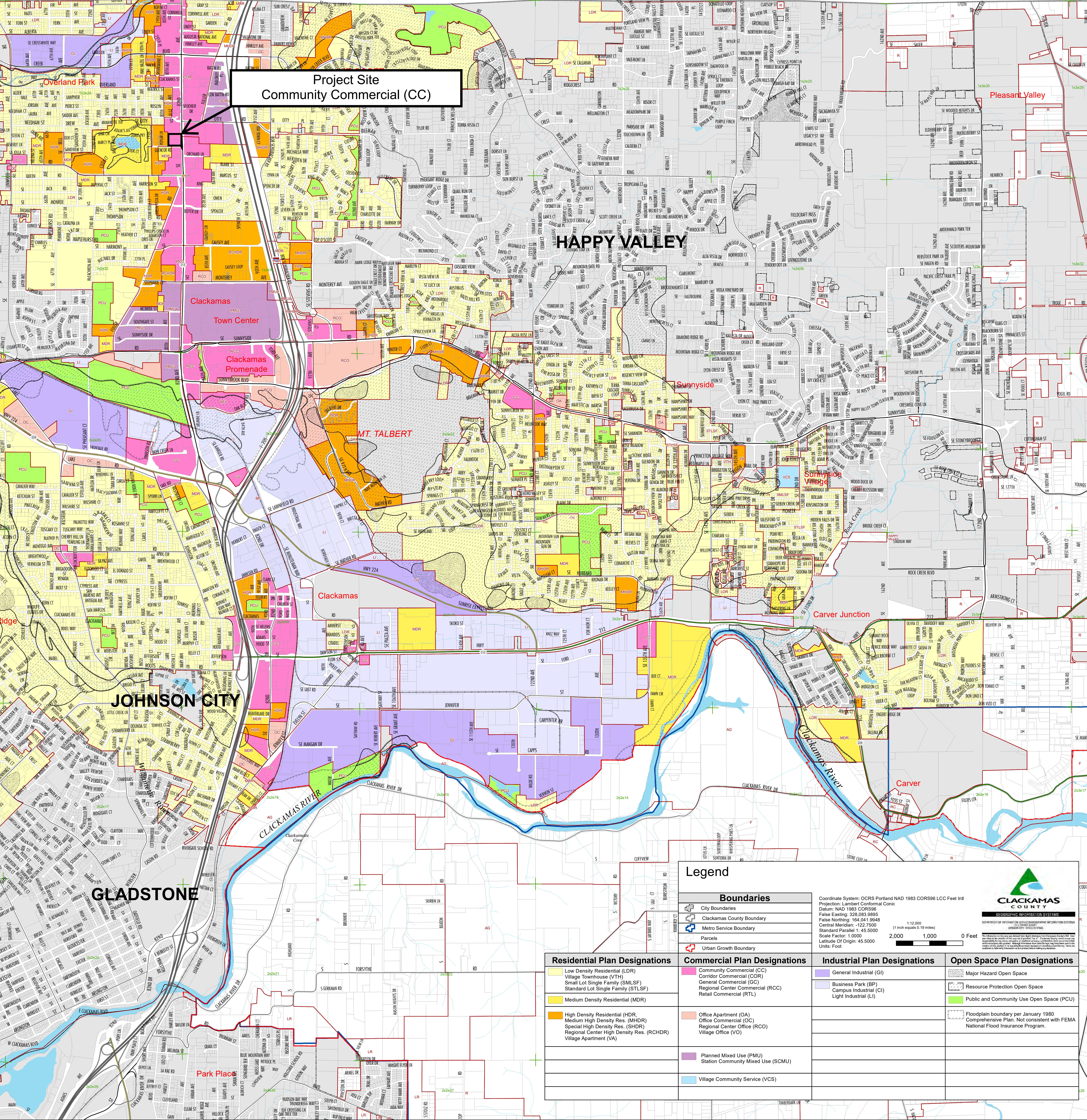
ODOT Region 1 Planning
Development Review
123 NW Flanders St
Portland, OR 97209

ODOT_R1_DevRev@odot.oregon.gov

Development Review Planner: Marah Danielson	503.731.8258, marah.b.danielson@odot.oregon.gov
Traffic Contact: Avi Tayar, P.E.	503.731.8221 Abraham.TAYAR@odot.oregon.gov
District Contact: District 2B	D2bup@odot.state.or.us

Exhibit C

Zoning and Comprehensive Plan Map



Project Site
Community Commercial (CC)

HAPPY VALLEY

Pleasant Valley

Clackamas
Town Center

Clackamas
Promenade

MT. TALBERT

Clackamas

Sunnyside

Carver Junction

Carver

JOHNSON CITY

GLADSTONE

Legend

Boundaries	
	City Boundaries
	Clackamas County Boundary
	Metro Service Boundary
Parcels	
	Urban Growth Boundary

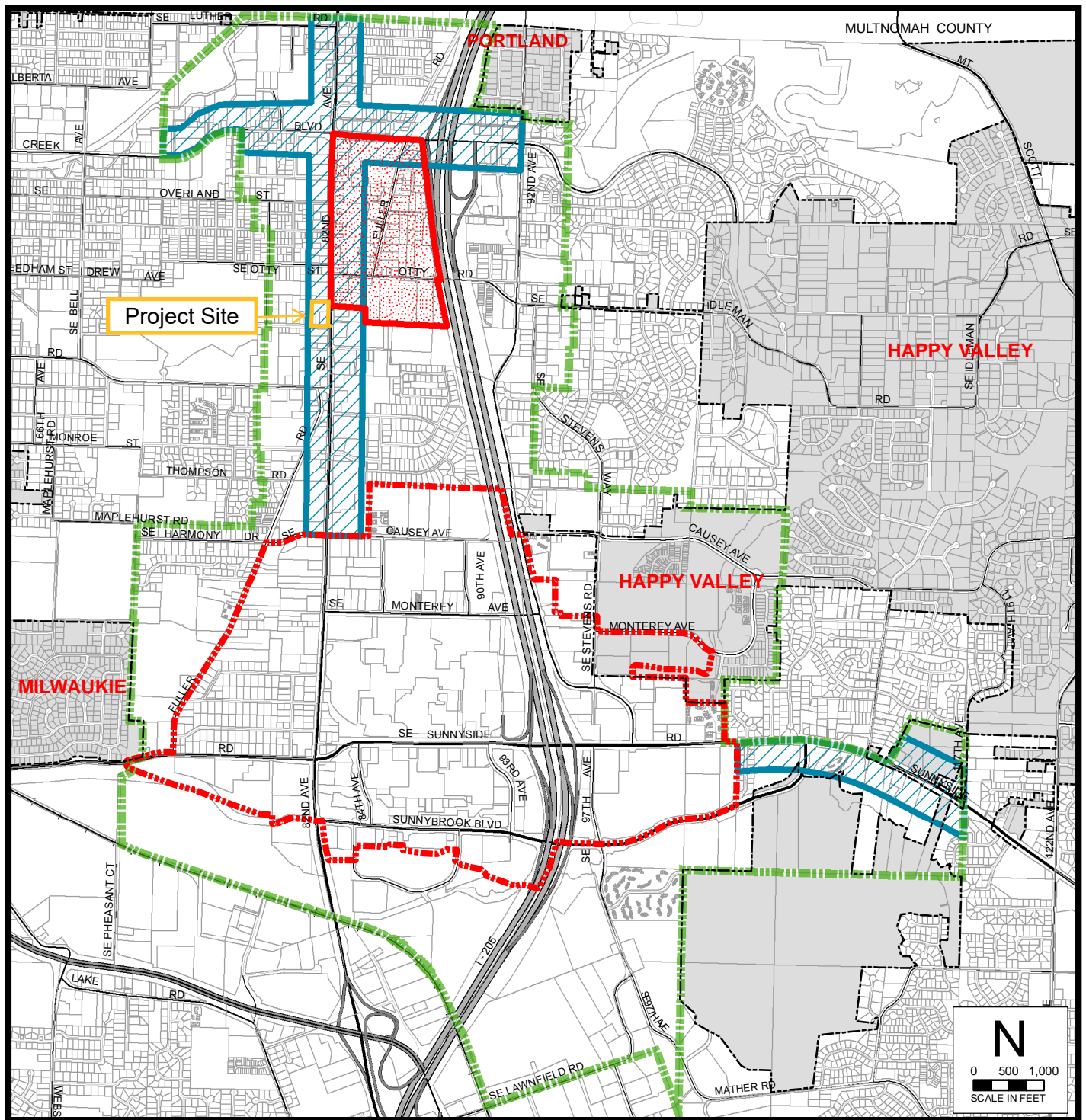
Coordinate System: OCRS Portland NAD 1983 CORS96 LCC Feet Intl
Projection: Lambert Conformal Conic
Datum: NAD 1983 CORS96
False Easting: 328,083.985
False Northing: 164,041.9948
Central Meridian: -122.7500
Standard Parallel 1: 45.5000
Scale Factor: 1.0000
Latitude Of Origin: 45.5000
Units: Foot

1:12,000
(1 inch equals 0.19 miles)

2,000 1,000 0 Feet



Residential Plan Designations	Commercial Plan Designations	Industrial Plan Designations	Open Space Plan Designations
<ul style="list-style-type: none">Low Density Residential (LDR)Village Townhouse (VTH)Small Lot Single Family (SMLSF)Standard Lot Single Family (STLSF)Medium Density Residential (MDR)High Density Residential (HDR)Medium High Density Res. (MHDR)Special High Density Res. (SHDR)Regional Center High Density Res. (RCHDR)Village Apartment (VA)	<ul style="list-style-type: none">Community Commercial (CC)Corridor Commercial (CC)General Commercial (GCC)Regional Center Commercial (RCC)Retail Commercial (RTL)Office Apartment (OA)Office Commercial (OC)Regional Office (RO)Village Office (VO)Planned Mixed Use (PMU)Station Community Mixed Use (SCMU)Village Community Service (VCS)	<ul style="list-style-type: none">General Industrial (GI)Business Park (BP)Campus Industrial (CI)Light Industrial (LI)	<ul style="list-style-type: none">Major Hazard Open SpaceResource Protection Open SpacePublic and Community Use Open Space (PCU)Floodplain boundary per January 1980 Comprehensive Plan. Not consistent with FEMA National Flood Insurance Program.



Clackamas Regional Center Area Design Plan

Regional Center, Corridors, and Station Community


Clackamas County Comprehensive Plan

Map 10-CRC-1

Last Amended February 11, 2013

2040 DESIGN TYPES

 Regional Center

 Clackamas Regional Center Area



Station Community



Corridor



Incorporated City



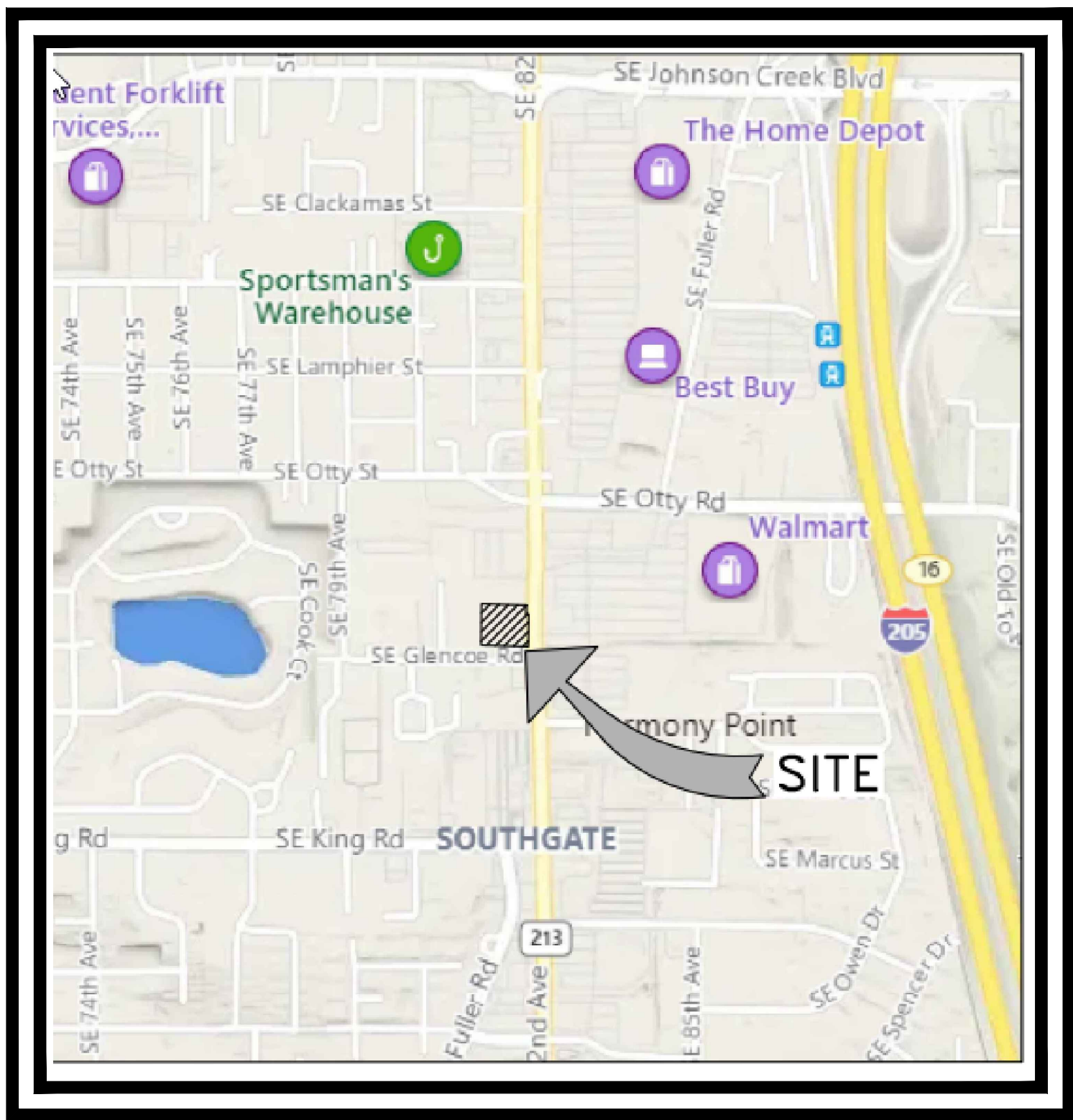
Department of Transportation & Development
150 Beaver Creek Rd. Oregon City, OR 97045

Exhibit D

Civil Plan Set

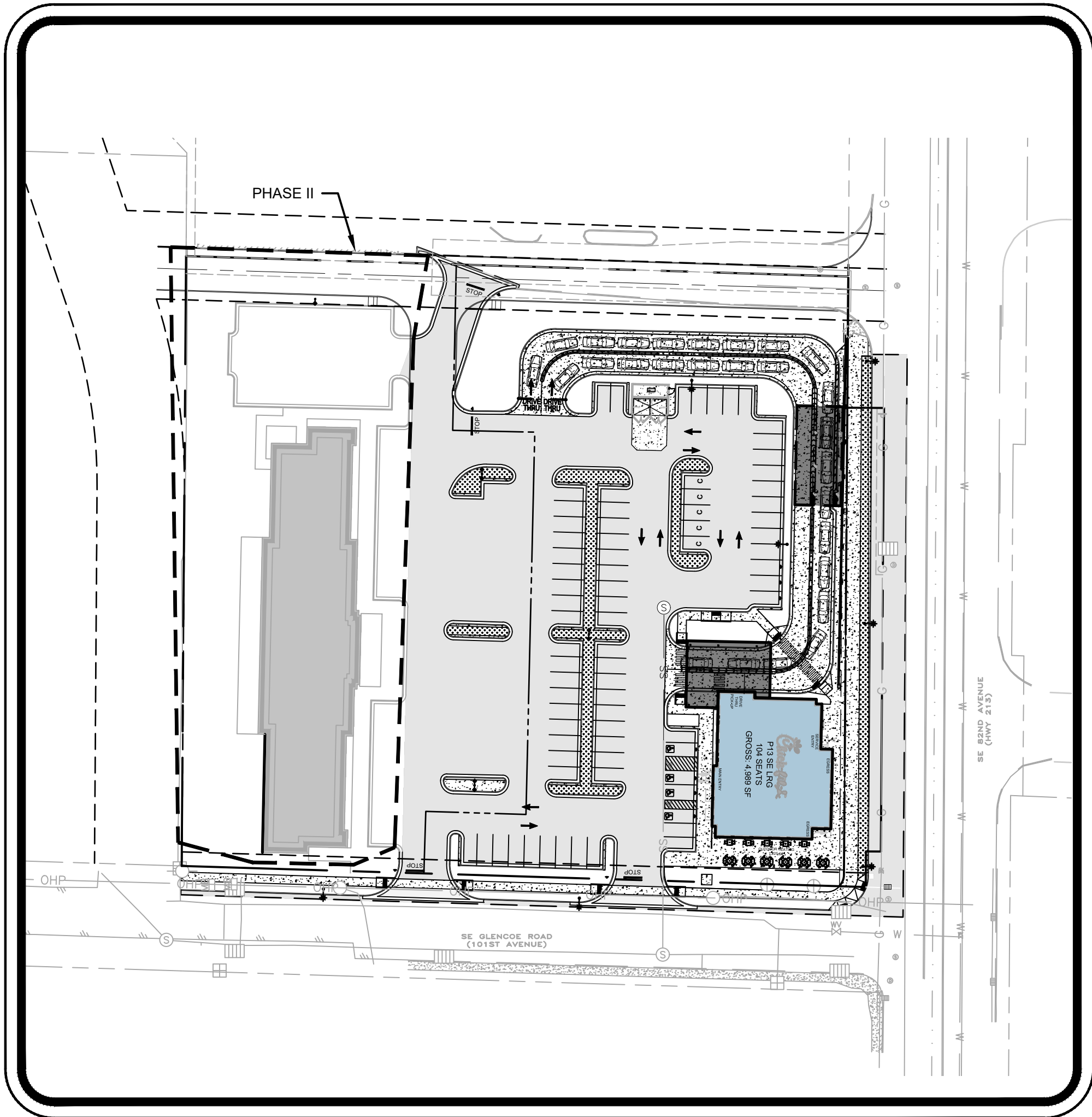
CFA #05098- SE 82nd & GLENCOE ROAD

SE 82nd STREET & SE GLENCOE ROAD
PORTLAND, OR 97086
LAND USE DOCUMENTS



VICINITY MAP

SCALE: NTS



SITE MAP

SCALE: 1" = 60'



SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C0.0	COVER SHEET
C1.0	EXISTING CONDITIONS
C2.0	SITE PLAN
C3.0	GRADING PLAN
C4.0	STORM PLAN
C5.0	UTILITY PLAN
C5.1	FIRE SERVICE PLAN
L1.0	PLANTING PLAN
L1.1	PLANTING LEGENDS
1 OF 1	PHOTOMETRIC PLAN

SITE LOCATION & DESCRIPTION

SOUTHEAST 1/4 OF SECTION 29, TOWNSHIP 1 SOUTH RANGE 2 EAST, WILLAMETTE MERIDIAN, IN THE CITY OF HAPPY VALLEY, CLACKAMAS COUNTY, OREGON. THE SITE IS LOCATED ON THE NORTHEAST CORNER OF SE 82ND AVENUE AND SE GLENCOE ROAD AND IS DESIGNATED WITH TAX LOTS NUMBERS 12E29DD00100 AND 12E29DD00190.

A PROPOSED RESTAURANT WITH A CONCRETE DRIVE-THRU IS BEING PROPOSED ON A SITE WITH A TOTAL APPROXIMATE AREA OF 3.20 ACRES. THERE WILL BE TWO PHASES FOR THIS PROJECT; PHASE I WILL INCLUDE A 4,989 SF BUILDING FOOTPRINT FOR THE PROPOSED RESTAURANT TO BE LOCATED ON THE SOUTHEAST CORNER OF THE SITE AND PHASE II WILL BE PROPOSED ON THE WESTERN PORTION OF THE SITE WITH WORK BEING DONE BY OTHERS. PHASE I WILL INCLUDE MAJORITY OF THE ASPHALT-PAVED PARKING LOT ON THE SITE (NO STRIPING WILL BE PROVIDED ON THE LOT FOR PHASE II) AND UNDERGROUND UTILITIES FOR STORM, SANITARY, WATER, POWER, GAS, AND COMMUNICATIONS. A STORMWATER LIDA FACILITY IS ALSO BEING PROPOSED FOR TREATMENT AND DETENTION.

BASIS OF BEARING

BEARINGS BASED ON OREGON COORDINATE REFERENCE SYSTEM PORTLAND ZONE

DATUM

NORTH AMERICAN DATUM OF NAD83/2011 (EPOCH 2010.0000)

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF HAPPY VALLEY DESIGN STANDARDS AND STANDARD CONSTRUCTION SPECIFICATIONS.

PROJECT TEAM

DEVELOPER

CHICK-FIL-A
ATTN: STEVE SCHWARTZ
15635 ALTON PARKWAY, SUITE 350
IRVINE, CALIFORNIA 92618
PHONE: (404) 305-4407
STEVE.SCHWARTZ@CFACORP.COM

ARCHITECT

WARE MALCOMB
ATTN: NONY RIVERA
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NRIVERA@WAREMALCOMB.COM

CIVIL ENGINEER

DOWL
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PHONE: (971) 280-8645
MTOWLE@DOWL.COM

GEOTECHNICAL ENGINEER

TERRACON CONSULTANTS
ATTN: KRISTOPHER T. HAUCK, PE
700 NE 55TH AVE
PORTLAND, OREGON 97213
PHONE: (503) 742-7181
KRISTHPHER.HAUCK@TERRACON.COM

SURVEY

S&F LAND SERVICES
ATTN: CHRIS SHERBY, PLS
4858 SW SCHOLLS FERRY RD, STE 'A'
PORTLAND, OREGON 97225
PHONE: (503) 345-0328
JERED.MCGRATH@SFLANDS.COM

LANDSCAPE ARCHITECT

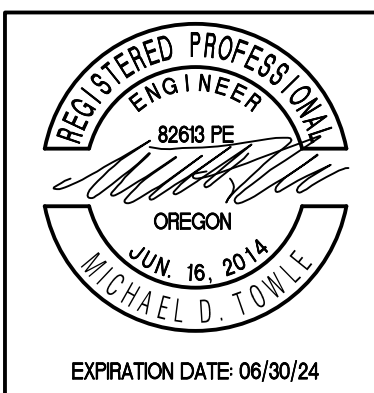
DOWL
ATTN: WAYNE IAZZETTI, RLA
720 SW WASHINGTON AVE, SUITE 750
PORTLAND, OREGON 97205
PHONE: (971) 280-8656
WIAZZETTI@DOWL.COM



Chick-fil-A
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Atlanta, Georgia
30349-2998



309 SW 6TH AVENUE, #700
PORTLAND, OREGON 97204
971-280-8641



CHICK-FIL-A
GLENCOE & 82ND
PORTLAND, OREGON

FSR# 05098

REVISION SCHEDULE
NO. DATE DESCRIPTION

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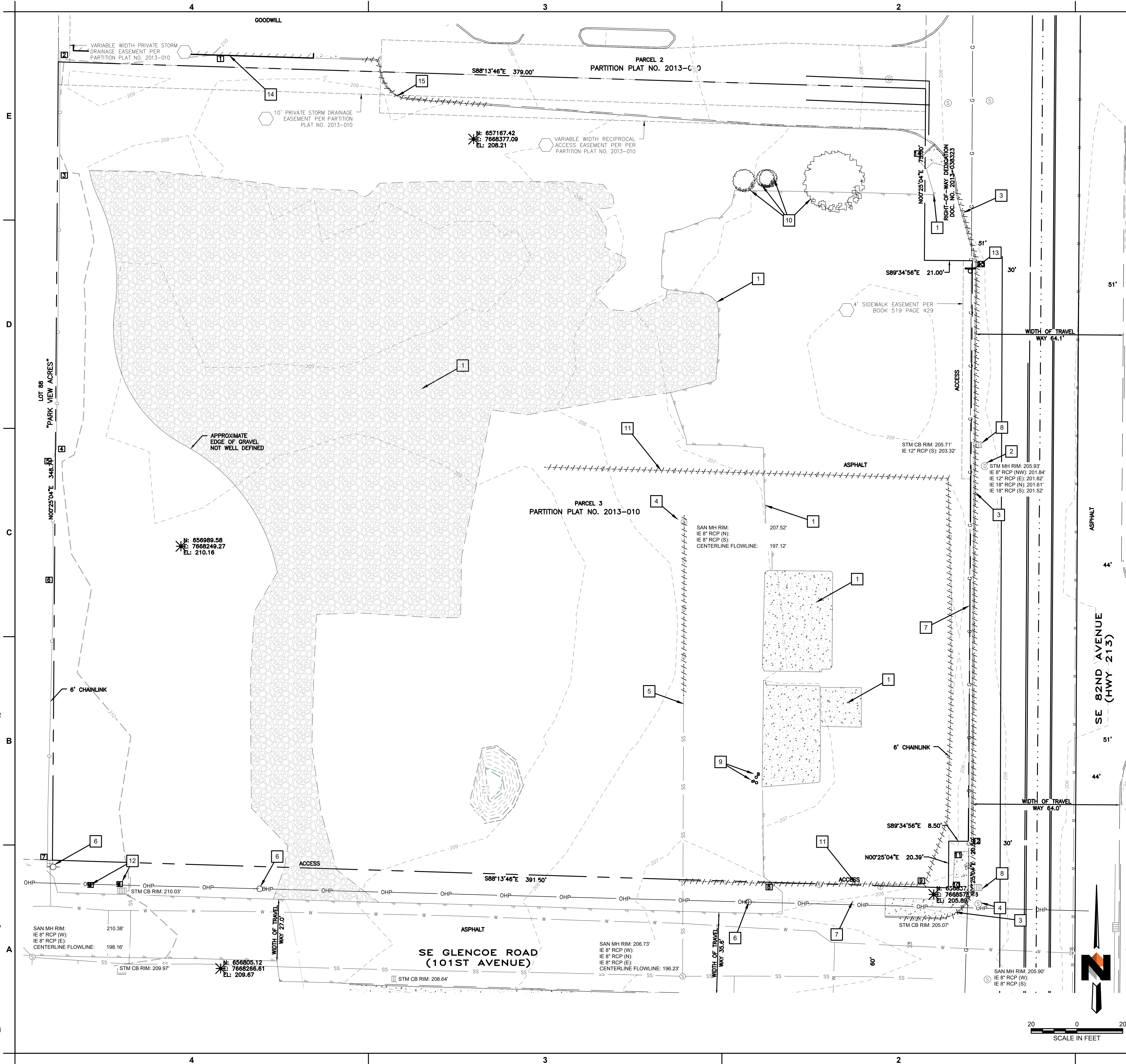
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COVER SHEET

SHEET NUMBER

C0.0

c:\dowl_p\dwg\0398603\SC-CS-EX-14836.dwg PLOT DATE 2022-11-4 13:28 SAVED DATE 2022-11-04 12:36 USER: jglueck



LEGEND

	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING PROPERTY LINE
	ROW CENTERLINE
	EDGE OF ROW
	EXISTING EASEMENT
	EXISTING SECTION LINE
	EXISTING EDGE OF CONCRETE
	EXISTING EDGE OF GRAVEL
	EXISTING FENCE
	EXISTING WATER LINE
	EXISTING STORM LINE
	EXISTING SANITARY SEWER LINE
	EXISTING ELECTRIC LINE
	EXISTING GAS LINE
	EXISTING TELEPHONE LINE
	EXISTING OVERHEAD POWER LINE
	EXISTING CURB AND GUTTER LINE
	PROPOSED DEMOLITION AREA
	EXISTING BUILDING
	EXISTING CONCRETE
	EXISTING GRAVEL

	FOUND MONUMENT - IRON PIPE
	FOUND MONUMENT - IRON ROD
	EXISTING MAILBOX
	EXISTING BOLLARD
	FENCE GATE POST
	TREE
	EXISTING POWER POLE
	SANITARY SEWER MANHOLE
	STORM CATCHBASIN
	STORM MANHOLE
	EXISTING WATER METER
	EXISTING WATER VALVE
	EXISTING GAS VALVE
	EXISTING SIGN
	LIGHT POST

GENERAL NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITY FACILITIES SHOWN HEREON ARE BASED ON LOCATE MARKS REQUESTED FOR THIS SURVEY PER ONE CALL PUBLIC LOCATE TICKET 21307327. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES BY THE RESPECTIVE UTILITY OWNERS, NOR FOR THE EXISTENCE OF BURIED OBJECTS WHICH ARE NOT SHOWN ON THE PLAN. ALL UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
2. FIELD WORK WAS COMPLETED ON NOVEMBER 10, 2021. STORM DRAINAGE AND SANITARY SEWER PIPE SIZES WERE OBSERVED FROM THE SURFACE WHERE VISIBLE. SIZES MAY VARY. REFER TO CITY OF SALEM PROVIDED PLANS OR CONTRACTOR TO VERIFY.
3. EASEMENTS SHOWN HEREON WERE PROVIDED BY FIRST AMERICAN TITLE INSURANCE CO. COMMITMENT NCS-1090997-SD DATED SEPTEMBER 24, 2021
4. THIS DOES NOT REPRESENT A BOUNDARY SURVEY UNDER ORS 209.250. PRELIMINARY SURVEY INVESTIGATION MAY HAVE DETERMINED THE LOCATION OF RECORD BOUNDARY LINES AS THEY FIT UPON FOUND AND SHOWN MONUMENTS.

DEMOLITION NOTES

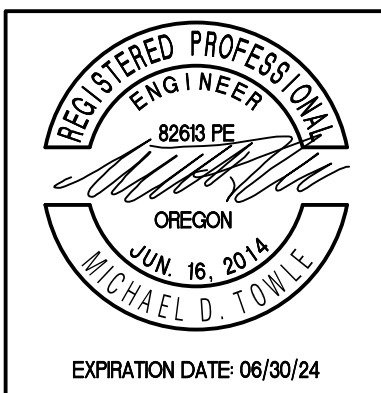
1. EXISTING PAVING CONCRETE AND ASSOCIATED FILL TO BE REMOVED
2. EXISTING STORMWATER MANHOLE TO BE PROTECTED AND ADJUSTED TO FINISH GRADE
3. EXISTING CURBS TO BE REMOVED
4. EXISTING SANITARY MANHOLE TO BE REMOVED WITH EXISTING SANITARY LINE TO BE REMOVED UP TO PROPOSED CONNECTION. ASSOCIATED SANITARY SEWER EASEMENT WITH DOCUMENT 1973-0793 TO BE QUITCLAIMED.
5. EXISTING SANITARY LINE TO BE PROTECTED UP TO LOCATION OF NEW CONNECTION
6. EXISTING UTILITY POLE TO BE PROTECTED
7. EXISTING UTILITY LINE TO BE PROTECTED
8. EXISTING CATCH BASIN AND ASSOCIATED STORM LINE TO BE RELOCATED TO NEW CURBLINE
9. EXISTING BOLLARDS TO BE REMOVED
10. REMOVE EXISTING TREES
11. REMOVE EXISTING FENCE AND GATE
12. REMOVE EXISTING MAILBOXES
13. RELOCATE SIGNAGE TO NEW CURB LINE
14. PROTECT STRUCTURE IN ADJACENT LOT
15. REMOVE EXISTING CURB LINE ALONG DEMOLITION AREA SHOWN ON PLANS. REMOVE ASSOCIATED LANDSCAPING, SHRUBS, AND TREES.



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5200 Buffington Road
Atlanta, Georgia
30349-2998



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PORTLAND, OREGON

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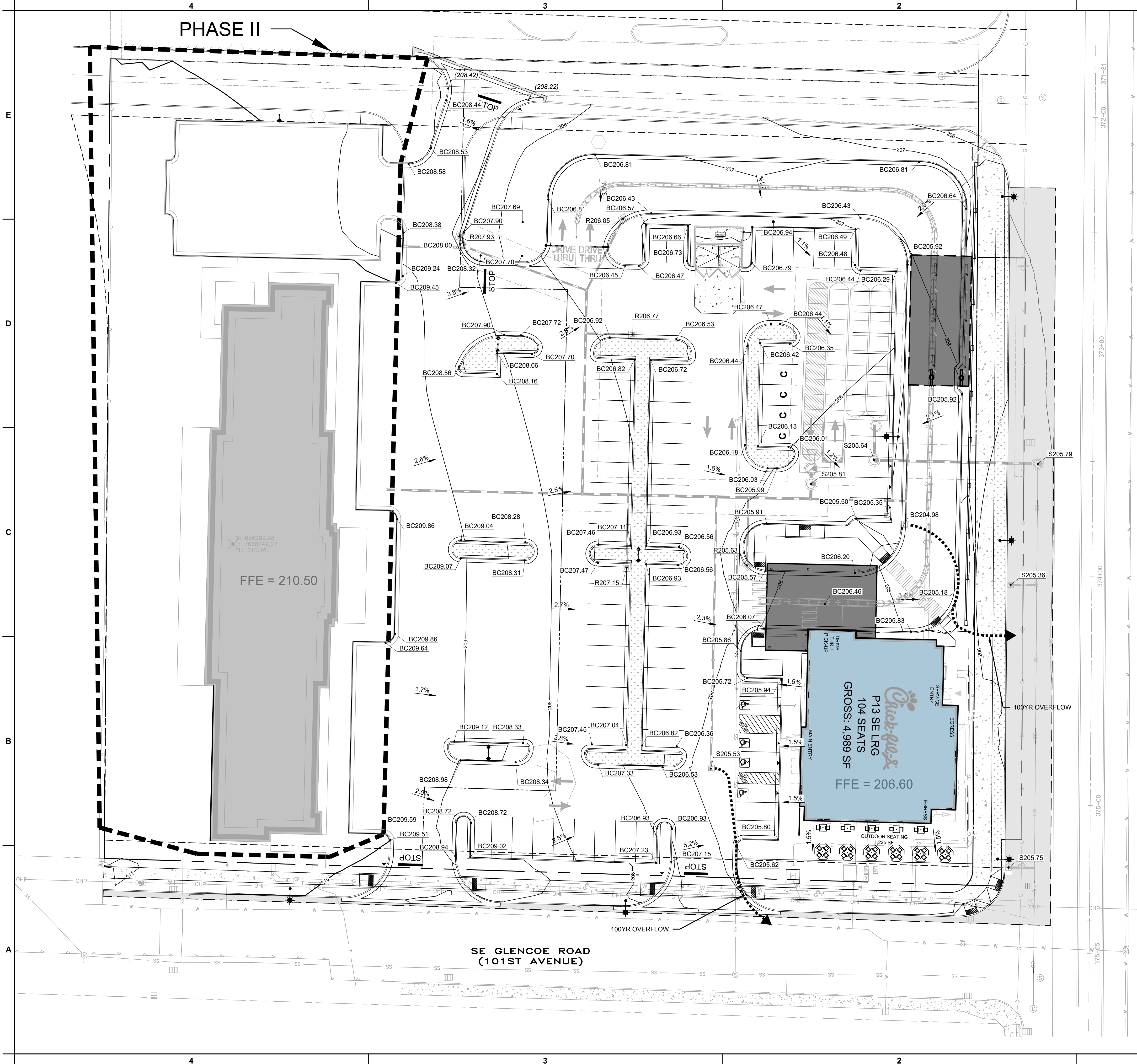
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DESCRIPTION	

CIVIL'S PROJECT #	14836.01
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EXISTING CONDITIONS
SHEET NUMBER

C1.0

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LEGEND

---	BOUNDARY LINE
---	BUILDING
---	EASEMENT
---	PROPOSED MAJOR CONTOUR LINE
---	PROPOSED MINOR CONTOUR LINE
---	EXISTING MAJOR CONTOUR LINE
---	EXISTING MINOR CONTOUR LINE
---	PROPOSED GRADE BREAK
---	PROPOSED SPOT ELEVATION PER ABBREVIATION TABLE BELOW
11.90	
•	SANITARY SEWER CLEANOUT
•	STORM SEWER CLEANOUT
■	STORM CATCH BASIN

ABBREVIATION TABLE

BC:	BOTTOM OF CURB ELEVATION
BW:	BOTTOM OF WALL
FFE:	FINISH FLOOR ELEVATION
S:	SPOT ELEVATION
TC:	TOP OF CURB ELEVATION
TW:	TOP OF WALL

GENERAL NOTES:

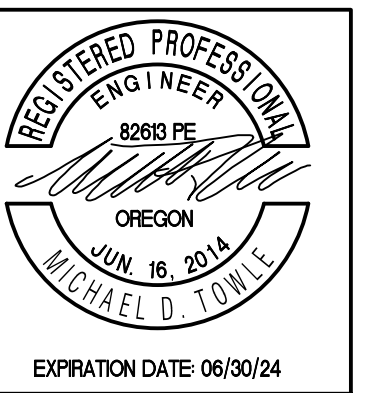
- PAVEMENT IN ADA PARKING AREA TO HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
- ALL CURBS HAVE 6" EXPOSURE UNLESS OTHERWISE NOTED.



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SHEET
GRADING PLAN

SHEET NUMBER

C3.0

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LEGEND

	PROPOSED PROPERTY LINE
	PROPOSED GAS LINE
	PROPOSED SANITARY SEWER LINE
	PROPOSED STORM DRAIN LINE
	PROPOSED DOMESTIC WATER LINE
	PROPOSED FIRE WATER LINE
	PROPOSED POWER(ELECTRIC) LINE
	PROPOSED COMMUNICATIONS LINE
	EXISTING POWER, GAS AND PHONE IN SHARED TRENCH
	PROPOSED FIRE DEPARTMENT CONNECTION
	PROPOSED HYDRANT
	PROPOSED WATER METER
	PROPOSED WATER VALVE
	PROPOSED DCDA
	PROPOSED SANITARY SEWER CLEAN OUT
	PROPOSED STORM SEWER CATCH BASIN
	PROPOSED STORM SEWER CLEAN OUT

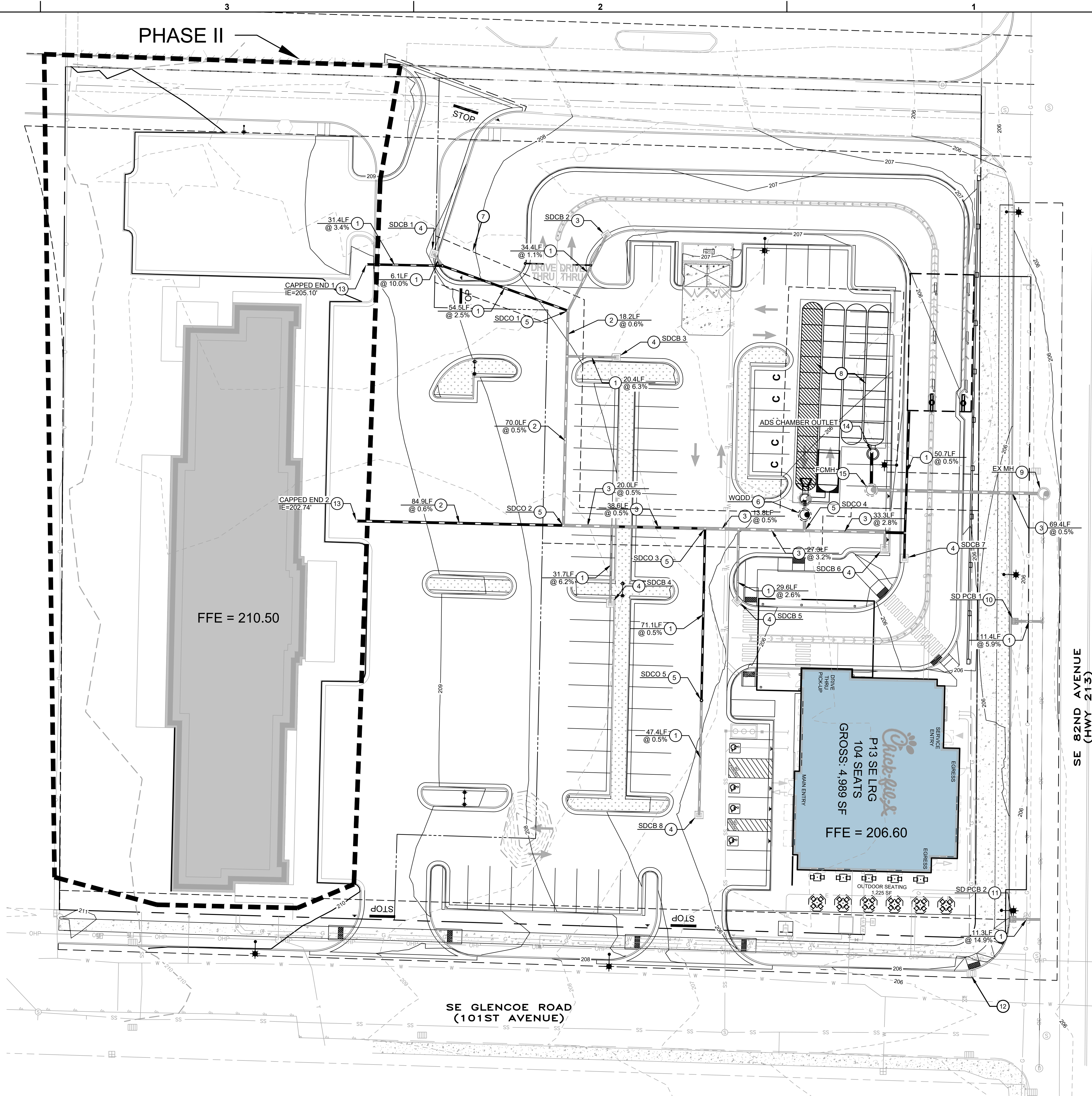
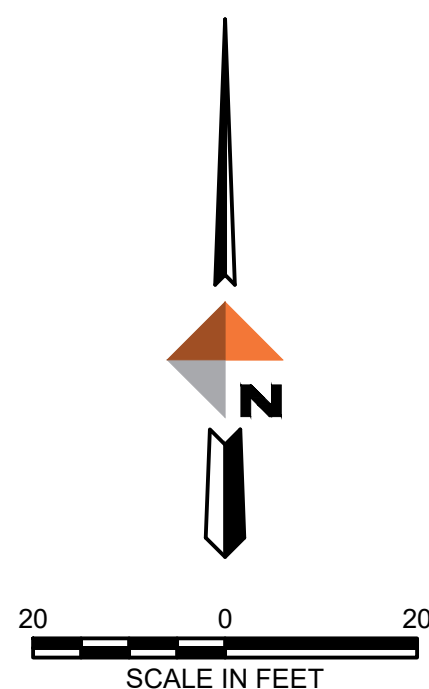
GENERAL NOTES

- ALL STORMWATER WORK ON 82ND AVENUE WILL BE PART OF A SEPARATE ODOT PERMIT.

STORMWATER KEYNOTES

- PROPOSED 8-INCH PVC D3034 PIPE.
- PROPOSED 10-INCH PVC D3034 PIPE.
- PROPOSED 12-INCH PVC D3034 PIPE.
- PROPOSED TRAPPED STYLE CATCH BASIN.
- PROPOSED STORM CLEANOUT, WITH A MINIMUM 90' SPACING.
- PROPOSED 48" DOWNSTREAM DEFENDER MANHOLE.
- PROPOSED 15' WIDE STORM EASEMENT.
- ADS MC-7200 UNDERGROUND CHAMBERS.
- PROPOSED CONNECTION TO EXISTING STORM DRAIN MANHOLE ON SE 82ND AVENUE, UNDER SEPARATE ODOT PERMIT.
- PROPOSED CATCH BASIN, RELOCATED TO NEW CURB LINE AND LOW POINT ALONG SE 82ND AVENUE. IMPROVEMENTS UNDER SEPARATE ODOT PERMIT. SEE KEYNOTE FOR ASSOCIATED PIPE TO CONNECT TO EXISTING STORM MAIN.
- PROPOSED CATCH BASIN, RELOCATED TO NEW CURB LINE. LOCATE THE BASIN AWAY FROM NEW ADA RAMPS. IMPROVEMENTS UNDER SEPARATE ODOT PERMIT. SEE KEYNOTE FOR ASSOCIATED PIPE TO CONNECT TO EXISTING STORM MAIN.
- PROTECT EXISTING CATCH BASIN
- STORMWATER LINE TO BE CAPPED FOR FUTURE DEVELOPMENT. INSTALL CLEANOUT AND MARK W/A 2"x4".
- CONTRACTOR TO CONNECT PROPOSED STORM CONVEYANCE PIPING TO ADS MC-7200 MANIFOLD.
- PROPOSED FLOW CONTROL MANHOLE

CATCH BASIN DATA	CATCH BASIN DATA	MANHOLE DATA
SD PCB 1 RIM: 203.71 IE IN (8"E) = 200.71	SDCB 4 RIM: 207.15 IE OUT (8"N) = 204.08	ADS CHAMBER INLET RIM: 205.86 IE IN (12"S) = 201.95
SD PCB 2 RIM: 205.75 IE OUT (8"E) = 202.75	SDCB 5 RIM: 205.63 IE OUT (8"N) = 202.63	EX MH RIM: 205.79 IE IN (12"W) = 201.60
SDCB 1 RIM: 207.93 IE OUT (8"SE) = 204.64	SDCB 6 RIM: 205.38 IE OUT (8"N) = 202.40	FCMH RIM: 205.64 IE IN (12"N) = 201.95 IE OUT (12"E) = 201.95
SDCB 2 RIM: 206.05 IE OUT (8"SW) = 203.05	SDCB 7 RIM: 205.01 IE OUT (8"N) = 201.84	WQDD RIM: 205.81 IE IN (12"S) = 200.97 IE OUT (12"N) = 201.97
SDCB 3 RIM: 206.77 IE OUT (8"W) = 203.84	SDCB 8 RIM: 205.53 IE OUT (8"N) = 202.53	



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PORTLAND, OREGON

FSR# 05098

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NO.	DATE
DESCRIPTION	

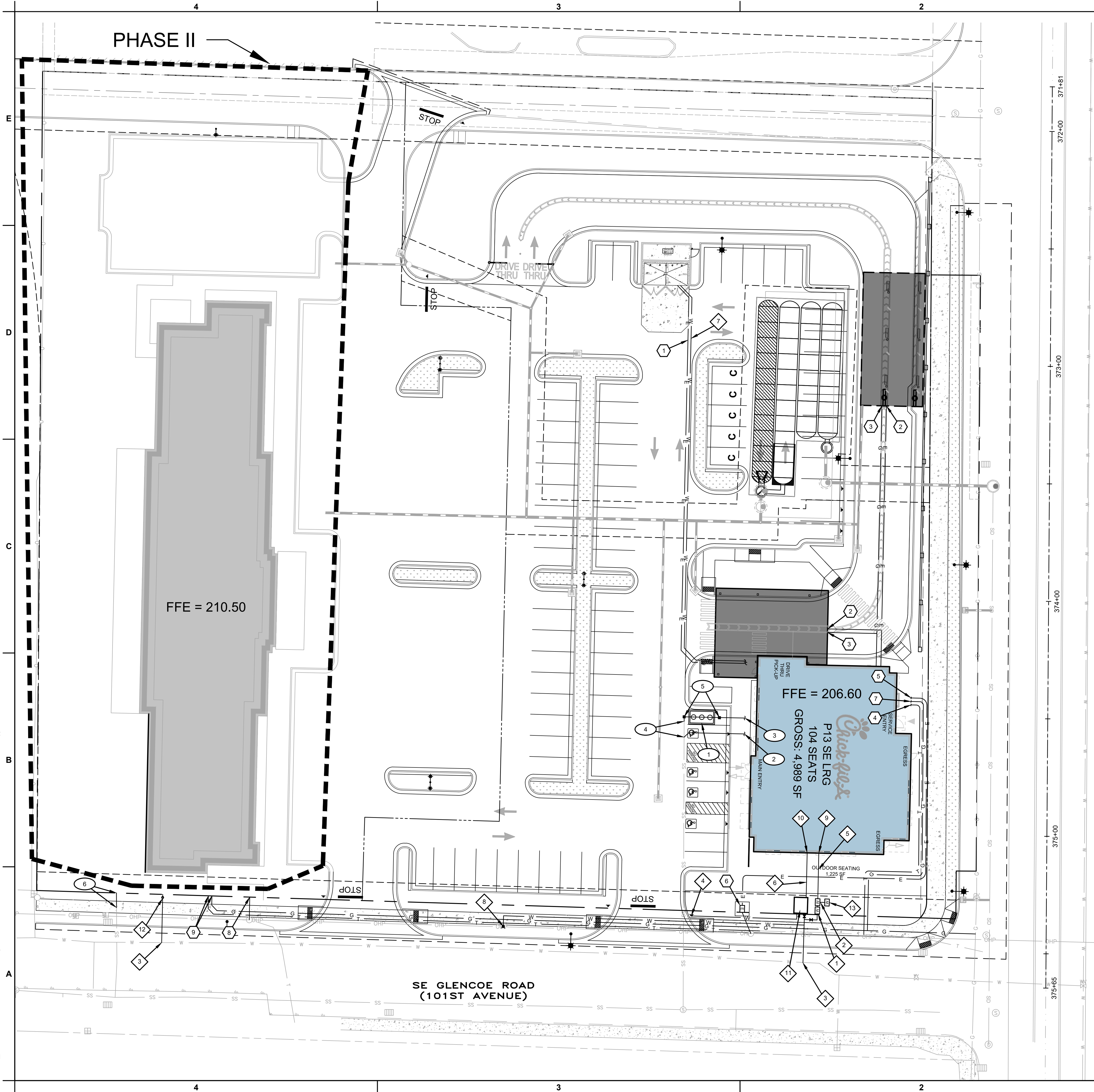
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SHEET	
STORM PLAN	
SHEET NUMBER	

C4.0

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LEGEND

---	PROPOSED PROPERTY LINE
---	PROPOSED GAS LINE
---	PROPOSED SANITARY SEWER LINE
---	PROPOSED STORM DRAIN LINE
---	PROPOSED DOMESTIC WATER LINE
---	PROPOSED FIRE WATER LINE
---	PROPOSED POWER(ELECTRIC) LINE
---	PROPOSED COMMUNICATIONS LINE
---	EXISTING POWER, GAS AND PHONE IN SHARED TRENCH
---	PROPOSED FIRE DEPARTMENT CONNECTION
WM	PROPOSED HYDRANT
WM	PROPOSED WATER METER
WM	PROPOSED WATER VALVE
DC	PROPOSED DCDA
•	PROPOSED SANITARY SEWER CLEAN OUT
•	PROPOSED STORM SEWER CATCH BASIN
•	PROPOSED STORM SEWER CLEAN OUT

WATER CONSTRUCTION NOTES

1. PROPOSED 6" DOMESTIC WATER METER.
2. PROPOSED 2" DOMESTIC BACKFLOW PREVENTION.
3. PROPOSED CONNECTION TO WATER MAIN WITH 8"x6" REDUCER HOT TAP.
4. PROPOSED FDC.
5. PROPOSED 2" DOMESTIC WATER SERVICE LINE.
6. PROPOSED 6" FIRE WATER LINE.
7. PROPOSED 2" WATER SERVICE LINE TO TRASH ENCLOSURE.
8. PROPOSED FIRE HYDRANT.
9. PROPOSED DOMESTIC WATER CONNECTION TO BUILDING.
10. PROPOSED FIRE WATER CONNECTION TO BUILDING.
11. PROPOSED 6" DCDA IN 687 VAULT.
12. PROPOSED 8" WATER LINE.
13. PROPOSED IRRIGATION BACKFLOW.

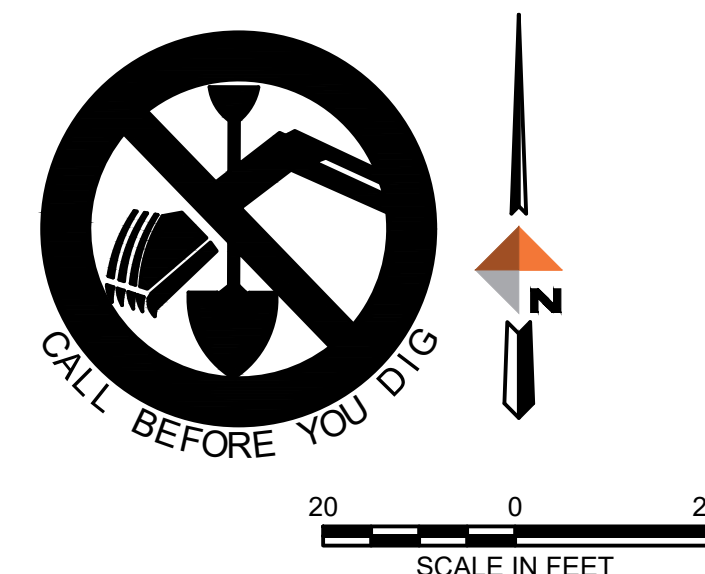
SANITARY SEWER CONSTRUCTION NOTES

1. PROPOSED 1500 GALLON GREASE INTERCEPTOR.
2. PROPOSED 4" SANITARY STUB 5' FROM BUILDING.
3. PROPOSED 4" GREASE LINE STUB 5' FROM BUILDING.
4. PROPOSED CONNECTION TO EXISTING PRIVATE SEWER MAIN.
5. PROPOSED SANITARY SEWER CLEAN OUT (TYPICAL).
6. PROPOSED 8" SANITARY SEWER LINE STUBBED AT PROPERTY LINE TO CONNECT TO EXISTING STUB ON GLENCOE.

FRANCHISE UTILITY CONSTRUCTION NOTES

1. PROPOSED POWER SERVICE TO TRASH ENCLOSURE.
2. PROPOSED POWER SERVICE TO CANOPY.
3. PROPOSED GAS SERVICE TO CANOPY.
4. PROPOSED COMMUNICATION SERVICE LINE TO BUILDING.
5. PROPOSED POWER SERVICE TO BUILDING.
6. PROPOSED ELECTRICAL TRANSFORMER.
7. PROPOSED GAS SERVICE TO BUILDING.
8. PROPOSED ELECTRICAL STUBBED AT PROPERTY LINE
9. PROPOSED GAS AND COMMUNICATION STUBBED AT PROPERTY LINE

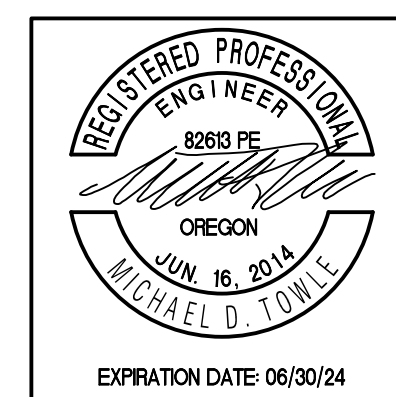
OREGON UTILITY
NOTIFICATION CENTER
1-800-332-2344



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GLENCOE & 82ND
PORTLAND, OREGON

FSR# 05098

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1	05/13/2022

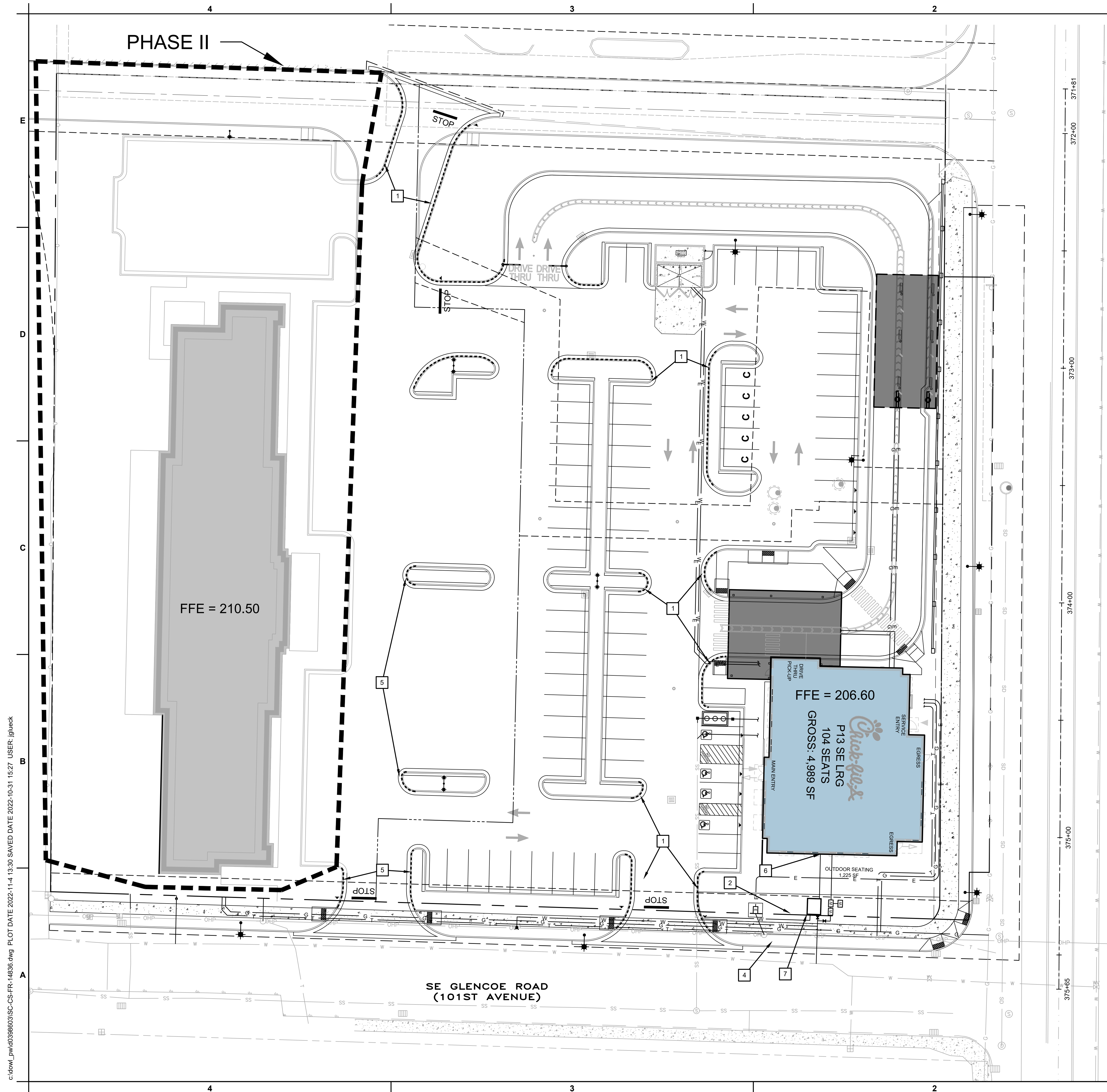
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UTILITY PLAN

SHEET NUMBER

C5.0

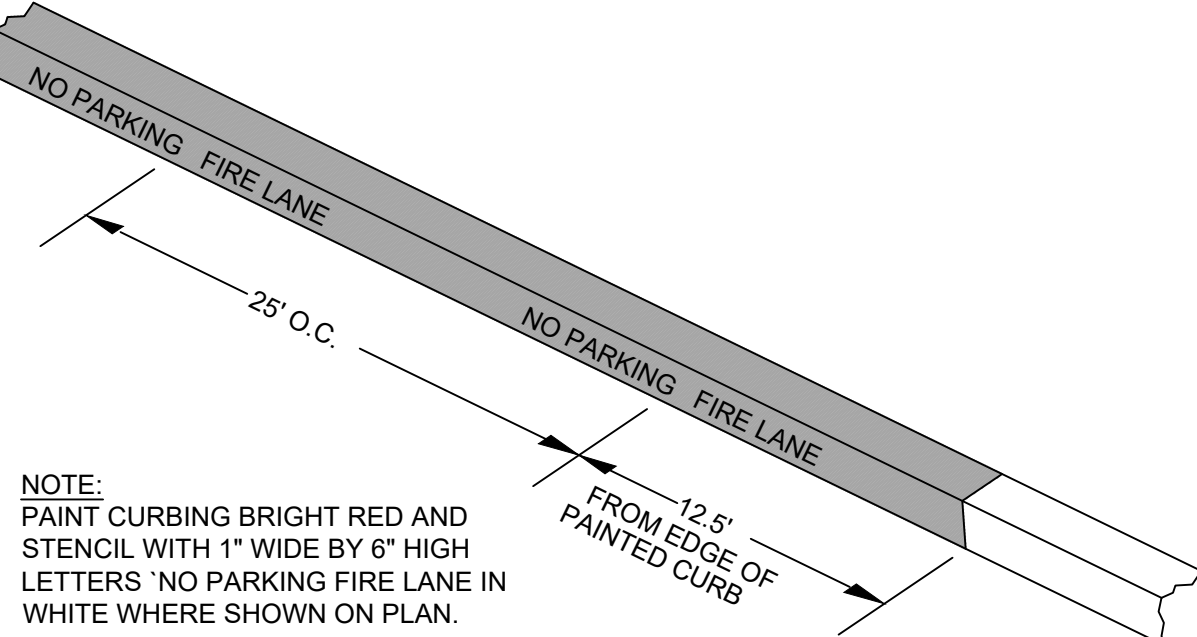


LEGEND	
	PROPOSED PROPERTY LINE
	PROPOSED GAS LINE
	PROPOSED SANITARY SEWER LINE
	PROPOSED DOMESTIC WATER LINE
	PROPOSED FIRE WATER LINE
	PROPOSED POWER(ELECTRIC) LINE
	PROPOSED COMMUNICATIONS LINE
	PROPOSED FIRE DEPARTMENT CONNECTION
	PROPOSED HYDRANT
	PROPOSED WATER METER
	PROPOSED WATER VALVE
	PROPOSED DCDA
	PROPOSED SANITARY SEWER CLEAN OUT
	PROPOSED STORM SEWER CATCH BASIN
	PROPOSED STORM SEWER CLEAN OUT

BUILDING DATA			
BUILDING	SQUARE FOOTAGE	# OF FLOORS	CONST. TYPE
CHICK-FIL-A	4,989 SQ FT	1	V-B

- ## CONSTRUCTION NOTES
- | | |
|---|--|
| 1 | PROPOSED 'NO PARKING FIRE LANE' PAINTED CURB PER
DETAIL ON THIS SHEET |
| 2 | PROPOSED FDC. |
| 3 | PROPOSED 6" FIRE WATER LINE. |
| 4 | PROPOSED FIRE HYDRANT. |
| 5 | PROPOSED 'NO PARKING FIRE LANE' PAINTED CURB FOR FUTURE
DEVELOPMENT TO THE WEST |
| 6 | PROPOSED FIRE WATER CONNECTION TO BUILDING. |
| 7 | PROPOSED 6" DCDA IN 687 VAULT. |

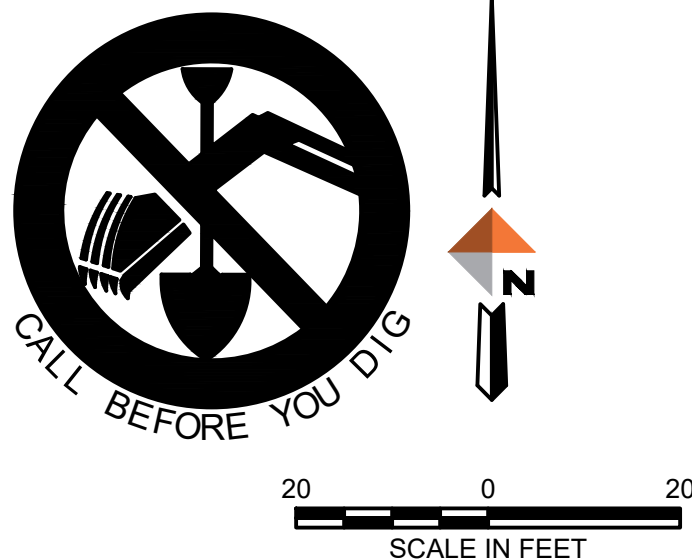
HYDRANT FLOW TEST DATA		FIRE FLOW CALCULATIONS	
HYDRANT DATA PROVIDED BY: _____		FIRE FLOW CALCULATIONS PER OREGON FIRE CODE APPENDIX B (TABLE B105.2)	
_____ PENDING HYDRANT FLOW TEST			
STATIC PRESSURE	* PSI	DURATION	2 HR
RESIDUAL PRESSURE	* PSI	REQUIRED FLOW	2,000 GPM
TOTAL TEST FLOW-RATE	* GPM	SPRINKLER REDUCTION	50%
AVAILABLE FLOW @ 20 PSI	* GPM	MIN. REQUIRED FLOW	1,500 GPM



NO PARKING FIRE LANE PAINTED CURB DETAIL

NOT TO SCALE

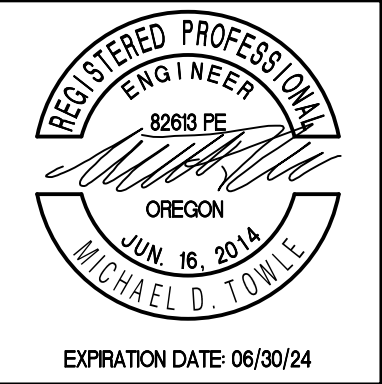
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DOWL

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FSR# 05098

<u>REVISION SCHEDULE</u>	
<u>NO.</u>	<u>DATE</u>
	<u>DESCRIPTION</u>

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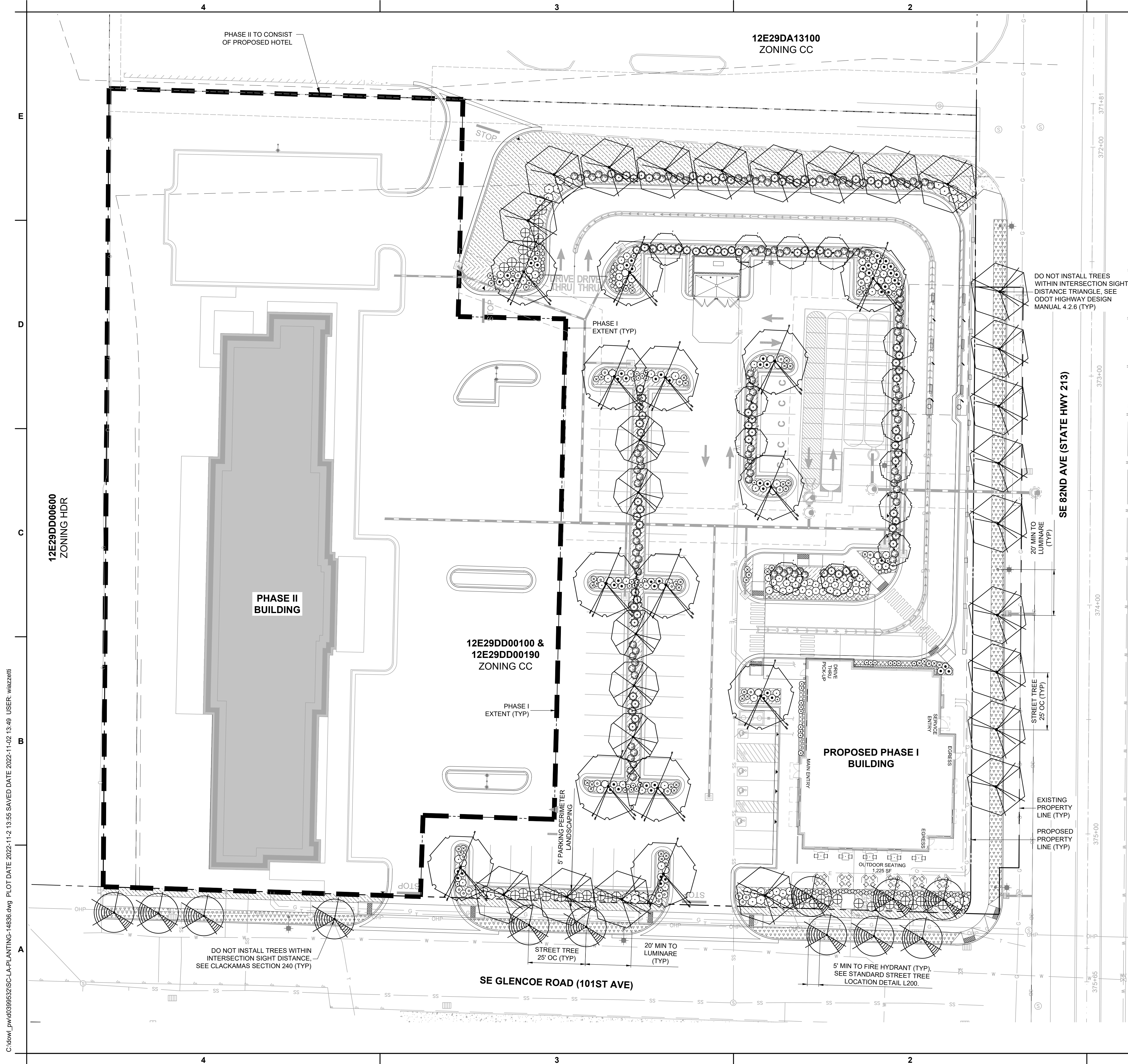
SHEET

FIRE SERVICE PLAN

SHEET NUMBER

C5.1

C:\dowl_p\dwg\039532\SC-LA-PLANTING-14836.dwg PLOT DATE 2022-11-2 13:55 SAVED DATE 2022-11-02 13:49 USER: wiazzett



LEGEND

---	BOUNDARY LINE
---	BUILDING
---	EASEMENT
---	CURB & GUTTER

LANDSCAPE CODE SUMMARY

NET AREA: 12E29DD00100 & 12E29DD00190 = 132,117 SF
PHASE I NET AREA = 69,238 SF

DEVELOPMENT STANDARDS: CLACKAMAS COUNTY
ZONING BASE: CORRIDOR COMMERCIAL (CC) (CHAPTER 510)

LANDSCAPING: (CHAPTER 1009)	
LANDSCAPE AREA - CC ZONING	= 10% MIN
NATIVE / DROUGHT TOL PLANTS	= 75% MIN
TURF LAWN	= 10% MAX
PEDESTRIAN AMENITIES	= 1/3 MAX (15% IMPERVIOUS)
PARKING LANDSCAPE	= 25 SF / SPACE
LANDSCAPE AREA INTERIOR	= 4'
INTERIOR LANDSCAPE AREAS	= 1 TREE / 8 SPACES
PERIMETER PARKING LANDSCAPE	= 5' MIN WIDTH
SHRUBS	= 3' HT EVERGREEN
TREES	= 1 TREE / 30 LF CANOPY
GROUND COVER	= FULL COVER

PROPOSED DEVELOPMENT:
LANDSCAPE AREA PHASE I PROPOSED = 11,644 SF OR 17% (10% REQ)
NATIVE / DROUGHT TOL PLANTS = 100% (75% MIN REQ)
TURF LAWN PROPOSED = 0% (10% MAX REQ)
PARKING PHASE I PROPOSED TOTAL = 76 SPACES
PARKING INTERIOR LANDSCAPE = 4,401 SF (1,900 SF REQ)
PARKING INTERIOR TREES = 31 TREES (10 TREES REQ)

LANDSCAPE PLAN GENERAL NOTES:

1. LANDSCAPE PLANT LEGEND: SEE SHEET L1.1.
2. INSTALLATION DETAILS & NOTES: PLANT MATERIALS & INSTALLATION SHALL MEET STANDARDS OF CLACKAMAS COUNTY & ODOT.
3. MULCH: ALL PLANTING AREAS EXCEPT FOR STORM FACILITIES SHALL BE MULCHED WITH 3" MIN DEPTH BARK MULCH, FRESH FIR MEDIUM GRIND.
4. PLANT MATERIAL DELIVERED TO THE SITE SHALL MEET THE CURRENT VERSION OF THE AMERICAN NURSERYMAN'S SPECIFICATION ASSOCIATION STANDARDS FOR ALL SPECIFIED BALLED & BURLAPPED AND CONTAINER SIZES.
5. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE PROJECT LANDSCAPE ARCHITECT FOR ALL PLANT MATERIAL SUBSTITUTIONS PRIOR TO PURCHASE. PLANT SUBSTITUTIONS THAT ARE NOT APPROVED IN WRITING, OR DO NOT COMPLY WITH THE PROJECT DRAWINGS AND SPECIFICATIONS WILL BE REJECTED BY THE LANDSCAPE ARCHITECT AT NO COST TO THE OWNER.
6. IRRIGATION: ALL PROPOSED PLANT MATERIALS SHALL BE WATERED (MAY TO OCTOBER) BY A FULLY AUTOMATIC UNDERGROUND IRRIGATION SYSTEM MEETING THE REQUIREMENTS OF CLACKAMAS COUNTY ZONING & DEVELOPMENT ORDINANCE 1009.10.M. LANDSCAPING, PLANTING & MAINTENANCE. THE DESIGN INTENT SHALL BE DRIPLINE & TREE ROOT ZONE WATERING WITH AN ET BASED CONTROLLER, FLOW SENSOR & MASTER VALVE TO MINIMIZE WATER USE, PREVENT RUNOFF & MAXIMIZE WATER INFILTRATION. THE SYSTEM SHALL BE MAINTAINED FOR A MINIMUM OF ONE (1) FULL GROWING SEASON AFTER THE DATE OF SUBSTANTIAL COMPLETION. TREES SHALL BE WATERED AT A RATE OF 15 GALLONS PER TREE ONCE PER WEEK, SHRUBS & GROUNDCOVERS AT A RATE OF 1" PER WEEK OR AS NECESSARY TO MAINTAIN VIGOROUS HEALTHY GROWTH.



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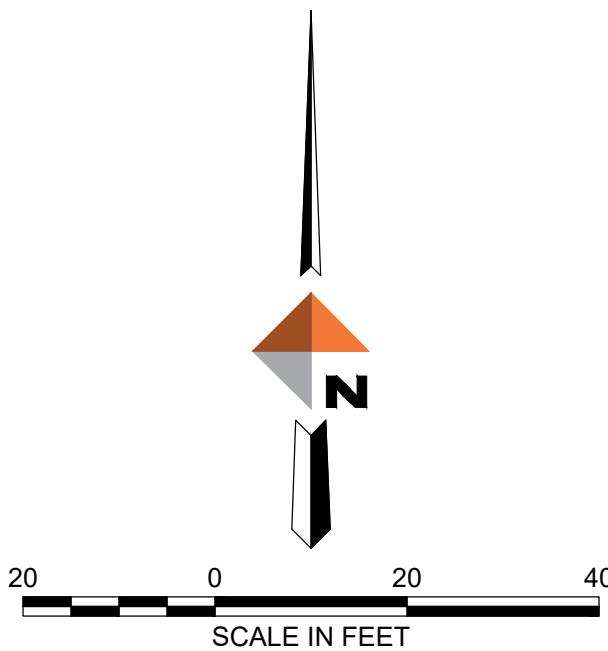
DATE 05/13/2022

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SHEET PLANTING PLAN

SHEET NUMBER



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E

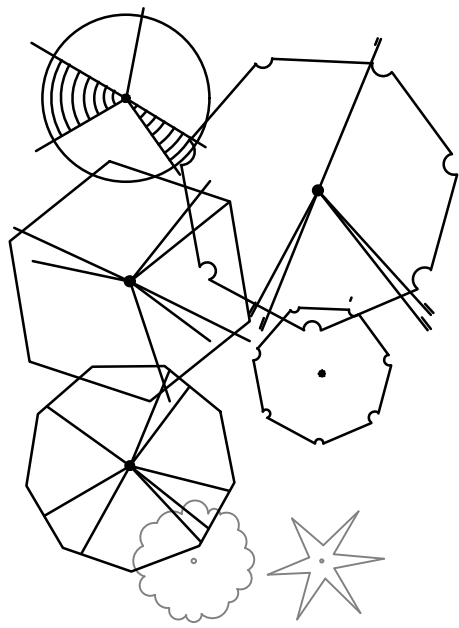
D

C

B

A

PLANTING LEGEND



TREES ITEM	SIZE	QTY.	MATURE SIZE (H X W) / COMMENTS
ACER GRISEUM PAPERBARK MAPLE	1-1/2" CAL / B&B AS SHOWN	12	25' H X 20' W / 5' BRANCHING HT DROUGHT TOL / OVERHEAD WIRES
ACER RUBRUM 'FRANKSRED' RED SUNSET MAPLE	1-1/2" CAL / B&B 8' HT MIN	14	35' H X 35' W / 5' BRANCHING HT 3.6' TO 6' PLANTER
CARPINUS BETULUS 'FASTIGIATA' PYRAMIDAL EUROPEAN HORNBEAM	1-1/2" CAL / B&B 8' HT MIN	22	35' H X 25' W / 5' BRANCHING HT DROUGHT TOL / 3.6' TO 6' PLANTER
GINKGO BILOBA 'PRINCETON SENTRY' PRINCETON SENTRY GINKGO	1-1/2" CAL / B&B AS SHOWN	14	40' H X 15' W / 5' BRANCHING HT DROUGHT TOL / 3.6' TO 6' PLANTER
NYSSA SYLVATICA 'NSUHH' GREEN GABLE TUPELO	1-1/2" CAL / B&B AS SHOWN	5	40' H X 25' W / 5' BRANCHING HT WET & DROUGHT TOLERANT
EXISTING TREE TO REMAIN			CONTRACTOR TO PROTECT IN PLACE

SHRUBS & ACCENTS ITEM	SIZE	QTY.	MATURE SIZE (H X W) / COMMENTS
ABELIA 'EDWARD GOUCHER' EDWARD GOUCHER ABELIA	5 GAL CONT 4'-0" OC	29	4' H X 5' W / MAINTAIN @ 3' HT EVERGREEN / DROUGHT TOLERANT
CALAMAGROSTIS x A. 'KARL FOERSTER' KARL FOERSTER REED GRASS	2 GAL 2'-0" OC	46	5' H X 24" W / VERTICAL GRASS DROUGHT TOLERANT
CHAMAECYPARIS OBTUSA 'GRACILIS' SLENDER HINOKI FALSE CYPRESS	4' - 5' HT. / B&B 3'-6" OC	7	6' H X 5' W / COLUMNAR EVERGREEN FULL SUN / LAYERED BRANCHES
CISTUS X PULVERULENTUS 'SUNSET' MAGENTA ROCK ROSE	2 GAL CONT 3'-0" OC	26	2' H X 4' W / EVERGREEN FULL SUN / DROUGHT TOLERANT
ILEX GLABRA 'SHAMROCK' SHAMROCK INKBERRY HOLLY	5 GAL CONT 3'-0" OC	108	4' H X 4' W / MAINTAIN @ 3' HT EVERGREEN / DROUGHT TOLERANT
LIGUSTRUM JAPONICUM 'TEXANUM' WAXLEAF PRIVET	5 GAL CONT 4'-0" OC	46	8' H X 6' W / HIGH SCREEN SHRUB EVERGREEN / DROUGHT TOLERANT
MAHONIA AQUIFOLIUM 'COMPACTA' COMPACT OREGON GRAPEHOLLY	2 GAL CONT 3'-0" OC	16	30" H X 3' W / EVERGREEN NATIVE SELECTION / DROUGHT TOLERANT
MISCANTHUS SINENSIS 'LITTLE MISS' LITTLE MISS MAIDEN GRASS	2 GAL CONT 3'-0" OC	61	3' H X 3' W / COMPACT HABIT 2-TONE FOLIAGE / RED FLOWERS
PENNISETUM A. 'HAMELN' HAMELN FOUNTAIN GRASS	2 GAL CONT 30" OC	54	30" H X 30" W FULL SUN / DROUGHT TOLERANT
ROSA 'RADRAZZ' KNOCK OUT ROSE	2 GAL CONT 3'-0" OC	49	3' H X 3' W / DISEASE RESISTANT FULL SUN / DROUGHT TOLERANT
RUDBECKIA FULGIDA 'EARLY BIRD GOLD' EARLY BIRD GOLD BLACK EYED SUSAN	2 GAL 18" OC	100	2' H X 2' W / PERENNIAL YELLOW FLOWERS SPRING TO FALL
NARCISSUS 'DUTCH MASTER' DUTCH MASTER TRUMPET DAFFODIL	16 CM + 4 PER AREA	400	20" H X 6" W / BULB YELLOW FLOWERS - SPRING
COLCHICUM GIGANTEUM 'THE GIANT' GIANT AUTUMN CROCUS	20 CM + 4 PER AREA	400	8" H X 6" W / BULB PURPLE FLOWERS - FALL
SPIRAEA JAPONICA 'NEON FLASH' NEON FLASH JAPANESE SPIREA	2 GAL CONT 3'-0" OC	42	3' H X 3' W / SMALL FULL SUN / BRIGHT RED FLOWERS
VIBURNUM TINUS 'SPRING BOUQUET' SPRING BOUQUET VIBURNUM	5 GAL CONT 4'-0" OC	83	4' H X 5' W / MAINTAIN @ 3' HT EVERGREEN / DROUGHT TOLERANT

GROUNDCOVERS & MISC ITEM	SIZE	QTY.	MATURE SIZE (H X W)
ARCTOSTAPHYLOS UVA-URSI 'MASS.' MASS KINNIKINICK	1 GAL CONT 2'-0" OC	4,514 SF 1,309 PLANTS	9" H X 3' W / EVERGREEN SELECTION DROUGHT TOLERANT / FIRE RESISTANT
ARCTOSTAPHYLOS UVA-URSI KINNIKINICK	1 GAL CONT 2'-0" OC	2,986 SF 866 PLANTS	9" H X 3' W / EVERGREEN NATIVE DROUGHT TOLERANT / FIRE RESISTANT
RUBUS CALY. 'EMERALD CARPET' EMERALD CARPET CREEPING BERRY	1 GAL CONT 2'-0" OC	6,637 SF 1,925 PLANTS	9" H X 3' W / EVERGREEN DROUGHT TOLERANT
HEMEROCALLIS 'HAPPY RETURNS' HAPPY RETURNS DAYLILY	1 GAL CONT 18" OC	245 SF 125 PLANTS	18" H X 18" W / DROUGHT TOLERANT FIRE RESISTANT
NARCISSUS 'DUTCH MASTER' DUTCH MASTER TRUMPET DAFFODIL	16 CM + 9" OC	500 BULBS	20" H X 6" W / BULB YELLOW FLOWERS - SPRING
COLCHICUM GIGANTEUM 'THE GIANT' GIANT AUTUMN CROCUS	20 CM + 9" OC	500 BULBS	8" H X 6" W / BULB PURPLE FLOWERS - FALL
VIOLA X WITTROCKIANA 'CROWN GOLDEN' CROWN GOLDEN PANSY	4" CONT 9" OC	500 PLANTS	8" X 10" / WINTER ANNUAL CLEAR GOLDEN FLOWERS
DECORATIVE ROCK BAND @ BUILDING VALLEY LANDSCAPE CENTER	12" X 6"	75 SF 1.5 CY	WASHED RIVER ROCK, SIZE 2" - 3" INSTALL OVER MIRAFI 140N NON-WOVEN
SURE-LOC STEEL EDGING 15" STEEL STAKES, COLOR BLACK	1/4" X 5" X 16'	80 LF	GEO-TEXTILE, TUALATIN, 503-692-0606



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REVISION SCHEDULE	
NO.	DESCRIPTION

CIVIL'S PROJECT #	14836.01
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SHEET
PLANTING LEGENDS

SHEET NUMBER

L1.1

Exhibit E

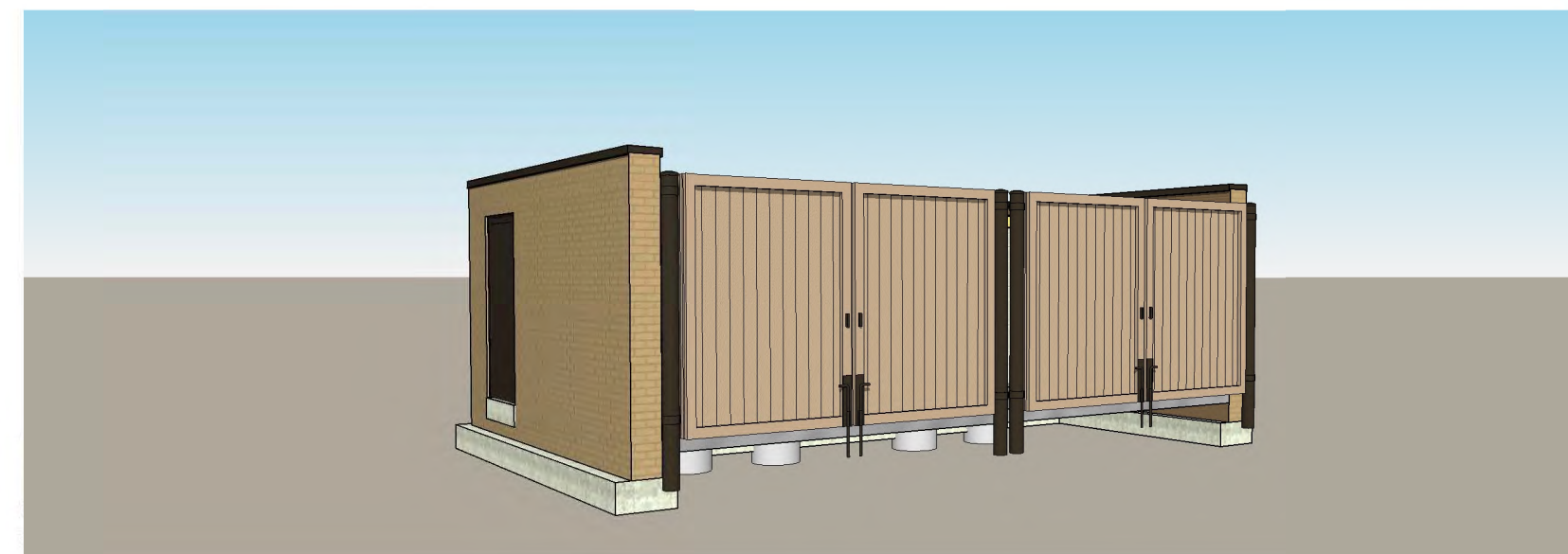
Architectural Plan

EXTERIOR FINISHES

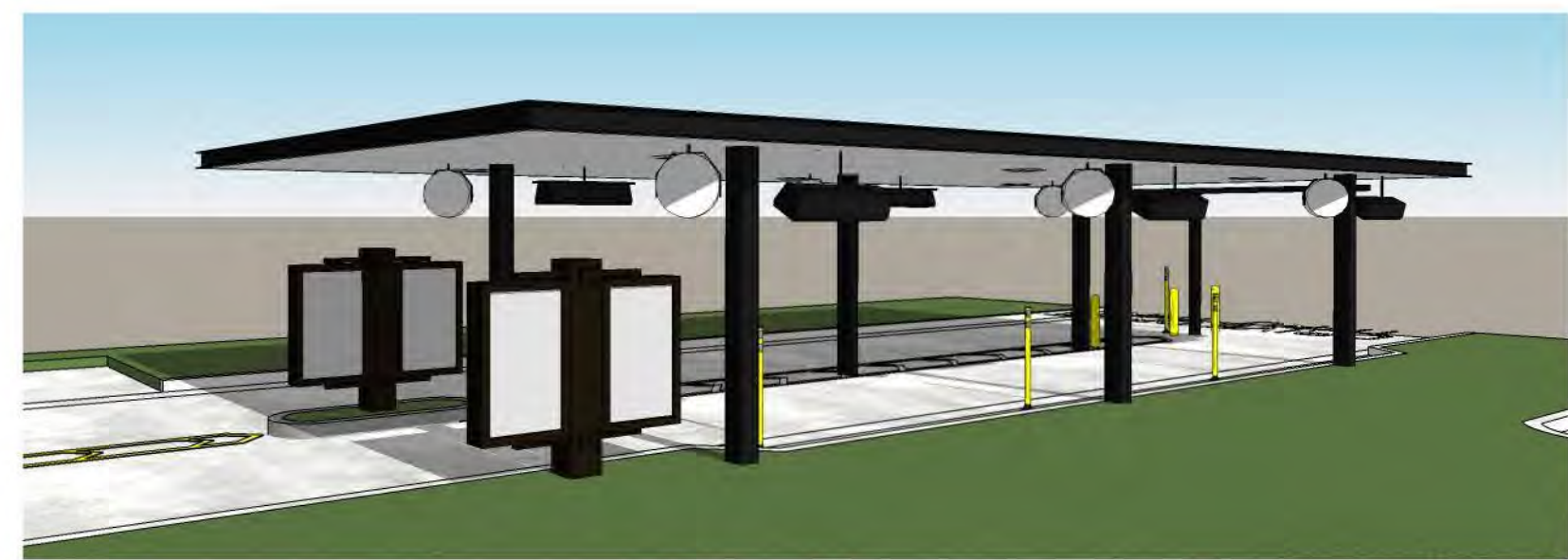
(SC-1) STUCCO SYSTEM COLOR: WESTHIGHLAND WHITE FINISH: SAND MEDIUM	(EC-1) PREFINISHED METAL COPING COLOR: MIDNIGHT BRONZE
(SC-2) STUCCO SYSTEM COLOR: HARDWARE FINISH: SAND MEDIUM	(PT-11) EXTERIOR PAINT COLOR: DARK BRONZE FINISH: SEMI-GLOSS
(BR-A) BRICK VENEER COLOR: MIDNIGHT SKY SIZE: MODULAR	(ST-1) STOREFRONT COLOR: DARK BRONZE
(BR-B) BRICK VENEER COLOR: LIGHT BROWN SIZE: MODULAR	

ATTACHED CANOPY SCHEDULE

Mark	Description	Count	Overall Width	Overall Depth	Tie Back Mounting (Offset From Top)	Integral Lighting
C1-C	Exterior Canopy	13	6'-4"	1'-0"	0"	No
C4-B	Exterior Canopy	1	5'-4"	4'-0"	2'-4"	Yes
C4-Q	Exterior Canopy	1	7'-4"	4'-0"	2'-4"	Yes
C5-A	Exterior Canopy	1	10'-0"	5'-0"	2'-4"	Yes
Grand total		16				



PERSPECTIVE VIEW



PERSPECTIVE VIEW



PERSPECTIVE VIEW



PERSPECTIVE VIEW



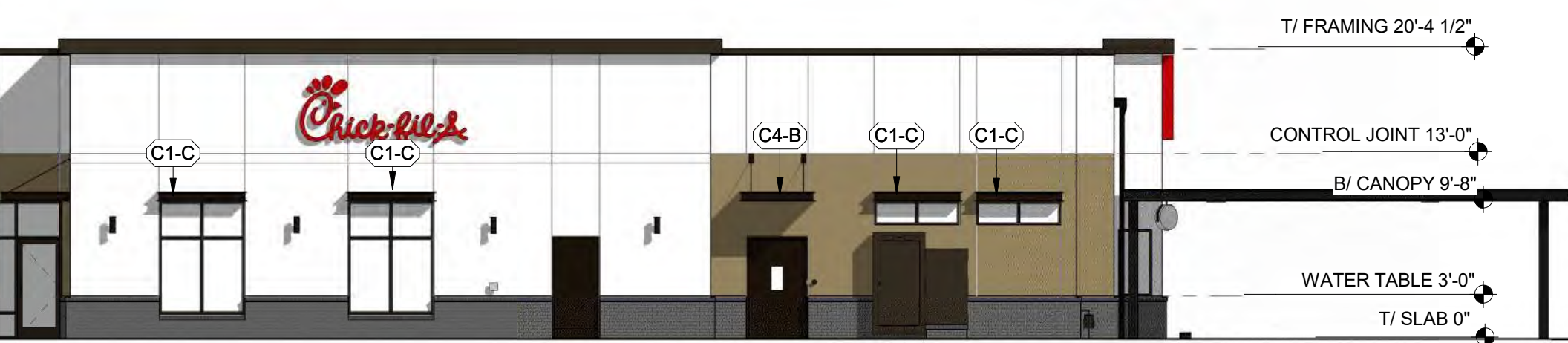
PERSPECTIVE VIEW



PERSPECTIVE VIEW

REF. ENCLOSURE FINISHES

(EC-1) PREFINISHED METAL COPING COLOR: MIDNIGHT BRONZE
(BR-A) BRICK VENEER COLOR: MIDNIGHT SKY SIZE: MODULAR



EXTERIOR ELEVATION



EXTERIOR ELEVATION

OP CANOPY FINISHES

(CP-1) PREFINISHED METAL COPING COLOR: DARK BRONZE
(CP-2) METAL DECKING COLOR: WHITE



EXTERIOR ELEVATION



EXTERIOR ELEVATION

PATIO SEATING SCHEDULE

Mark	Type	Count	Manufacturer	Model	Width	Depth	Height	Material	Finish
1	Patio Chair	28	Benchmark Design Group	WENDOVER CHAIR					
2	Patio Table - 4 Top	2	Benchmark Design Group	TAB3055-3636-AAL-WJ-UH-BDT	3'-0"	3'-0"	2'-5 1/4"	Aluminum - Dark Bronze	RAL 49/66220 (C34 Bronze One Coat)
3	Patio Table - 4 Top - ADA	3	Benchmark Design Group	TAB3055-3644-AAL-WJ-UH-BDT	3'-8"	3'-0"	2'-5 1/4"	Aluminum - Dark Bronze	RAL 49/66220 (C34 Bronze One Coat)
4	Patio Table - 2 Top	4	Benchmark Design Group	TAB3055-2424-AAL-WJ-BDT	2'-0"	2'-0"	2'-5 1/4"	Aluminum - Dark Bronze	RAL 49/66220 (C34 Bronze One Coat)
5	Patio Umbrella	5	Tuuci	OCEAN MASTER PARASOL					
6	Trash Receptacle	2	Benchmark Design Group	CFA-AL-2444	2'-0"	2'-0"	3'-11"	Dark Bronze	RAL 49/66220 (C34 Bronze One Coat)
8	Bike Rack - Surface Mount	2	Belson Outdoors	ORN-2-SF-P	3'-4"	2 3/8"	2'-9"	Steel	Black Powder Coated

PROJECT DATA

Prototype Edition:	SE	Playground	NO PLAY
Exterior Finish Type:	TOWER STUCCO	Landscaping Type	STANDARD
Wall Framing Type:	METAL STUD	LEED Rating	NOT CERTIFIED
Kitchen Type:	CENTERLINE	Drive Thru Bypass Lane:	YES
Water Filtration Type:	TYPE A	Drive Thru Number of Fulfillment Lanes:	#
Drive-Thru:	YES	Drive Thru Number of Pickup Lanes:	#
Industrialized Construction:	YES	Drive Thru Number of Order Point Pylons:	#
Number of Parking Spaces:	#	Drive Thru Number of Pickup Windows:	#
Number of Accessible Parking Spaces:	#	Number of Registers:	7
Cross Parking:	YES	Seal Count - Interior:	102
Menu Board - Interior:	YES	Seal Count - Exterior:	28
Menu Board - Interior - Count:	5	Canopy Type - Order Point:	DOUBLE
Menu Board - Interior - Type:	DIGITAL	Canopy Type - Meal Delivery:	DOUBLE
Menu Board - Walk-up:	NO	Number of Registers:	7
Menu Board - Walk-up - Count:	0		
Menu Board - Walk-up - Type:	N/A		
Menu Board - Order Point:	YES		
Menu Board - Order Point - Count:	4		
Menu Board - Order Point - Type:	DIGITAL		
Planned Classification:	BASE		

DESIGN APPROVAL

<input type="checkbox"/> SUP	<input type="checkbox"/> SD	<input type="checkbox"/> DD	<input type="checkbox"/> CD
<input type="checkbox"/> NOT APPROVED - REVISE AND RESUBMIT			
<input type="checkbox"/> APPROVED AS NOTED - REVISE AND RESUBMIT			
<input type="checkbox"/> APPROVED FOR DESIGN INTENT			

PROJECT NOTES



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SITE
ADAPT
LOGO
AND
ADDRESS

PROTOTYPICAL SET

NOT FOR
REGULATORY
APPROVAL,
BIDDING, OR
CONSTRUCTION

CHICK-FIL-A
SE 82nd & Glencoe
SE 82nd & Glencoe
Portland, OR 97086

FSR#05098

BUILDING TYPE / SIZE: P13 SE LRG

RELEASE: 21.11

PROJECT STATUS

REVISION SCHEDULE

NO. DATE DESCRIPTION

CONSULTANT PROJECT #

DATE

DRAWN BY

Author

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DESIGN OVERVIEW

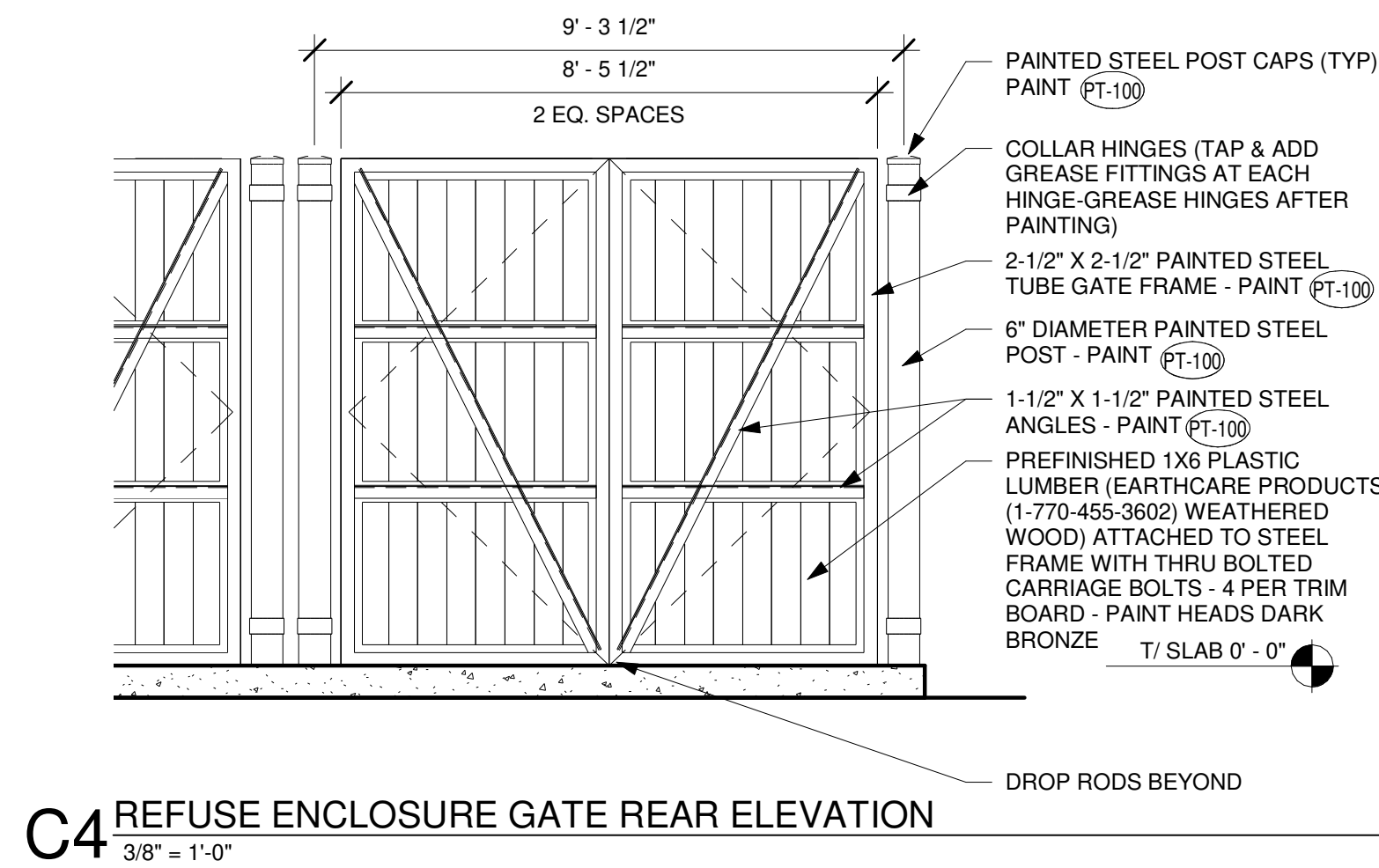
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X-900

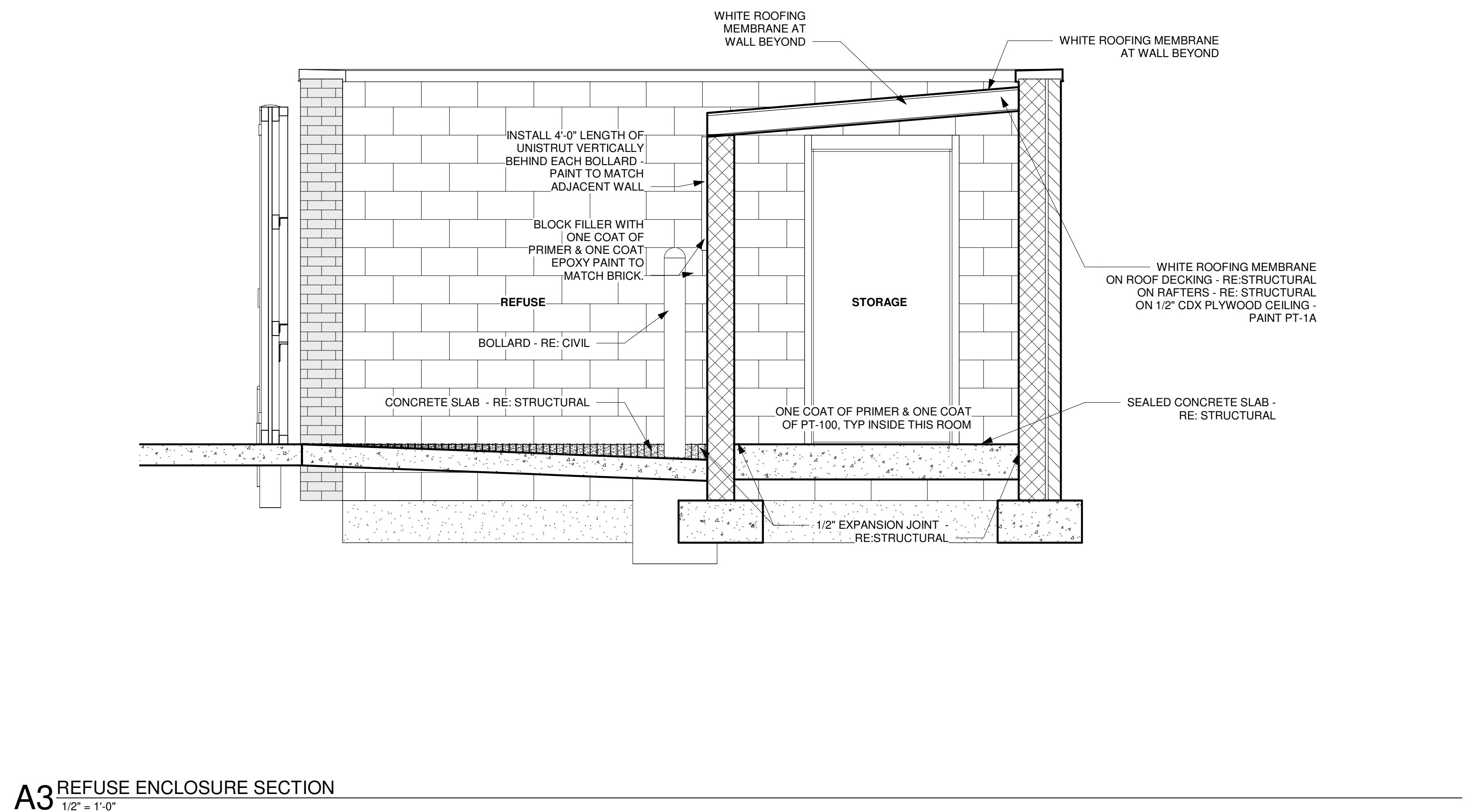
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10-LS-05042-A-103-REFUSE ENCLOSURE

E
D
C
B
A

D3 REFUSE ENCLOSURE PLAN
1/4" = 1'-0"

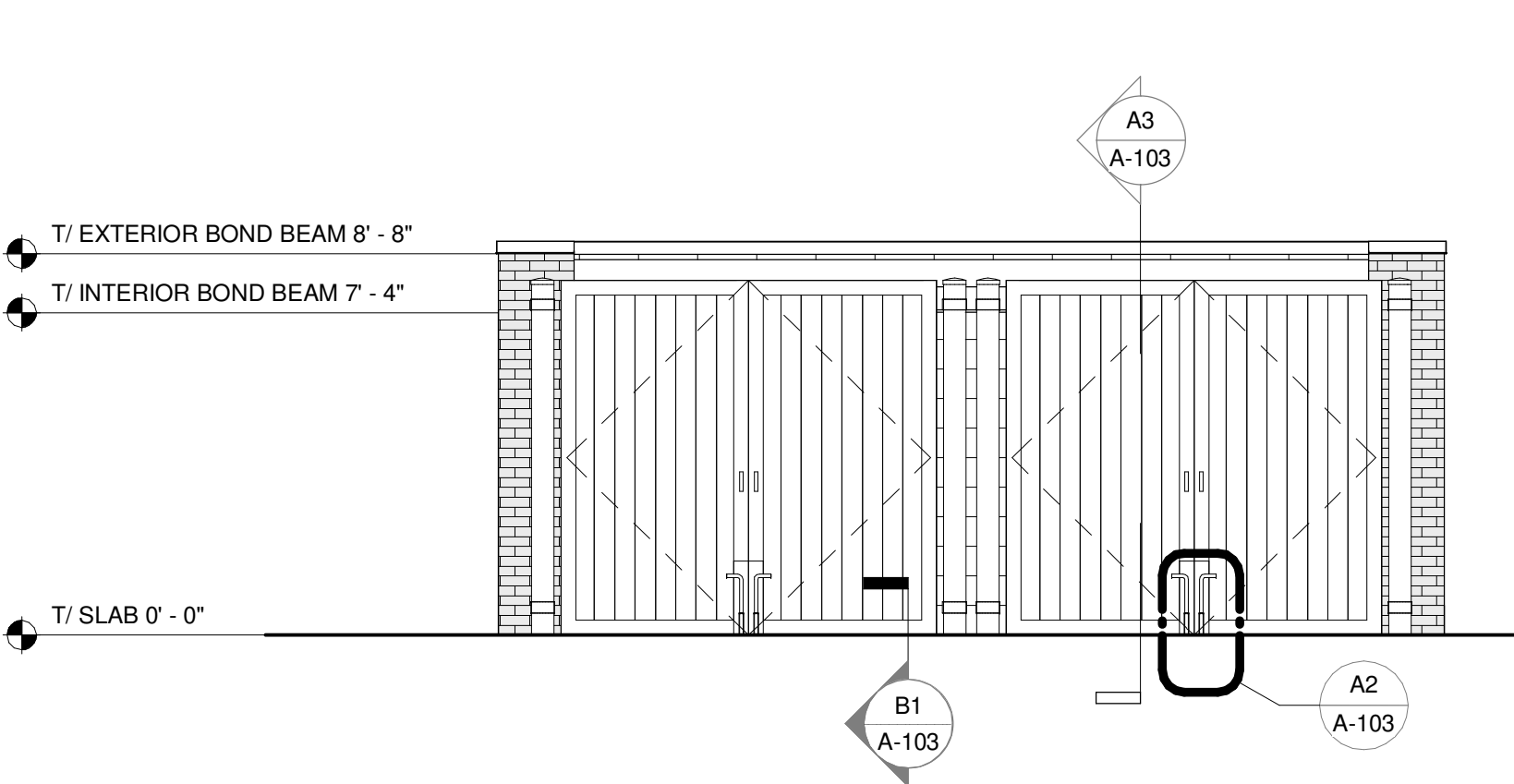


C4 REFUSE ENCLOSURE GATE REAR ELEVATION
3/8" = 1'-0"

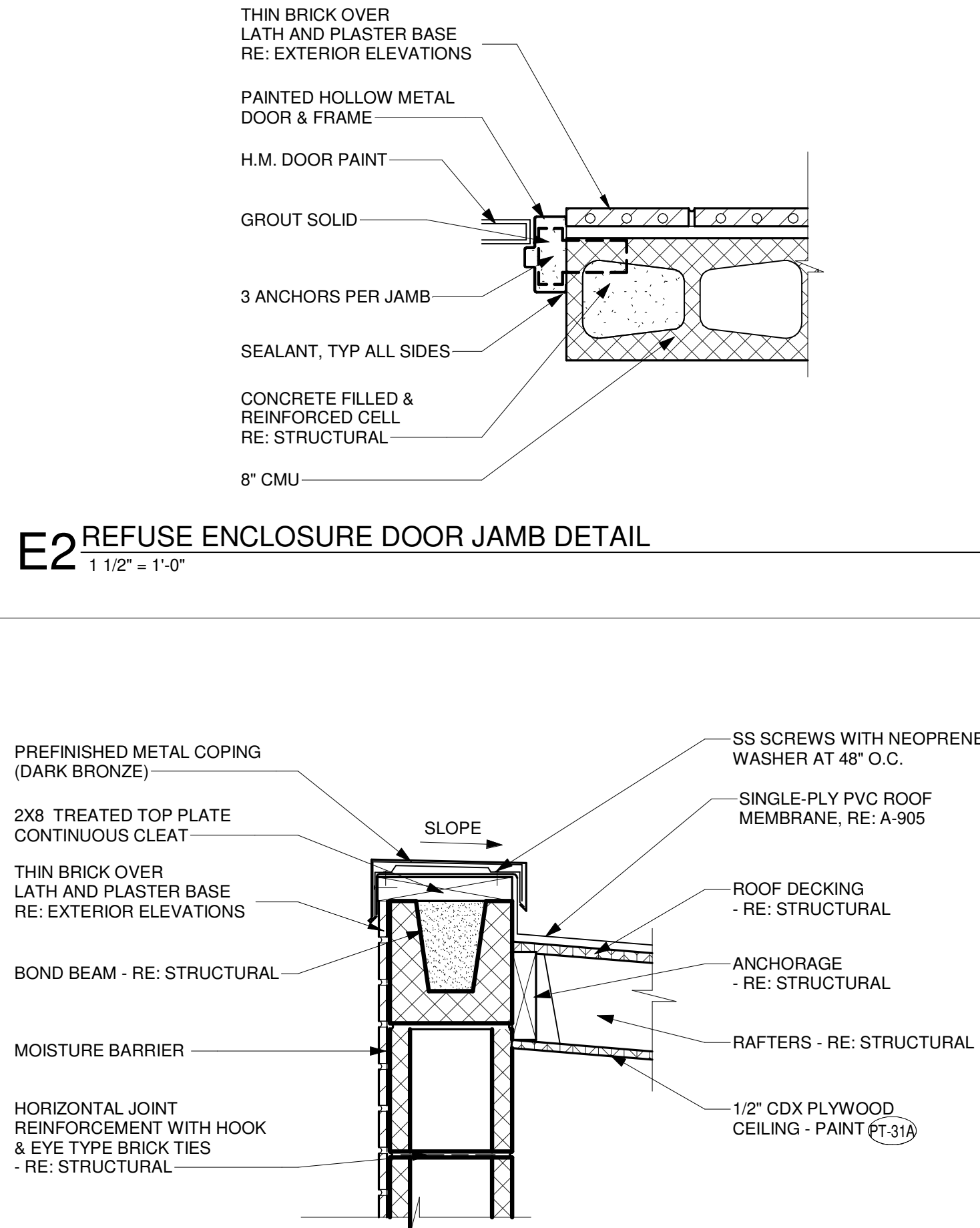


A3 REFUSE ENCLOSURE SECTION
1/2" = 1'-0"

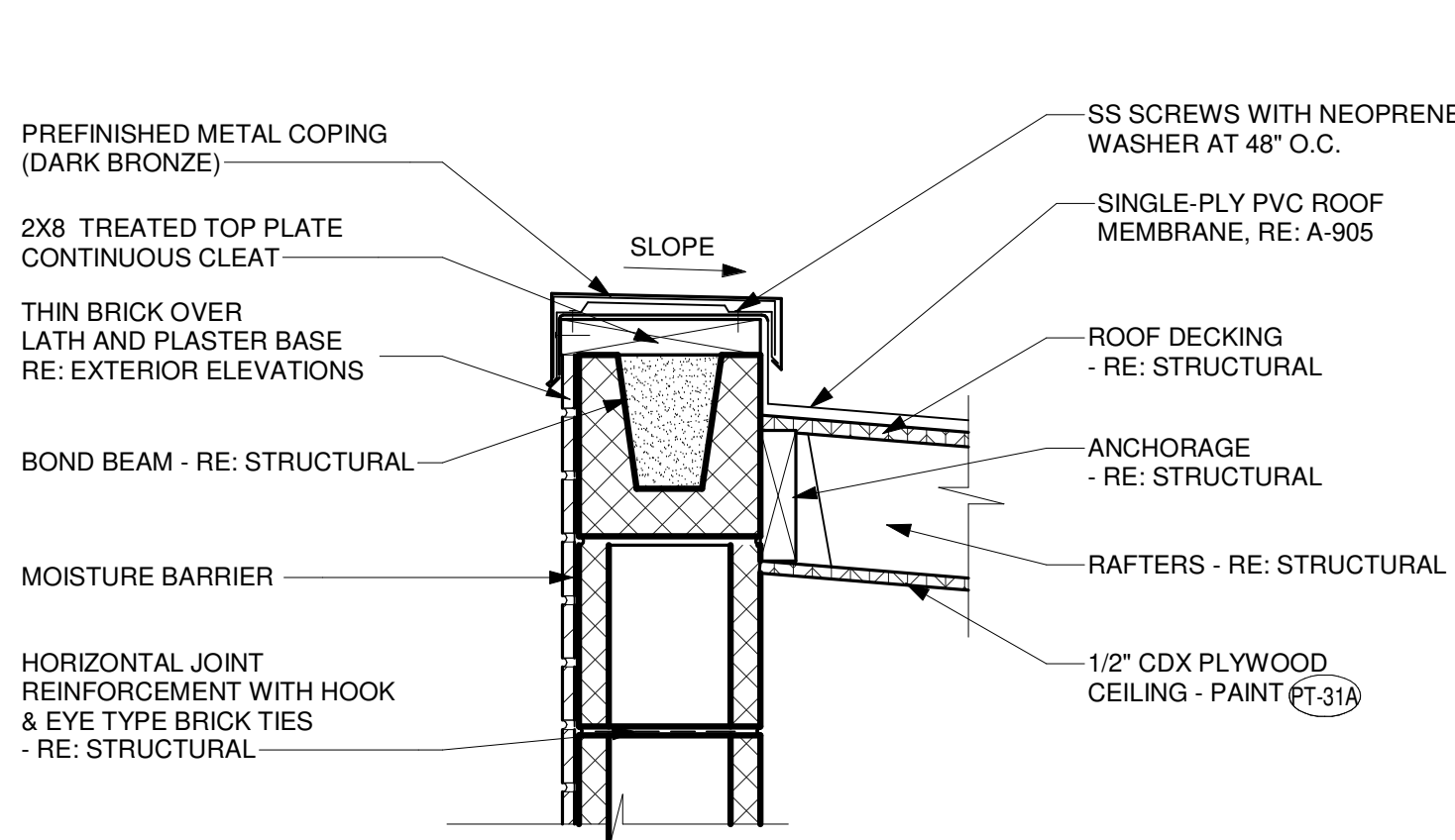
C3 REFUSE ENCLOSURE ELEVATION
1/4" = 1'-0"



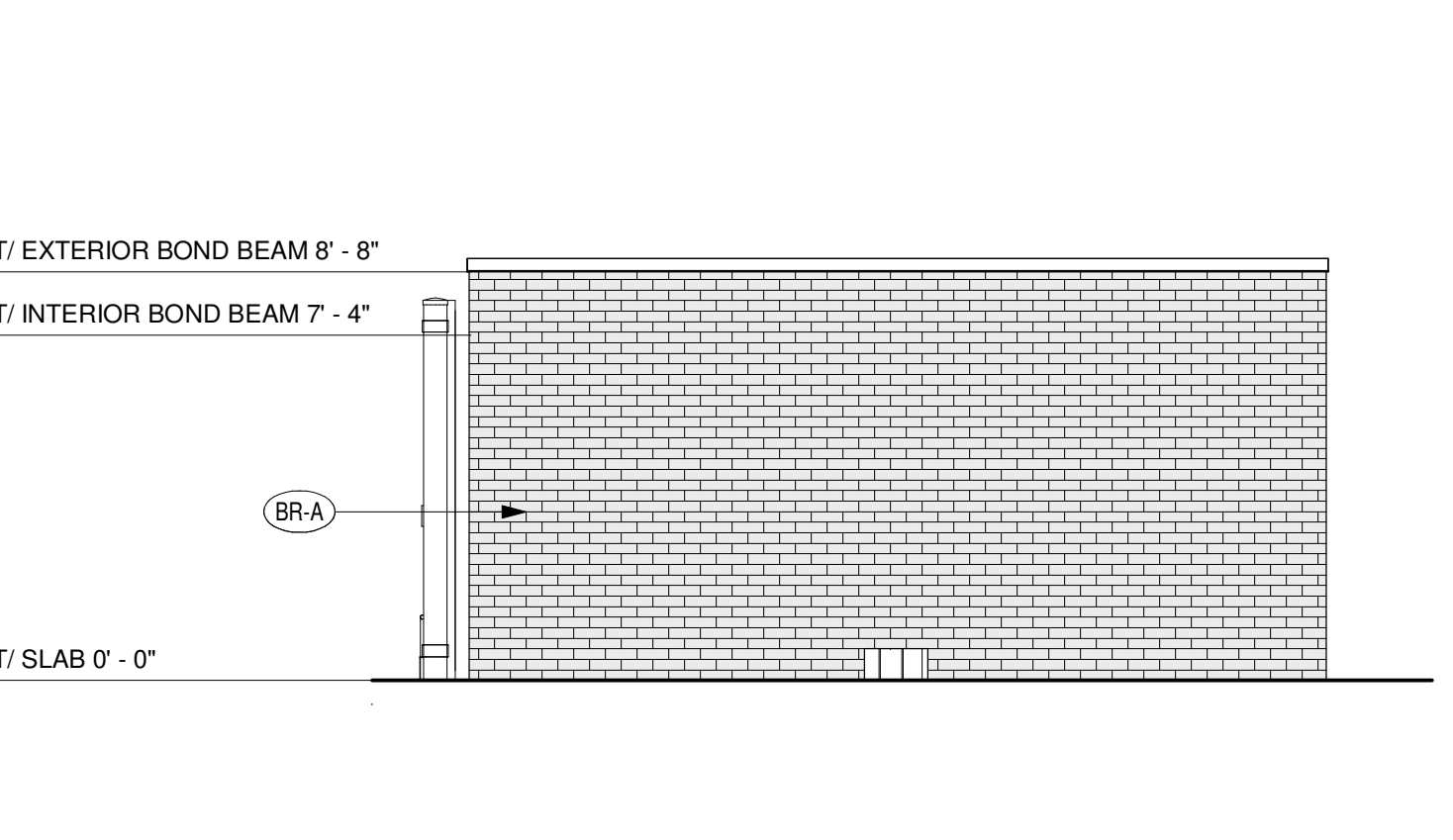
E2 REFUSE ENCLOSURE DOOR JAMB DETAIL
1 1/2" = 1'-0"



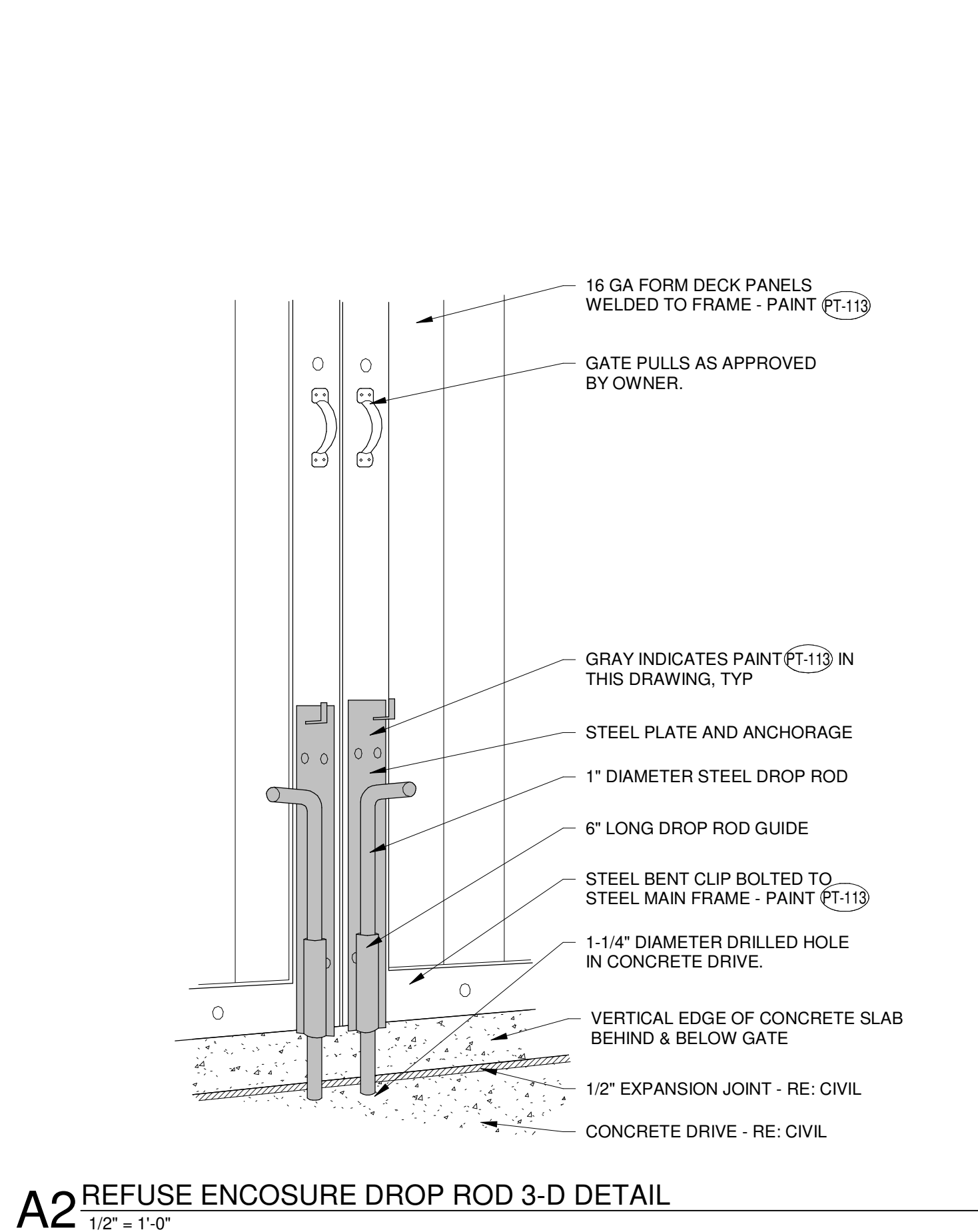
D2 REFUSE ENCLOSURE ROOF EDGE DETAIL
1 1/2" = 1'-0"



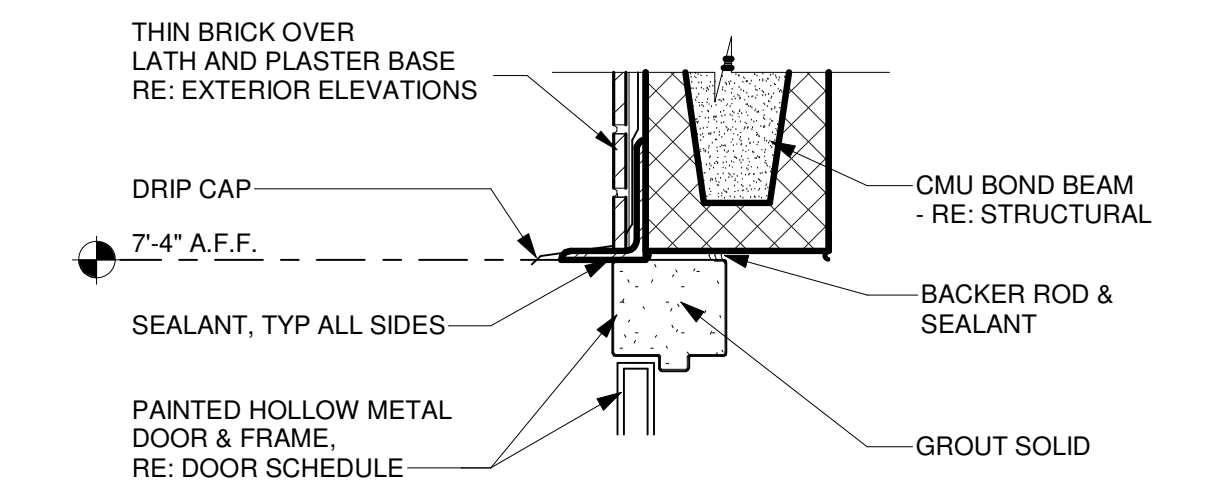
C2 REFUSE ENCLOSURE ELEVATION
1/4" = 1'-0"



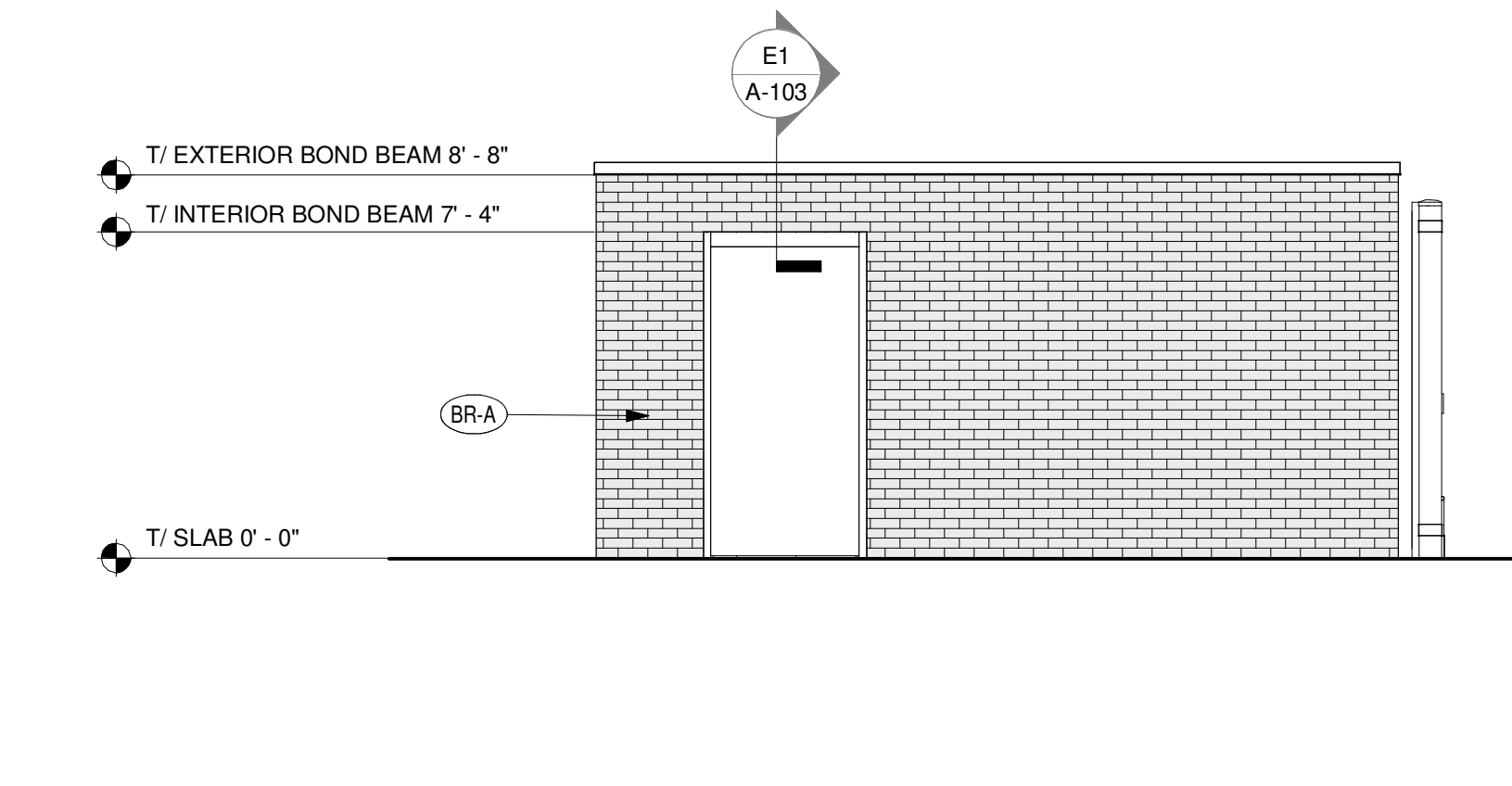
A2 REFUSE ENCLOSURE DROP ROD 3-D DETAIL
1/2" = 1'-0"



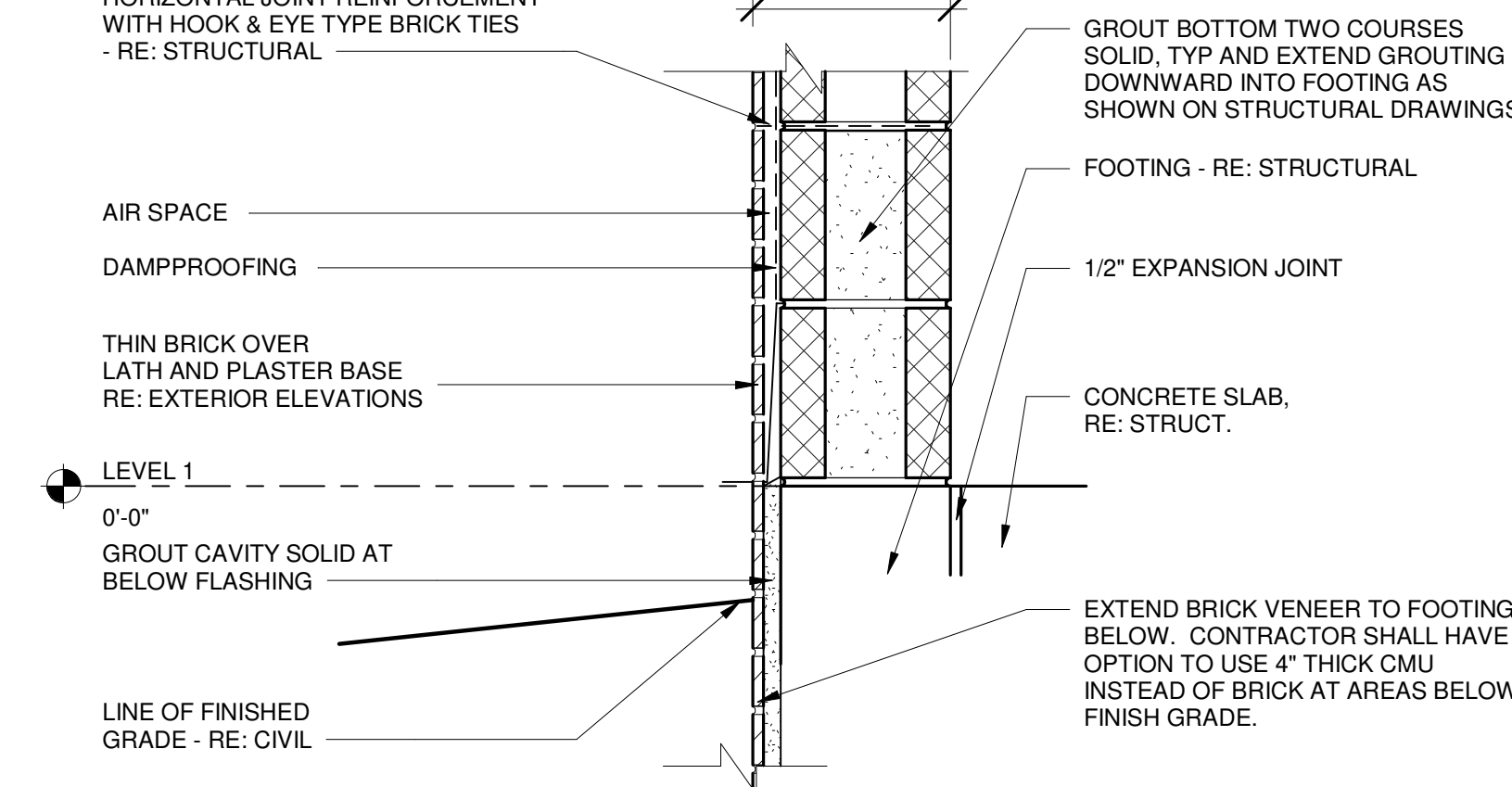
E1 REFUSE ENCLOSURE DOOR HEAD DETAIL
1 1/2" = 1'-0"



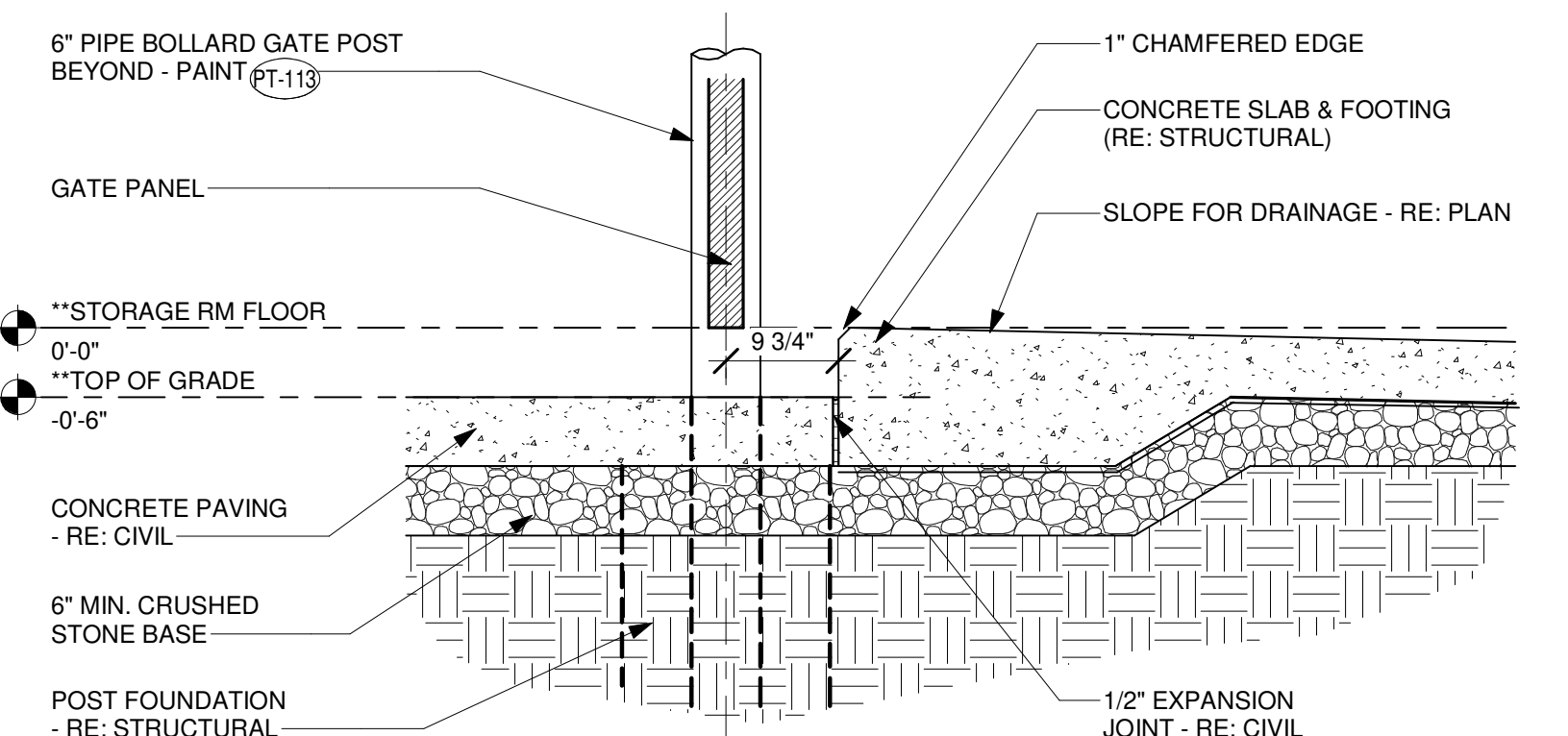
D1 REFUSE ENCLOSURE ELEVATION
1/4" = 1'-0"



C1 REFUSE ENCLOSURE BASE DETAIL
1 1/2" = 1'-0"



B1 REFUSE PAD AT CONCRETE PAVING DETAIL
3/4" = 1'-0"



REFUSE ENCLOSURE NOTES

1. IN THE ARCHITECTURAL DRAWINGS, REFUSE ENCLOSURE AND MAIN BUILDING ARE BOTH NOTED WITH FINISH SLAB AT 0'-0". ACTUAL FINISH SLAB HEIGHTS WILL VARY BETWEEN MAIN BUILDING AND REFUSE ENCLOSURE. REFER TO CIVIL FOR ALL FINISH SLAB HEIGHTS.

E
D
C
B
A

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2150 LOS ANGELES, CA 90017
P 310.903.4000

CHICK-FIL-A
SE 82nd & Glencoe
SE 82nd & Glencoe
Portland, OR 97086

FSR#05098

BUILDING TYPE / SIZE: P13 LS LRG		
RELEASE: 21.11		
PRINTED FOR PERMIT SET		
REVISION	SCHEDULE	
NO.	DATE	DESCRIPTION

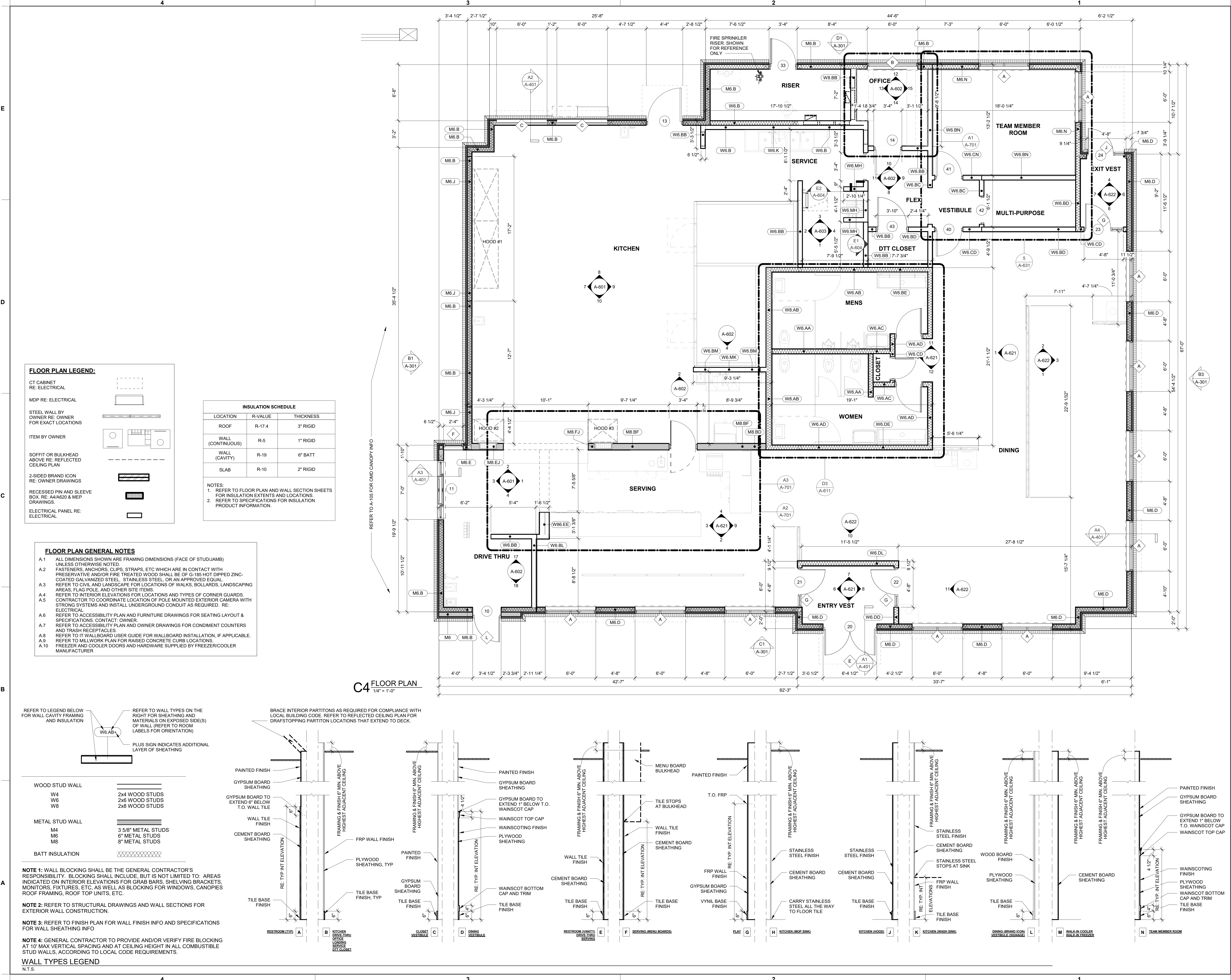
A
 PERMIT SET


CONSULTANT PROJECT # SEA21-0065-01	
DATE	03/04/2022
DRAWN BY	A.R.F. / J.M.
Information contained on this drawing and all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.	
SHEET REFUSE ENCLOSURE	
<hr/> SHEET NUMBER	

A-103



11/15/2022 11:48:14 AM BIM 360//OR_05098_SE 82nd & Glencoe FSU_2021.12_BT5/05098_SE 82nd & Glencoe FSU_ARC.rvt 10-SE-05098-A-201-FLOOR PLAN





Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

SITE
ADAPT
LOGO
AND
ADDRESS

PROTOTYPICAL SET

NOT FOR
REGULATORY
APPROVAL,
BIDDING, OR
CONSTRUCTION

CHICK-FIL-A

SE 82nd & Glencoe

SE 82nd & Glencoe
Portland, OR 97086

FSR#05098

BUILDING TYPE / SIZE: P13 SE LRG
RELEASE: 21.11
PROJECT STATUS
REVISION SCHEDULE
NO. DATE DESCRIPTION

CONSULTANT PROJECT # #####
DATE MM/DD/YY
DRAWN BY: Author
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FLOOR PLAN

SHEET

SHEET NUMBER

A-201



Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998

SITE
ADAPT
LOGO
AND
ADDRESS

PROTOTYPICAL SET

NOT FOR
REGULATORY
APPROVAL,
BIDDING, OR
CONSTRUCTION

CHICK-FIL-A
SE 82nd & Glencoe
SE 82nd & Glencoe
Portland, OR 97086

FSR#05098

BUILDING TYPE / SIZE: P13 SE LRG
RELEASE: 21.11

PRINTED FOR

PROJECT STATUS

REVISION SCHEDULE

NO. DATE DESCRIPTION

CONSULTANT PROJECT # ###

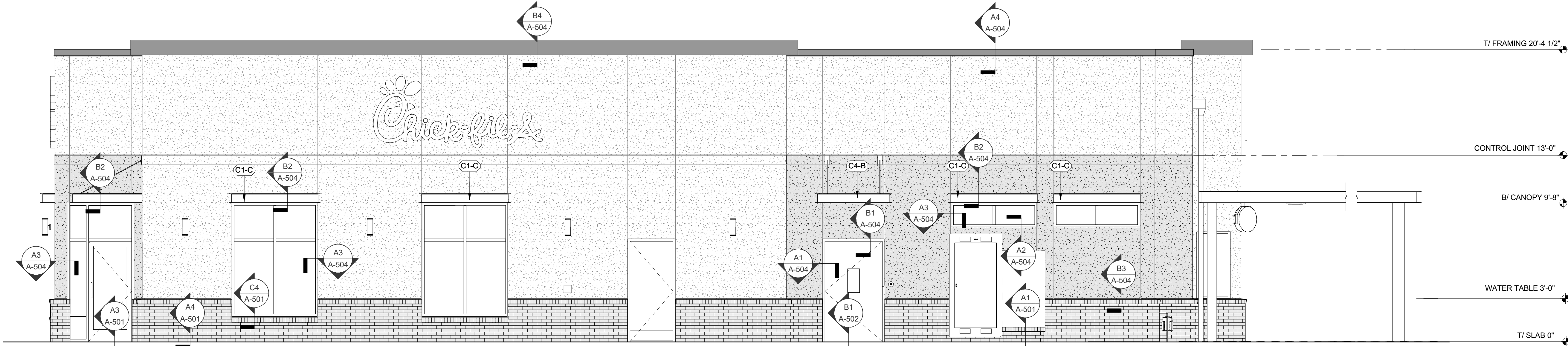
DATE MM/DD/YY

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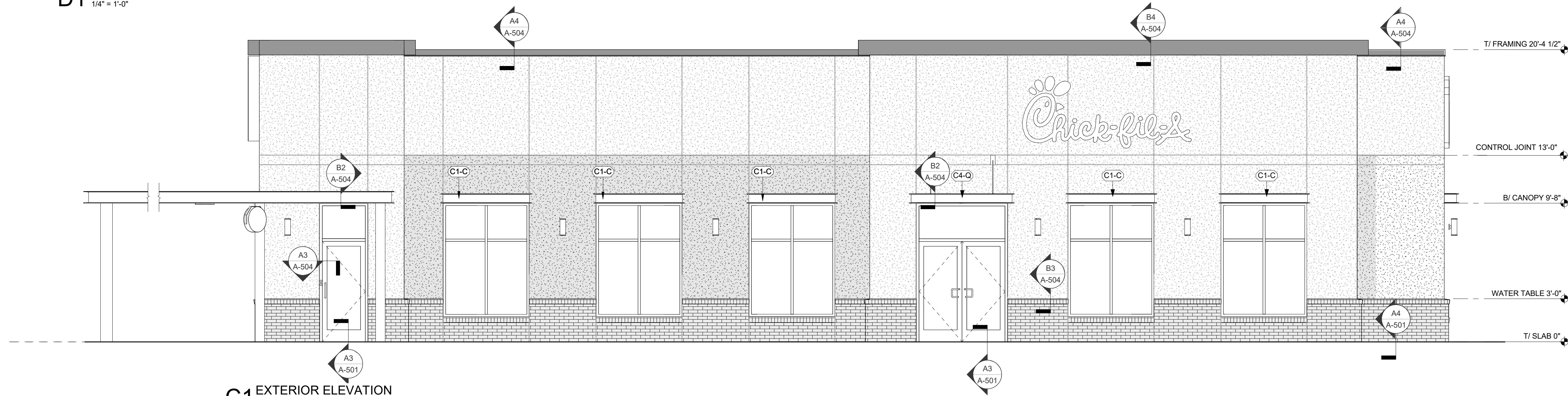
EXTERIOR ELEVATIONS

SHEET NUMBER

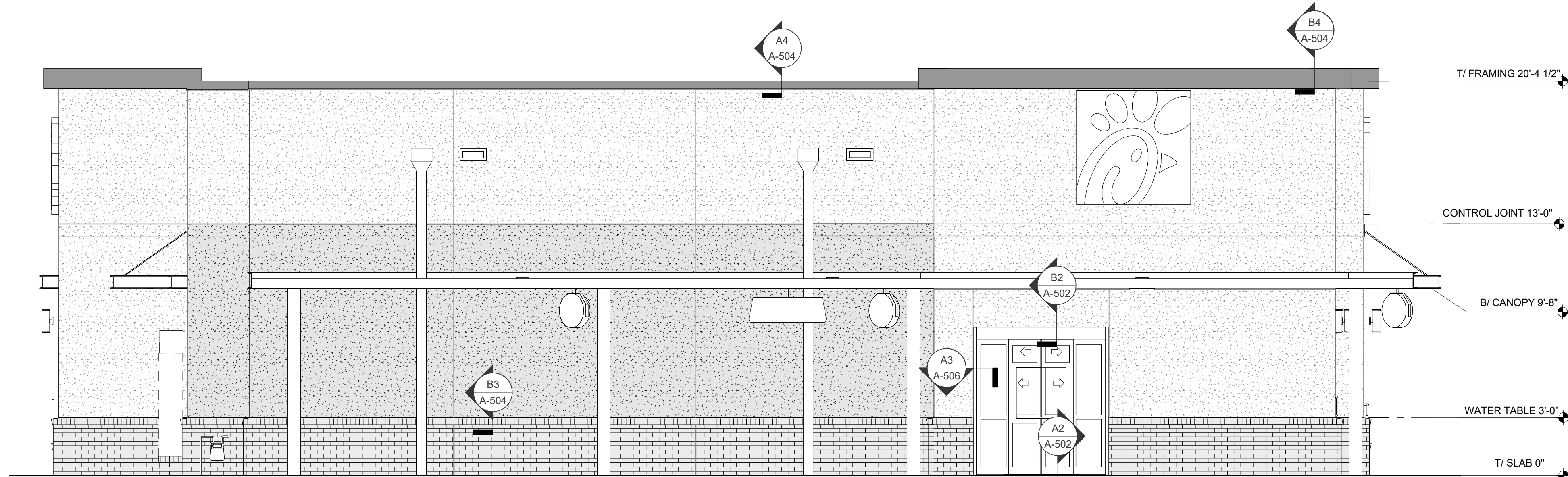
A-301



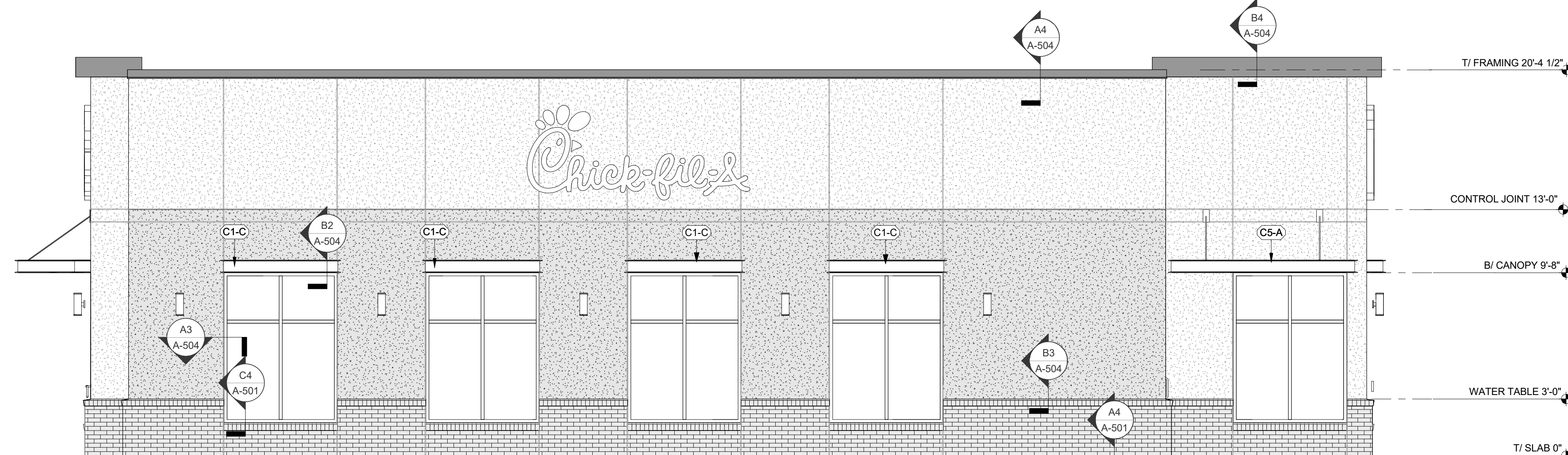
D1 EXTERIOR ELEVATION
1/4" = 1'-0"



C1 EXTERIOR ELEVATION
1/4" = 1'-0"



B1 EXTERIOR ELEVATION
1/4" = 1'-0"



B3 EXTERIOR ELEVATION
1/4" = 1'-0"

APPROVED BRICK ALTERNATES (SEE NATIONAL ACCOUNTS LIST FOR CONTACT INFORMATION)					
FINISH	MANUFACTURER	MODEL	MORTAR	PLANT LOCATION	PREFERRED REGION(S)
BR-A (PRIMARY BRICK)					
BR-02	ACME BRICK	PALOMA GRAY	ARGOS, SAN TAN	ELGIN, TX	SOUTHEAST, ATLANTIC, NORTHEAST, MIDWEST
BR-07	MERIDIAN BRICK	CITADEL	ARGOS, SAN TAN	BESSEMER, AL	ALL
BR-18	MUTUAL MATERIALS	MIDNIGHT SKY	ARGOS, SAN TAN	SPOKANE, WA	WEST
BR-20	GLEN-GERY	KHAKI MATT	ARGOS, SAN TAN	HARMAR, PA	SOUTHEAST, ATLANTIC, NORTHEAST
BR-B (ACCENT BRICK)					
BR-03	ACME BRICK	RUSTIC WHITE	ARGOS, SAN TAN	PEAR EAST, AR	SOUTHEAST, ATLANTIC, NORTHEAST, MIDWEST
BR-11	MERIDIAN BRICK	V100	ARGOS, SAN TAN	ATHENS, TX	ALL
BR-19	MUTUAL MATERIALS	DESERT WHITE	ARGOS, SAN TAN	SPOKANE, WA	WEST
BR-26	GLEN-GERY	WHITEHALL	ARGOS, SAN TAN	HARMAR, PA	SOUTHEAST, ATLANTIC, NORTHEAST, MIDWEST

FINISH SCHEDULE - EXTERIOR						
MARK	DESCRIPTION	MANUFACTURER	MODEL NAME	MODEL NUMBER	COLOR	NOTE
BR-A	BRICK VENEER (PRIMARY)	*	MODULAR	*	*	*SEE APPROVED BRICK ALTERNATES
BR-B	BRICK VENEER (ACCENT)	*	MODULAR	*	*	*SEE APPROVED BRICK ALTERNATES
CP-1	CANOPY METAL FASCIA		DJRA COAT	DC19ST-2703	DARK BRONZE	OIL RUBBED BRONZE METALLIC TEXTURE PVD
CP-2	CANOPY METAL DECK				WHITE	SMOOTH WHITE, HIGH GLOSS
EC-1	PARAPET WALL COPING	DIJROLAST / EXCEPTIONAL METALS			MIDNIGHT BRONZE	
PT-100	EXTERIOR PAINT	SHERWIN WILLIAMS	SHER-CRYL HIGH PERFORMANCE ACRYLIC #B66-350	SW 2807	ROCKWOOD	REFUSE ENCLOSURE. FINISH: SEMI-GLOSS ON DOOR FRAMES, SATIN ON WALLS
PT-113	EXTERIOR PAINT	SHERWIN WILLIAMS	SHER-CRYL HIGH PERFORMANCE ACRYLIC #B66-350		DARK BRONZE	FINISH: SEMI-GLOSS
SC-1	STUCCO	STO	POWERWALL		STO WHITE	FINISH: SAND MEDIUM
SC-2	STUCCO	STO	POWERWALL		ADOBE BROWN	FINISH: SAND MEDIUM
ST-1	STOREFRONT	YKK	YES 45		DARK BRONZE (MATTE)	

- GENERAL NOTES
- ALL SIGNAGE PROVIDED BY OTHERS
 - REF FLOOR PLAN AND WINDOW LEGEND FOR STOREFRONT INFORMATION

ATTACHED CANOPY SCHEDULE

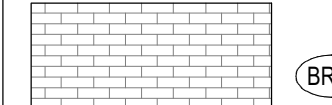
Mark	Description	Count	Overall Width	Overall Depth	Tie Back Mounting (Offset From Top)	Integral Lighting
C1-C	Exterior Canopy	13	6'-4"	1'-0"	0"	No
C4-B	Exterior Canopy	1	5'-4"	4'-0"	2'-4"	Yes
C4-Q	Exterior Canopy	1	7'-4"	4'-0"	2'-4"	Yes
C5-A	Exterior Canopy	1	10'-0"	5'-0"	2'-4"	Yes
Grand total		16				

CANOPY NOTES:

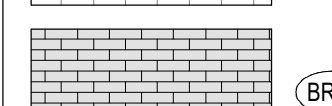
BUILDING MOUNTED CANOPIES
- 8" THICK CANOPY
- KYNAR FINISH OF STRUCTURE, FASCIA, & DECKING TO MATCH (CP-1)

COLUMN MOUNTED CANOPIES
- 10" THICK CANOPY
- FINISH OF STRUCTURE TO BE (CP-1)
- FINISH OF DECKING TO BE (CP-2)

LEGEND



BR-B



BR-A



SC-1



SC-2



EC-1

EXPANSION JOINT.
SEALANT COLOR TO
MATCH MORTAR COLOR

CARD READER BY
SECURITY
VENDOR - RE: ELEC

SCUPPER - PT-113
SEE A2 / A-503

DOWNSPOUT - PT-113
SEE A3 / A-503

MDP - PT-113
RE: ELECTRICAL

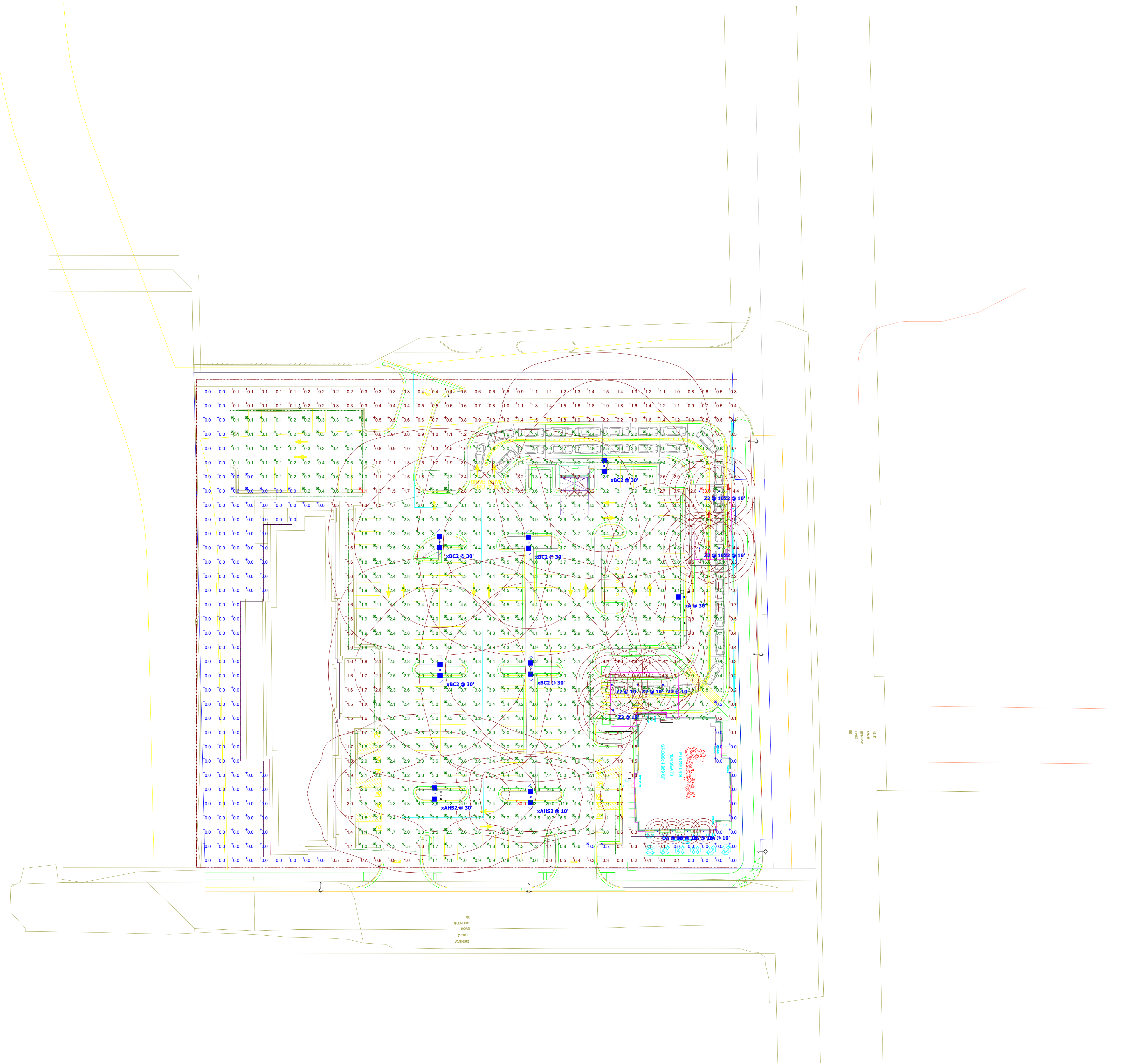
C02 FILL BOX -
RE: KITCHEN

LIGHT FIXTURE -
RE: ELECTRICAL

CT CABINET - PT-113
RE: ELECTRICAL

Exhibit F

Photometric Ú|æ



Plan View
Scale - 1" = 35ft

Schedule									
Station	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Number	Quantity	Unit
1	xA		1	VECTRA	VECTRA	VECTRA	1	100	100
2	xAM		2	VECTRA	VECTRA	VECTRA	2	100	100
3	xB		3	VECTRA	VECTRA	VECTRA	3	100	100
4	xBH		4	VECTRA	VECTRA	VECTRA	4	100	100
5	xBC		5	VECTRA	VECTRA	VECTRA	5	100	100
6	Z		6	VECTRA	VECTRA	VECTRA	6	100	100

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Drive Thru Lanes		5.9 fc	33.0 fc	0.2 fc	165.0:1	29.5:1
Parking Central		3.5 fc	30.0 fc	0.5 fc	60.0:1	7.0:1
Parking NW		0.3 fc	1.1 fc	0.0 fc	N/A	N/A
Calc Zone #3		2.7 fc	33.0 fc	0.0 fc	N/A	N/A



Exhibit G

Geotechnical Report



RED

Geotechnical Engineering Report

Chick-fil-A Restaurant #05098
Happy Valley, Clackamas County, Oregon

December 22, 2021

Terracon Project No. 82215106

Prepared for:

Chick-fil-A, Inc.
Atlanta, Georgia

Prepared by:

Terracon Consultants, Inc.
Portland, Oregon



December 22, 2021

Chick-fil-A, Inc.
5200 Bufington Road
Atlanta, Georgia 30349



Attn: Ms. Beth Witt
P: (404) 765-7822

Re: Geotechnical Engineering Report
Chick-fil-A Restaurant #05098
10101 SE 82nd Avenue
Happy Valley, Clackamas County, Oregon
Terracon Project No. 82215106

Dear Ms. Witt:

We have completed the Geotechnical Engineering services for the above referenced project. This study was performed in general accordance with Terracon Master Services Agreement dated September 29, 2021. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork, pavement and the design and construction of foundations and floor slabs for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.

Jim P. Tomkins, P.E.
Project Manager

Kristopher T. Hauck, P.E.
Principal | Office Manager

National Account Manager: Joshua J. Schilling, National Account Manager

Terracon Consultants, Inc. 700 NE 55th Ave Portland, Oregon 97213
P (503) 659 3281 F (503) 659 1287 terracon.com

Environmental



Facilities



Geotechnical



Materials

REPORT TOPICS

INTRODUCTION.....	1
SITE CONDITIONS.....	1
PROJECT DESCRIPTION.....	2
GEOTECHNICAL CHARACTERIZATION.....	3
GEOTECHNICAL OVERVIEW	6
SEISMIC CONSIDERATIONS	7
EARTHWORK	8
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FLOOR SLABS	15
LATERAL EARTH PRESSURES	17
PAVEMENTS.....	19
GENERAL COMMENTS	23
FIGURES	24

Note: This report was originally delivered in a web-based format. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
PHOTOGRAPHY LOG
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report
Chick-fil-A Restaurant #05098
10101 SE 82nd Avenue
Happy Valley, Clackamas County, Oregon
Terracon Project No. 82215106
December 22, 2021

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Chick-fil-A Restaurant #05098 to be located at 10101 SE 82nd Avenue in Happy Valley, Clackamas County, Oregon. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Excavation considerations
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification per IBC
- Lateral earth pressures
- Pavement design and construction

The geotechnical engineering Scope of Services for this project included the advancement of eight (8) test borings to depths ranging from approximately 6½ to 51½ feet below existing site grades.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and as separate graphs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The site is approximately 1.4 acres and located at the northwest corner of SE Glencoe Street and SE 82 nd Avenue in Happy Valley, Oregon. Latitude: 45.449773° N, Longitude: 122.579387° W See Site Location

Geotechnical Engineering Report

Chick-fil-A Restaurant #05098 ■ Happy Valley, Clackamas County, Oregon

December 22, 2021 ■ Terracon Project No. 82215106



Item	Description
Existing Improvements	No existing improvements exist on the site. There appears to be signs of previous building pads that were demolished and removed before explorations took place.
Current Ground Cover	Current ground is partly covered in existing pavement and gravel.
Existing Topography	The site was generally flat and level.
Site History	From review of historical aerial photographs, it appears there used to be three small buildings in the north and west area of the site that were demolished between 2012 and 2013 and another building in the southwest area of the site that was demolished between 2015 and 2016.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	Information provided included the site plan, prepared by Ware & Malcomb dated October 8, 2021
Project Description	Construction of a new single-story restaurant structure with exterior seating, parking, and a drive-through lane.
Proposed Structures	Approximately 5,000 square-foot, single-story restaurant structure, a drive-thru canopy, and a trash enclosure.
Building Construction	Wood framed with a slab-on-grade floor.
Finished Floor Elevation	Not provided, but assumed to be within a foot of existing grade.
Maximum Loads	<ul style="list-style-type: none">■ Columns: 50 kips■ Walls: 2 kips per linear foot (klf)■ Slabs: 100 pounds per square foot (psf)
Grading/Slopes	The site will be developed near existing site grades.
Below-Grade Structures	No below grade (basement) structures are anticipated.
Pavements	<p>Paved driveway and parking will be constructed on less than 1 acre of the parcel.</p> <p>Anticipated traffic is as follows:</p> <ul style="list-style-type: none">■ Autos/light trucks: 300 vehicles per day■ Heavy delivery and trash collection vehicles: 5 vehicles per week■ 75,000 lbf fire truck loading <p>The pavement design period is 20 years.</p>

Item	Description
Estimated Start of Construction	Spring 2022

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	FILL – EXISTING PAVEMENT & GRAVEL	Variable fill materials ranging from: <ul style="list-style-type: none"> 1½ inches of asphalt over 6 to 18 inches of poorly graded gravel with silt and sand at B-1, B-2, B-4, B-6, and B-8, to Approximately 6 inches of poorly graded gravel with silt and sand at B-3, B-5, and B-7
2	SANDY LEAN CLAY AND CLAYEY SAND	Lean Clay with Gravel; Sandy Lean Clay with Gravel, Clayey Sand with Gravel; medium plasticity, light brown to brown, soft to very stiff, loose to medium dense
3	GRAVEL	Poorly graded Gravel with Silt and Sand, dark brown, moist, medium dense to very dense
4	SAND	Poorly graded Sand with Silt and Gravel; Silty Sand with Gravel; fine-grained, dark brown, moist, medium dense to very dense

Geology

Based on our review of the Geologic map¹, the project vicinity is mapped as Quaternary glacial-outburst flood deposits (Qmc), coarse-grained facies. The Pleistocene catastrophic flood deposits

¹ Ma, L., I.P. Madin, S. Duplanits, and K.J. Williams, 2012, Lidar-Based Surficial Geologic Map and Database of the Greater Portland, Oregon Area, Clackamas, Columbia, Marion, Multnomah, Washington, and Yamhill Counties, Oregon, and Clark County, Washington, Oregon Department of Geology and Mineral Industries, Open-File Report 0-2012-02.

originated from the glacial outburst floods of Lake Missoula. The flood deposits were produced by the periodic failure of glacial ice dams that impounded Lake Missoula in present day Montana between 18,000 and 15,000 years ago². Floodwaters flowed through Idaho, eastern Washington, and through the Columbia River Gorge, backing up in the Willamette Valley as far south as Eugene. These sediments consist of silt, sand, and gravel, as well as older alluvial terrace/fan deposits consisting of siltstones, sandstones, and conglomerates, with mapped thickness greater than 100 feet in the central portion of the Willamette Valley³.

These deposits are underlain by Pleistocene and Pliocene Troutdale Formation sediments, which consists of sand, gravel, sandstone, conglomerate, siltstone, and mudstone. Well logs in the area show gravel flood deposits to 55 feet below the ground surface (bgs) with underlying cemented gravel that likely can be interpreted as Troutdale Formation.

Seismic Hazards

Seismic hazards resulting from earthquake motions can include slope stability, liquefaction, and surface rupture due to faulting or lateral spreading. Liquefaction is the phenomenon wherein soil strength is dramatically reduced when subjected to vibration or shaking.

We reviewed the Statewide Geohazards Viewer (HazVu) published by the Oregon Department of Geology and Mineral Studies (DOGAMI) and available online⁴. The viewer categorizes the expected earthquake shaking from light, moderate, strong, very strong, severe and violent; and the landslide susceptibility from low, moderate, high, and very high.

- Earthquake Liquefaction Hazard: Very Low
- Expected Earthquake Shaking: Very Strong
- Landslide Susceptibility (due to earthquake): Very Low

Faults

The United States Geological Survey (USGS) maintains the Quaternary Fault and Fold Database containing descriptions and locations of recently active faults within the United States. The three closest faults to the project site include the Damascus-Tickle Creek fault zone (No.879), the

² Allen, John Eliot, Burns, Marjorie, and Burns, Scott, 2009. *Cataclysms on the Columbia, The Great Missoula Floods, Revised Second Edition*: Ooligan Press, Portland State University.

³ O'Connor, Jim E., Sarna-Wojcicki, Andrei, Wozniak, Karl C., Polette, Daniel J., and Fleck, Robert J., 2001. *Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon*: U.S. Geological Survey, Professional Paper 1620.

⁴ *Statewide Geohazards Viewer (HazVu)* published by the Oregon Department of Geology and Mineral Industries (DOGAMI) <https://gis.dogami.oregon.gov/hazvu/>

Portland Hills fault (No.877), and the Grant Butte fault (No.878). Published information pertaining to each fault or fault zone is provided in the following tables:

Damascus-Tickle Creek fault zone (Class A) No. 879

Information	Description
Length	16 km
Strike (degrees)	N0°E
Sense of Movement	Right lateral, Left lateral, Reverse
Dip Direction	60–90°
Slip-rate Category	Less than 0.2 mm/yr
Most recent prehistoric deformation	Middle and late Quaternary (<750 ka)
Distance from Fault	3 km E-NE

Portland Hills fault (Class A) No. 877

Information	Description
Length	49 km
Strike (degrees)	N37°W
Sense of Movement	Reverse, Right lateral
Dip Direction	SW
Slip-rate Category	Less than 0.2 mm/yr
Most recent prehistoric deformation	Undifferentiated Quaternary (<1.6 Ma)
Distance from Fault	4 km W

Grant Butte fault (Class A) No. 878

Information	Description
Length	10 km
Strike (degrees)	N90°E
Sense of Movement	Normal
Dip Direction	N
Slip-rate Category	Less than 0.2 mm/yr
Most recent prehistoric deformation	Middle and late Quaternary (<750 ka)
Distance from Fault	3.5 km NE

Based on our review of the available fault information, the depth to bedrock, and the site's proximity to the nearest known faults, and the activity of mapped faults, it is our opinion that the risk of surface rupture at the site due to ground faulting is low.

Groundwater Conditions

We observed our explorations while drilling and after completion for the presence and level of groundwater. The water levels observed in the explorations are provided on the boring logs in **Exploration Results**, and are summarized below.

Geotechnical Engineering Report

Chick-fil-A Restaurant #05098 ■ Happy Valley, Clackamas County, Oregon

December 22, 2021 ■ Terracon Project No. 82215106



Boring Number	Approximate Ground Surface Elevation (feet) ¹	Approximate Depth to Groundwater while Drilling (feet) ¹	Approximate Depth to Groundwater after Drilling (feet) ¹
B-2	200	49	--

¹. Based on elevations obtained from Google Earth and depth to the observed groundwater during explorations. Note the assumed ground surface elevation is presented on the boring logs.

Well logs available on the Oregon Water Resources Department (OWRD)⁵ website indicate that groundwater levels in the area of the site generally range from about 70 to 85 feet below site grades. The depth to groundwater map for the Portland area⁶ indicates groundwater is present at a depth of about 37 feet bgs at the site with a “low” uncertainty status.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

GEOTECHNICAL OVERVIEW

The soil borings indicate that subsurface conditions at the project site generally consist of soft to very stiff, low to medium plasticity clays and loose to very dense sands and gravels. GeoModel Layer 1 soil consists of undocumented fill (asphalt and poorly grade gravel with silt). This fill is most likely from the previous development. We interpret the fill to be undocumented because the documentation provided is unclear if the soils within the proposed development were observed and tested under engineering oversight. Therefore, the fill presents an inherent risk. The GeoModel Layer 2 soil ranges from loose to medium dense in relative density and soft to very stiff in consistency. The soil from Layer 2 encountered in the upper 5 feet showed some potential for static and consolidation settlement. However, the recommendations as indicated below should minimize this risk from both the undocumented fill in Layer 1 and the soil from Layer 2.

We recommend a 12-inch layer of compacted Select Fill placed below the bottom of the footings and proposed slab for the proposed building. For the slab, the 12 inches is in addition to the base course

⁵ Oregon Water Resources Department, 2021. Well Log Records, accessed November 2021, from OWRD web site: http://apps.wrd.state.or.us/apps/gw/well_log/.

⁶ Snyder, D.T., 2008, Estimated depth to ground water and configuration of the water table in the Portland, Oregon area: U.S. Geological Survey, Scientific Investigations Report SIR-2008-5059, scale 1:60,000.

thickness for the slab. This layer will act as a layer of separation to avoid structures bearing on the undocumented fill or soft/loose soils and prevent settlement as noted above.

Subsurface Conditions: The near surface, fine-grained soil (GeoModel Layer 2) could become unstable with typical earthwork and construction traffic, especially after precipitation events. The effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Dry weather grading is recommended to minimize ground disturbance. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

Foundation Recommendations: Conventional, shallow spread footings may be used for support of the new footings placed on at least 12 inches of compacted Select Fill. Specific recommendations for shallow foundations are presented in the **Shallow Foundations** section of this report.

Floor Slabs: The slab-on-grade floors should be supported on 12 inches Select Fill in addition to the aggregate base placed over native subgrade per **Earthwork** recommendations or compacted structural fill. The subgrades should be protected from moisture fluctuations (drying and wetting) during and after construction to reduce the heave potential of the clay soils. Wet site conditions may require replacement of the upper 1 foot or more of wet yielding subgrades with structural fill.

Pavements: Conventional asphaltic concrete and Portland cement concrete pavements are suitable for this development. The **Pavements** section addresses the design of pavement systems. The exposed pavement subgrade should consist of medium stiff or better subgrade and be adequately proofrolled.

The **General Comments** section provides an understanding of the report limitations.

SEISMIC CONSIDERATIONS

The seismic design requirements for structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7-16.

Description	Value
2019 Oregon Structural Specialty Code (OSSC) ¹	D ²

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Description	Value
Site Latitude	45.449962°N
Site Longitude	122.579642°W
S _s Spectral Acceleration for a Short Period ³	0.886
S ₁ Spectral Acceleration for a 1-Second Period ³	0.385

1. Seismic site classification in general accordance with the 2019 Oregon Structural Specialty Code (OSSC), which refers to ASCE 7-16.
2. ASCE 7-16 requires a site soil profile extending to a depth of 100 feet be used for seismic site classification. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.
3. These values were obtained using online seismic design maps and tools available on the Applied Technology Council (ATC) website referenced in Section 1613.2.1 of the 2019 OSSC.

Liquefaction

Liquefaction is the phenomenon where saturated soils develop high pore-water pressures during seismic shaking and lose their strength characteristics. This phenomenon generally occurs in areas of high seismicity, where groundwater is shallow and loose granular soils or relatively low-to non-plastic fine-grained soils are present. Groundwater was encountered at 49 feet, and groundwater in the vicinity of this site reported to be at least 37 feet below ground surface or deeper. Due to the relative depth of groundwater at this site, and the fact that the poorly graded sand with silt and gravel layer at this depth was observed to be medium dense to very dense, we estimate the risk of liquefaction resulting in seismic related settlements at the site to be very low.

EARTHWORK

Earthwork is anticipated to include clearing, demolition, excavations, and fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs, and pavements.

Site Preparation

Prior to placing fill, existing vegetation and root mat should be removed. Existing vegetation was not encountered in any of our borings (with the exception of some surface grass at boring B7), but was observed onsite and within some of the proposed parking lot and drive aisles. Site preparation will also require demolition of the existing asphalt, and removing the undocumented fill below the asphalt, and any unsuitable soil materials in proposed developments areas.

Remnants of an old slab were observed within the building footprint within the upper 4 inches as shown in boring B-3. Prior to placing fill, all unsuitable soils should be removed within the building footprint. Where existing utility lines are encountered during construction activities, such features shall be removed within the building pad limits, utilities should be properly capped at the site perimeter, and the trenches should be backfilled in accordance with structural fill recommendations presented in the following sections of this report.

The subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded tandem-axle dump truck. The proof-rolling should be performed under the direction of the Geotechnical Engineer. Areas excessively deflecting under the proof-roll should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or modified by stabilizing with new structural fill. Excessively wet or dry material should either be removed or moisture conditioned and recompacted.

Due to the soft clays, it is important to not allow significant moisture fluctuations of the exposed native subgrades during construction. If subgrades are allowed to dry significantly, this could increase the risk of swelling of site soils post construction. Therefore, we recommend that exposed native soils be covered as soon as feasible with the recommended Select Fill and not be allowed to become overly dry during dry season earthwork.

Existing Fill

As noted in **Geotechnical Characterization**, all borings encountered existing fill to depths ranging from about ½ foot to 1½ feet. The fill appears to have been placed in a controlled manner, but we have no records to indicate the degree of control. Due to the shallow nature of this fill, we recommend that the existing fill underneath the proposed floor slabs and pavements be removed to a minimum depth of 12 inches below subgrade elevation and replaced with compacted fill. Options for fill are listed in the **Fill Material Types Section**.

Once the planned subgrade elevation has been reached the entire pavement area should be proofrolled. Areas of soft or otherwise unsuitable material should be undercut and replaced with either new structural fill or suitable, existing on site materials.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 5 feet of structures, pavements or constructed slopes. General fill is material used to achieve grade outside of these areas. Earthen materials used for structural and general fill should meet the following material property requirements:

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Soil Type ¹	USCS Classification	Acceptable Parameters (for Structural Fill)
Common Fill	Oregon DOT Standard Specifications for Construction (ODOT SSC) 00330.13 Selected General Backfill with exception of $LL < 40$ ³ and $PI \leq 10$.	All locations across the site, except within building pad (and 5 feet beyond) and upper 12 inches below the pavement subgrades ² . Dry weather conditions only.
Select Fill	ODOT SSC 00330.14 Selected Granular Backfill with exception of no more than 5% passing the No. 200 sieve by weight	All locations across the site, wet or dry weather conditions acceptable.
Crushed Aggregate Base Course (CABC)	ODOT SSC 02630.10 Dense Graded Aggregate (2"-0 to 3/4"-0) with the exception of less than 8 percent passing the No. 200 sieve.	All gradations are acceptable within the building pad. Use 1"-0 or 3/4"-0 gradation for floor slab and pavement base course materials.

1. Controlled, compacted fill should consist of approved materials that are free (free = less than 3% by weight) of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.

2. The building pad is defined as the footprint of the building plus a horizontal bearing splay of 2/3 the depth of any overexcavation.

3. Note that the native soils do not meet these minimum requirements for re-use as structural fill.

It should be noted that the onsite native materials are overly moist, exhibit low to moderate plasticity, and likely do not meet the requirements of structural fill above for reuse. Selection of the fill material types identified during construction should follow the requirements above for placement of structural fill.

Fill Compaction Requirements

Structural and general fill should meet the following compaction requirements.

Item	Structural Fill
Minimum Compaction Requirements ¹	95 percent of the material's maximum modified Proctor dry density (ASTM D 1557).
Moisture Content ²	Within ± 2 percent of optimum moisture content as determined by the Modified Proctor test, at the time of placement and compaction.
Minimum Testing Frequency	One field density test per 20,000 square feet or fraction thereof per 1-foot lift.

Item	Structural Fill
<ol style="list-style-type: none"><li>1. We recommend that engineered fill be tested for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.<li>2. Specifically, moisture levels should be maintained low enough to allow for satisfactory compaction to be achieved without the cohesionless fill material pumping when proofrolled.	

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the building.

Exposed ground should be sloped and maintained at a minimum 5% away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure's maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Earthwork Construction Considerations

Shallow excavations for the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of floor slabs. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to floor slab construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the

information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of vegetation and topsoil, proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

Each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency stated in **Earthwork**.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. In the event unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Bearing Provisions

We recommend that all footings bear on newly placed Select Fill extending a minimum of 12 inches below design footing subgrade and outward at least 12 inches beyond the footprint of the proposed building and footing edges. The upper 12 inches of structural fill should consist of Select Fill (per the **Fill Material Types** section recommendations within the concrete pad). The Select Fill should be compacted to the densities described in section **Fill Compaction Requirements** section of this report.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing Pressure ^{1,2}	3,000 psf (foundations constructed on structural fill)

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Item	Description	
Required Bearing Stratum³	12 inches minimum structural fill as described in Bearing Provisions above undisturbed, medium stiff or better native soils	
Minimum Foundation Dimensions	Columns: 30 inches	Continuous: 18 inches
Ultimate Passive Resistance⁴ (equivalent fluid pressures)	480 pcf (granular backfill)	
Ultimate Coefficient of Sliding Friction⁵	0.55 (granular material)	
Minimum Embedment below Finished Grade⁶	Exterior footings in unheated areas:	18 inches
	Exterior footings in heated areas:	18 inches
	Interior footings in heated areas:	12 inches
Compaction requirements	95% of the materials maximum Modified Proctor dry density for a depth of 12 inches below footing and slabs.	
Minimum Testing Frequency	One field density test per footing for the spread footing.	One field density test per 50 linear feet for continuous footing.
Estimated Total Settlement from Structural Loads²	Less than about 1 inch	
Estimated Differential Settlement^{2,7}	About 2/3 of total settlement	

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. Values assume that exterior grades are no steeper than 20% within 5 feet of structure.
2. Values provided are for maximum loads noted in **Project Description**.
3. Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in the **Earthwork**.
4. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
6. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
7. Differential settlements are as measured over a span of 50 feet.

Design Parameters – Canopy Foundations

Item	Description
Maximum Net Allowable Bearing Pressure ^{1,2}	<p><u>Option 1</u> - 3,000 psf (foundations constructed on structural fill)</p> <p><u>Option 2</u> – 1,500 psf (foundation bearing directly on undisturbed native soil)</p>
Required Bearing Stratum ³	<p><u>Option 1</u> - 12 inches minimum structural fill as described in Bearing Provisions above on top of native soils</p> <p><u>Option 2</u> – Native soil</p>
Minimum Foundation Dimensions	<p>Columns: 30 inches</p> <p>Continuous: 18 inches</p>
Ultimate Passive Resistance ⁴ (equivalent fluid pressures)	480 pcf (granular backfill)
Ultimate Coefficient of Sliding Friction ⁵	0.55 (granular material)
Minimum Embedment below Finished Grade ⁶	Exterior footings in unheated areas: 18 inches
Compaction requirements	95% of the materials maximum Modified Proctor dry density for a depth of 12 inches below footing and slabs.
Minimum Testing Frequency	One field density test per footing for the spread footing.
Estimated Total Settlement from Structural Loads ²	Less than about 1 inch

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied.
2. Values provided are for maximum loads noted in **Project Description**.
3. Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in the **Earthwork**.
4. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted structural fill be placed against the vertical footing face.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. **Should be neglected for foundations subject to net uplift conditions.**
6. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.

Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated under the direction of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing

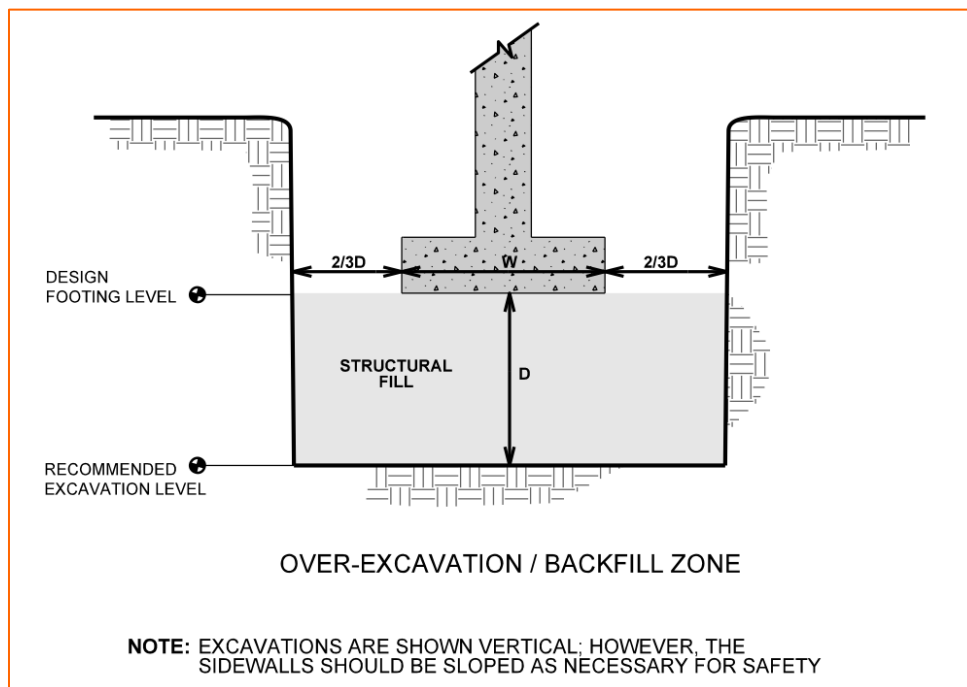
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soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

The recommendations in the **Shallow Foundations** table recommend undercutting 12 inches to native, undisturbed soils and replacement with structural fill. Undercutting for structural fill placement below footings should be conducted as shown below. As previously stated, this undercutting is recommended to account for the moderate to high plasticity lean and fat clays anticipated during excavation. The over-excavation should be backfilled up to the footing base elevation, with Select Fill or CAB placed, as recommended in the **Earthwork** section.



FLOOR SLABS

Design parameters for floor slabs assume the requirements for **Earthwork** have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab. Due to the presence of low to moderate plasticity, soft clays, and the presence of undocumented fill, we recommend removal of the top 12 inches of subgrade and replacing it with compacted Select Fill as noted in the Fill Material Types section. The purpose of the granular fill underneath the floor slabs is to provide separation from the soft clays and to reduce the risk of settlement, by making them deeper below the finish ground surface.

Floor Slab Design Parameters

Item	Description
Floor Slab Support ¹	Minimum 6 inches of crushed aggregate (CABC) in addition to the 12 inches of Select Fill compacted to at least 95% of ASTM D 1557 ^{2, 3}
Subgrade	Native or stable proof-rolled subgrade per Earthwork recommendation or compacted structural fill.
Estimated Modulus of Subgrade Reaction ²	150 pounds per square inch per inch (psi/in) for point loads

1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.
2. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.
3. Free-draining granular material should have less than 5% fines (material passing the No. 200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

The use of a vapor retarder should be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

Settlement of floor slabs supported on existing fill materials cannot be accurately predicted, but could be larger than normal and result in some cracking. Mitigation measures, as noted in **Existing Fill** within **Earthwork**, are critical to the performance of floor slabs. In addition to the mitigation measures, the floor slab can be stiffened by adding steel reinforcement, grade beams and/or post-tensioned elements.

Floor Slab Construction Considerations

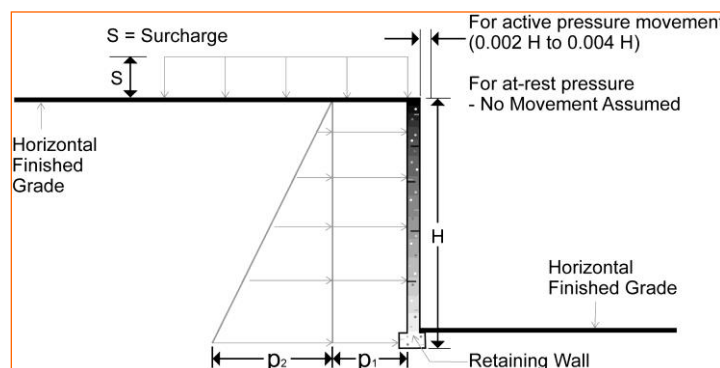
Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

LATERAL EARTH PRESSURES

Design Parameters

Structures with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to values indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown in the diagram below. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes wall movement. The “at-rest” condition assumes no wall movement and is commonly used for basement walls, loading dock walls, or other walls restrained at the top. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls (unless stated).



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Lateral Earth Pressure Design Parameters				
Earth Pressure Condition ¹	Coefficient for Backfill Type ²	Surcharge Pressure ^{3, 4, 5} p_1 (psf)	Effective Fluid Pressures (psf) ^{2, 4, 5}	
			Unsaturated ⁶	Submerged ⁶
Active (K_a)	0.24	(0.24)S	(31)H	-
At-Rest (K_o)	0.38	(0.38)S	(50)H	-
Passive (K_p)	4.20	-	(546)H	-

1. For active earth pressure, wall must rotate about base, with top lateral movements 0.002 H to 0.004 H, where H is wall height. For passive earth pressure, wall must move horizontally to mobilize resistance.
2. Uniform, horizontal backfill, compacted to at least 95% of the ASTM D 698 maximum dry density, rendering a maximum unit weight of 130 pcf.
3. Uniform surcharge, where S is surcharge pressure.
4. Loading from heavy compaction equipment is not included.
5. No safety factor is included in these values.
6. To achieve "Unsaturated" conditions, follow guidelines in **Subsurface Drainage for Below-Grade Walls** below. "Submerged" conditions are recommended when drainage behind walls is not incorporated into the design.

Backfill placed against structures should consist of granular soils or low plasticity cohesive soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively.

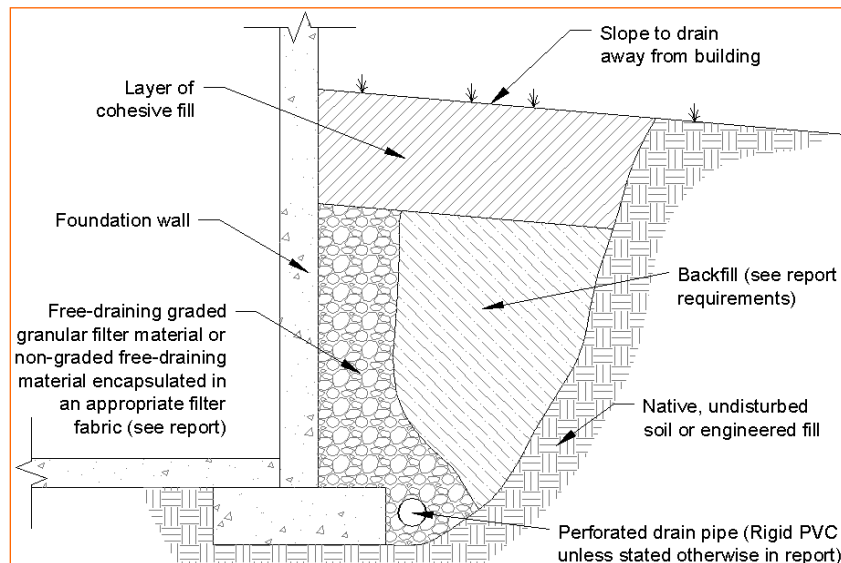
Subsurface Drainage for Below-Grade Walls

A perforated rigid plastic drain line installed behind the base of walls and extends below adjacent grade is recommended to prevent hydrostatic loading on the walls. The invert of a drain line around a below-grade building area or exterior retaining wall should be placed near foundation bearing level. The drain line should be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The pipe should be surrounded by a minimum of 4 inches of clean free-draining granular material, such as Oregon Standard Specifications Section 00430.11 Granular Drain Backfill 1¼" - ¾". The free-draining aggregate should be encapsulated in a filter fabric. The granular fill should extend to within 2 feet of final grade, where it should be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.

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As an alternative to free-draining granular fill, a pre-fabricated drainage structure may be used. A pre-fabricated drainage structure is a plastic drainage core or mesh which is covered with filter fabric to prevent soil intrusion, and is fastened to the wall prior to placing backfill.

PAVEMENTS

General Pavement Comments

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Pavement Design Parameters

Provided the existing subgrade soils are tested, evaluated and prepared in accordance with the recommendations provided in this report, these materials should provide suitable pavement support. The subgrade materials within the proposed pavement areas are generally expected to consist of a sandy lean clay having an estimated minimum California Bearing Ratio (CBR) value of 7.

Based on our expectation that the car parking area will be subjected to automobile traffic only and that the drive areas will be subjected to a maximum of five delivery trucks/trash collection trucks per week, it is our opinion that Chick-fil-A's minimum pavement sections noted below are acceptable for this site.

Pavement Section Thicknesses

The following table provides recommended Asphalt Concrete Pavement (AC) and Portland Cement Concrete Pavement (PCC) thicknesses:

Minimum Pavement Section Thickness (inches)						
Pavement Area ¹	Alternative	Asphalt ² Concrete Surface Course	Asphalt Concrete Binder Course	Portland Cement Concrete	Aggregate Base Course ³	Total Thickness
Parking	AC	2	2	--	8.0	12.0
Parking	PCC	--	--	5½	8.0	13½
Drive-Through/Canopy	AC	2½	2½	--	8.0	13.0
Drive-Through/Canopy	PCC	--	--	6.0	8.0	14.0

1. See **Project Description** for more specifics regarding Light Duty and Medium Duty traffic.

2. All materials should meet the Oregon Department of Transportation (ODOT) Standard Specifications for Highway and Construction (2021).

■ Asphaltic Surface - ODOT Type A Asphaltic Cement Concrete: Section 00744

■ Asphaltic Base - ODOT Type B Asphaltic Cement Concrete, Class I: Section 00745

■ Concrete Pavement - ODOT Portland Cement Concrete Type C: Section 00756

13. A minimum 1.5-inch surface course should be used on ACC pavements.

For flexible pavement, the recommended granular base course should be compacted to at least 95% of the maximum dry density, as determined by ASTM D 1557 or evaluated in the field in a test strip subjected to repeated passes of a 10-ton, or heavier, roller.

The recommended granular base course should be compacted to at least 95% of the maximum dry density, as determined by ASTM D 1557 or evaluated in the field in a test strip subjected to repeated passes of a 10-ton, or heavier, roller.

The listed pavement component thicknesses should be used as a guide for pavement systems at the site for the traffic classifications stated herein. These recommendations assume a 20-year pavement design life and an average weekly truck traffic value of 1 (for the tractor trailers). They also assume 300 automobiles a day, and 5 light delivery trucks and trash collection vehicles per week. Joint locations and reinforcement should be in accordance with ACI 330R-01. If the design life or loads will be different than that specified, Terracon should be contacted and allowed to review these pavement sections.

We recommend a minimum 7-inch thick PCC pavement be utilized in entrance and exit sections, dumpster pads, loading areas, or other areas where extensive wheel maneuvering are expected.

Portland cement concrete should be designed with proper air-entrainment and have a minimum compressive strength of 4,000 psi after 28 days of laboratory curing. Adequate reinforcement and number of longitudinal and transverse control joints should be placed in the rigid pavement in accordance with ACI requirements. The joints should be sealed as soon as possible (in accordance with sealant manufacturer's instructions) to minimize infiltration of water into the soil.

Design Considerations

Traffic patterns and anticipated loading conditions were not available at the time that this report was prepared. However, we anticipate that traffic loads will be produced primarily by automobile traffic and occasional delivery and trash removal trucks. The thickness of pavements subjected to heavy truck traffic should be determined using expected traffic volumes, vehicle types, and vehicle loads and should be in accordance with local, city or county ordinances.

Long-term pavement performance will be dependent upon several factors, including maintaining subgrade moisture levels and providing for preventive maintenance. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to parking lots and drives should slope down from pavement edges at a minimum 2%;
- The subgrade and the pavement surface should have a minimum ¼-inch per foot slope to promote proper surface drainage;
- Install pavement drainage surrounding areas anticipated for frequent wetting (e.g., wash racks);
- Install joint sealant and seal cracks immediately;
- Seal all landscaped areas in, or adjacent to pavements to reduce moisture migration to subgrade soils;
- Place compacted, low permeability backfill against the exterior side of curb and gutter; and,
- Place curb, gutter and/or sidewalk directly on low permeability subgrade soils rather than on unbound granular base course materials.

Pavement Construction Considerations

On most project sites, the site grading is accomplished relatively early in the construction phase. Fills are placed and compacted, and the initial surface is prepared in a relatively uniform manner. However, as construction proceeds, excavations will be made into these areas, rainfall and surface water may saturate some areas, heavy traffic from construction equipment disturbs the subgrade, and surface irregularities are often filled with loose materials. As a result, the pavement subgrades should be carefully evaluated as the time for pavement construction approaches. Within a few days of planned paving, we recommend the pavement areas be proofrolled with a loaded tandem axle dump truck (minimum weight 20 tons). Particular attention should be given to high traffic areas that have been rutted and disturbed, and to areas where backfilled trenches

are located. Any areas found to be unstable should be repaired by removing and replacing the materials with dense graded crushed stone, or by recompact the soils to the specified density and moisture limits.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. The subgrade and the pavement surface should have a minimum $\frac{1}{4}$ inch per foot slope to promote drainage. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the base layer.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

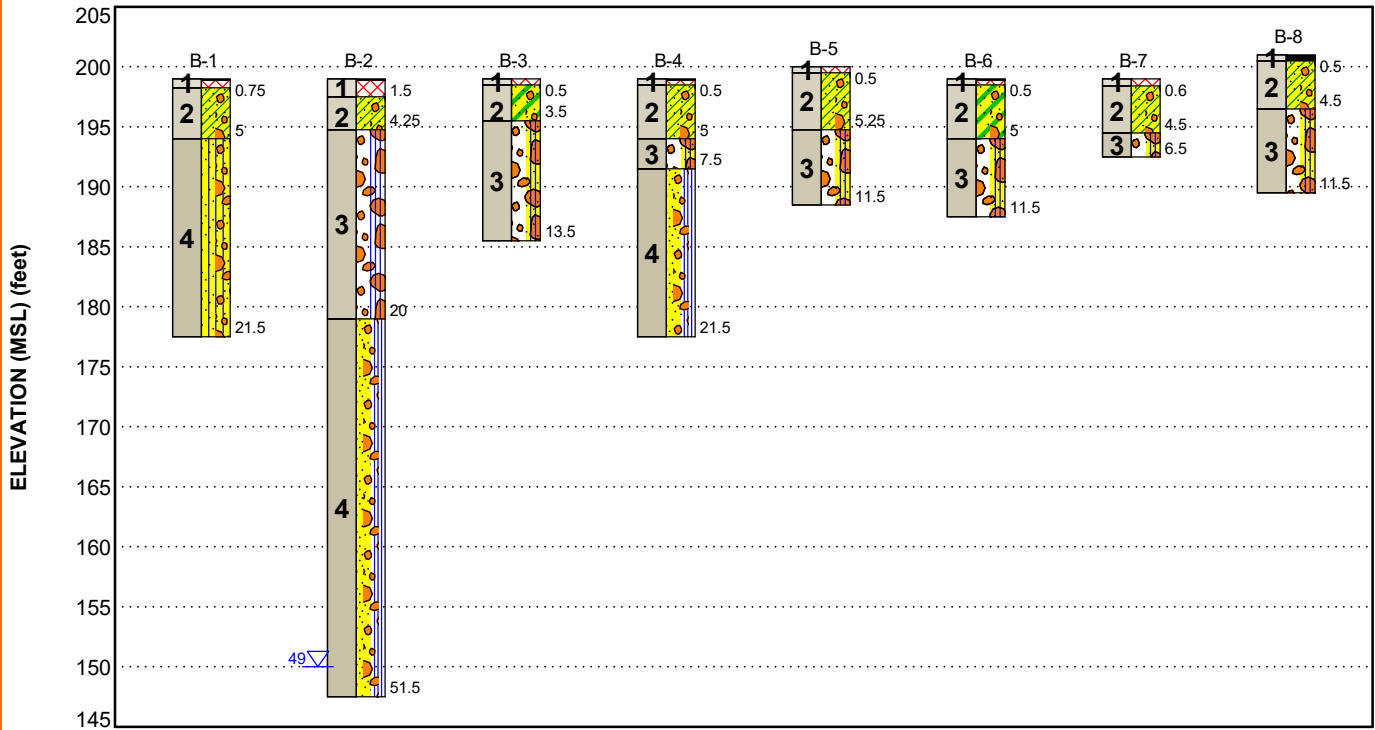
FIGURES

Contents:

GeoModel

GEOMODEL

CFA_FSU 05098_SE 82nd Ave Portland_GEO ■ Portland, OR
Terracon Project No. 82215106



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	FILL – EXISTING PAVEMENT & GRAVEL	Variable fill materials ranging from: <ul style="list-style-type: none"> 1½ inches of asphalt over 6 to 18 inches of poorly graded gravel with silt and sand at B-1, B-2, B-4, B-6, and B-8, to Approximately 6 inches of poorly graded gravel with silt and sand at B-3, B-5, and B-7
2	SANDY LEAN CLAY AND CLAYEY SAND	Lean Clay with Gravel; Sandy Lean Clay with Gravel, Clayey Sand with Gravel; medium plasticity, light brown to brown, soft to very stiff, loose to medium dense
3	GRAVEL	Poorly graded Gravel with Silt and Sand, dark brown, moist, medium dense to very dense
4	SAND	Poorly graded Sand with Silt and Gravel; Silty Sand with Gravel; fine-grained, dark brown, moist, medium dense to very dense

LEGEND

Asphalt	Silty Sand with Gravel	Clayey Sand with Gravel
Fill	Poorly-graded Gravel with Silt	Poorly-graded Gravel with Silt and Sand
Sandy Lean Clay with Gravel	Poorly-graded Sand with Silt and Gravel	

First Water Observation

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Borings	Boring Depth (feet)	Planned Location
4	13½ to 51½	Building
1	11½	Drive-Through Lane
1	11½	Canopy Structure
1	6½	Parking Lot Drive Aisles
1	11½	Dumpster Pad

Boring Layout and Elevations: Unless otherwise noted, Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ± 10 feet) and approximate elevations were obtained by interpolation from aerial photographs using Google Earth Pro. If elevations and a more precise boring layout are desired, we recommend borings be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted rotary drill rig using continuous flight augers (solid stem and/or hollow stem, as necessary, depending on soil conditions). Five samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter, with the exception of the borings that hit refusal. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge was pushed hydraulically into the soil to obtain a relatively undisturbed sample. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 3-inch O.D. split-barrel sampling spoon with 2.5-inch I.D. ring lined sampler was used for sampling. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with bentonite chips and auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and by Mass
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D1557 Standard Test Methods of Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 KN-m/m³))
- ASTM D2166/D2166M Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
- ASTM D1883 Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils
- ASTM D2435/D2435M Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Geotechnical Engineering Report

Chick-fil-A Restaurant #05098 ■ Happy Valley, Clackamas County, Oregon
December 22, 2021 ■ Terracon Project No. 82215106



PHOTOGRAPHY LOG



Photo 1 B4, Close-Up



Photo 2 B4, Facing Southeast



Photo 3 B2, Close-Up



Photo 4 B2, Facing southwest



Photo 5 B1, Close-Up



Photo 6 B1, Facing west



Photo 7 B3, Close-Up



Photo 8 B3, Facing southeast



Photo 9 B5, Close-Up



Photo 10 B5, Facing west



Photo 11 B8, Facing northwest



Photo 12 B6, Close-Up



Photo 13 B6, Facing Southeast



Photo 14 - B7, Close-Up



Photo 15 - B7, Facing Northwest

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan

Exploration Plan

Note: All attachments are one page unless noted above.

December 22, 2021 ■ Terracon Project No. 82215106

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: GLADSTONE, OR (1/1/1984).

December 22, 2021 ■ Terracon Project No. 82215106



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

EXPLORATION RESULTS

Contents:

Exploration Logs (B-1 through B-8)

Consolidation Test

Unconfined Compression Test

Atterberg Limits

CBR

Proctor

Note: All attachments are one page unless noted above.

BORING LOG NO. B-1

Page 1 of 1

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4495° Longitude: -122.5794° Surface Elev.: 199 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.1 / 0.8 ASPHALT , 1.5-inch thickness	199 / 198.5			11-5-3 N=8		19.0			
2		FILL - POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine to coarse grained, subrounded to angular, brown, medium dense SANDY LEAN CLAY WITH GRAVEL (CL) , low to medium plasticity, light brown, moist, stiff medium stiff				2-1-3 N=4		16.3			
		5.0	194			11-11-12 N=23		11.4			13
		SILTY SAND WITH GRAVEL (SM) , fine to coarse grained, dark brown, moist, medium dense				8-12-17 N=29		10.2			
		dense	10			11-22-25 N=47		3.9			
		medium dense	15			7-11-11 N=22		15.0			
		dense	20			22-20-17 N=37		5.2			12
		Boring Terminated at 21.5 Feet	21.5								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon

700 NE 55th Ave
Portland, OR

Boring Started: 10-25-2021

Boring Completed: 10-26-2021

Drill Rig: Track mounted

Driller: Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82215106 CFA_FSU 05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/30/21

BORING LOG NO. B-2

Page 1 of 3

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4495° Longitude: -122.5793° Surface Elev.: 199 (Ft.) DEPTH ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.1' ASPHALT , 1.5-inch thickness 1.5' FILL - POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine to coarse grained, angular, dark brown, moist, very dense	199 197.5			13-14-10/-9"		6.0			
2		SANDY LEAN CLAY WITH GRAVEL (CL) , low to medium plasticity, light brown, moist, soft 4.3' very stiff	195			5-14-14 N=28	280	22.7	102	35-20-15	60
3		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine to coarse grained, angular, dark brown, moist, medium dense				6-10-10 N=20		18.3 5.2			32
						8-11-11 N=22		8.7			
						6-9-9 N=18		11.7			
4		POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) , fine grained, dark brown, moist, dense	20.0 179			8-14-17 N=31		5.8			8

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

10/26/2021 09:00

Terracon

700 NE 55th Ave
Portland, OR

Boring Started: 10-25-2021

Boring Completed: 10-26-2021

Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_82215106 CFA_FSU_05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/30/21

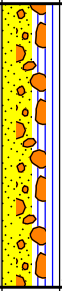

BORING LOG NO. B-2

Page 3 of 3

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4495° Longitude: -122.5793° Surface Elev.: 199 (Ft.) DEPTH ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
4		POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) , fine grained, dark brown, moist, dense (continued) wet 51.5 147.5	50		X	N=27					
					X	15-15-10 N=25		21.6			11
		Boring Terminated at 51.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.


See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

 10/26/2021 09:00

Terracon
700 NE 55th Ave
Portland, OR

Boring Started: 10-25-2021

Boring Completed: 10-26-2021

Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106




BORING LOG NO. B-3

Page 1 of 1

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4498° Longitude: -122.5794° Surface Elev.: 199 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.5 FILL - POORLY GRADED GRAVEL WITH SILT AND SAND , fine grained, dark brown, moist, loose, rebar present pieces observed at 4 inches	198.5			2-1-2 N=3		23.5			
2		CLAYEY SAND WITH GRAVEL (SC) , fine grained, low to medium plasticity, brown, moist, loose	195.5					18.5	129	30-18-12	32
3		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine to coarse grained, angular, dark brown, moist, dense medium dense dense very dense	185.5			10-12-20 N=32		7.3			
						8-9-9 N=18		12.9			
						27-22-28 N=50		5.8			
						29-22-33 N=55		4.4			
		Refusal at 13.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
700 NE 55th Ave
Portland, OR

Boring Started: 10-26-2021

Boring Completed: 10-26-2021

Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82215106 CFA_FSU 05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/30/21

BORING LOG NO. B-4

Page 1 of 1

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4498° Longitude: -122.5792° Surface Elev.: 199 (Ft.) DEPTH ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.1 / 199 0.5 / 198.5 ASPHALT , 1.5-inch thickness FILL - POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine grained, angular, dark brown, moist, medium dense SANDY LEAN CLAY WITH GRAVEL (CL) , low to medium plasticity, brown, moist, medium stiff	0.1 0.5			10-3-3 N=6		26.2		37-20-17	
2		5.0 / 194 POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine grained, angular, dark brown, moist, dense	5.0			0-2-5 N=7		22.9			
3		7.5 / 191.5 POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) , medium to coarse grained, medium dense	7.5			10-22-19 N=41		8.6			
4		21.5 / 177.5 dense	21.5			5-7-6 N=13		10.9			
						10-7-14 N=21		13.3			
						14-16-11 N=27		8.9			
						26-23-15 N=38					
		Boring Terminated at 21.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
700 NE 55th Ave
Portland, OR

Boring Started: 10-25-2021

Boring Completed: 10-25-2021

Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82215106 CFA_FSU 05098_SE.GPJ TERRACON DATATEMPLATE.GDT 11/30/21

BORING LOG NO. B-5

Page 1 of 1

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.449900° Longitude: -122.579600° Surface Elev.: 200 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.5 FILL - POORLY GRADED GRAVEL WITH SILT AND SAND , fine grained, angular, dark brown, moist, medium dense	199.5		X	11-7-4 N=11		7.0			
2		SANDY LEAN CLAY WITH GRAVEL (CL) , low to medium plasticity, brown, moist, stiff soft			X	4-2-1 N=3		19.1			
		5.3	195	5	X	21-19-18 N=37		20.1			
3		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine to coarse grained, angular, dark brown, moist, dense medium dense			X	11-9-7 N=16		8.2			
		11.5	188.5	10	X	11-9-11 N=20		8.1			
		Boring Terminated at 11.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:
Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
700 NE 55th Ave
Portland, OR

Boring Started: 10-26-2021

Boring Completed: 10-26-2021

Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82215106 CFA_FSU_05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/30/21

BORING LOG NO. B-6

Page 1 of 1

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4501° Longitude: -122.5795° Surface Elev.: 199 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.1 / 0.5 ASPHALT , 1.5-inch thickness ELEVATION (Ft.) 199 / 198.5									
2		FILL - POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine grained, angular, dark brown, moist CLAYEY SAND WITH GRAVEL (SC) , fine grained, low to medium plasticity, brown, moist, medium dense				3-3-11 N=14		17.5		31-20-11	33
3		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine to coarse grained, angular to subrounded, dark brown, moist, medium dense	5.0 194			11-11-16 N=27		8.1			
						4-7-7 N=14		11.1			
						11-8-10 N=18		8.2			
		Boring Terminated at 11.5 Feet	11.5 187.5								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (if any).

Notes:

Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon

700 NE 55th Ave
Portland, OR

Boring Started: 10-26-2021

Boring Completed: 10-26-2021

Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82215106 CFA_FSU 05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/30/21




BORING LOG NO. B-7

Page 1 of 1

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4503° Longitude: -122.5793° Surface Elev.: 199 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.6 FILL - POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine grained, angular, dark brown, moist, surface grass present	198.5					8.9			
2		SANDY LEAN CLAY WITH GRAVEL (CL) , low to medium plasticity, brown, moist, stiff				0-4-9 N=13		17.8			
								20.4			
3		4.5 POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine grained, angular, dark brown, moist, dense	194.5								
						28-22-28 N=50					
		6.5 Boring Terminated at 6.5 Feet	192.5								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
700 NE 55th Ave
Portland, OR

Boring Started: 10-26-2021

Boring Completed: 10-26-2021

Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82215106 CFA_FSU 05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/30/21

BORING LOG NO. B-8

Page 1 of 1

PROJECT: Chick-fil-A Restaurant #05098

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4503° Longitude: -122.5799° Surface Elev.: 201 (Ft.) DEPTH ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (psf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1		0.5 ASPHALT , 6-inch thickness 200.5				12-10-11 N=21		7.8			
2		SANDY LEAN CLAY WITH GRAVEL (CL) , low to medium plasticity, brown, moist, very stiff medium stiff 4.5 196.5				4-2-2 N=4		11.8			
3		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine grained, angular, dark brown, moist, medium dense dense 11.5 189.5	5 10			8-8-8 N=16 7-13-14 N=27 23-24-24 N=48		10.8 5.6 7.7			4
		Boring Terminated at 11.5 Feet									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow stem auger 6-inch O.D.

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Elevations were interpolated from aerial photographs using Google Earth Pro

Abandonment Method:
Boring backfilled with Auger Cuttings and/or Bentonite

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
700 NE 55th Ave
Portland, OR

Boring Started: 10-26-2021

Boring Completed: 10-27-2021

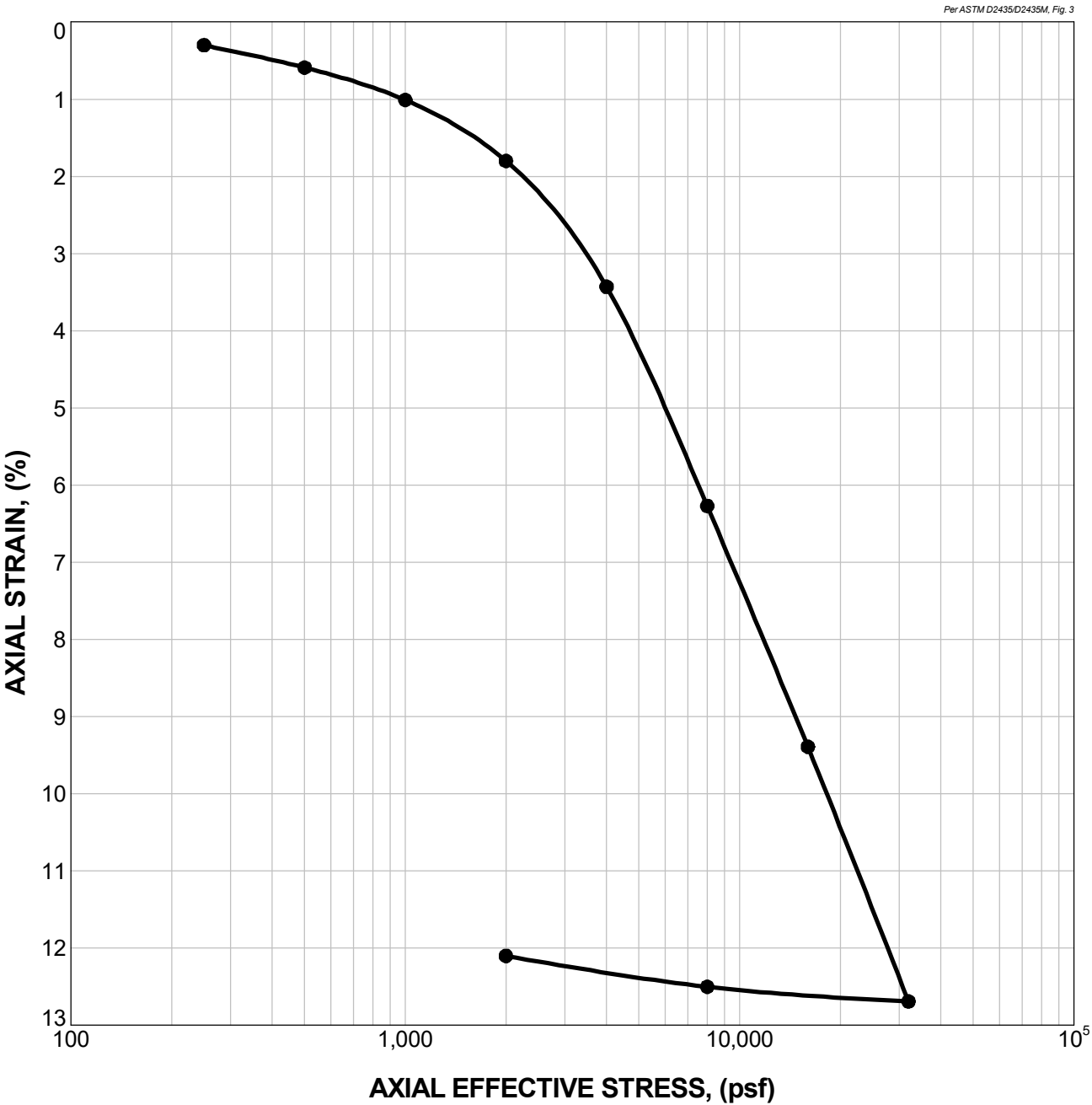
Drill Rig: Track mounted

Driller: Jeff Crisman

Project No.: 82215106

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82215106 CFA_FSU 05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/30/21

CONSOLIDATION TEST (D2435)



Natural		Initial Dry Density (pcf)	LL	PI	Sp. Gr.	Overburden (psf)	P _c (psf)	C _c (%/log stress)	C _u (%/log stress)	Initial Void Ratio
Saturation	Moisture									
90.5 %	22.7 %	99.4	35	15	2.65	183	4,073	10.962	0.490	0.665

MATERIAL DESCRIPTION									USCS	AASHTO
SANDY LEAN CLAY WITH GRAVEL (CL)									CL	A-6

NOTES:

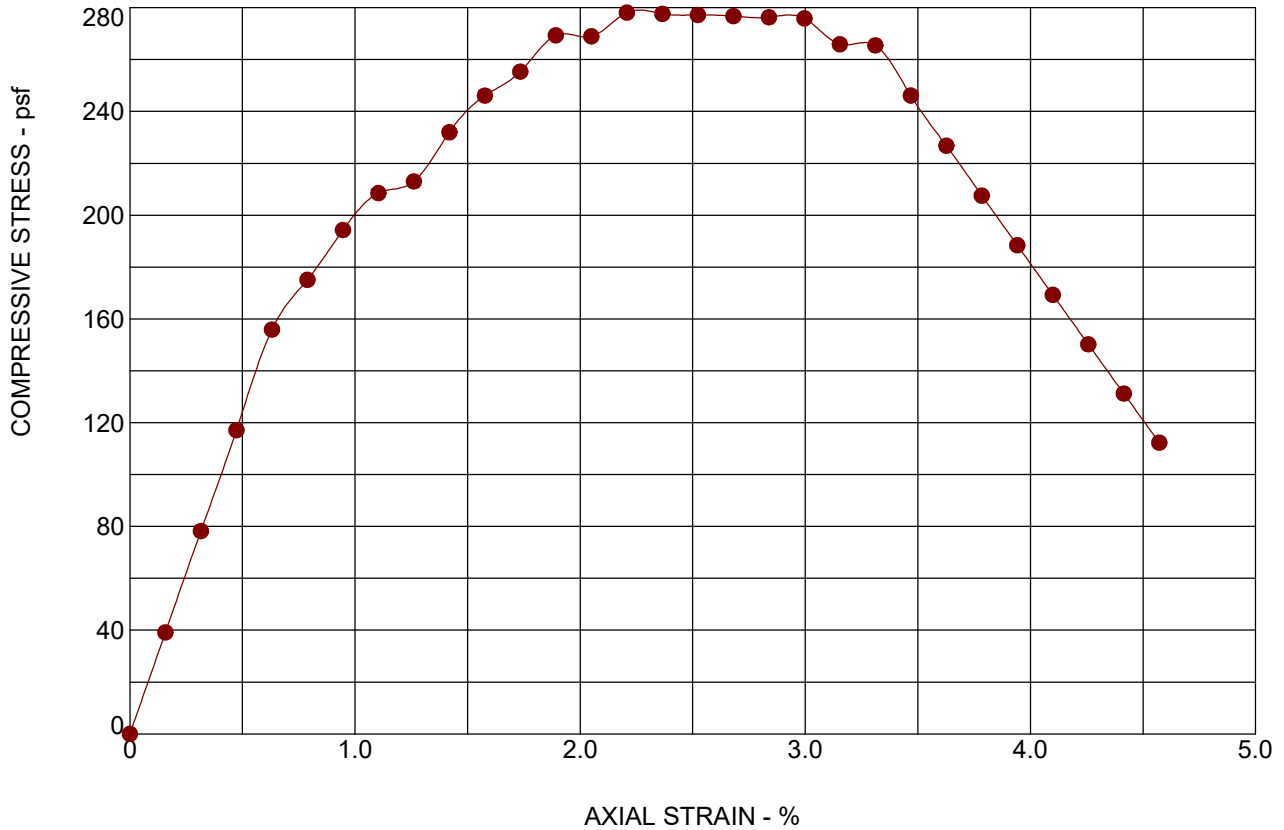
Borehole: B2 Depth: 1.5 ft Specimen #: 2

PROJECT: Chick-fil-A Restaurant #05098	<div>Terracon</div> <div>700 NE 55th Ave Portland, OR</div>	PROJECT NUMBER: 82215106
SITE: SE 82nd Ave and SE Glencoe Road, Happy Valley, OR		CLIENT: Chick-fil-A, Inc. Irvine, CA

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. CONS_LOAD-DEF_PROP_STRESS-STRAIN_82215106 CFA_FSU 05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/16/21

UNCONFINED COMPRESSION TEST

ASTM D2166



SPECIMEN FAILURE PHOTOGRAPH



SPECIMEN TEST DATA

Moisture Content:	%	22.7
Dry Density:	pcf	102
Diameter:	in.	2.84
Height:	in.	6.34
Height / Diameter Ratio:		2.23
Calculated Saturation:	%	96.08
Calculated Void Ratio:		0.62
Assumed Specific Gravity:		2.65
Failure Strain:	%	2.21
Unconfined Compressive Strength	(psf)	278
Undrained Shear Strength:	(psf)	139
Strain Rate:	in/min	
Remarks:		

SAMPLE TYPE: Shelby Tube

SAMPLE LOCATION: B2 @ 1.5 - 3.5 feet

DESCRIPTION: SANDY LEAN CLAY(CL)

LL
35

PL
20

PI
15

Percent < #200 Sieve
59.7

PROJECT: Chick-fil-A Restaurant #05098

Terracon
700 NE 55th Ave
Portland, OR

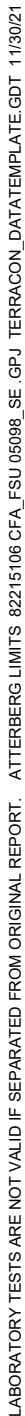
PROJECT NUMBER: 82215106

SITE: SE 82nd Ave and SE Glencoe Road,
Happy Valley, OR

CLIENT: Chick-fil-A, Inc.
Irvine, CA

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS 82215106 CFA_FSU 05098_SE.GPJ TERRACON_DATATEMPLATE.GDT 11/12/21

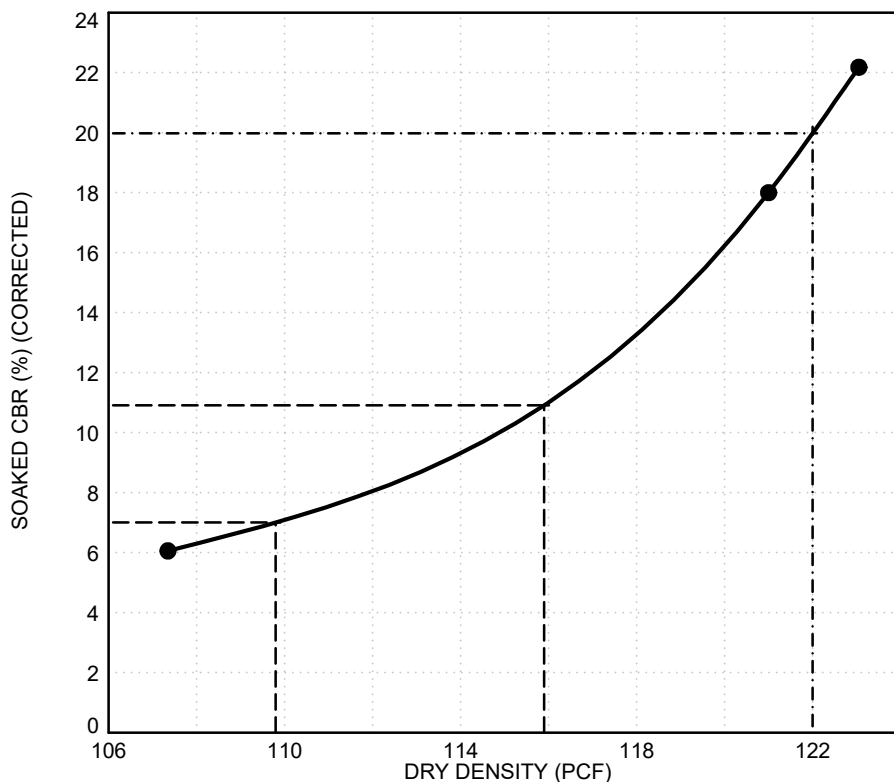
ASTM D4318



CLIENT: Chick-fil-A, Inc.
Irvine, CA

CALIFORNIA BEARING RATIO

ASTM D1883-07²



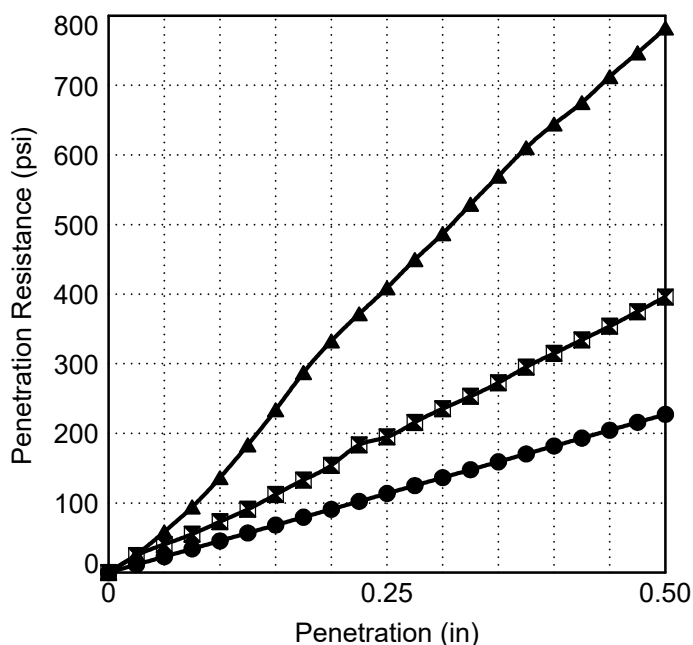
Source of Material B-5 (bulk) @ 0.5 - 5 feet

Description of Material SANDY LEAN CLAY WITH GRAVEL (CL)

Remarks: _____

Percent Fines _____ %

Atterberg Limits LL PL PI



Sample No.	1	2	3
Sample Condition	Soaked		
Compaction Method	ASTM 1557B		
Maximum Dry Density, (pcf)	122	122	122
Optimum Moisture Content, (%)	13.8	13.8	13.8
Dry Density before Soaking, (pcf)	107.35	121.00	123.05
Moisture Content, (%)			
After Compaction	14.7	15.1	14.7
Top 1" After Soaking	18.4	15.3	16.4
Surcharge, (lbs)	15.00	15.00	15.00
Swell, (%)	0.09	0.02	0.02
Bearing Ratio, (%)	6.1	10.3	22.2

Dry Density @ 90% 109.8 pcf

Dry Density @ 95% 115.9 pcf

Dry Density @ 100% 122.0 pcf

CBR @ 90% Density 7.0

CBR @ 95% Density 10.9

CBR @ 100% Density 20.0

PROJECT: Chick-fil-A Restaurant #05098

SITE: SE 82nd Ave and SE Glencoe Road
Happy Valley, OR

Terracon
700 NE 55th Ave
Portland, OR

PROJECT NUMBER: 82215106

CLIENT: Chick-fil-A, Inc.
Irvine, CA

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557

Source of Material B5 (bulk) @ 0.5 - 5 feet

Description of Material SANDY LEAN CLAY WITH
GRAVEL (CL)

Remarks: _____

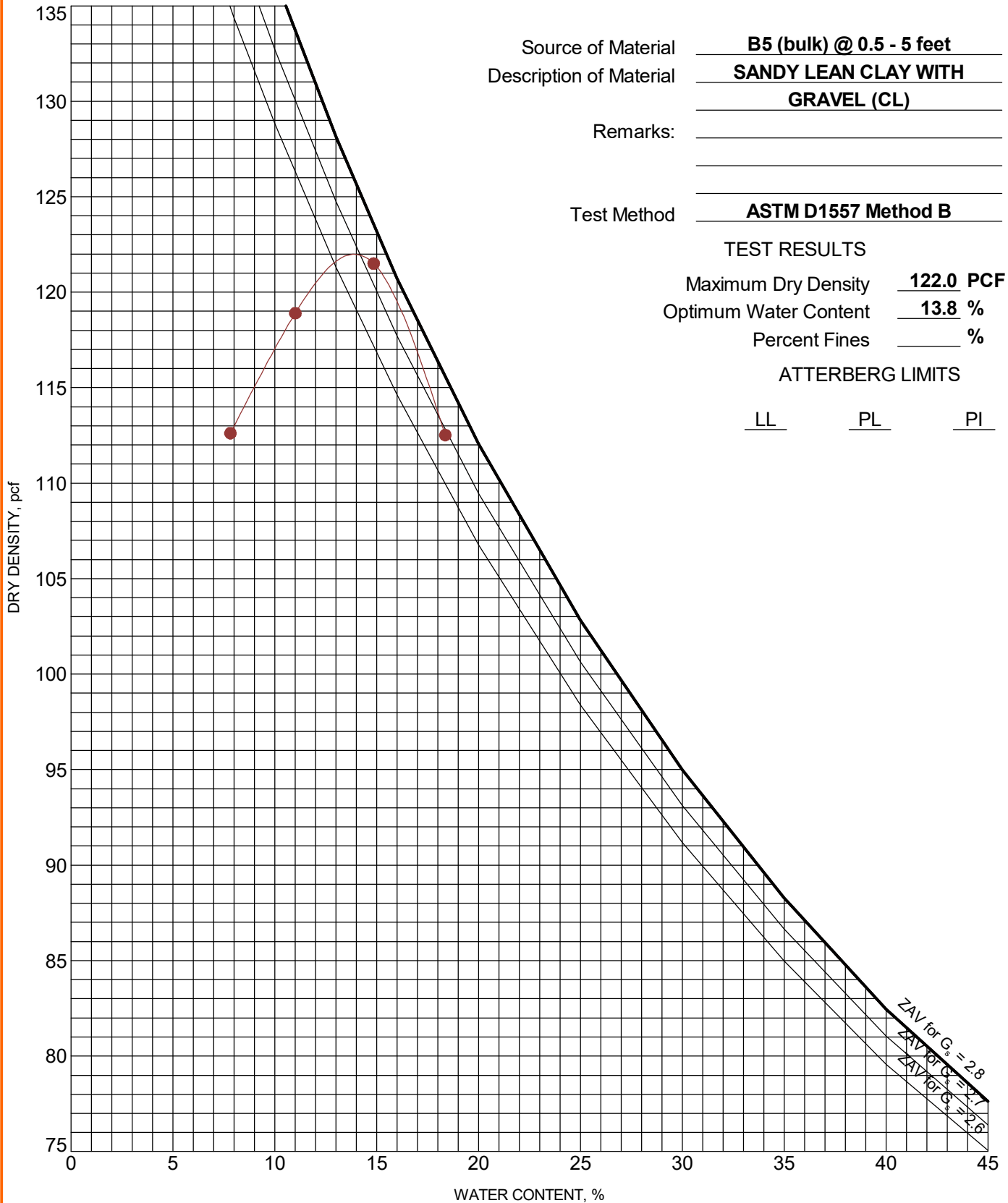
Test Method ASTM D1557 Method B

TEST RESULTS

Maximum Dry Density 122.0 PCF
Optimum Water Content 13.8 %
Percent Fines _____ %

ATTERBERG LIMITS

LL PL PI



PROJECT: Chick-fil-A Restaurant #05098

SITE: SE 82nd Ave and SE Glencoe Road,
Happy Valley, OR

Terracon
700 NE 55th Ave
Portland, OR

PROJECT NUMBER: 82215106

CLIENT: Chick-fil-A, Inc.
Irvine, CA

SUPPORTING INFORMATION

Contents:

General Notes

Unified Soil Classification System








Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

CFA_FSU 05098_SE 82nd Ave Happy Valley ■ OR

Terracon Project No. 82215106

SAMPLING	WATER LEVEL	FIELD TESTS
 Grab Sample  Shelby Tube  Standard Penetration Test	 Water Initially Encountered  Water Level After a Specified Period of Time  Water Level After a Specified Period of Time  Cave In Encountered <p>Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.</p>	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See [Exploration and Testing Procedures](#) in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (psf)	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	Very Soft	less than 500	0 - 1
Loose	4 - 9	Soft	500 to 1,000	2 - 4
Medium Dense	10 - 29	Medium Stiff	1,000 to 2,000	4 - 8
Dense	30 - 50	Stiff	2,000 to 4,000	8 - 15
Very Dense	> 50	Very Stiff	4,000 to 8,000	15 - 30
		Hard	> 8,000	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A					Soil Classification	
					Group Symbol	Group Name ^B
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F	
			$Cu < 4$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ ^E	GP	Poorly graded gravel ^F	
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}	
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I	
			$Cu < 6$ and/or $[Cc < 1 \text{ or } Cc > 3.0]$ ^E	SP	Poorly graded sand ^I	
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above “A”	CL	Lean clay ^{K, L, M}	
			$PI < 4$ or plots below “A” line ^J	ML	Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}
			Liquid limit - not dried			Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above “A” line	CH	Fat clay ^{K, L, M}	
			PI plots below “A” line	MH	Elastic Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

$$^E Cu = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.

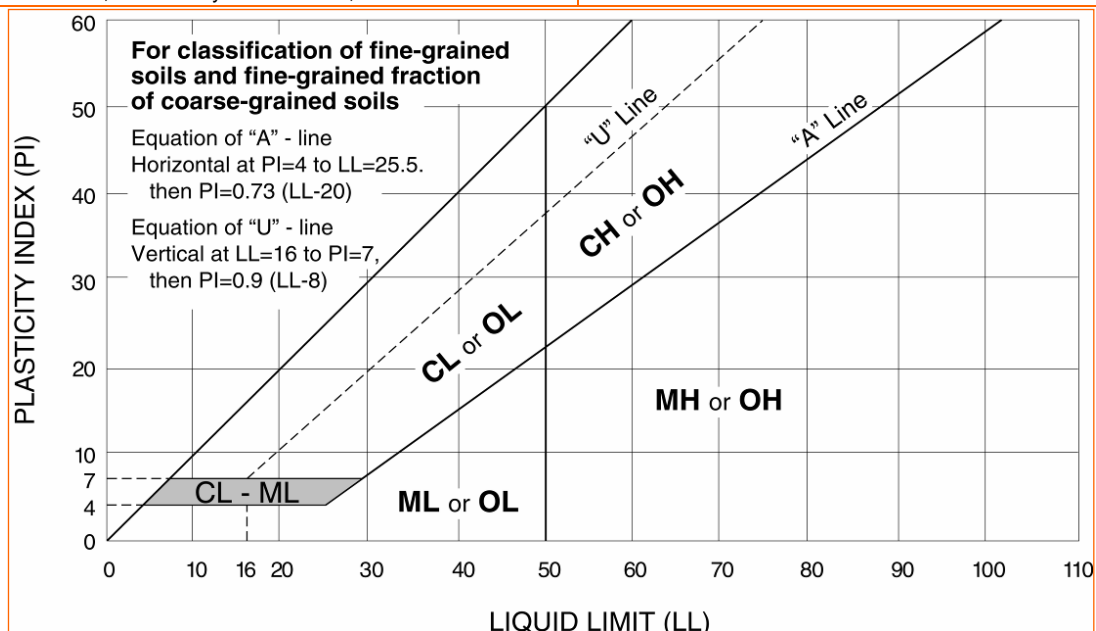


Exhibit H

Infiltration Testing Addendum



July 19, 2022

Chick-fil-A, Inc.
5200 Bufington Road
Atlanta, Georgia 30349

Attn: Ms. Beth Witt
P: (404) 765-7822
E: beth.witt@cfacorp.com

Re: Addendum No. 1: Infiltration Testing
Chick-fil-A Restaurant #05098
10101 SE 82nd Avenue
Happy Valley, Clackamas County, Oregon

Terracon Project No. 82225080

Dear Ms. Witt:

This letter presents the results of our additional subsurface exploration and infiltration testing for the proposed restaurant building to be located at 10101 SE 82nd Avenue in Happy Valley, Oregon. Our services were performed in accordance with Change Request #3 dated June 6, 2022, to our Master Services Agreement dated September 29, 2021. Terracon previously performed a geotechnical investigation at the site, the results of which were presented in our report entitled "Geotechnical Engineering Report, Chick-fil-A Restaurant #05098, 10101 SE 82nd Avenue, Happy Valley, Clackamas County, Oregon," Terracon Project No. 82215106, dated December 22, 2021.

INTRODUCTION

The design team requested we perform infiltration testing at two locations at the project site and provided a map, prepared by DOWL, dated May 13, 2022, showing the proposed locations. The map indicated that the tests should be performed at 5 feet below ground surface (bgs). This addendum describes the additional subsurface explorations and provides results of our infiltration testing.

SITE CONDITIONS AND GEOTECHNICAL CHARACTERIZATION

Site conditions at the time of our infiltration testing appeared unchanged from those described in the referenced Geotechnical Engineering Report.



Terracon Consultants, Inc. 700 NE 55TH Avenue Portland, Oregon 97213
P [503] 659 3281 F [503] 659 1287 terracon.com

Geotechnical



Environmental



Construction Materials



Facilities

Infiltration Testing Results

Chick-fil-A Restaurant #05098 ■ Happy Valley, Oregon

July 19, 2022 ■ Terracon Project No. 82225080



As part of our supplemental infiltration testing scope of services for the proposed development, we advanced two additional drilled borings to depths ranging from approximately 6½ to 7 feet bgs. Soils encountered during the exploration consisted of undocumented fill over poorly graded gravel (GP) with silt and sand and silty gravel (GM) which are consistent with GeoModel Layers 1 and 3, respectively, as described in the **Geotechnical Characterization** section of the referenced geotechnical report. Boring logs showing the soils encountered are presented in the **Exploration Results** of the **Attachments** at the end of this report. A map showing the site and boring locations are shown in the attached **Exploration Plan**.

Groundwater Conditions

We observed our explorations while drilling and after completion for the presence and level of groundwater during the current and previous site investigations. Groundwater was not encountered during our 2022 investigation. Groundwater levels previously observed in on-site explorations during our 2021 investigation are provided on the boring logs in **Exploration Results** section of the referenced geotechnical report, and are summarized in the following table:

Boring Number	Approximate Ground Surface Elevation (feet) ¹	Approximate Depth to Groundwater while Drilling (feet) ¹	Approximate Depth to Groundwater after Drilling (feet) ¹
B-2	200	49	--

¹. Based on elevations obtained from Google Earth and depth to the observed groundwater during explorations. Note the assumed ground surface elevation is presented on the boring logs.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

STORMWATER MANAGEMENT

The infiltration tests were performed in general accordance with the Encased Falling Head test method described in Appendix E of the Stormwater Standards, Clackamas County Service District No. 1, dated July 1, 2013. The tests were conducted in 6-inch inner diameter PVC pipes placed into holes predrilled using an 8-inch-diameter solid stem auger. The PVC pipes were pushed approximately 4 to 6 inches into the soils at the infiltration test depth to create a seal with the surrounding soils, and open-graded gravel was placed in the bottom of the pipe to prevent scouring.

Infiltration Testing Results

Chick-fil-A Restaurant #05098 ■ Happy Valley, Oregon

July 19, 2022 ■ Terracon Project No. 82225080



Water was introduced into the test pipe to establish a 12-inch head, and the subsurface soils were soaked for four hours in accordance with the test method.

We attempted to soak the subsurface soils in IT-1 by pouring an approximate 12-inch column of water into the pipe. The water infiltrated into the subsurface materials in less than 10 minutes. This was repeated a second time with similar results; therefore, we immediately proceeded with the infiltration test in general accordance with the referenced test method. We poured 6 inches of water into the pipe and recorded the time required for the water to completely infiltrate into the subsurface materials during each trial. We administered five trials in IT-1.

The test pipe at IT-2 was filled with 12 inches of water, and the soils were allowed to soak for 4 hours in accordance with the test method. The water level was topped off as needed during the soaking period to maintain the water level. After the soaking period, we adjusted the water level to 6 inches, and the drop in water level was recorded at 10-minute intervals. The water level was adjusted periodically to reestablish the 6-inch head. Measurements were taken with a tape measure and recorded to the nearest one-eighth of an inch. A total of 12 measurements were recorded.

Soil samples were collected at the infiltration test depths following completion of the testing for laboratory analysis.

Test results are presented in the **Exploration Results** section of this report, and are summarized in the following table:

Infiltration Test Location	Recommended Raw Infiltration Rate for Design (does not include safety or correction factors)
IT-1	51 inches per hour
IT-2	6 inches per hour

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this letter, to provide observation and testing services during pertinent construction phases. If variations appear, we

Infiltration Testing Results

Chick-fil-A Restaurant #05098 ■ Happy Valley, Oregon

July 19, 2022 ■ Terracon Project No. 82225080



can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

CLOSURE

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this letter or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.

Ryan T. Houser, RG, CEG
Project Geologist

Rick L. Chesnut, P.E. (UT)
Senior Principal

ATTACHMENTS

Contents:

Exploration Plan

General Notes

Unified Soil Classification System

Exploration Results (Borings IT-1 and IT-2)

Infiltration Test Results (2 pages)

EXPLORATION PLAN

CFA 05098 Infiltration Testing ■ Happy Valley, OR
July 15, 2022 ■ Terracon Project No. 82225080

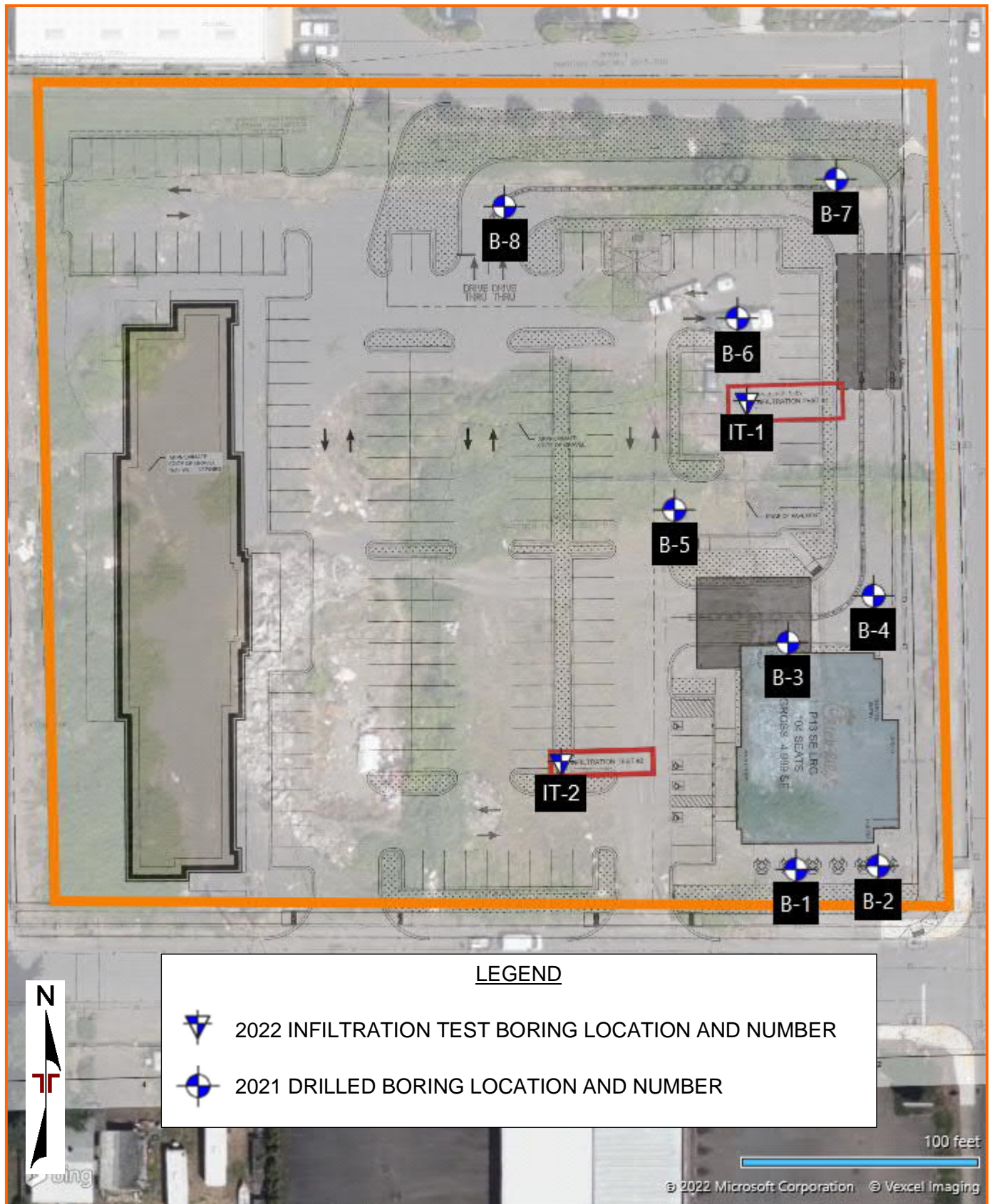


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS
NOT INTENDED FOR CONSTRUCTION PURPOSES






AERIAL PHOTOGRAPHY PROVIDED
BY MICROSOFT BING MAPS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

CFA 05098 Infiltration Testing ■ Happy Valley, OR

Terracon Project No. 82225080

SAMPLING	WATER LEVEL	FIELD TESTS
 Standard Penetration Test	 Water Initially Encountered	N Standard Penetration Test Resistance (Blows/Ft.)
	 Water Level After a Specified Period of Time	(HP) Hand Penetrometer
	 Water Level After a Specified Period of Time	(T) Torvane
	 Cave In Encountered	(DCP) Dynamic Cone Penetrometer
	<p>Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.</p>	UC Unconfined Compressive Strength
		(PID) Photo-Ionization Detector
		(OVA) Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See [Exploration and Testing Procedures](#) in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength Qu, (tsf)	Standard Penetration or N-Value Blows/Ft.
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A					Soil Classification	
					Group Symbol	Group Name ^B
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	Cu ≥ 4 and 1 ≤ Cc ≤ 3 ^E	GW	Well-graded gravel ^F	
			Cu < 4 and/or [Cc<1 or Cc>3.0] ^E	GP	Poorly graded gravel ^F	
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}	
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	Cu ≥ 6 and 1 ≤ Cc ≤ 3 ^E	SW	Well-graded sand ^I	
			Cu < 6 and/or [Cc<1 or Cc>3.0] ^E	SP	Poorly graded sand ^I	
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	PI > 7 and plots on or above “A”	CL	Lean clay ^{K, L, M}	
			PI < 4 or plots below “A” line ^J	ML	Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}
			Liquid limit - not dried			Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above “A” line	CH	Fat clay ^{K, L, M}	
			PI plots below “A” line	MH	Elastic Silt ^{K, L, M}	
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat	

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

$$Cu = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

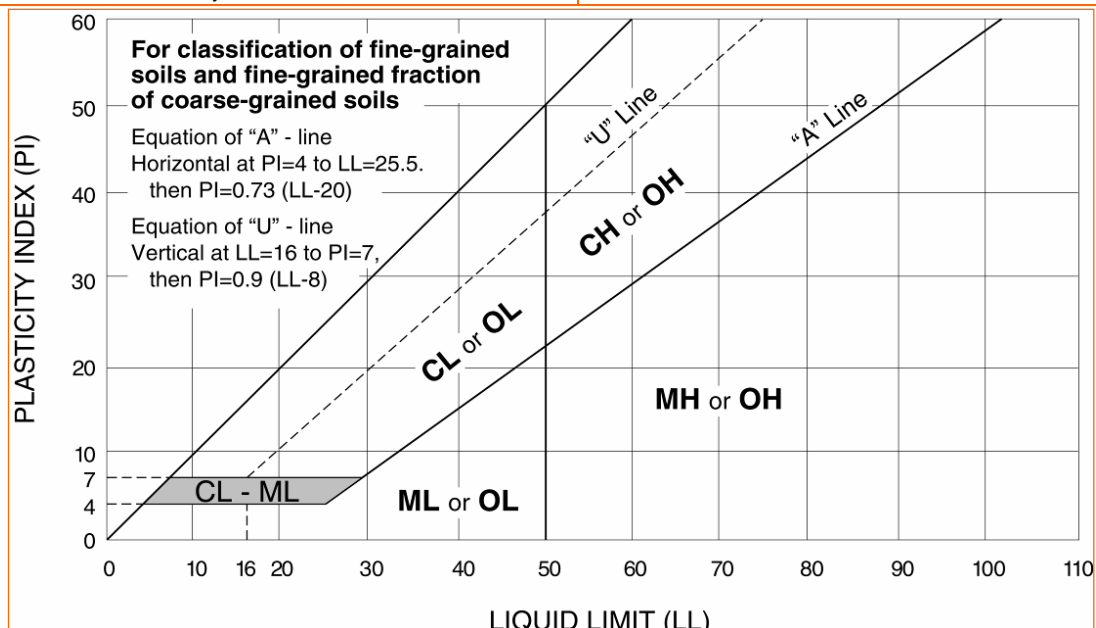
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.





BORING LOG NO. IT-1

Page 1 of 1

PROJECT: CFA 05098 Infiltration Testing

CLIENT: Chick-fil-A Inc.
Irvine, CA

SITE: 10101 SE 82nd Avenue
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4501° Longitude: -122.5795° DEPTH ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)
1		0.1 FILL - ASPHALT 0.8 FILL - SILTY GRAVEL (GM) , subrounded, brown, moist, {base course}	210 209.5				
3		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) , fine to coarse grained, subrounded, brown, moist, medium dense	1 2 3 4 5 6 6.5			11-10-9 N=19 9-8-8 N=16	6.4 6.1
		Boring Terminated at 6.5 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Solid Stem Auger

Abandonment Method:
Boring backfilled with cuttings and bentonite, surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations determined using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon

700 NE 55th Ave
Portland, OR

Boring Started: 07-05-2022

Drill Rig: Buck Rogers 160

Project No.: 82225080

Boring Completed: 07-05-2022

Driller: Dan Fischer

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_82225080 CFA 05098 INFILTR.GPJ TERRACON_DATATEMPLATE.GDT 7/14/22



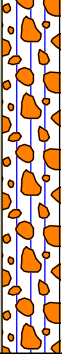
BORING LOG NO. IT-2

Page 1 of 1

PROJECT: CFA 05098 Infiltration Testing

CLIENT: Chick-fil-A Inc.
Irvine, CA

SITE: 10101 SE 82nd Avenue
Happy Valley, OR

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 45.4497° Longitude: -122.5798° DEPTH	Surface Elev.: 211 (Ft.) ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	WATER CONTENT (%)
1		FILL - SILTY GRAVEL (GM) , brown, moist, contains crushed concrete and asphalt		1				
				2				
		2.5	208.5					
		FILL - LEAN CLAY (CL) , trace gravel, low plasticity, brown, moist, medium stiff to stiff		3				
				4				
		4.0	207					
3		SILTY GRAVEL (GM) , subrounded, brown, moist, very dense		5			2-2-2 N=4	38.1
				6				
				7			5-21-29 N=50	13.6
		7.0	204					
		Boring Terminated at 7 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Solid Stem Auger

Abandonment Method:
Boring backfilled with cuttings and bentonite, surface capped with asphalt

See [Supporting Information](#) for explanation of symbols and abbreviations.

Elevations determined using Google Earth Pro

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
700 NE 55th Ave
Portland, OR

Boring Started: 07-05-2022

Drill Rig: Buck Rogers 160

Project No.: 82225080

Boring Completed: 07-05-2022

Driller: Dan Fischer

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL 82225080 CFA 05098 INFILTR.GPJ TERRACON_DATATEMPLATE.GDT 7/14/22

Infiltration Testing Results

CFA Happy Valley ■ Happy Valley, Clackamas County, Oregon

Test Date: July 05, 2022 ■ Terracon Project No. 82225080



Project	CFA Happy Valley		Date	7/5/2022	Exploration Number	IT-1
Test Method	Encased Falling Head		Inner Diameter of Pipe	6 inches	Infiltration Test Depth	4 feet
Soil at infiltration test depth		Poorly Graded Gravel (GP)		Approximate Test Elevation ¹		206 feet
Presaturation Start Time		10:25:00 AM	12 inches of water added			
Presaturation End Time		10:31:00 AM	Water completely drained			
Presaturation Start Time		10:31:00 AM	12 inches of water added			
Presaturation End Time		10:40:00 AM	Water completely drained			
Time	Time Interval (Minutes)		Drop in Water level (inches)	Infiltration Rate ² (inches per hour)	Remarks	
10:40 AM			---		6 inches of water added	
	7		6	51.4	6 inches of water added	
	7		6	51.4	6 inches of water added	
	7		6	51.4	6 inches of water added	
	7		6	51.4	6 inches of water added	
	7		6	51.4	6 inches of water added	

¹ Elevation interpolated from Google Earth Pro

² Values calculated are raw (unfactored) rates.

Infiltration Testing Results

CFA Happy Valley ■ Happy Valley, Clackamas County, Oregon

Test Date: July 05, 2022 ■ Terracon Project No. 82225080



Project	CFA Happy Valley		Date	7/5/2022	Exploration Number	IT-2
Test Method	Encased Falling Head		Inner Diameter of Pipe	6 inches	Infiltration Test Depth	5½ feet
Soil at infiltration test depth		Silty Gravel (GM)		Approximate Test Elevation ¹		205½ feet
Presaturation Start Time		9:00 AM	Presaturation Notes	Water added to pipe approximately every half hour during presaturation period to maintain 12-inch head.		
Presaturation End Time		1:00 PM				
Head During Presaturation		12 inches				
Time	Time Interval (Minutes)	Measurement ² (inches)	Drop in Water level (inches)	Infiltration Rate ³ (inches per hour)	Remarks	
1:01 PM	0	66 1/2	---		Water adjusted to provide 6 inch head	
1:11 PM	10	67 1/2	1	6		
1:21 PM	10	69	1 1/2	9		
1:31 PM	10	70 7/8	1 7/8	11 1/4		
1:41 PM	10	72 1/4	1 3/8	8 1/4		
1:44 PM		66 1/2			Water adjusted to provide 6 inch head	
1:54 PM	10	68	1 1/2	9		
2:04 PM	10	69 1/4	1 1/4	7 1/2		
2:14 PM	10	70 5/8	1 3/8	8 1/4		
2:24 PM	10	72 1/4	1 5/8	9 3/4		
2:28 PM		66 1/2			Water adjusted to provide 6 inch head	
2:38 PM	10	67 3/4	1 1/4	7 1/2		
2:48 PM	10	69	1 1/4	7 1/2		
2:58 PM	10	70 1/2	1 1/2	9		
3:08 PM	10	72	1 1/2	9		

¹ Elevation interpolated from Google Earth Pro

² Measured to nearest 1/8 inch from top of pipe.

³ Values calculated are raw (unfactored) rates.

Exhibit I

Drainage Report

DRAINAGE REPORT

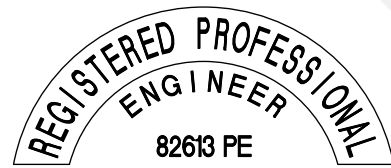
Chick-Fil-A – SE 82nd & Glencoe Road

2322.14836.01

June 20, 2022

Prepared for:

Chick-fil-A
5200 Buffington Road
Atlanta, GA 30349



EXPIRATION DATE: 06/30/22

Prepared by:



DOWL
720 SW Washington St, Suite 750
Portland, OR 97205

EXECUTIVE SUMMARY

The proposed Chick-Fil-A (CFA) #05098 – SE 82nd & Glencoe Road development will construct a new fast food restaurant located northwest of the corner of SE 82nd & SE Glencoe Road in Portland, Oregon. The site will be developed with a drive through, parking areas, and landscaping. New sanitary, water and storm drain utilities will be constructed to service the development.

The purpose of this report is to describe the stormwater management strategy being proposed for the CFA development. The design follows the standards and regulations developed by Clackamas County Water Environment Services (WES). These regulations are identified in the Stormwater Standards Clackamas County Service District No. 1 (CCSD#1), issued July 1, 2013.

WES requires the first ½-inch of rainfall to be infiltrated over 96 hours. This site has been designed to infiltrate greater than ½-inch of rainfall.

The proposed stormwater design will meet water quality by installing a Hydro International Downstream Defender manhole to mitigate flows leaving the site. Sizing for these facilities was done using Autodesk Hydraflow. All systems were designed to treat the runoff generated from 2/3 of the 2-yr, 24-hour storm per WES requirements.

A downstream analysis was performed for the site and found that the existing stormwater main in SE 82nd Avenue would experience surcharging during the 25-year event. WES provides an alternate flow control standard for sites that have downstream capacity limitations. CCSD#1 Stormwater Standards – Section 5.4.4.3 requires that the proposed flow control design shall limit the post-developed 25-year storm event runoff to match the pre-developed 2-year flow rate, and the post-developed 2-year runoff rate to ½ of the 2-year pre-developed runoff rate.

The proposed design will meet flow control requirements by installing a gallery of underground ADS MC-7200 storage chambers with an associated flow control manhole, equipped with orifices sized to release the 2-year post developed condition at ½ of the 2-year pre-developed condition, and the 25-year post-developed condition at the 2-year pre-developed condition.

DESIGNER CERTIFICATION

I hereby certify that this Stormwater Report for Chick-Fil-A #05098 – SE 82nd & Glencoe Road has been prepared by me or under my supervision and meets minimum standards of Clackamas County Water Environment Services and normal standards of engineering practice. I hereby acknowledge and agree that the jurisdiction does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities designed by me.

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Appendix A: Site Basin Maps

Appendix B: Soil Report

Appendix C: Stormwater Calculations

Appendix D: Proprietary Device Details

Appendix E: Conveyance Calculations

Appendix F: Excerpts from Geotechnical Report

Appendix G: Operations and Maintenance Manual

Appendix H: Downstream Analysis

1.0 PROJECT OVERVIEW

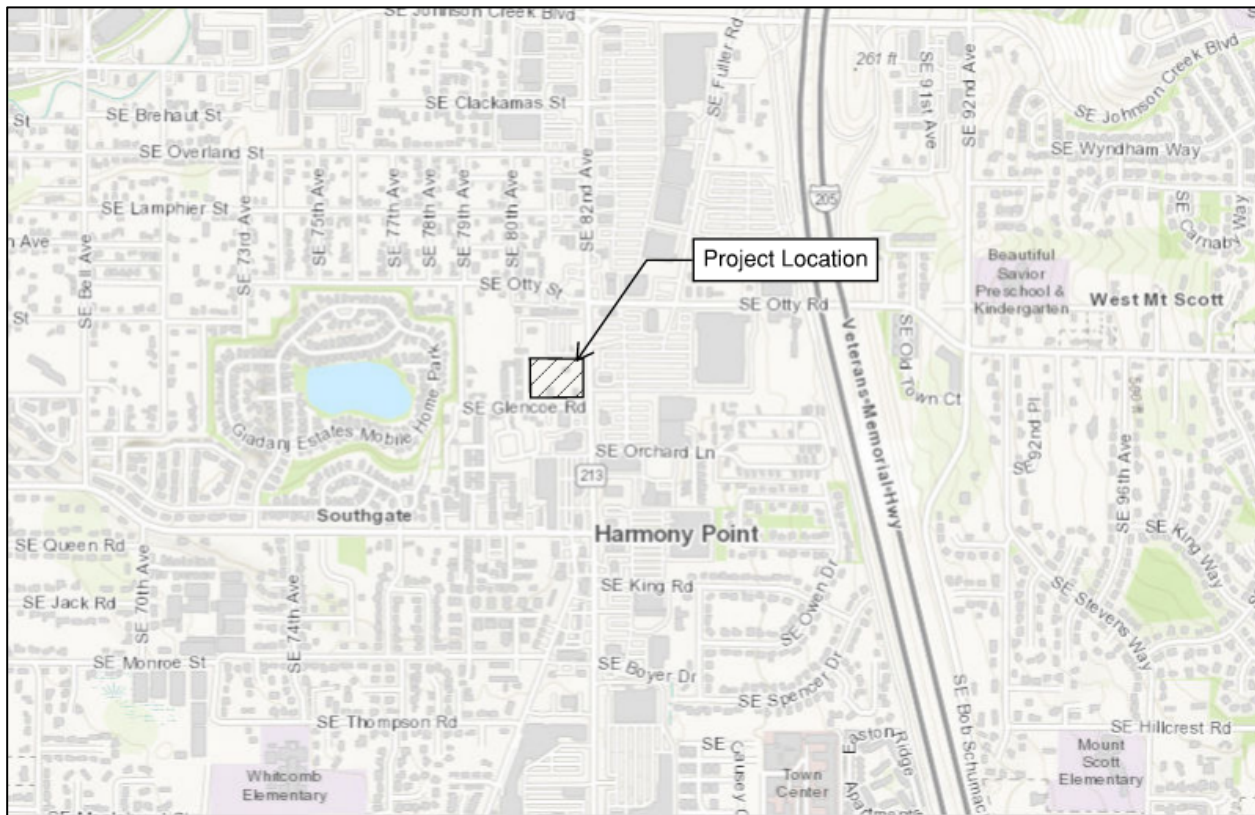
1.1 Project Overview

The proposed Chick-Fil-A (CFA) #05098 – SE 82nd & Glencoe Road project will construct a fast-food service restaurant with associated drive through, parking, landscaping, and utilities. The project will include a hotel and associated parking on the western portion of the site that will be developed in future phases, the stormwater system has been designed to mitigate this future development.

1.2 Location

The project site resides on one lot and is located northwest of the intersection of SE 82nd Avenue and SE Glencoe Road, Portland, OR 97086 (See Figure 1: Vicinity Map). The lot to be used for this project is Partition Plat No. 2013-010.

Figure 1: Vicinity Map



1.3 Regulatory Requirements

The site is within the jurisdictional boundary of Water Environment Services (WES) and must comply with the Stormwater Standards Clackamas County Service District No. 1 (CCSD#1), issued July 1, 2013. The stormwater standards require water quality and quantity management for all re-developments. Additional details of the specific treatment, detention, and conveyance requirements are outlined in Section 5, 6, and 7.

1.4 Purpose

The purpose of this report is to describe the water quality and quantity facilities being proposed as part of the project and to show that the design follows the standards and regulations developed by Water Environment Services (WES). These regulations are identified in the Surface Water Management Rules and Regulations for Clackamas County Service District No. 1 (CCSD#1), issued in July 2013.

2.0 HYDRAULIC AND HYDROLOGIC ANALYSIS

The hydrologic and hydraulic analysis for the project was completed using the Autodesk Hydraflow software package. Hydrologic calculations utilized Soil Conservation Service (SCS) and Technical Release No. 55 (TR-55) Urban Hydrology for Small Watersheds methodologies, as outlined in the following sections. Detailed descriptions of the site conditions and design assumptions used for the Pre-developed and Post-developed are outlined in Section 3 and 4.

2.1 Hydrologic Method

The Soil Conservation Service (SCS) unit hydrograph routing method was used for this analysis. The SCS method is based on the curve number (CN) approach and uses the Natural Resources Conservation Service's (NRCS) equations for computing runoff losses and precipitation excess. The SCS method converts the incremental runoff depths into instantaneous hydrographs, which are then routed through an imaginary reservoir with a time delay equal to the basin time of concentration.

Typically, Clackamas Water Environment Services (WES) requires the 'BMP Sizing Tool' to be used to model onsite water quality and flow control systems. This site will utilize a hydrodynamic separator to achieve water quality and a higher degree of specificity was required to size the flow control system, therefore the 'BMP Sizing Tool' was not used.

2.2 Design Storm

The design storm to be used within Clackamas County is the Type IA, 24-hour duration, which is based on the King County standard as published in the King County Surface Water Design Manual, Version 4.21.

Table 1: Clackamas County Storm Data shows the total precipitation depths that were applied using the Type IA distribution to determine the runoff rates from the contributing drainage area.

Table 1: Clackamas County Storm Data

Recurrence Interval (yrs)	24-Hour Rainfall Depth (in)
2-yr	2.40
5-yr	2.85
10-yr	3.20
25-yr	4.00
50-yr	4.13
100-yr	4.80

3.0 PRE-DEVELOPED SITE CONDITIONS

Pre-developed conditions are defined as the conditions that existed prior to the current development. The following sections outline the current topography, climate in the vicinity of the project site, site geology and soil characteristics, and site hydrology.

3.1 Land Cover and Topography

The current site consists of open, unkept asphalt paving and gravel areas. The contributing onsite basin is 46.6% impervious.

The existing site slopes at approximately 1-3% slopes from southwest to northeast.

A predeveloped curve number of 79 has been selected, assuming 'open space' in poor condition with a hydrologic soil group rating of 'B', per Table 2-2a of the *USDA Urban Hydrology for Small Watersheds: TR-55* manual.

3.2 Climate

The site is located in Clackamas County, Oregon. The area experiences distinct seasonal characteristics with gradual changes between seasons. Average daily temperatures range from 41°F to 69°F. Average annual rainfall recorded in this area is 45 inches.

3.3 Site Geology and Soil Characteristics

The underlying soil types are classified by the United States Department of Agriculture Soil Survey of Clackamas County, Oregon and are identified in Table 2: Soil Characteristics. See Technical Appendix: Soil Report for additional information.

Table 2: Soil Characteristics

Soil Type	Hydrologic Soil Group	Percent of Site (%)
Multnomah Silt Loam, 0 to 3 Percent Slopes	B	100.0

Group B soils have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

There is an existing geotechnical report for the Goodwill project neighboring to the north. A minimum infiltration rate of 30 inches per hour was found during investigations on the site. See Appendix F: Excerpts from Geotechnical Report.

3.4 Hydrology

The existing condition for the site flows northeast into the public right-of-way where it joins the public stormwater system. The site resides in a larger watershed that drains South into Phillips Creek. Phillips Creek does not have any listed TMDL Pollutant criteria.

Table 3: Pre-Developed Basin Areas lists the pre-developed basin areas. See Appendix A: Site Basin Maps for the location and extent of each basin.

Table 3: Pre-Developed Basin Areas

Site Condition	Impervious Area (ac)	Pervious Area (ac)	Total Area (ac)
Onsite Drainage Area ¹	1.374	1.573	2.947
Non-Catchment Area ²	0.086	0.000	0.086
Right-of-Way Dedication ³	0.021	0.147	0.168

1. 'Onsite Drainage Area' consists of all areas that drain to proposed private water quality and quantity system.

2. 'Non-Catchment Area' consists of areas that drain to the existing shared driveway to the north.

3. 'Right-of-Way Dedication' consists of areas designated new public right-of-way.

4.0 POST-DEVELOPED SITE CONDITIONS

4.1 Curve Number

Runoff curve number calculations were completed using TR-55 methodology. The stormwater calculations have been completed with the assumption that all pervious areas have soils that are Hydrologic Soil Group 'B', see Appendix B: Soil Report for additional information.

Table 2-2a of TR-55 provides an approximate curve number for commercial and business districts of 92. A composite curve number of 89.9 was calculated for the site, assuming 'open space' in good condition for all new pervious surfaces. Because the site includes a speculative future phase of development, the higher value of 92 has been used in the stormwater model.

4.2 Time of Concentration

A time of concentration of 5.0 minutes has been assumed for all basins under post-development conditions. This has been used to calculate peak runoff rates for the proposed flow control and water quality methodologies.

4.3 Hydrology

The proposed on-site development area is split into three sub-basins. The 'Onsite Drainage Area', 'Non-Catchment Area', and 'Right-of-Way Dedication' area. The 'Onsite Drainage Area' represents all of the areas that are captured and treated as a part of the private storm system. The 'Non-Catchment Area' represents the portion of the site along the north that cannot feasibly drain to the private system, and will continue to drain out into the public right-of-way. The 'Right-of-Way Dedication' area represents the portion of the site that is now being dedicated new public right-of-way, and is not required to be treated by the proposed private system.

Runoff generated within the boundaries of the 'Onsite Drainage Area' will be captured by trapped catch basins. Captured runoff will be treated in a Hydro International Downstream Defender manhole that outlets into a proposed underground detention system. The underground detention system will be constructed of ADS MC-7200 chambers.

The proposed drainage basins have been summarized in Table 4: Post-Developed Basin Areas.

Table 4: Post-Developed Basin Areas

Site Condition	Impervious Area (ac)	Pervious Area (ac)	Total Area (ac)
Onsite Drainage Area ¹	2.292	0.664	2.956
Non-Catchment Area ²	0.077	0.000	0.077
Right-of-Way Dedication ³	0.130	0.038	0.168

4. 'Onsite Drainage Area' consists of all areas that drain to proposed private water quality and quantity system.

5. 'Non-Catchment Area' consists of areas that drain to the existing shared driveway to the north.

6. 'Right-of-Way Dedication' consists of areas designated new public right-of-way.

5.0 WATER QUALITY

5.1 Design Guidelines

The water quality facilities were designed per CCSD#1 SWMM to facilitate the treatment of all stormwater runoff from the proposed development. Per Section 5.2 of CCSD #1 SWMM, stormwater facilities shall be designed to capture and treat 2/3 of the stormwater runoff from a 2-year, 24 hour storm event.

5.2 Downstream Defender System

The site will utilize a proprietary treatment device system to achieve water quality mitigation. Due to tight head constraints across the site, a Downstream Defender manhole by Hydro International has been selected.

The Downstream Defender manhole is approved by the Washington Department of Ecology for General Use Level Designation and classified as pretreatment. WES standard allows a proprietary treatment technology that is approved for pretreatment to be used for water quality. Proprietary devices approved for pretreatment must be sized to treat 2/3 of the 2-year storm event in 24-hours.

A summary of the treatment manhole is shown in Table 2 below. Standard details of the Downstream Defender systems are included in Appendix D: Proprietary Device Details.

Table 5: Downstream Defender Design Summary

Downstream Defender Facility	Drainage Area (ac)	Water Quality Flow Rate (cfs) ¹	25-yr Peak Flow Rate (cfs)	Facility Flow Rate (cfs)	System Size
Downstream Defender Manhole	2.956	0.902	2.384	3.000	48" Manhole

1. Water Quality flow rate calculated per Section 5.2 of CCSD #1 SWMM.

6.0 WATER QUANTITY

6.1 Design Overview

Water quantity requirements will be met by installing a detention facility consisting of an underground gallery of ADS MC-7200 storage chambers and an associated flow control manhole.

A downstream analysis was performed for the site and found that the existing stormwater main in SE 82nd Avenue would experience surcharging during the 25-year event. Section 5.4.4.3 of CCSD#1 SWMM provides an alternative flow control standard for sites that experience downstream capacity limitations. Per WES standard, the detention facility has been designed to limit the post-developed 25-year storm event runoff to match the pre-developed 2-year flow rate, and the post-developed 2-year runoff rate to $\frac{1}{2}$ of the 2-year pre-developed runoff rate.

Infiltration into the subgrade beneath the stormwater facility was used in the facility sizing. A design infiltration rate of 7.5 inches per hour was assumed, matching the findings of the Geotechnical Report by Geocon provided for Goodwill Industries of the Columbia Willamette, Portland, Oregon, dated September 2012. See Appendix F: Excerpts from Geotechnical Report.

A flow control manhole has been selected to aid in restricting flows leaving the site. The flow control manhole will be equipped with orifices and an emergency overflow. All flow control calculations have been performed using Autodesk Hydraflow, see Appendix C: Stormwater Calculations.

6.2 Stormtech Chamber System

Detention will be provided by installing an ADS Stormtech MC-7200 underground chamber system.

The chamber system design includes the following:

- (38) – MC-7200 chambers
- 1.0' of stone above the chambers
- 0.75' of stone below the chambers
- Facility footprint is 2,727 SF

The chamber system elevations are shown in Table 6 below. Site specific details of the chamber system can be found in Appendix D: Proprietary Device Details.

Table 6: Stormtech Chamber System Elevations

Description	Elevation (ft)
Top of Rock Storage	204.42
Top of Chamber	203.42
Bottom of Chamber	198.42
Outlet Invert Elevation	201.95
Bottom of Rock Storage	197.67
Groundwater Elevation ¹	171.00 ¹
Peak Runoff Stage ²	203.28 ²

1. Groundwater table elevation based upon findings in Geotechnical Report by Geocon provided for Goodwill Industries of the Columbia Willamette, Portland, Oregon, dated September 2012. See Appendix F: Excerpts from Geotechnical Report.

2. Peak runoff stage represents the maximum water elevation achieved inside of the chamber system during the 100-yr runoff event. See Appendix C: Stormwater Calculations.

6.3 Flow Control Manhole

The chamber system will discharge to a flow control manhole designed to meet WES flow control requirements. Table 7 below lists the pre and post developed release rates from the site. Table 8 below lists the details of the flow control orifice design. In provided cases, the proposed release rates meet WES CCSD#1 SWMM Section 5.4.4.3.

Table 7: Existing and Proposed Release Rates

Site Condition	2-yr Flow (cfs)	25-yr Flow (cfs)	100-yr Flow (cfs)
Pre-Developed	0.525	1.342	1.868
Post-Developed	0.000	0.209	0.721

Table 8: Flow Control Manhole Design Table

Orifice / Weir	Elevation	Description
2.0" Orifice	201.95	Bottom Orifice
6.0" Orifice	202.55	Top Orifice
12" Stand Pipe	204.42	Emergency Overflow

7.0 CONVEYANCE ANALYSIS

7.1 Design Guidelines

Section 5.2.1 of CCSD#1 SWMM Rules and Regulations require stormwater conveyance systems draining less than 640 acres must convey the 25-year, 24-hour design storm event. A manning's n value of 0.013 will be used for all proposed pipe.

7.2 System Capacity

A conveyance analysis will be completed and stormwater pipes sized such that the proposed conveyance systems can adequately convey the 25-year storm event without surcharging.

7.3 Downstream Analysis

A downstream analysis was performed for the site and found that the existing stormwater main in SE 82nd Avenue would experience surcharging during the 25-year event. See Appendix H: Downstream Analysis for more information.

8.0 SUMMARY

The proposed stormwater system design follows the standards and regulations developed by Clackamas County Water Environment Services (WES).

The site will provide water quality treatment through a Hydro International Downstream Defender Manhole unit. Calculations have been provided to show that the water quality facility has been sized appropriately.

The site will provide water quantity mitigation via an underground gallery of ADS Stormtech MC-7200 chambers. Calculations have been provided to show that the water quantity facility has been sized appropriately.

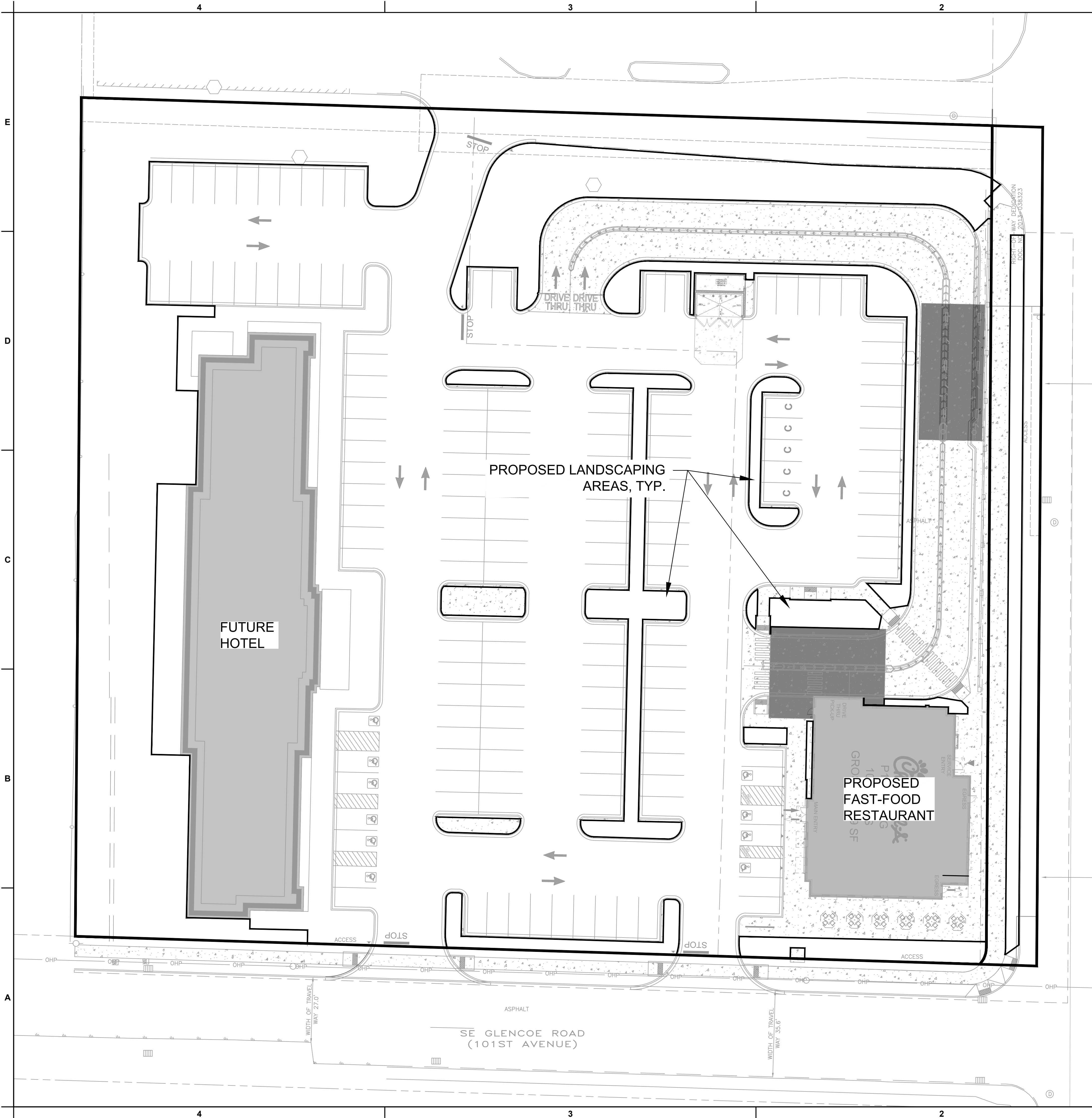
A downstream analysis has been performed on the site and found that the existing stormwater main in SE 82nd Avenue would experience surcharging during the 25-year event. WES provides an alternate sizing methodology to address this scenario. The onsite water quantity facilities were sized in accordance with WES standard to address the findings of the downstream analysis.

APPENDIX A:

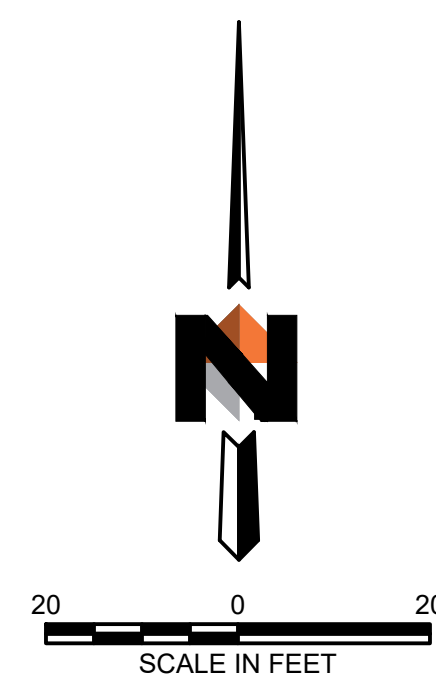
SITE BASIN MAPS

The bottom left corner of the page features a decorative design consisting of several overlapping triangles. A large, light gray triangle points upwards from the bottom left. Overlapping its right side is a smaller, darker gray triangle pointing downwards. The intersection of these two triangles creates a dark gray triangular area at the bottom right.

C:\dowl_p\p\039806\014836-PR SITE DATA.dwg PLOT DATE 2022-4-22 12:22 SAVED DATE 2022-06-22 12:07 USER: apadgett



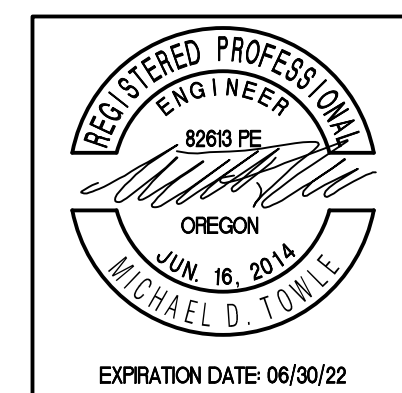
PROJECT AREA
TOTAL: 3.201 AC (139,446.09 SF)
ROW DEDICATION: 0.168 AC (7,328.71 SF)
PR ROW PERVIOUS: 0.038 AC (1,648.75 SF)
PR ROW IMPERVIOUS: 0.130 AC (5,679.96 SF)
NET: 3.033 AC (132,117.38 SF)
PR ONSITE PERVIOUS: 0.664 AC (28,944.84 SF) 21.89%
PR ONSITE IMPERVIOUS: 2.369 AC (103,172.54 SF) 78.11%



Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998



720 SW Washington Street, #750
Portland, Oregon 97205
971-280-8641



CHICK-FIL-A GLENCOE & 82ND PORTLAND, OREGON

FSR# 05098

REVISION SCHEDULE		
NO.	DATE	DESCRIPTION

CIVIL'S PROJECT #	14836.01
PRINTED FOR	DESIGN REVIEW
DATE	05/13/2022
DRAWN BY	JLG

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SHEET
PROPOSED LAND
USE AREAS

SHEET NUMBER

EX-3

C:\dowl_p\dwg\0398606\14836-EX-SITE DATA.dwg PLOT DATE 2022-05-22 12:18 SAVED DATE 2022-06-22 12:18 USER: apadgett



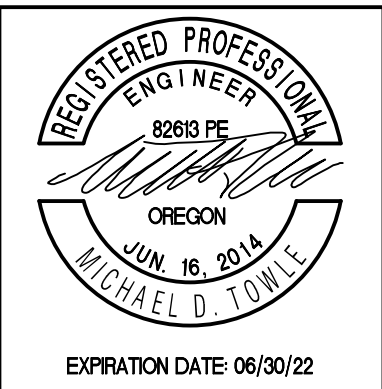
PROJECT AREA
TOTAL: 3.201 AC (139,446.09 SF)
ROW DEDICATION: 0.168 AC (7,328.71 SF)
EX ROW PERVIOUS: 0.147 AC (6,406.10 SF)
EX ROW IMPERVIOUS: 0.021 AC (922.61 SF)
NET: 3.033 AC (132,117.38 SF)
EX ONSITE PERVIOUS: 1.573 AC (68,500.01 SF) 51.86%
EX ONSITE IMPERVIOUS: 1.460 AC (63,617.37 SF) 48.14%



Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998



720 SW Washington Street, #750
Portland, Oregon 97205
971-280-8641



CHICK-FIL-A GLENCOE & 82ND PORTLAND, OREGON

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REVISION SCHEDULE	
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DESCRIPTION	

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SHEET	EXISTING LAND USE AREAS
SHEET NUMBER	

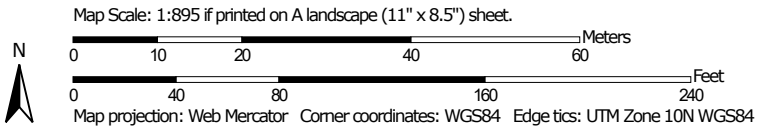
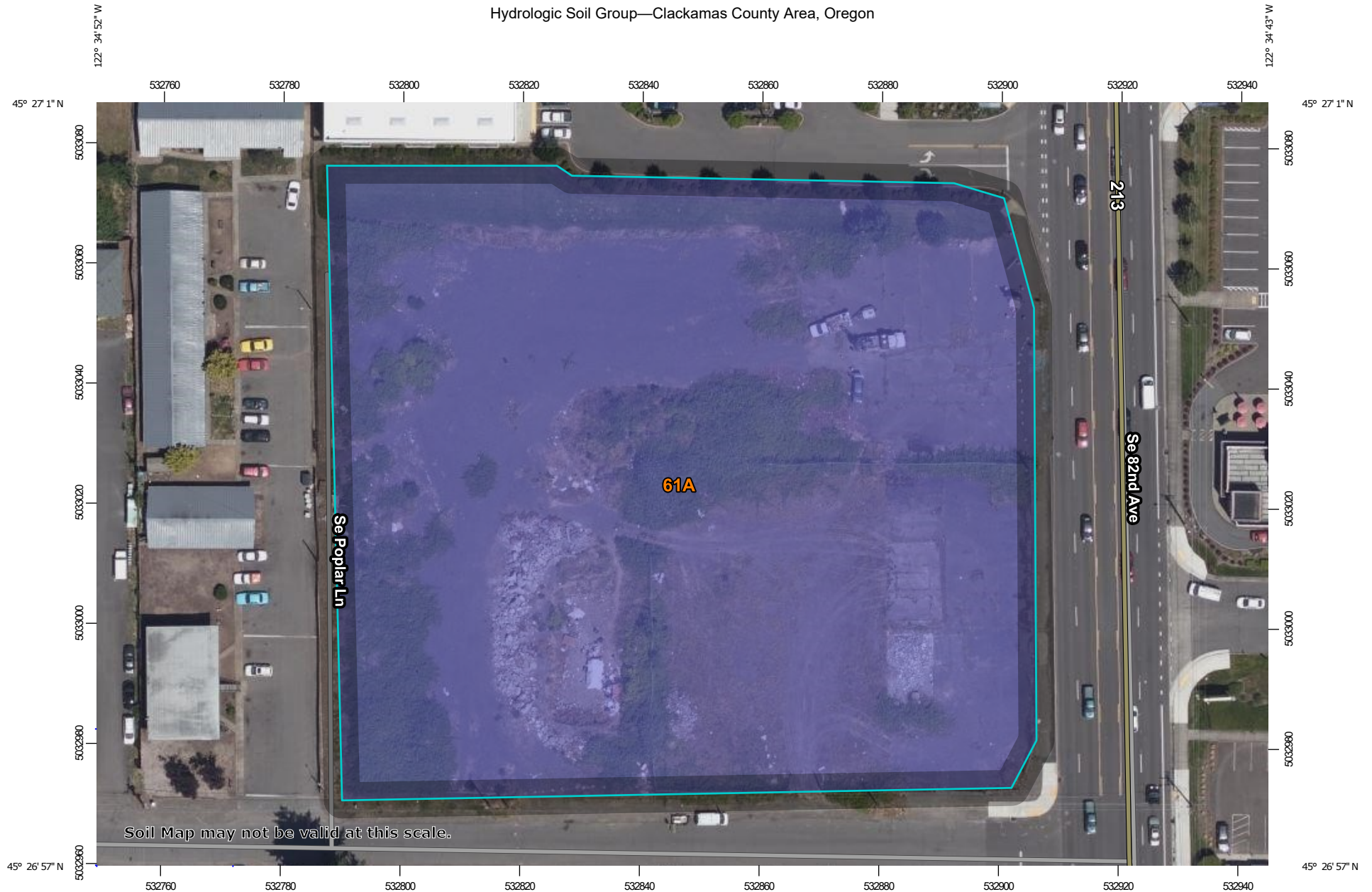
EX-4

APPENDIX B:

SOIL REPORT


The page features two large, overlapping geometric shapes in the bottom corners. On the left, a light gray triangle points upwards and to the right. On the right, a darker gray triangle points upwards and to the left, overlapping the first one.

Hydrologic Soil Group—Clackamas County Area, Oregon



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
 Survey Area Data: Version 18, Oct 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2019—Jul 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
61A	Multnomah silt loam, 0 to 3 percent slopes	B	3.0	100.0%
Totals for Area of Interest			3.0	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.


If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

The page features two large, overlapping geometric shapes in the bottom corners. On the left, a light gray triangle points towards the center. On the right, a darker gray triangle also points towards the center, overlapping the first one.

APPENDIX C: STORMWATER CALCULATIONS

Project:

Chamber Model -
Units -
Number of Chambers -
Number of End Caps -
Voids in the stone (porosity) -
Base of Stone Elevation -
Amount of Stone Above Chambers -
Amount of Stone Below Chambers -

MC-7200
Imperial
38
8
40
0.00
12
9
6



☒ Include Perimeter Stone in Calculations

☒ Click for Stage Area Data

Click Here for Metric

Area of system - 2727.00 sf Min. Area - 2547 sf min. area

StormTech MC-7200 Cumulative Storage Volumes								
Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch. EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)

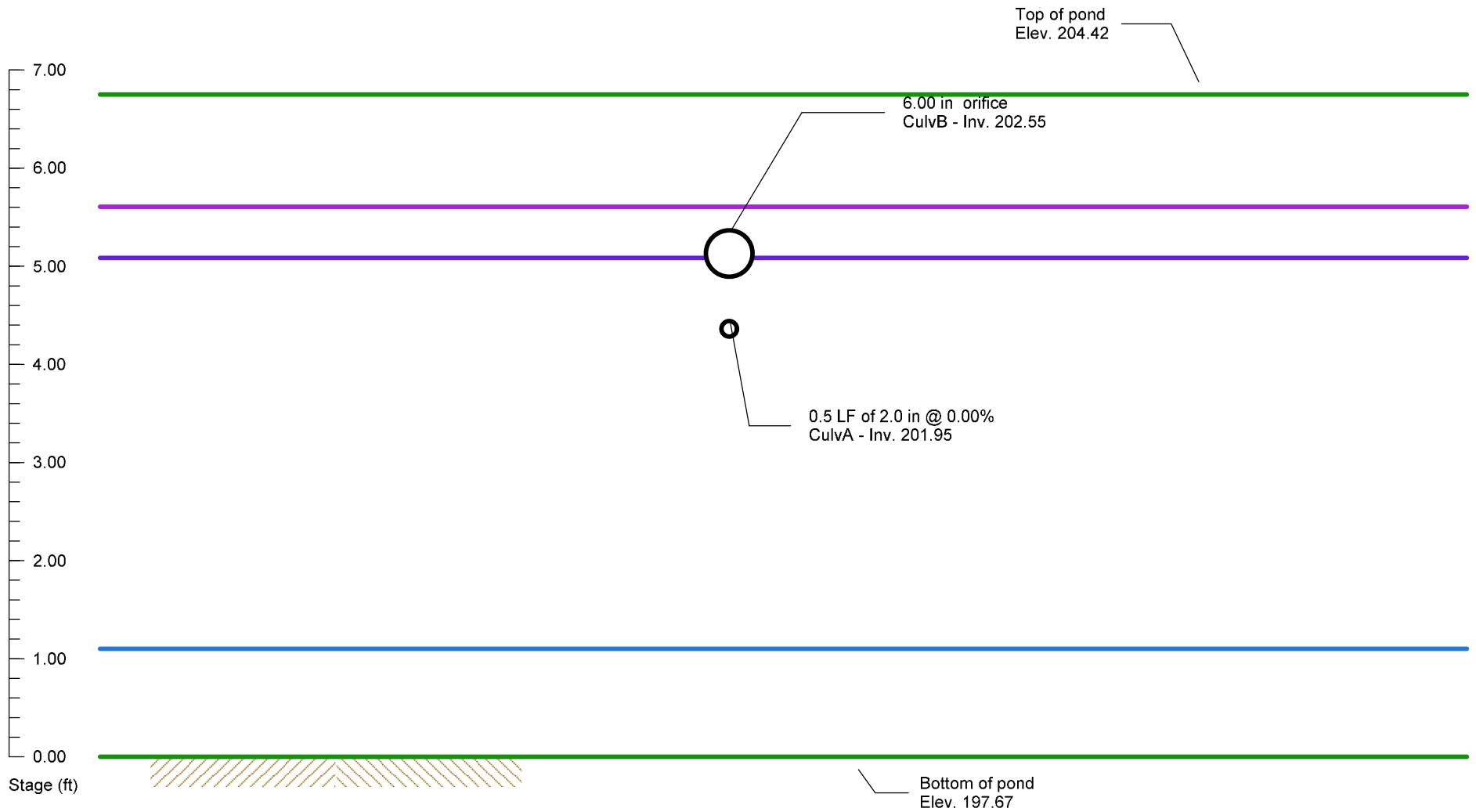
81	0.00	0.00	0.00	0.00	90.90	90.90	11563.28	6.75
80	0.00	0.00	0.00	0.00	90.90	90.90	11472.38	6.67
79	0.00	0.00	0.00	0.00	90.90	90.90	11381.48	6.58
78	0.00	0.00	0.00	0.00	90.90	90.90	11290.58	6.50
77	0.00	0.00	0.00	0.00	90.90	90.90	11199.68	6.42
76	0.00	0.00	0.00	0.00	90.90	90.90	11108.78	6.33
75	0.00	0.00	0.00	0.00	90.90	90.90	11017.88	6.25
74	0.00	0.00	0.00	0.00	90.90	90.90	10926.98	6.17
73	0.00	0.00	0.00	0.00	90.90	90.90	10836.08	6.08
72	0.00	0.00	0.00	0.00	90.90	90.90	10745.18	6.00
71	0.00	0.00	0.00	0.00	90.90	90.90	10654.28	5.92
70	0.00	0.00	0.00	0.00	90.90	90.90	10563.38	5.83
69	0.06	0.01	2.26	0.10	89.96	92.32	10472.48	5.75
68	0.19	0.03	7.23	0.27	87.90	95.40	10380.16	5.67
67	0.28	0.05	10.46	0.41	86.55	97.42	10284.76	5.58
66	0.36	0.07	13.58	0.53	85.26	99.36	10187.34	5.50
65	0.46	0.08	17.42	0.66	83.67	101.75	10087.98	5.42
64	0.74	0.11	28.18	0.84	79.29	108.31	9986.23	5.33
63	1.10	0.13	41.66	1.06	73.81	116.53	9877.91	5.25
62	1.32	0.16	50.10	1.29	70.34	121.73	9761.38	5.17
61	1.50	0.19	56.93	1.51	67.52	125.97	9639.65	5.08
60	1.65	0.22	62.87	1.75	65.05	129.67	9513.68	5.00
59	1.79	0.25	68.17	1.98	62.84	132.99	9384.01	4.92
58	1.92	0.28	72.95	2.20	60.84	135.99	9251.02	4.83
57	2.04	0.30	77.42	2.41	58.97	138.80	9115.03	4.75
56	2.15	0.33	81.52	2.62	57.24	141.39	8976.23	4.67
55	2.25	0.35	85.41	2.84	55.60	143.85	8834.84	4.58
54	2.34	0.38	89.04	3.07	54.06	146.17	8690.99	4.50
53	2.43	0.41	92.47	3.27	52.60	148.35	8544.83	4.42
52	2.52	0.44	95.72	3.53	51.20	150.45	8396.48	4.33
51	2.60	0.47	98.82	3.75	49.87	152.44	8246.03	4.25
50	2.68	0.50	101.78	3.96	48.60	154.35	8093.59	4.17
49	2.75	0.52	104.60	4.17	47.39	156.16	7939.24	4.08
48	2.82	0.54	107.29	4.36	46.24	157.89	7783.09	4.00
47	2.89	0.57	109.87	4.53	45.14	159.54	7625.20	3.92
46	2.96	0.59	112.34	4.71	44.08	161.13	7465.65	3.83
45	3.02	0.61	114.71	4.88	43.06	162.66	7304.52	3.75
44	3.08	0.63	116.99	5.06	42.08	164.13	7141.87	3.67
43	3.14	0.64	119.18	5.14	41.17	165.49	6977.74	3.58
42	3.19	0.68	121.29	5.42	40.22	166.92	6812.25	3.50
41	3.25	0.70	123.31	5.60	39.34	168.25	6645.32	3.42
40	3.30	0.72	125.26	5.78	38.48	169.52	6477.08	3.33
39	3.35	0.74	127.13	5.95	37.67	170.75	6307.55	3.25
38	3.39	0.76	128.94	6.12	36.88	171.93	6136.80	3.17
37	3.44	0.79	130.68	6.28	36.12	173.08	5964.87	3.08
36	3.48	0.80	132.35	6.42	35.39	174.16	5791.79	3.00
35	3.53	0.82	133.96	6.56	34.69	175.21	5617.63	2.92
34	3.57	0.84	135.51	6.71	34.01	176.23	5442.42	2.83
33	3.61	0.85	137.01	6.81	33.37	177.19	5266.18	2.75
32	3.64	0.86	138.45	6.88	32.77	178.10	5088.99	2.67
31	3.68	0.89	139.84	7.12	32.12	179.07	4910.89	2.58
30	3.71	0.90	141.17	7.23	31.54	179.94	4731.82	2.50
29	3.75	0.92	142.45	7.34	30.98	180.77	4551.88	2.42
28	3.78	0.92	143.68	7.36	30.49	181.52	4371.11	2.33
27	3.81	0.94	144.86	7.55	29.94	182.34	4189.59	2.25
26	3.84	0.96	145.98	7.65	29.45	183.08	4007.24	2.17
25	3.87	0.97	147.07	7.75	28.97	183.79	3824.16	2.08
24	3.90	0.98	148.10	7.85	28.52	184.47	3640.37	2.00
23	3.92	0.97	149.09	7.77	28.16	185.02	3455.90	1.92
22	3.95	1.00	150.03	8.03	27.68	185.74	3270.88	1.83
21	3.97	1.01	150.93	8.09	27.29	186.31	3085.15	1.75
20	3.99	1.02	151.79	8.16	26.92	186.87	2898.83	1.67
19	4.02	1.03	152.61	8.24	26.56	187.41	2711.96	1.58
18	4.04	1.04	153.38	8.31	26.23	187.91	2524.55	1.50
17	4.06	1.05	154.11	8.37	25.91	188.39	2336.64	1.42
16	4.07	1.05	154.79	8.43	25.61	188.84	2148.25	1.33
15	4.09	1.05	155.44	8.40	25.36	189.21	1959.42	1.25
14	4.11	1.06	156.05	8.45	25.10	189.60	1770.21	1.17
13	4.12	1.08	156.64	8.60	24.80	190.05	1580.61	1.08
12	4.14	1.08	157.19	8.66	24.56	190.41	1390.56	1.00
11	4.15	1.09	157.70	8.70	24.34	190.74	1200.15	0.92
10	4.17	1.11	158.50	8.85	23.96	191.31	1009.41	0.83
9	0.00	0.00	0.00	0.00	90.90	90.90	818.10	0.75
8	0.00	0.00	0.00	0.00	90.90	90.90	727.20	0.67
7	0.00	0.00	0.00	0.00	90.90	90.90	636.30	0.58
6	0.00	0.00	0.00	0.00	90.90	90.90	545.40	0.50
5	0.00	0.00	0.00	0.00	90.90	90.90	454.50	0.42
4	0.00	0.00	0.00	0.00	90.90	90.90	363.60	0.33
3	0.00	0.00	0.00	0.00	90.90	90.90	272.70	0.25
2	0.00	0.00	0.00	0.00	90.90	90.90	181.80	0.17
1	0.00	0.00	0.00	0.00	90.90	90.90	90.90	0.08

Stage Area Data			
Depth (feet)	Elevation (feet)	Area (ft2)	Area (acres)

0.00	0.00000	1090.80	0.0250
0.08	0.08333	1090.80	0.0250
0.17	0.16667	1090.80	0.0250
0.25	0.25000	1090.80	0.0250
0.33	0.33333	1090.80	0.0250
0.42	0.41667	1090.80	0.0250
0.50	0.50000	1090.80	0.0250
0.58	0.58333	1090.80	0.0250
0.67	0.66667	1090.80	0.0250
0.75	0.75000	1090.80	0.0250
0.83	0.83333	2295.72	0.0527
0.92	0.91667	2288.91	0.0525
1.00	1.00000	2284.92	0.0525
1.08	1.08333	2280.55	0.0524
1.17	1.16667	2275.25	0.0522
1.25	1.25000	2270.47	0.0521
1.33	1.33333	2266.04	0.0520
1.42	1.41667	2260.64	0.0519
1.50	1.50000	2254.94	0.0518
1.58	1.58333	2248.91	0.0516
1.67	1.66667	2242.47	0.0515
1.75	1.75000	2235.77	0.0513
1.83	1.83333	2228.84	0.0512
1.92	1.91667	2220.19	0.0510
2.00	2.00000	2213.66	0.0508
2.08	2.08333	2205.47	0.0506
2.17	2.16667	2196.97	0.0504
2.25	2.25000	2188.12	0.0502
2.33	2.33333	2178.26	0.0500
2.42	2.41667	2169.28	0.0498
2.50	2.50000	2159.31	0.0496
2.58	2.58333	2148.87	0.0493
2.67	2.66667	2137.16	0.0491
2.75	2.75000	2126.32	0.0488
2.83	2.83333	2114.80	0.0485
2.92	2.91667	2102.57	0.0483
3.00	3.00000	2089.95	0.0480
3.08	3.08333	2076.92	0.0477
3.17	3.16667	2063.19	0.0474
3.25	3.25000	2049.00	0.0470
3.33	3.33333	2034.28	0.0467
3.42	3.41667	2018.95	0.0463
3.50	3.50000	2003.08	0.0460
3.58	3.58333	1985.93	0.0456
3.67	3.66667	1969.53	0.0452
3.75	3.75000	1951.87	0.0448
3.83	3.83333	1933.56	0.0444
3.92	3.91667	1914.54	0.0440
4.00	4.00000	1894.65	0.0435
4.08	4.08333	1873.89	0.0430
4.17	4.16667	1852.14	0.0425
4.25	4.25000	1829.32	0.0420
4.33	4.33333	1805.41	0.0414
4.42	4.41667	1780.16	0.0409
4.50	4.50000	1753.99	0.0403
4.58	4.58333	1726.19	0.0396
4.67	4.66667	1696.63	0.0389
4.75	4.75000	1665.63	0.0382
4.83	4.83333	1631.87	0.0375
4.92	4.91667	1595.85	0.0366
5.00	5.00000	1556.06	0.0357
5.08	5.08333	1511.58	0.0347
5.17	5.16667	1460.81	0.0335
5.25	5.25000	1398.39	0.0321
5.33	5.33333	1299.78	0.0298
5.42	5.41667	1221.00	0.0280
5.50	5.50000	1192.35	0.0274
5.58	5.58333	1169.07	0.0268
5.67	5.66667	1144.79	0.0263
5.75	5.75000	1107.80	0.0254
5.83	5.83333	1090.80	0.0250
5.92	5.91667	1090.80	0.0250
6.00	6.00000	1090.80	0.0250
6.08	6.08333	1090.80	0.0250
6.17	6.16667	1090.80	0.0250
6.25	6.25000	1090.80	0.0250
6.33	6.33333	1090.80	0.0250
6.42	6.41667	1090.80	0.0250
6.50	6.50000	1090.80	0.0250
6.58	6.58333	1090.80	0.0250
6.67	6.66667	1090.80	0.0250
6.75	6.75000	1090.80	0.0250

Pond No. 1 - MC-7200 Chambers

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020



Front View

NTS - Looking Downstream

Inflow hydrograph = 2. SBUH Runoff - Onsite POST

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Wednesday, 06 / 22 / 2022

Pond No. 1 - MC-7200 Chambers

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 197.67 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	197.67	1,091	0	0
0.75	198.42	1,091	818	818
0.83	198.50	2,296	133	951
1.58	199.25	2,249	1,704	2,655
2.50	200.17	2,159	2,027	4,682
3.00	200.67	2,090	1,062	5,744
4.00	201.67	1,895	1,992	7,736
4.42	202.09	1,780	772	8,507
4.50	202.17	1,754	141	8,649
4.58	202.25	1,726	139	8,788
5.50	203.17	1,192	1,335	10,122
5.75	203.42	1,108	287	10,410
5.83	203.50	1,091	88	10,498
6.75	204.42	1,091	1,004	11,501

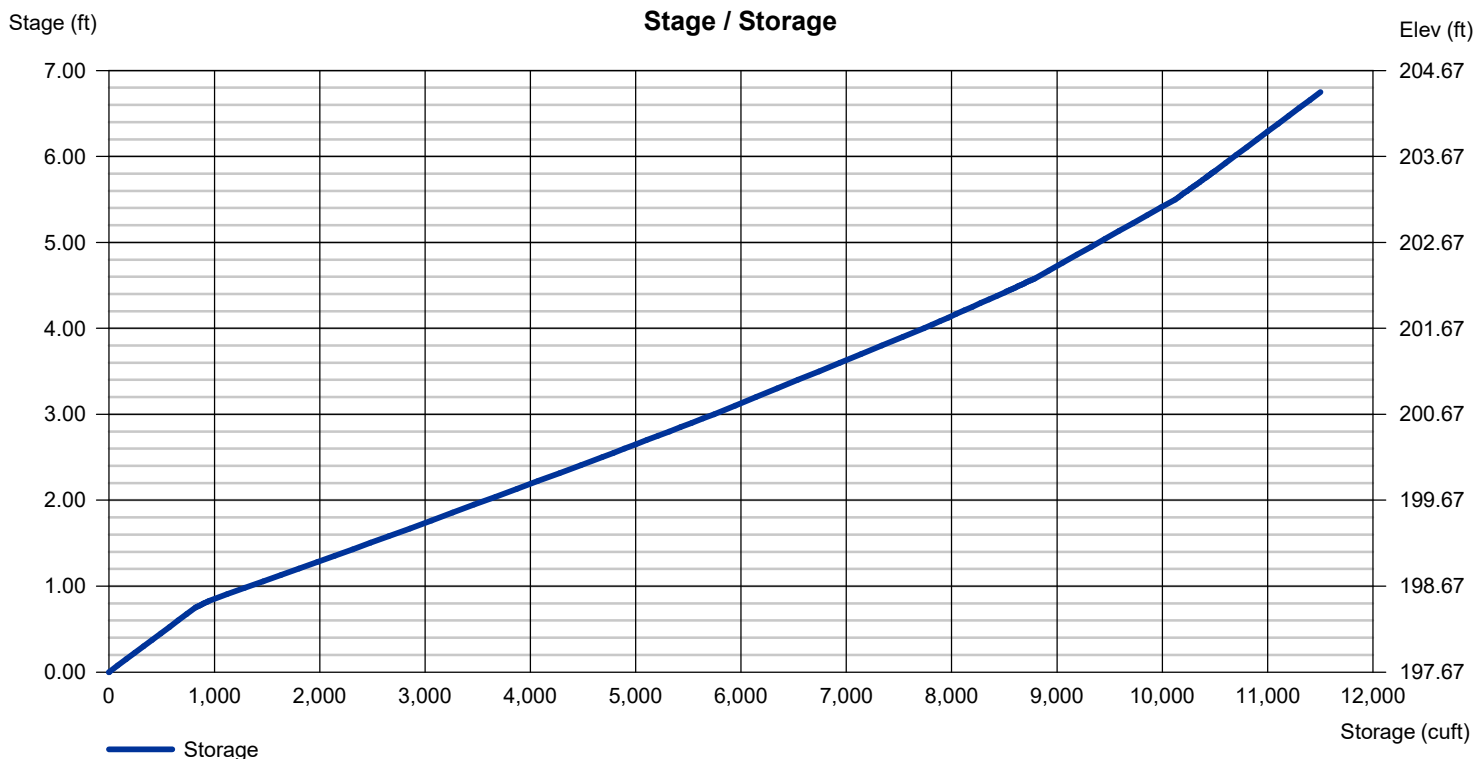
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 2.00	6.00	Inactive	0.00
Span (in)	= 2.00	6.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 201.95	202.55	0.00	0.00
Length (ft)	= 0.50	0.50	0.50	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 204.38	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 7.500 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Pond Report

Pond No. 1 - MC-7200 Chambers

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 197.67 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	197.67	1,091	0	0
0.75	198.42	1,091	818	818
0.83	198.50	2,296	133	951
1.58	199.25	2,249	1,704	2,655
2.50	200.17	2,159	2,027	4,682
3.00	200.67	2,090	1,062	5,744
4.00	201.67	1,895	1,992	7,736
4.42	202.09	1,780	772	8,507
4.50	202.17	1,754	141	8,649
4.58	202.25	1,726	139	8,788
5.50	203.17	1,192	1,335	10,122
5.75	203.42	1,108	287	10,410
5.83	203.50	1,091	88	10,498
6.75	204.42	1,091	1,004	11,501

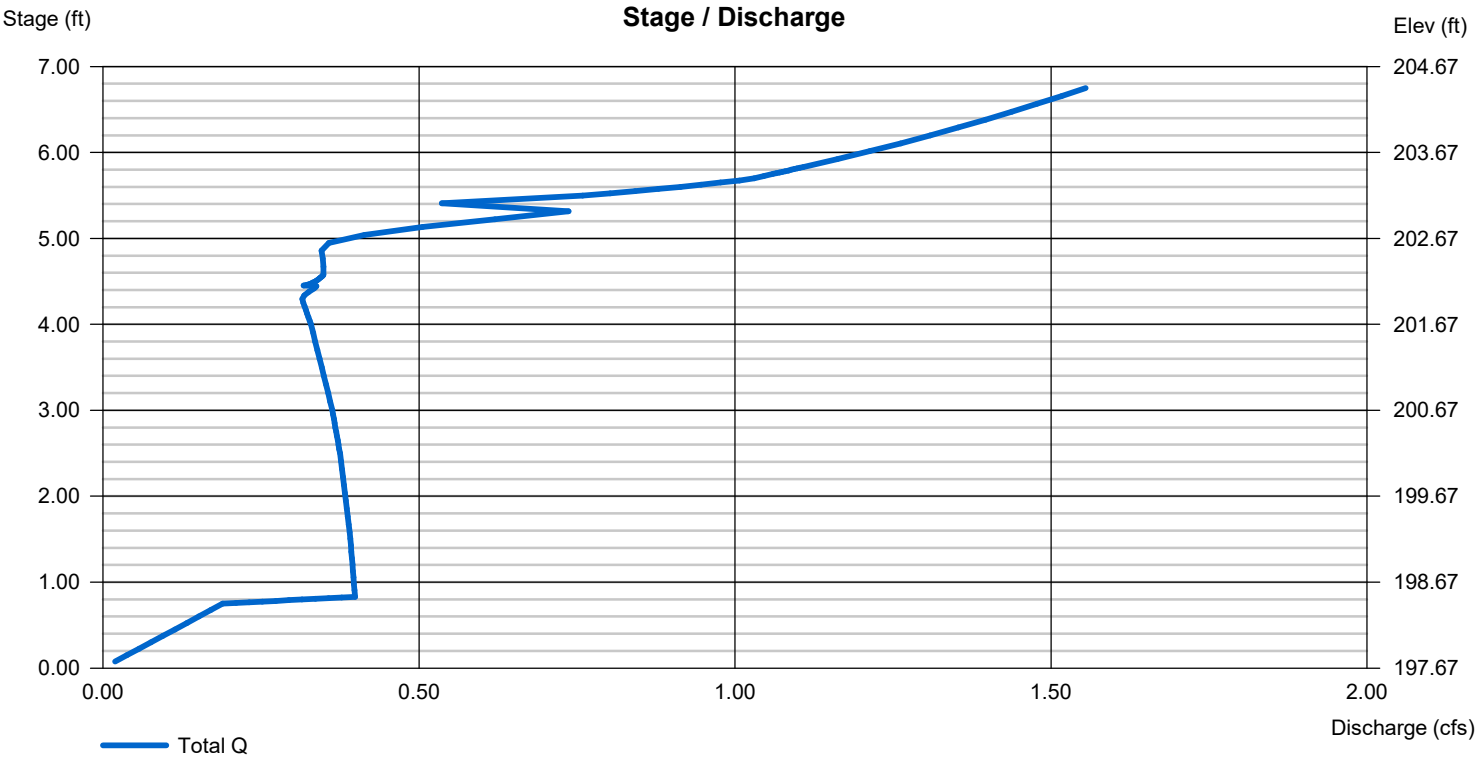
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 2.00	6.00	Inactive	0.00
Span (in)	= 2.00	6.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 201.95	202.55	0.00	0.00
Length (ft)	= 0.50	0.50	0.50	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 204.38	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 7.500 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Wednesday, 06 / 22 / 2022

Pond No. 1 - MC-7200 Chambers

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 197.67 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	197.67	1,091	0	0
0.75	198.42	1,091	818	818
0.83	198.50	2,296	133	951
1.58	199.25	2,249	1,704	2,655
2.50	200.17	2,159	2,027	4,682
3.00	200.67	2,090	1,062	5,744
4.00	201.67	1,895	1,992	7,736
4.42	202.09	1,780	772	8,507
4.50	202.17	1,754	141	8,649
4.58	202.25	1,726	139	8,788
5.50	203.17	1,192	1,335	10,122
5.75	203.42	1,108	287	10,410
5.83	203.50	1,091	88	10,498
6.75	204.42	1,091	1,004	11,501

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 2.00	6.00	Inactive	0.00
Span (in)	= 2.00	6.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 201.95	202.55	0.00	0.00
Length (ft)	= 0.50	0.50	0.50	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 204.38	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 7.500 (by Contour)			
TW Elev. (ft)	= 0.00			

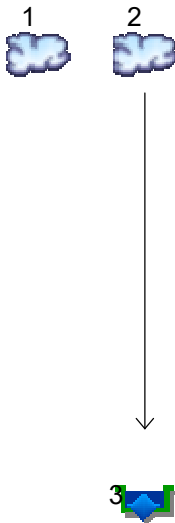
Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	197.67	0.00	0.00	---	---	0.00	---	---	---	0.000	---	0.000
0.75	818	198.42	0.00	0.00	---	---	0.00	---	---	---	0.189	---	0.189
0.83	951	198.50	0.00	0.00	---	---	0.00	---	---	---	0.399	---	0.399
1.58	2,655	199.25	0.00	0.00	---	---	0.00	---	---	---	0.390	---	0.390
2.50	4,682	200.17	0.00	0.00	---	---	0.00	---	---	---	0.375	---	0.375
3.00	5,744	200.67	0.00	0.00	---	---	0.00	---	---	---	0.363	---	0.363
4.00	7,736	201.67	0.00	0.00	---	---	0.00	---	---	---	0.329	---	0.329
4.42	8,507	202.09	0.02 ic	0.00	---	---	0.00	---	---	---	0.309	---	0.334
4.50	8,649	202.17	0.03 oc	0.00	---	---	0.00	---	---	---	0.305	---	0.336
4.58	8,788	202.25	0.05 ic	0.00	---	---	0.00	---	---	---	0.300	---	0.349
5.50	10,122	203.17	0.11 ic	0.44 oc	---	---	0.00	---	---	---	0.207	---	0.759
5.75	10,410	203.42	0.12 ic	0.74 ic	---	---	0.00	---	---	---	0.192	---	1.060
5.83	10,498	203.50	0.13 ic	0.79 ic	---	---	0.00	---	---	---	0.189	---	1.108
6.75	11,501	204.42	0.16 ic	1.20 ic	---	---	0.00	---	---	---	0.189	---	1.555

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020



Legend

Hyd.	Origin	Description
1	SBUH Runoff	Onsite PRE
2	SBUH Runoff	Onsite POST
3	Reservoir	Route to ADS

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

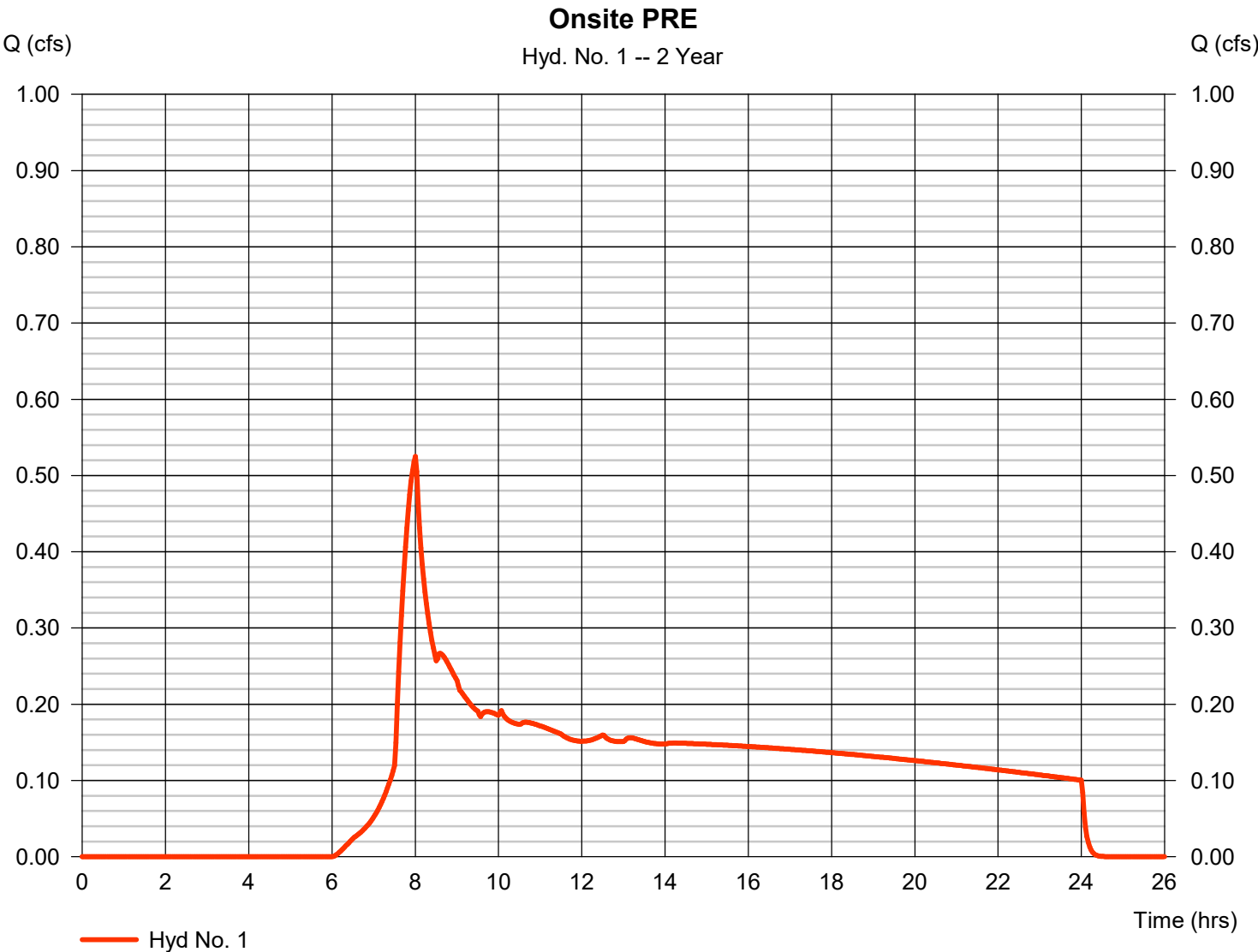
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SBUH Runoff	0.525	2	480	9,712	-----	-----	-----	Onsite PRE
2	SBUH Runoff	1.346	2	476	19,164	-----	-----	-----	Onsite POST
3	Reservoir	0.000	2	462	0	2	198.50	3,315	Route to ADS
14836-ADS Chambers_MC-7200.gpw					Return Period: 2 Year			Wednesday, 06 / 22 / 2022	

Hydrograph Report

Hyd. No. 1

Onsite PRE

Hydrograph type	=	SBUH Runoff	Peak discharge	=	0.525 cfs
Storm frequency	=	2 yrs	Time to peak	=	8.00 hrs
Time interval	=	2 min	Hyd. volume	=	9,712 cuft
Drainage area	=	2.956 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.30 min
Total precip.	=	2.60 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 1

Onsite PRE

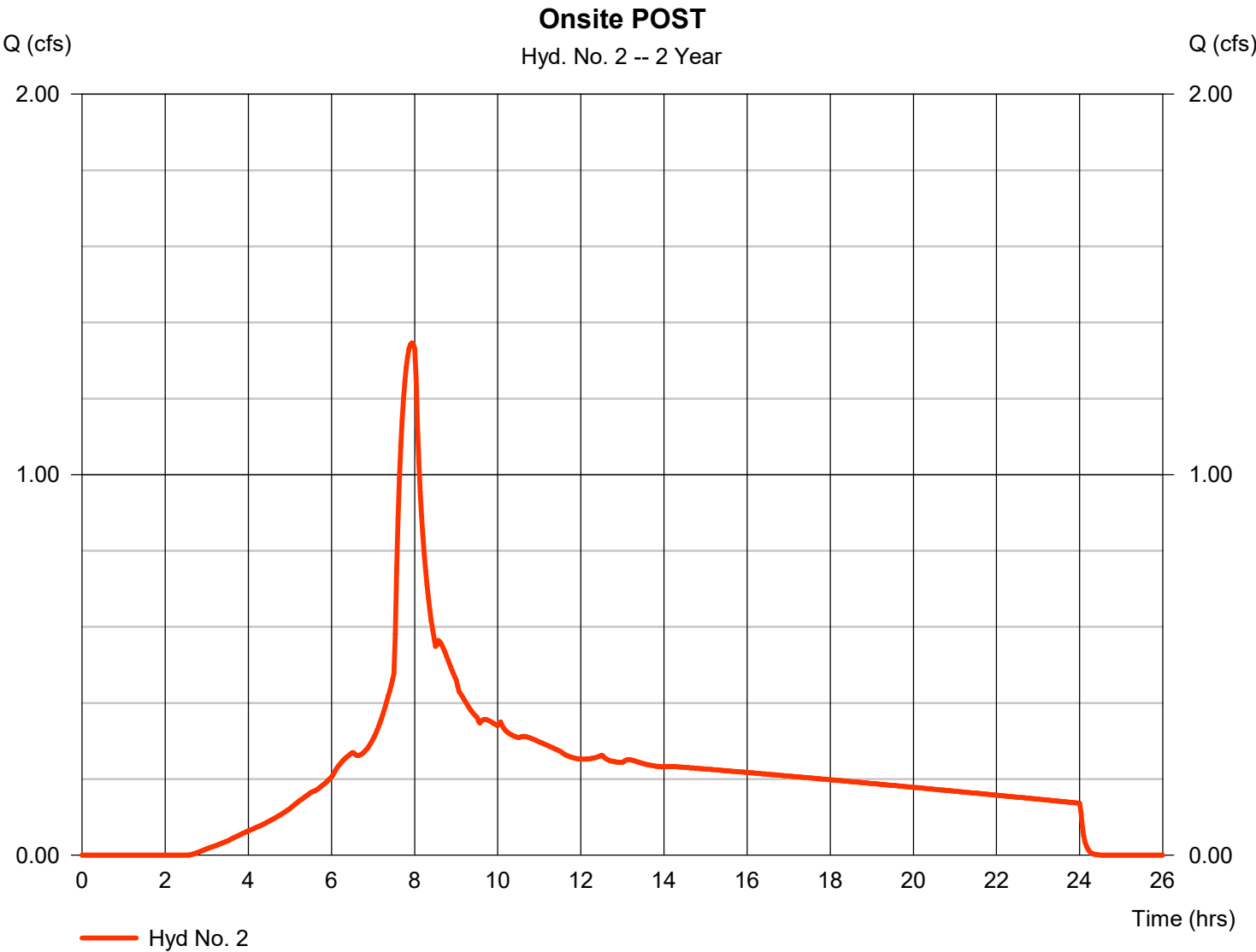
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.011	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.60	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= 4.27	+	0.00	+
			0.00	= 4.27
Shallow Concentrated Flow				
Flow length (ft)	= 100.00	0.00	0.00	
Watercourse slope (%)	= 1.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.61	0.00	0.00	
Travel Time (min)	= 1.03	+	0.00	+
			0.00	= 1.03
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	(0)0.0	0.0	0.0	
Travel Time (min)	= 0.00	+	0.00	+
			0.00	= 0.00
Total Travel Time, Tc				5.30 min

Hydrograph Report

Hyd. No. 2

Onsite POST

Hydrograph type	=	SBUH Runoff	Peak discharge	=	1.346 cfs
Storm frequency	=	2 yrs	Time to peak	=	7.93 hrs
Time interval	=	2 min	Hyd. volume	=	19,164 cuft
Drainage area	=	2.956 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.60 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

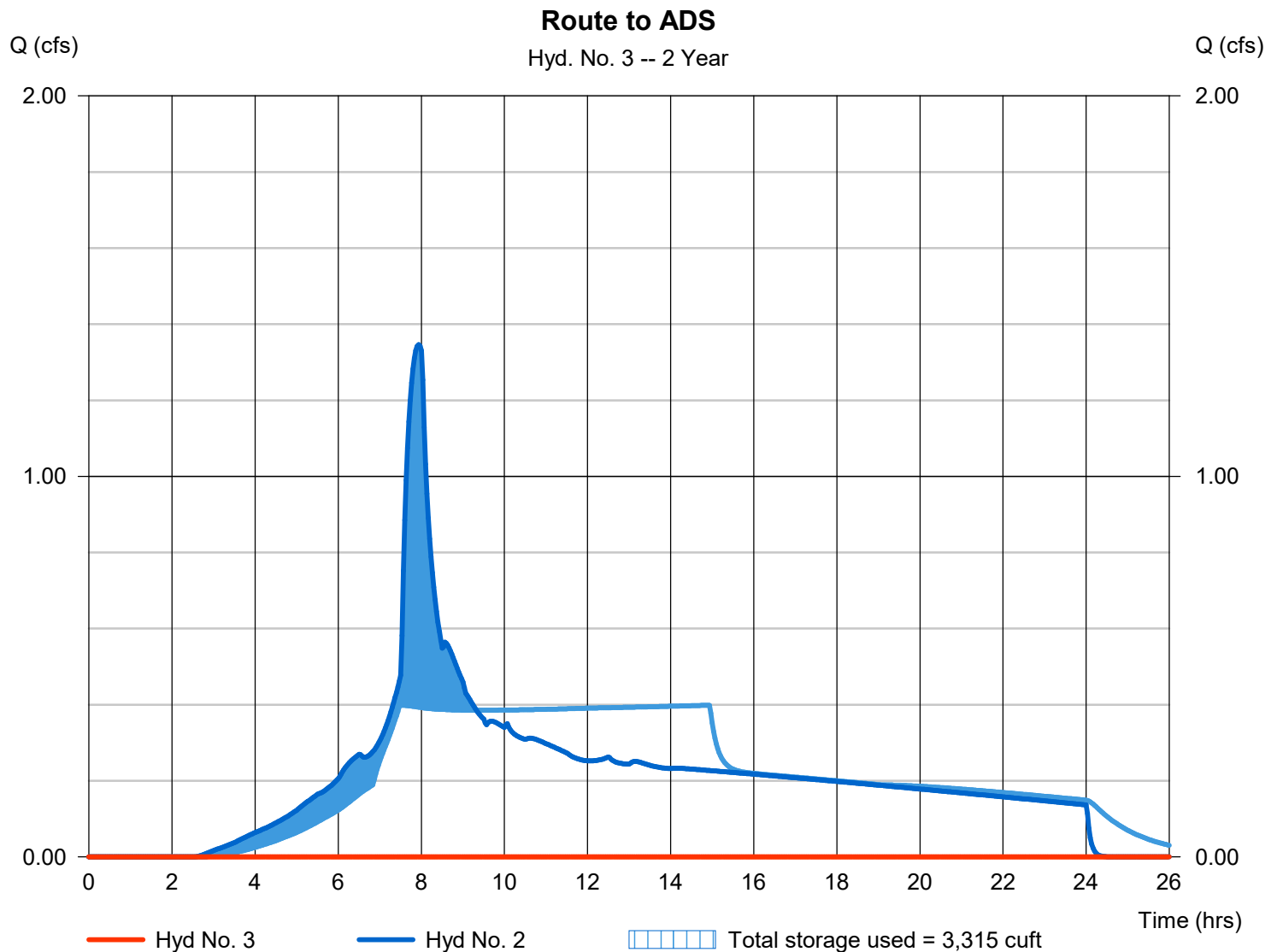
Wednesday, 06 / 22 / 2022

Hyd. No. 3

Route to ADS

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 7.70 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 2 - Onsite POST	Max. Elevation	= 198.50 ft
Reservoir name	= MC-7200 Chambers	Max. Storage	= 3,315 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Pond No. 1 - MC-7200 Chambers

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 197.67 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	197.67	1,091	0	0
0.75	198.42	1,091	818	818
0.83	198.50	2,296	133	951
1.58	199.25	2,249	1,704	2,655
2.50	200.17	2,159	2,027	4,682
3.00	200.67	2,090	1,062	5,744
4.00	201.67	1,895	1,992	7,736
4.42	202.09	1,780	772	8,507
4.50	202.17	1,754	141	8,649
4.58	202.25	1,726	139	8,788
5.50	203.17	1,192	1,335	10,122
5.75	203.42	1,108	287	10,410
5.83	203.50	1,091	88	10,498
6.75	204.42	1,091	1,004	11,501

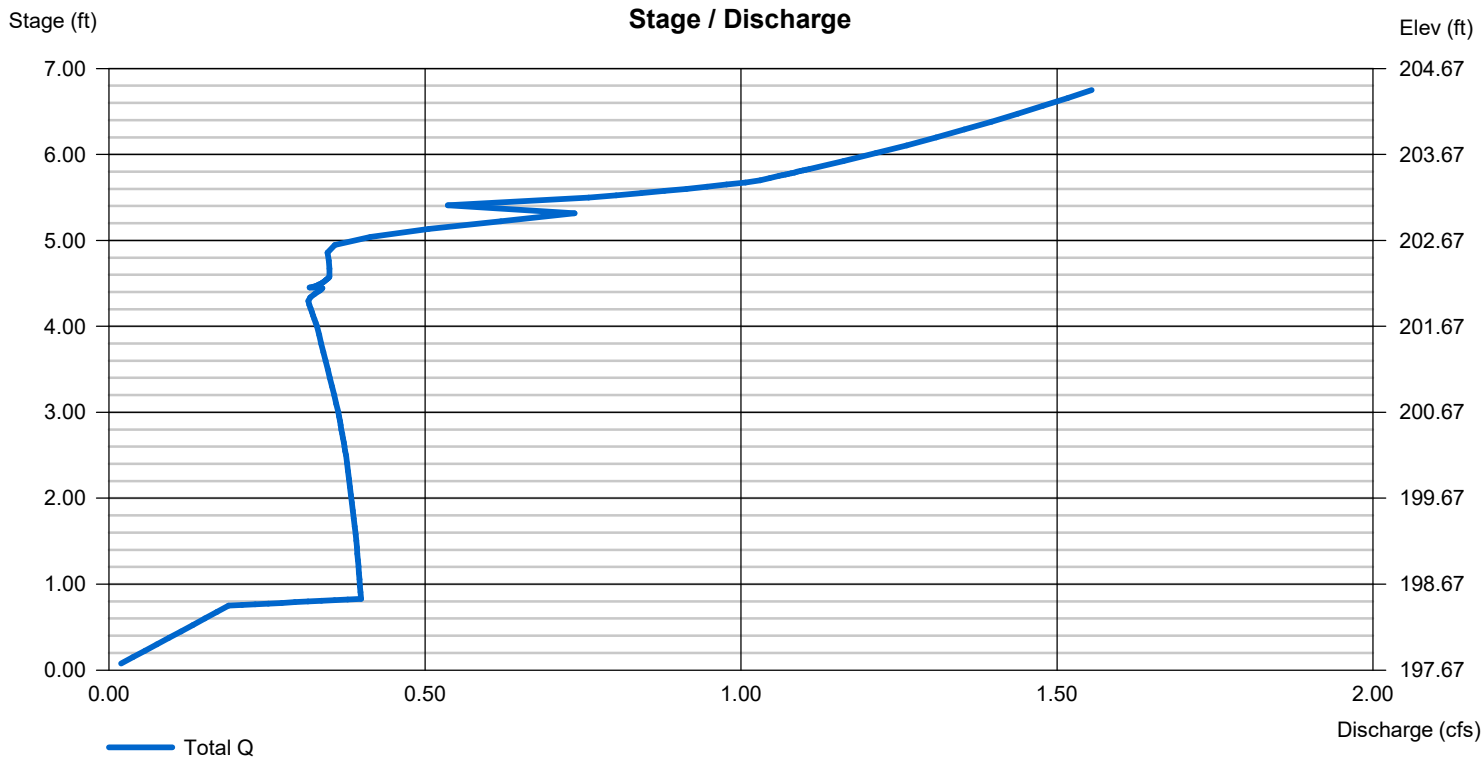
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 2.00	6.00	Inactive	0.00
Span (in)	= 2.00	6.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 201.95	202.55	0.00	0.00
Length (ft)	= 0.50	0.50	0.50	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 204.38	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 7.500 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SBUH Runoff	1.342	2	480	21,069	-----	-----	-----	Onsite PRE
2	SBUH Runoff	2.384	2	474	33,452	-----	-----	-----	Onsite POST
3	Reservoir	0.209	2	686	1,908	2	202.75	9,519	Route to ADS
14836-ADS Chambers_MC-7200.gpw					Return Period: 25 Year			Wednesday, 06 / 22 / 2022	

Hydrograph Report

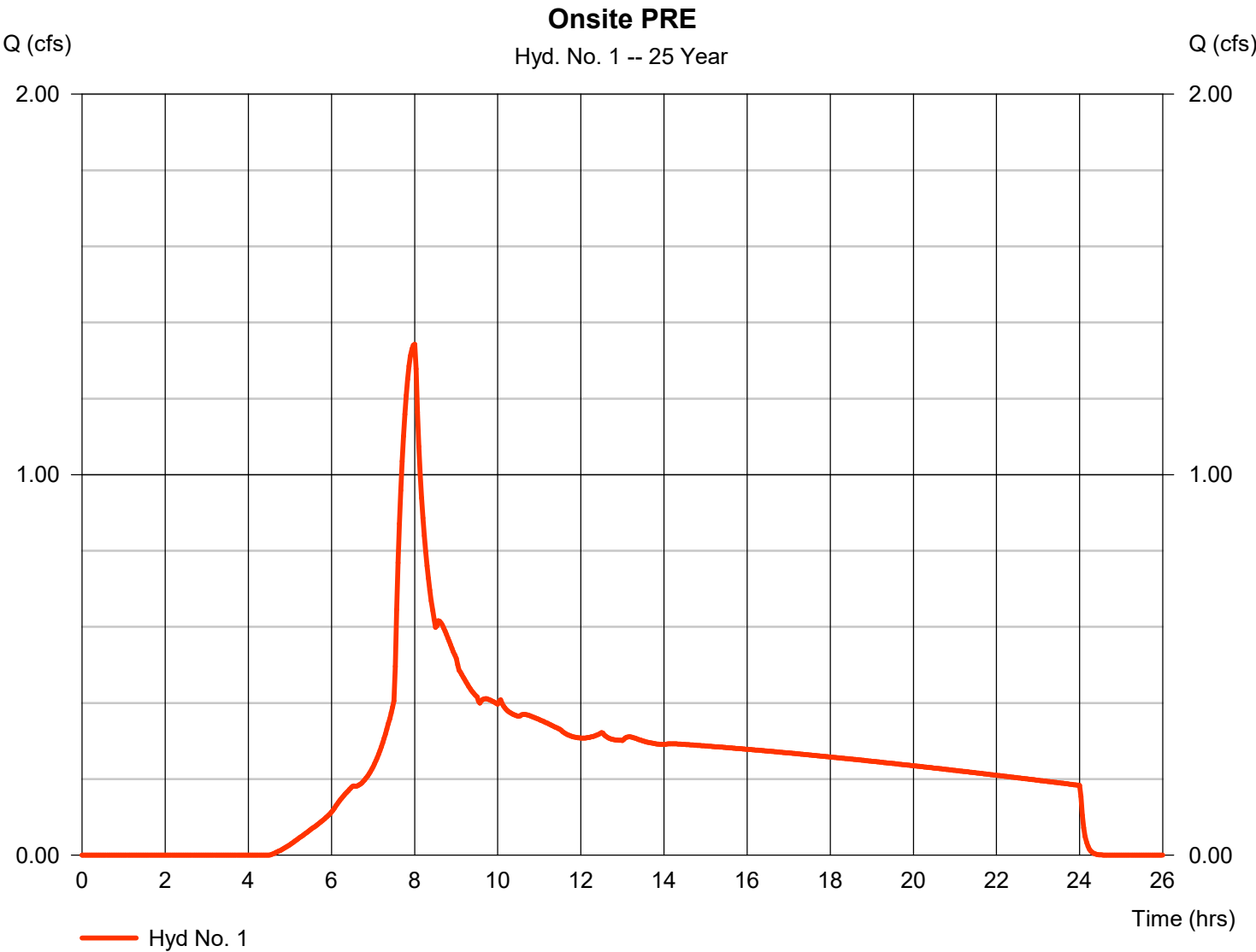
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Wednesday, 06 / 22 / 2022

Hyd. No. 1

Onsite PRE

Hydrograph type	=	SBUH Runoff	Peak discharge	=	1.342 cfs
Storm frequency	=	25 yrs	Time to peak	=	8.00 hrs
Time interval	=	2 min	Hyd. volume	=	21,069 cuft
Drainage area	=	2.956 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.30 min
Total precip.	=	4.00 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a



Hydrograph Report

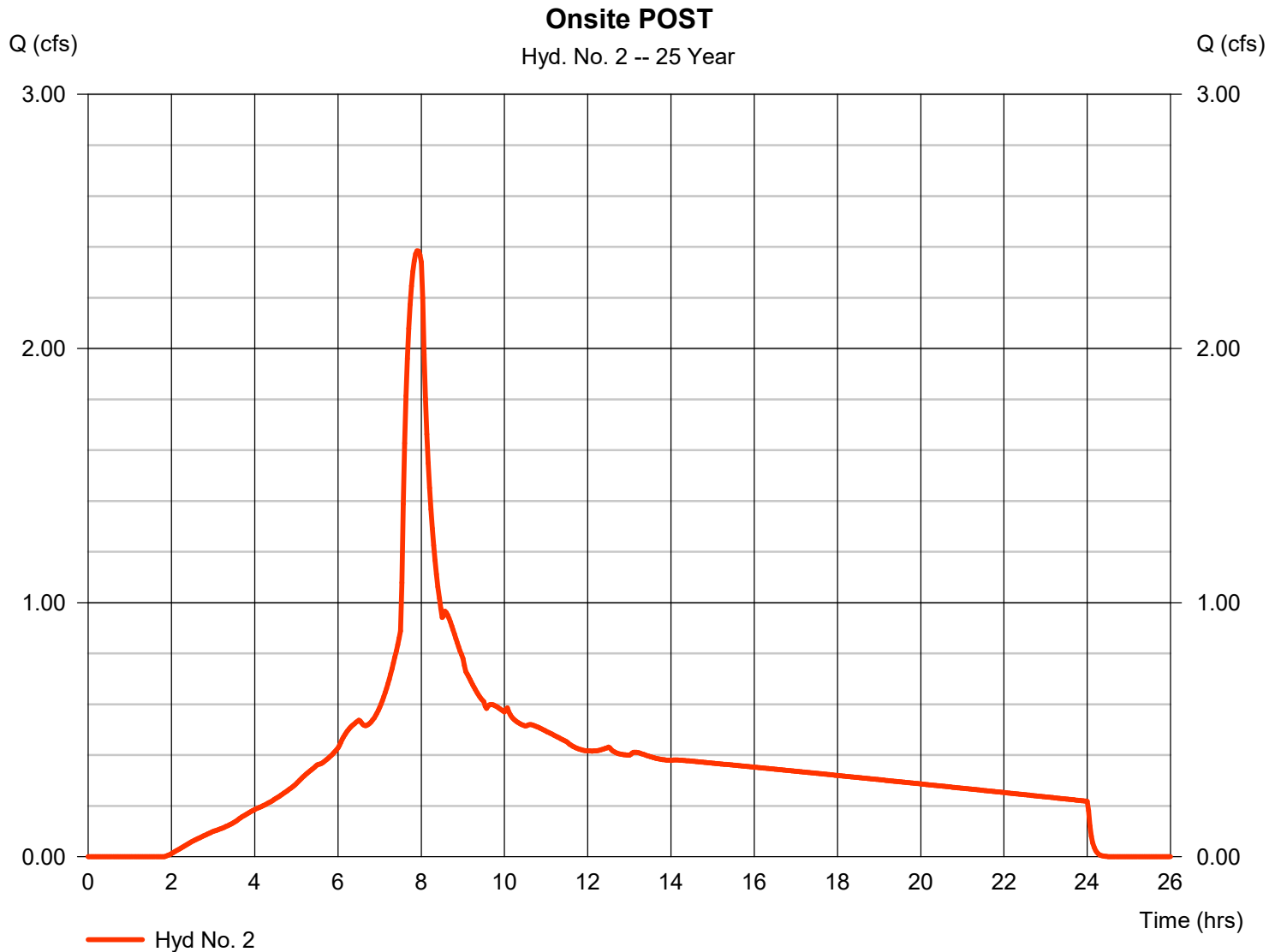
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Wednesday, 06 / 22 / 2022

Hyd. No. 2

Onsite POST

Hydrograph type	= SBUH Runoff	Peak discharge	= 2.384 cfs
Storm frequency	= 25 yrs	Time to peak	= 7.90 hrs
Time interval	= 2 min	Hyd. volume	= 33,452 cuft
Drainage area	= 2.956 ac	Curve number	= 92
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.00 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= n/a



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

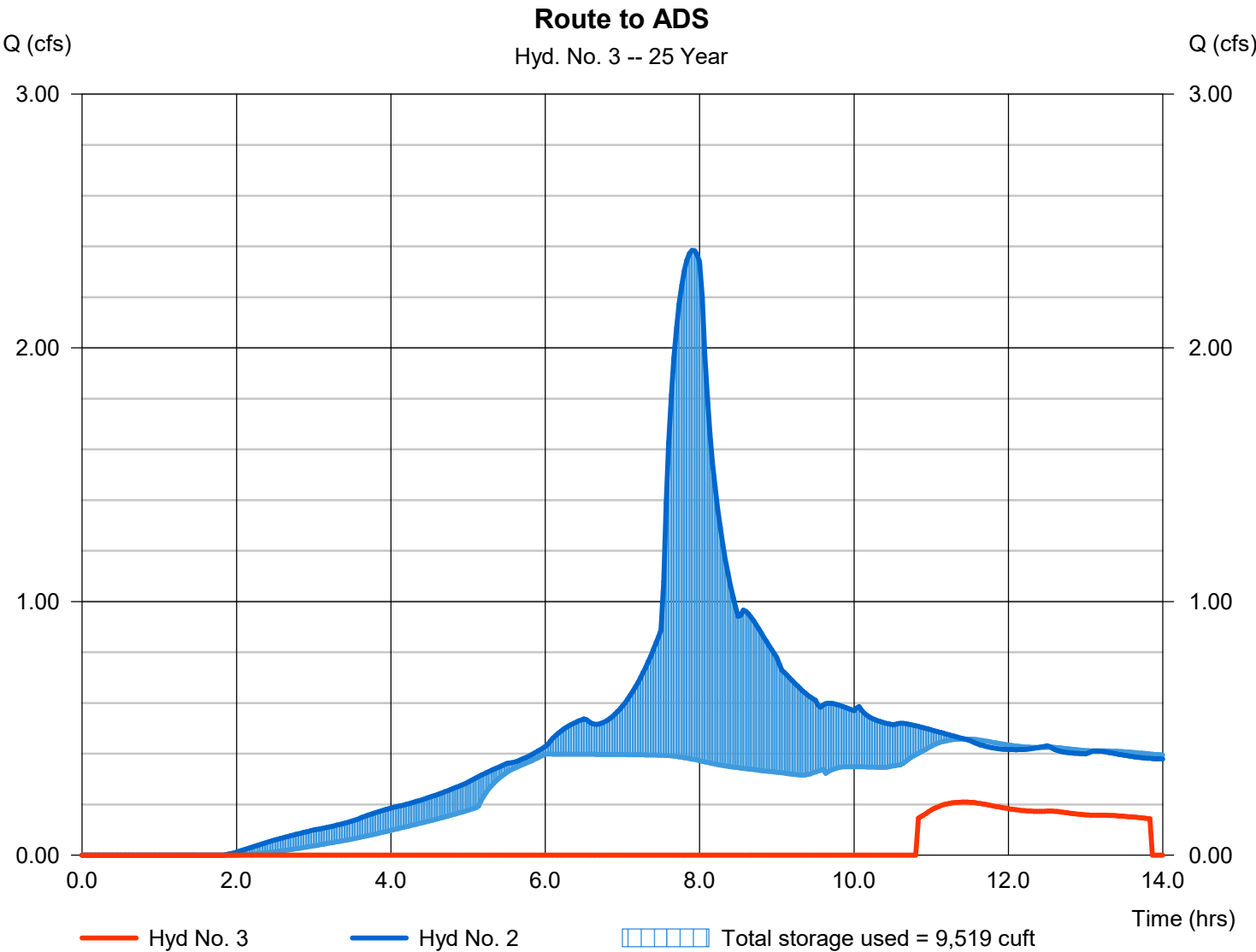
Wednesday, 06 / 22 / 2022

Hyd. No. 3

Route to ADS

Hydrograph type	= Reservoir	Peak discharge	= 0.209 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.43 hrs
Time interval	= 2 min	Hyd. volume	= 1,908 cuft
Inflow hyd. No.	= 2 - Onsite POST	Max. Elevation	= 202.75 ft
Reservoir name	= MC-7200 Chambers	Max. Storage	= 9,519 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SBUH Runoff	1.868	2	478	28,224	-----	-----	-----	Onsite PRE
2	SBUH Runoff	2.979	2	474	41,785	-----	-----	-----	Onsite POST
3	Reservoir	0.721	2	542	10,878	2	203.28	10,244	Route to ADS
14836-ADS Chambers_MC-7200.gpw					Return Period: 100 Year			Wednesday, 06 / 22 / 2022	

Hydrograph Report

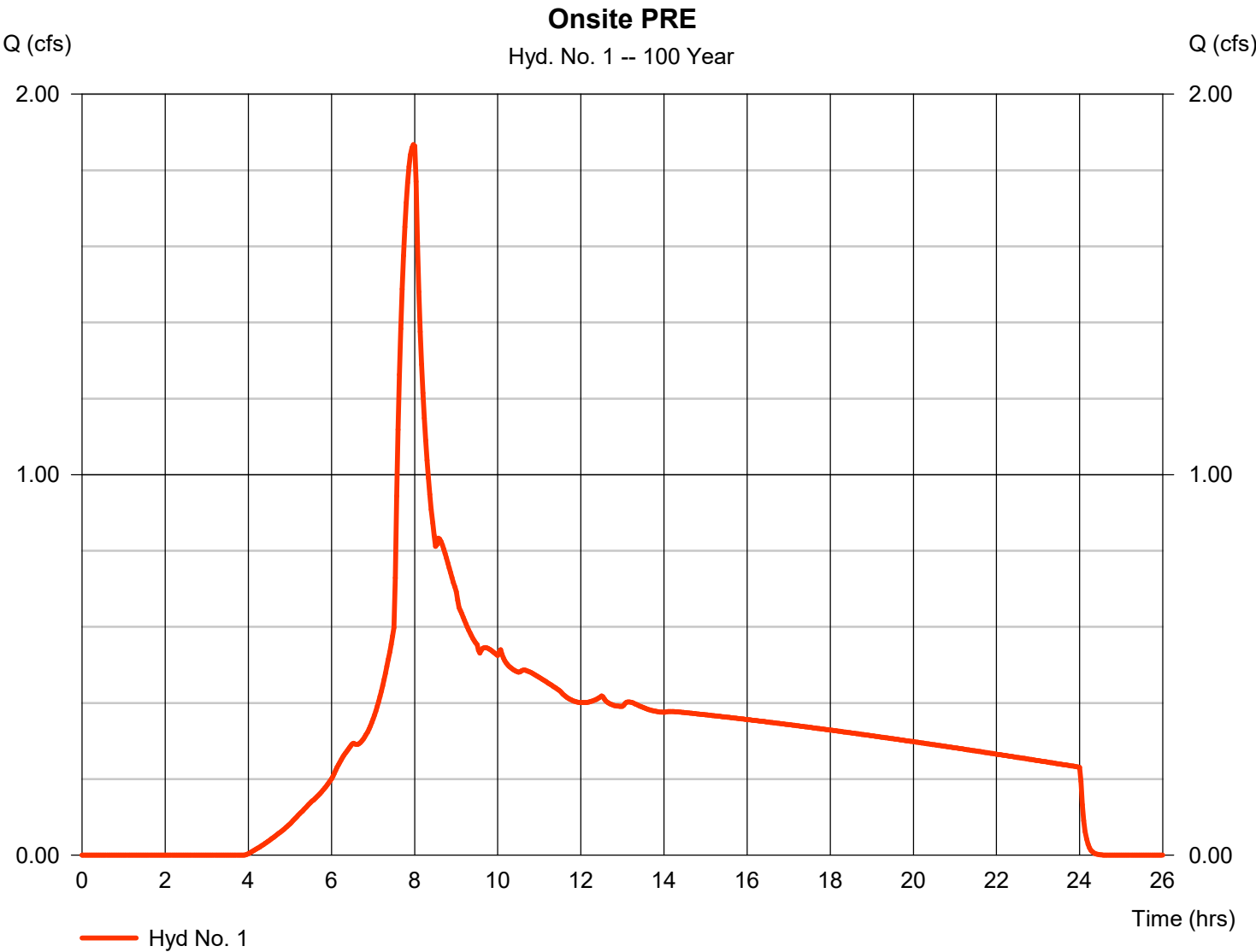
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Wednesday, 06 / 22 / 2022

Hyd. No. 1

Onsite PRE

Hydrograph type	= SBUH Runoff	Peak discharge	= 1.868 cfs
Storm frequency	= 100 yrs	Time to peak	= 7.97 hrs
Time interval	= 2 min	Hyd. volume	= 28,224 cuft
Drainage area	= 2.956 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 5.30 min
Total precip.	= 4.80 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= n/a

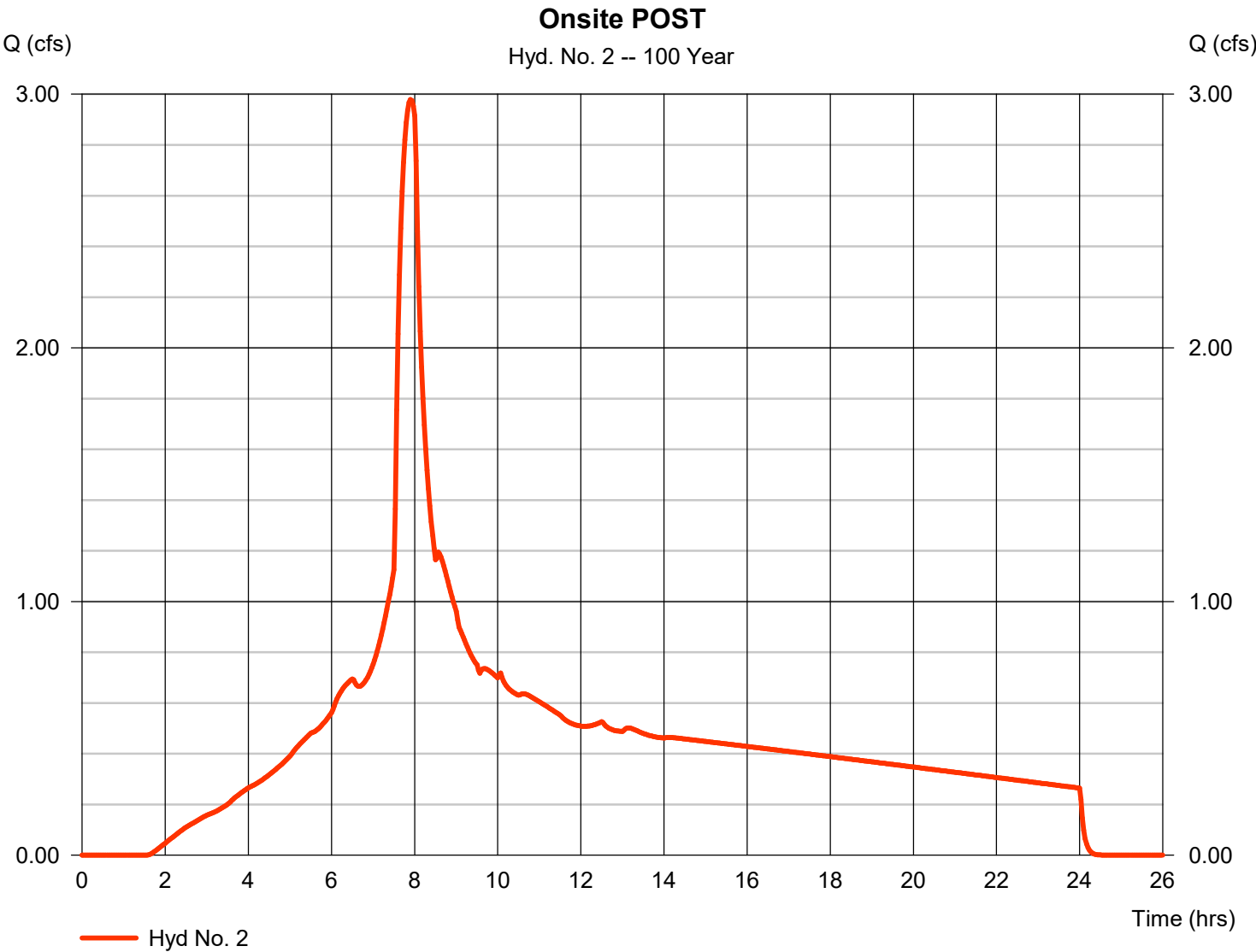


Hydrograph Report

Hyd. No. 2

Onsite POST

Hydrograph type	=	SBUH Runoff	Peak discharge	=	2.979 cfs
Storm frequency	=	100 yrs	Time to peak	=	7.90 hrs
Time interval	=	2 min	Hyd. volume	=	41,785 cuft
Drainage area	=	2.956 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

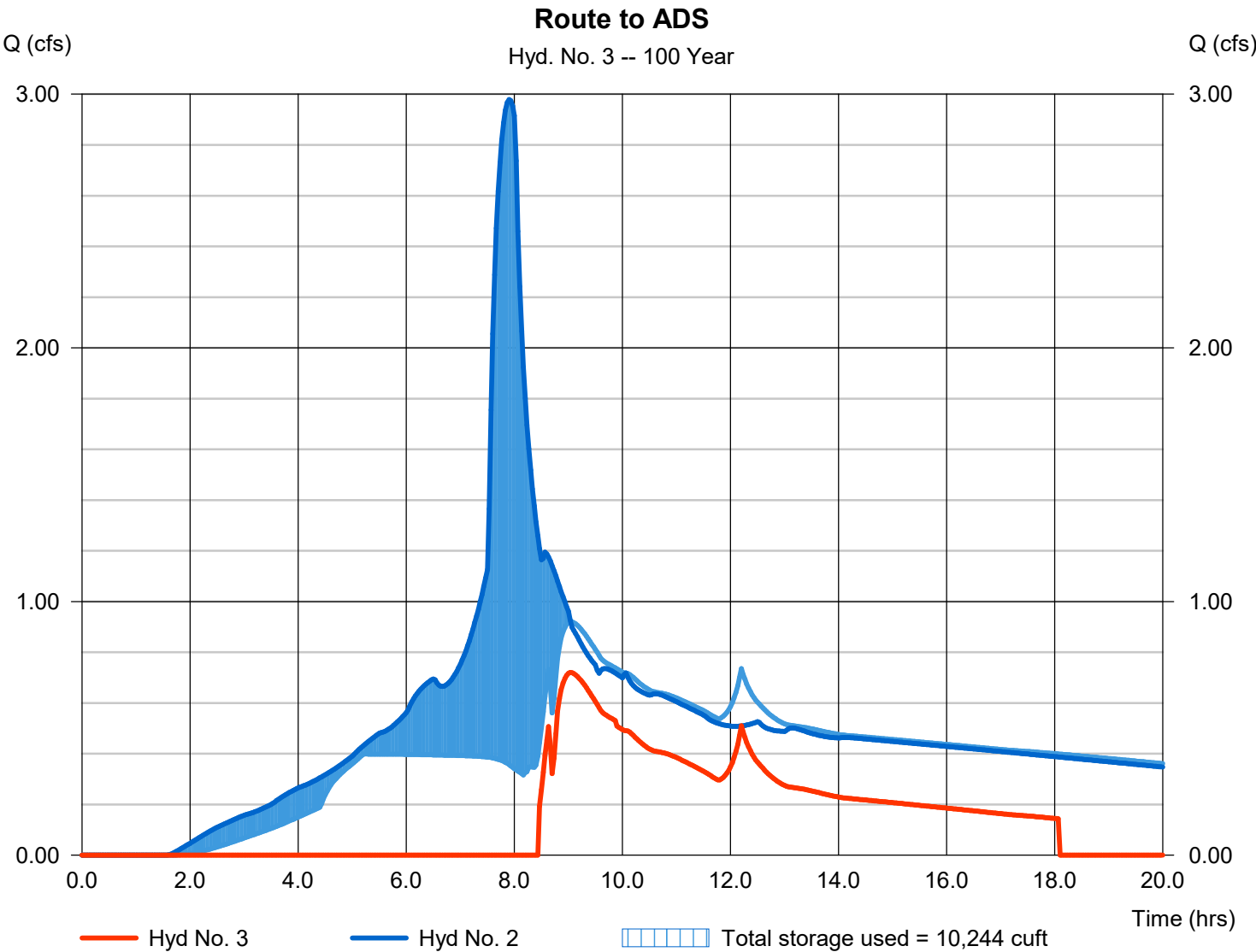
Wednesday, 06 / 22 / 2022

Hyd. No. 3

Route to ADS

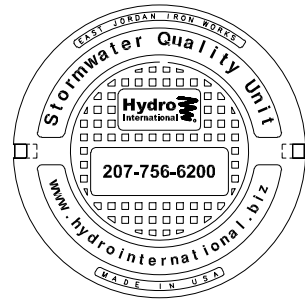
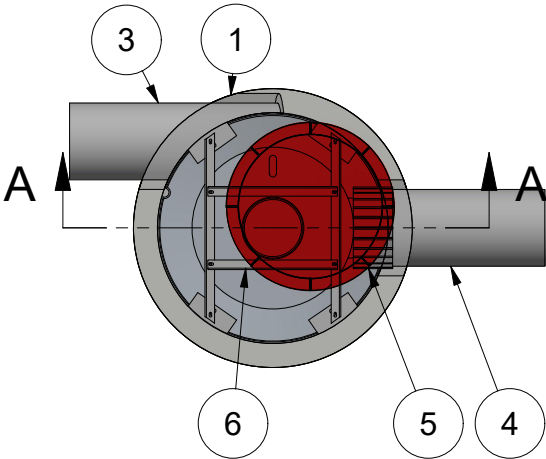
Hydrograph type	= Reservoir	Peak discharge	= 0.721 cfs
Storm frequency	= 100 yrs	Time to peak	= 9.03 hrs
Time interval	= 2 min	Hyd. volume	= 10,878 cuft
Inflow hyd. No.	= 2 - Onsite POST	Max. Elevation	= 203.28 ft
Reservoir name	= MC-7200 Chambers	Max. Storage	= 10,244 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



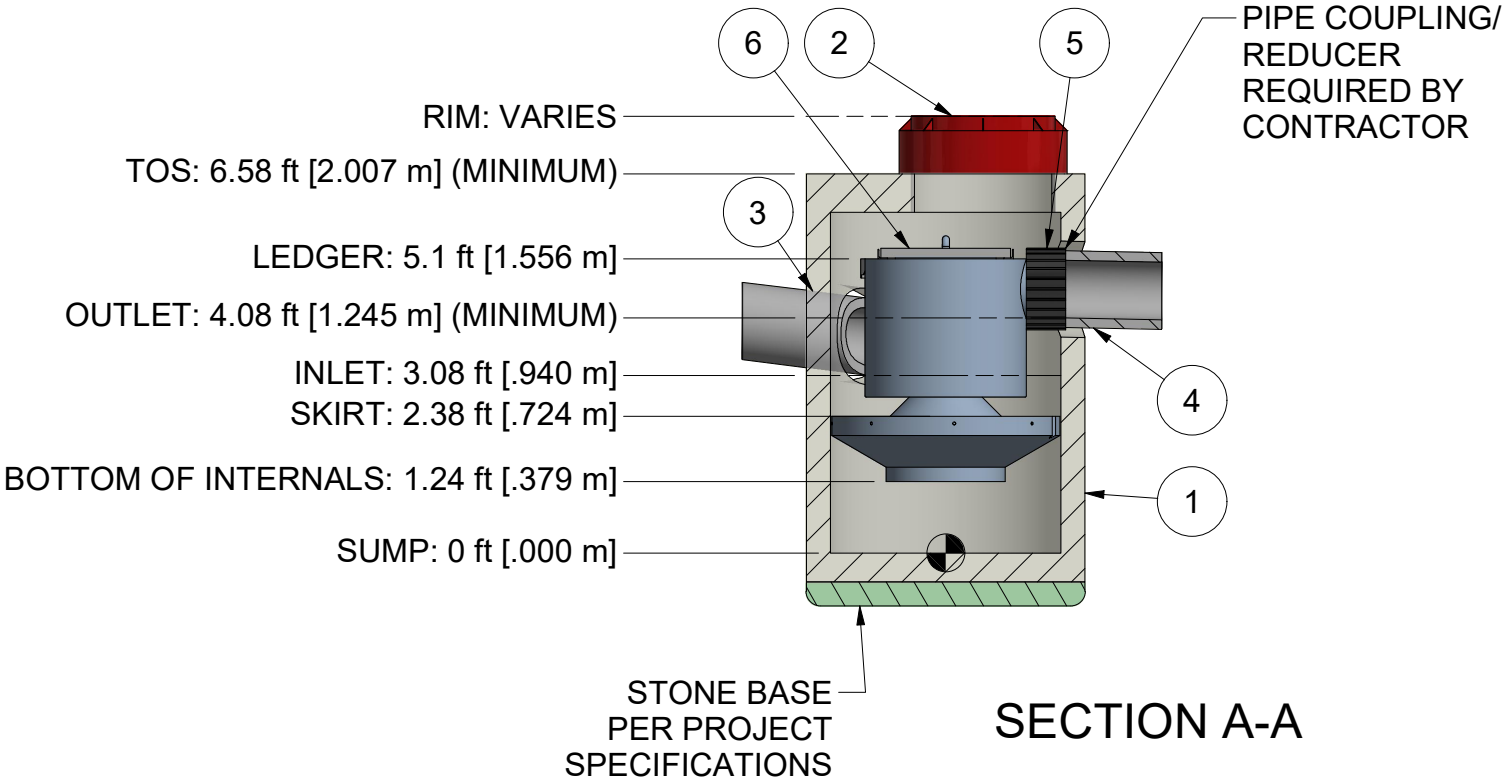
APPENDIX D:
PROPRIETARY DEVICE
DETAILS

OUTLET STUB ID: 12" (300 mm)
OUTLET STUB OD: 12.5" (318 mm)



HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS
AS REQUIRED



1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING DOWNSTREAM DEFENDER MANHOLE.



IF IN DOUBT ASK

DATE: 12/7/2020		SCALE: 1:1
DRAWN BY: ER	CHECKED BY: MRJ	APPROVED BY:
Title 4ft-DIAMETER DOWNSTREAM DEFENDER		

GENERAL ARRANGEMENT



WEIGHT: N/A	MATERIAL:
STOCK NUMBER:	
DRAWING NO.: DD GA-4	
SHEET SIZE: B	SHEET: 1 OF 1
Rev: A	

NOTE: NOT FOR CONSTRUCTION.
CONTACT HYDRO FOR SITE
SPECIFIC DETAIL

PARTS LIST

ITEM	QTY	SIZE (in)	SIZE (mm)	DESCRIPTION
1	1	48	1200	PRECAST MANHOLE (BY HYDRO VIA PRECASTER)
2	1	30	750	FRAME AND COVER
3	1	12 (MAX)	300 (MAX)	INLET PIPE (BY OTHERS)
4	1	12 (MAX)	300 (MAX)	OUTLET PIPE (BY OTHERS)
5	1			PIPE COUPLING (BY OTHERS)
6	1			INTERNAL COMPONENTS (PRE-INTALLED)

EQUIPMENT PERFORMANCE

The stormwater treatment unit shall adhere to the hydraulic parameters given in the chart below and provide the removal efficiencies and storage capacities as follows:

- The treatment system shall use an induced vortex to separate pollutants from stormwater runoff.
- Peak Hydraulic Capacity: 3.0 cfs (85 l/s)
- Sediment Storage Capacity: 0.70 cu. yd. (0.53 cu. m)
- Continuous Oil Storage Capacity: 70 gal. (265 liters)
- Sediment shall be stored in a zone that is isolated from the main flow path and protected from reentrainment by a benching skirt.
- For more product information including regulatory acceptances, please visit <https://hydro-int.com/en/products/downstream-defender>

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	



GLENCOE MC-7200

HAPPY VALLEY, OR

MC-7200 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-7200.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM

- STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-7200 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT		CONCEPTUAL ELEVATIONS		*INVERT ABOVE BASE OF CHAMBER				
				PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
38	STORMTECH MC-7200 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	12.75					
8	STORMTECH MC-7200 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	8.25					
12	STONE ABOVE (in)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	7.75	PREFABRICATED END CAP	A	18" BOTTOM PARTIAL CUT END CAP, PART#: MC7200IEPP18B / TYP OF ALL 18" BOTTOM CONNECTIONS	1.97"	
9	STONE BELOW (in)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	7.75					
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	7.75	PREFABRICATED END CAP	B	24" BOTTOM PARTIAL CUT END CAP, PART#: MC7200IEPP24B / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.26"	
11563	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	6.75	FLAMP	C	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MC720024RAMP		
		TOP OF MC-7200 CHAMBER:	5.75	MANIFOLD	D	18" x 18" BOTTOM MANIFOLD, ADS N-12	1.97"	
		24" ISOLATOR ROW PLUS INVERT:	0.94	CONCRETE STRUCTURE	E	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		4.0 CFS OUT
		18" x 18" BOTTOM MANIFOLD INVERT:	0.91	CONCRETE STRUCTURE	F	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		5.5 CFS IN
2727	SYSTEM AREA (SF)	18" BOTTOM CONNECTION INVERT:	0.91					
243.4	SYSTEM PERIMETER (ft)	BOTTOM OF MC-7200 CHAMBER:	0.75	W/WEIR				
		BOTTOM OF STONE:	0.00					

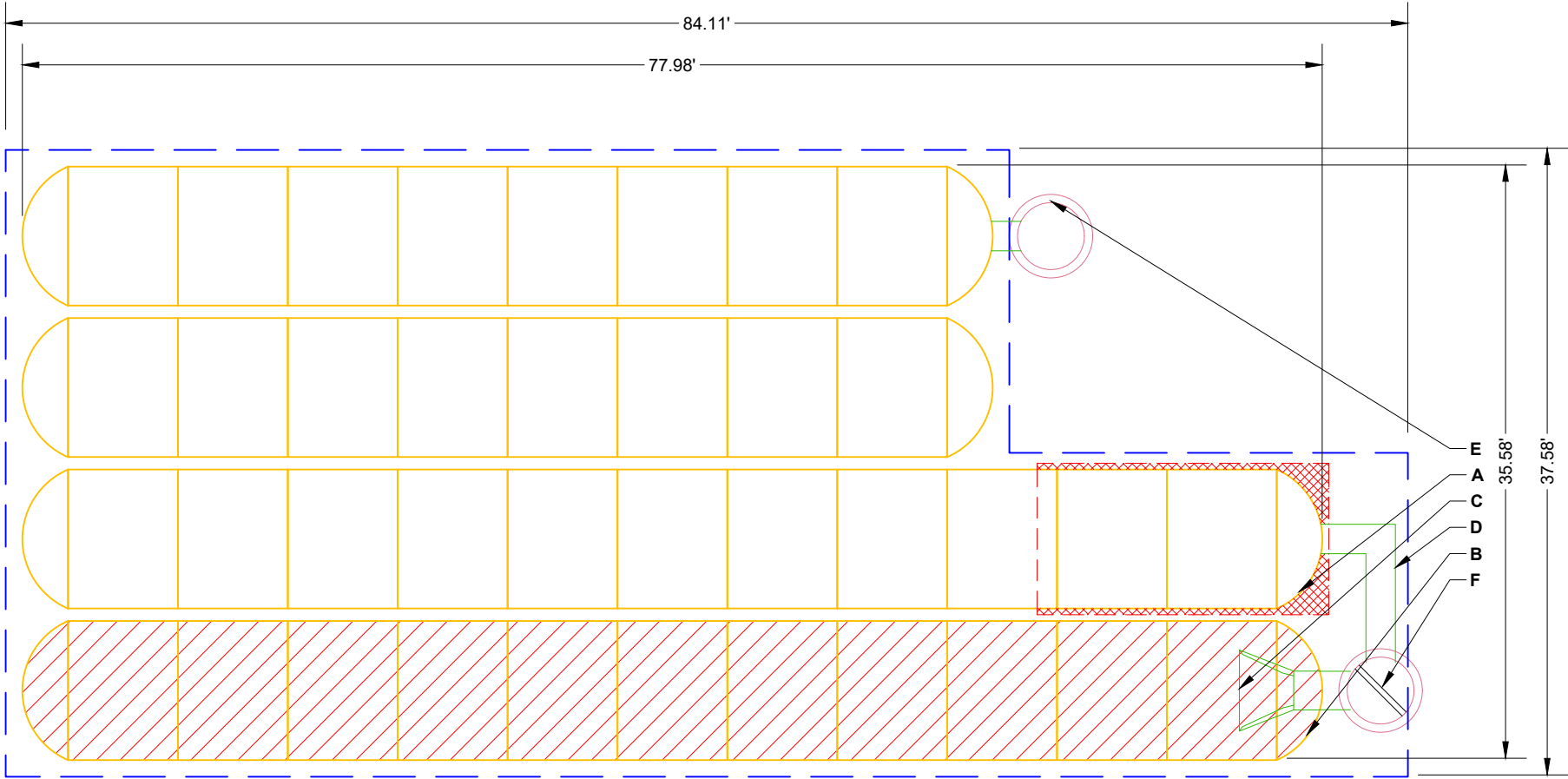
ISOLATOR ROW PLUS
(SEE DETAIL)

PLACE MINIMUM 17.50' OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.



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Chamber System

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HILLIARD, OH 43026
1-800-733-7473

GLENCoe MC-7200

HAPPY VALLEY, OR

DRAWN: AP

CHECKED: N/A

DATE:

PROJECT #:

DESCRIPTION

CHK

DRW

DATE

SHEET

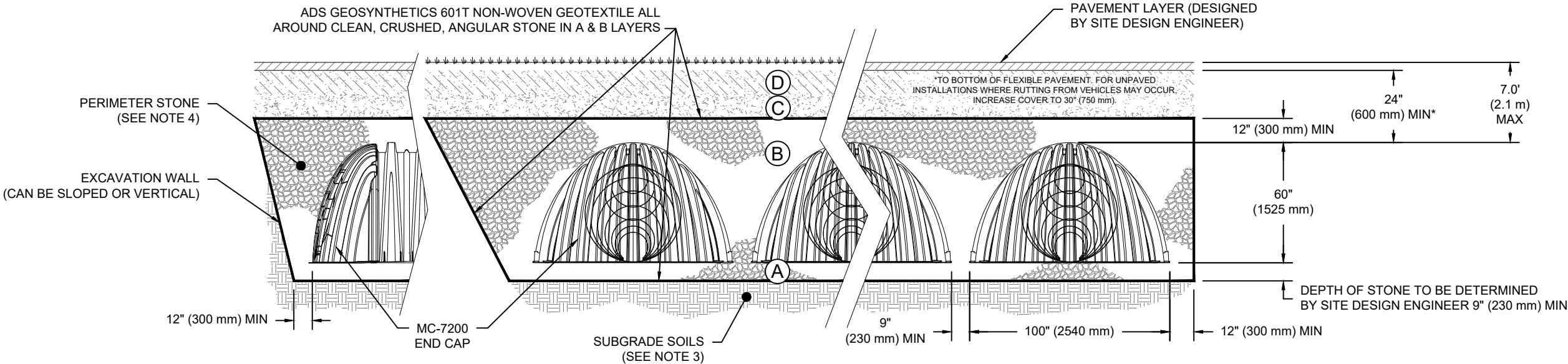
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ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 - ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
- MC-7200 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

GLENCoe MC-7200

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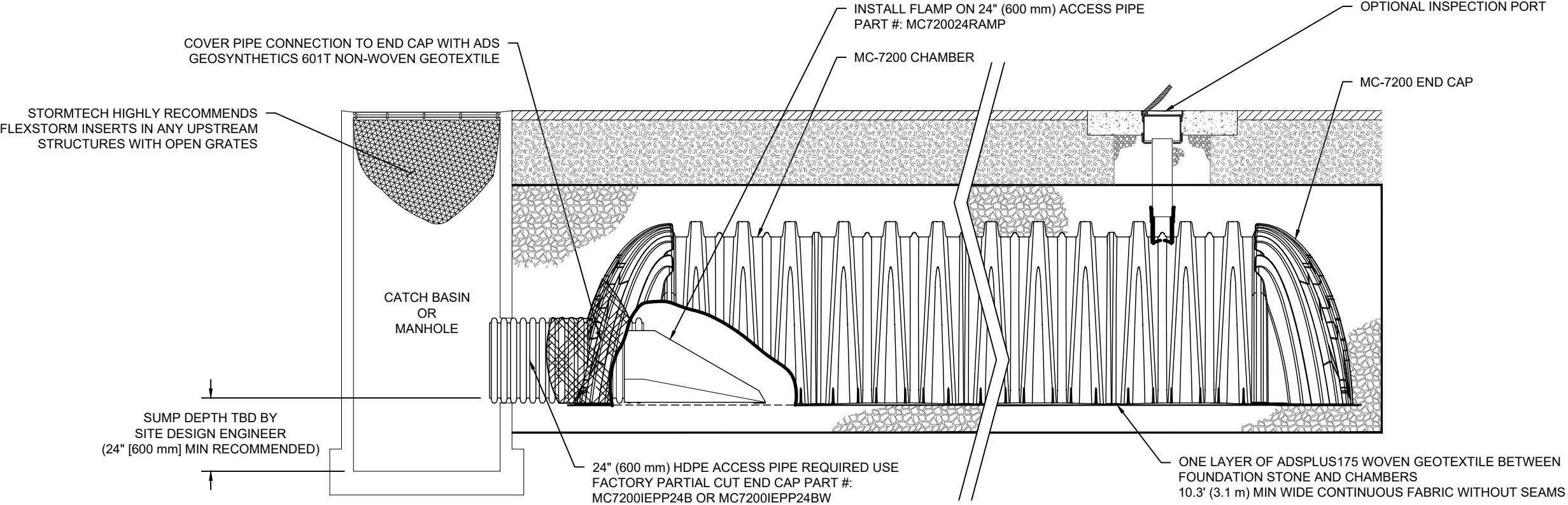
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3 OF 5

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MC-7200 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

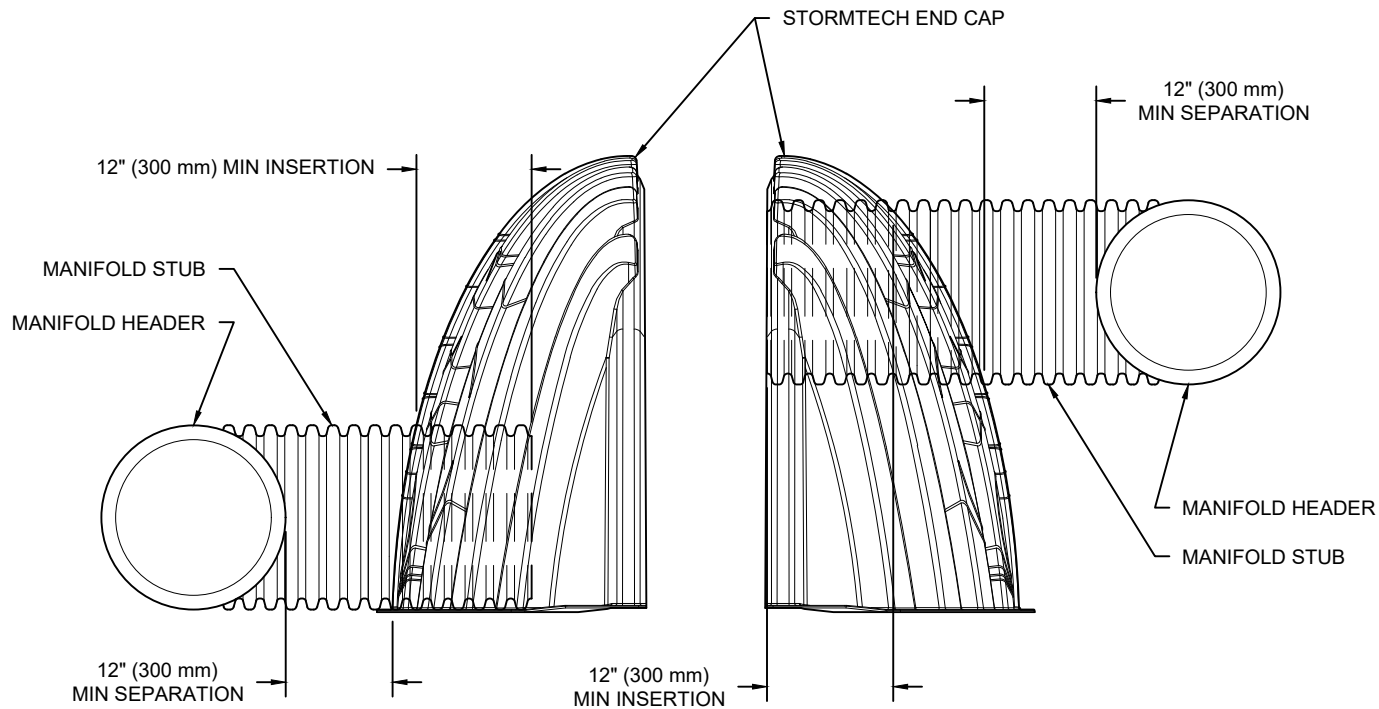
- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
 - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
 - B. ALL ISOLATOR PLUS ROWS
 - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
 - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
 - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
 - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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																		PROJECT #:	
																		CHECKED: N/A	
		THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.																	
SHEET																			
4 OF 5																			

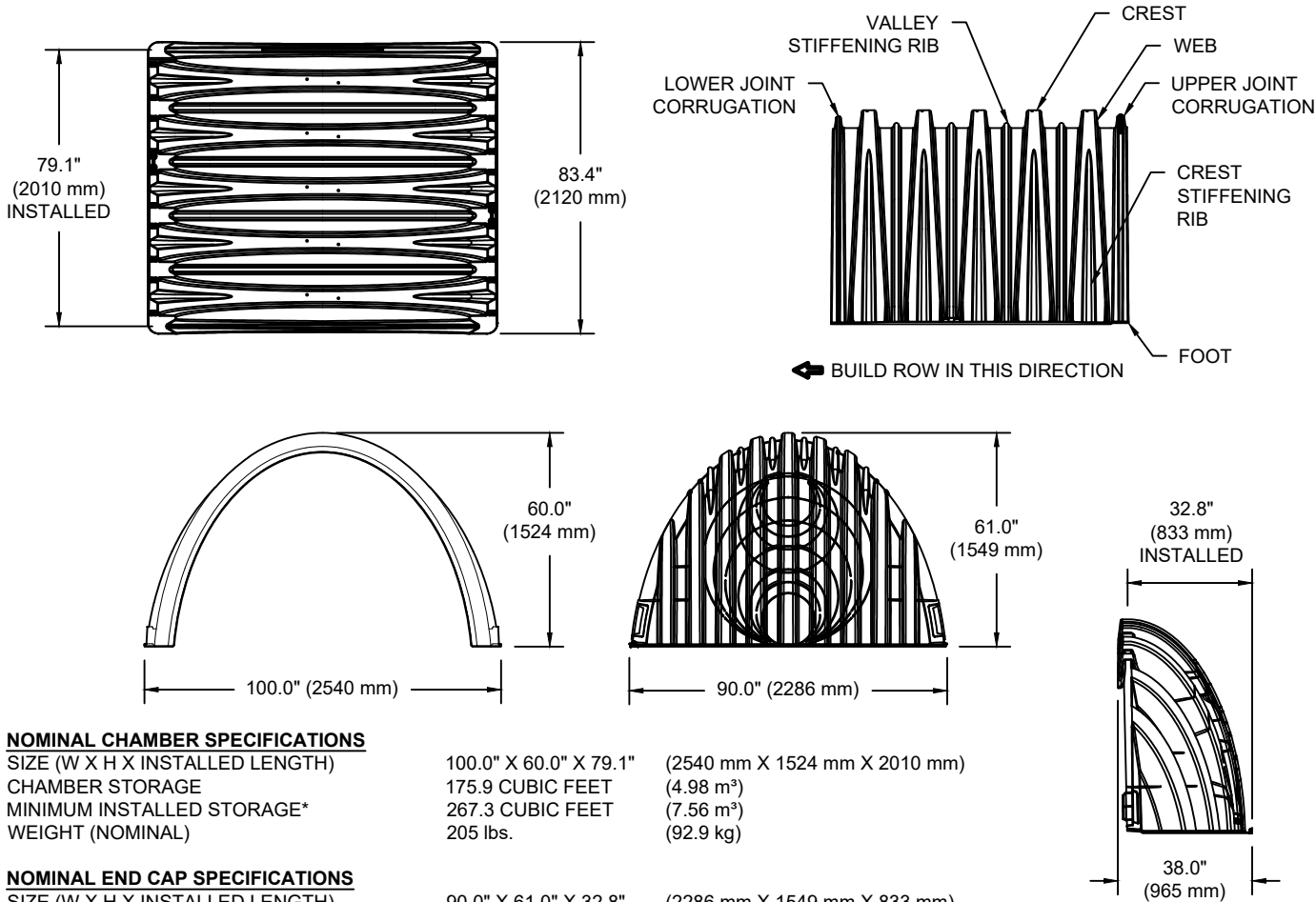
MC-SERIES END CAP INSERTION DETAIL



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-7200 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 79.1"	(2540 mm X 1524 mm X 2010 mm)
CHAMBER STORAGE	175.9 CUBIC FEET	(4.98 m³)
MINIMUM INSTALLED STORAGE*	267.3 CUBIC FEET	(7.56 m³)
WEIGHT (NOMINAL)	205 lbs.	(92.9 kg)

NOMINAL END CAP SPECIFICATIONS

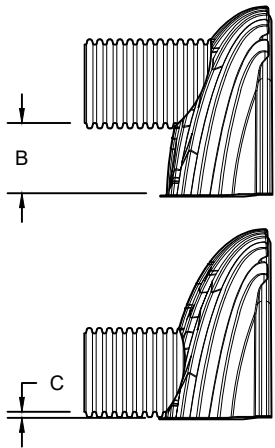
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC7200IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC7200IEPP06B		---	0.86" (22 mm)
MC7200IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC7200IEPP08B		---	1.01" (26 mm)
MC7200IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC7200IEPP10B		---	1.33" (34 mm)
MC7200IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC7200IEPP12B		---	1.55" (39 mm)
MC7200IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC7200IEPP15B		---	1.70" (43 mm)
MC7200IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC7200IEPP18TW		---	1.97" (50 mm)
MC7200IEPP18B			
MC7200IEPP18BW			
MC7200IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC7200IEPP24TW		---	2.26" (57 mm)
MC7200IEPP24B			
MC7200IEPP24BW			
MC7200IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC7200IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC7200IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-7200 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

GLENCOE MC-7200

HAPPY VALLEY, OR

DRAWN: AP

CHECKED: N/A

DATE:

PROJECT #:

DESCRIPTION

CHK

DRW

DATE

888-892-2694 | WWW.STORMTECH.COM

StormTech®
Chamber System

4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

ADS

SHEET

5 OF 5

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

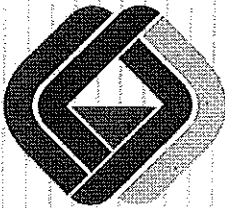
APPENDIX E: CONVEYANCE CALCULATIONS

*Conveyance calculations will be included
in future submittal

APPENDIX F:
EXCERPTS FROM
GEOTECHNICAL REPORT

GEOTECHNICAL INVESTIGATION

GOODWILL INDUSTRIES - CLACKAMAS MILWAUKIE, OREGON



GEOCON
NORTHWEST, INC.
GEOTECHNICAL &
ENVIRONMENTAL
CONSULTANTS

PREPARED FOR

**GOODWILL INDUSTRIES OF THE
COLUMBIA WILLAMETTE
PORTLAND, OREGON**

SEPTEMBER 2012



P1894-05-01
September 12, 2012

Mr. Peter Collins
Goodwill Industries of the Columbia Willamette
1943 SE Sixth Avenue
Portland, Oregon 97214-1535

Subject: GOODWILL INDUSTRIES – CLACKAMAS
MILWAUKIE, OREGON
GEOTECHNICAL INVESTIGATION

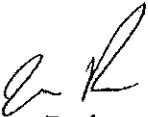
Dear Mr. Collins:

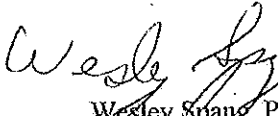
In accordance with our proposal number P12-05-68, dated July 25, 2012, and your authorization, we have performed a geotechnical investigation for the proposed Clackamas Goodwill in Milwaukie, Oregon. The accompanying report presents the findings of our study and our conclusions and recommendations regarding the geotechnical aspects of the proposed Goodwill construction. Based on the results of this investigation, it is our opinion that the site can be developed as proposed, provided the recommendations of this report are followed. Important geotechnical issues addressed herein include grading with moisture-sensitive site soils, difficult excavation characteristics of dense gravels and cobbles and foundation design parameters.

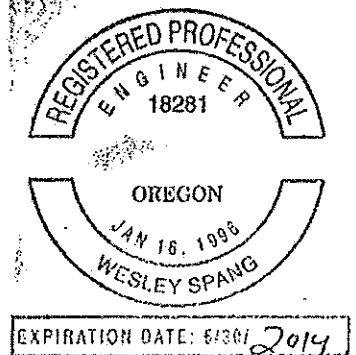
If you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Sincerely,

GEOCON NORTHWEST INCORPORATED


Jason Bock
Geotechnical Engineering Staff


Wesley Spang, Ph.D., P.E.
Principal Engineer



GEOTECHNICAL INVESTIGATION

1 PURPOSE AND SCOPE

This report presents the results of the geotechnical investigation for the proposed Clackamas Goodwill in Milwaukie, Oregon. The site is located at 9911 SE 82nd Avenue in Milwaukie, Oregon as shown in Figure 1, Site Vicinity Map. The purpose of the geotechnical investigation was to evaluate subsurface soil and geologic conditions at the site and, based on the conditions encountered, provide conclusions and recommendations pertaining to the geotechnical aspects of the proposed construction.

The scope of the field investigation consisted of a site reconnaissance, review of published geological literature, nine exploratory borings and four infiltration tests. A detailed discussion of the field investigation and copies of the exploratory boring logs are presented in Section 4 and Appendix A of this report, respectively.

Laboratory tests were performed on selected soil samples obtained during the investigation to evaluate pertinent physical properties. Appendix B presents a summary of the laboratory test results. The results of laboratory moisture content tests are presented on the exploratory boring logs.

The recommendations presented herein are based on analyses of the data obtained during the field investigation, laboratory test results, and our experience with similar soil and geologic conditions. This report has been prepared for the exclusive use of Goodwill Industries of Columbia Willamette, for specific application to this project, in accordance with generally accepted geotechnical engineering practice. This report may not contain sufficient information for purposes of other parties or other uses.

2 SITE AND PROJECT DESCRIPTION

The site is located 9911 SE 82nd Avenue in Milwaukie, Oregon (see Figure 1). The site currently covers a portion of a trailer park and a small portion of an auto dealership. It is understood that the existing buildings and improvements will be demolished for the construction of a new 23,000 square foot Goodwill retail store, a 6,000 square-foot retail building, and associated infrastructure. It is assumed the planned buildings will be either tilt wall or CMU block construction and a maximum of one story.

Based on topographic information reviewed for the site, the site elevation slopes gently from the northwest to the south east with a maximum grade change of approximately five feet over the site.

3 REGIONAL GEOLOGY

Based on the State of Oregon Department of Geology and Mineral Industries' (DOGAMI) Open File Report O-90-2, the site is mapped within an area of Pleistocene age coarse-grained facies. These

Pleistocene age deposits are characterized by pebble to boulder sized gravel with a silt to sand matrix. These facies are fluvial deposits resulting from repeated temporary inundation of the Willamette Valley by Late-Pleistocene glacial outburst floods. These glacial floods originated in the Missoula Valley of Montana, passed through eastern Washington, and followed the Columbia River downstream. When these large floods entered the Portland Basin they flowed up the Willamette River and its tributaries, flooding most of the Willamette and Tualatin Valleys up to an approximate elevation of 350 feet MSL. The last of these glacial floods, also thought to be one of the largest, occurred about 12,400 years ago, establishing the minimum age of the deposit. Below the surface deposit is a Pliocene age sandstone and conglomerate of inundated beds and lenses of well sorted sand and gravel, typically referred to as the Troutdale Formation. The Troutdale Formation occurs primarily in the valleys of the Willamette, Clackamas and Sandy Rivers, as well as along many of their tributaries. At depths below the Troutdale Formation, Sandy River Mudstone and Columbia River Basalt is mapped.

4 SUBSURFACE EXPLORATION AND CONDITIONS

4.1 Site Exploration

The subsurface soil conditions at the site were determined based on the literature review, field exploration, and laboratory test results. The field exploration was completed on August 7th through 8th, 2012 and consisted of the excavation of nine exploratory borings and the performance of four infiltration tests. The explorations extended to a maximum depth of 26.5-feet bgs in locations across the site. The subsurface conditions encountered in the borings were recorded on the subsurface logs that are located in Appendix A at the end of this report. The approximate locations of the explorations are shown in Figure 2, Site Plan.

4.1.2 Borings

Nine borings were advanced to a depths ranging from approximately 3.5 to 26.5-feet bgs. The borings were completed with a truck-mounted Dietrick 47 drill rig equipped with mud rotary and hollow stem drilling capability. A member of Geocon Northwest's geotechnical engineering staff logged the subsurface conditions encountered within the borings. Standard penetration tests (SPT) were performed in each boring by driving a 2-inch outside diameter split spoon sampler 18-inches into the bottom of the boring, in general accordance with ASTM D 1586. The number of blows required to drive the sampler the last 12 of the 18-inches (blow count) are reported on the boring logs located in Appendix A at the end of this report. Disturbed bag samples were obtained from SPT testing. Service providers subcontracted by Geocon Northwest completed the borings.

Exploration logs describing the subsurface conditions encountered are presented in Appendix A at the end of this report.

4.2 Subsurface Conditions

The subsurface explorations were widely spaced across the site and it is possible that some local variations and possible unanticipated subsurface conditions exist. Based on the conditions observed during the reconnaissance and field exploration, the subsurface conditions, in general, consisted of the following:

A/C PAVEMENT – The trailer park is currently developed with a paved drive. Borings and soundings completed in paved areas typically encountered approximately 2 to 3 inches of asphalt underlain by varying thicknesses, ranging from approximately 4 to 7 inches, of crushed rock.

TOP SOIL – Areas not covered with AC generally were vegetated with grass. Underlying the grass, soils encountered typically consisted of 8 inches of organic rich sandy silt top soil.

SANDY SILT– A silt with varying amounts of medium to fine sand was encountered below the pavement and top soil to depths ranging from approximately 3 to 5 feet. This material, in general, exhibited medium stiff to stiff consistency.

SANDY GRAVEL/GRAVELLY SAND– Underlying the sandy silt, dense to very dense sandy gravel to gravelly sand with varying amounts of silt was encountered to the maximum depth explored.

GROUNDWATER – Groundwater was not encountered at the time of drilling. Several borings encountered moist to wet soils at a depth of 15 to 17 feet bgs, likely the result of a higher silt content within the sand and gravel at these locations. A review of water well logs contained within the Oregon Water Resources Department database for nearby sites determined that the depth to the underlying phreatic groundwater surface is approximately 35 to 40 feet. Additionally, an abandoned quarry is located approximately 500 feet west of the site. The lower portion of the abandoned quarry is filled with water at an elevation of approximately 164 feet. This water elevation, after correcting for the groundwater gradient, provides corroboration of the groundwater depth referenced above.

Based on the above discussion, we recommend that a depth to groundwater of 35 feet be used for project infiltration facilities.

INFILTRATION – Infiltration tests were performed to evaluate the potential for onsite infiltration systems. Infiltration tests were performed in six inch diameter hollow stem augers firmly seated (minimum of six inches) into native relatively undisturbed soils. Tests were performed at depths ranging from 3 to 5 feet bgs. Unfactored infiltration rates were typically greater than 30 in/hr. Specific infiltration test results are presented in Table 1 at the end of this report.

5 SEISMIC HAZARDS

5.1 Landslide Hazard

No slumps or other features indicative of landslides were observed during our field investigation.

5.2 Crustal Faults

Based on the literature review, there are no identified faults mapped within the boundaries of the site or within adjacent properties. Evidence was not encountered during the field investigation to suggest the presence of faults within the property. The potential for fault displacement and associated ground subsidence at the site is considered remote.

5.3 Soil Liquefaction Potential

Liquefaction can cause aerial and differential settlement, lateral spreading, loss of bearing capacity, and sudden loss in soil strength. Soils prone to liquefaction are typically loose, saturated sands and, to a lesser degree, silt. Cyclic failure can result in similar hazards to those of liquefaction, but is a phenomena related to low-strength, fine-grained silt and clay soils. When ground shaking commences, the low-strength saturated soils tend to generate excess pore water pressures. The degree of excess pore water pressure generation is largely a function of the magnitude and duration of the ground shaking, as well as the density or consistency of the soil.

Our analysis determined that the dense sands and gravels are not susceptible to liquefaction.

5.4 2010 Oregon Structural Specialty Code Seismic Design Criteria

The structures will be designed in accordance with the 2010 Oregon Structural Specialty Code (OSSC). A soil characteristic called "Soil Site Class" is used to account for the effect of the underlying soil conditions on bedrock motion. Based on the subsurface conditions encountered during the field investigation and the geological literature reviewed for the site, it is estimated that the material in the upper 100 feet, determined in accordance with the procedures outlined in OSSC Section 1613 "Site Categorization Procedure", has an average shear wave velocity between 600 and 1,200 feet per second. The preceding criteria characterize the site as Site Class D. It is recommended that the 2010 Oregon Structural Specialty Code seismic factors and coefficients given in Table 2 be used for seismic design. Figure 3, shown at the end of this report, presents the design response spectrum.

Table 1: Infiltration Tests

<i>Test Location</i>	<i>Depth (ft)</i>	<i>Unfactored Infiltration Rate (in/hr)</i>
B-1	5	35
B-2	3	60
B-3	5	30
B-9	3	45

Table 2: 2010 OSSC Seismic Design Recommendations

<i>Seismic Variable</i>	<i>Recommended Value</i>
Site Class	D
MCE short period spectral response accel., S_{MS}	1.10g
MCE 1-second period spectral response accel., S_{M1}	0.58g
5% damped short period spectral response accel., S_{DS}	0.73g
5% damped 1-second period spectral response accel., S_{D1}	0.39g

Table 3: Restrained Wall Design Criteria

<i>Backfill Slope Horizontal (H):Vertical (V)</i>	<i>Equivalent Fluid Weight (lb/ft³)</i>
Level	60
3H:1V	80
2H:1V	105

APPENDIX G: OPERATIONS AND MAINTENANCE MANUAL

*Operations and Maintenance Manual
will be included in future submittal

APPENDIX H:

DOWNSTREAM ANALYSIS

TO: Erik Bertram, Water Environment Services
FROM: Mike Towle, DOWL
DATE: 06/08/2022
SUBJECT: Chick-Fil-A 82nd Project Downstream Analysis

The Chick-Fil-A 82nd project includes the addition of a new restaurant at the intersection of 82nd Street and Glencoe Road. The site includes the restaurant building, drive through lane, and associated parking. The site also includes the potential future development of a motel at the west end of the site that would share the parking lot. Section 5.4.4.1 and 5.4.1.4 of Clackamas County Service District #1 (CCSD#1) Stormwater Standards require the downstream conveyance system to have sufficient capacity to convey the 25-year, 24-hour storm event, and the analysis must extend to a location where the site contributes less than 15% of the upstream drainage area or 1,500 feet downstream from the project's point of discharge.

A downstream analysis was previously performed for the Goodwill Clackamas project located just north of the Chick-Fil-A 82nd project. The December 2012 Drainage Report for Goodwill Clackamas analyzed 1,821 feet downstream of the Goodwill Clackamas site, which is just beyond the intersection of SE King Road and SE 82nd Avenue. The downstream extent of the model is 1,523 feet beyond the connection point of the proposed Chick-Fil-A 82nd project. As such, the analysis extent meets the requirements for the proposed Chick-Fil-A 82nd project.

The previous project found that under fully developed conditions, which reasonably includes the Chick-Fil-A site as designed, the existing stormwater main will experience surcharging during the 25-year event. The Goodwill Clackamas project was able to connect to the existing main by complying with CCSD#1 Stormwater Standards – Section 5.4.4.3 which provides guidance on connections where limitations exist and downstream capacity cannot be upgraded. CCSD#1 Stormwater Standards – Section 5.4.4.3 requires that the proposed flow control design shall limit the post-developed 25-year storm event runoff to match the pre-developed 2-year flow rate, and the post-developed 2-year runoff rate to ½ of the 2-year pre-developed runoff rate.

The flow control facility for the Chick-Fil-A 82nd project has been designed to meet the stated requirements using underground detention and infiltration. Infiltration was included in the underground detention model. A design rate of 7.5 inches per hour was assumed, matching the findings of the Goodwill Clackamas project. The design infiltration rate includes a factor of safety of four, applied to the minimum infiltration rate of 30 inches per hour measured by the geotechnical investigation. A summary of the flow control analysis results is provided in Table 1.

Table 1: Flow Control Analysis Results

Basin ID	Pre-Developed 2-yr Flow (cfs) ¹	Post-Developed 2-yr Flow (cfs) ¹	Post-Developed 25-yr Flow (cfs) ¹
CFA 82 nd & Glencoe (Plat #2013-010)	0.525	0.000	0.209

1. See attached Hydraflow output for more information.

The stormwater plan, runoff model outputs for the proposed improvements, and the previously approved downstream analysis have been attached with this memo.

C:\dowl_p\dwg\0398603\SC-CS-ST-14836.dwg PLOT DATE 2022-6-7 15:53 SAVED DATE 2022-06-07 15:52 USER: apadgett

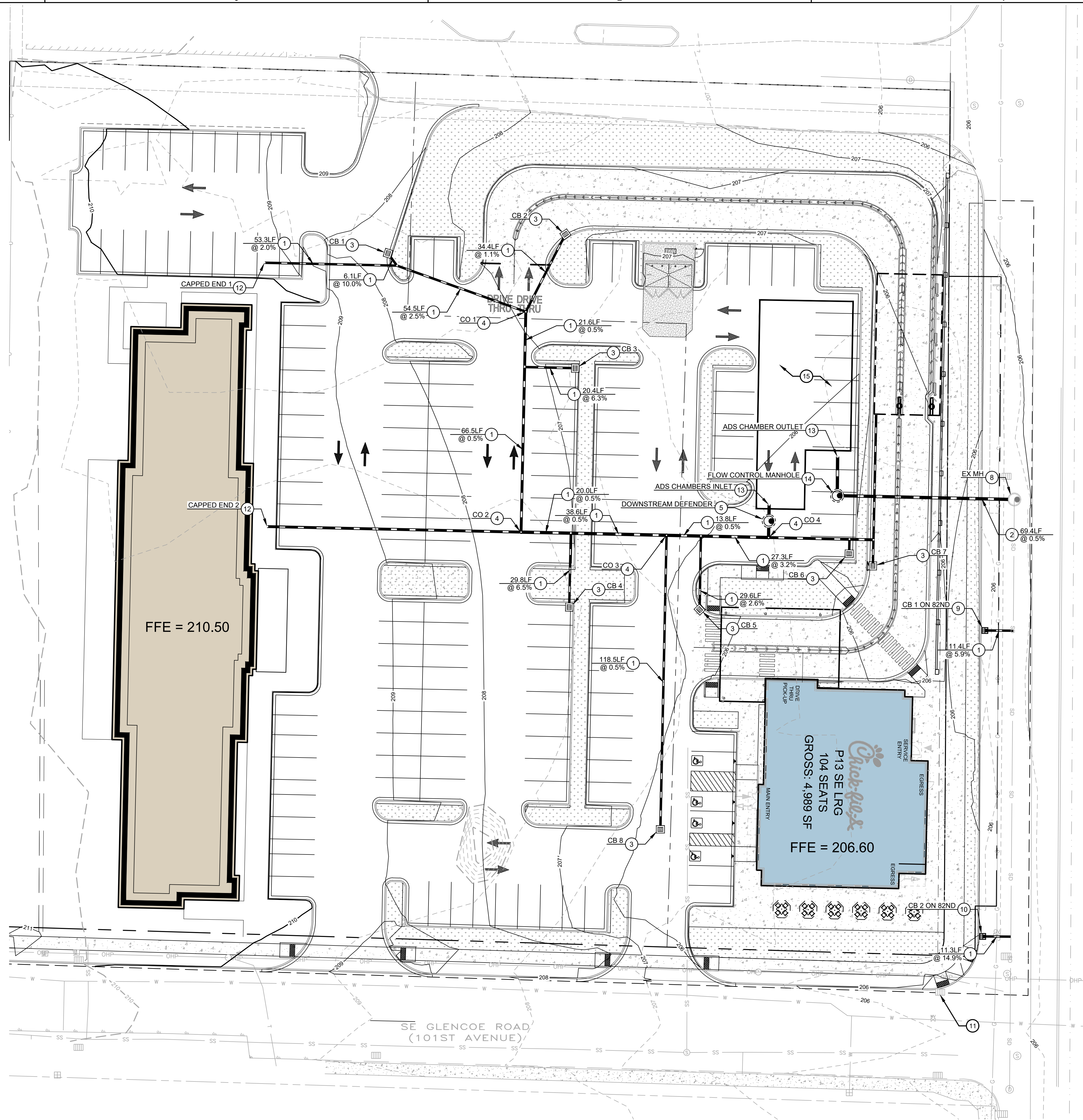
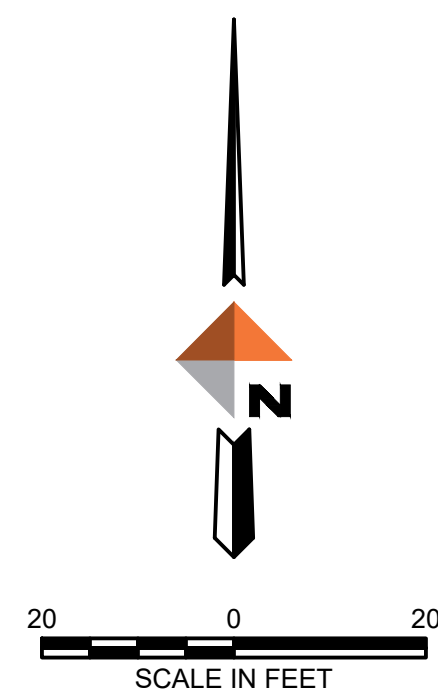
LEGEND

---	PROPOSED PROPERTY LINE
G	PROPOSED GAS LINE
SS	PROPOSED SANITARY SEWER LINE
---	PROPOSED STORM DRAIN LINE
W	PROPOSED DOMESTIC WATER LINE
FW	PROPOSED FIRE WATER LINE
E	PROPOSED POWER(ELECTRIC) LINE
T	PROPOSED COMMUNICATIONS LINE
---	EXISTING POWER, GAS AND PHONE IN SHARED TRENCH
X	PROPOSED FIRE DEPARTMENT CONNECTION
WM	PROPOSED HYDRANT
DK	PROPOSED WATER METER
DK	PROPOSED WATER VALVE
DC	PROPOSED DCDA
•	PROPOSED SANITARY SEWER CLEAN OUT
■	PROPOSED STORM SEWER CATCH BASIN
•	PROPOSED STORM SEWER CLEAN OUT

STORMWATER KEYNOTES

1. PROPOSED 8-INCH PVC D3034 PIPE.
2. PROPOSED 12-INCH PVC D3034 PIPE.
3. PROPOSED TRAPPED STYLE CATCH BASIN.
4. PROPOSED STORM CLEANOUT, WITH A MINIMUM 90° SPACING.
5. PROPOSED 48" DOWNSTREAM DEFENDER MANHOLE.
6. PROPOSED 48" STANDARD MANHOLE.
7. PROPOSED 30' x 90' STORMTECH INFILTRATION CHAMBER SYSTEM.
8. PROPOSED CONNECTION TO EXISTING STORM DRAIN MANHOLE ON SE 82ND AVENUE, UNDER SEPARATE ODOT PERMIT.
9. PROPOSED CATCH BASIN, RELOCATED TO NEW CURB LINE AND LOW POINT ALONG SE 82ND AVENUE. IMPROVEMENTS UNDER SEPARATE ODOT PERMIT. SEE KEYNOTE FOR ASSOCIATED PIPE TO CONNECT TO EXISTING STORM MAIN.
10. PROPOSED CATCH BASIN, RELOCATED TO NEW CURB LINE, LOCATE THE BASIN AWAY FROM NEW ADA RAMPS. IMPROVEMENTS UNDER SEPARATE ODOT PERMIT. SEE KEYNOTE FOR ASSOCIATED PIPE TO CONNECT TO EXISTING STORM MAIN.
11. PROTECT EXISTING CATCH BASIN
12. STORMWATER LINE TO BE CAPPED FOR FUTURE DEVELOPMENT.
13. CONTRACTOR TO CONNECT PROPOSED STORM CONVEYANCE PIPING TO ADS MC-7200 MANIFOLD.
14. PROPOSED FLOW CONTROL MANHOLE
15. ADS MC-7200 UNDERGROUND CHAMBERS

CATCH BASIN DATA	CATCH BASIN DATA	MANHOLE DATA
CB 1 ON 82ND RIM: 203.71 IE IN (8"E) = 200.71	CB 4 RIM: 207.08 IE OUT (8"N) = 204.08	ADS CHAMBERS INLET RIM: 203.03 IE IN (12"S) = 201.95
CB 1 RIM: 207.64 IE OUT (8"SE) = 204.64	CB 5 RIM: 205.63 IE OUT (8"N) = 202.63	DOWNSTREAM DEFENDER RIM: 205.81 IE IN (12"S) = 200.97 IE OUT (12"N) = 201.97
CB 2 ON 82ND RIM: 205.75 IE OUT (8"E) = 202.75	CB 6 RIM: 205.40 IE OUT (8"N) = 202.40	FLOW CONTROL MANHOLE RIM: 205.64 IE IN (12"N) = 201.95 IE OUT (12"E) = 201.95
CB 2 RIM: 206.05 IE OUT (8"SW) = 203.05	CB 7 RIM: 205.03 IE OUT (8"N) = 201.84	MANHOLE DATA
CB 3 RIM: 206.84 IE OUT (8"W) = 203.84	CB 8 RIM: 205.53 IE OUT (8"N) = 202.53	EX MH RIM: 205.79 IE IN (12"W) = 201.60



Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998



720 SW Washington Street, #750
Portland, Oregon 97205
971-280-8641

FOR
REVIEW
ONLY

CHICK-FIL-A
GLENCOE & 82ND
PORTLAND, OREGON

FSR# 05098

REVISION SCHEDULE	
NO.	DATE
1	05/13/2022

REVISION SCHEDULE	
NO.	DATE
1	05/13/2022

CIVIL'S PROJECT #	14836.01
PRINTED FOR	DESIGN REVIEW
DATE	05/13/2022
DRAWN BY	JLG
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SHEET	

STORM PLAN

SHEET NUMBER

C4.0

Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Wednesday, 06 / 22 / 2022

Pond No. 1 - MC-7200 Chambers

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 197.67 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	197.67	1,091	0	0
0.75	198.42	1,091	818	818
0.83	198.50	2,296	133	951
1.58	199.25	2,249	1,704	2,655
2.50	200.17	2,159	2,027	4,682
3.00	200.67	2,090	1,062	5,744
4.00	201.67	1,895	1,992	7,736
4.42	202.09	1,780	772	8,507
4.50	202.17	1,754	141	8,649
4.58	202.25	1,726	139	8,788
5.50	203.17	1,192	1,335	10,122
5.75	203.42	1,108	287	10,410
5.83	203.50	1,091	88	10,498
6.75	204.42	1,091	1,004	11,501

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 2.00	6.00	Inactive	0.00
Span (in)	= 2.00	6.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 201.95	202.55	0.00	0.00
Length (ft)	= 0.50	0.50	0.50	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 204.38	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 7.500 (by Contour)			
TW Elev. (ft)	= 0.00			

Infiltration rate taken from findings in Goodwill Clackamas project

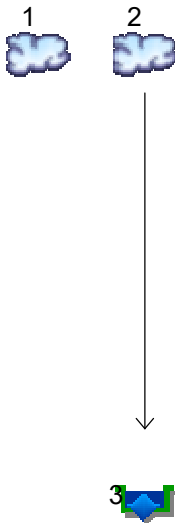
Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	197.67	0.00	0.00	---	---	0.00	---	---	---	0.000	---	0.000
0.75	818	198.42	0.00	0.00	---	---	0.00	---	---	---	0.189	---	0.189
0.83	951	198.50	0.00	0.00	---	---	0.00	---	---	---	0.399	---	0.399
1.58	2,655	199.25	0.00	0.00	---	---	0.00	---	---	---	0.390	---	0.390
2.50	4,682	200.17	0.00	0.00	---	---	0.00	---	---	---	0.375	---	0.375
3.00	5,744	200.67	0.00	0.00	---	---	0.00	---	---	---	0.363	---	0.363
4.00	7,736	201.67	0.00	0.00	---	---	0.00	---	---	---	0.329	---	0.329
4.42	8,507	202.09	0.02 ic	0.00	---	---	0.00	---	---	---	0.309	---	0.334
4.50	8,649	202.17	0.03 oc	0.00	---	---	0.00	---	---	---	0.305	---	0.336
4.58	8,788	202.25	0.05 ic	0.00	---	---	0.00	---	---	---	0.300	---	0.349
5.50	10,122	203.17	0.11 ic	0.44 oc	---	---	0.00	---	---	---	0.207	---	0.759
5.75	10,410	203.42	0.12 ic	0.74 ic	---	---	0.00	---	---	---	0.192	---	1.060
5.83	10,498	203.50	0.13 ic	0.79 ic	---	---	0.00	---	---	---	0.189	---	1.108
6.75	11,501	204.42	0.16 ic	1.20 ic	---	---	0.00	---	---	---	0.189	---	1.555

Watershed Model Schematic

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020



Legend

Hyd.	Origin	Description
1	SBUH Runoff	Onsite PRE
2	SBUH Runoff	Onsite POST
3	Reservoir	Route to ADS

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

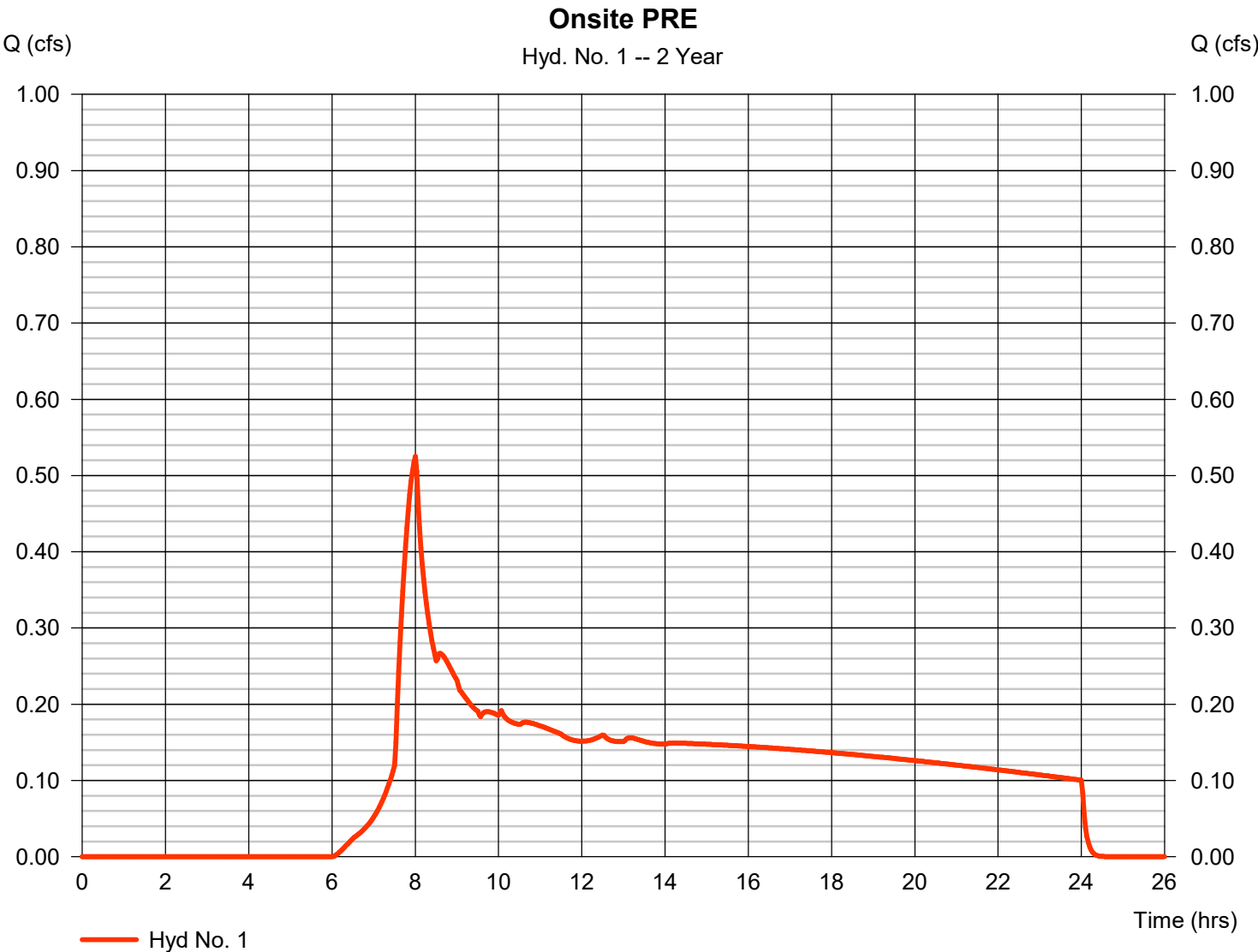
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SBUH Runoff	0.525	2	480	9,712	-----	-----	-----	Onsite PRE
2	SBUH Runoff	1.346	2	476	19,164	-----	-----	-----	Onsite POST
3	Reservoir	0.000	2	462	0	2	198.50	3,315	Route to ADS
14836-ADS Chambers_MC-7200.gpw					Return Period: 2 Year			Wednesday, 06 / 22 / 2022	

Hydrograph Report

Hyd. No. 1

Onsite PRE

Hydrograph type	=	SBUH Runoff	Peak discharge	=	0.525 cfs
Storm frequency	=	2 yrs	Time to peak	=	8.00 hrs
Time interval	=	2 min	Hyd. volume	=	9,712 cuft
Drainage area	=	2.956 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.30 min
Total precip.	=	2.60 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a

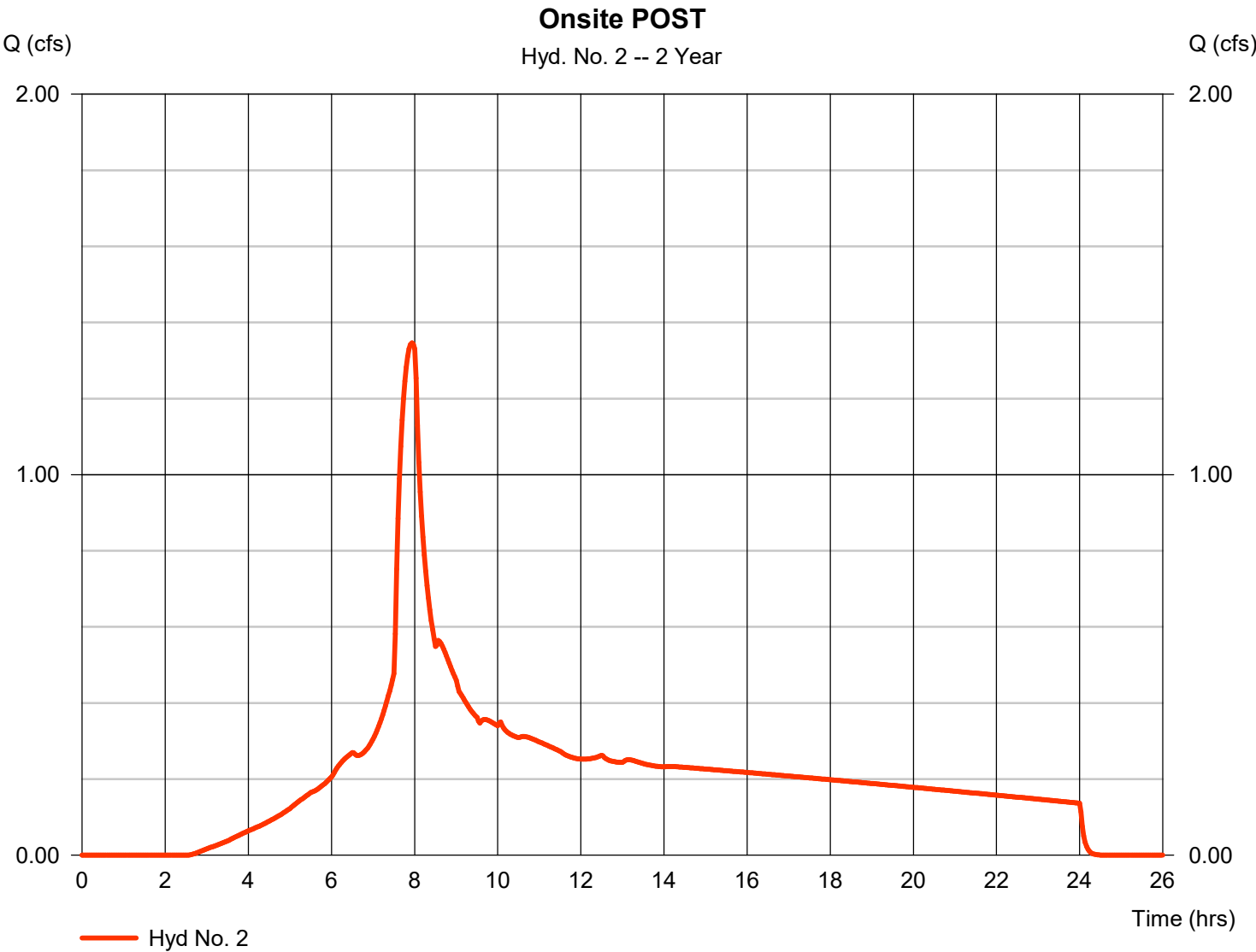


Hydrograph Report

Hyd. No. 2

Onsite POST

Hydrograph type	=	SBUH Runoff	Peak discharge	=	1.346 cfs
Storm frequency	=	2 yrs	Time to peak	=	7.93 hrs
Time interval	=	2 min	Hyd. volume	=	19,164 cuft
Drainage area	=	2.956 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.60 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

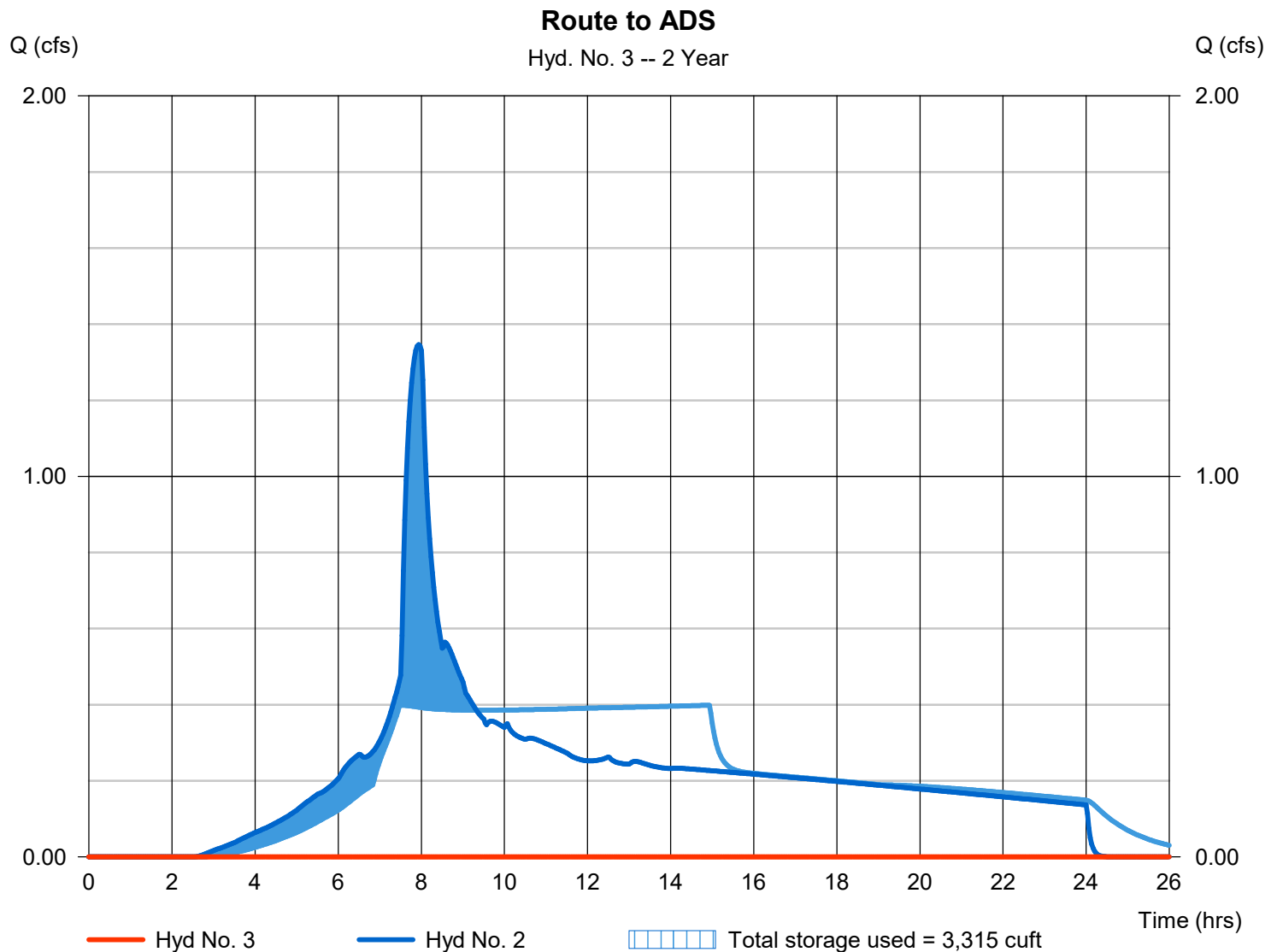
Wednesday, 06 / 22 / 2022

Hyd. No. 3

Route to ADS

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 7.70 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 2 - Onsite POST	Max. Elevation	= 198.50 ft
Reservoir name	= MC-7200 Chambers	Max. Storage	= 3,315 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SBUH Runoff	1.342	2	480	21,069	-----	-----	-----	Onsite PRE
2	SBUH Runoff	2.384	2	474	33,452	-----	-----	-----	Onsite POST
3	Reservoir	0.209	2	686	1,908	2	202.75	9,519	Route to ADS
14836-ADS Chambers_MC-7200.gpw					Return Period: 25 Year			Wednesday, 06 / 22 / 2022	

Hydrograph Report

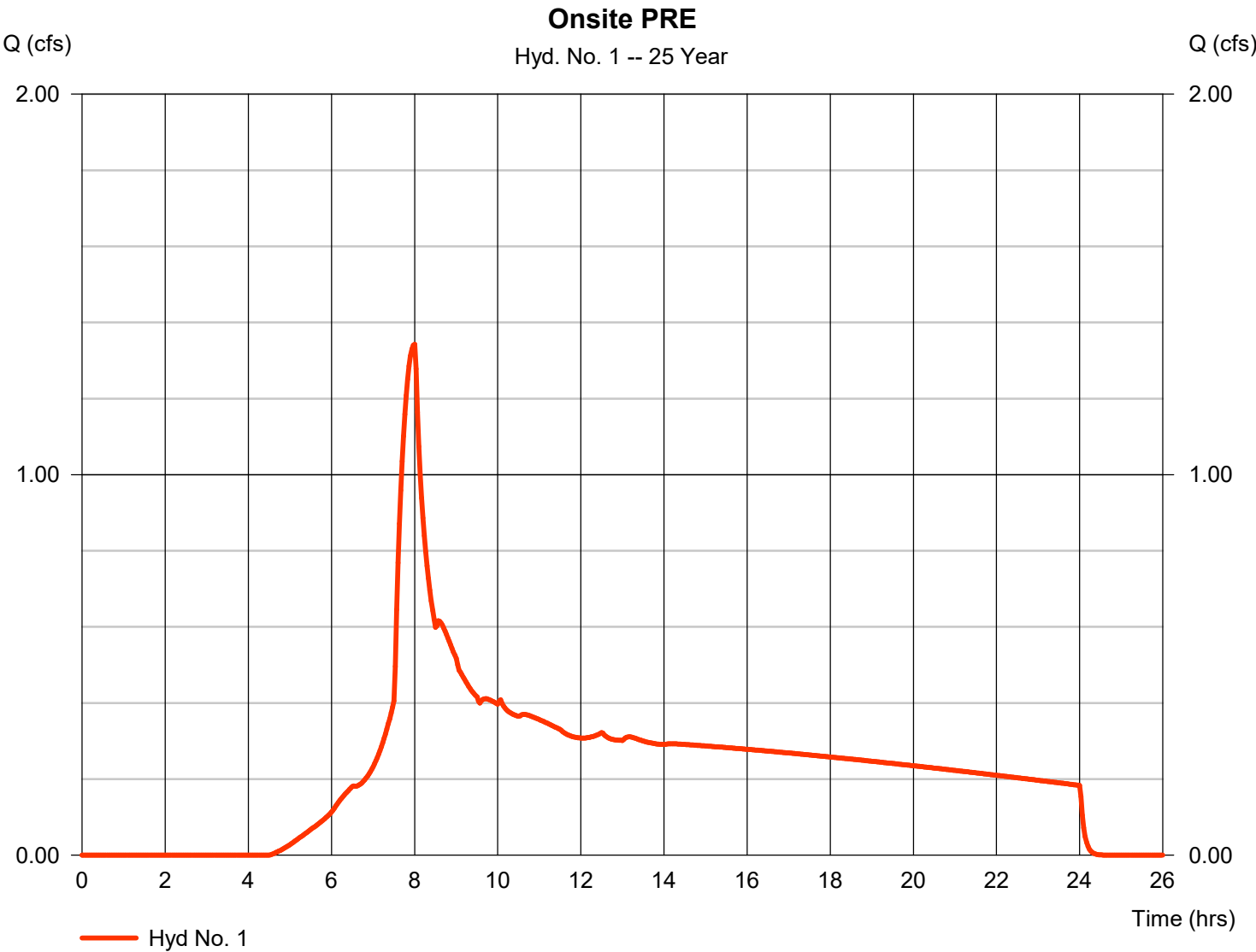
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Wednesday, 06 / 22 / 2022

Hyd. No. 1

Onsite PRE

Hydrograph type	=	SBUH Runoff	Peak discharge	=	1.342 cfs
Storm frequency	=	25 yrs	Time to peak	=	8.00 hrs
Time interval	=	2 min	Hyd. volume	=	21,069 cuft
Drainage area	=	2.956 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.30 min
Total precip.	=	4.00 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a

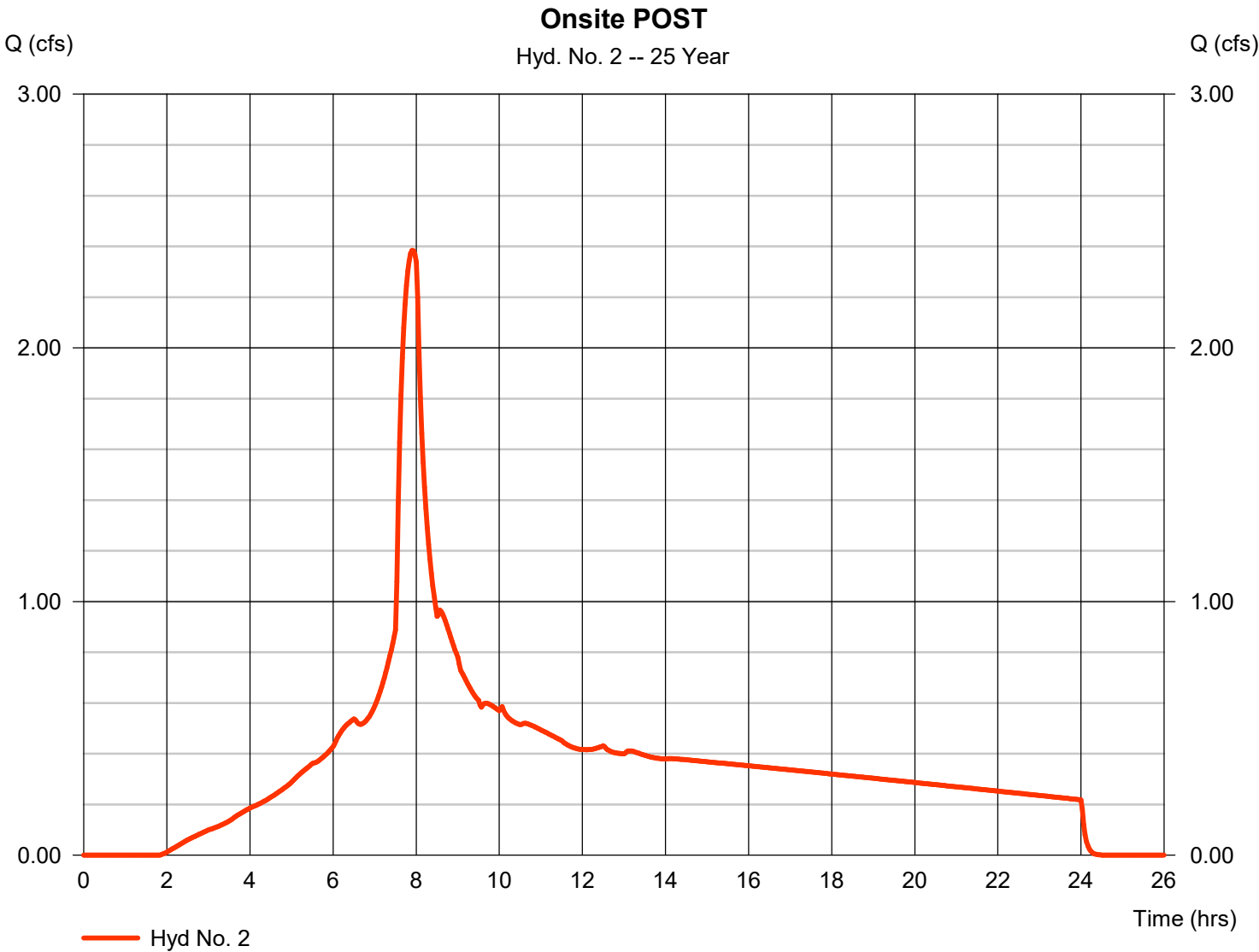


Hydrograph Report

Hyd. No. 2

Onsite POST

Hydrograph type	=	SBUH Runoff	Peak discharge	=	2.384 cfs
Storm frequency	=	25 yrs	Time to peak	=	7.90 hrs
Time interval	=	2 min	Hyd. volume	=	33,452 cuft
Drainage area	=	2.956 ac	Curve number	=	92
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.00 in	Distribution	=	Type IA
Storm duration	=	24 hrs	Shape factor	=	n/a



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

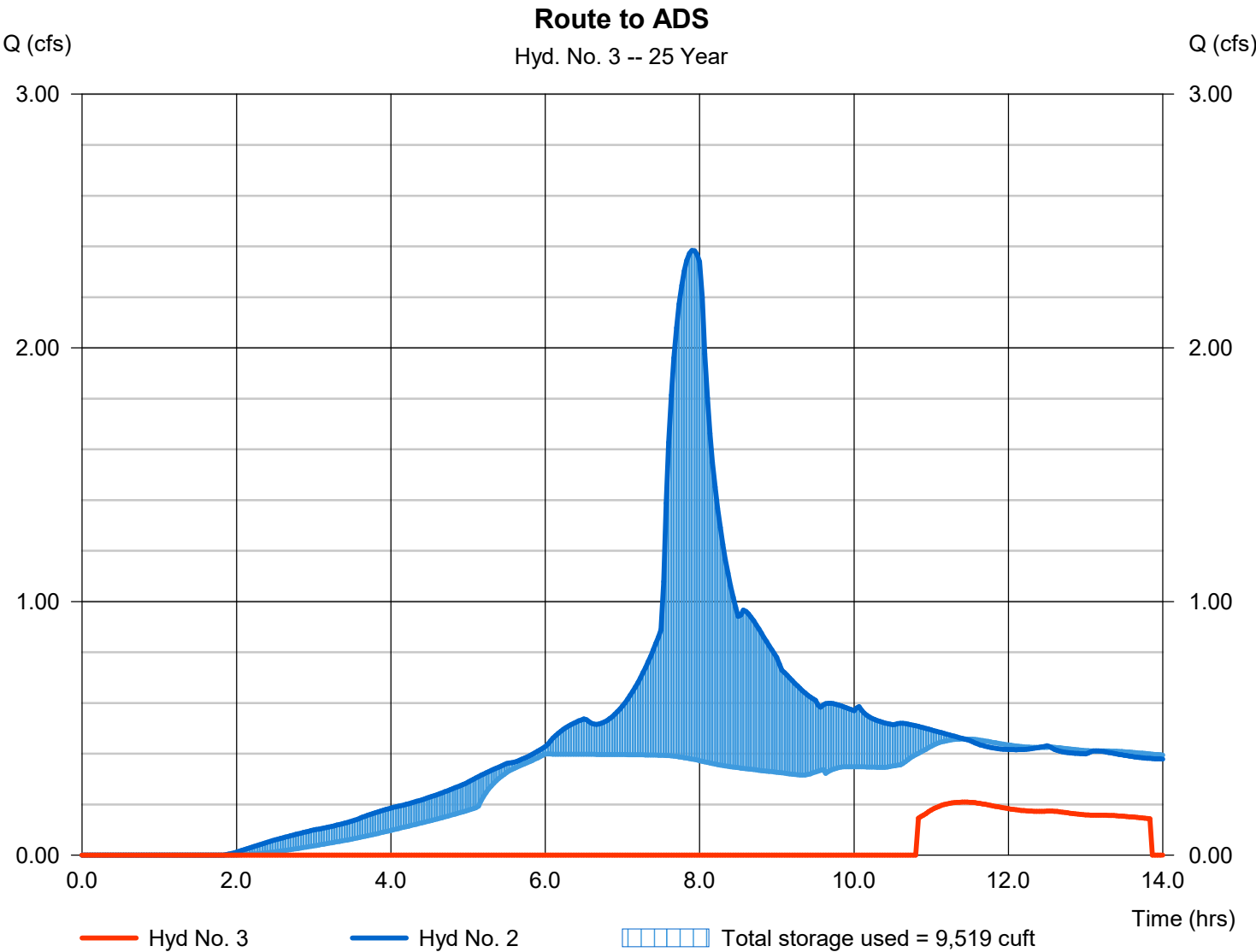
Wednesday, 06 / 22 / 2022

Hyd. No. 3

Route to ADS

Hydrograph type	= Reservoir	Peak discharge	= 0.209 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.43 hrs
Time interval	= 2 min	Hyd. volume	= 1,908 cuft
Inflow hyd. No.	= 2 - Onsite POST	Max. Elevation	= 202.75 ft
Reservoir name	= MC-7200 Chambers	Max. Storage	= 9,519 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Storm Event	Site Release Rates (cfs)
0.5"	0.00
2-year	0.00
10-year	0.40
25-year	0.50

Table 9 – Release Rates

Control Structure

A flow control manholes will be utilized to meet CCSD#1 SWMM water quantity requirements. The control manholes will regulate the runoff generated from the storm water chambers. The east chamber flows generated up to the 25-year design storm will be controlled by an orifice with an overflow structure allowing storm water to discharge the system during higher storm events. The control structure and elevation are listed in Table 10 (See Technical Appendix A: Control Structure Data).

Facility	Orifice Diameter (in)	Weir Crest Elevation (ft)
East Chamber	3.00	204.40

Table 10 – Control Structures

Detention Facilities

The proposed storm water detention facilities will detain runoff to reduce the post-developed 25-year storm event at the pre-developed 2-year storm event rate. The loading dock infiltration chamber will detain runoff through the 100-year storm event. The provided detention volumes are listed in Table 11.

Facility	Detention Volume (cf)
West Chamber	1,176
East Chamber	1,817
North Chamber	292

Table 11 – Detention Volumes

Per WES requirement 5.2.6, infiltration facilities shall be sized to infiltrate the design runoff volume within a maximum of 96 hours. The storm water chambers have been designed which will infiltrate the 24-hour, 25-year storm event within 27 hours (See Technical Appendix A: Storm water Chambers Stage Hydrographs).

Downstream Analysis

The purpose of this downstream analysis is to determine conveyance capacity downstream of the proposed Goodwill Clackamas site. The downstream analysis evaluated the 25-year event for flow capacity as required per the water quantity standards and assumes no site detention, but allows for site infiltration. The Goodwill site drains to SE 82nd Avenue. This storm line is maintained by ODOT. The SE 82nd Avenue line drains to a culvert north of SE Causey Avenue and discharges into Phillips Creek.

Analysis Guidelines

Section 5.2.4 of CCSD#1 SWMM Rules and Regulations require the downstream conveyance system to have sufficient capacity to a distance where the site contributes less than 15% of the upstream drainage area or 1,500 feet downstream of the project.

Section 5.2.1 of CCSD#1 SWMM Rules and Regulations require storm water conveyance systems draining less than 640 acres must convey the 25-year, 24-hour design storm event.

Downstream System Design

Runoff from the site overflows to SE 82nd Avenue where it enters the ODOT conveyance system. The SE 82nd Avenue line flows south to a culvert located north of SE Causey Avenue. The culvert discharges into Phillips Creek, adjacent to SE Fuller Road (See Technical Appendix B: Downstream Basin Delineation).

Contributing Basins

Table 12 lists basin areas contributing to the SE 82nd Avenue storm water system. The upstream basin for this analysis is the Goodwill Clackamas site, Basin 1. The receiving basin is bound approximately on the east by SE 82nd Avenue and on the west by SE 79th Avenue. Our site contributes less than 15% of the upstream drainage area at approximately the SE Fuller Road intersection. Note SE Fuller Road is approximately 1,500 feet downstream of the project.

Basin	CN Value	Pre-Developed Tc (min)	Total Area (ac)
1	80	44	3.32
2	80	35	4.7
3	80	31	5.04
4	80	5	3.81
5	86	7	10.9
6	86	5	1.57
Total	-	-	29.34

Table 12 – Contributing Basin Areas

Conveyance Analysis

The storm line in SE 82nd Avenue was surveyed in September 2012 from SE Otty Road to SE King Road. This information was used to create an xpswmm hydraulic model. The storm sewer begins as an 18-inch diameter pipe at SE Otty Road, and continues 1,820 feet south before increasing to a 21-inch diameter pipe. Pipe slopes range from 0.26 to 1.95 percent.

System Performance

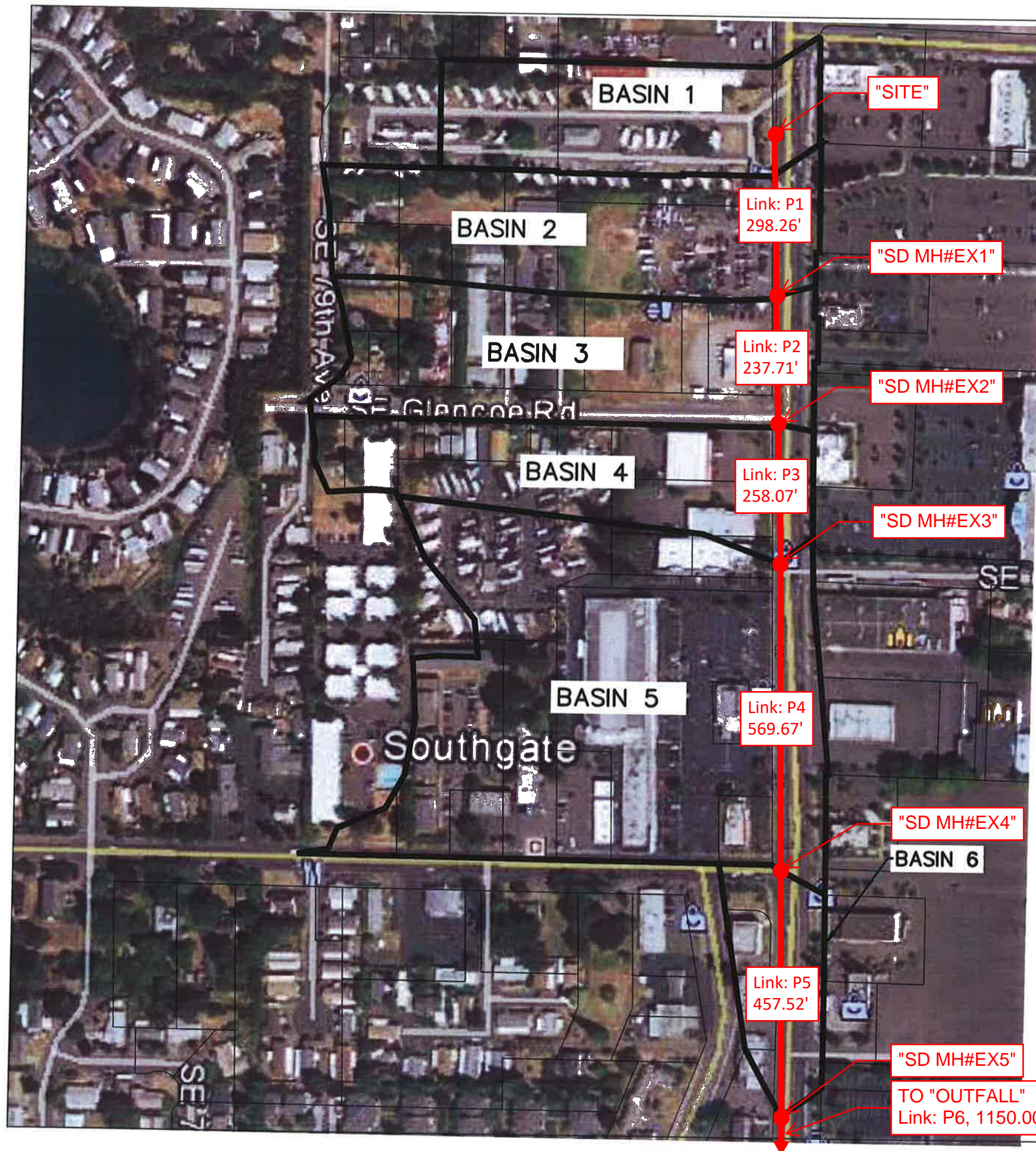
Maximum flow in a storm drainage pipe occurs at approximately 0.94do (Depth of flow section (do) – depth of flow normal to the direction of flow). At 0.94do the section factor of uniform flow has a maximum value which results in optimum flow for a section without surcharge conditions. For this analysis do exceeds 1.0, therefore the storm line in SE 82nd Avenue is surcharged.

Conclusion

The purpose of the analysis was to determine if the downstream system has capacity downstream of the proposed site to discharge location. The conveyance capacity analysis found that the downstream system is deficient. Therefore, detention is being proposed per CCSD#1 and ODOT. The post-developed 25-year storm will be detained to match the 2-year pre-developed flow rate (See Technical Appendix B: Downstream Conveyance).

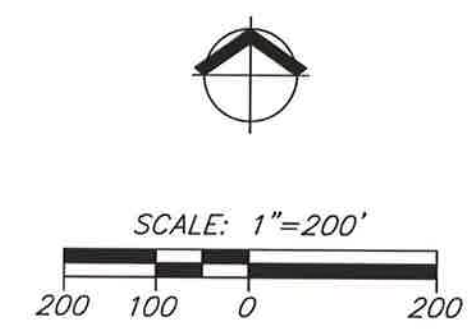
SUMMARY

Storm conveyance and water quantity/quality design will follow DEQ, ODOT, and *CCSD#1 SWMM Rules and Regulations*, issued in February 2005. The proposed detention facilities will have sufficient capacity to infiltrate the entire half inch through 2-year storm event. The 25-year, 24-hour storm event will be detained onsite within the storm water chambers. Water quality will be provided in the form of Downstream Defender manholes and sumped catch basin. In conclusion, the proposed storm water management system will meet the requirements of the Water Environmental Services CCSD#1, ODOT, and DEQ.



Basin Areas			
Basin	CN Value	Pre-Developed Tc (min)	Total Basin Area (ac)
1	80	44	3.32
2	80	35	4.70
3	80	31	5.04
4	80	5	3.81
5	86	7	10.90
6	86	5	1.57
Total			29.34

*Annotation added post December, 2012 to improve clarity.





Time of Concentration

PROJECT NO.	21299820	BY	DS	DATE	19/10/2012
Goodwill Clackamas					

	Basin 1	Basin 2	Basin 3
SHEET FLOW			
INPUT	VALUE	VALUE	VALUE
Surface Description	Type 5 Grass (short prairie)	Type 5 Grass (short prairie)	Type 5 Grass (short prairie)
Manning's "n"	0.15	0.15	0.15
Flow Length, L (<300 ft)	300 ft	300 ft	204 ft
2-Yr 24 Hour Rainfall, P ₂	2.6 in	2.6 in	2.6 in
Land Slope, s	0.0066 ft/ft	0.01 ft/ft	0.0100 ft/ft
OUTPUT			
Travel Time	0.68 hr	0.58 hr	0.42 hr
SHALLOW CONCENTRATED FLOW			
INPUT	VALUE	VALUE	VALUE
Surface Description	Unpaved	Unpaved	Paved
Flow Length, L	220 ft	0 ft	680 ft
Watercourse Slope*, s	0.0066 ft/ft	0.01 ft/ft	0.010 ft/ft
OUTPUT			
Average Velocity, V	1.31 ft/s	1.61 ft/s	2.03 ft/s
Travel Time	0.047 hr	0.000 hr	0.093 hr
CHANNEL FLOW			
INPUT	VALUE	VALUE	VALUE
Cross Sectional Flow Area, a	7.5 ft ²	7.5 ft ²	15.05 ft ²
Wetted Perimeter, P _w	11.28 ft	11.28 ft	7.69 ft
Channel Slope, s	0.003 ft/ft	0.003 ft/ft	0.00 ft/ft
Manning's "n"	0.24	0.24	0.24
Flow Length, L	0 ft	0 ft	0 ft
OUTPUT			
Average Velocity	0.26 ft/s	0.26 ft/s	0.53 ft/s
Hydraulic Radius, r = a / P _w	0.66 ft	0.66 ft	1.96 ft
Travel Time	0.00 hr	0.00 hr	0.00 hr
Watershed or Subarea T _c =	0.73 hr	0.58 hr	0.52 hr
Watershed or Subarea T _c =	44 minutes	35 minutes	31 minutes



Time of Concentration

PROJECT NO.	21299820	BY	DS	DATE	19/10/2012
Goodwill Clackamas					

	Basin 4	Basin 5	Basin 6
SHEET FLOW			
INPUT	VALUE	VALUE	VALUE
Surface Description	Type 1	Type 1	Type 1
	Smooth Surface	Smooth Surface	Smooth Surface
Manning's "n"	0.011	0.011	0.011
Flow Length, L (<300 ft)	300 ft	300 ft	300 ft
2-Yr 24 Hour Rainfall, P ₂	2.6 in	2.6 in	2.6 in
Land Slope, s	0.0167 ft/ft	0.01 ft/ft	0.0100 ft/ft
OUTPUT			
Travel Time	0.06 hr	0.07 hr	0.07 hr
SHALLOW CONCENTRATED FLOW			
INPUT	VALUE	VALUE	VALUE
Surface Description	Unpaved	Paved	Paved
Flow Length, L	0 ft	390 ft	0 ft
Watercourse Slope*, s	0.01 ft/ft	0.01 ft/ft	0.010 ft/ft
OUTPUT			
Average Velocity, V	1.61 ft/s	2.03 ft/s	2.03 ft/s
Travel Time	0.000 hr	0.053 hr	0.000 hr
CHANNEL FLOW			
INPUT	VALUE	VALUE	VALUE
Cross Sectional Flow Area, a	7.5 ft ²	7.5 ft ²	15.05 ft ²
Wetted Perimeter, P _w	11.28 ft	11.28 ft	7.69 ft
Channel Slope, s	0.003 ft/ft	0.003 ft/ft	0.00 ft/ft
Manning's "n"	0.24	0.24	0.24
Flow Length, L	0 ft	0 ft	0 ft
OUTPUT			
Average Velocity	0.26 ft/s	0.26 ft/s	0.53 ft/s
Hydraulic Radius, r = a / P _w	0.66 ft	0.66 ft	1.96 ft
Travel Time	0.00 hr	0.00 hr	0.00 hr
Watershed or Subarea T _c =	0.06 hr	0.12 hr	0.07 hr
Watershed or Subarea T _c =	3 minutes	7 minutes	4 minutes

TABLES TAKEN FROM TR-55

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n ¹
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover $\leq 20\%$	0.08
Residue cover $> 20\%$	0.17
Grass:	
Short grass prairie	0.15
Dense grasses ²	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods ³ :	
Light underbrush	0.40
Dense underbrush	0.80

¹ The n values are a composite of information compiled by Engman (1985).

² Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.

³ When selecting n , consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

Average velocities for estimating travel time for shallow concentrated flow

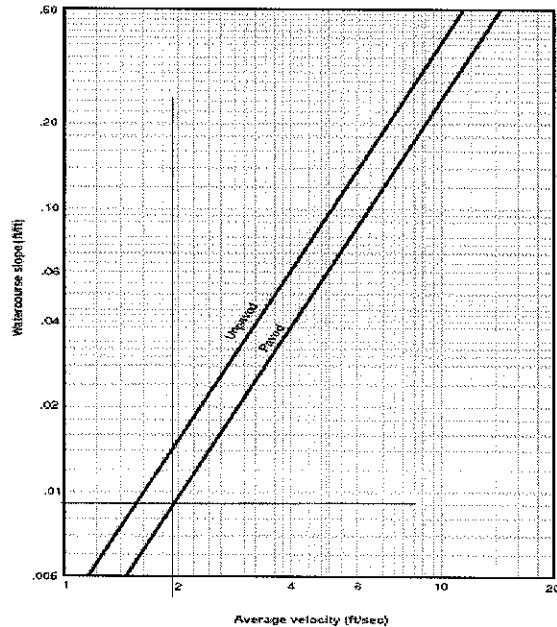


Figure 3-1 (average velocities for estimating travel time for shallow concentrated flow):

$$\text{Unpaved } V = 16.1345 (s)^{0.48}$$

$$\text{Paved } V = 20.3282 (s)^{0.5}$$

where

V = average velocity (ft/s)

s = slope of hydraulic grade line
(watercourse slope, ft/ft)

These two equations are based on the solution of Manning's equation (eq. 3-4) with different assumptions for n (Manning's roughness coefficient) and r (hydraulic radius, ft). For unpaved areas, n is 0.05 and r is 0.4; for paved areas, n is 0.025 and r is 0.2.

xpswmm RUNOFF DATA (25-STORM EVENT)
GOODWILL - CLACKAMAS, OREGON

Node Information						Runoff Information		
Node Name	Area	Impervious	Curve Number	Tc	Rainfall	Infiltration	Surface Runoff	
	ac	%		min	in		in	cfs
Site	2.78	100	98	5	4.00	2.04	1.94	3.66
-	0.41	0	80	5	-	-	-	-
SD MH#EX1	2.92	100	98	35	4.00	2.08	1.90	2.47
-	1.78	0	80	35	-	-	-	-
SD MH#EX2	3.67	100	98	31	4.00	2.08	1.91	2.99
-	1.37	0	80	31	-	-	-	-
SD MH#EX3	3.41	100	98	5	4.00	2.04	1.94	4.35
-	0.4	0	80	5	-	-	-	-
SD MH#EX4	9.94	100	98	7	4.00	1.55	2.43	12.03
-	0.96	0	86	7	-	-	-	-
SD MH#EX5	1.52	100	98	5	4.00	1.55	2.43	1.87
-	0.05	0	86	5	-	-	-	-

xpswmm RUNOFF DATA (100YR-STORM EVENT)
GOODWILL - CLACKAMAS, OREGON

Node Information						Runoff Information		
Node Name	Area	Impervious	Curve Number	Tc	Rainfall	Infiltration	Surface Runoff	
	ac	%		min	in		in	cfs
Site	2.78	100	98	5	4.70	2.16	2.52	4.20
-	0.41	0	80	5	-	-	-	-
SD MH#EX1	2.92	100	98	35	4.70	2.21	2.48	3.01
-	1.78	0	80	35	-	-	-	-
SD MH#EX2	3.67	100	98	31	4.70	2.20	2.48	3.61
-	1.37	0	80	31	-	-	-	-
SD MH#EX3	3.41	100	98	5	4.70	2.16	2.52	5.17
-	0.4	0	80	5	-	-	-	-
SD MH#EX4	9.94	100	98	7	4.70	1.62	3.07	14.27
-	0.96	0	86	7	-	-	-	-
SD MH#EX5	1.52	100	98	5	4.70	1.61	3.07	2.21
-	0.05	0	86	5	-	-	-	-

xpswmm CONVEYANCE DATA (25-YEAR STORM EVENT)																					
GOODWILL - CLACKAMAS, OREGON																					
Location			Conduit Properties			Conduit Results						Node Information (Manhole, Pond, Tee, Outfall, Ditch Inlet, Catch Basin)									
Link	Station		Diameter	Length	Slope	Design Capacity	Qmax/ Qdesign	Max Flow	Max Velocity	Max Flow Depth	y/d0	US Ground Elev.	DS Ground Elev.	US IE	DS IE	US Freeboard	DS Freeboard	US EGL	DS EGL	US HGL	DS HGL
	From	To																			
			ft	ft	%	cfs		cfs	ft/s	ft		ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
P 1	SITE	SD MH#EX1	1.50	298.26	0.30	5.74	0.60	3.45	3.01	1.69	1.00	206.79	205.93	199.50	199.11	3.22	2.63	203.57	203.38	203.57	203.30
P 2	SD MH#EX1	SD MH#EX2	1.50	237.71	0.26	5.36	1.05	5.61	3.24	1.78	1.00	205.93	205.64	199.11	198.40	2.63	2.96	203.38	202.82	203.30	202.68
P 3	SD MH#EX2	SD MH#EX3	1.50	258.07	0.42	6.76	1.28	8.63	4.77	1.80	1.00	205.64	204.59	198.40	197.31	2.96	3.52	202.82	201.41	202.68	201.07
P 4	SD MH#EX3	SD MH#EX4	1.50	569.67	1.95	14.67	0.85	12.51	8.16	4.24	1.00	204.59	192.93	197.31	186.19	3.52	0.00	201.41	193.89	201.07	192.93
P 5	SD MH#EX4	SD MH#EX5	1.50	457.52	1.95	14.67	1.16	16.96	9.48	4.29	1.00	192.93	184.31	186.19	177.22	0.00	0.94	193.89	184.52	192.93	183.37
P 6	SD MH#EX5	OUTFALL	1.75	1150.00	1.00	15.85	1.09	17.22	7.51	3.70	1.00	184.31	173.00	177.22	168.17	0.94	3.08	184.52	170.71	183.37	169.92

Link upstream of Chick-Fil-A 82nd Project Site

Link included to generate reasonable backwater at the downstream extent of the downstream analysis.

xpswmm CONVEYANCE DATA (100-YEAR STORM EVENT)																					
GOODWILL - CLACKAMAS, OREGON																					
Location			Conduit Properties			Conduit Results						Node Information (Manhole, Pond, Tee, Outfall, Ditch Inlet, Catch Basin)									
Link	Station		Diameter	Length	Slope	Design Capacity	Qmax/ Qdesign	Max Flow	Max Velocity	Max Flow Depth	y/d0	US Ground Elev.	DS Ground Elev.	US IE	DS IE	US Freeboard	DS Freeboard	US EGL	DS EGL	US HGL	DS HGL
	From	To																			
			ft	ft	%	cfs		cfs	ft/s	ft		ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
P 1	SITE	SD MH#EX1	1.50	298.26	0.30	5.74	0.81	4.41	2.96	4.32	1.00	206.79	205.93	199.50	199.11	0.12	0.00	206.67	206.03	206.67	205.93
P 2	SD MH#EX1	SD MH#EX2	1.50	237.71	0.26	5.36	1.22	6.39	3.59	4.41	1.00	205.93	205.64	199.11	198.40	0.00	0.36	206.03	205.45	205.93	205.28
P 3	SD MH#EX2	SD MH#EX3	1.50	258.07	0.42	6.76	1.48	10.00	5.60	4.41	1.00	205.64	204.59	198.40	197.31	0.36	1.25	205.45	203.75	205.28	203.34
P 4	SD MH#EX3	SD MH#EX4	1.50	569.67	1.95	14.67	0.98	14.34	8.31	4.24	1.00	204.59	192.93	197.31	186.19	1.25	0.00	203.75	193.93	203.34	192.93
P 5	SD MH#EX4	SD MH#EX5	1.50	457.52	1.95	14.67	1.16	16.96	9.47	4.29	1.00	192.93	184.31	186.19	177.22	0.00	0.71	193.93	184.72	192.93	183.60
P 6	SD MH#EX5	OUTFALL	1.75	1150.00	1.00	15.85	1.10	17.37	7.51	3.93	1.00	184.31	173.00	177.22	168.17	0.71	3.08	184.72	170.72	183.60	169.92

APPENDIX J: TRAFFIC STUDY

Memorandum

Project#: 27862

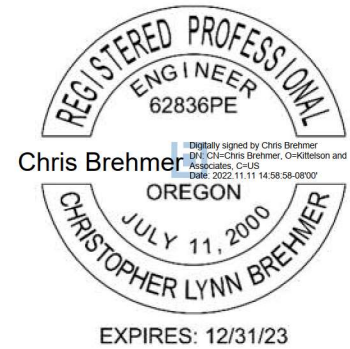
November 11, 2022

To: Christian Snuffin, PE, PTOE
Clackamas County Department of Transportation & Development
150 Beaver Creek Road
Oregon City, OR 97045

Avi Tayar, PE
Oregon Department of Transportation (ODOT) Region 1
123 NW Flanders Street
Portland, OR 97209

From: Chris Brehmer, PE & Julia Kuhn, PE & Megan Mannion

RE: SE 82nd Avenue Chick-fil-A Transportation Impact Study



Chick-fil-A (the Applicant) is proposing to develop a 4,989 square foot restaurant with a drive-through on SE 82nd Avenue (OR 213) in Clackamas County. This report documents the transportation impacts associated with the restaurant and follows the requirements of Clackamas County Roadway Design Standards Section 295. The following findings are discussed in more detail herein:

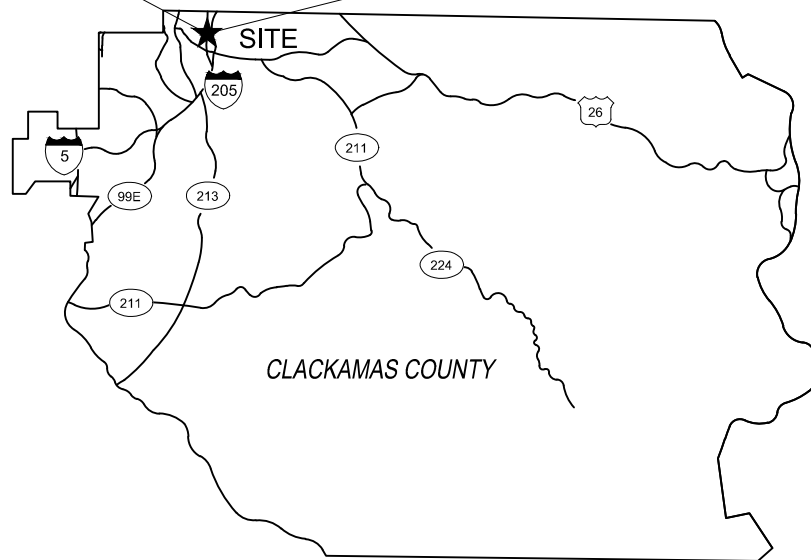
- All study intersections are forecast to satisfy applicable County and Oregon Department of Transportation (ODOT) operational requirements prior to and with site development and none of the study intersections require capacity mitigation.
- The drive-through has been designed to accommodate the anticipated queue requirements on site without impact to the public roadway network.
- No right-turn or left-turn lanes are required on SE Glencoe Road at the two new access points.
- The proposed new site driveways can comply with the County sight distance standards. We recommend that all landscaping, signage and utilities be located and maintained to provide adequate intersection sight lines per County standards.

Introduction

The proposed Chick-fil-A will be constructed on a vacant lot located between SE Glencoe Road to the south, the existing Goodwill Industries of the Columbia Willamette to the north, and SE 82nd Avenue to the east. The proposed 4,989 square foot Chick-fil-A fast food restaurant will have a drive-through along the north side of the building.

The site is proposed to have two full movement driveways on SE Glencoe Road and will share an existing full movement access (with Goodwill) on SE 82nd Avenue via an existing on-site reciprocal access agreement. Site development and occupancy is anticipated in 2024.

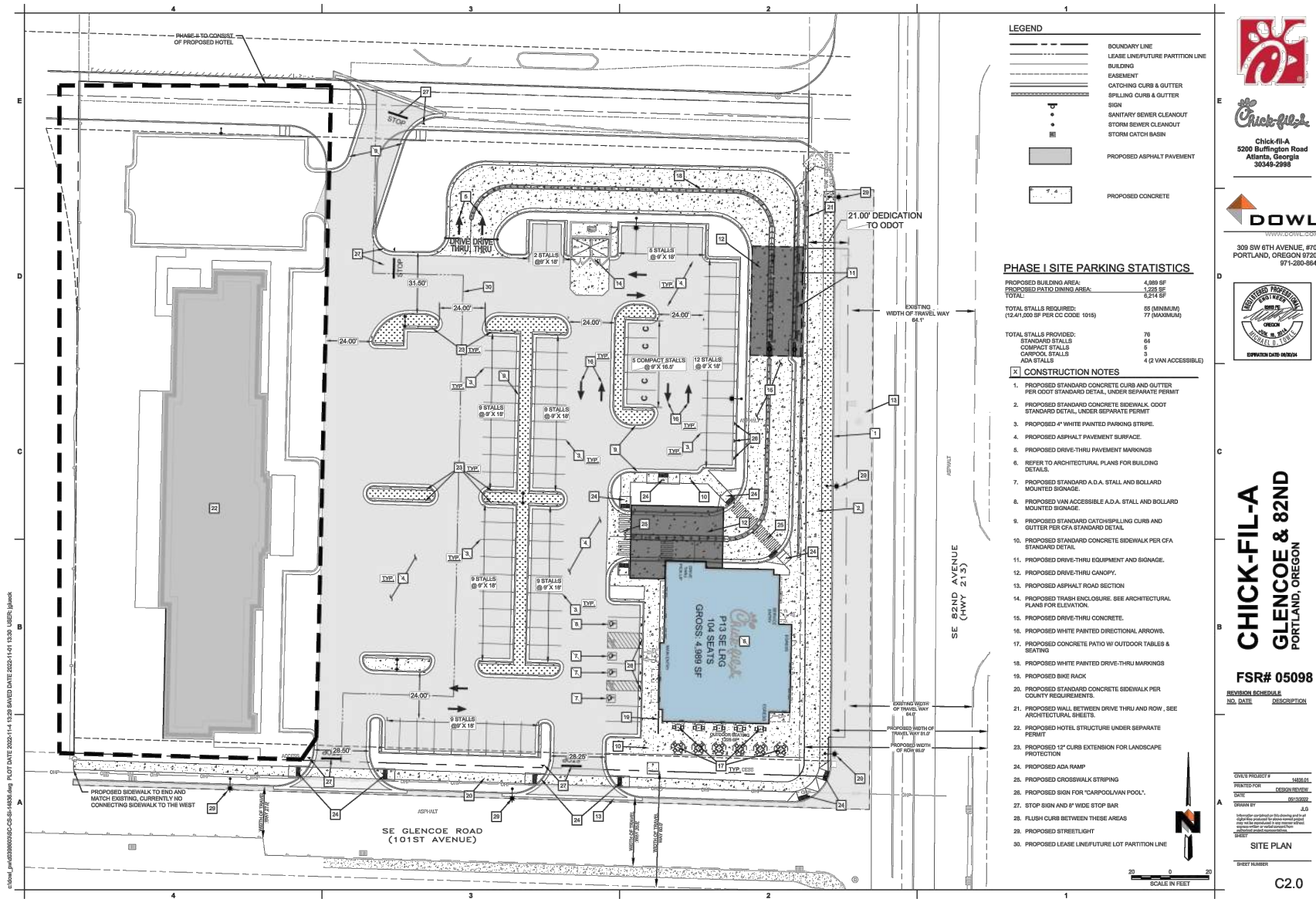
Figure 1 displays the site vicinity, and Figure 2 displays the proposed site plan.



- STUDY INTERSECTION

Site Vicinity Map
Clackamas, OR

Figure
1

Proposed Site Plan
Clackamas, ORFigure
2

Report Scope

This report identifies the transportation-related impacts associated with the proposed Chick-fil-A restaurant and was prepared in accordance with Clackamas County and ODOT requirements. Operational analyses were performed at the following study intersections during the weekday mid-day and PM peak periods:

1. SE 79th Avenue/SE Otty Road;
2. SE Otty Road/SE 82nd Avenue;
3. Existing Walmart Shared north (right-in/right-out only) Access/SE 82nd Avenue;
4. Existing Goodwill Access/SE 82nd Avenue;
5. Existing Walmart Shared South Access/SE 82nd Avenue;
6. Existing South Driveway-Proposed Site Access (West)/SE Glencoe Road;
7. Existing South Driveway Access/SE Glencoe Road (does not serve Project site);
8. SE Glencoe Road/SE 82nd Avenue; and,
9. SE Orchard Lane/SE Glencoe Road.

This report evaluates the following transportation issues:

- Existing land use and transportation system conditions within the site vicinity during the weekday mid-day and PM peak periods;
- Forecast year 2024 background traffic conditions during the weekday mid-day and PM peak periods, considering a growth in existing traffic volumes and transportation improvements planned in the study area;
- Trip generation and distribution estimates for the proposed restaurant;
- Forecast year 2024 total traffic conditions during the weekday mid-day and PM peak periods with build-out of the site;
- Turn lane and queuing considerations;
- Sight distance considerations;
- Truck circulation;
- Compliance with County access spacing requirements per the Roadway Design Standards, Section 220;
- Drive through queuing considerations;
- Traffic Management Plan considerations; and,
- Study recommendations.

Analysis Methodology

All operational analyses described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual* (HCM). HCM 6th Edition was used to assess intersection performance per ODOT requirements (Reference 1). Per ODOT requirements, the peak 15-minute flow rates were used in the evaluation of all intersection levels of service (LOS) and volume-to-capacity ratios (V/C). The operations analysis presented in this report was completed using Vistro software.

Applicable Operating Standards

Table 5-2a of the *Clackamas County Comprehensive Plan* sets performance evaluation standards for the urban area (Reference 2). All study intersections along SE 82nd Avenue (OR213) are subject to ODOT mobility targets corresponding to a volume-to-capacity (V/C) ≤ 0.99 . Per County standards, a maximum V/C ratio of 0.90 must be maintained during the mid-day peak hour along with a maximum of 0.99 during the first hour of the weekday PM peak hour along SE 82nd Avenue. All other study intersections are within the neighborhood boundary. Per these standards, a maximum V/C ratio of 0.90 must be maintained during the mid-day peak hour and a maximum of V/C of 0.99 during the first hour of the weekday PM peak hour.

Existing Conditions

This section summarizes the existing characteristics of the transportation system and adjacent land uses in the vicinity of the proposed development, including an inventory of the existing multimodal transportation facilities, a summary of recent crash history and an evaluation of existing intersection operations for motor vehicles at the study intersections.

Site Conditions and Adjacent Land Uses

The proposed restaurant would replace the existing vacant lot and be located between SE Glencoe Road to the south, the existing Goodwill Industries of the Columbia Willamette to the north, and SE 82nd Avenue to the east. The site is surrounded by retail uses along the SE 82nd Avenue corridor and a residential neighborhood further to the west.

Transportation Facilities

Table 1 summarizes the attributes of key street in the vicinity. Figure 3 illustrates the existing lane configurations and traffic control devices at the study intersections.

Table 1: Street Characteristics

Street	Classification ¹	Motor Vehicle Travel Lanes	Posted Speed	Sidewalks	Striped Bicycle Lanes	On-Street Parking
SE 82 nd Avenue (OR 213)	Principal Arterial	5	45 mph	Yes	Yes	No
SE Otty Road	Connector / Minor Arterial ²	2/3 ³	25 mph/ 35 mph ⁴	Partial ⁵	Partial ⁶	Partial ⁷
SE 79 th Avenue	Connector	2	25 mph	No	No	Yes
SE Glencoe Road	Local	2	NP ⁸	Partial ⁹	No	Yes
SE Orchard Lane	Local	2	25 mph	Partial ¹⁰	No	Yes

¹ Per Clackamas County Comprehensive Plan, Chapter 5, Map 5-4a (Reference 2)

² Classified as a connector west of SE 82nd Avenue and minor arterial east of SE 82nd Avenue

³ Two travel lanes provided west of SE 82nd Avenue and three lanes provided east of SE 82nd Avenue

⁴ Speed limit 25 mph west of SE 82nd Avenue and 35 mph east of SE 82nd Avenue

⁵ Sidewalks are provided at the intersection of SE 82nd Avenue/SE Otty Road and along the south side of SE Otty Road east of SE 82nd Avenue

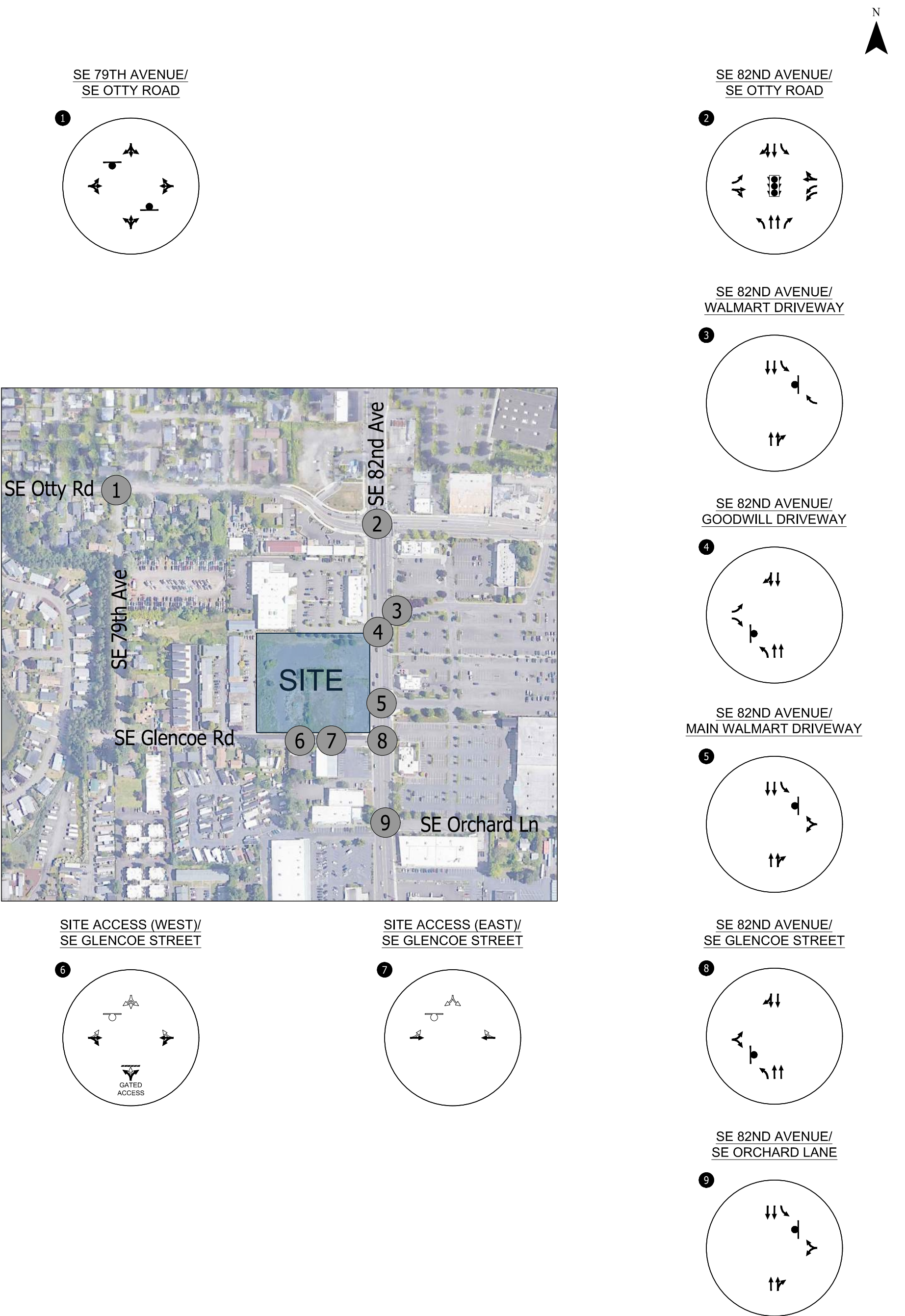
⁶ Bicycle lanes are provided at the intersection of SE 82nd Avenue/SE Otty Road and east of SE 82nd Avenue

⁷ Unstriped on-street parking is provided in front of select residential and commercial site frontages

⁸ NP= Not Posted

⁹ Sidewalks provided along select site frontages and at intersection of SE 82nd Avenue/SE Glencoe Road

¹⁰ Sidewalks provided at intersection of SE 82nd Avenue/SE Orchard Lane and most site frontages



- STOP SIGN
- TRAFFIC SIGNAL
- EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL
- FUTURE LANE CONFIGURATION AND TRAFFIC CONTROL

Lane Configurations &
Traffic Control Devices
Clackamas, OR

Figure
3

Transit Facilities

The proposed site is located within ¼ mile of TriMet (Reference 4) bus stops serving lines 33 (15-minute peak hour frequency), 71 (20-minute peak hour frequency), and 72 (15-minute peak hour frequency). All three lines provide service to the Clackamas Transit Center south of the site, providing additional regional access to/from the site.

Facilities for People Walking and Riding Bikes

Map 5-3 of the Clackamas County Transportation System Plan (TSP) identifies the Essential Pedestrian Network. SE Otty Road east of SE 82nd Avenue and SE 79th Avenue are both identified on the map as pedestrian arterials while SE Glencoe Road and SE Otty Road west of SE 82nd Avenue are identified as pedestrian local roads. There are no continuous sidewalks along the site frontage of SE Glencoe Road or SE 82nd Avenue today (sidewalks and accessible ramps are provided on southeast corner of the site today at the intersection of SE Glencoe Road and SE 82nd Avenue). New sidewalks will be provided along the site frontage on SE Glencoe Road and SE 82nd Avenue with the proposed site development along with sidewalks linking to the proposed restaurant.

The TSP also documents existing and planned bicycle network. TSP Map 5-2a identifies SE 82nd Avenue, SE Otty Road, and SE 79th Avenue as planned bikeways near the development site. Today, SE 82nd Avenue has a striped northbound bicycle lane between SE Orchard Lane and SE Otty Road. Southbound along SE 82nd Avenue, there is a striped bicycle lane beginning slightly north of SE Otty Road that terminated at the proposed development site project frontage. Redevelopment of the project site would extend the existing southbound bicycle lane from its current terminus (at the north property line of the site) south to SE Glencoe Road, connecting the bicycle facility to the project site.

Crash History Analysis

ODOT provided crash history for the five-year period from January 1, 2016 to December 31, 2020. The crash type classifications at each intersection were reviewed to assess whether crash patterns might be identifiable. Table 2 summarizes the reported crashes by type and severity. No fatal crashes were reported. *Appendix "A" provides detailed crash data at the study intersections.*

Through review of the crash data, it was found that three of the six reported crashes at the Existing Walmart North Access/SE 82nd Avenue intersection involved southbound left-turn movements. Southbound left-turns are restricted at the access; however, field review of the intersection during September 2022 noted that the single posted left-turn prohibition sign is located on the west side of the roadway and is partially obscured by street trees. Regardless of the proposed development, ODOT may want to consider changes to the existing turn movement restriction signage.

Table 2: Reported Crash History (2016 – 2020)

Study Intersection		Crash Type								Severity		Total
#	Location	Angle	Turn	Rear-End	Side Swipe	Fixed Object	Ped/Bike	Head-On	Backing	PDO ¹	Injury	
1	SE 79 th Avenue/ SE Otty Road	1	0	0	0	0	0	0	0	1	0	1
2	SE Otty Road/ SE 82 nd Avenue	1	10	27 ²	1	0	2	0	0	18	23	41
3	Existing Walmart North Access/ SE 82 nd Avenue	0	5	0	0	0	1	0	0	2	4	6
4	Existing Goodwill Access/ SE 82 nd Avenue	0	2	1	0	0	1	0	0	3	1	4
5	Existing Walmart South Access/ SE 82 nd Avenue	0	5	6 ³	0	0	2	0	0	5	8	13
6	Existing South Driveway- Proposed Site Access/ SE Glencoe Road	0	0	0	0	0	0	0	0	0	0	0
7	Existing South Driveway Access/ SE Glencoe Road	Driveway not present today								0	0	0
8	SE Glencoe Road/ SE 82 nd Avenue	0	1	0	1	0	0	0	0	2	0	2
9	SE Orchard Lane/ SE 82 nd Avenue	0	3	0	0	0	0	0	1	2	2	4

¹ PDO = Property damage only

² Five of the reported rear-end crashes were recorded near the Existing Walmart North Access/SE 82nd Avenue and one was recorded near Existing Walmart South Access/SE 82nd Avenue. All six of these crashes involved northbound through vehicles, which suggest they were related to queuing from the traffic signal at SE Otty Road/SE 82nd Avenue, thus the crashes were assigned to this intersection.

³ All six of the reported rear-end crashes near the Existing Walmart South Access/SE 82nd Avenue involved southbound through vehicles. This suggests these crashes may be related to southbound queuing associated with the traffic signal further south as opposed to the Existing Walmart South Access located on the east side of the roadway.

Critical crash rates were calculated for each of the study intersections following the analysis methodology presented in the APM (Reference 5). APM Chapter 4 provides 90th percentile crash rates per million entering vehicles at a variety of intersection configurations based on number of approaches and traffic control types. The critical crash rate for each intersection is calculated based on the average crash rate for each facility and serves as a threshold for further analysis. Per the APM, intersections with crash rates that exceed the 90th percentile values shown in APM Exhibit 4-1 or with a crash rate that exceeds its critical crash rate should be flagged for further analysis. Table 3 summarizes the crash rate assessment for each intersection and compares those values to the observed crash rate.

As shown in Table 3, the SE 79th Avenue/SE Otty Road intersection crash rate is equal to the critical crash rate but does not exceed it. We note that only one crash was reported over the five-year period and therefore do not recommend further review or changes. We further note that nine of the reported crashes at the SE Otty Road/SE 82nd Avenue intersection occurred in 2016 and three occurred early 2017; these crashes likely all occurred prior to completion of the roadway project that reconstructed the intersection and realigned the east and west approaches on SE Otty Road.

Table 3: Intersection Critical Crash Rate Assessment

Study Intersection		90 th Percentile Rate ^{1,2}	Observed Crash Rate ¹	Observed Crash Rate > 90 th Percentile Rate
#	Location			
1	SE 79 th Avenue/ SE Otty Road	0.41	0.41	No
2	SE Otty Road/ SE 82 nd Avenue	0.86	0.81	No
3	Existing Walmart North Access/ SE 82 nd Avenue	0.29	0.13	No
4	Existing Goodwill Access/ SE 82 nd Avenue	0.29	0.09	No
5	Existing Walmart South Access/ SE 82 nd Avenue	0.29	0.28	No
6	Existing South Driveway-Proposed Site Access/ SE Glencoe Road	0.29	0	No
8	SE Glencoe Road/ SE 82 nd Avenue	0.29	0.04	No
9	SE Orchard Lane/ SE 82 nd Avenue	0.29	0.09	No

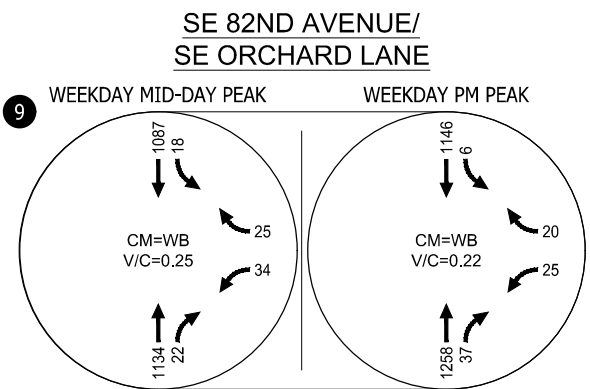
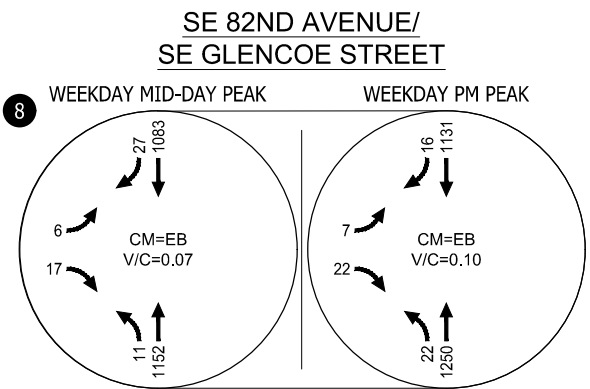
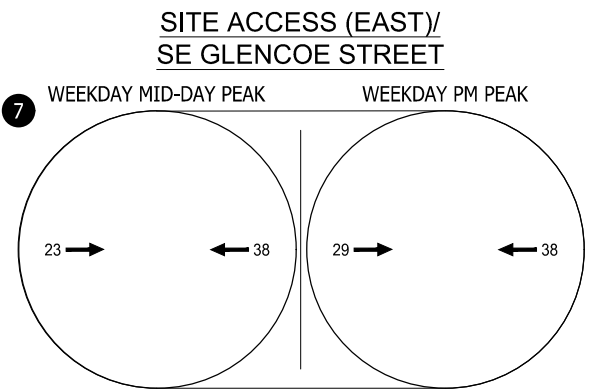
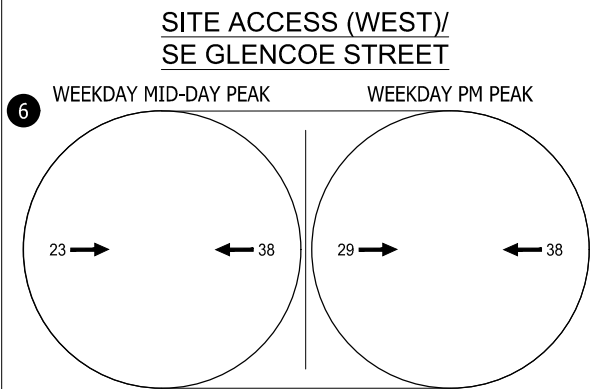
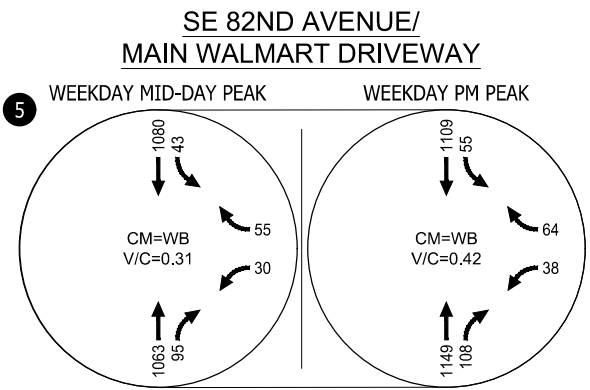
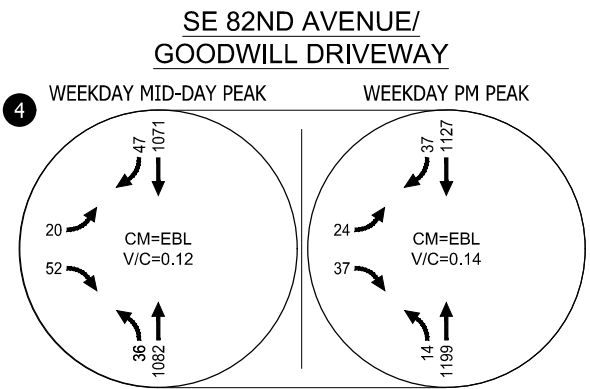
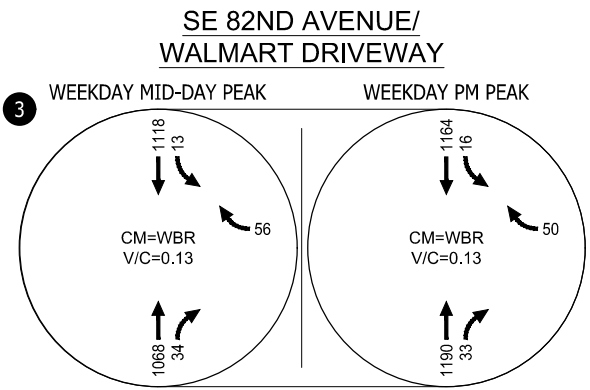
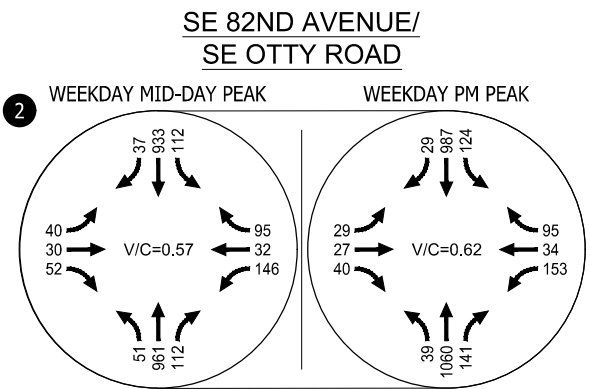
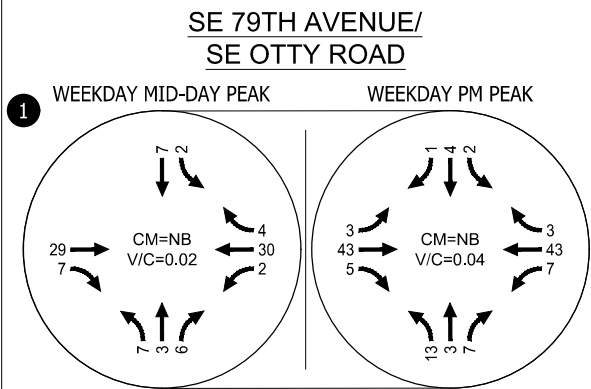
¹ Crash Rate reported as crashes per million entering vehicles (crashes/MEV).

² Values shown obtained from APM Exhibit 4-1, Intersection Crash Rates per MEV by Land Type and Traffic Control

Existing Conditions Operational Analysis

Turning movement counts were collected at the study intersections in May 2022 while local schools were holding classes in-person. Traffic counts were conducted during the weekday midday (11:00 AM – 1:00 PM) and evening (4:00 – 6:00 PM) peak periods. On the day of the counts, the mid-day peak hour occurred from 12:00 PM – 1:00 PM for all study intersections except SE 79th Avenue/SE Otty Street, which had a peak hour of 11:30 AM – 12:30 PM. The weekday PM peak hour occurred from 4:00 PM – 5:00 PM for all intersections except SE 79th Avenue/SE Otty Street and SE 82nd Avenue/Existing Walmart South Driveway, which experienced a peak hour of 5:00 – 6:00 PM. The system peak hour was analyzed for the study intersections along SE 82nd Avenue. Appendix “B” contains the traffic count worksheets. Current traffic signal phasing and signal cycle length information for the signalized study intersections were obtained from ODOT.

Figure 4 summarizes the existing traffic conditions at the study intersections during the weekday mid-day and PM peak hours. As shown, the study intersection operations satisfy applicable County and ODOT V/C ratio metrics during the two peak hours. Existing conditions operations analysis worksheets are provided in Appendix “C”.



CM = INTERSECTION MOVEMENT (UNSIGNALIZED)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO

Existing Conditions
Weekday Mid-Day & PM Peak Hour
Clackamas, OR

Figure
4

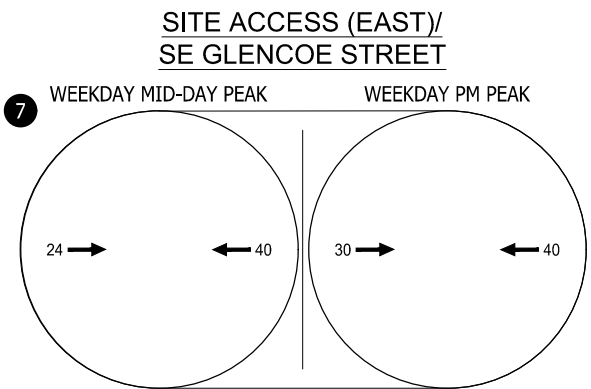
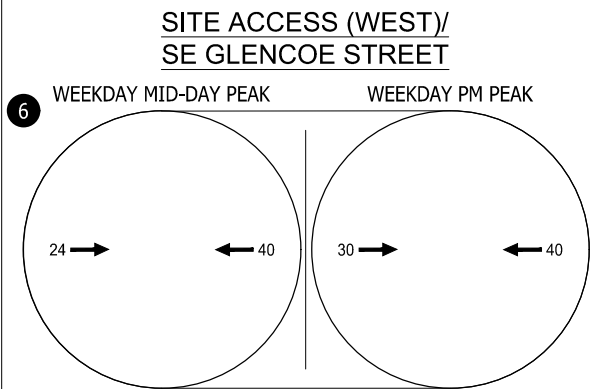
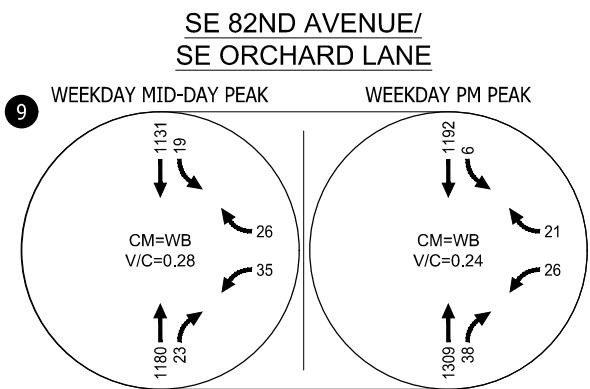
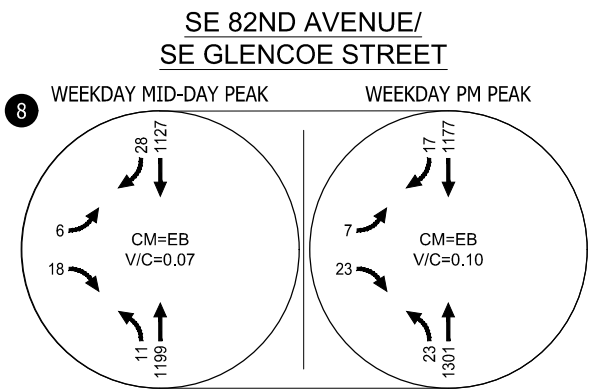
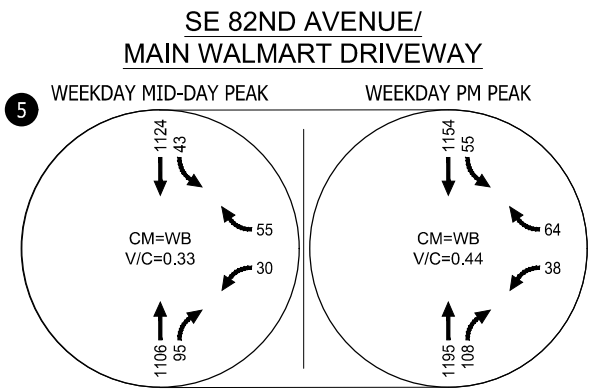
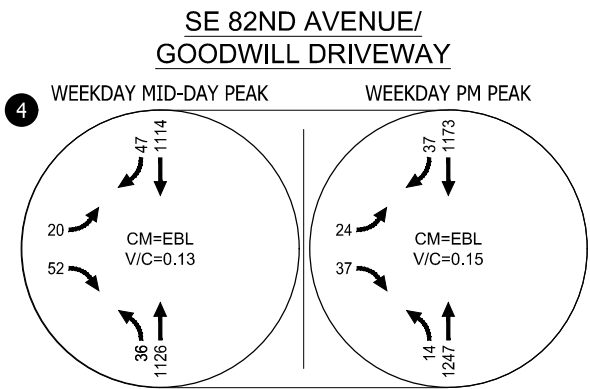
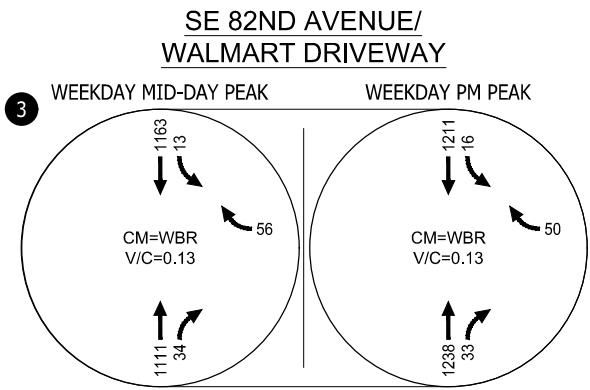
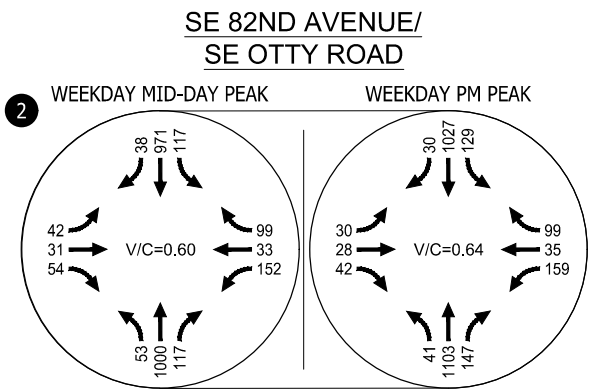
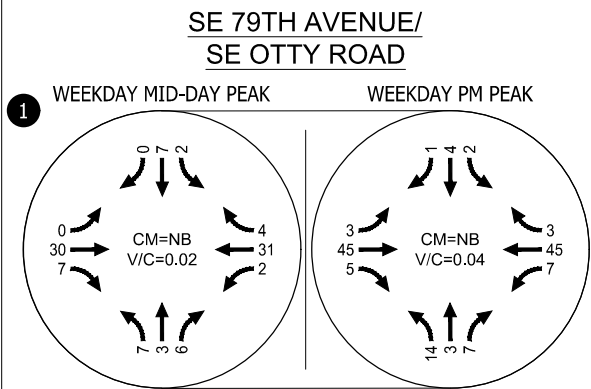
Traffic Impact Analysis

The traffic impact analysis identifies how the study intersections will operate in the year 2024 upon occupancy of the restaurant. This section of the report includes analysis of 2024 background traffic volumes and operations, an estimate of site-generated trips, analysis of 2024 total traffic volumes and intersection operations, turn lane and queuing considerations, sight distance, truck circulation, drive-through queuing considerations, and consistency with County access spacing requirements.

2024 Background Operational Analysis

Per County direction, a two-percent annual growth rate was applied to the existing traffic volumes to reflect near-term growth for background traffic. No in-process developments in the site vicinity were identified by the County. In addition, no changes to the study intersections were identified by ODOT or the County that would occur prior to 2024.

Figure 5 illustrates the 2024 background traffic volumes and corresponding operational analysis for the weekday midday and PM peak hours. As shown, all the study intersections are expected to continue to satisfy applicable County and ODOT V/C ratio metrics under background conditions. *Appendix "D" includes the operations analysis worksheets.*



CM = INTERSECTION MOVEMENT (UNSIGNALIZED)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO

2024 Background Traffic Conditions
Weekday Mid-Day & PM Peak Hour
Clackamas, OR

Figure
5

Proposed Development Plan

The proposed 4,989 square foot Chick-fil-A is located on the east end of the existing vacant lot. A future use by others may be developed to the west and would share the parking lot and site access points with the proposed Chick-fil-A (subject to a then-current site development application). Chick-fil-A site access is proposed via two full movement driveways on SE Glencoe Road and will share an existing full movement access (with Goodwill) on SE 82nd Avenue via an existing reciprocal access agreement along the north side of the project site.

Trip Generation Estimate

At the request of the County, a trip generation study was conducted at four Chick-fil-A sites in the greater Portland area in May 2022 and was compared to the rates shown in the *Trip Generation Manual*, 11th Edition (Reference 6), as published by the Institute of Transportation Engineers (ITE). The four sites studied were located in Tanasbourne (open March 2016), on Beaverton-Hillsdale Highway (open June 2019), in the Cedar Hills Crossing area (open July 2019), and on TV Highway in Hillsboro (open April 2022). Trip generation rates were calculated on the data collected at these four sites per the ITE *Trip Generation Handbook* methodology. *Trip Generation Rates (trips/1,000 square feet) observed at the four sites during weekday mid-day and weekday PM peak hours are provided in Appendix "E".*

In reviewing the data, we note the following:

- Although Tanasbourne has been open the longest of the four sites surveyed (Tanasbourne and the existing Clackamas Chick-fil-A opened at the same time), the trip generation rates at this store are higher than the others given its proximity to US 26 and NW 185th Avenue.
- The TV Highway location also helps to serve Hillsboro/Aloha customers previously served by Tanasbourne. Despite its only being open for less than six months at the time of data collection, this store has the lowest trip generation of the four locations surveyed. Chick-fil-A indicates that it is common for their new stores in an existing market to not experience the same level of grand opening interest as compared to openings in new markets.
- There is an existing Chick-fil-A site approximately 1.5 miles to the south of the proposed SE 82nd Avenue site. This restaurant shares parking and access with several other users so was not included in the trip generation study. One could postulate that the SE 82nd Avenue trip generation rates might be more similar to the TV Highway site given it will also capture existing market share currently served by an existing site.

With these considerations in mind but still to provide a reasonable estimate of potential trip generation, we used the average rate of the three highest sites and excluded the TV Highway site. A comparison of the average rates using the three higher versus all four sites as well as to the rates reflected in the *Trip Generation Manual* is shown below:

- Trips per 1,000 square feet based on all four sites = 59.30 during the weekday mid-day and 44.18 during the weekday PM peak hour
- Trips per 1,000 square feet based on three sites (excluding TV Highway) = 65.07 during the weekday mid-day and 48.58 during the weekday PM peak hour
- Trips per 1,000 square feet from the *Trip Generation Manual* = 33.03 during the weekday PM peak hour (the weekday PM peak hour rates are also by the County as a proxy for the mid-day)

We note that using the higher of the three sites results in trip rates that are ten percent higher than averaging all four and rates that are 47 percent higher than would be predicted by the *Trip Generation Manual*.

Table 4 summarizes the anticipated weekday mid-day and weekday PM peak hour site trips using the average of the three higher sites.

Table 4: Trip Generation

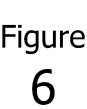
Land Use	Data Source	Size	Weekday Mid-day Peak Hour Trips			Weekday PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Fast Food Restaurant with Drive-Through	Chick-fil-A data	4,989 SF	325	160	165	242	121	121
Less Pass-by Trips ¹			-179	-88	-91	-133	-67	-66
Net New Trips			146	72	74	109	54	55

¹ Assumed pass-by trip rates are: 55% for Mid-day and PM peak hours per ITE *Trip Generation Manual*, 11th Edition for a fast food restaurant with drive-through

Trip Distribution/Assignment

The trip distribution pattern for the proposed restaurant is based on existing travel patterns, the location of major trip origins and destinations in the study area and the proximity of the existing Clackamas Chick-fil-A located south of the proposed site. The shared access location in part reflects a portion of anticipated Chick-fil-A customers making linked trips to the restaurant while shopping at nearby retail businesses.

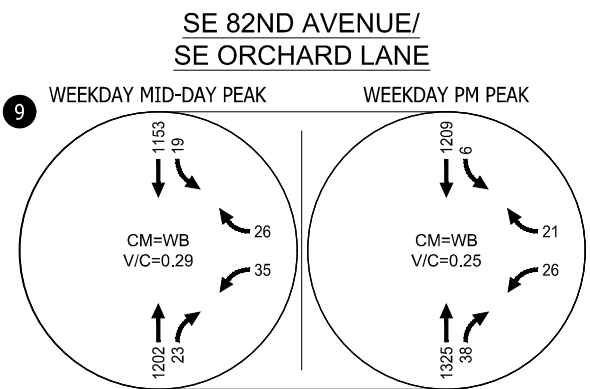
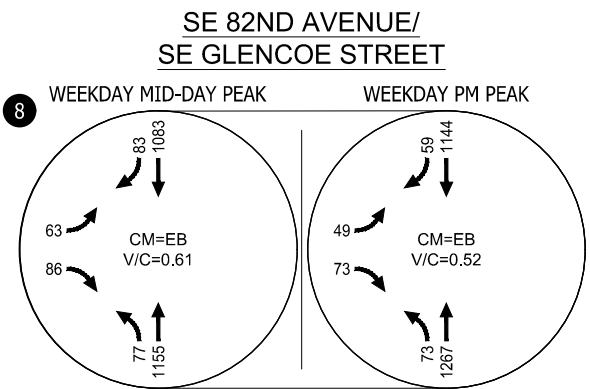
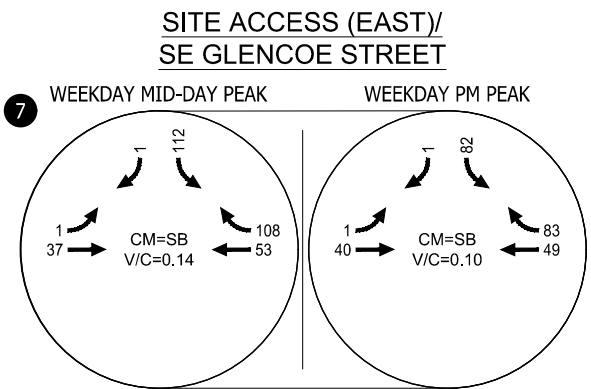
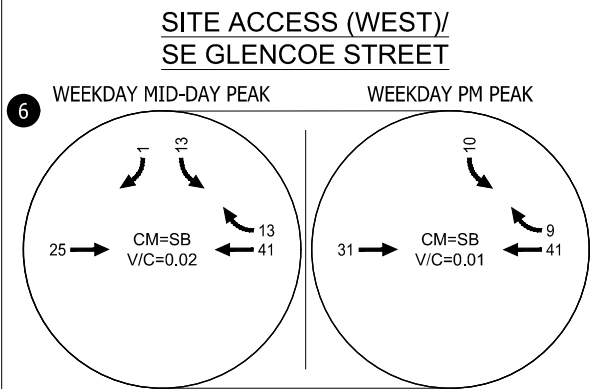
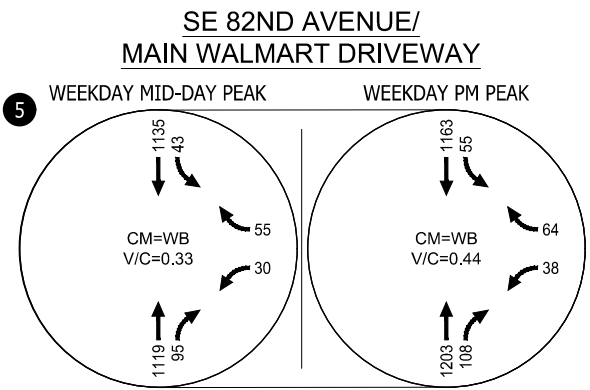
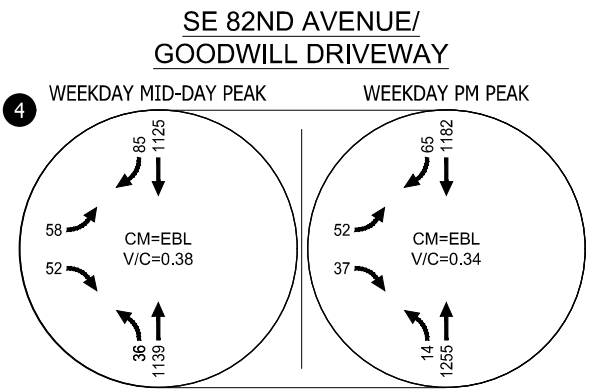
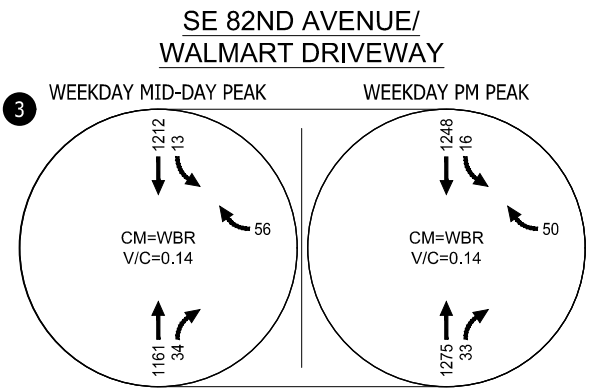
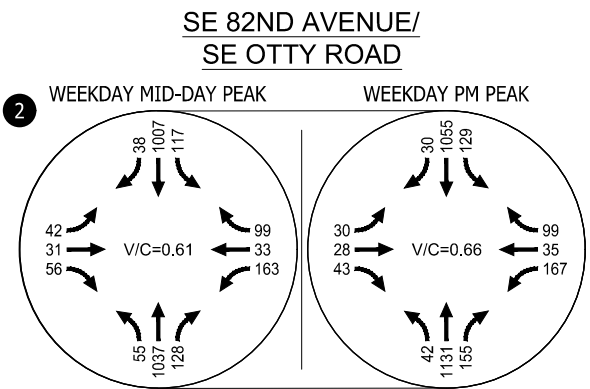
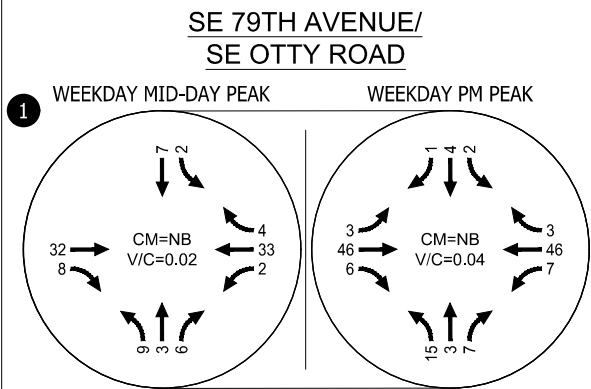
The trip distribution pattern as well as weekday mid-day and PM peak hour site-generated trips are summarized in Figure 6. All pass-by trips for the restaurant were assumed to travel to/from the site via the SE 82nd Avenue/SE Glencoe Street and SE 82nd Avenue/Existing Goodwill Driveway. Appendix "F" also includes figures illustrating the pass-by and net new trip assignments.



Year 2024 Total Traffic Conditions

The total traffic conditions analysis forecasts how the study intersections will operate with the traffic generated by the proposed Chick-fil-A. The site-generated traffic shown in Figure 6 was added to the year 2024 background traffic volumes shown in Figure 5 to arrive at the total traffic volumes for the weekday mid-day and PM peak hours shown in Figure 7. Figure 7 also presents the corresponding traffic operations at the study intersections. *Appendix "G" contains the 2024 Total Traffic Conditions intersection analysis worksheets.*

As shown, all the study intersections are expected to continue to satisfy applicable County and ODOT V/C ratio metrics under total traffic conditions.



CM = INTERSECTION MOVEMENT (UNSIGNALIZED)
V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO

2024 Total Traffic Conditions
Weekday Mid-Day & PM Peak Hour
Clackamas, OR

Figure
7

95th Percentile Queuing Analysis

A 95th-percentile queuing analysis was performed in Vistro at each of the study intersections for all analysis scenarios in partial fulfillment of the queuing analysis requirements identified in *Clackamas County Roadway Standards* Section 295.16. Queue reports from Vistro are included in Appendices “C”, “D”, and “G”. Table 5 summarizes the existing and estimated future year 2024 95th-percentile queues during the weekday mid-day and PM peak hours. Queues are rounded up to the nearest vehicle length (approximately 25 feet). Movements in **bold** indicate the 95th percentile queue is greater than the available storage.

Table 5: Summary of 95th Percentile Queues

Study Intersection		Move-ment	Available Storage (feet)	2022 Existing Traffic Conditions		2024 Background Traffic Conditions		2024 Total Traffic Conditions	
#	Location			MD (feet)	PM (feet)	MD (feet)	PM (feet)	MD (feet)	PM (feet)
1	SE 79 th Avenue/ SE Otty Road	NBLR	75 ¹	25	25	25	25	25	25
2	SE Otty Road/ SE 82 nd Avenue	NBL	125	25	25	25	25	25	25
		NBT	250 ²	300	350	300	375	325	375
		NBR	100	50	50	50	50	50	75
		SBL	150	50	75	50	75	50	75
		SBTR	175 ²	275	275	275	300	300	300
		EBL	75	50	50	75	50	75	50
		EBTR	175	125	125	150	125	150	125
		WBL	275	100	125	100	125	125	125
		WBTR	>500	200	225	200	225	200	225
3	Existing Walmart North Access/ SE 82 nd Avenue	WBR	175	25	25	25	25	25	25
4	Existing Goodwill Access/ SE 82 nd Avenue	NBL	200	25	25	25	25	25	25
		EBL	100	25	25	25	25	50	25
		EBR	100	25	25	25	25	25	25
5	Existing Walmart South Access/ SE 82 nd Avenue	SBL	200	25	25	25	25	25	25
		WBLR	200	25	50	50	50	25	50
6	Existing South Driveway- Proposed Site Access/ SE Glencoe Road	SBLR	100	N/A	N/A	N/A	N/A	25	25
7	Existing South Driveway Access/ SE Glencoe Road	SBLR	100	N/A	N/A	N/A	N/A	25	25
8	SE Glencoe Road/ SE 82 nd Avenue	NBL	200	25	25	25	25	25	25
		EBLR	>100 ²	25	25	25	25	100	75
9	SE Orchard Lane/ SE Glencoe Road	SBL	200	25	25	25	25	25	25
		WBLR	175	25	25	25	25	25	25

Where: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = left-turn, TR = shared through/right, LTR = shared left/through/right

¹ Distance until blocking residential access, additional storage available beyond driveway

² Distance to south private access is approximately 50 feet, distance to proposed east site access is approximately 100 feet.

As shown in Table 5, 95th percentile north-south through queues on SE 82nd Avenue at the SE Otty Road intersection currently reach to and past driveway access points near the intersection. Related to the proposed site development, the northbound through queue intermittently extends past the existing Goodwill shared site access on SE 82nd Avenue today and is projected to continue to do so under 2024 traffic conditions. Due to the coordinated signal timing patterns along SE 82nd Avenue, there are multiple periods during the peak hours left-turns in and out of the shared SE 82nd Avenue access can occur unimpeded despite the occasional queue spillback past the access.

The proposed site access driveways on SE Glencoe Road are located west of the forecast 95th percentile eastbound queue along SE Glencoe Road at SE 82nd Avenue and thus should not be impeded by queuing at SE 82nd Avenue.

Turn Lane Considerations

The potential need for turn lanes at the site driveways was evaluated per *Clackamas County Roadway Standards* Section 295.18.1.

The existing shared Goodwill site access on SE 82nd Avenue is served by a two-way left-turn lane today. The potential need for left-turn lanes on SE Glencoe Road at the site driveways was evaluated using the ODOT turn lane criteria presented in the *ODOT Analysis Procedures Manual* (Reference 5). Based on the projected left-turn volumes shown in Figure 7 and the Left-turn Lane Criterion in *Analysis Procedures Manual* Exhibit 12-1, the ODOT criteria for providing a separate left-turn lane are not met.

No need for separate right-turn lanes was identified as the site access driveways considering ODOT *Highway Design Manual* (Reference 7) Section 506.11 guidance that “right turn lanes should not be used for private drives unless the access has significant turning volume, a specific accident problem could be corrected by utilizing a right turn lane, or the access is within a rural community area and meets the criteria from the *Analysis Procedures Manual*.”

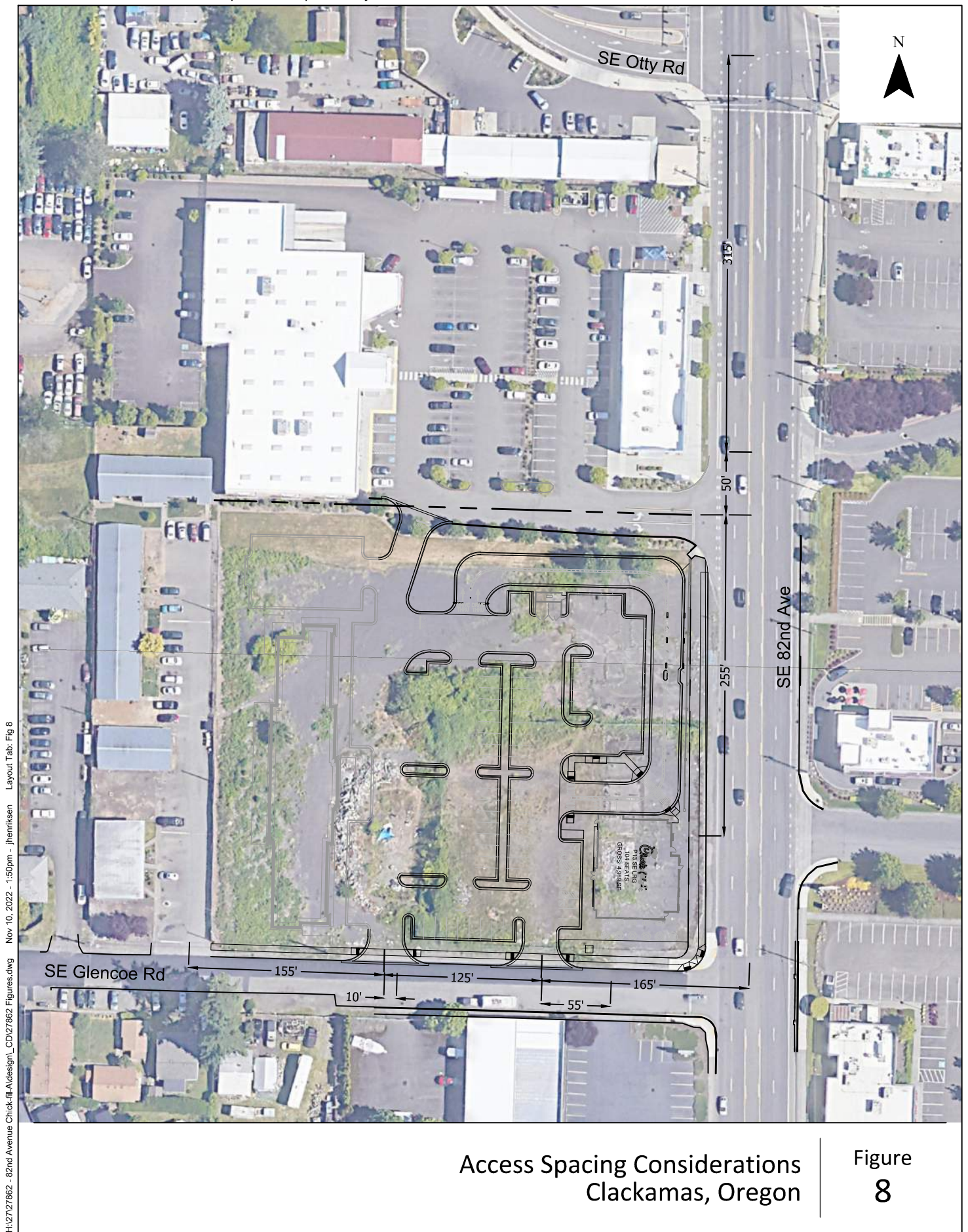
Access Spacing

Clackamas County Roadway Standards Section 220 defines County access management requirements.

As previously documented in this report, the applicant is proposing to construct two new site accesses on SE Glencoe Road. Providing direct site access to SE Glencoe Road instead of SE 82nd Avenue complies with Section 220.4.a requirements to “first take access to the lower functional classification roadway”.

SE 82nd Avenue is classified by the County as a Local Road. Local Roads have a minimum spacing standard of 25 feet between full movement accesses (access spacing to be measured from centerline to centerline of accesses or roadways) and must be a minimum of 100 feet away from an arterial roadway such as SE 82nd Avenue. Figure 8 illustrates the spacing of the two new proposed accesses on SE Glencoe Road relative to nearby existing driveways as well as SE 82nd Avenue to the east. As shown, both proposed access points satisfy the minimum access spacing standard of 25 feet between full movement driveways (the proposed west access is wider than the existing gated private access to the south and is the access centerlines are positively offset by approximately 10 feet). Further, the eastern proposed access is located more than 100 feet from SE 82nd Avenue and thus satisfies the County’s spacing requirement to arterials.

In addition to the two new driveways on SE Glencoe Road, the applicant proposes to construct an access in the northwest corner of the site that will connect the restaurant site to the existing Goodwill Industries parking lot to the north (connection to be made using the existing reciprocal access agreement between the project site and the Goodwill Industries property linking to SE 82nd Avenue). This connection will in turn



Access Spacing Considerations
Clackamas, Oregon

Figure
8

link to the existing Goodwill Industries driveway on SE 82nd Avenue as shown in Figure 2. The crossover connection is proposed to promote connectivity and to reduce potential impacts to the public street system by facilitating access between the two commercial development parking areas without impacting the public street system. No changes are proposed to the existing access on SE 82nd Avenue.

Site Circulation Considerations

Driveway Sight Distance

We recommend intersection sight distance be provided at the site accesses per Clackamas County Code design requirements and that landscaping, above ground utilities, and signing be located and maintained in a manner that preserves adequate intersection sight distance.

Driveway sight distance compliance with *Clackamas County Roadway Standards* Section 240 is documented on the project civil engineering plans included in Appendix H.

Drive Through Queuing

This section addresses *Clackamas County Roadway Standards* Section 295.16 related to drive-through queuing impacts to public roadways. The site has been designed to maximize on-site queueing space available for customers using the drive-through. Two drive through lanes are provided and both are served at the pick-up area via a drive-through door that staff use to deliver meals). The drive-through is designed to store approximately 31 vehicles on-site based on the size and spacing of typical customer vehicles (including the two vehicles at the pick-up area).

A queuing study was also conducted at four Portland area Chick-fil-A sites in May 2022. The overall maximum observed drive through queue was 29 vehicles during the PM peak hour at the Tanasbourne site. Based on the maximum observed queue at the four project sites, we conclude the proposed site plan has adequate drive-through storage to accommodate drive-through queues on-site without impact to nearby public roadway facilities¹. *The results of the Queuing Study are provided in Appendix "E".*

Delivery Truck Circulation

Clackamas County Roadway Standards Section 295.17.2 requires developments that will generate greater than 50 daily vehicles of a size greater than or equal to WB50 to provide analysis of truck turning movements between the project site and the nearest collector or arterial roadway (whichever is closer). Restaurant deliveries are expected to enter and exit the site via SE Glencoe Road.

The proposed development is expected to generate 1 to 3 delivery trucks per day. Of these, one larger vehicle equal to or longer than a WB50 is expected to deliver at night while smaller bread and produce delivery vehicles are expected during the day. A WB-50 design vehicle truck circulation diagram is documented in the project civil engineering plans included in Appendix I.

¹ It should be noted that three of the four Portland area sites studied have a single drive through pickup window whereas the proposed site will have two active drive through lanes with pickup areas and thus should experience shorter drive through queues. Of the four sites studied, only the TV Highway site has the new two drive through lane configuration and it has both the lowest trip generation and the shortest drive through queues.

Traffic Management Plan Considerations

Clackamas County staff opined that initial opening period traffic volumes at the site may be higher than those found at a mature store. As previously discussed in the trip generation section of this report, year 2022 data collected at the second Chick-fil-A in Hillsboro a few weeks after opening found the trip generation of the new site to be the lowest of four area locations surveyed. Chick-fil-A reports that there was no formal traffic management plan implemented for the 2022 Hillsboro Chick-fil-A grand opening and that all parking and drive-through queuing has been accommodated on-site from the first day of operations. Chick-fil-A further indicates that it is common for their new stores in an existing market to not experience the same level of grand opening interest as compared to openings in new markets.

As previously noted, there is an existing Chick-fil-A site approximately 1.5 miles to the south of the proposed SE 82nd Avenue site. There is also a Chick-fil-A to the northeast in Gresham and a new Chick-fil-A is anticipated to be open in Wood Village by the time the Clackamas site opens. Given these other existing restaurant sites, the proposed second restaurant opening experience in Clackamas could be akin to the recent Hillsboro second site opening recognizing the new Clackamas site will also capture existing market share served today by an existing restaurant within even closer proximity.²

If required by Clackamas County, we recommend preparation and approval of a Traffic Management Plan (TMP) for the restaurant opening occur prior to building occupancy. No formal TMP has been prepared at this time recognizing the proposed new 82nd Avenue site opening is over a year away (at the time this report was prepared) and future market conditions cannot be fully understood now. We note that the future development area west of Chick-fil-A will be available to be used to help address potential parking (perhaps temporary employee and/or patron parking) and drive-through staging needs given it is anticipated to be vacant at the time of restaurant opening. We also note that Chick-fil-A is able to cone off driveways and sign additional on-site drive through storage; an example of which is shown below in Photo 1.

² We further note that Chick-fil-A also opened a new restaurant at Keizer Station in August 2022. Chick-fil-A representatives report that no formal TMP was required; however, the restaurant operator met with the City police department in advance to review a plan to minimize any restaurant traffic backing to the public street including engagement of City police officers to manage traffic. We understand the restaurant implemented temporary extra drive-through storage within the site parking lot and that drive through queues are being accommodated on-site despite the restaurant being the first in the greater Salem-Keizer area and in close proximity to I-5.

Exhibit 1. View of Example Chick-fil-A Temporary Parking Lot Drive Through Extension (Keizer, OR)

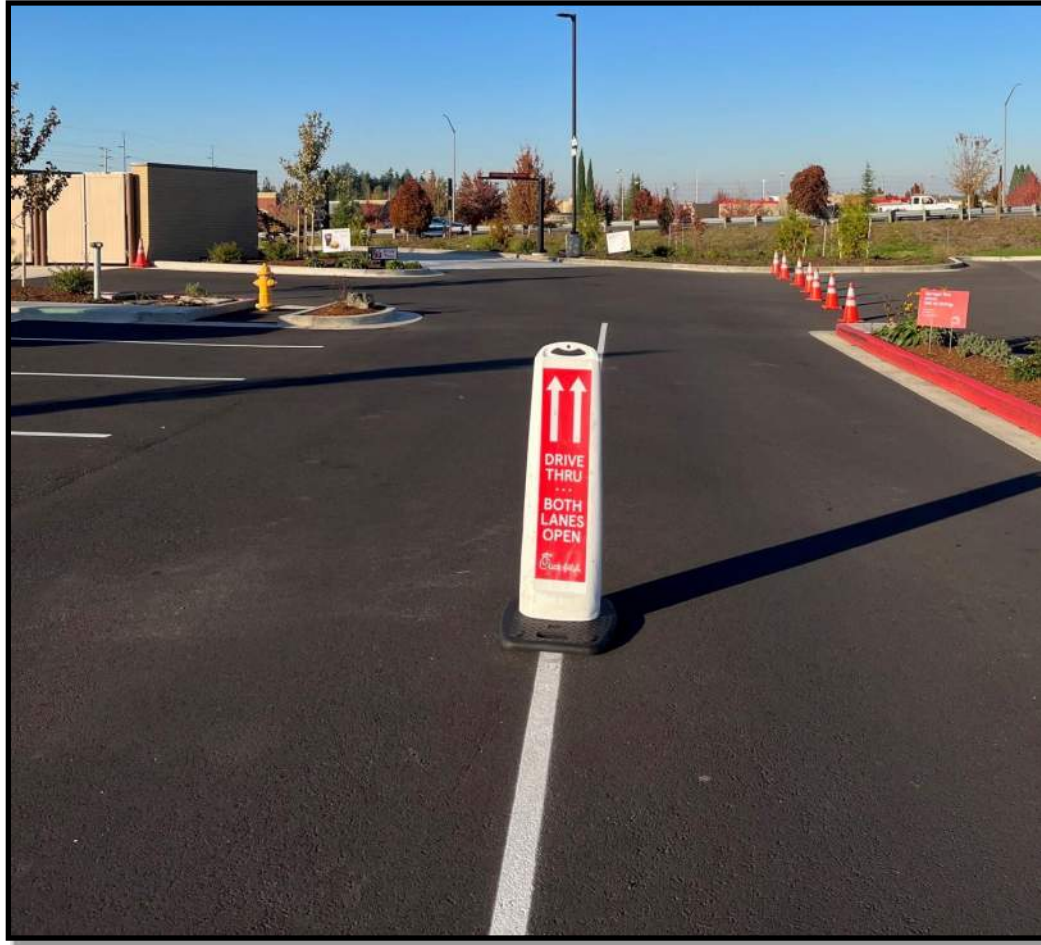


Image Source: Chick-fil-A

If needed and subject to County and ODOT staff review, a TMP related approval condition might be developed as follows.

Prior to issuance of a structural Building Permit, the Applicant shall develop and submit a draft performance-based Traffic Management Plan (TMP) to the Clackamas County Department of Transportation and Development as well as ODOT. This TMP shall define performance metrics, management actions, and corresponding triggers related to on-site and access operations. In addition, the TMP shall outline a tiered traffic management system that addresses a range of vehicular traffic demands, including opening conditions. The TMP performance metrics shall be refined through coordination with Clackamas County and ODOT staff to provide an objective evaluation of ways to monitor and minimize the potential for motor vehicles queuing entering and exiting the site onto SE Glencoe Avenue and SE 82nd Avenue. The TMP shall consist of traffic control, emergency vehicle access routes, communication protocols between the agencies and Chick-fil-A on-site staff, coordination with emergency responders, required street and access permits, the frequency of the traffic observations during peak hours of restaurant operations, metrics to determine when a different tier of strategies from the TMP should be implemented, and other elements that may be needed to address the safety of the adjacent and nearby public roadways.

Findings and Recommendations

Based on the results of this report, the proposed Chick-fil-A can be constructed while maintaining acceptable operations at the study intersections. No capacity-based mitigation needs were identified.

Findings

- The study intersections were found to operate acceptably during the weekday midday and PM peak hours under existing and future conditions (without and with site development).
- The drive-through has been designed to accommodate the anticipated queue requirements on site without impact to the public roadway network.
- No right-turn or left-turn lanes are required on SE Glencoe Road at the two new access points.
- The proposed new site driveways can comply with the County sight distance standards.

Recommendations

- Intersection sight distance shall be provided at the site access per Clackamas County Code design requirements. Landscaping, above ground utilities, and signing shall be located and maintained in a manner that preserves adequate intersection sight distance.
- If required by Clackamas County, preparation and approval of a Traffic Management Plan (TMP) for the restaurant opening shall occur prior to building occupancy.

References

1. Transportation Research Board. *Highway Capacity Manual, 6th Edition*. 2016.
2. Clackamas County. *Clackamas County Comprehensive Plan*. January 2022.
3. Oregon Department of Transportation. *Oregon Highway Plan*. December 2015.
4. "Maps and Schedules". TriMet. <https://trimet.org/schedules/index.htm>.
5. Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. June 8, 2022 Update.
6. Institute of Transportation Engineers. *Trip Generation Manual, 11th Edition*. 2021.
7. Oregon Department of Transportation. *Highway Design Manual 2023*.

Appendix

- A. ODOT Crash Data
- B. Traffic Counts
- C. Existing Traffic Conditions Analysis Worksheets
- D. 2024 Background Traffic Conditions Analysis Worksheets
- E. Trip Generation/Queuing Study
- F. Trip Assignment Summary Figures
- G. 2024 Total Traffic Conditions Analysis Worksheets
- H. Driveway Sight Distance Exhibits
- I. Delivery Truck Circulation Exhibit

Appendix A: ODOT Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes on SE 79th Ave & SE Otty St in Clackamas County, OR.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2020 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0

Disclaimers: Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST		
ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST		
CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST		
COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST		
CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST			DRIVER RESIDENCE CODE TRANSLATION LIST		
LIC CODE	SHORT DESC	LONG DESCRIPTION	RES CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)	1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
1	OR-Y	VALID OREGON LICENSE	2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY	3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
3	SUSP	SUSPENDED/REVOKED	4	N-RES	NON-RESIDENT
4	EXP	EXPIRED	9	UNK	UNKNOWN IF OREGON RESIDENT
8	N-VAL	OTHER NON-VALID LICENSE			
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH			

ERROR CODE TRANSLATION LIST		
ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNUED FROM WRONG LANE
007	TO WRONG	TURNUED INTO WRONG LANE
008	ILLEG U	U-TURNUED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST		
FUNC CLASS	DESCRIPTION	
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE	
02	RURAL PRINCIPAL ARTERIAL - OTHER	
06	RURAL MINOR ARTERIAL	
07	RURAL MAJOR COLLECTOR	
08	RURAL MINOR COLLECTOR	
09	RURAL LOCAL	
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE	
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP	
14	URBAN PRINCIPAL ARTERIAL - OTHER	
16	URBAN MINOR ARTERIAL	
17	URBAN MAJOR COLLECTOR	
18	URBAN MINOR COLLECTOR	
19	URBAN LOCAL	
78	UNKNOWN RURAL SYSTEM	
79	UNKNOWN RURAL NON-SYSTEM	
98	UNKNOWN URBAN SYSTEM	
99	UNKNOWN URBAN NON-SYSTEM	

HIGHWAY COMPONENT TRANSLATION LIST	
CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd)
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
REAR-END	0	3	0	3	0	5	0	2	0	3	0	3	0	0
TURNING MOVEMENTS	0	2	1	3	0	2	0	2	1	3	0	3	0	0
2020 TOTAL	0	5	1	6	0	7	0	4	1	6	0	6	0	0
YEAR: 2019														
REAR-END	0	3	1	4	0	4	0	3	0	4	0	4	0	0
TURNING MOVEMENTS	0	2	0	2	0	3	0	2	0	2	0	2	0	0
2019 TOTAL	0	5	1	6	0	7	0	5	0	6	0	6	0	0
YEAR: 2018														
ANGLE	0	0	1	1	0	0	0	1	0	0	1	1	0	0
REAR-END	0	0	3	3	0	0	0	1	1	3	0	3	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	2	0	1	1	2	0	0
2018 TOTAL	0	1	5	6	0	1	0	4	1	4	2	6	0	0
YEAR: 2017														
REAR-END	0	4	2	6	0	7	0	2	4	5	1	6	0	0
TURNING MOVEMENTS	0	1	1	2	0	3	0	2	0	2	0	2	0	0
2017 TOTAL	0	5	3	8	0	10	0	4	4	7	1	8	0	0
YEAR: 2016														
PEDESTRIAN	0	2	0	2	0	2	0	2	0	2	0	2	0	0
REAR-END	0	2	3	5	0	3	0	3	1	5	0	5	0	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	1	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2016 TOTAL	0	5	4	9	0	6	0	7	1	8	1	9	0	0
FINAL TOTAL	0	21	14	35	0	31	0	24	7	31	4	35	0	0

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

068 CASCADE HWY NORTH
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Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd)
January 1, 2016 through December 31, 2020

SER#	P INVEST UNLOC?	E A / C O D C J L K	G S W M H R DAY/TIME LAT/LONG	DATE	COUNTY CITY URBAN AREA	RD# CMPT/MLG MILEPNT LRS	FC FIRST STREET SECOND STREET INTERSECTION SEQ#	CONN #	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) INT-REL TRAF-CNTL	OFFRD RNDBT SURF DRVWY	WTHR LIGHT SVRTY	CRASH TYP COLL TYP	SPCL USE TRLR QTY OWNER V#	VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E LICNS RES	S E X	PED LOC ERROR	ACTN EVENT	CAUSE
02639 STATE	N N N N N	N	Mon	05/30/2016 5P	CLACKAMAS	1 MN	14 0		INTER UN	3-LEG N TRF SIGNAL	N CLR DRY	O-1 TURN	L-TURN	01 NONE N/A	9 STRGHT N S								000	02,0400
No	45	27	5.27 -122	34 44.66	PORTLAND UA	7.92	006800100S00		01	0	Y DAY PDO			PSNGR CAR			01 DRVR	NONE	00 U UNK			000	000	00
														02 NONE N/A	9 TURN-L S W								000	00
														PSNGR CAR			01 DRVR	NONE	00 U UNK			000	000	00
04487 NONE	N N N	N	Thu	12/06/2018 7P	CLACKAMAS	1 MN	14 0		INTER UN	CROSS N TRF SIGNAL	N CLR DRY	ANGL ANGL	-OTH	01 NONE N/A	9 STRGHT N S								000	0400
No	45	27	5.27 -122	34 44.67	PORTLAND UA	7.92	006800100S00		03	0	N DLIT PDO			PSNGR CAR			01 DRVR	NONE	00 U UNK			000	000	00
														02 NONE N/A	9 STRGHT W E								000	00
														PSNGR CAR			01 DRVR	NONE	00 U UNK			000	000	00
04387 COUNTY	N N N N N	N	Fri	09/23/2016 4A	CLACKAMAS	1 MN	14 0		INTER UN	3-LEG N TRF SIGNAL	N CLR DRY	S-1STOP SS-O		01 NONE PRVTE	0 STRGHT S N								000	1000
No	45	27	5.27 -122	34 44.66	PORTLAND UA	7.92	006800100S00		06	0	N DLIT INJ			PSNGR CAR			01 DRVR	NONE	00 U UNK			080	000	10
														02 NONE PRVTE	0 STOP S N								011	00
														PSNGR CAR			01 DRVR	NONE	54 F OR-Y OR<25			000	000	00
																	02 PSNG	INJC	34 F			000	000	00
81168 NONE	N N N	N	Wed	02/01/2017 4P	CLACKAMAS	1 MN	14 0		INTER UN	3-LEG N TRF SIGNAL	N RAIN WET	S-1STOP REAR		01 NONE PRVTE	0 STRGHT N S								000	2900
No	45	27	5.27 -122	34 44.66	PORTLAND UA	7.92	006800100S00		06	0	N DAY INJ			PSNGR CAR			01 DRVR	NONE	68 M OR-Y OR<25			026	000	29
														02 NONE PRVTE	0 STOP N E								012	00
														PSNGR CAR			01 DRVR	INJC	26 F OR-Y OR>25			000	000	00
87052 NONE	N N N	Y N	Fri	08/10/2018 7P	CLACKAMAS	1 MN	14 0		INTER UN	CROSS N TRF SIGNAL	N CLR DRY	S-1STOP REAR		01 NONE N/A	9 STRGHT S N								000	2900
No	45	27	5.27 -122	34 44.66	PORTLAND UA	7.92	006800100S00		06	0	N DAY PDO			PSNGR CAR			01 DRVR	NONE	00 U UNK			000	000	00

Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd)
January 1, 2016 through December 31, 2020

SER#	P INVEST UNLOC?	E D	A C	C J	O L	DATE DAY/TIME LAT/LONG	COUNTY CITY URBAN AREA	RD# CMPT/MLG MILEPNT LRS	FC FIRST SECOND INTERSECTION	CONN # STREET STREET SEQ#	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE		
05409	N	N	N			12/18/2017	CLACKAMAS	1	14		INTER	CROSS	N		N	RAIN	S-1STOP	01	NONE	9	STRGHT									29	
NONE				N		Mon	3P	MN	0		N		TRF	SIGNAL	N	WET	REAR	N/A	N	S								000		00	
							PORTLAND UA		7.92		06	0			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	U	UNK		000	000	00	
No		45	27			5.27	-122 34 44.66		006800100S00																						
																		02	NONE	9	STOP								011		00
																		PSNGR	CAR		01	DRVR	NONE	00	U	UNK		000	000	00	
01015	N	N	N	N	N	03/29/2019	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE	0	STRGHT									29	
STATE				N		Fri	4P	MN	0		N		TRF	SIGNAL	N	DRY	REAR	PRVTE	N	S								000		00	
							PORTLAND UA		7.92		06	0			N	DAY	INJ	PSNGR	CAR		01	DRVR	NONE	00	U	UNK		026	000		29
No		45	27			5.27	-122 34 44.66		006800100S00																						
																		02	NONE	0	STOP								011		00
																		PSNGR	CAR		01	DRVR	INJC	50	M	OR-Y		000	000		00
02072	N	N	N			06/21/2019	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE	9	STRGHT									29	
NONE				N		Fri	6P	MN	0		N		TRF	SIGNAL	N	DRY	REAR	N/A	N	S								000		00	
							PORTLAND UA		7.92		06	0			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	U	UNK		000	000		00
No		45	27			5.29	-122 34 44.65		006800100S00																						
																		02	NONE	9	STOP								011		00
																		PSNGR	CAR		01	DRVR	NONE	00	U	UNK		000	000		00
02441	N	N	N			09/06/2020	CLACKAMAS	1	14		INTER	CROSS	N		N	UNK	S-1STOP	01	NONE	0	STRGHT									29	
NONE				N		Sun	4P	MN	0		N		TRF	SIGNAL	N	UNK	REAR	PRVTE	N	S											

Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd)
January 1, 2016 through December 31, 2020

SER#	P E A / C O DATE	COUNTY CITY URBAN AREA	RD# CMPT/MLG MILEPNT LRS FC FIRST SECOND STREET INTERSECTION SEQ# CONN #	INT-TYP (MEDIAN) INT-REL TRAF-CNTL	OFFFRD WTHR CRASH TYP RNDDBT SURF COLL TYP V#	SPCL USE TRLR QTY MOVE FROM TO P#	PRTC INJ SVRTY A S G E LICNS PED LOC ERROR	ACTN EVENT	CAUSE
04500 STATE	N N N N Y 09/30/2016 Fri 3P	CLACKAMAS PORTLAND UA	1 MN 14 0 7.92 006800100S00	INTER S 3-LEG N TRF SIGNAL	N CLR DRY INJ	01 NONE PRVTE TURN-LE S PSNGR CAR	01 DRVR NONE 53 F OR-Y OR<25 029 000 02 00		
No	45 27 5.27 -122 34 44.66			05 0			01 PED INJB 29 F 01 000 035 00		
01806 STATE	Y N Y N N 04/20/2016 Wed 9A	CLACKAMAS PORTLAND UA	1 MN 14 0 7.92 006800100S00	INTER S 3-LEG N TRF SIGNAL	N CLR DRY PDO	01 NONE N/A STRGHT S N PSNGR CAR	01 DRVR NONE 00 U UNK UNK 000 000 01,29 00		
No	45 27 5.27 -122 34 44.66			06 0			02 NONE N/A STOP S N PSNGR CAR	01 DRVR NONE 00 U UNK UNK 000 000 011 00	
85948 NONE	N N N N 05/21/2016 Sat 2P	CLACKAMAS PORTLAND UA	1 MN 14 0 7.92 006800100S00	INTER S 3-LEG N TRF SIGNAL	N CLD WET REAR	01 NONE N/A STRGHT S N PSNGR CAR	01 DRVR NONE 00 U UNK UNK 000 000 29 00		
No	45 27 5.27 -122 34 44.66			06 0			02 NONE N/A STOP S N PSNGR CAR	01 DRVR NONE 00 U UNK UNK 000 000 011 00	
01061 NONE	N N N N 03/18/2017 Sat UNK	CLACKAMAS PORTLAND UA	1 MN 14 0 7.92 006800100S00	INTER S 4-LEG N TRF SIGNAL	N CLR DRY INJ	01 NONE PRVTE STRGHT S N PSNGR CAR	01 DRVR NONE 00 F OR-Y OR<25 026 000 29 00		
No	45 27 5.27 -122 34 44.66			06 0			02 NONE PRVTE STOP S N PSNGR CAR	01 DRVR INJC 49 M OR-Y OR<25 000 000 011 00	
01226 STATE	N Y N N N 03/31/2017 Fri 8P	CLACKAMAS PORTLAND UA	1 MN 14 0 7.92 006800100S00	INTER S CROSS N TRF SIGNAL	N CLD WET PDO	01 NONE N/A STRGHT S N PSNGR CAR	01 DRVR NONE 00 U UNK UNK 000 000 07 00		
No	45 27 5.27 -122 34 44.66			06 0			02 NONE N/A STOP S N PSNGR CAR	01 DRVR NONE 00 U UNK UNK 000 000 011 00	

068 CASCADE HWY NORTH

Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd)
January 1, 2016 through December 31, 2020

[illegible]

068 CASCADE HWY NORTH

Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd)
January 1, 2016 through December 31, 2020

[illegible]

068 CASCADE HWY NORTH

Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd)
January 1, 2016 through December 31, 2020

[illegible]

CDS380	7/7/2022										OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT CONTINUOUS SYSTEM CRASH LISTING																	PAGE: 8								
068 CASCADE HWY NORTH										Intersectional Crashes on SE 82nd Ave, Cascade Hwy (#068) & SE Otty St (Rd) January 1, 2016 through December 31, 2020																										
D R S U P G S W																																				
SER#	E	A	/	C	O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP				SPCL USE																					
INVEST	E	L	M	H	R	DAY/TIME	CITY	CMPT/MLG	FIRST	STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR	QTY	MOVE	A S																
UNLOC?	D	C	J	L	K	LAT/LONG	URBAN AREA	MILEPNT	SECOND	STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED												
								LRS		INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACTN	EVENT	CAUSE					
																				02 NONE 9 TURN-L N/A N E										000 00						
																				PSNGR CAR 01 DRVR NONE 00 U UNK UNK										000 00						
00426	N	N	N			02/01/2020	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	S-1TURN	01	NONE	9	STRGHT											08				
NONE			N			Sat 4P		MN	0		CN		TRF SIGNAL	N	DRY	TURN		N/A		S N											000 00					
										PORTLAND UA 7.92										04 0 N DAY PDO PSNGR CAR 01 DRVR NONE 00 U UNK										000 00						
No	45	27				5.28 -122	34 44.66	006800100S00																												
																				02 NONE 9 TURN-L N/A S W										000 00						
																				PSNGR CAR 01 DRVR NONE 00 U UNK UNK										000 00						
00729	N	N	N	N	N	02/24/2020	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	O-1 L-TURN	01	NONE	0	STRGHT											02,08				
STATE			N			Mon 5P		MN	0		CN		TRF SIGNAL	N	DRY	TURN		PRVTE		S N											000 00					
										PORTLAND UA 7.92										04 0 N DAY INJ PSNGR CAR 01 DRVR INJB 35 F OR-Y										000 00						
No	45	27				5.29 -122	34 44.66	006800100S00																				OR<25								
																				02 NONE 0 TURN-L PRVTE N E										000 00						
																				PSNGR CAR 01 DRVR NONE 38 F OR-Y										028,004 000 02,08						
																														OR<25						
01445	N	N	N	N	N	05/25/2020	CLACKAMAS	1	14		INTER	CROSS	N		N	RAIN	O-1 L-TURN	01	NONE	0	STRGHT											02,08				
STATE			N			Mon 11A		MN	0		CN		TRF SIGNAL	N	WET	TURN		PRVTE		S N											000 00					
										PORTLAND UA 7.92										04 0 N DAY INJ PSNGR CAR 01 DRVR NONE 56 M OR-Y										000 00						
No	45	27				5.31 -122	34 44.66	006800100S00																				OR<25								
																				02 NONE 0 TURN-L PRVTE N E										000 00						
																				PSNGR CAR 01 DRVR INJC 30 M OR-Y										028,004 000 02,08						
																														OR<25						

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST		
ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST		
CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST		
COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST		
CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST			DRIVER RESIDENCE CODE TRANSLATION LIST		
LIC CODE	SHORT DESC	LONG DESCRIPTION	RES CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)	1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
1	OR-Y	VALID OREGON LICENSE	2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY	3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
3	SUSP	SUSPENDED/REVOKED	4	N-RES	NON-RESIDENT
4	EXP	EXPIRED	9	UNK	UNKNOWN IF OREGON RESIDENT
8	N-VAL	OTHER NON-VALID LICENSE			
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH			

ERROR CODE TRANSLATION LIST		
ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNUED FROM WRONG LANE
007	TO WRONG	TURNUED INTO WRONG LANE
008	ILLEG U	U-TURNUED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR	SHORT	
CODE	DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST		
FUNC CLASS	DESCRIPTION	
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE	
02	RURAL PRINCIPAL ARTERIAL - OTHER	
06	RURAL MINOR ARTERIAL	
07	RURAL MAJOR COLLECTOR	
08	RURAL MINOR COLLECTOR	
09	RURAL LOCAL	
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE	
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP	
14	URBAN PRINCIPAL ARTERIAL - OTHER	
16	URBAN MINOR ARTERIAL	
17	URBAN MAJOR COLLECTOR	
18	URBAN MINOR COLLECTOR	
19	URBAN LOCAL	
78	UNKNOWN RURAL SYSTEM	
79	UNKNOWN RURAL NON-SYSTEM	
98	UNKNOWN URBAN SYSTEM	
99	UNKNOWN URBAN NON-SYSTEM	

HIGHWAY COMPONENT TRANSLATION LIST	
CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mlle Point 7.96 through 8.01.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
REAR-END	0	2	0	2	0	3	0	1	1	1	1	0	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	0	1	0	0	0
2020 TOTAL	0	3	0	3	0	4	0	1	2	1	2	0	0	0
YEAR: 2019														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	0	1	0	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	2	0	2	0	0	0	0
2019 TOTAL	0	1	2	3	0	1	0	3	0	2	1	0	0	0
YEAR: 2018														
PEDESTRIAN	0	1	0	1	0	1	0	0	1	1	0	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
2018 TOTAL	0	1	1	2	0	1	0	1	1	2	0	0	0	0
YEAR: 2017														
REAR-END	0	0	2	2	0	0	0	2	0	2	0	0	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	0	0	0
2017 TOTAL	0	1	2	3	0	1	0	3	0	3	0	0	0	0
YEAR: 2016														
REAR-END	0	0	3	3	0	0	0	1	1	1	2	0	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	0	1	0	0	0
2016 TOTAL	0	1	3	4	0	1	0	1	2	1	3	0	0	0
FINAL TOTAL	0	7	8	15	0	8	0	9	5	9	6	0	0	0

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 7.96 through 8.01.
January 1, 2016 through December 31, 2020

SER#	P INVEST UNLOC?	E A / C O D E L M H R C J L K	DATE DAY/TIME LAT/LONG	COUNTY CITY URBAN AREA	RD# CMPT/MLG MILEPNT LRS	FC FIRST STREET SECOND STREET INTERSECTION SEQ#	CONN #	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS TRAF- (#LANES)	INT-REL CNTL	OFFRD WTHR RNDBT SURF DRVWY LIGHT	CRASH TYP COLL TYP SVRTY	SFCL USE TRLR QTY MOVE FROM TO	A S G E E X	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
04808 STATE	Y N N N N N	N Mon 7A	10/17/2016	CLACKAMAS	1 MN	14 0		STRGHT UN	N (NONE)	N UNKNOWN	N RAIN N WET	S-1STOP REAR	01 NONE N/A	9 STRGHT N S				000	01,2900
No	45 27	3.17 -122 34 44.63		PORTLAND UA	7.96	006800100S00		03	(04)		N DAWN PDO		PSNGR CAR		01 DRVR NONE	00 U UNK	000	000	00
													02 NONE N/A	9 STOP N S				011	00
													PSNGR CAR		01 DRVR NONE	00 U UNK	000	000	00
05651 NONE	N N N N N	N Thu 8P	11/24/2016	CLACKAMAS	1 MN	14 0		STRGHT UN	N (NONE)	N UNKNOWN	N UNK N UNK	S-1STOP REAR	01 NONE N/A	9 STRGHT S N				000	2900
No	45 27	3.17 -122 34 44.63		PORTLAND UA	7.96	006800100S00		06	(04)		N DLIT PDO		PSNGR CAR		01 DRVR NONE	00 U UNK	000	000	00
													02 NONE N/A	9 STOP S N				011	00
													PSNGR CAR		01 DRVR NONE	00 U UNK	000	000	00
03417 STATE	N N N N N N	N Wed 5P	12/16/2020	CLACKAMAS	1 MN	14 0		STRGHT UN	N (NONE)	N UNKNOWN	N RAIN N WET	S-1STOP REAR	01 NONE PRVTE	0 STRGHT S N				000	01300
No	45 27	3.17 -122 34 44.63		PORTLAND UA	7.96	006800100S00		06	(04)		N DLIT INJ		PSNGR CAR		01 DRVR NONE	29 M OR-Y OR<25	043	000	07
													02 NONE PRVTE	0 STOP S N				011	01300
													PSNGR CAR		01 DRVR INJC	52 F OR-Y OR<25	000	000	00
													03 NONE PRVTE	0 STOP S N				011	00
													PSNGR CAR		01 DRVR NONE	00 U UNK	000	022	00
03357 STATE	N N N N N N	N Wed 5P	08/16/2017	CLACKAMAS	1 MN	14 0		ALLEY UN	N (NONE)	N L-TURN REF	N CLR N DRY	S-OTHER TURN	01 NONE PRVTE	0 U-TURN N N				000	0800
No	45 27	2.64 -122 34 44.62		PORTLAND UA	7.97	006800100S00		05	(05)		N DAY INJ		PSNGR CAR		01 DRVR NONE	44 M OTH-Y N-RES	008	000	08
													02 NONE PRVTE	0 TURN-L N E				019	00
													PSNGR CAR		01 DRVR INJC	31 M OR-Y OR<25	000	000	00

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 7.96 through 8.01.
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SER#	P	G	S	W	DATE	COUNTY	RD	FC	CONN #	INT-TYP	INT-REL	OFFRD	WTHR	CRASH	TYP	SPCL	USE	MOVE	A	S	PED	CAUSE															
INVEST	E	L	M	H	R	DAY/TIME	CITY	MILEPNT	FIRST	STREET	RD	CHAR	TRAF-	RNDBT	SURF	COLL	TYP	VEH	QTY	OWNER	FROM	TO	P#	TYPE	INJ	SVRTY	E	X	LICNS	RES	LOC	ERROR	ACTN	EVENT	CAUSE		
UNLOC?	D	C	J	L	K	LAT/LONG	URBAN	AREA	LRS	INTERSECTION	SEQ#	DIRECT	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH	TYPE	FROM	TO	P#	TYPE	INJ	SVRTY	E	X	LICNS	RES	LOC	ERROR	ACTN	EVENT	CAUSE	
02118	N	N	N	N	N	08/08/2020	CLACKAMAS	1	14			STRGHT		N		N	CLR	S-1STOP	01	NONE	0	STRGHT														07	
STATE						N Sat 6P		MN	0			UN		(NONE)	NONE		N DRY	REAR			PRVTE	S	N											000		00	
							PORTLAND UA		7.97			06				N DAY	INJ			PSNGR	CAR			01	DRVR	NONE		18	F	OR-Y			043		000		07
No	45	27				2.66 -122	34 44.68		006800100S00					(04)																							
					</																																

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 7.96 through 8.01.
January 1, 2016 through December 31, 2020

SER#	P	G	S	W	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	INT-REL	OFFRD	WTHR	CRASH	TYP	SPCL	USE	MOVE	A	S	PED	CAUSE														
INVEST	E	L	M	H	R	DAY/TIME	CITY	MILEPNT	FIRST	STREET	RD CHAR	(MEDIAN)	LEGS	TRAF-	RNDBT	SURF	COLL	TYP	TRLR	QTY	VEH	TYPE	FROM	TO	P#	TYPE	INJ	SVRTY	E	X	RES	LOC	ERROR	ACTN	EVENT	CAUSE
UNLOC?	D	C	J	L	K	LAT/LONG	URBAN AREA	LRS	INTERSECTION	SEQ#	DIRECT	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH	TYPE	FROM	TO	P#	TYPE	INJ	SVRTY	E	X	RES	LOC	ERROR	ACTN	EVENT	CAUSE			
03494	N	N	N	N	N	09/30/2018	CLACKAMAS	1	14		ALLEY		N		N	CLR	ANGL-OTH	01	NONE	9	TURN-R														02	
STATE		N			Sun	3P		MN	0		UN	(NONE)	NONE		N	DRY	TURN		N/A		E	N											018		00	
						PORTLAND UA		7.98			06				N	DAY	PDO		PSNGR	CAR			01	DRVR	NONE	00	U	UNK		000			000		00	
No	45	27		2.12	-122	34	44.63	006800100S00				(04)																								
																		02	NONE	9	STRGHT													000		00
																		PSNGR	CAR			01	DRVR	NONE	00	U	UNK		000			000		00		
00336	N	N	N	N	N	01/25/2020	CLACKAMAS	1	14		ALLEY		N		N	RAIN	ANGL-OTH	01	NONE	0	STRGHT													27,02		
COUNTY		N			Sat	10P		MN	0		UN	(NONE)	NONE		N	WET	TURN		PRVTE	S	N												000		00	
						PORTLAND UA		7.98			06				N	DARK	INJ		PSNGR	CAR			01	DRVR	INJC	46	M	OR-Y		000			000		00	
No	45	27		2.20	-122	34	44.62	006800100S00				(04)																								
																		02	NONE	0	TURN-R													018		00
																		PSNGR	CAR			01	DRVR	NONE	17	F	OR-Y		028			000		02		
01382	N	N	N			04/05/2018	CLACKAMAS	1	14		ALLEY		N		N	CLD	PED	01	NONE	0	TURN-R													02,27		
STATE		N			Thu	3P		MN	0		UN	(NONE)	UNKNOWN		N	WET	PED		PRVTE	W	S												015		00	
						PORTLAND UA		7.99			01				N	DAY	INJ		PSNGR	CAR			01	DRVR	NONE	29	M	OR-Y		029			038		02	
No	45	27		1.59	-122	34	44.61	006800100S00				(04)																								

068 CASCADE HWY NORTH
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Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 7.96 through 8.01.
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SER#	INVEST UNLOC?	P E D	A L M J	S W H R K	DATE DAY/TIME LAT/LONG	COUNTY CITY URBAN AREA	RD# CMPT/MLG MILEPNT LRS	FC FIRST STREET SECOND INTERSECTION SEQ#	CONN #	STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) TRAF- (#LANES)	INT-REL	OFFRD RDNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	TYP	V#	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PTC TYPE	INJ SVRTY	A G E LICNS RES	S X	PED LOC ERROR	ACTN	EVENT	CAUSE	
01657 COUNTY No	N N N N N N	N N N N N N	N N N N N N	N N N N N N	05/21/2019 Tue 5P 1.60 -122 34 44.61	CLACKAMAS PORTLAND UA	1 MN 7.99	14 0			ALLEY UN 05	N (NONE) (04)	N NONE	N N	CLR DRY DAY	ANGLED TURN	OTH		01	NONE N/A PSNGR CAR	9 STRIGHTS N	TURN-L W N	01	DRVR	NONE	00 U UNK	000	000	00	00
																			02	NONE N/A PSNGR CAR	9 STRIGHTS N		01	DRVR	NONE	00 U UNK	000	000	00	00

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST		
ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST		
CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST		
COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST		
CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST			DRIVER RESIDENCE CODE TRANSLATION LIST		
LIC CODE	SHORT DESC	LONG DESCRIPTION	RES CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)	1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
1	OR-Y	VALID OREGON LICENSE	2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY	3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
3	SUSP	SUSPENDED/REVOKED	4	N-RES	NON-RESIDENT
4	EXP	EXPIRED	9	UNK	UNKNOWN IF OREGON RESIDENT
8	N-VAL	OTHER NON-VALID LICENSE			
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH			

ERROR CODE TRANSLATION LIST		
ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNUED FROM WRONG LANE
007	TO WRONG	TURNUED INTO WRONG LANE
008	ILLEG U	U-TURNUED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST		
FUNC CLASS	DESCRIPTION	
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE	
02	RURAL PRINCIPAL ARTERIAL - OTHER	
06	RURAL MINOR ARTERIAL	
07	RURAL MAJOR COLLECTOR	
08	RURAL MINOR COLLECTOR	
09	RURAL LOCAL	
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE	
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP	
14	URBAN PRINCIPAL ARTERIAL - OTHER	
16	URBAN MINOR ARTERIAL	
17	URBAN MAJOR COLLECTOR	
18	URBAN MINOR COLLECTOR	
19	URBAN LOCAL	
78	UNKNOWN RURAL SYSTEM	
79	UNKNOWN RURAL NON-SYSTEM	
98	UNKNOWN URBAN SYSTEM	
99	UNKNOWN URBAN NON-SYSTEM	

HIGHWAY COMPONENT TRANSLATION LIST	
CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
STATE HIGHWAY SYSTEM CRASH LOCATIONS - DRIVER BEHAVIOR FORMAT

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 7.96 through 8.01.
January 1, 2016 through December 31, 2020

SERIAL NO	DATE	T I M E	D A Y	*COUNTY OR CITY NAME	M C O U N T Y	P L O C A T I O N	CRASH LOCATION	COLL TYPE	EVENT	CAUSE	ERROR	S E R I E S	V E H I C L E	TYP/OWN #1 #2	--PEOPLE--				S E R I E S
															L	I	A	P	
04808	10/17/2016	7A	MO	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.96	REAR		01,29		WET	2	010 010	0	0	N	Y	
05651	11/24/2016	8P	TH	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.96	REAR		29		UNK	2	010 010	0	0	N	N	
03417	12/16/2020	5P	WE	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.96	REAR	013	07	043	WET	3	011 011	0	1	N	N	
00992	03/26/2019	11P	TU	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.97	PED		02,19	029	DRY	1	011	0	1	N	N	
02118	08/08/2020	6P	SA	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.97	REAR		07	043	DRY	2	011 011	0	2	N	N	
03357	08/16/2017	5P	WE	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.97	TURN		08	008	DRY	2	011 011	0	1	N	N	
01969	05/21/2017	12P	SU	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.98	REAR		29		DRY	2	010 010	0	0	N	N	
00777	02/18/2016	6P	TH	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.98	TURN		02	028,004	WET	2	011 019	0	1	N	N	
03494	09/30/2018	3P	SU	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.98	TURN		02		DRY	2	010 010	0	0	N	N	
01934	06/11/2019	1P	TU	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.98	TURN		02,08		DRY	2	010 010	0	0	N	N	
00336	01/25/2020	10P	SA	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.98	TURN		27,02	028	WET	2	011 011	0	1	N	N	
01382	04/05/2018	3P	TH	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.99	PED		02,27	029	WET	1	011	0	1	N	N	
05548	10/25/2016	11A	TU	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.99	REAR		29		DRY	2	010 010	0	0	N	N	
03991	09/26/2017	4P	TU	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.99	REAR		29		DRY	2	010 010	0	0	N	N	
01657	05/21/2019	5P	TU	*Clackamas	MN	R	HY 068, CASCADE HWY NORTH AT MP 7.99	TURN		02		DRY	2	010 010	0	0	N	N	

VEHICLE OWNERSHIP CODES

Code	Short Description	Long Description
0	N/A	Not collected for PDO Crashes
1	PRVTE	Private
2	GOVMT	Government
3	PUBLC	Public
4	RENTL	Rental vehicle
5	STOLN	Stolen vehicle
9	UNKN	Unknown ownership

VEHICLE TYPE CODES

Code	Short Description	Long Description
00	PDO	Not collected for PDO Crashes
01	PSNGR CAR	Passenger car, pickup, light delivery, etc.
02	BOBTAIL	Truck tractor with no trailers (bobtail)
03	FARM TRCTR	Farm tractor or self-propelled farm equipment
04	SEMI TOW	Truck Tractor with trailer/mobile home in tow
05	TRUCK	Truck with non-detachable bed, panel, etc.
06	MOPED	Moped, minibike, seated motor scooter, motor bike
07	SCHL BUS	School bus (includes van)
08	OTH BUS	Other bus
09	MTRCYCLE	Motorcycle, dirt bike
10	OTHER	Other: forklift, backhoe, etc.
11	MOTRHOME	Motorhome
12	TROLLEY	Motorized Street Car/Trolley (no rails/wires)
13	ATV	ATV
14	MTRSCTR	Motorized scooter (standing)
15	SNOWMOBILE	Snowmobile
99	UNKNOWN	Unknown vehicle type

CAUSE CODES

Code	Short Description	Medium Description	Long Description	Code Termination Date
00	NO CODE	NO CODE APPLICABLE	No cause associated at this level	
01	TOO-FAST	TOO FAST FOR COND	Too fast for conditions (not exceed posted speed)	
02	NO-YIELD	FAILED YIELD ROW	Did not yield right-of-way	
03	PAS-STOP	PASSED STOP SIGN	Passed stop sign or red flasher	
04	DIS SIG	DISREGRD TRAF SIGNAL	Disregarded traffic signal	
05	LEFT-CTR	LEFT OF CTR/STRADDLE	Drove left of center on two-way road; straddling	
06	IMP-OVER	IMPROPER PASSING	Improper overtaking	
07	TOO-CLOS	FOLLOW TOO CLOSE	Followed too closely	
08	IMP-TURN	IMPROPER TURN	Made improper turn	
09	DRINKING	ALC OR DRUGS	Alcohol or Drug Involved	12/31/2002
10	OTHR-IMP	OTHER DRIVE ERR	Other improper driving	
11	MECH-DEF	MECH DEFECT	Mechanical defect	
12	OTHER	OTHER	Other (not improper driving)	
13	IMP LN C	IMP LANE CHANGE	Improper change of traffic lanes	
14	DIS TCD	DISRG OTHR TCD	Disregarded other traffic control device	
15	WRNG WAY	WRONG WAY / 1-WAY RD	Wrong way on one-way road; wrong side divided road	
16	FATIGUE	DRIVER FATIGUED	Driver drowsy/fatigued/sleepy	
17	ILLNESS	PHYSICAL ILLNESS	Physical illness	
18	IN RDWY	ILLEGALLY IN RDWY	Non-motorist illegally in roadway	
19	NT VISBL	NOT VISIBLE	Non-motorist not visible; non-reflective clothing	
20	IMP PKNG	IMPROPER PARKING	Vehicle improperly parked	
21	DEF STER	DEFECTIVE STEERING	Defective steering mechanism	
22	DEF BRKE	DEFECTIVE BRAKES	Inadequate or no brakes	
24	LOADSHFT	LOAD SHIFTED	Vehicle lost load or load shifted	
25	TIREFAIL	TIRE FAILURE	Tire Failure	
26	PHANTOM	PHANTOM VEHICLE	Phantom / Non-contact Vehicle	
27	INATTENT	INATTENTION	Inattention	
28	NM INATT	NON-MTRST INATTENT	Non-Motorist Inattention	
29	F AVOID	FAIL AVOID VEH AHEAD	Failed to avoid vehicle ahead	
30	SPEED	EXCED POSTED SPEED	Driving in excess of posted speed	
31	RACING	SPEED RACING	Speed Racing (per PAR)	
32	CARELESS	CARELESS DRIVING	Careless Driving (per PAR)	
33	RECKLESS	RECKLESS DRIVING	Reckless Driving (per PAR)	
34	AGGRESV	AGGRESSIVE DRIVING	Aggressive Driving (per PAR)	
35	RD RAGE	ROAD RAGE	Road Rage (per PAR)	
40	VIEW OBS	VIEW OBSCURED	View obscured	
50	USED MDN	IMP USE MEDIAN/SHLDR	Improper use of median or shoulder	
51	FAIL LN	F MAINT LANE	Failed to maintain lane	12/31/2015
52	OFF RD	RAN OFF RD	Ran off road	12/31/2015

ERR CODES

Code	Short Description	Medium Description	Long Description
000	NONE	NO ERROR	No error
001	WIDE TRN	WIDE TURN	Wide turn
002	CUT CORN	CUT CORNER	Cut corner on turn
003	FAIL TRN	F OBEY TRN	Failed to obey mandatory traffic turn signal, sign or lane markings
004	L IN TRF	LTRN FNT TRAF	Left turn in front of oncoming traffic
005	L PROHIB	LTRN PROHIB	Left turn where prohibited
006	FRM WRNG	T FRM WRNG LN	Turned from wrong lane
007	TO WRONG	T TO WRONG LN	Turned into wrong lane
008	ILLEG U	ILLEG U-TURN	U-turned illegally
009	IMP STOP	IMP STOP	Improperly stopped in traffic lane
010	IMP SIG	IMP/FAIL SIG	Improper signal or failure to signal
011	IMP BACK	IMP BACKING	Backing improperly (not parking)
012	IMP PARK	IMP PARKED	Improperly parked
013	UNPARK	IMP STRT PARK	Improper start leaving parked position
014	IMP STRT	IMP STRT STOP	Improper start from stopped position
015	IMP LGHT	IMP/NO LIGHTS	Improper or no lights (vehicle in traffic)
016	INATTENT	INATTENTION	Inattention (Failure to Dim Lights prior to 4/1/97)
017	UNSF VEH	DR UNSAFE VEH	Driving unsafe vehicle (no other error apparent)
018	OTH PARK	PRK MAN N/CLR	Entering/exiting parked position w/ insufficient clearance; other improper parking maneuver
019	DIS DRIV	DISRG DR SIG	Disregarded other driver's signal
020	DIS SGNL	DISRG TRF SIG	Disregarded traffic signal
021	RAN STOP	DISRG STP SGN	Disregarded stop sign or flashing red
022	DIS SIGN	DISRG WRN SGN	Disregarded warning sign, flares or flashing amber
023	DIS OFCR	DISRG POL/FLG	Disregarded police officer or flagman
024	DIS EMER	DISRG SIR/EMR	Disregarded siren or warning of emergency vehicle
025	DIS RR	DISRG RR SIG	Disregarded RR signal, RR sign, or RR flagman
026	REAR-END	F AVOID STP V	Failed to avoid stopped or parked vehicle ahead other than school bus
027	BIKE ROW	F/YLD ROW BIK	Did not have right-of-way over pedalcyclist
028	NO ROW	NO R-O-W	Did not have right-of-way
029	PED ROW	F/YLD ROW PED	Failed to yield right-of-way to pedestrian
030	PAS CURV	PASS ON CURVE	Passing on a curve
031	PAS WRNG	PASS WRNG SID	Passing on the wrong side
032	PAS TANG	PASS TANGENT	Passing on straight road under unsafe conditions
033	PAS X-WK	PASS STP4PED	Passed vehicle stopped at crosswalk for pedestrian
034	PAS INTR	PASS AT INTER	Passing at intersection
035	PAS HILL	PASS ON HILL	Passing on crest of hill
036	N/PAS ZN	PASS N/PASSNG	Passing in "No Passing" zone
037	PAS TRAF	PASS ONC TRAF	Passing in front of oncoming traffic
038	CUT-IN	CUTTING IN	Cutting in (two lanes - two way only)
039	WRNGSIDE	DR WRONG SIDE	Driving on wrong side of the road (2-way undivided roadways)
040	THRU MED	DR THRU MEDN	Driving through safety zone or over island
041	F/ST BUS	F/STP SCHLBUS	Failed to stop for school bus
042	F/SLO MV	F/SLO SLO VEH	Failed to decrease speed for slower moving vehicle
043	TOO CLOSE	FOLLW TO CLOS	Following too closely (must be on officer's report)
044	STRDL LN	STRD/DR WRNG	Straddling or driving on wrong lanes
045	IMP CHG	IMP LANE CHG	Improper change of traffic lanes

ERR CODES

Code	Short Description	Medium Description	Long Description
046	WRNG WAY	WRNG WY/1 WAY	Wrong way on one-way roadway; wrong side divided road
047	BASCRULE	V BASIC RULE	Driving too fast for conditions (not exceeding posted speed)
048	OPN DOOR	OPN DOOR TRAF	Opened door into adjacent traffic lane
049	IMPEDING	IMPEDING TRAF	Impeding Traffic
050	SPEED	SPEED	Driving in excess of posted speed
051	RECKLESS	RECKLSS DRVNG	Reckless driving (per PAR)
052	CARELESS	CARELSS DRVNG	Careless driving (per PAR)
053	RACING	RACING	Speed Racing (per PAR)
054	X N/SGNL	X-INT NO SGNL	Crossing at intersection, no traffic signal present
055	X W/SGNL	X-INT W/ SGNL	Crossing at intersection, traffic signal present
056	DIAGONAL	X-INT DIAGNL	Crossing at intersection - diagonally
057	BTWN INT	X-BTWN INTER	Crossing between intersections
059	W/TRAF-S	W SHLD W/TRAF	Walking, running, riding, etc., on shoulder WITH traffic
060	A/TRAF-S	W SHLD A/TRAF	Walking, running, riding, etc., on shoulder FACING traffic
061	W/TRAF-P	W PAVE W/TRAF	Walking, running, riding, etc., on pavement WITH traffic
062	A/TRAF-P	W PAVE A/TRAF	Walking, running, riding, etc., on pavement FACING traffic
063	PLAYINRD	PLAY IN RDWY	Playing in street or road
064	PUSH MV	PUSH MV IN RD	Pushing or working on vehicle in road or on shoulder
065	WORK IN RD	WORK IN RD	Working in roadway or along shoulder
070	LAY ON RD	LYING IN RD	Standing or lying in roadway
071	NM IMP USE	N-M IMP USE	Improper use of traffic lane by non-motorist
073	ELUDING	ELUDING	Eluding / Attempt to elude
079	F NEG CURV	FAIL NEG CURV	Failed to negotiate a curve
080	FAIL LN	F MAINT LANE	Failed to maintain lane
081	OFF RD	RAN OFF RD	Ran off road
082	NO CLEAR	MISJUDGE CLR	Driver misjudged clearance
083	OVRSTEER	OVERSTEER	Over-correcting
084	NOT USED	NOT USED	Code not in use
085	OVRLOAD	OVERLOAD	Overloading or improper loading of vehicle with cargo or passengers
097	UNA DIS TC	UNA DISRG TCD	Unable to determine which driver disregarded traffic control device

EVENT CODES

Code	Short Description	Medium Description	Long Description
001	FEL/JUMP	FELL/JUMPED MV	Occupant fell, jumped or was ejected from moving vehicle
002	INTERFER	PSNGR INTERFERED	Passenger interfered with driver
003	BUG INTF	ANML INTERFERED	Animal or insect in vehicle interfered with driver
004	INDRCT PED	PED INDRCTLY INVLV	Pedestrian indirectly involved (not struck)
005	SUB-PED	SUBSEQUENT PED	"Sub-Ped": pedestrian injured subsequent to collision, etc.
006	INDRCT BIK	BIKE INDRCTLY INVLV	Pedalcyclist indirectly involved (not struck)
007	HITCHIKR	HITCHHIKER	Hitchhiker (soliciting a ride)
008	PSNGR TOW	PSNGR TOWED	Passenger or non-motorist being towed or pushed on conveyance
009	ON/OFF V	ON/OFF STOP VEH	Getting on/off stopped/parked vehicle (occupants only; must have physical contact w/ vehicle)
010	SUB OTRN	SUBSEQ OVERTURN	Overtuned after first harmful event
011	MV PUSHD	VEH BEING PUSHED	Vehicle being pushed
012	MV TOWED	VEH TOWED/TOWING	Vehicle towed or had been towing another vehicle
013	FORCED	FORCED BY IMPACT	Vehicle forced by impact into another vehicle, pedalcyclist or pedestrian
014	SET MOTN	MV SET IN MOTION	Vehicle set in motion by non-driver (child released brakes, etc.)
015	RR ROW	RAILROAD ROW	At or on railroad right-of-way (not Light Rail)
016	LT RL ROW	LIGHT RAIL ROW	At or on Light-Rail right-of-way
017	RR HIT V	TRAIN HIT VEH	Train struck vehicle
018	V HIT RR	VEH HIT TRAIN	Vehicle struck train
019	HIT RR CAR	VEH HIT RR CAR	Vehicle struck railroad car on roadway
020	JACKNIFE	JACKKNIFE	Jackknife; trailer or towed vehicle struck towing vehicle
021	TRL OTRN	TRAILER O'TURN	Trailer or towed vehicle overturned
022	CN BROKE	TRLR CONN BROKE	Trailer connection broke
023	DETACH TRL	DETCHD TRLR STRKNG	Detached trailing object struck other vehicle, non-motorist, or object
024	V DOOR OPN	V DOOR OPN IN TRAF	Vehicle door opened into adjacent traffic lane
025	WHEELOFF	WHEEL CAME OFF	Wheel came off
026	HOOD UP	HOOD FLEW UP	Hood flew up
028	LOAD SHIFT	LOAD SHIFTED	Lost load, load moved or shifted
029	TIREFAIL	TIRE FAILURE	Tire failure
030	PET	PET	Pet: cat, dog and similar
031	LVSTOCK	LIVESTOCK	Stock: cow, calf, bull, steer, sheep, etc.
032	HORSE	HORSE	Horse, mule, or donkey
033	HRSE&RID	HORSE & RIDER	Horse and rider
034	GAME	GAME NO DEER/ELK	Wild animal, game (includes birds; not deer or elk)
035	DEER ELK	DEER OR ELK	Deer or elk, wapiti
036	ANML VEH	ANIMAL-DRAWN VEH	Animal-drawn vehicle
037	CULVERT	CULVERT/MANHOLE	Culvert, open low or high manhole
038	ATENUATN	IMPACT CUSHION	Impact attenuator
039	PK METER	PARKING METER	Parking meter
040	CURB	CURB	Curb (also narrow sidewalks on bridges)
041	JIGGLE	JIGGLE BAR N/MED	Jiggle bar or traffic snake for channelization

EVENT CODES

Code	Short Description	Medium Description	Long Description
042	GDRL END	GUARDRAIL END	Leading edge of guardrail
043	GARDRAIL	GUARDRAIL	Guard rail (not metal median barrier)
044	BARRIER	MEDIAN BARRIER	Median barrier (raised or metal)
045	WALL	WALL	Retaining wall or tunnel wall
046	BR RAIL	BRIDGE RAIL	Bridge railing or parapet (on bridge or approach)
047	BR ABUTMNT	BRIDGE ABUTMENT	Bridge abutment (included "approach end" thru 2013)
048	BR COLUMN	BRIDGE COLUMN	Bridge pillar or column
049	BR GIRDR	BRIDGE GIRDER	Bridge girder (horizontal bridge structure overhead)
050	ISLAND	TRAFFIC ISLAND	Traffic raised island
051	GORE	GORE	Gore
052	POLE UNK	POLE-UNKNOWN	Pole – type unknown
053	POLE UTL	POLE-UTILITY	Pole – power or telephone
054	ST LIGHT	POLE-ST LIGHT	Pole – street light only
055	TRF SGNL	POLE-TRAF SIGNAL	Pole – traffic signal and ped signal only
056	SGN BRDG	POLE-SIGN BRIDGE	Pole – sign bridge
057	STOPSIGN	STOP/YIELD SIGN	Stop or yield sign
058	OTH SIGN	OTHER SIGN	Other sign, including street signs
059	HYDRANT	HYDRANT	Hydrant
060	MARKER	DELINEATOR	Delineator or marker (reflector posts)
061	MAILBOX	MAILBOX	Mailbox
062	TREE	TREE/STUMP	Tree, stump or shrubs
063	VEG OHED	VEGTN OVER RDWY	Tree branch or other vegetation overhead, etc.
064	WIRE/CBL	CABLE ACROSS RD	Wire or cable across or over the road
065	TEMP SGN	TEMP SIGN/BARR	Temporary sign or barricade in road, etc.
066	PERM SGN	PERM SIGN/BARR	Permanent sign or barricade in/off road
067	SLIDE	SLIDE/ROCKS	Slides, fallen or falling rocks
068	FRGN OBJ	FOREIGN OBJECT	Foreign obstruction/debris in road (not gravel)
069	EQP WORK	EQUIP WORKING	Equipment working in/off road
070	OTH EQP	OTHER EQUIPMENT	Other equipment in or off road (includes parked trailer, boat)
071	MAIN EQP	MAINTNCE EQUIP	Wrecker, street sweeper, snow plow or sanding equipment
072	OTHER WALL	OTHER WALL	Rock, brick or other solid wall
073	IRRGL PVMT	IRREGULAR PAVEMENT	Other bump (not speed bump), pothole or pavement irregularity (per PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJ	Other overhead object (highway sign, signal head, etc.); not bridge
075	CAVE IN	CAVE IN	Bridge or road cave in
076	HI WATER	HIGH WATER	High Water
077	SNO BANK	SNOW BANK	Snow Bank
078	LO-HI EDGE	LOW-HIGH PVMNT EDGE	Low or high shoulder at pavement edge
079	DITCH	CUT SLOPE/DITCH	Cut slope or ditch embankment
080	OBJ FRM MV	OBJ FRM OTHR VEH	Struck by rock or other object set in motion by other vehicle (incl. lost loads)
081	FLY-OBJ	OTHER MOVING OBJ	Struck by rock or other moving or flying object (not set in motion by vehicle)
082	VEH HID	VEH OBSCURE VIEW	Vehicle obscured view
083	VEG HID	VEG OBSCURE VIEW	Vegetation obscured view
084	BLDG HID	BLD OBSCURE VIEW	View obscured by fence, sign, phone booth, etc.

EVENT CODES

Code	Short Description	Medium Description	Long Description
085	WIND GUST	WIND GUST	Wind Gust
086	IMMERSED	IMMERSION	Vehicle immersed in body of water
087	FIRE/EXP	FIRE/EXPLOSION	Fire or explosion
088	FENC/BLD	FENCE/BUILDING	Fence or building, etc.
089	OTHR CRASH	REFER OTHR CRASH	Crash related to another separate crash
090	TO 1 SIDE	TWO WAY ONE SIDE	Two-way traffic on divided roadway all routed to one side
091	BUILDING	BUILDING	Building or other structure
092	PHANTOM	PHANTOM VEH	Other (phantom) non-contact vehicle
093	CELL PHONE	CELL PHONE PER PAR	Cell phone (on PAR or driver in use)
094	VIOL GDL	VIOL GRAD DR LIC	Teenage driver in violation of graduated license pgm
095	GUY WIRE	GUY WIRE	Guy wire
096	BERM	BERM	Berm (earthen or gravel mound)
097	GRAVEL	GRAVEL IN RDWY	Gravel in roadway
098	ABR EDGE	ABRUPT EDGE	Abrupt edge
099	CELL WTNSD	CELL PHONE WITNESSED	Cell phone use witnessed by other participant
100	UNK FIXD	UNK FIX OBJ	Fixed object, unknown type.
101	OTHER OBJ	OTHER OBJ NOT FIXED	Non-fixed object, other or unknown type
102	TEXTING	TEXTING	Texting
103	WZ WORKER	WZ WORKER	Work Zone Worker
104	ON VEHICLE	RIDE ON VEH EXTERIOR	Passenger riding on vehicle exterior
105	PEDAL PSGR	PSNGR ON PEDALCYCLE	Passenger riding on pedalcycle
106	MAN WHLCHR	NONMOTOR WHEELCHAIR	Pedestrian in non-motorized wheelchair
107	MTR WHLCHR	MOTORIZED WHEELCHAIR	Pedestrian in motorized wheelchair
108	OFFICER	POLICE OFFICER	Law Enforcement / Police Officer
109	SUB-BIKE	SUBSEQUENT BICYCLIST	"Sub-Bike": pedalcyclist injured subsequent to collision, etc.
110	N-MTR	NM STR VEH	Non-motorist struck vehicle
111	S CAR VS V	ST CAR STRUCK VEH	Street Car/Trolley (on rails or overhead wire system) struck vehicle
112	V VS S CAR	VEH STRUCK ST CAR	Vehicle struck Street Car/Trolley (on rails or overhead wire system)
113	S CAR ROW	STREET CAR ROW	At or on street car or trolley right-of-way
114	RR EQUIP	VEH STRUCK RR EQUIP	Vehicle struck railroad equipment (not train) on tracks
115	DSTRCT GPS	DISTRACT GPS DEVICE	Distracted by navigation system or GPS device
116	DSTRCT OTH	DISTRACT OTHR DEVICE	Distracted by other electronic device
117	RR GATE	RR DROP-ARM GATE	Rail crossing drop-arm gate
118	EXPNSN JNT	EXPANSION JOINT	Expansion joint
119	JERSEY BAR	JERSEY BARRIER	Jersey barrier
120	WIRE BAR	WIRE BARRIER	Wire or cable median barrier
121	FENCE	FENCE	Fence
123	OBJ IN VEH	LOOSE OBJ IN VEHICLE	Loose object in vehicle struck occupant
124	SLIPPERY	SLIPPERY SURFACE	Sliding or swerving due to wet, icy, slippery or loose surface (not gravel)
125	SHLDR	SHLDR GAVE	Shoulder gave way
126	BOULDER	ROCKS / BOULDER	Rock(s), boulder (not gravel; not rock slide)
127	LAND SLIDE	ROCK OR LAND SLIDE	Rock slide or land slide
128	CURVE INV	CURVE PRESENT	Curve present at crash location

EVENT CODES

Code	Short Description	Medium Description	Long Description
129	HILL INV	HILL PRESENT	Vertical grade / hill present at crash location
130	CURVE HID	CURVE OBSCURED VIEW	View obscured by curve
131	HILL HID	HILL OBSCURED VIEW	View obscured by vertical grade / hill
132	WINDOW HID	WINDOW VIEW OBSCURED	View obscured by vehicle window conditions
133	SPRAY HID	SPRAY OBSCURED VIEW	View obscured by water spray
134	TORRENTIAL	TORRENTIAL RAIN	Torrential Rain (exceptionally heavy rain)
135	RAIL OCC	RAIL/CABLE CAR OCC	Injured occupant of railway train, light rail, street car or cable car

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 8.02 through 8.06. Excludes Intersectional crashes at SE Glencoe Rd.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
TURNING MOVEMENTS	0	2	0	2	0	3	0	1	1	2	0	0	0	0
2020 TOTAL	0	2	0	2	0	3	0	1	1	2	0	0	0	0
YEAR: 2019														
REAR-END	0	1	0	1	0	3	0	1	0	1	0	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	0	0	0
2019 TOTAL	0	1	1	2	0	3	0	2	0	1	1	0	0	0
YEAR: 2017														
PEDESTRIAN	0	2	0	2	0	2	0	2	0	0	2	0	0	0
REAR-END	0	1	1	2	0	1	0	2	0	2	0	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	0	0	0
2017 TOTAL	0	3	2	5	0	3	0	5	0	2	3	0	0	0
YEAR: 2016														
REAR-END	0	2	2	4	0	5	0	3	1	4	0	0	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	1	0	0	0	0
2016 TOTAL	0	2	3	5	0	5	0	3	2	5	0	0	0	0
FINAL TOTAL	0	8	6	14	0	14	0	11	3	10	4	0	0	0

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

068 CASCADE HWY NORTH										Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 8.02 through 8.06. Excludes Intersectional crashes at SE Glencoe Rd. January 1, 2016 through December 31, 2020															
D R S U P G S W																									
SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE																	
INVEST	E L M H R	DAY/TIME	CITY	CMPT/MLG	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR QTY	MOVE												
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	MILEPNT	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	OWNER	FROM	PRTC	INJ	A S	G E	LICNS	PED						
				LRS	INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E X	RES	LOC	ERROR	ACTN	EVENT	CAUSE
02173	N N N N N	05/14/2016	CLACKAMAS	1	14		N			N RAIN	S-1STOP	01	NONE	9	STRGHT								093	27,07	
STATE	N	Sat	2P	MN	0		(NONE)	UNKNOWN		N WET	REAR		N/A		N S							000		00	
PORTLAND UA				8.02		03				N DAY	PDO		PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000	00	
No	45	27	0.02 -122 34 44.52	006800100S00			(04)																		
								02	NONE	9	STOP											011	00		
								N/A	N S																
								PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000			00				
01475	N N N N N	03/31/2016	CLACKAMAS	1	14		N			N CLR	S-1STOP	01	NONE	0	STRGHT								27,07		
STATE	N	Thu	10A	MN	0		(NONE)	L-TURN REF		N DRY	REAR		PRVTE		N S							000		00	
PORTLAND UA				8.02		04				N DAY	INJ		PSNGR	CAR		01	DRVR	NONE	23	F	OR-Y	016,043,026	038	27,07	
No	45	27	0.02 -122 34 44.52	006800100S00			(05)																		
								02	NONE	0	STOP											011	00		
								PRVTE	N S																
								PSNGR	CAR		01	DRVR	INJC	55	F	OR-Y	000	000			00				
								02	PSNG	INJC	69	F									000	000	00		
								03	PSNG	INJC	76	F									000	000	00		
03423	N N N N N	07/28/2016	CLACKAMAS	1	14		N			N CLR	S-1STOP	01	NONE	9	STRGHT								29,06,13		
STATE	N	Thu	12P	MN	0		(NONE)	UNKNOWN		N DRY	REAR		N/A		N S							000		00	
PORTLAND UA				8.02		04				N DAY	PDO		PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000	00	
No	45	27	0.02 -122 34 44.52	006800100S00			(04)																		
								02	NONE	9	STOP											011	00		
								N/A	N S																
								PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000			00				
02792	N N N N N	07/13/2017	CLACKAMAS	1	14		N			N CLR	S-1STOP	01	NONE	0	STRGHT								013	07	
STATE	N	Thu	4P	MN	0		(NONE)	UNKNOWN		N DRY	REAR		PRVTE		N S							000		00	
PORTLAND UA				8.02		04				N DAY	INJ		PSNGR	CAR		01	DRVR	NONE	45	M	OR-Y	043,026	000	07	
No	45	27	0.02 -122 34 44.52	006800100S00			(04)																		
								02	NONE	0	STOP											011	013		
								PRVTE	N S																
								PSNGR	CAR		01	DRVR	INJC	42	F	OTH-Y	000	000			00				
								03	NONE	0	STOP											022	00		
								PRVTE	N S																
								PSNGR	CAR		01	DRVR	NONE	55	M	OR-Y	000	000			00				

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 8.02 through 8.06. Excludes Intersectional crashes at SE Glencoe Rd.
January 1, 2016 through December 31, 2020

SER#	INVEST UNLOC?	P E D C	G L M J	S H R L K	W O DATE DAY/TIME LAT/LONG	COUNTY CITY URBAN AREA	RD# CMPT/MILEPNT LRS	FC MLG	CONN # FIRST STREET SECOND INTERSECTION SEQ#	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDDBT DRVWY	WTHR SURF LIGHT	CRASH COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	A PRTC INJ G E LICNS PED LOC ERROR	S X RES	ACTN EVENT	CAUSE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
00577 STATE		N	N	N	N	N	02/12/2017 Sun 7P		CLACKAMAS	1 MN	14 0		ALLEY UN	(NONE)	N STOP SIGN	N CLR DRY	ANGLED TURN	01 NONE N/A	9 STRGHT S N																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

068 CASCADE HWY NORTH

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 8.02 through 8.06. Excludes Intersectional crashes at SE Glencoe Rd.
January 1, 2016 through December 31, 2020

SER#	INVEST UNLOC?	P D C	G A J	S M L	W H K	DATE DAY/TIME	COUNTY CITY	RD# CLACKAMAS	FC PORTLAND UA	CONN # FIRST STREET	INT-TYP (MEDIAN)	INT-REL TRAF-CNTL	OFFRD RNDDBT	WTHR SURF LIGHT	CRASH COLL TYP SVRVTY	SPCL USE OWNER	TRLR QTY VEH TYPE	MOVE FROM TO	A G E	S X RES	LICNS PED LOC	ERROR ERROR	ACTN EVENT	CAUSE CAUSE
03049 STATE	N N N N N	N	09/04/2019	Wed	9A	CLACKAMAS	1 MN	14 0	STRGHT UN	(NONE)	N NONE	N N	CLR DRY	S-STRGHT REAR	01 NONE PRVTE	0 STRGHT N S	PSNGR CAR	01 DRVR INJC	21 F OR-Y	OR<25	043,042	000	07,29 00	
No	45	26	58.98	-122	34	44.45	006800100S00	8.04	03	(04)	N NONE	N N	DAY INJ	PSNGR CAR	01 DRVR INJC	21 M OR-Y	OR<25	000	000	000	000	000	07,29 00	
00541 STATE	N N N N N	N	01/30/2016	Sat	2P	CLACKAMAS	1 MN	14 0	ALLEY UN	(NONE)	N STOP SIGN	N N	CLD WET	ANGL-OTH TURN	01 NONE N/A	9 STRGHT S N	PSNGR CAR	01 DRVR NONE	00 U UNK	UNK	000	000	02,08 00	
No	45	26	58.97	-122	34	44.44	006800100S00	8.04	05	(04)	N NONE	N N	DAY PDO	PSNGR CAR	01 DRVR NONE	00 U UNK	UNK	000	000	000	000	000	000	00
01617 STATE	N N N N N	N	04/09/2016	Sat	5P	CLACKAMAS	1 MN	14 0	STRGHT UN	(NONE)	N L-TURN REF	N N	CLR DRY	S-1STOP REAR	01 NONE PRVTE	0 STRGHT N S	PSNGR CAR	01 DRVR NONE	00 F UNK	UNK	043,026	000	07 00	
No	45	26	58.97	-122	34	44.44	006800100S00	8.04	05	(05)	N UNKNOWN	N N	DAY INJ	PSNGR CAR	01 DRVR NONE	00 U UNK	UNK	000	000	000	000	000	07 00	
02024 NO RPT	N N N N N	N	05/24/2017	Wed	11A	CLACKAMAS	1 MN	14 0	STRGHT UN	(NONE)	N UNKNOWN	N N	CLR DRY	S-1STOP REAR	01 NONE N/A	9 STRGHT S N	PSNGR CAR	01 DRVR NONE	00 U UNK	UNK	000	000	29 00	
No	45	26	58.97	-122	34	44.44	006800100S00	8.04	05	(04)	N UNKNOWN	N N	DAY PDO	PSNGR CAR	01 DRVR NONE	00 U UNK	UNK	000	000	000	000	000	00 00	
01440 STATE	N N N N N	N	05/29/2020	Fri	3P	CLACKAMAS	1 MN	14 0	ALLEY UN	(NONE)	N NONE	N N	CLR DRY	ANGL-OTH TURN	01 NONE PRVTE	0 TURN-L E S	PSNGR CAR	01 DRVR NONE	38 M OR-Y	OR<25	028	000	02 00	
No	45	26	58.96	-122	34	44.45	006800100S00	8.04	05	(04)	N NONE	N N	DAY INJ	PSNGR CAR	01 DRVR NONE	38 M OR-Y	OR<25	000	000	000	000	000	02 00	

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST		
ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST		
CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST		
COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST		
CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST			DRIVER RESIDENCE CODE TRANSLATION LIST		
LIC CODE	SHORT DESC	LONG DESCRIPTION	RES CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)	1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
1	OR-Y	VALID OREGON LICENSE	2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY	3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
3	SUSP	SUSPENDED/REVOKED	4	N-RES	NON-RESIDENT
4	EXP	EXPIRED	9	UNK	UNKNOWN IF OREGON RESIDENT
8	N-VAL	OTHER NON-VALID LICENSE			
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH			

ERROR CODE TRANSLATION LIST		
ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNUED FROM WRONG LANE
007	TO WRONG	TURNUED INTO WRONG LANE
008	ILLEG U	U-TURNUED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR	SHORT	
CODE	DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST		
FUNC CLASS	DESCRIPTION	
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE	
02	RURAL PRINCIPAL ARTERIAL - OTHER	
06	RURAL MINOR ARTERIAL	
07	RURAL MAJOR COLLECTOR	
08	RURAL MINOR COLLECTOR	
09	RURAL LOCAL	
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE	
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP	
14	URBAN PRINCIPAL ARTERIAL - OTHER	
16	URBAN MINOR ARTERIAL	
17	URBAN MAJOR COLLECTOR	
18	URBAN MINOR COLLECTOR	
19	URBAN LOCAL	
78	UNKNOWN RURAL SYSTEM	
79	UNKNOWN RURAL NON-SYSTEM	
98	UNKNOWN URBAN SYSTEM	
99	UNKNOWN URBAN NON-SYSTEM	

HIGHWAY COMPONENT TRANSLATION LIST	
CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
STATE HIGHWAY SYSTEM CRASH LOCATIONS - DRIVER BEHAVIOR FORMAT

Crashes on SE 82nd Ave, Cascade Hwy (#068) from Mile Point 8.02 through 8.06. Excludes Intersectional crashes at SE Glencoe Rd.
January 1, 2016 through December 31, 2020

SERIAL NO	DATE	T I M E	D A Y	*COUNTY OR CITY NAME	M N	R H	Y 068,	C A S C A D E	H W Y	N O R T H	A T	M P	8.02	COLL TYPE	EVENT	CAUSE	ERROR	T O T A L	S E R V I C E S	V E H I C L E T Y P E	O W N E R	I N J U R Y	F A T A L I T Y	P E O P L E	K I L L E D	S E R V I C E S	P E O P L E
01475	03/31/2016	10A	TH	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.02	REAR		27,07	016,043,026	DRY	2	011	011	0	3	N	N	
02173	05/14/2016	2P	SA	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.02	REAR	093	27,07		WET	2	010	010	0	0	N	N	
03423	07/28/2016	12P	TH	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.02	REAR		29,06,13		DRY	2	010	010	0	0	N	N	
02792	07/13/2017	4P	TH	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.02	REAR	013	07	043,026	DRY	3	011	011	0	1	N	N	
00577	02/12/2017	7P	SU	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.02	TURN		02		DRY	2	010	010	0	0	N	N	
03518	08/23/2017	12A	WE	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.03	PED		02	029	DRY	1	011		0	1	Y	N	
04787	11/14/2017	7P	TU	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.03	PED		27,18	016,057	DRY	1	011		0	1	N	N	
00823	03/09/2019	6P	SA	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.03	TURN		02		DRY	2	010	010	0	0	N	N	
00461	02/05/2020	5P	WE	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.03	TURN		02	028	WET	2	011	011	0	2	N	N	
01617	04/09/2016	5P	SA	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.04	REAR		07	043,026	DRY	2	011	011	0	2	N	N	
02024	05/24/2017	11A	WE	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.04	REAR		29		DRY	2	010	010	0	0	N	N	
03049	09/04/2019	9A	WE	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.04	REAR		07,29	043,042	DRY	2	011	011	0	3	N	N	
00541	01/30/2016	2P	SA	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.04	TURN		02,08		WET	2	010	010	0	0	N	N	
01440	05/29/2020	3P	FR	*Clackamas	MN	R	HY	068,	CASCADE	HWY	NORTH	AT	MP	8.04	TURN		02	028	DRY	2	011	011	0	1	N	N	

VEHICLE OWNERSHIP CODES

Code	Short Description	Long Description
0	N/A	Not collected for PDO Crashes
1	PRVTE	Private
2	GOVMT	Government
3	PUBLC	Public
4	RENTL	Rental vehicle
5	STOLN	Stolen vehicle
9	UNKN	Unknown ownership

VEHICLE TYPE CODES

Code	Short Description	Long Description
00	PDO	Not collected for PDO Crashes
01	PSNGR CAR	Passenger car, pickup, light delivery, etc.
02	BOBTAIL	Truck tractor with no trailers (bobtail)
03	FARM TRCTR	Farm tractor or self-propelled farm equipment
04	SEMI TOW	Truck Tractor with trailer/mobile home in tow
05	TRUCK	Truck with non-detachable bed, panel, etc.
06	MOPED	Moped, minibike, seated motor scooter, motor bike
07	SCHL BUS	School bus (includes van)
08	OTH BUS	Other bus
09	MTRCYCLE	Motorcycle, dirt bike
10	OTHER	Other: forklift, backhoe, etc.
11	MOTRHOME	Motorhome
12	TROLLEY	Motorized Street Car/Trolley (no rails/wires)
13	ATV	ATV
14	MTRSCTR	Motorized scooter (standing)
15	SNOWMOBILE	Snowmobile
99	UNKNOWN	Unknown vehicle type

CAUSE CODES

Code	Short Description	Medium Description	Long Description	Code Termination Date
00	NO CODE	NO CODE APPLICABLE	No cause associated at this level	
01	TOO-FAST	TOO FAST FOR COND	Too fast for conditions (not exceed posted speed)	
02	NO-YIELD	FAILED YIELD ROW	Did not yield right-of-way	
03	PAS-STOP	PASSED STOP SIGN	Passed stop sign or red flasher	
04	DIS SIG	DISREGRD TRAF SIGNAL	Disregarded traffic signal	
05	LEFT-CTR	LEFT OF CTR/STRADDLE	Drove left of center on two-way road; straddling	
06	IMP-OVER	IMPROPER PASSING	Improper overtaking	
07	TOO-CLOS	FOLLOW TOO CLOSE	Followed too closely	
08	IMP-TURN	IMPROPER TURN	Made improper turn	
09	DRINKING	ALC OR DRUGS	Alcohol or Drug Involved	12/31/2002
10	OTHR-IMP	OTHER DRIVE ERR	Other improper driving	
11	MECH-DEF	MECH DEFECT	Mechanical defect	
12	OTHER	OTHER	Other (not improper driving)	
13	IMP LN C	IMP LANE CHANGE	Improper change of traffic lanes	
14	DIS TCD	DISRG OTHR TCD	Disregarded other traffic control device	
15	WRNG WAY	WRONG WAY / 1-WAY RD	Wrong way on one-way road; wrong side divided road	
16	FATIGUE	DRIVER FATIGUED	Driver drowsy/fatigued/sleepy	
17	ILLNESS	PHYSICAL ILLNESS	Physical illness	
18	IN RDWY	ILLEGALLY IN RDWY	Non-motorist illegally in roadway	
19	NT VISBL	NOT VISIBLE	Non-motorist not visible; non-reflective clothing	
20	IMP PKNG	IMPROPER PARKING	Vehicle improperly parked	
21	DEF STER	DEFECTIVE STEERING	Defective steering mechanism	
22	DEF BRKE	DEFECTIVE BRAKES	Inadequate or no brakes	
24	LOADSHFT	LOAD SHIFTED	Vehicle lost load or load shifted	
25	TIREFAIL	TIRE FAILURE	Tire Failure	
26	PHANTOM	PHANTOM VEHICLE	Phantom / Non-contact Vehicle	
27	INATTENT	INATTENTION	Inattention	
28	NM INATT	NON-MTRST INATTENT	Non-Motorist Inattention	
29	F AVOID	FAIL AVOID VEH AHEAD	Failed to avoid vehicle ahead	
30	SPEED	EXCED POSTED SPEED	Driving in excess of posted speed	
31	RACING	SPEED RACING	Speed Racing (per PAR)	
32	CARELESS	CARELESS DRIVING	Careless Driving (per PAR)	
33	RECKLESS	RECKLESS DRIVING	Reckless Driving (per PAR)	
34	AGGRESV	AGGRESSIVE DRIVING	Aggressive Driving (per PAR)	
35	RD RAGE	ROAD RAGE	Road Rage (per PAR)	
40	VIEW OBS	VIEW OBSCURED	View obscured	
50	USED MDN	IMP USE MEDIAN/SHLDR	Improper use of median or shoulder	
51	FAIL LN	F MAINT LANE	Failed to maintain lane	12/31/2015
52	OFF RD	RAN OFF RD	Ran off road	12/31/2015

ERR CODES

Code	Short Description	Medium Description	Long Description
000	NONE	NO ERROR	No error
001	WIDE TRN	WIDE TURN	Wide turn
002	CUT CORN	CUT CORNER	Cut corner on turn
003	FAIL TRN	F OBEY TRN	Failed to obey mandatory traffic turn signal, sign or lane markings
004	L IN TRF	LTRN FNT TRAF	Left turn in front of oncoming traffic
005	L PROHIB	LTRN PROHIB	Left turn where prohibited
006	FRM WRNG	T FRM WRNG LN	Turned from wrong lane
007	TO WRONG	T TO WRONG LN	Turned into wrong lane
008	ILLEG U	ILLEG U-TURN	U-turned illegally
009	IMP STOP	IMP STOP	Improperly stopped in traffic lane
010	IMP SIG	IMP/FAIL SIG	Improper signal or failure to signal
011	IMP BACK	IMP BACKING	Backing improperly (not parking)
012	IMP PARK	IMP PARKED	Improperly parked
013	UNPARK	IMP STRT PARK	Improper start leaving parked position
014	IMP STRT	IMP STRT STOP	Improper start from stopped position
015	IMP LGHT	IMP/NO LIGHTS	Improper or no lights (vehicle in traffic)
016	INATTENT	INATTENTION	Inattention (Failure to Dim Lights prior to 4/1/97)
017	UNSF VEH	DR UNSAFE VEH	Driving unsafe vehicle (no other error apparent)
018	OTH PARK	PRK MAN N/CLR	Entering/exiting parked position w/ insufficient clearance; other improper parking maneuver
019	DIS DRIV	DISRG DR SIG	Disregarded other driver's signal
020	DIS SGNL	DISRG TRF SIG	Disregarded traffic signal
021	RAN STOP	DISRG STP SGN	Disregarded stop sign or flashing red
022	DIS SIGN	DISRG WRN SGN	Disregarded warning sign, flares or flashing amber
023	DIS OFCR	DISRG POL/FLG	Disregarded police officer or flagman
024	DIS EMER	DISRG SIR/EMR	Disregarded siren or warning of emergency vehicle
025	DIS RR	DISRG RR SIG	Disregarded RR signal, RR sign, or RR flagman
026	REAR-END	F AVOID STP V	Failed to avoid stopped or parked vehicle ahead other than school bus
027	BIKE ROW	F/YLD ROW BIK	Did not have right-of-way over pedalcyclist
028	NO ROW	NO R-O-W	Did not have right-of-way
029	PED ROW	F/YLD ROW PED	Failed to yield right-of-way to pedestrian
030	PAS CURV	PASS ON CURVE	Passing on a curve
031	PAS WRNG	PASS WRNG SID	Passing on the wrong side
032	PAS TANG	PASS TANGENT	Passing on straight road under unsafe conditions
033	PAS X-WK	PASS STP4PED	Passed vehicle stopped at crosswalk for pedestrian
034	PAS INTR	PASS AT INTER	Passing at intersection
035	PAS HILL	PASS ON HILL	Passing on crest of hill
036	N/PAS ZN	PASS N/PASSNG	Passing in "No Passing" zone
037	PAS TRAF	PASS ONC TRAF	Passing in front of oncoming traffic
038	CUT-IN	CUTTING IN	Cutting in (two lanes - two way only)
039	WRNGSIDE	DR WRONG SIDE	Driving on wrong side of the road (2-way undivided roadways)
040	THRU MED	DR THRU MEDN	Driving through safety zone or over island
041	F/ST BUS	F/STP SCHLBUS	Failed to stop for school bus
042	F/SLO MV	F/SLO SLO VEH	Failed to decrease speed for slower moving vehicle
043	TOO CLOSE	FOLLW TO CLOS	Following too closely (must be on officer's report)
044	STRDL LN	STRD/DR WRNG	Straddling or driving on wrong lanes
045	IMP CHG	IMP LANE CHG	Improper change of traffic lanes

ERR CODES

Code	Short Description	Medium Description	Long Description
046	WRNG WAY	WRNG WY/1 WAY	Wrong way on one-way roadway; wrong side divided road
047	BASCRULE	V BASIC RULE	Driving too fast for conditions (not exceeding posted speed)
048	OPN DOOR	OPN DOOR TRAF	Opened door into adjacent traffic lane
049	IMPEDING	IMPEDING TRAF	Impeding Traffic
050	SPEED	SPEED	Driving in excess of posted speed
051	RECKLESS	RECKLSS DRVNG	Reckless driving (per PAR)
052	CARELESS	CARELSS DRVNG	Careless driving (per PAR)
053	RACING	RACING	Speed Racing (per PAR)
054	X N/SGNL	X-INT NO SGNL	Crossing at intersection, no traffic signal present
055	X W/SGNL	X-INT W/ SGNL	Crossing at intersection, traffic signal present
056	DIAGONAL	X-INT DIAGNL	Crossing at intersection - diagonally
057	BTWN INT	X-BTWN INTER	Crossing between intersections
059	W/TRAF-S	W SHLD W/TRAF	Walking, running, riding, etc., on shoulder WITH traffic
060	A/TRAF-S	W SHLD A/TRAF	Walking, running, riding, etc., on shoulder FACING traffic
061	W/TRAF-P	W PAVE W/TRAF	Walking, running, riding, etc., on pavement WITH traffic
062	A/TRAF-P	W PAVE A/TRAF	Walking, running, riding, etc., on pavement FACING traffic
063	PLAYINRD	PLAY IN RDWY	Playing in street or road
064	PUSH MV	PUSH MV IN RD	Pushing or working on vehicle in road or on shoulder
065	WORK IN RD	WORK IN RD	Working in roadway or along shoulder
070	LAY ON RD	LYING IN RD	Standing or lying in roadway
071	NM IMP USE	N-M IMP USE	Improper use of traffic lane by non-motorist
073	ELUDING	ELUDING	Eluding / Attempt to elude
079	F NEG CURV	FAIL NEG CURV	Failed to negotiate a curve
080	FAIL LN	F MAINT LANE	Failed to maintain lane
081	OFF RD	RAN OFF RD	Ran off road
082	NO CLEAR	MISJUDGE CLR	Driver misjudged clearance
083	OVRSTEER	OVERSTEER	Over-correcting
084	NOT USED	NOT USED	Code not in use
085	OVRLOAD	OVERLOAD	Overloading or improper loading of vehicle with cargo or passengers
097	UNA DIS TC	UNA DISRG TCD	Unable to determine which driver disregarded traffic control device

EVENT CODES

Code	Short Description	Medium Description	Long Description
001	FEL/JUMP	FELL/JUMPED MV	Occupant fell, jumped or was ejected from moving vehicle
002	INTERFER	PSNGR INTERFERED	Passenger interfered with driver
003	BUG INTF	ANML INTERFERED	Animal or insect in vehicle interfered with driver
004	INDRCT PED	PED INDRCTLY INVLV	Pedestrian indirectly involved (not struck)
005	SUB-PED	SUBSEQUENT PED	"Sub-Ped": pedestrian injured subsequent to collision, etc.
006	INDRCT BIK	BIKE INDRCTLY INVLV	Pedalcyclist indirectly involved (not struck)
007	HITCHIKR	HITCHHIKER	Hitchhiker (soliciting a ride)
008	PSNGR TOW	PSNGR TOWED	Passenger or non-motorist being towed or pushed on conveyance
009	ON/OFF V	ON/OFF STOP VEH	Getting on/off stopped/parked vehicle (occupants only; must have physical contact w/ vehicle)
010	SUB OTRN	SUBSEQ OVERTURN	Overturned after first harmful event
011	MV PUSHD	VEH BEING PUSHED	Vehicle being pushed
012	MV TOWED	VEH TOWED/TOWING	Vehicle towed or had been towing another vehicle
013	FORCED	FORCED BY IMPACT	Vehicle forced by impact into another vehicle, pedalcyclist or pedestrian
014	SET MOTN	MV SET IN MOTION	Vehicle set in motion by non-driver (child released brakes, etc.)
015	RR ROW	RAILROAD ROW	At or on railroad right-of-way (not Light Rail)
016	LT RL ROW	LIGHT RAIL ROW	At or on Light-Rail right-of-way
017	RR HIT V	TRAIN HIT VEH	Train struck vehicle
018	V HIT RR	VEH HIT TRAIN	Vehicle struck train
019	HIT RR CAR	VEH HIT RR CAR	Vehicle struck railroad car on roadway
020	JACKNIFE	JACKKNIFE	Jackknife; trailer or towed vehicle struck towing vehicle
021	TRL OTRN	TRAILER O'TURN	Trailer or towed vehicle overturned
022	CN BROKE	TRLR CONN BROKE	Trailer connection broke
023	DETACH TRL	DETCHD TRLR STRKNG	Detached trailing object struck other vehicle, non-motorist, or object
024	V DOOR OPN	V DOOR OPN IN TRAF	Vehicle door opened into adjacent traffic lane
025	WHEELOFF	WHEEL CAME OFF	Wheel came off
026	HOOD UP	HOOD FLEW UP	Hood flew up
028	LOAD SHIFT	LOAD SHIFTED	Lost load, load moved or shifted
029	TIREFAIL	TIRE FAILURE	Tire failure
030	PET	PET	Pet: cat, dog and similar
031	LVSTOCK	LIVESTOCK	Stock: cow, calf, bull, steer, sheep, etc.
032	HORSE	HORSE	Horse, mule, or donkey
033	HRSE&RID	HORSE & RIDER	Horse and rider
034	GAME	GAME NO DEER/ELK	Wild animal, game (includes birds; not deer or elk)
035	DEER ELK	DEER OR ELK	Deer or elk, wapiti
036	ANML VEH	ANIMAL-DRAWN VEH	Animal-drawn vehicle
037	CULVERT	CULVERT/MANHOLE	Culvert, open low or high manhole
038	ATENUATN	IMPACT CUSHION	Impact attenuator
039	PK METER	PARKING METER	Parking meter
040	CURB	CURB	Curb (also narrow sidewalks on bridges)
041	JIGGLE	JIGGLE BAR N/MED	Jiggle bar or traffic snake for channelization

EVENT CODES

Code	Short Description	Medium Description	Long Description
042	GDRL END	GUARDRAIL END	Leading edge of guardrail
043	GARDRAIL	GUARDRAIL	Guard rail (not metal median barrier)
044	BARRIER	MEDIAN BARRIER	Median barrier (raised or metal)
045	WALL	WALL	Retaining wall or tunnel wall
046	BR RAIL	BRIDGE RAIL	Bridge railing or parapet (on bridge or approach)
047	BR ABUTMNT	BRIDGE ABUTMENT	Bridge abutment (included "approach end" thru 2013)
048	BR COLUMN	BRIDGE COLUMN	Bridge pillar or column
049	BR GIRDR	BRIDGE GIRDER	Bridge girder (horizontal bridge structure overhead)
050	ISLAND	TRAFFIC ISLAND	Traffic raised island
051	GORE	GORE	Gore
052	POLE UNK	POLE-UNKNOWN	Pole – type unknown
053	POLE UTL	POLE-UTILITY	Pole – power or telephone
054	ST LIGHT	POLE-ST LIGHT	Pole – street light only
055	TRF SGNL	POLE-TRAF SIGNAL	Pole – traffic signal and ped signal only
056	SGN BRDG	POLE-SIGN BRIDGE	Pole – sign bridge
057	STOPSIGN	STOP/YIELD SIGN	Stop or yield sign
058	OTH SIGN	OTHER SIGN	Other sign, including street signs
059	HYDRANT	HYDRANT	Hydrant
060	MARKER	DELINEATOR	Delineator or marker (reflector posts)
061	MAILBOX	MAILBOX	Mailbox
062	TREE	TREE/STUMP	Tree, stump or shrubs
063	VEG OHED	VEGTN OVER RDWY	Tree branch or other vegetation overhead, etc.
064	WIRE/CBL	CABLE ACROSS RD	Wire or cable across or over the road
065	TEMP SGN	TEMP SIGN/BARR	Temporary sign or barricade in road, etc.
066	PERM SGN	PERM SIGN/BARR	Permanent sign or barricade in/off road
067	SLIDE	SLIDE/ROCKS	Slides, fallen or falling rocks
068	FRGN OBJ	FOREIGN OBJECT	Foreign obstruction/debris in road (not gravel)
069	EQP WORK	EQUIP WORKING	Equipment working in/off road
070	OTH EQP	OTHER EQUIPMENT	Other equipment in or off road (includes parked trailer, boat)
071	MAIN EQP	MAINTNCE EQUIP	Wrecker, street sweeper, snow plow or sanding equipment
072	OTHER WALL	OTHER WALL	Rock, brick or other solid wall
073	IRRGL PVMT	IRREGULAR PAVEMENT	Other bump (not speed bump), pothole or pavement irregularity (per PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJ	Other overhead object (highway sign, signal head, etc.); not bridge
075	CAVE IN	CAVE IN	Bridge or road cave in
076	HI WATER	HIGH WATER	High Water
077	SNO BANK	SNOW BANK	Snow Bank
078	LO-HI EDGE	LOW-HIGH PVMNT EDGE	Low or high shoulder at pavement edge
079	DITCH	CUT SLOPE/DITCH	Cut slope or ditch embankment
080	OBJ FRM MV	OBJ FRM OTHR VEH	Struck by rock or other object set in motion by other vehicle (incl. lost loads)
081	FLY-OBJ	OTHER MOVING OBJ	Struck by rock or other moving or flying object (not set in motion by vehicle)
082	VEH HID	VEH OBSCURE VIEW	Vehicle obscured view
083	VEG HID	VEG OBSCURE VIEW	Vegetation obscured view
084	BLDG HID	BLD OBSCURE VIEW	View obscured by fence, sign, phone booth, etc.

EVENT CODES

Code	Short Description	Medium Description	Long Description
085	WIND GUST	WIND GUST	Wind Gust
086	IMMERSED	IMMERSION	Vehicle immersed in body of water
087	FIRE/EXP	FIRE/EXPLOSION	Fire or explosion
088	FENC/BLD	FENCE/BUILDING	Fence or building, etc.
089	OTHR CRASH	REFER OTHR CRASH	Crash related to another separate crash
090	TO 1 SIDE	TWO WAY ONE SIDE	Two-way traffic on divided roadway all routed to one side
091	BUILDING	BUILDING	Building or other structure
092	PHANTOM	PHANTOM VEH	Other (phantom) non-contact vehicle
093	CELL PHONE	CELL PHONE PER PAR	Cell phone (on PAR or driver in use)
094	VIOL GDL	VIOL GRAD DR LIC	Teenage driver in violation of graduated license pgm
095	GUY WIRE	GUY WIRE	Guy wire
096	BERM	BERM	Berm (earthen or gravel mound)
097	GRAVEL	GRAVEL IN RDWY	Gravel in roadway
098	ABR EDGE	ABRUPT EDGE	Abrupt edge
099	CELL WTNSD	CELL PHONE WITNESSED	Cell phone use witnessed by other participant
100	UNK FIXD	UNK FIX OBJ	Fixed object, unknown type.
101	OTHER OBJ	OTHER OBJ NOT FIXED	Non-fixed object, other or unknown type
102	TEXTING	TEXTING	Texting
103	WZ WORKER	WZ WORKER	Work Zone Worker
104	ON VEHICLE	RIDE ON VEH EXTERIOR	Passenger riding on vehicle exterior
105	PEDAL PSGR	PSNGR ON PEDALCYCLE	Passenger riding on pedalcycle
106	MAN WHLCHR	NONMOTOR WHEELCHAIR	Pedestrian in non-motorized wheelchair
107	MTR WHLCHR	MOTORIZED WHEELCHAIR	Pedestrian in motorized wheelchair
108	OFFICER	POLICE OFFICER	Law Enforcement / Police Officer
109	SUB-BIKE	SUBSEQUENT BICYCLIST	"Sub-Bike": pedalcyclist injured subsequent to collision, etc.
110	N-MTR	NM STR VEH	Non-motorist struck vehicle
111	S CAR VS V	ST CAR STRUCK VEH	Street Car/Trolley (on rails or overhead wire system) struck vehicle
112	V VS S CAR	VEH STRUCK ST CAR	Vehicle struck Street Car/Trolley (on rails or overhead wire system)
113	S CAR ROW	STREET CAR ROW	At or on street car or trolley right-of-way
114	RR EQUIP	VEH STRUCK RR EQUIP	Vehicle struck railroad equipment (not train) on tracks
115	DSTRCT GPS	DISTRACT GPS DEVICE	Distracted by navigation system or GPS device
116	DSTRCT OTH	DISTRACT OTHR DEVICE	Distracted by other electronic device
117	RR GATE	RR DROP-ARM GATE	Rail crossing drop-arm gate
118	EXPNSN JNT	EXPANSION JOINT	Expansion joint
119	JERSEY BAR	JERSEY BARRIER	Jersey barrier
120	WIRE BAR	WIRE BARRIER	Wire or cable median barrier
121	FENCE	FENCE	Fence
123	OBJ IN VEH	LOOSE OBJ IN VEHICLE	Loose object in vehicle struck occupant
124	SLIPPERY	SLIPPERY SURFACE	Sliding or swerving due to wet, icy, slippery or loose surface (not gravel)
125	SHLDR	SHLDR GAVE	Shoulder gave way
126	BOULDER	ROCKS / BOULDER	Rock(s), boulder (not gravel; not rock slide)
127	LAND SLIDE	ROCK OR LAND SLIDE	Rock slide or land slide
128	CURVE INV	CURVE PRESENT	Curve present at crash location

EVENT CODES

Code	Short Description	Medium Description	Long Description
129	HILL INV	HILL PRESENT	Vertical grade / hill present at crash location
130	CURVE HID	CURVE OBSCURED VIEW	View obscured by curve
131	HILL HID	HILL OBSCURED VIEW	View obscured by vertical grade / hill
132	WINDOW HID	WINDOW VIEW OBSCURED	View obscured by vehicle window conditions
133	SPRAY HID	SPRAY OBSCURED VIEW	View obscured by water spray
134	TORRENTIAL	TORRENTIAL RAIN	Torrential Rain (exceptionally heavy rain)
135	RAIL OCC	RAIL/CABLE CAR OCC	Injured occupant of railway train, light rail, street car or cable car

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Crashes on SE Glencoe Rd Within 450 Ft West of Intersection with SE 82nd Ave. Excludes Crashes at the Intersection with SE 82nd Ave.
 January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

Disclaimers: Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Glencoe Rd
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2019														
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2019 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2018														
TURNING MOVEMENTS	0	0	1	1	0	0	1	0	0	1	0	1	0	0
2018 TOTAL	0	0	1	1	0	0	1	0	0	1	0	1	0	0
FINAL TOTAL	0	0	2	2	0	0	1	1	0	2	0	2	0	0

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ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST		
ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST		
CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST		
COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST		
CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST			DRIVER RESIDENCE CODE TRANSLATION LIST		
LIC CODE	SHORT DESC	LONG DESCRIPTION	RES CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)	1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
1	OR-Y	VALID OREGON LICENSE	2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY	3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
3	SUSP	SUSPENDED/REVOKED	4	N-RES	NON-RESIDENT
4	EXP	EXPIRED	9	UNK	UNKNOWN IF OREGON RESIDENT
8	N-VAL	OTHER NON-VALID LICENSE			
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH			

ERROR CODE TRANSLATION LIST		
ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNUED FROM WRONG LANE
007	TO WRONG	TURNUED INTO WRONG LANE
008	ILLEG U	U-TURNUED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST		
FUNC CLASS	DESCRIPTION	
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE	
02	RURAL PRINCIPAL ARTERIAL - OTHER	
06	RURAL MINOR ARTERIAL	
07	RURAL MAJOR COLLECTOR	
08	RURAL MINOR COLLECTOR	
09	RURAL LOCAL	
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE	
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP	
14	URBAN PRINCIPAL ARTERIAL - OTHER	
16	URBAN MINOR ARTERIAL	
17	URBAN MAJOR COLLECTOR	
18	URBAN MINOR COLLECTOR	
19	URBAN LOCAL	
78	UNKNOWN RURAL SYSTEM	
79	UNKNOWN RURAL NON-SYSTEM	
98	UNKNOWN URBAN SYSTEM	
99	UNKNOWN URBAN NON-SYSTEM	

HIGHWAY COMPONENT TRANSLATION LIST	
CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Orchard Ln
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2018														
TURNING MOVEMENTS	0	2	1	3	0	5	0	3	0	2	1	3	0	0
2018 TOTAL	0	2	1	3	0	5	0	3	0	2	1	3	0	0
YEAR: 2017														
BACKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2017 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	2	2	4	0	5	0	4	0	3	1	4	0	0

Disclaimers: Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

068 CASCADE HWY NORTH
D
R
S U
P G S W

Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Orchard Ln
January 1, 2016 through December 31, 2020

[illegible]

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST		
ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST		
CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST		
COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST		
CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST			DRIVER RESIDENCE CODE TRANSLATION LIST		
LIC CODE	SHORT DESC	LONG DESCRIPTION	RES CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)	1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
1	OR-Y	VALID OREGON LICENSE	2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY	3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
3	SUSP	SUSPENDED/REVOKED	4	N-RES	NON-RESIDENT
4	EXP	EXPIRED	9	UNK	UNKNOWN IF OREGON RESIDENT
8	N-VAL	OTHER NON-VALID LICENSE			
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH			

ERROR CODE TRANSLATION LIST		
ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNUED FROM WRONG LANE
007	TO WRONG	TURNUED INTO WRONG LANE
008	ILLEG U	U-TURNUED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST		
FUNC CLASS	DESCRIPTION	
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE	
02	RURAL PRINCIPAL ARTERIAL - OTHER	
06	RURAL MINOR ARTERIAL	
07	RURAL MAJOR COLLECTOR	
08	RURAL MINOR COLLECTOR	
09	RURAL LOCAL	
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE	
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP	
14	URBAN PRINCIPAL ARTERIAL - OTHER	
16	URBAN MINOR ARTERIAL	
17	URBAN MAJOR COLLECTOR	
18	URBAN MINOR COLLECTOR	
19	URBAN LOCAL	
78	UNKNOWN RURAL SYSTEM	
79	UNKNOWN RURAL NON-SYSTEM	
98	UNKNOWN URBAN SYSTEM	
99	UNKNOWN URBAN NON-SYSTEM	

HIGHWAY COMPONENT TRANSLATION LIST	
CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCDR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

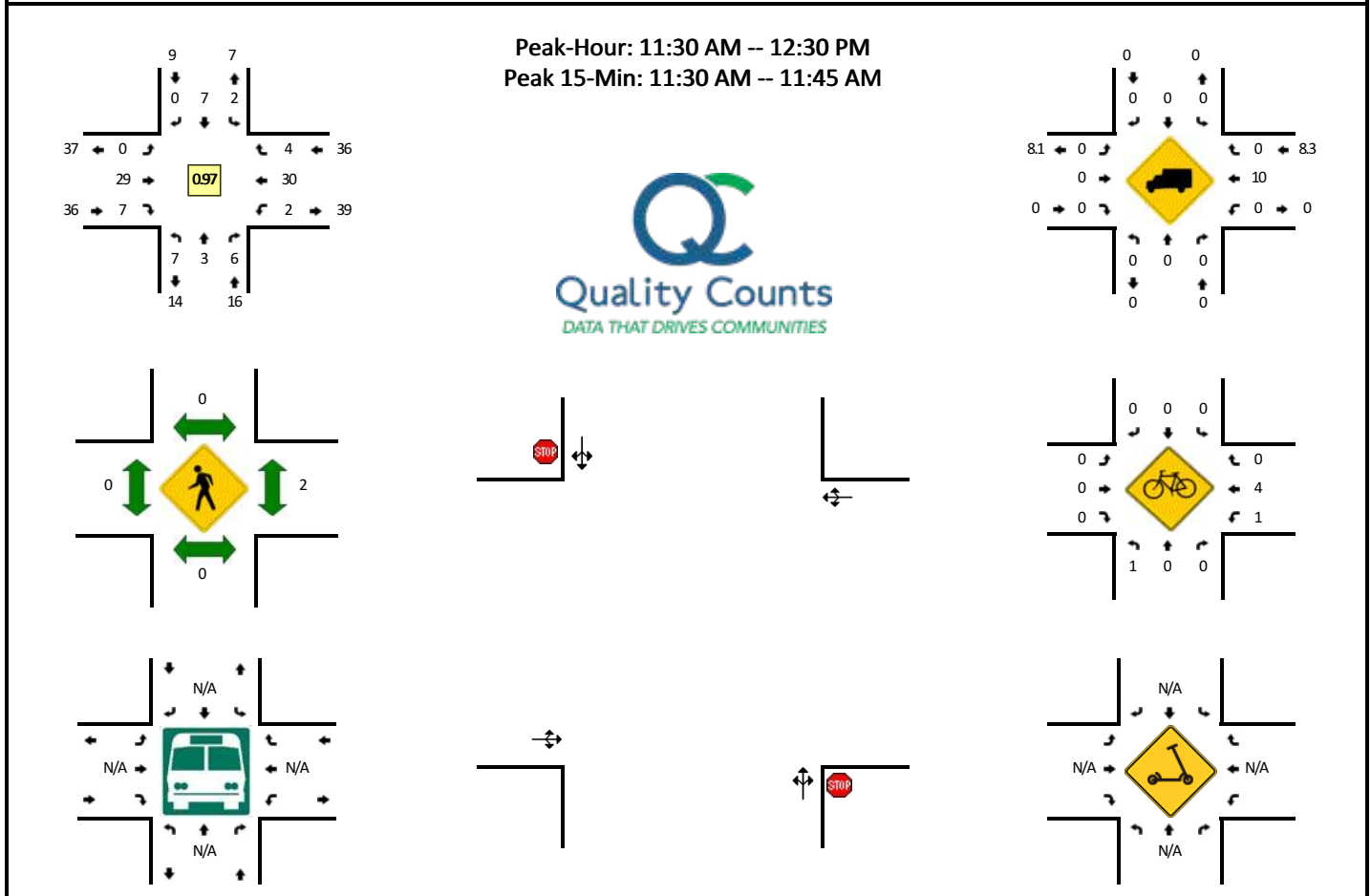
WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

Appendix B: Traffic Counts

LOCATION: SE 79th Ave -- SE Otty St
CITY/STATE: Milwaukie, OR

QC JOB #: 15838417
DATE: Tue, May 24 2022

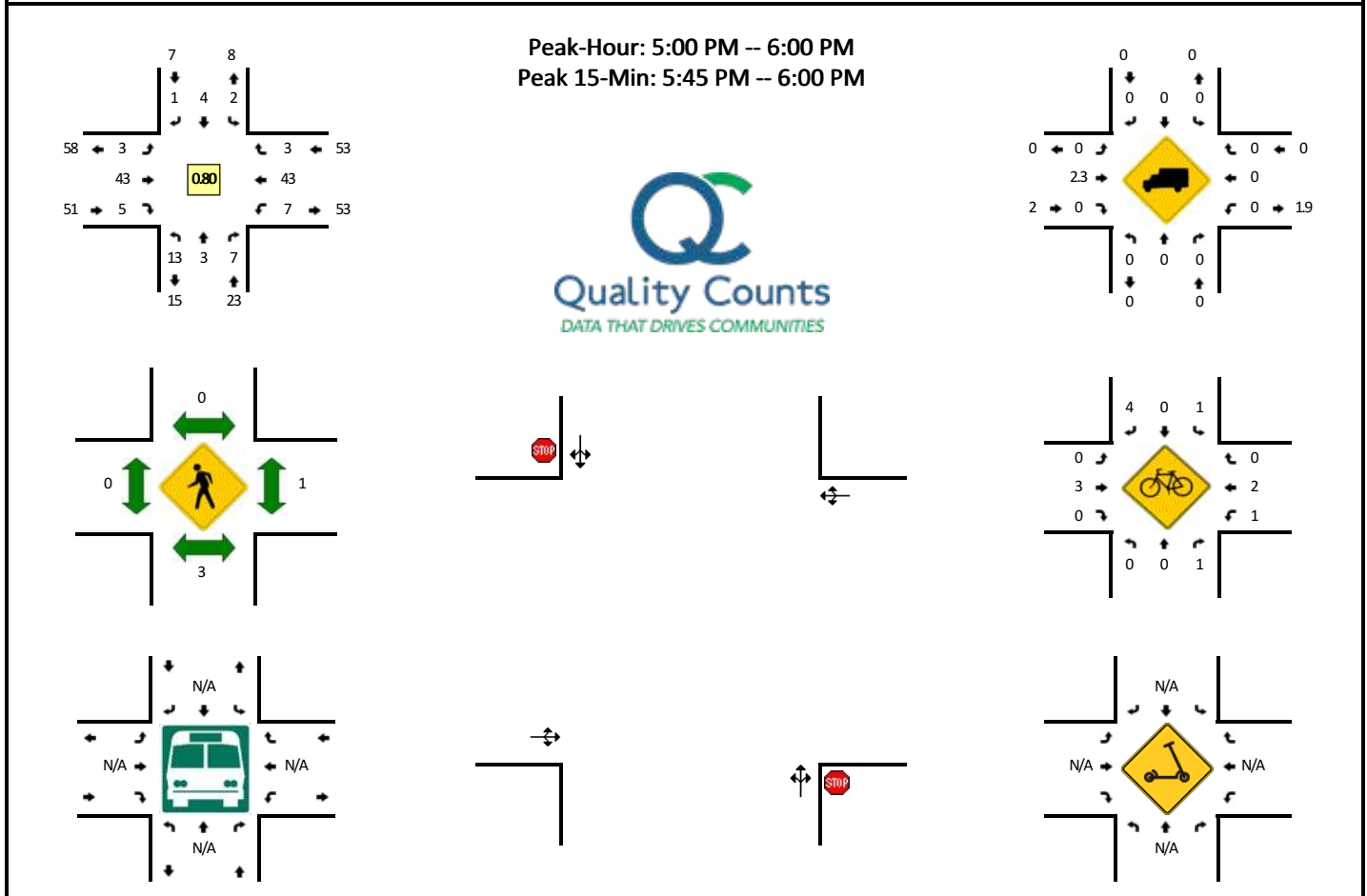


15-Min Count Period Beginning At	SE 79th Ave (Northbound)				SE 79th Ave (Southbound)				SE Otty St (Eastbound)				SE Otty St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	2	2	1	0	0	1	0	0	1	4	0	0	0	6	0	0	17	
11:15 AM	2	0	1	0	0	1	1	0	1	2	0	0	0	1	1	0	10	
11:30 AM	6	2	1	0	0	3	0	0	0	6	3	0	0	3	1	0	25	
11:45 AM	0	1	1	0	1	2	0	0	0	4	4	0	0	8	1	1	23	75
12:00 PM	1	0	2	0	0	1	0	0	0	9	0	0	0	9	2	0	24	82
12:15 PM	0	0	2	0	1	1	0	0	0	10	0	0	0	10	0	1	25	97
12:30 PM	0	0	1	0	1	1	0	0	0	8	1	0	1	1	0	0	14	86
12:45 PM	1	1	1	0	0	0	0	0	0	6	2	0	2	6	0	0	19	82
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	8	4	0	0	12	0	0	0	24	12	0	0	12	4	0	100	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	4	0	0		0	0	0		0	0	0		0	8	0		12	
Scooters																		

Comments:

LOCATION: SE 79th Ave -- SE Otty St
CITY/STATE: Milwaukie, OR

QC JOB #: 15838418
DATE: Tue, May 24 2022

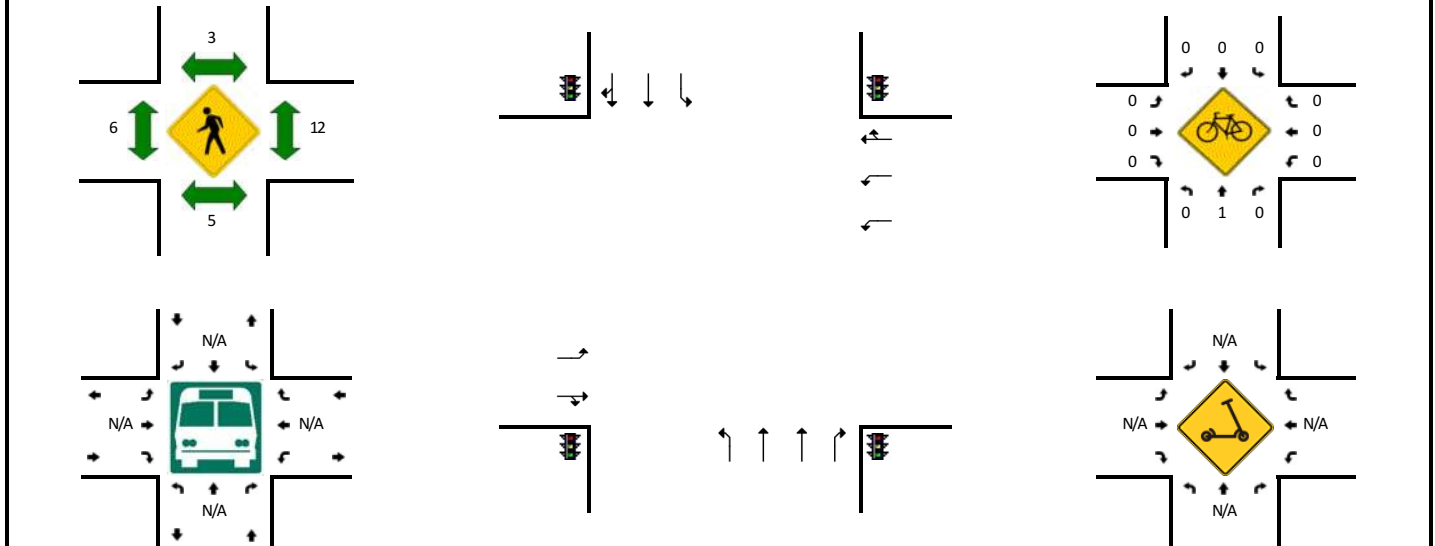


15-Min Count Period Beginning At	SE 79th Ave (Northbound)				SE 79th Ave (Southbound)				SE Otty St (Eastbound)				SE Otty St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	2	0	0	1	0	0	0	0	8	3	0	1	10	0	30	
4:15 PM	3	0	3	0	1	0	0	0	1	11	1	0	3	6	1	0	30	
4:30 PM	1	0	2	0	1	1	2	0	0	12	2	0	6	9	0	0	36	
4:45 PM	2	0	1	0	0	0	0	0	0	14	3	0	3	6	1	0	30	126
5:00 PM	5	1	1	0	0	1	0	0	0	9	1	0	1	11	1	0	31	127
5:15 PM	0	1	3	0	1	0	1	0	1	11	2	1	1	8	0	0	30	127
5:30 PM	5	1	1	0	0	1	0	0	1	10	0	0	2	9	0	1	31	122
5:45 PM	3	0	2	0	1	2	0	0	0	13	2	0	2	15	2	0	42	134
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	0	8	0	4	8	0	0	0	52	8	0	8	60	8	0	168	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scoters																		

Comments:

LOCATION: SE 82nd Ave -- SE Otty Rd**CITY/STATE:** Portland, OR**QC JOB #:** 15838401**DATE:** Tue, May 24 2022

Peak-Hour: 12:00 PM -- 1:00 PM
 Peak 15-Min: 12:15 PM -- 12:30 PM



15-Min Count Period Beginning At	SE 82nd Ave (Northbound)				SE 82nd Ave (Southbound)				SE Otty Rd (Eastbound)				SE Otty Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	8	196	16	0	20	207	5	0	3	3	8	0	35	7	13	0	521	
11:15 AM	6	214	13	1	18	200	7	0	1	1	4	0	39	4	23	0	531	
11:30 AM	11	225	20	0	23	202	11	0	7	5	9	0	33	4	19	0	569	
11:45 AM	16	216	19	0	29	200	16	0	8	11	12	0	41	11	29	0	608	2229
12:00 PM	16	211	26	1	26	219	7	0	13	6	8	0	38	11	31	0	613	2321
12:15 PM	14	265	29	0	27	238	18	0	6	11	18	0	28	10	23	0	687	2477
12:30 PM	13	228	30	0	30	253	6	0	15	5	11	0	36	6	23	0	656	2564
12:45 PM	7	257	27	0	29	223	6	0	6	8	15	0	44	5	18	0	645	2601
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	1060	116	0	108	952	72	0	24	44	72	0	112	40	92	0	2748	
Heavy Trucks	0	36	0		0	44	0		0	0	0		0	0	4		84	
Buses																		
Pedestrians		8				4				4				12			28	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

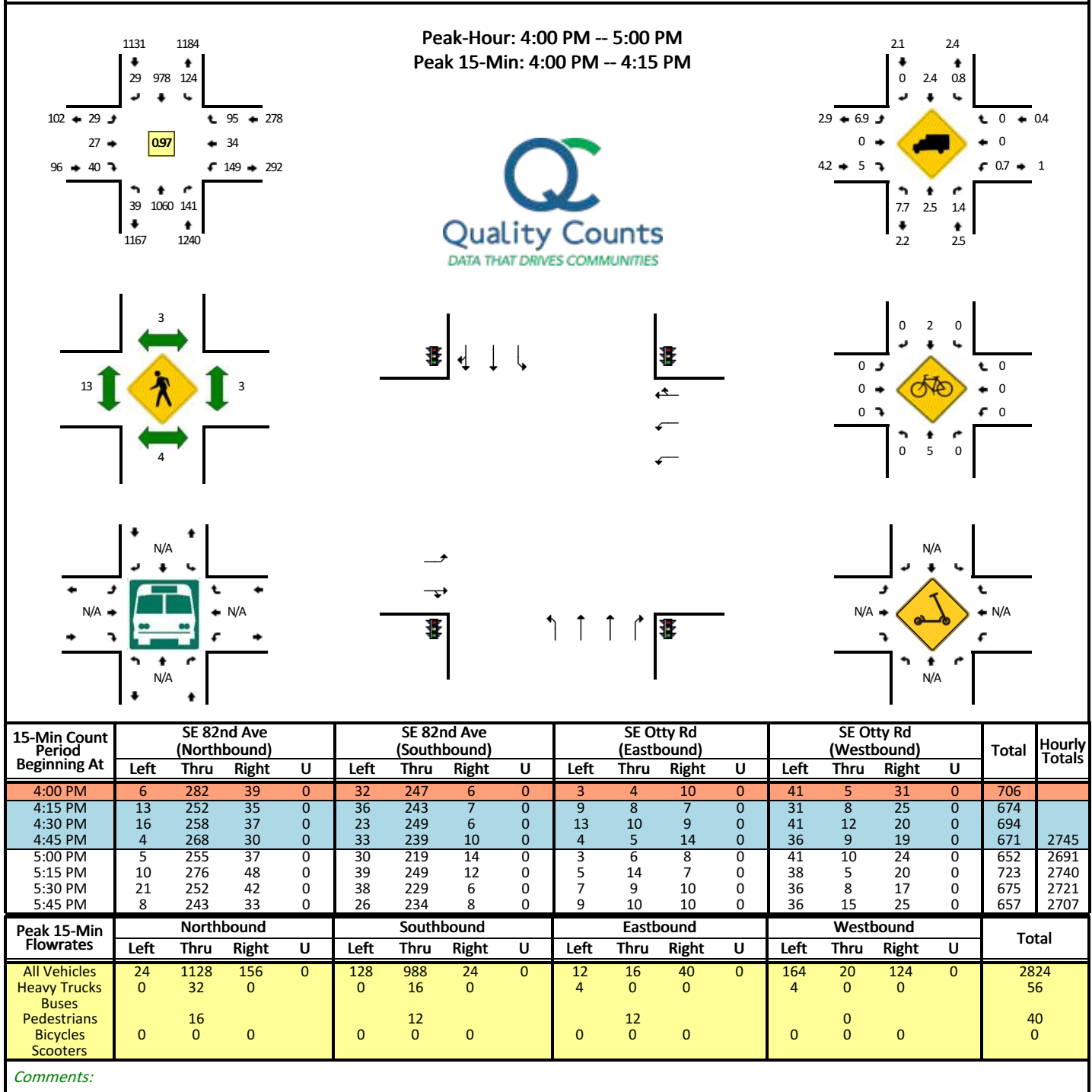
Comments:

Report generated on 6/1/2022 2:42 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

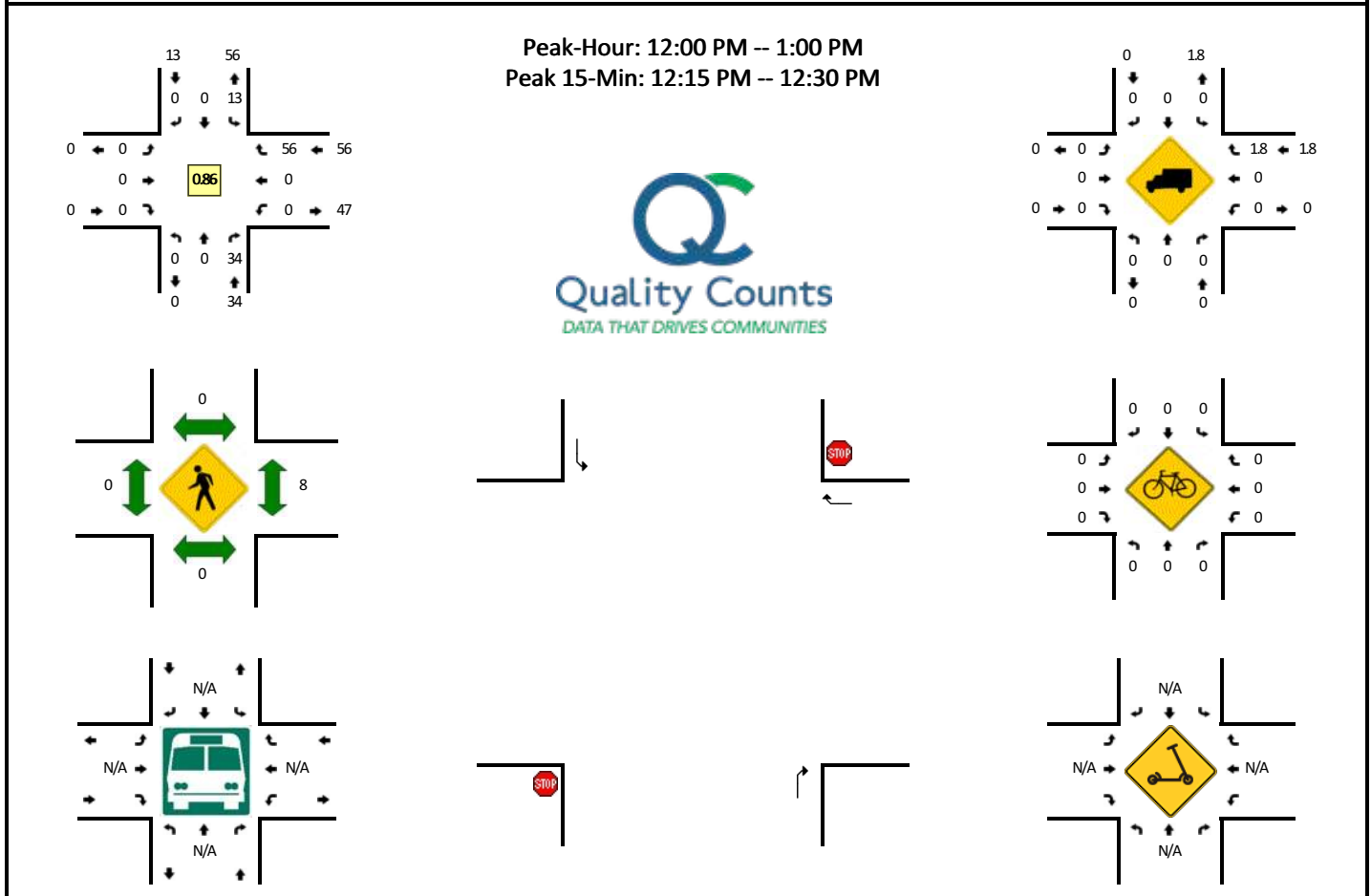
LOCATION: SE 82nd Ave -- SE Otty Rd
CITY/STATE: Portland, OR

QC JOB #: 15838402
DATE: Tue, May 24 2022



LOCATION: SE 82nd Ave -- Walmart RIRO Dwy
CITY/STATE: Southgate CPO, OR

QC JOB #: 15838403
DATE: Tue, May 24 2022

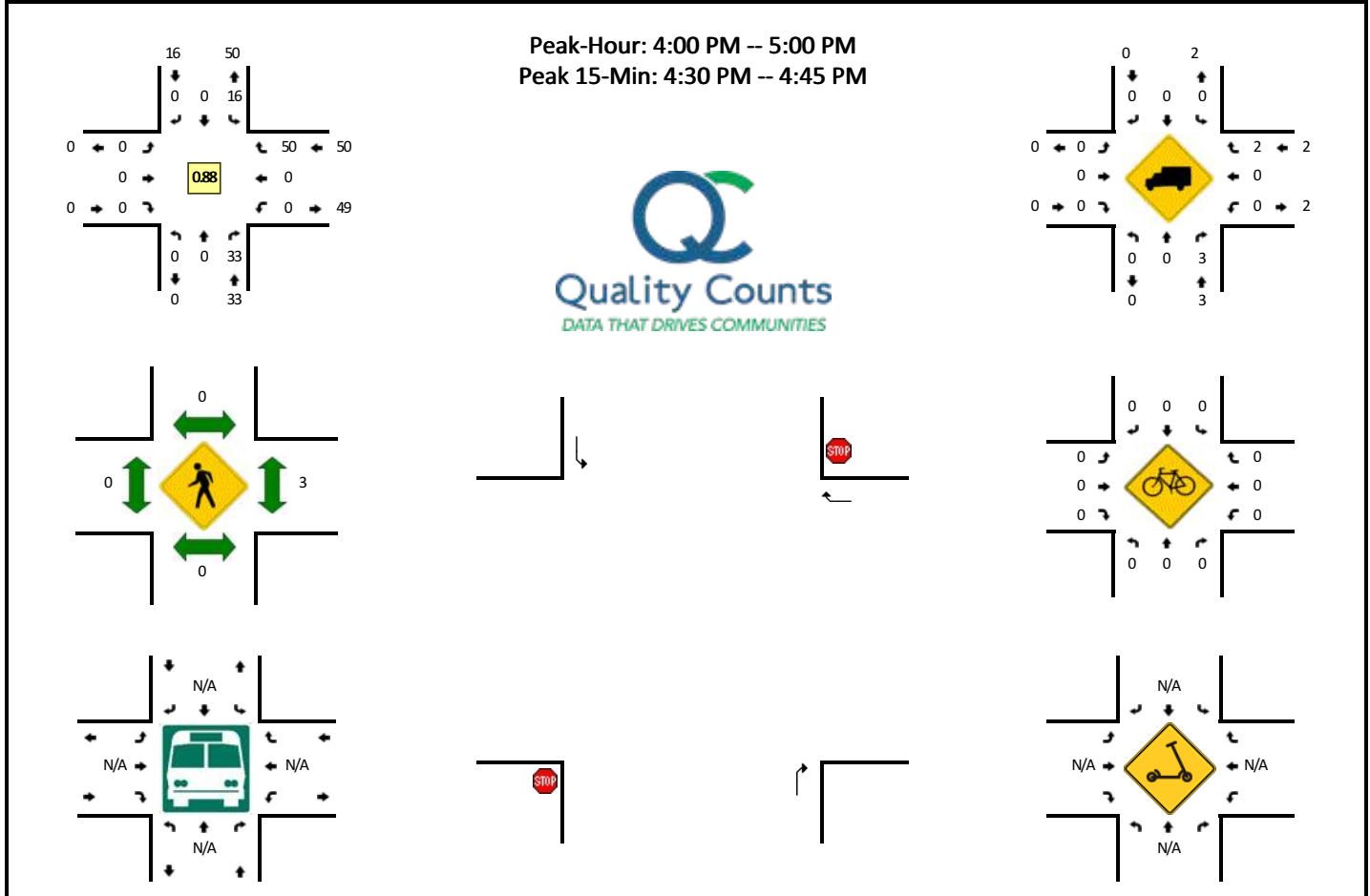


5-Min Count Period Beginning At	SE 82nd Ave (Northbound)				SE 82nd Ave (Southbound)				Walmart RIRO Dwy (Eastbound)				Walmart RIRO Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	4	0	2	0	0	0	0	0	0	0	0	0	1	0	7	
11:05 AM	0	0	5	0	1	0	0	0	0	0	0	0	0	0	3	0	9	
11:10 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	6	0	9	
11:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	4	0	6	
11:20 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	6	0	8	
11:25 AM	0	0	7	0	2	0	0	0	0	0	0	0	0	0	2	0	11	
11:30 AM	0	0	2	0	1	0	0	0	0	0	0	0	0	0	2	0	5	
11:35 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	4	0	6	
11:40 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	4	
11:45 AM	0	0	4	0	1	0	0	0	0	0	0	0	0	0	8	0	13	
11:50 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	6	0	8	
11:55 AM	0	0	7	0	1	0	0	0	0	0	0	0	0	0	2	0	10	96
12:00 PM	0	0	3	0	2	0	0	0	0	0	0	0	0	0	7	0	12	101
12:05 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	4	0	8	100
12:10 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	4	0	6	97
12:15 PM	0	0	5	0	3	0	0	0	0	0	0	0	0	0	5	0	13	104
12:20 PM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	5	0	9	105
12:25 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	7	0	8	102
12:30 PM	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3	100
12:35 PM	0	0	3	0	1	0	0	0	0	0	0	0	0	0	8	0	12	106
12:40 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0	6	108
12:45 PM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	4	0	9	104
12:50 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5	0	8	104
12:55 PM	0	0	5	0	1	0	0	0	0	0	0	0	0	0	3	0	9	103
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	36	0	16	0	0	0	0	0	0	0	0	0	68	0	120	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Buses																		
Pedestrians		0				0				0				8			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments: This is a right-turn only WalMart Driveway

LOCATION: SE 82nd Ave -- Walmart RIRO Dwy
CITY/STATE: Southgate CPO, OR

QC JOB #: 15838404
DATE: Tue, May 24 2022

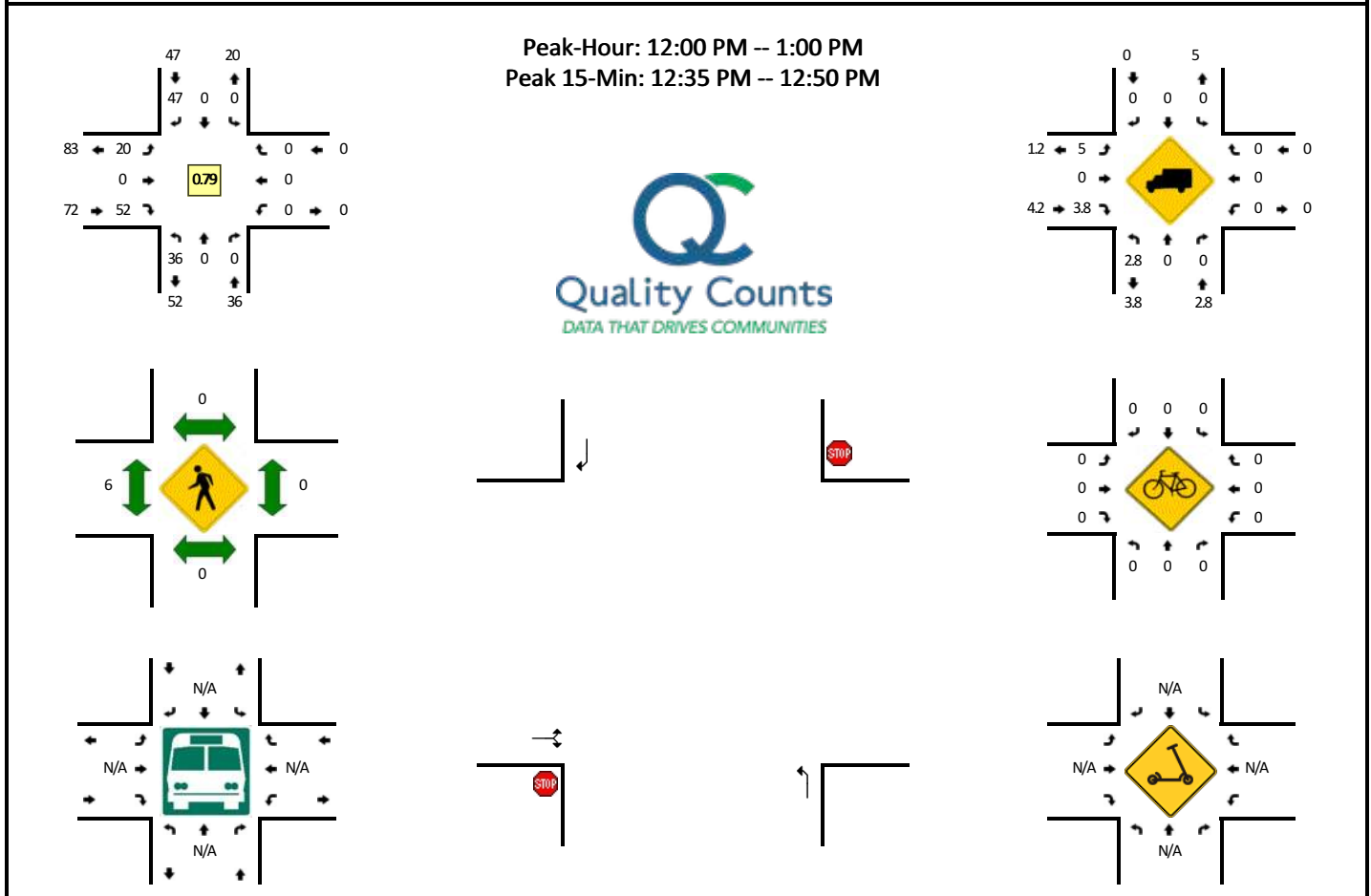


15-Min Count Period Beginning At	SE 82nd Ave (Northbound)				SE 82nd Ave (Southbound)				Walmart RIRO Dwy (Eastbound)				Walmart RIRO Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	7	0	0	0	0	0	0	0	0	0	0	0	16	0	23	
4:15 PM	0	0	12	0	3	0	0	0	0	0	0	0	0	0	12	0	27	
4:30 PM	0	0	7	0	8	0	0	0	0	0	0	0	0	0	13	0	28	
4:45 PM	0	0	7	0	5	0	0	0	0	0	0	0	0	0	9	0	21	99
5:00 PM	0	0	8	0	1	0	0	0	0	0	0	0	0	0	10	0	19	95
5:15 PM	0	0	8	0	6	0	0	0	0	0	0	0	0	0	13	0	27	95
5:30 PM	0	0	7	0	1	0	0	0	0	0	0	0	0	0	9	0	17	84
5:45 PM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	16	0	22	85
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	28	0	32	0	0	0	0	0	0	0	0	0	52	0	112	
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	0		4	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments: This is a right-turn only WalMart Driveway

LOCATION: SE 82nd Ave -- Goodwill Dwy
CITY/STATE: Southgate CPO, OR

QC JOB #: 15838405
DATE: Tue, May 24 2022

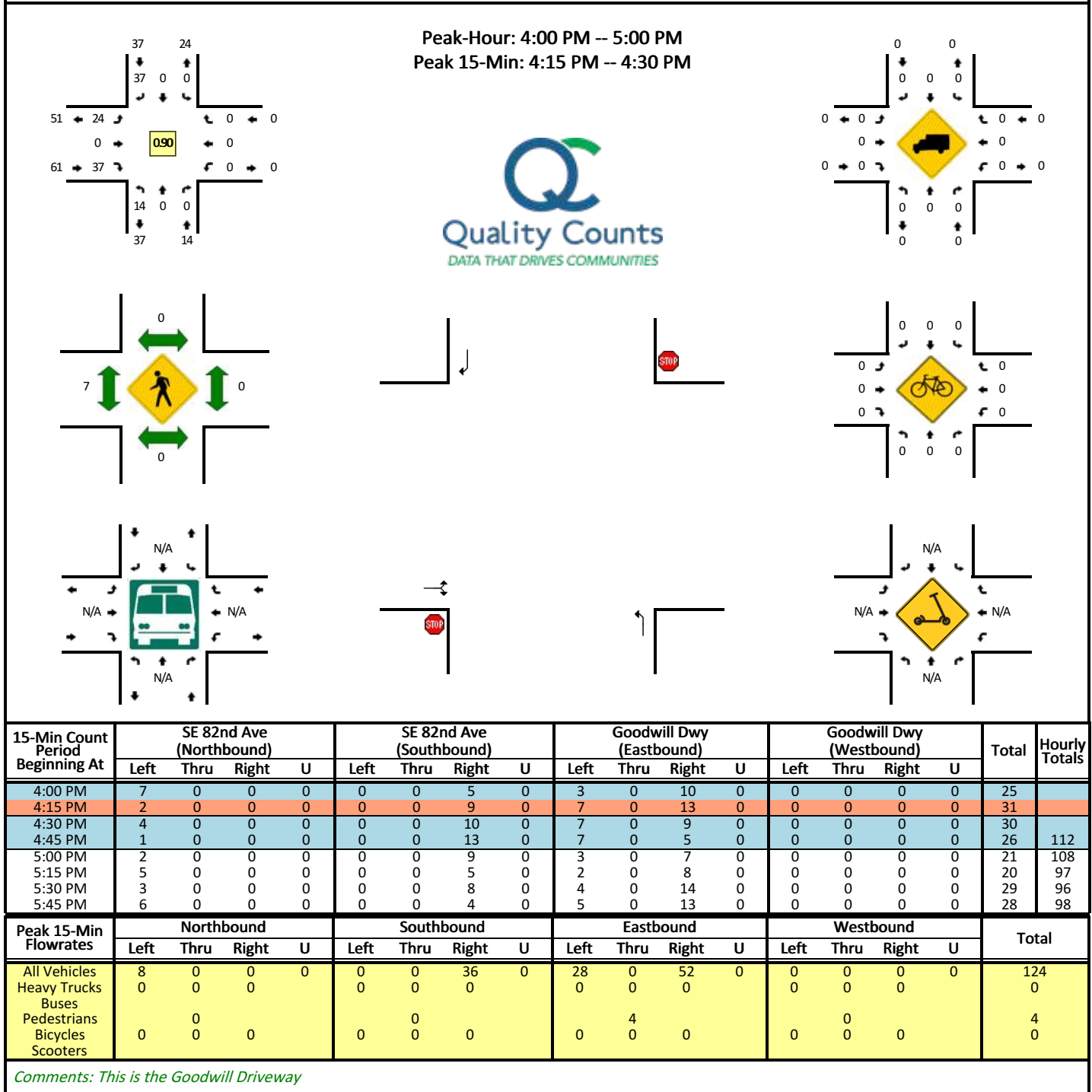


5-Min Count Period Beginning At	SE 82nd Ave (Northbound)				SE 82nd Ave (Southbound)				Goodwill Dwy (Eastbound)				Goodwill Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	1	0	0	0	0	0	4	0	4	0	4	0	0	0	0	0	13	
11:05 AM	4	0	0	0	0	0	3	0	3	0	2	0	0	0	0	0	12	
11:10 AM	1	0	0	0	0	0	3	0	1	0	5	0	0	0	0	0	10	
11:15 AM	3	0	0	0	0	0	6	0	2	0	4	0	0	0	0	0	15	
11:20 AM	0	0	0	0	0	0	4	0	2	0	4	0	0	0	0	0	10	
11:25 AM	5	0	0	0	0	0	6	0	4	0	8	0	0	0	0	0	23	
11:30 AM	2	0	0	0	0	0	4	0	3	0	6	0	0	0	0	0	15	
11:35 AM	4	0	0	0	0	0	3	0	2	0	4	0	0	0	0	0	13	
11:40 AM	2	0	0	0	0	0	9	0	2	0	2	0	0	0	0	0	15	
11:45 AM	0	0	0	0	0	0	3	0	4	0	5	0	0	0	0	0	12	
11:50 AM	2	0	0	0	0	0	3	0	1	0	6	0	0	0	0	0	12	
11:55 AM	2	0	0	0	0	0	5	0	4	0	5	0	0	0	0	0	16	166
12:00 PM	3	0	0	0	0	0	6	0	1	0	1	0	0	0	0	0	11	164
12:05 PM	1	0	0	0	0	0	3	0	1	0	2	0	0	0	0	0	7	159
12:10 PM	3	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	7	156
12:15 PM	3	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	7	148
12:20 PM	2	0	0	0	0	0	6	0	3	0	5	0	0	0	0	0	16	154
12:25 PM	4	0	0	0	0	0	3	0	2	0	3	0	0	0	0	0	12	143
12:30 PM	2	0	0	0	0	0	3	0	1	0	7	0	0	0	0	0	13	141
12:35 PM	3	0	0	0	0	0	4	0	4	0	7	0	0	0	0	0	18	146
12:40 PM	2	0	0	0	0	0	6	0	2	0	5	0	0	0	0	0	15	146
12:45 PM	4	0	0	0	0	0	7	0	0	0	5	0	0	0	0	0	16	150
12:50 PM	7	0	0	0	0	0	3	0	2	0	6	0	0	0	0	0	18	156
12:55 PM	2	0	0	0	0	0	4	0	3	0	6	0	0	0	0	0	15	155
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	0	0	0	0	0	68	0	24	0	68	0	0	0	0	0	196	
Heavy Trucks	4	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	8	
Buses																		
Pedestrians		0				0				12				0			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments: This is the Goodwill Driveway

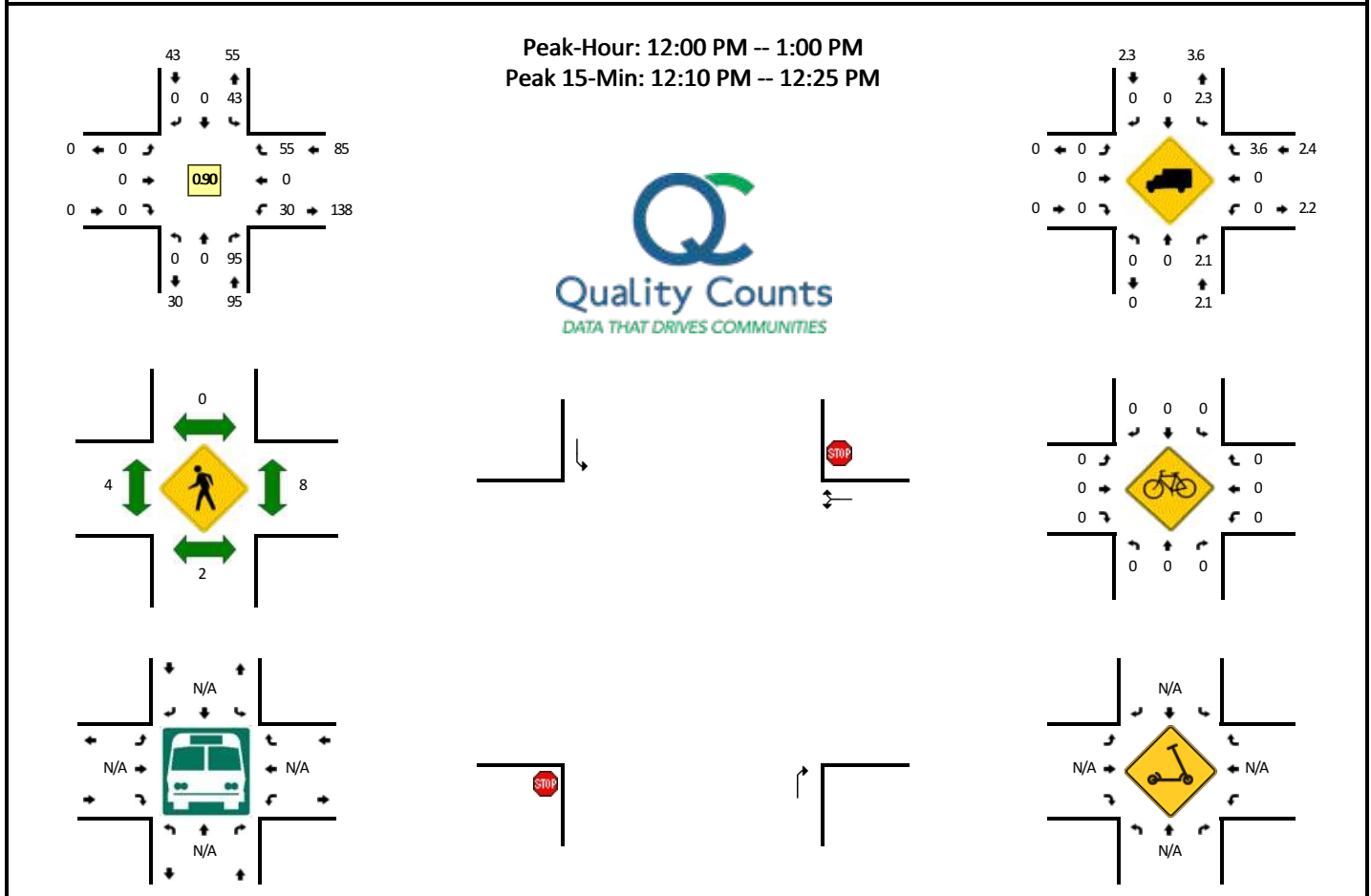
LOCATION: SE 82nd Ave -- Goodwill Dwy
CITY/STATE: Southgate CPO, OR

QC JOB #: 15838406
DATE: Tue, May 24 2022



LOCATION: SE 82nd Ave -- Main Walmart Dwy
CITY/STATE: Happy Valley, OR

QC JOB #: 15838407
DATE: Tue, May 24 2022

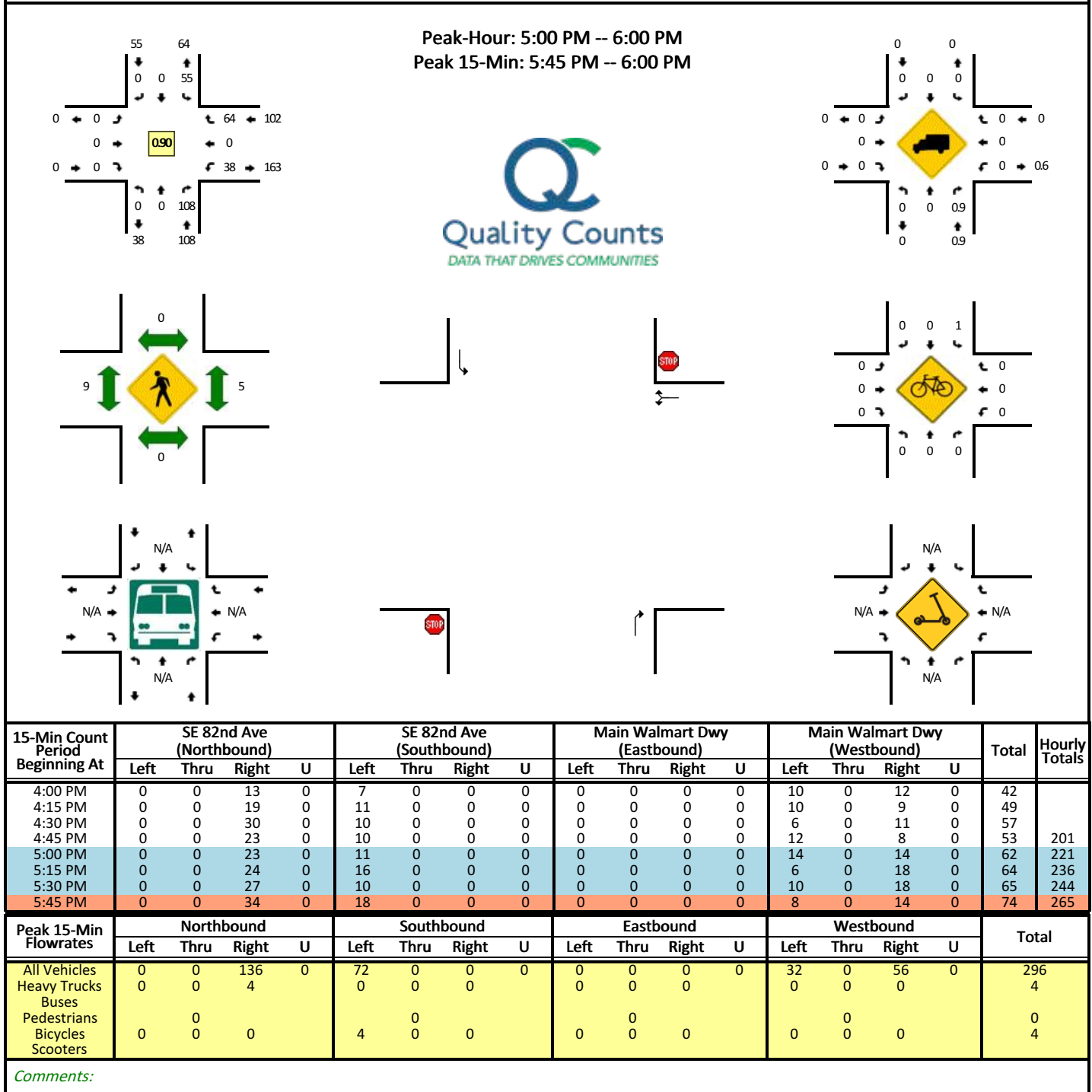


5-Min Count Period Beginning At	SE 82nd Ave (Northbound)				SE 82nd Ave (Southbound)				Main Walmart Dwy (Eastbound)				Main Walmart Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	0	4	0	6	0	0	0	0	0	0	0	3	0	6	0	19	
11:05 AM	0	0	12	0	3	0	0	0	0	0	0	0	4	0	6	0	25	
11:10 AM	0	0	6	0	3	0	0	0	0	0	0	0	8	0	6	0	23	
11:15 AM	0	0	10	0	0	0	0	0	0	0	0	0	7	0	4	0	21	
11:20 AM	0	0	5	0	2	0	0	0	0	0	0	0	3	0	2	0	12	
11:25 AM	0	0	6	0	9	0	0	0	0	0	0	0	6	0	1	0	22	
11:30 AM	0	0	8	0	3	0	0	0	0	0	0	0	4	0	2	0	17	
11:35 AM	0	0	8	0	7	0	0	0	0	0	0	0	2	0	5	0	22	
11:40 AM	0	0	14	0	3	0	0	0	0	0	0	0	6	0	2	0	25	
11:45 AM	0	0	5	0	5	0	0	0	0	0	0	0	2	0	4	0	16	
11:50 AM	0	0	9	0	3	0	0	0	0	0	0	0	5	0	2	0	19	
11:55 AM	0	0	9	0	2	0	0	0	0	0	0	0	3	0	5	0	19	240
12:00 PM	0	0	7	0	2	0	0	0	0	0	0	0	3	0	4	0	16	237
12:05 PM	0	0	4	0	3	0	0	0	0	0	0	0	3	0	4	0	14	226
12:10 PM	0	0	9	0	4	0	0	0	0	0	0	0	2	0	7	0	22	225
12:15 PM	0	0	6	0	2	0	0	0	0	0	0	0	0	0	14	0	22	226
12:20 PM	0	0	8	0	4	0	0	0	0	0	0	0	5	0	1	0	18	232
12:25 PM	0	0	8	0	3	0	0	0	0	0	0	0	4	0	7	0	22	232
12:30 PM	0	0	8	0	4	0	0	0	0	0	0	0	2	0	3	0	17	232
12:35 PM	0	0	8	0	4	0	0	0	0	0	0	0	3	0	5	0	20	230
12:40 PM	0	0	10	0	6	0	0	0	0	0	0	0	3	0	2	0	21	226
12:45 PM	0	0	12	0	2	0	0	0	0	0	0	0	0	0	1	0	15	225
12:50 PM	0	0	8	0	5	0	0	0	0	0	0	0	2	0	3	0	18	224
12:55 PM	0	0	7	0	4	0	0	0	0	0	0	0	3	0	4	0	18	223
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	92	0	40	0	0	0	0	0	0	0	28	0	88	0	248	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

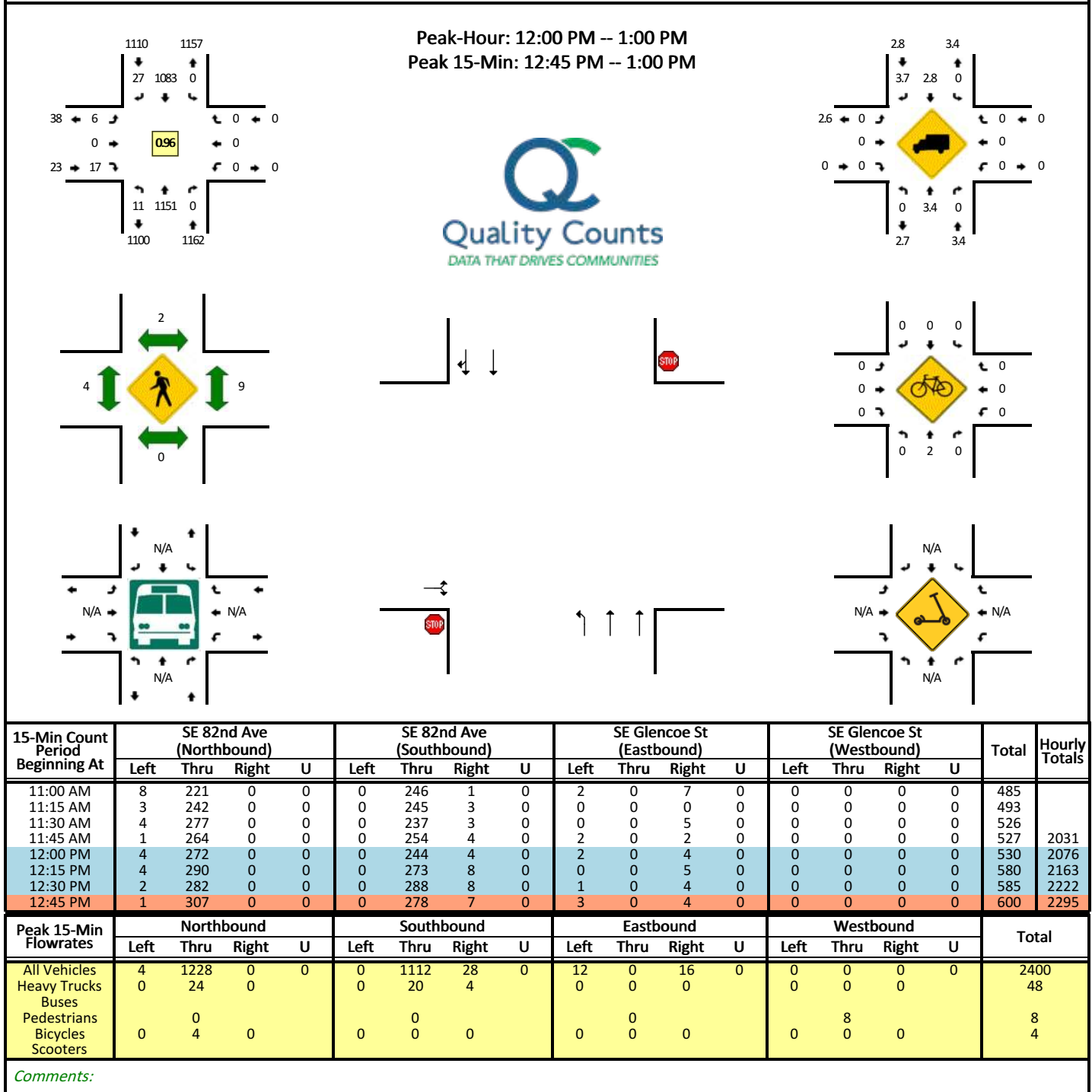
LOCATION: SE 82nd Ave -- Main Walmart Dwy
CITY/STATE: Happy Valley, OR

QC JOB #: 15838408
DATE: Tue, May 24 2022



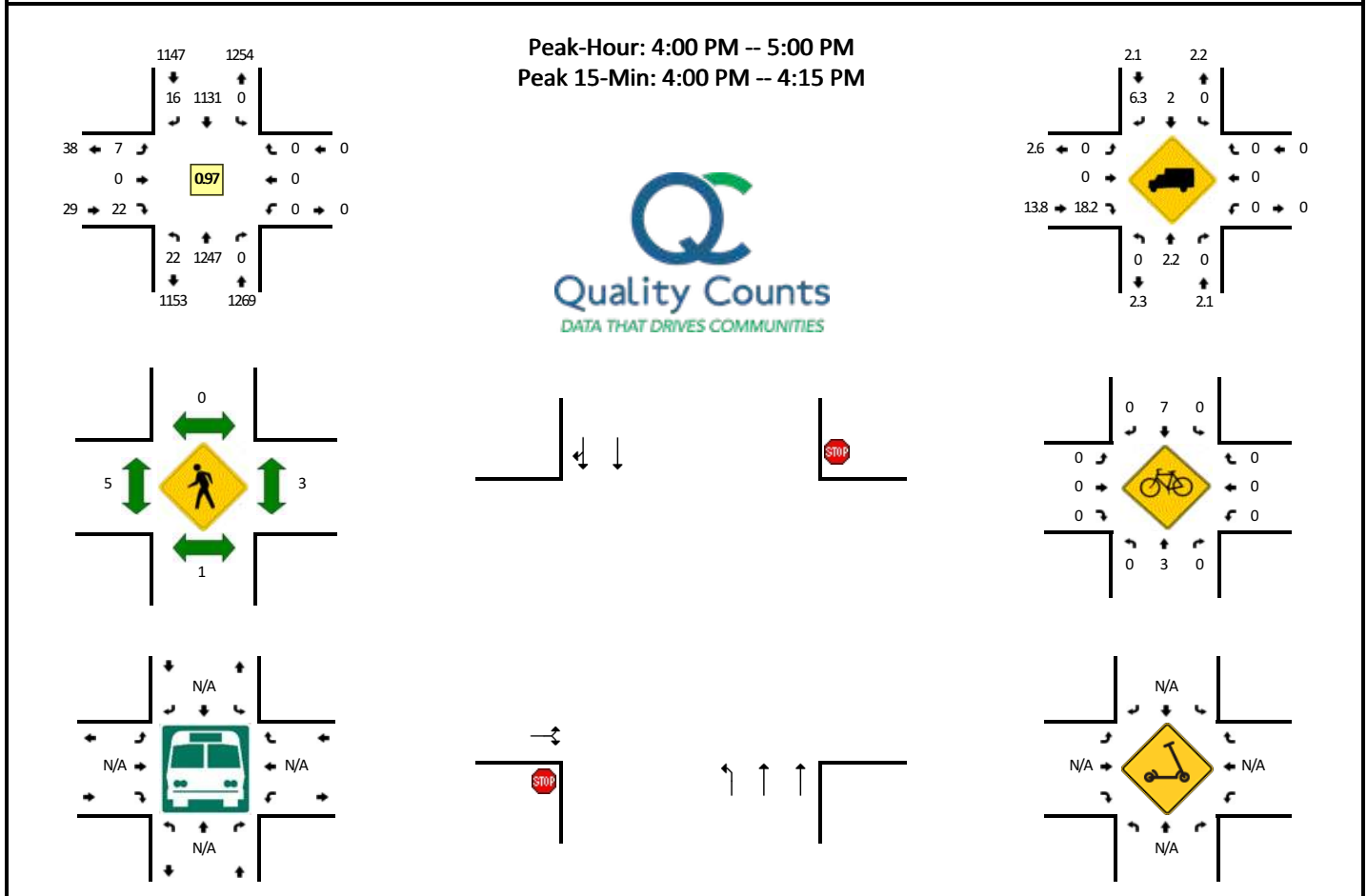
LOCATION: SE 82nd Ave -- SE Glencoe St
CITY/STATE: Happy Valley, OR

QC JOB #: 15838409
DATE: Tue, May 24 2022



LOCATION: SE 82nd Ave -- SE Glencoe St
CITY/STATE: Happy Valley, OR

QC JOB #: 15838410
DATE: Tue, May 24 2022

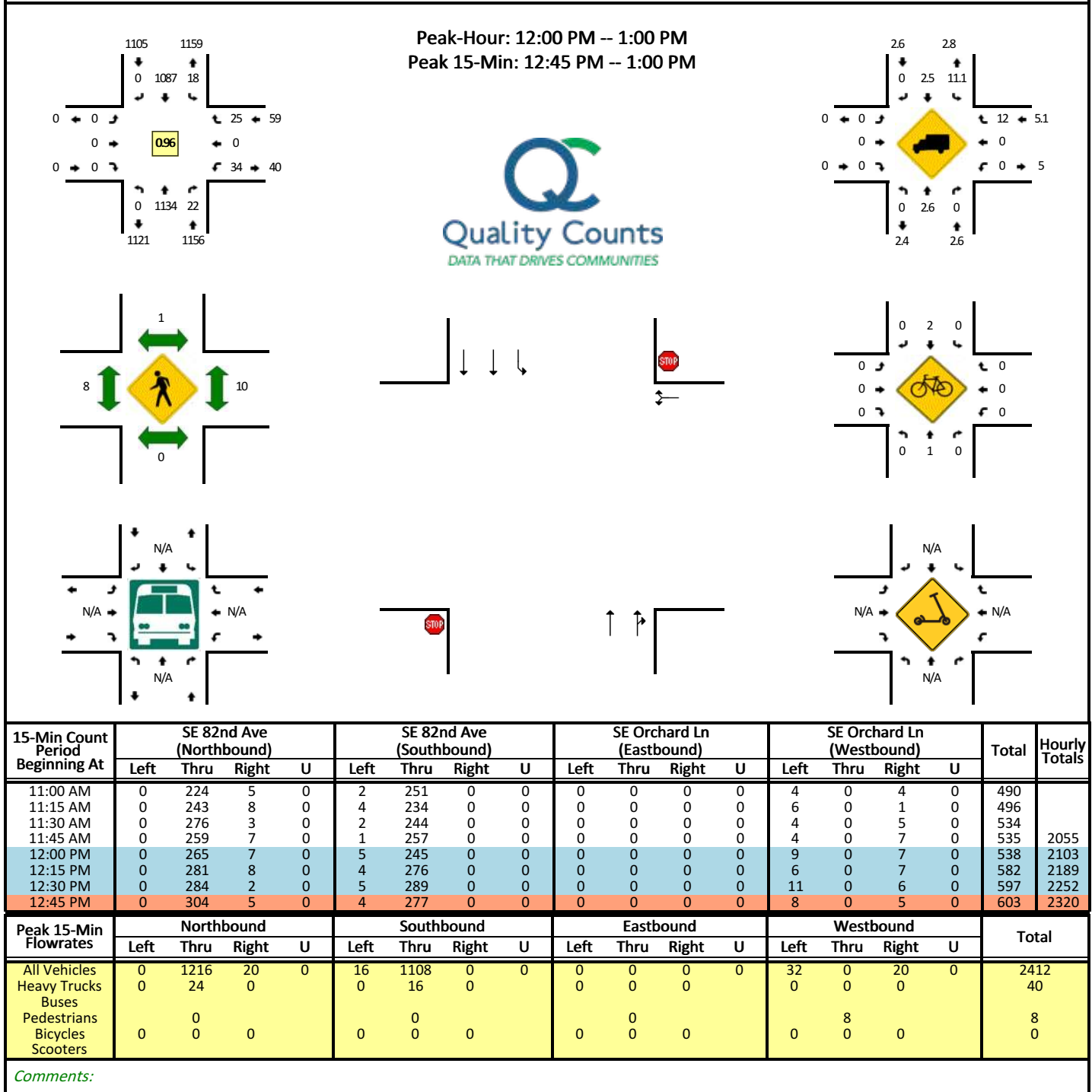


15-Min Count Period Beginning At	SE 82nd Ave (Northbound)				SE 82nd Ave (Southbound)				SE Glencoe St (Eastbound)				SE Glencoe St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	315	0	0	0	305	1	0	0	0	6	0	0	0	0	0	633	
4:15 PM	8	306	0	0	0	276	6	0	4	0	1	0	0	0	0	0	601	
4:30 PM	3	321	0	0	0	273	2	0	1	0	9	0	0	0	0	0	609	
4:45 PM	5	305	0	0	0	277	7	0	2	0	6	0	0	0	0	0	602	2445
5:00 PM	11	299	0	0	0	260	6	0	1	0	7	0	0	0	0	0	584	2396
5:15 PM	1	342	0	0	0	277	6	0	2	0	2	0	0	0	0	0	630	2425
5:30 PM	6	312	0	0	0	271	11	0	2	0	5	0	0	0	0	0	607	2423
5:45 PM	8	301	0	0	0	271	5	0	3	0	4	0	0	0	0	0	592	2413
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	1260	0	0	0	1220	4	0	0	0	24	0	0	0	0	0	2532	
Heavy Trucks	0	24	0	0	0	20	0	0	0	0	4	0	0	0	0	0	48	
Buses																		
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles	0	0	0		0	8	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

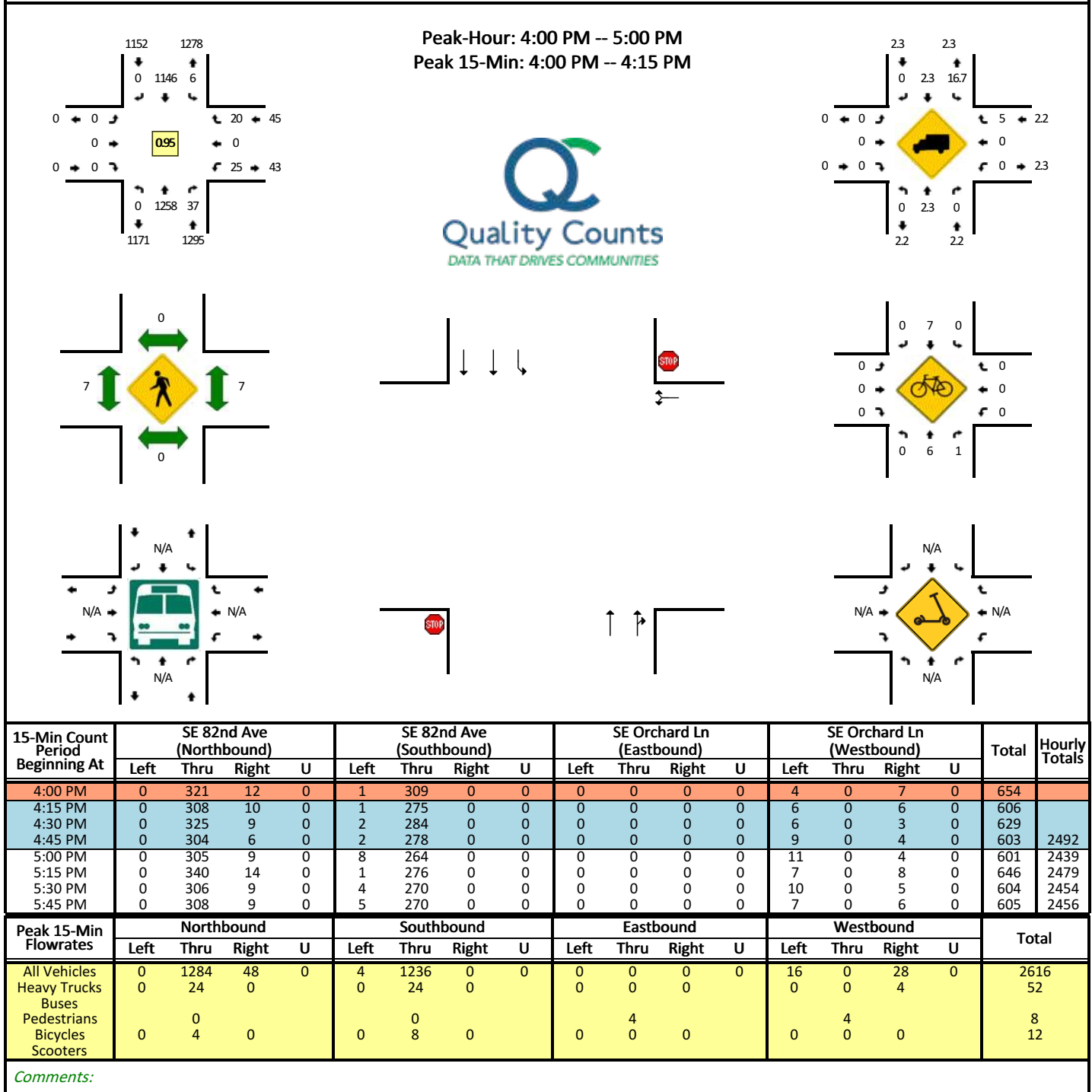
LOCATION: SE 82nd Ave -- SE Orchard Ln
CITY/STATE: Portland, OR

QC JOB #: 15838411
DATE: Tue, May 24 2022



LOCATION: SE 82nd Ave -- SE Orchard Ln
CITY/STATE: Portland, OR

QC JOB #: 15838412
DATE: Tue, May 24 2022



Appendix C:
Existing Traffic Conditions
Analysis Worksheets

Intersection Level Of Service Report

Intersection 1: SE 79th Ave/SE Otty St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.004

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	9.00	9.00	9.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	7	3	6	2	7	0	0	29	7	2	30	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	3	6	2	7	0	0	29	7	2	30	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	2	1	2	0	0	7	2	1	8	1
Total Analysis Volume [veh/h]	7	3	6	2	7	0	0	30	7	2	31	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results





V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.00	9.45	8.51	9.00	9.44	8.49	7.27	0.00	0.00	7.27	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.30	1.30	1.30	0.81	0.81	0.81	0.00	0.00	0.00	0.09	0.09	0.09
d_A, Approach Delay [s/veh]	8.90			9.34			0.00			0.39		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.44											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: SE 82nd Ave/SE Otty Rd

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 19.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.573

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	11.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [ft]	115.00	100.00	95.00	165.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	51	961	112	112	933	37	40	30	52	146	32	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	1.00	4.00	3.00	0.00	0.00	0.00	0.00	1.00	3.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	961	87	112	933	37	40	30	52	146	32	95
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	253	23	29	246	10	11	8	14	38	8	25
Total Analysis Volume [veh/h]	54	1012	92	118	982	39	42	32	55	154	34	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	4	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	1			2			2			1		
v_di, Inbound Pedestrian Volume crossing major street	2			1			1			2		
v_co, Outbound Pedestrian Volume crossing minor street	6			3			3			6		
v_ci, Inbound Pedestrian Volume crossing minor street	6			3			3			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	39.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	ProtPer	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	6	0	4	6	0
Maximum Green [s]	10	36	0	17	43	0	33	32	0	27	26	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	3.5	0.0	3.5	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	0.5	0.0
Split [s]	14	41	0	21	48	0	37	37	0	31	31	0
Vehicle Extension [s]	2.3	4.2	0.0	2.3	4.2	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Walk [s]	0	8	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	16	0	0	23	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.25	4.50	4.50	4.00	4.50	4.00	4.50
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	2.50	0.00	2.50	2.50	2.00	2.50	2.00	2.50
g_i, Effective Green Time [s]	94	86	86	94	86	86	10	9	14	13
g / C, Green / Cycle	0.73	0.66	0.66	0.73	0.66	0.66	0.08	0.07	0.11	0.10
(v / s)_i Volume / Saturation Flow Rate	0.08	0.36	0.06	0.17	0.28	0.28	0.02	0.05	0.04	0.08
s, saturation flow rate [veh/h]	682	2782	1530	682	1855	1829	1810	1695	3486	1628
c, Capacity [veh/h]	439	1837	1010	403	1233	1216	139	124	366	165
d1, Uniform Delay [s]	13.09	11.79	7.96	20.24	10.12	10.12	56.71	58.87	54.46	57.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.07	0.07	0.07	0.07
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	1.19	0.18	1.84	1.04	1.06	0.74	4.39	0.47	5.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.55	0.09	0.29	0.42	0.42	0.30	0.70	0.42	0.81
d, Delay for Lane Group [s/veh]	13.67	12.98	8.14	22.08	11.16	11.18	57.44	63.27	54.93	63.07
Lane Group LOS	B	B	A	C	B	B	E	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.42	7.21	0.90	1.01	6.42	6.34	1.35	2.98	2.38	4.55
50th-Percentile Queue Length [ft/ln]	10.56	180.20	22.45	25.16	160.53	158.62	33.70	74.45	59.42	113.84
95th-Percentile Queue Length [veh/ln]	0.76	11.61	1.62	1.81	10.58	10.48	2.43	5.36	4.28	8.05
95th-Percentile Queue Length [ft/ln]	19.01	290.28	40.42	45.29	264.43	261.89	60.65	134.00	106.96	201.33

Movement, Approach, & Intersection Results

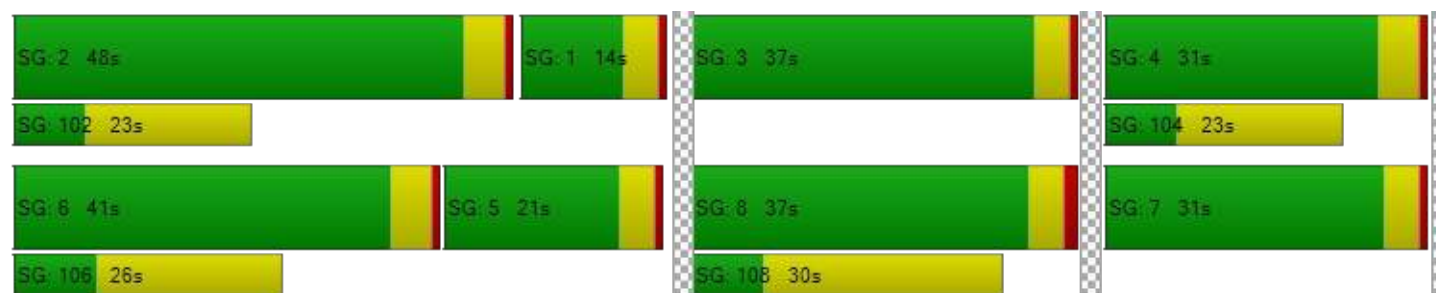
d_M, Delay for Movement [s/veh]	13.67	12.98	8.14	22.08	11.17	11.18	57.44	63.27	63.27	54.93	63.07	63.07
Movement LOS	B	B	A	C	B	B	E	E	E	D	E	E
d_A, Approach Delay [s/veh]	12.63			12.30			61.37			58.72		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	19.70											
Intersection LOS	B											
Intersection V/C	0.573											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			12.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	54.46			54.46			54.46			53.55		
I_p,int, Pedestrian LOS Score for Intersection	3.085			2.988			2.098			2.460		
Crosswalk LOS	C			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	562			669			500			408		
d_b, Bicycle Delay [s]	33.64			28.78			36.56			41.20		
I_b,int, Bicycle LOS Score for Intersection	2.536			2.499			1.772			2.035		
Bicycle LOS	B			B			A			B		

Sequence




Ring 1	2	1	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	8	7	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: SE 82nd Ave/Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.129

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1068	34	13	1118	0	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	0.00	3.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1068	34	13	1118	0	56
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	281	9	3	294	0	15
Total Analysis Volume [veh/h]	1124	36	14	1177	0	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.01	0.00	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	11.04	0.00	0.00	14.03
Movement LOS	A	A	B	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.07	0.00	0.00	0.44
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.76	0.00	0.00	11.00
d_A, Approach Delay [s/veh]	0.00		0.13		14.03	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: SE 82nd Ave/Goodwill Driveway

Control Type:	Two-way stop	Delay (sec / veh):	28.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.120

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	36	1082	1071	47	20	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	0.00	5.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	1082	1071	47	20	52
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	285	282	12	5	14
Total Analysis Volume [veh/h]	38	1139	1127	49	21	55
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.01	0.00	0.12	0.12
d_M, Delay for Movement [s/veh]	11.59	0.00	0.00	0.00	28.26	14.18
Movement LOS	B	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.21	0.00	0.00	0.00	0.40	0.42
95th-Percentile Queue Length [ft/ln]	5.20	0.00	0.00	0.00	9.98	10.43
d_A, Approach Delay [s/veh]	0.37		0.00		18.07	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.75					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 5: SE 82nd Ave/Main Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.181

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1063	95	43	1080	30	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	2.00	2.00	3.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1063	95	43	1080	30	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	280	25	11	284	8	14
Total Analysis Volume [veh/h]	1119	100	45	1137	32	58
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.08	0.01	0.18	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	11.89	0.00	30.99	18.99
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.26	0.00	1.31	1.31
95th-Percentile Queue Length [ft/ln]	0.00	0.00	6.43	0.00	32.68	32.68
d_A, Approach Delay [s/veh]	0.00		0.45		23.25	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.05					
Intersection LOS	D					




Intersection Level Of Service Report

Intersection 8: SE 82nd Ave/SE Glencoe St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 24.7
 Level Of Service: C
 Volume to Capacity (v/c): 0.032

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	11	1152	1083	27	6	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	3.00	4.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	1152	1083	27	6	17
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	300	282	7	2	4
Total Analysis Volume [veh/h]	11	1200	1128	28	6	18
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results




V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.03	0.04
d_M, Delay for Movement [s/veh]	10.99	0.00	0.00	0.00	24.71	13.55
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.00	0.23	0.23
95th-Percentile Queue Length [ft/ln]	1.37	0.00	0.00	0.00	5.64	5.64
d_A, Approach Delay [s/veh]	0.10		0.00		16.34	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: SE 82nd Ave/SE Orchard Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 29.9
 Level Of Service: D
 Volume to Capacity (v/c): 0.193

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1134	22	18	1087	34	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	11.00	2.00	0.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1134	22	18	1087	34	25
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	295	6	5	283	9	7
Total Analysis Volume [veh/h]	1181	23	19	1132	35	26
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.19	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	12.08	0.00	29.90	18.67
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.11	0.00	0.98	0.98
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.80	0.00	24.58	24.58
d_A, Approach Delay [s/veh]	0.00		0.20		25.11	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.73					
Intersection LOS	D					

Intersection Level Of Service Report

Intersection 1: SE 79th Ave/SE Otty St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	9.00	9.00	9.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	13	3	7	2	4	1	3	43	5	7	43	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	3	7	2	4	1	3	43	5	7	43	3
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	2	1	1	0	1	13	2	2	13	1
Total Analysis Volume [veh/h]	16	4	9	3	5	1	4	54	6	9	54	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.53	9.96	8.69	9.49	9.88	8.59	7.32	0.00	0.00	7.33	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.10	0.03	0.03	0.03	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	2.61	2.61	2.61	0.86	0.86	0.86	0.19	0.19	0.19	0.44	0.44	0.44
d_A, Approach Delay [s/veh]	9.33			9.60			0.46			0.98		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.68											
Intersection LOS	A											





Intersection Level Of Service Report

Intersection 2: SE 82nd Ave/SE Otty Rd

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 19.5
 Level Of Service: B
 Volume to Capacity (v/c): 0.618

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	11.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [ft]	115.00	100.00	95.00	165.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	39	1060	141	124	987	29	29	27	40	153	34	95
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	2.00	1.00	1.00	2.00	0.00	7.00	0.00	5.00	1.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	1060	116	124	987	29	29	27	40	153	34	95
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	279	31	33	260	8	8	7	11	40	9	25
Total Analysis Volume [veh/h]	41	1116	122	131	1039	31	31	28	42	161	36	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	2			2			2			1		
v_di, Inbound Pedestrian Volume crossing major street	2			1			2			2		
v_co, Outbound Pedestrian Volume crossing minor street	1			6			7			2		
v_ci, Inbound Pedestrian Volume crossing minor street	2			7			6			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	129.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	ProtPer	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	6	0	4	6	0
Maximum Green [s]	10	50	0	17	57	0	32	31	0	24	23	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	3.5	0.0	3.5	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	0.5	0.0
Split [s]	14	55	0	21	62	0	36	36	0	28	28	0
Vehicle Extension [s]	2.3	4.2	0.0	2.3	4.2	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Walk [s]	0	8	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	16	0	0	23	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.50	4.50	4.50	4.00	4.50	4.00	4.50
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	2.50	0.00	2.50	2.50	2.00	2.50	2.00	2.50
g_i, Effective Green Time [s]	94	94	94	96	96	96	9	9	14	14
g / C, Green / Cycle	0.67	0.67	0.67	0.69	0.69	0.69	0.07	0.06	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.07	0.40	0.08	0.21	0.29	0.29	0.02	0.04	0.05	0.08
s, saturation flow rate [veh/h]	624	2805	1562	613	1870	1847	1709	1697	3486	1670
c, Capacity [veh/h]	375	1881	1048	385	1289	1273	116	109	357	165
d1, Uniform Delay [s]	16.93	12.62	8.22	12.05	9.50	9.51	61.96	63.94	59.12	61.88
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.07	0.07	0.07	0.07
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.59	1.39	0.23	2.39	1.00	1.01	0.75	3.83	0.54	6.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.59	0.12	0.34	0.42	0.42	0.27	0.64	0.45	0.82
d, Delay for Lane Group [s/veh]	17.51	14.00	8.45	14.45	10.50	10.52	62.71	67.77	59.66	68.09
Lane Group LOS	B	B	A	B	B	B	E	E	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.44	8.92	1.29	1.46	6.78	6.73	1.08	2.58	2.71	5.01
50th-Percentile Queue Length [ft/ln]	11.08	222.96	32.13	36.49	169.62	168.29	27.12	64.48	67.76	125.33
95th-Percentile Queue Length [veh/ln]	0.80	13.82	2.31	2.63	11.06	10.99	1.95	4.64	4.88	8.69
95th-Percentile Queue Length [ft/ln]	19.95	345.40	57.83	65.69	276.42	274.67	48.82	116.06	121.96	217.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.51	14.00	8.45	14.45	10.51	10.52	62.71	67.77	67.77	59.66	68.09	68.09
Movement LOS	B	B	A	B	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	13.59			10.94			66.22			63.52		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	19.48											
Intersection LOS	B											
Intersection V/C	0.618											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			12.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	59.43			59.43			59.43			58.51		
I_p,int, Pedestrian LOS Score for Intersection	3.130			3.037			2.072			2.441		
Crosswalk LOS	C			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	721			821			450			336		
d_b, Bicycle Delay [s]	28.68			24.33			42.04			48.47		
I_b,int, Bicycle LOS Score for Intersection	2.635			2.550			1.726			2.050		
Bicycle LOS	B			B			A			B		

Sequence




Ring 1	2	1	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: SE 82nd Ave/Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.128

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1190	33	16	1164	0	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1190	33	16	1164	0	50
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	313	9	4	306	0	13
Total Analysis Volume [veh/h]	1253	35	17	1225	0	53
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.00	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	11.82	0.00	0.00	14.93
Movement LOS	A	A	B	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.10	0.00	0.00	0.43
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.41	0.00	0.00	10.86
d_A, Approach Delay [s/veh]	0.00		0.16		14.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: SE 82nd Ave/Goodwill Driveway

Control Type:	Two-way stop	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.143

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	14	1199	1127	37	24	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	1199	1127	37	24	37
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	316	297	10	6	10
Total Analysis Volume [veh/h]	15	1262	1186	39	25	39
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.14	0.09
d_M, Delay for Movement [s/veh]	11.42	0.00	0.00	0.00	29.00	13.96
Movement LOS	B	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.00	0.49	0.29
95th-Percentile Queue Length [ft/ln]	2.00	0.00	0.00	0.00	12.20	7.24
d_A, Approach Delay [s/veh]	0.13		0.00		19.83	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 5: SE 82nd Ave/Main Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	37.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.256

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1149	108	55	1109	38	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	0.00	2.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1149	108	55	1109	38	64
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	302	28	14	292	10	17
Total Analysis Volume [veh/h]	1209	114	58	1167	40	67
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.11	0.01	0.26	0.16
d_M, Delay for Movement [s/veh]	0.00	0.00	12.64	0.00	37.90	23.64
Movement LOS	A	A	B	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.37	0.00	1.96	1.96
95th-Percentile Queue Length [ft/ln]	0.00	0.00	9.18	0.00	49.05	49.05
d_A, Approach Delay [s/veh]	0.00		0.60		28.97	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.44					
Intersection LOS	E					




Intersection Level Of Service Report

Intersection 8: SE 82nd Ave/SE Glencoe St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 26.6
 Level Of Service: D
 Volume to Capacity (v/c): 0.040

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	22	1250	1131	16	7	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	6.00	0.00	18.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	1250	1131	16	7	22
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	322	291	4	2	6
Total Analysis Volume [veh/h]	23	1289	1166	16	7	23
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.04	0.06
d_M, Delay for Movement [s/veh]	11.26	0.00	0.00	0.00	26.60	14.94
Movement LOS	B	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.12	0.00	0.00	0.00	0.31	0.31
95th-Percentile Queue Length [ft/ln]	3.00	0.00	0.00	0.00	7.84	7.84
d_A, Approach Delay [s/veh]	0.20		0.00		17.66	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.31					
Intersection LOS	D					




Intersection Level Of Service Report

Intersection 9: SE 82nd Ave/SE Orchard Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 32.8
 Level Of Service: D
 Volume to Capacity (v/c): 0.166

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1258	37	6	1146	25	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	17.00	2.00	0.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1258	37	6	1146	25	20
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	331	10	2	302	7	5
Total Analysis Volume [veh/h]	1324	39	6	1206	26	21
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.01	0.17	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	13.52	0.00	32.76	19.06
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.00	0.82	0.82
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.06	0.00	20.44	20.44
d_A, Approach Delay [s/veh]	0.00		0.07		26.64	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.51					
Intersection LOS	D					

Appendix D:
2024 Background Traffic Conditions
Analysis Worksheets

Intersection Level Of Service Report

Intersection 1: SE 79th Ave/SE Otty St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.004

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	9.00	9.00	9.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	7	3	6	2	7	0	0	30	7	2	31	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	3	6	2	7	0	0	30	7	2	31	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	2	1	2	0	0	8	2	1	8	1
Total Analysis Volume [veh/h]	7	3	6	2	7	0	0	31	7	2	32	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.02	9.46	8.51	9.01	9.45	8.49	7.27	0.00	0.00	7.27	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.30	1.30	1.30	0.82	0.82	0.82	0.00	0.00	0.00	0.09	0.09	0.09
d_A, Approach Delay [s/veh]	8.91			9.35			0.00			0.38		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.39											
Intersection LOS	A											




Intersection Level Of Service Report

Intersection 2: SE 82nd Ave/SE Otty Rd

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 20.1
 Level Of Service: C
 Volume to Capacity (v/c): 0.596

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	11.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [ft]	115.00	100.00	95.00	165.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	53	1000	117	117	971	38	42	31	54	152	33	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	1.00	4.00	3.00	0.00	0.00	0.00	0.00	1.00	3.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	1000	92	117	971	38	42	31	54	152	33	99
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	263	24	31	256	10	11	8	14	40	9	26
Total Analysis Volume [veh/h]	56	1053	97	123	1022	40	44	33	57	160	35	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	1			2			2			1		
v_di, Inbound Pedestrian Volume crossing major street	2			1			1			2		
v_co, Outbound Pedestrian Volume crossing minor street	6			3			3			6		
v_ci, Inbound Pedestrian Volume crossing minor street	6			3			3			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	39.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	ProtPer	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	6	0	4	6	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	3.5	0.0	3.5	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	0.5	0.0
Split [s]	14	41	0	21	48	0	37	37	0	31	31	0
Vehicle Extension [s]	2.3	4.2	0.0	2.3	4.2	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Walk [s]	0	8	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	16	0	0	23	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.25	4.50	4.50	4.00	4.50	4.00	4.50
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	2.50	0.00	2.50	2.50	2.00	2.50	2.00	2.50
g_i, Effective Green Time [s]	94	85	85	94	86	86	10	10	14	13
g / C, Green / Cycle	0.72	0.66	0.66	0.72	0.66	0.66	0.08	0.07	0.11	0.10
(v / s)_i Volume / Saturation Flow Rate	0.08	0.38	0.06	0.19	0.29	0.29	0.02	0.05	0.05	0.09
s, saturation flow rate [veh/h]	664	2782	1555	663	1855	1830	1810	1695	3486	1627
c, Capacity [veh/h]	428	1831	1023	392	1228	1211	140	125	372	168
d1, Uniform Delay [s]	13.27	12.20	8.07	20.92	10.42	10.42	56.59	58.80	54.26	57.09
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.07	0.07	0.07	0.07
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.63	1.32	0.18	2.08	1.12	1.14	0.77	4.72	0.48	6.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.58	0.09	0.31	0.44	0.44	0.31	0.72	0.43	0.83
d, Delay for Lane Group [s/veh]	13.90	13.52	8.26	23.00	11.54	11.56	57.36	63.52	54.74	63.46
Lane Group LOS	B	B	A	C	B	B	E	E	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.45	7.79	0.96	1.08	6.89	6.81	1.41	3.09	2.46	4.74
50th-Percentile Queue Length [ft/ln]	11.21	194.73	24.02	27.01	172.14	170.18	35.26	77.17	61.61	118.49
95th-Percentile Queue Length [veh/ln]	0.81	12.37	1.73	1.94	11.19	11.09	2.54	5.56	4.44	8.31
95th-Percentile Queue Length [ft/ln]	20.17	309.16	43.24	48.62	279.73	277.15	63.47	138.90	110.90	207.75

Movement, Approach, & Intersection Results

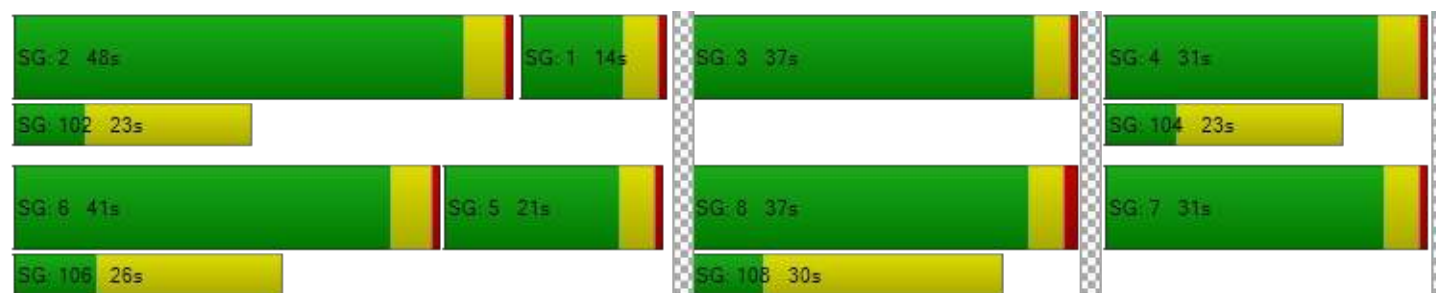
d_M, Delay for Movement [s/veh]	13.90	13.52	8.26	23.00	11.55	11.56	57.36	63.52	63.52	54.74	63.46	63.46
Movement LOS	B	B	A	C	B	B	E	E	E	D	E	E
d_A, Approach Delay [s/veh]	13.12			12.74			61.50			58.79		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	20.09											
Intersection LOS	C											
Intersection V/C	0.596											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			12.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	54.41			54.41			54.41			53.50		
I_p,int, Pedestrian LOS Score for Intersection	3.108			3.015			2.103			2.473		
Crosswalk LOS	C			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	562			670			500			408		
d_b, Bicycle Delay [s]	33.59			28.73			36.51			41.15		
I_b,int, Bicycle LOS Score for Intersection	2.575			2.537			1.781			2.053		
Bicycle LOS	B			B			A			B		

Sequence




Ring 1	2	1	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	8	7	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: SE 82nd Ave/Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.133

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1111	34	13	1163	0	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	0.00	3.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1111	34	13	1163	0	56
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	292	9	3	306	0	15
Total Analysis Volume [veh/h]	1169	36	14	1224	0	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.01	0.00	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	11.29	0.00	0.00	14.39
Movement LOS	A	A	B	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.07	0.00	0.00	0.46
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.83	0.00	0.00	11.43
d_A, Approach Delay [s/veh]	0.00		0.13		14.39	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.40					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: SE 82nd Ave/Goodwill Driveway

Control Type:	Two-way stop	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.127

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	36	1126	1114	47	20	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	0.00	5.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	1126	1114	47	20	52
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	296	293	12	5	14
Total Analysis Volume [veh/h]	38	1185	1173	49	21	55
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.01	0.00	0.13	0.13
d_M, Delay for Movement [s/veh]	11.89	0.00	0.00	0.00	29.85	14.55
Movement LOS	B	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.22	0.00	0.00	0.00	0.43	0.43
95th-Percentile Queue Length [ft/ln]	5.43	0.00	0.00	0.00	10.63	10.85
d_A, Approach Delay [s/veh]	0.37		0.00		18.78	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.75					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 5: SE 82nd Ave/Main Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	32.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.191

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1106	95	43	1124	30	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	2.00	2.00	3.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1106	95	43	1124	30	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	291	25	11	296	8	14
Total Analysis Volume [veh/h]	1164	100	45	1183	32	58
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.08	0.01	0.19	0.14
d_M, Delay for Movement [s/veh]	0.00	0.00	12.19	0.00	32.84	19.96
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.27	0.00	1.39	1.39
95th-Percentile Queue Length [ft/ln]	0.00	0.00	6.71	0.00	34.77	34.77
d_A, Approach Delay [s/veh]	0.00		0.45		24.54	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.07					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 8: SE 82nd Ave/SE Glencoe St

Control Type:	Two-way stop	Delay (sec / veh):	25.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	11	1199	1127	28	6	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	3.00	4.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	1199	1127	28	6	18
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	312	293	7	2	5
Total Analysis Volume [veh/h]	11	1249	1174	29	6	19
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.03	0.04
d_M, Delay for Movement [s/veh]	11.25	0.00	0.00	0.00	25.94	13.93
Movement LOS	B	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.00	0.24	0.24
95th-Percentile Queue Length [ft/ln]	1.43	0.00	0.00	0.00	6.11	6.11
d_A, Approach Delay [s/veh]	0.10		0.00		16.81	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.22					
Intersection LOS	D					




Intersection Level Of Service Report

Intersection 9: SE 82nd Ave/SE Orchard Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 32.1
 Level Of Service: D
 Volume to Capacity (v/c): 0.211

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1180	23	19	1131	35	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	11.00	2.00	0.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1180	23	19	1131	35	26
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	307	6	5	295	9	7
Total Analysis Volume [veh/h]	1229	24	20	1178	36	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.21	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	12.43	0.00	32.10	19.93
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.12	0.00	1.10	1.10
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.09	0.00	27.40	27.40
d_A, Approach Delay [s/veh]	0.00		0.21		26.88	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.77					
Intersection LOS	D					

Intersection Level Of Service Report

Intersection 1: SE 79th Ave/SE Otty St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	9.00	9.00	9.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	14	3	7	2	4	1	3	45	5	7	45	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	3	7	2	4	1	3	45	5	7	45	3
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	2	1	1	0	1	14	2	2	14	1
Total Analysis Volume [veh/h]	18	4	9	3	5	1	4	56	6	9	56	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results




V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.57	10.00	8.71	9.51	9.90	8.60	7.32	0.00	0.00	7.33	0.00	0.00
Movement LOS	A	B	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.11	0.03	0.03	0.03	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	2.82	2.82	2.82	0.87	0.87	0.87	0.19	0.19	0.19	0.44	0.44	0.44
d_A, Approach Delay [s/veh]	9.38			9.63			0.44			0.96		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.70											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: SE 82nd Ave/SE Otty Rd

Control Type: Signalized
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 20.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.643

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	11.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [ft]	115.00	100.00	95.00	165.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	41	1103	147	129	1027	30	30	28	42	159	35	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	2.00	1.00	1.00	2.00	0.00	7.00	0.00	5.00	1.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	41	1103	122	129	1027	30	30	28	42	159	35	99
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	290	32	34	270	8	8	7	11	42	9	26
Total Analysis Volume [veh/h]	43	1161	128	136	1081	32	32	29	44	167	37	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major street	2			2			2			1		
v_di, Inbound Pedestrian Volume crossing major street	2			1			2			2		
v_co, Outbound Pedestrian Volume crossing minor street	1			6			7			2		
v_ci, Inbound Pedestrian Volume crossing minor street	2			7			6			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	129.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	ProtPer	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	6	0	4	6	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	3.5	0.0	3.5	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	0.5	0.0
Split [s]	14	55	0	21	62	0	36	36	0	28	28	0
Vehicle Extension [s]	2.3	4.2	0.0	2.3	4.2	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Walk [s]	0	8	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	16	0	0	23	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.50	4.50	4.50	4.00	4.50	4.00	4.50
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	2.50	0.00	2.50	2.50	2.00	2.50	2.00	2.50
g_i, Effective Green Time [s]	94	93	93	96	96	96	10	9	15	14
g / C, Green / Cycle	0.67	0.67	0.67	0.69	0.69	0.69	0.07	0.07	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.07	0.41	0.08	0.23	0.30	0.30	0.02	0.04	0.05	0.08
s, saturation flow rate [veh/h]	608	2805	1562	594	1870	1847	1709	1697	3486	1670
c, Capacity [veh/h]	364	1872	1043	373	1283	1267	118	111	363	168
d1, Uniform Delay [s]	17.38	13.19	8.40	12.56	9.83	9.85	61.76	63.81	58.90	61.74
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.07	0.07	0.07	0.07
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.66	1.56	0.24	2.75	1.08	1.10	0.75	4.06	0.55	6.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.62	0.12	0.36	0.44	0.44	0.27	0.66	0.46	0.84
d, Delay for Lane Group [s/veh]	18.04	14.75	8.64	15.31	10.91	10.94	62.51	67.87	59.45	68.48
Lane Group LOS	B	B	A	B	B	B	E	E	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.48	9.72	1.38	1.56	7.30	7.25	1.12	2.69	2.81	5.21
50th-Percentile Queue Length [ft/ln]	11.89	242.91	34.44	39.01	182.49	181.15	27.94	67.30	70.15	130.36
95th-Percentile Queue Length [veh/ln]	0.86	14.83	2.48	2.81	11.73	11.66	2.01	4.85	5.05	8.96
95th-Percentile Queue Length [ft/ln]	21.40	370.71	62.00	70.21	293.27	291.51	50.29	121.13	126.27	223.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.04	14.75	8.64	15.31	10.93	10.94	62.51	67.87	67.87	59.45	68.48	68.48
Movement LOS	B	B	A	B	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	14.27			11.41			66.24			63.59		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	19.97											
Intersection LOS	B											
Intersection V/C	0.643											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	12.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	59.37	59.37	59.37	58.45
I_p,int, Pedestrian LOS Score for Intersection	3.155	3.066	2.077	2.451
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	722	822	450	336
d_b, Bicycle Delay [s]	28.63	24.28	41.99	48.41
I_b,int, Bicycle LOS Score for Intersection	2.679	2.590	1.733	2.068
Bicycle LOS	B	B	A	B

Sequence




Ring 1	2	1	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: SE 82nd Ave/Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.132

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1238	33	16	1211	0	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1238	33	16	1211	0	50
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	326	9	4	319	0	13
Total Analysis Volume [veh/h]	1303	35	17	1275	0	53
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.00	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	12.13	0.00	0.00	15.37
Movement LOS	A	A	B	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.10	0.00	0.00	0.45
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.52	0.00	0.00	11.33
d_A, Approach Delay [s/veh]	0.00		0.16		15.37	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: SE 82nd Ave/Goodwill Driveway

Control Type:	Two-way stop	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.152

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	14	1247	1173	37	24	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	1247	1173	37	24	37
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	328	309	10	6	10
Total Analysis Volume [veh/h]	15	1313	1235	39	25	39
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.15	0.09
d_M, Delay for Movement [s/veh]	11.70	0.00	0.00	0.00	30.76	14.33
Movement LOS	B	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.00	0.52	0.30
95th-Percentile Queue Length [ft/ln]	2.09	0.00	0.00	0.00	13.05	7.53
d_A, Approach Delay [s/veh]	0.13		0.00		20.75	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 5: SE 82nd Ave/Main Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	40.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.272

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1195	108	55	1154	38	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	0.00	2.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1195	108	55	1154	38	64
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	314	28	14	304	10	17
Total Analysis Volume [veh/h]	1258	114	58	1215	40	67
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.11	0.01	0.27	0.17
d_M, Delay for Movement [s/veh]	0.00	0.00	13.02	0.00	40.75	25.38
Movement LOS	A	A	B	A	E	D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.39	0.00	2.11	2.11
95th-Percentile Queue Length [ft/ln]	0.00	0.00	9.63	0.00	52.77	52.77
d_A, Approach Delay [s/veh]	0.00		0.59		31.13	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.48					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 8: SE 82nd Ave/SE Glencoe St

Control Type:	Two-way stop	Delay (sec / veh):	28.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	23	1301	1177	17	7	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	6.00	0.00	18.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	1301	1177	17	7	23
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	335	303	4	2	6
Total Analysis Volume [veh/h]	24	1341	1213	18	7	24
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.04	0.06
d_M, Delay for Movement [s/veh]	11.56	0.00	0.00	0.00	28.05	15.43
Movement LOS	B	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.13	0.00	0.00	0.00	0.34	0.34
95th-Percentile Queue Length [ft/ln]	3.27	0.00	0.00	0.00	8.50	8.50
d_A, Approach Delay [s/veh]	0.20		0.00		18.28	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.32					
Intersection LOS	D					




Intersection Level Of Service Report

Intersection 9: SE 82nd Ave/SE Orchard Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 35.3
 Level Of Service: E
 Volume to Capacity (v/c): 0.185

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1309	38	6	1192	26	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	17.00	2.00	0.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1309	38	6	1192	26	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	344	10	2	314	7	6
Total Analysis Volume [veh/h]	1378	40	6	1255	27	22
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.01	0.18	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	13.99	0.00	35.31	20.43
Movement LOS	A	A	B	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.04	0.00	0.92	0.92
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.12	0.00	23.09	23.09
d_A, Approach Delay [s/veh]	0.00		0.07		28.63	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.55					
Intersection LOS	E					

Appendix E: Trip Generation/Queuing Study

Table 1: Observed Trip Rates (per 1000 SF)

		AM Peak Hour			Mid-Day Peak Hour			PM Peak Hour		
Site	Size (SF)	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT
Tanasbourne	4,962	26.60	51%	49%	82.83	50%	50%	60.46	50%	50%
Beaverton-Hillsdale	4,845	12.38	50%	50%	64.40	51%	49%	47.06	53%	47%
Cedars Hills	4,815	13.50	55%	45%	47.98	47%	53%	38.21	48%	52%
TV Highway	5,166	12.39	56%	44%	42.01	51%	49%	30.97	54%	46%
Average		16.22	53%	47%	59.30	50%	50%	44.18	51%	49%

Table 2: Observed AM Peak Hour Queuing

Site	95 th Percentile Queue	Max Queue
Tanasbourne	7	8
Beaverton-Hillsdale	4	6
Cedars Hills	6	8
TV Highway	7	7

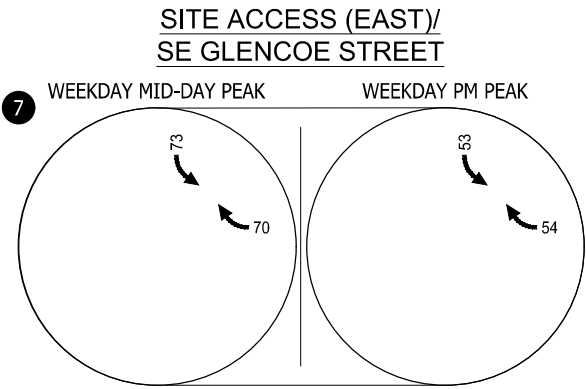
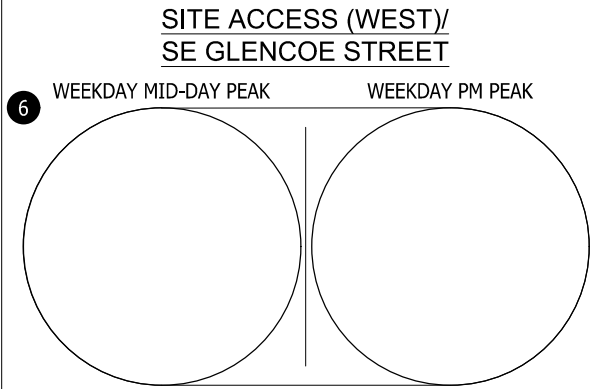
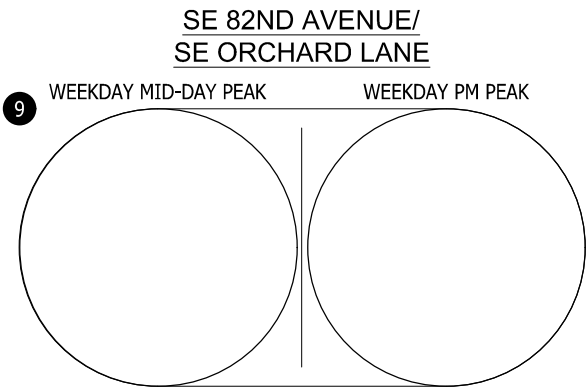
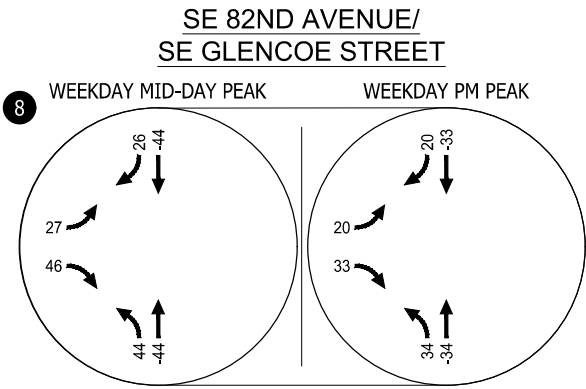
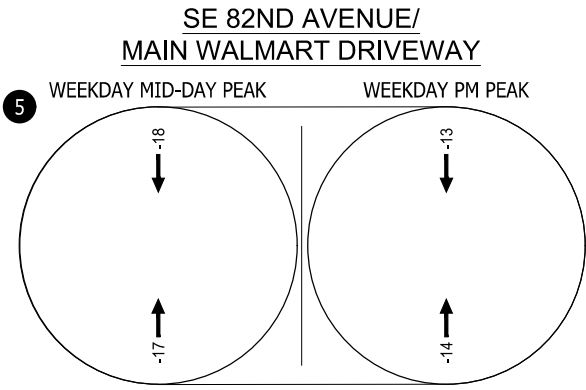
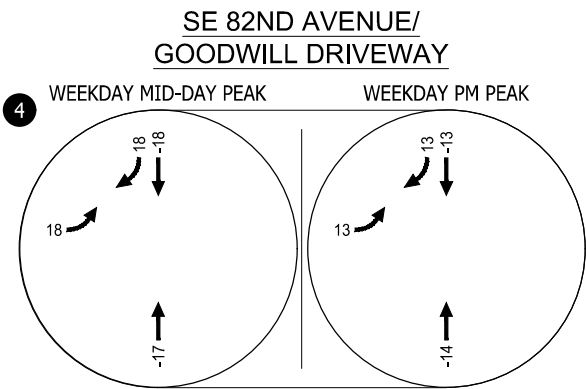
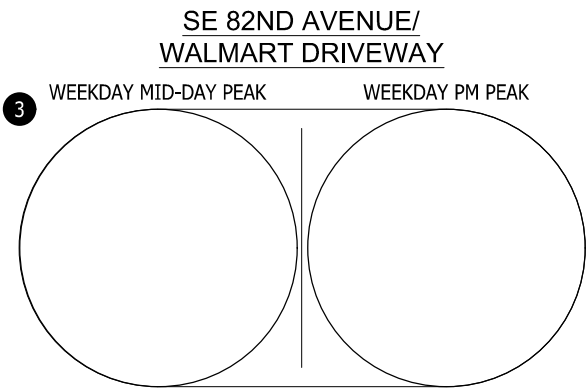
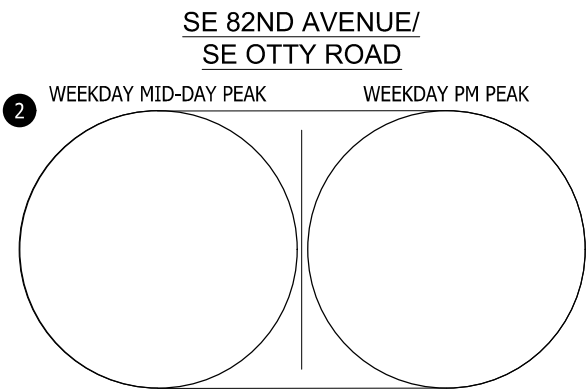
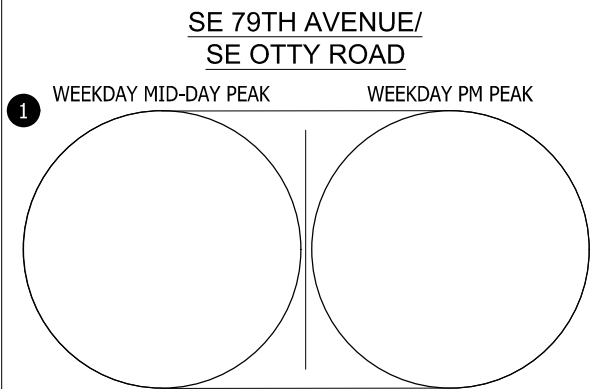
Table 3: Observed Mid-day Peak Hour Queuing

Site	95 th Percentile Queue	Max Queue
Tanasbourne	23	24
Beaverton-Hillsdale	22	23
Cedars Hills	13	14
TV Highway	16	19

Table 4: Observed PM Peak Hour Queuing

Site	95 th Percentile Queue	Max Queue
Tanasbourne	25	29
Beaverton-Hillsdale	21	22
Cedars Hills	15	18
TV Highway	15	16

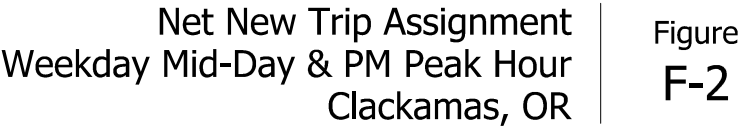
Appendix F: Trip Assignment Summary Figures



H:\27127862 - 82nd Avenue Chick-fil-A\report\figs\27852-82nd Avenue CFA-Figures.dwg Nov 11, 2022 - 1:55pm - nmannon Layout Tab: Pass-by

Pass-by Trip Assignment
Weekday Mid-Day & PM Peak Hour
Clackamas, OR

Figure
F-1



Appendix G:
2024 Total Traffic Conditions
Analysis Worksheets





Intersection Level Of Service Report

Intersection 1: SE 79th Ave/SE Otty St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.004

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	9.00	9.00	9.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	9	3	6	2	7	0	0	32	8	2	33	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	3	6	2	7	0	0	32	8	2	33	4
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	2	1	2	0	0	8	2	1	9	1
Total Analysis Volume [veh/h]	9	3	6	2	7	0	0	33	8	2	34	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0





Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.05	9.50	8.53	9.04	9.48	8.50	7.27	0.00	0.00	7.28	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.06	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.48	1.48	1.48	0.82	0.82	0.82	0.00	0.00	0.00	0.09	0.09	0.09
d_A, Approach Delay [s/veh]	8.95			9.38			0.00			0.36		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.41											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: SE 82nd Ave/SE Otty Rd

Control Type:	Signalized	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.613

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	11.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [ft]	115.00	100.00	95.00	165.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	1037	128	117	1007	38	42	31	56	163	33	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	1.00	4.00	3.00	0.00	0.00	0.00	0.00	1.00	3.00	1.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	1037	103	117	1007	38	42	31	56	163	33	99
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	273	27	31	265	10	11	8	15	43	9	26
Total Analysis Volume [veh/h]	58	1092	108	123	1060	40	44	33	59	172	35	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	1			2			2			1		
v_di, Inbound Pedestrian Volume crossing in	2			1			1			2		
v_co, Outbound Pedestrian Volume crossing	6			3			3			6		
v_ci, Inbound Pedestrian Volume crossing mi	6			3			3			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	39.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	6	0	4	6	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	3.5	0.0	3.5	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	0.5	0.0
Split [s]	14	41	0	21	48	0	37	37	0	31	31	0
Vehicle Extension [s]	2.3	4.2	0.0	2.3	4.2	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Walk [s]	0	8	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	16	0	0	23	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.25	4.50	4.50	4.00	4.50	4.00	4.50
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	2.50	0.00	2.50	2.50	2.00	2.50	2.00	2.50
g_i, Effective Green Time [s]	94	85	85	94	86	86	10	10	14	13
g / C, Green / Cycle	0.72	0.66	0.66	0.72	0.66	0.66	0.08	0.08	0.11	0.10
(v / s)_i Volume / Saturation Flow Rate	0.09	0.39	0.07	0.19	0.30	0.30	0.02	0.05	0.05	0.09
s, saturation flow rate [veh/h]	648	2782	1555	647	1855	1831	1810	1693	3486	1627
c, Capacity [veh/h]	414	1828	1021	377	1225	1209	143	127	372	168
d1, Uniform Delay [s]	13.93	12.58	8.20	22.40	10.67	10.67	56.43	58.71	54.46	57.09
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.07	0.07	0.07	0.07
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	1.45	0.21	2.30	1.20	1.22	0.74	4.74	0.55	6.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.60	0.11	0.33	0.45	0.45	0.31	0.72	0.46	0.83
d, Delay for Lane Group [s/veh]	14.64	14.03	8.40	24.70	11.87	11.90	57.17	63.46	55.00	63.46
Lane Group LOS	B	B	A	C	B	B	E	E	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.47	8.32	1.08	1.10	7.29	7.21	1.41	3.15	2.66	4.74
50th-Percentile Queue Length [ft/ln]	11.77	207.95	27.09	27.51	182.14	180.20	35.19	78.86	66.51	118.49
95th-Percentile Queue Length [veh/ln]	0.85	13.05	1.95	1.98	11.71	11.61	2.53	5.68	4.79	8.31
95th-Percentile Queue Length [ft/ln]	21.19	326.20	48.76	49.51	292.80	290.27	63.35	141.94	119.72	207.75

Movement, Approach, & Intersection Results

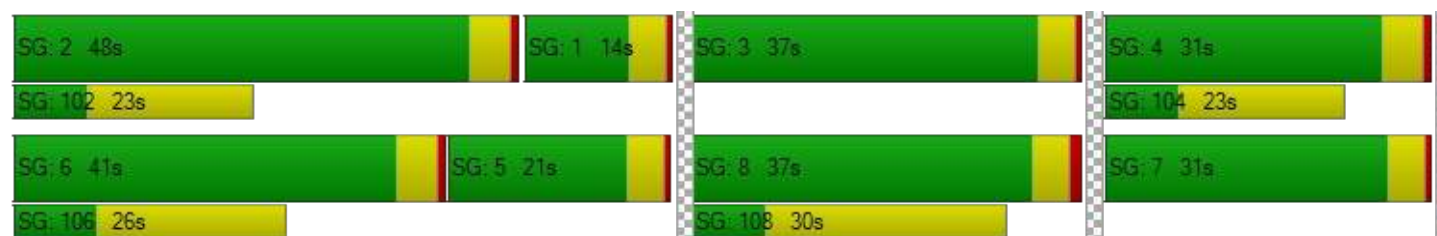
d_M, Delay for Movement [s/veh]	14.64	14.03	8.40	24.70	11.88	11.90	57.17	63.46	63.46	55.00	63.46	63.46
Movement LOS	B	B	A	C	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	13.58			13.17			61.42			58.78		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	20.43											
Intersection LOS	C											
Intersection V/C	0.613											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			12.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	54.41			54.41			54.41			53.50		
I_p,int, Pedestrian LOS Score for Intersection	3.133			3.038			2.107			2.479		
Crosswalk LOS	C			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	562			670			500			408		
d_b, Bicycle Delay [s]	33.59			28.73			36.51			41.15		
I_b,int, Bicycle LOS Score for Intersection	2.618			2.569			1.784			2.073		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	2	1	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	5	8	7	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






Intersection Level Of Service Report

Intersection 3: SE 82nd Ave/Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1161	34	13	1212	0	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	0.00	3.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1161	34	13	1212	0	56
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	306	9	3	319	0	15
Total Analysis Volume [veh/h]	1222	36	14	1276	0	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.00	0.14
d_M, Delay for Movement [s/veh]	0.00	0.00	11.60	0.00	0.00	14.83
Movement LOS	A	A	B	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.08	0.00	0.00	0.48
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.92	0.00	0.00	11.96
d_A, Approach Delay [s/veh]	0.00		0.13		14.83	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.40					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: SE 82nd Ave/Goodwill Driveway

Control Type:	Two-way stop	Delay (sec / veh):	40.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.381

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	36	1139	1125	85	58	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	0.00	5.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	1139	1125	85	58	52
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	300	296	22	15	14
Total Analysis Volume [veh/h]	38	1199	1184	89	61	55
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.01	0.00	0.38	0.13
d_M, Delay for Movement [s/veh]	12.23	0.00	0.00	0.00	40.72	14.98
Movement LOS	B	A	A	A	E	B
95th-Percentile Queue Length [veh/ln]	0.23	0.00	0.00	0.00	1.63	0.45
95th-Percentile Queue Length [ft/ln]	5.70	0.00	0.00	0.00	40.81	11.33
d_A, Approach Delay [s/veh]	0.38		0.00		28.52	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.44					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 5: SE 82nd Ave/Main Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.194

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	1119	95	43	1135	30	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	2.00	2.00	3.00	0.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1119	95	43	1135	30	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	294	25	11	299	8	14
Total Analysis Volume [veh/h]	1178	100	45	1195	32	58
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.08	0.01	0.19	0.14
d_M, Delay for Movement [s/veh]	0.00	0.00	12.29	0.00	33.42	20.27
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.27	0.00	1.42	1.42
95th-Percentile Queue Length [ft/ln]	0.00	0.00	6.80	0.00	35.43	35.43
d_A, Approach Delay [s/veh]	0.00		0.45		24.95	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.07					
Intersection LOS	D					





Intersection Level Of Service Report

Intersection 6: Site Driveway (West)/SE Glencoe St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 9.0
 Level Of Service: A
 Volume to Capacity (v/c): 0.015

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	13	0	1	0	25	0	0	41	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	13	0	1	0	25	0	0	41	13
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	3	0	0	0	7	0	0	11	3
Total Analysis Volume [veh/h]	0	0	0	14	0	1	0	26	0	0	43	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results




V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.93	9.44	8.41	8.98	9.46	8.58	7.31	0.00	0.00	7.25	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.24	1.24	1.24	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.93			8.96			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	1.37											
Intersection LOS	A											

Intersection Level Of Service Report

Intersection 7: Site Driveway (East)/SE Glencoe St

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	112	1	1	37	53	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1	1	37	53	108
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	0	0	10	14	28
Total Analysis Volume [veh/h]	117	1	1	39	55	113
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results




V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.96	9.49	7.53	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.48	0.48	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.12	12.12	0.05	0.05	0.00	0.00
d_A, Approach Delay [s/veh]	9.96		0.19		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.63					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 8: SE 82nd Ave/SE Glencoe St

Control Type:	Two-way stop	Delay (sec / veh):	47.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.407

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	77	1155	1083	83	63	86
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	3.00	3.00	4.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	1155	1083	83	63	86
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	301	282	22	16	22
Total Analysis Volume [veh/h]	80	1203	1128	86	66	90
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.01	0.01	0.00	0.41	0.20
d_M, Delay for Movement [s/veh]	12.17	0.00	0.00	0.00	47.01	32.89
Movement LOS	B	A	A	A	E	D
95th-Percentile Queue Length [veh/ln]	0.47	0.00	0.00	0.00	3.63	3.63
95th-Percentile Queue Length [ft/ln]	11.87	0.00	0.00	0.00	90.83	90.83
d_A, Approach Delay [s/veh]	0.76		0.00		38.86	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	2.65					
Intersection LOS	E					




Intersection Level Of Service Report

Intersection 9: SE 82nd Ave/SE Orchard Ln

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 33.1
 Level Of Service: D
 Volume to Capacity (v/c): 0.217

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1202	23	19	1153	35	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	0.00	11.00	2.00	0.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1202	23	19	1153	35	26
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	313	6	5	300	9	7
Total Analysis Volume [veh/h]	1252	24	20	1201	36	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.22	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	12.60	0.00	33.08	20.47
Movement LOS	A	A	B	A	D	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.00	1.13	1.13
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.16	0.00	28.31	28.31
d_A, Approach Delay [s/veh]	0.00		0.21		27.68	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.78					
Intersection LOS	D					





Intersection Level Of Service Report

Intersection 1: SE 79th Ave/SE Otty St

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 10.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	10.00	10.00	10.00	9.00	9.00	9.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	15	3	7	2	4	1	3	46	6	7	46	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	3	7	2	4	1	3	46	6	7	46	3
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	1	2	1	1	0	1	14	2	2	14	1
Total Analysis Volume [veh/h]	19	4	9	3	5	1	4	58	8	9	58	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0





Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.61	10.04	8.74	9.55	9.94	8.61	7.32	0.00	0.00	7.34	0.00	0.00
Movement LOS	A	B	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.12	0.03	0.03	0.03	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	2.94	2.94	2.94	0.87	0.87	0.87	0.19	0.19	0.19	0.44	0.44	0.44
d_A, Approach Delay [s/veh]	9.42			9.66			0.42			0.93		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.66											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: SE 82nd Ave/SE Otty Rd

Control Type:	Signalized	Delay (sec / veh):	20.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.656

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00	11.00	11.00	11.00	10.00	10.00	11.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	2	0	0
Entry Pocket Length [ft]	115.00	100.00	95.00	165.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			25.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	42	1131	155	129	1055	30	30	28	43	167	35	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	2.00	1.00	1.00	2.00	0.00	7.00	0.00	5.00	1.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	1131	130	129	1055	30	30	28	43	167	35	99
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	298	34	34	278	8	8	7	11	44	9	26
Total Analysis Volume [veh/h]	44	1191	137	136	1111	32	32	29	45	176	37	104
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			2			2			1		
v_di, Inbound Pedestrian Volume crossing in	2			1			2			2		
v_co, Outbound Pedestrian Volume crossing	1			6			7			2		
v_ci, Inbound Pedestrian Volume crossing mi	2			7			6			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			2			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	129.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	6	0	4	6	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	0
Amber [s]	3.5	4.0	0.0	3.5	4.0	0.0	3.5	3.5	0.0	3.5	4.0	0.0
All red [s]	0.5	0.5	0.0	0.5	0.5	0.0	0.5	1.0	0.0	0.5	0.5	0.0
Split [s]	14	55	0	21	62	0	36	36	0	28	28	0
Vehicle Extension [s]	2.3	4.2	0.0	2.3	4.2	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Walk [s]	0	8	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	0	0	16	0	0	23	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0	2.0	2.5	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering 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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	L	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.25	4.50	4.50	4.50	4.50	4.50	4.00	4.50	4.00	4.50
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.50	2.50	0.00	2.50	2.50	2.00	2.50	2.00	2.50
g_i, Effective Green Time [s]	94	93	93	96	96	96	10	9	15	14
g / C, Green / Cycle	0.67	0.67	0.67	0.68	0.68	0.68	0.07	0.07	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.07	0.42	0.09	0.23	0.31	0.31	0.02	0.04	0.05	0.08
s, saturation flow rate [veh/h]	596	2805	1562	582	1870	1848	1709	1696	3486	1670
c, Capacity [veh/h]	355	1870	1041	362	1281	1266	119	112	363	168
d1, Uniform Delay [s]	17.92	13.49	8.49	13.15	10.00	10.02	61.67	63.77	59.06	61.74
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.07	0.07	0.07	0.07
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.71	1.67	0.26	2.96	1.14	1.16	0.74	4.08	0.61	6.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.64	0.13	0.38	0.45	0.45	0.27	0.66	0.48	0.84
d, Delay for Lane Group [s/veh]	18.63	15.17	8.75	16.12	11.14	11.17	62.41	67.84	59.67	68.49
Lane Group LOS	B	B	A	B	B	B	E	E	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.49	10.19	1.49	1.58	7.61	7.56	1.12	2.73	2.97	5.21
50th-Percentile Queue Length [ft/ln]	12.25	254.82	37.21	39.46	190.34	189.04	27.91	68.21	74.16	130.36
95th-Percentile Queue Length [veh/ln]	0.88	15.43	2.68	2.84	12.14	12.07	2.01	4.91	5.34	8.96
95th-Percentile Queue Length [ft/ln]	22.06	385.72	66.97	71.03	303.47	301.78	50.24	122.78	133.49	223.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.63	15.17	8.75	16.12	11.15	11.17	62.41	67.84	67.84	59.67	68.49	68.49
Movement LOS	B	B	A	B	B	B	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	14.64			11.68			66.20			63.59		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	20.23											
Intersection LOS	C											
Intersection V/C	0.656											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0			11.0			11.0			12.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	59.37			59.37			59.37			58.45		
I_p,int, Pedestrian LOS Score for Intersection	3.175			3.083			2.079			2.456		
Crosswalk LOS	C			C			B			B		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	722			822			450			336		
d_b, Bicycle Delay [s]	28.63			24.28			41.99			48.41		
I_b,int, Bicycle LOS Score for Intersection	2.712			2.615			1.735			2.083		
Bicycle LOS	B			B			A			B		

Sequence

Ring 1	2	1	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






Intersection Level Of Service Report

Intersection 3: SE 82nd Ave/Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.136

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1275	33	16	1248	0	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	3.00	0.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1275	33	16	1248	0	50
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	336	9	4	328	0	13
Total Analysis Volume [veh/h]	1342	35	17	1314	0	53
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.00	0.14
d_M, Delay for Movement [s/veh]	0.00	0.00	12.39	0.00	0.00	15.73
Movement LOS	A	A	B	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.10	0.00	0.00	0.47
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.61	0.00	0.00	11.72
d_A, Approach Delay [s/veh]	0.00		0.16		15.73	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: SE 82nd Ave/Goodwill Driveway

Control Type:	Two-way stop	Delay (sec / veh):	38.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.343

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	14	1255	1182	65	52	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	1255	1182	65	52	37
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	330	311	17	14	10
Total Analysis Volume [veh/h]	15	1321	1244	68	55	39
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1




Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.34	0.09
d_M, Delay for Movement [s/veh]	11.94	0.00	0.00	0.00	38.71	14.63
Movement LOS	B	A	A	A	E	B
95th-Percentile Queue Length [veh/ln]	0.09	0.00	0.00	0.00	1.41	0.31
95th-Percentile Queue Length [ft/ln]	2.17	0.00	0.00	0.00	35.33	7.77
d_A, Approach Delay [s/veh]	0.13		0.00		28.72	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.05					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 5: SE 82nd Ave/Main Walmart Driveway

Control Type:	Two-way stop	Delay (sec / veh):	41.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.275

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1203	108	55	1163	38	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	1.00	0.00	2.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1203	108	55	1163	38	64
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	317	28	14	306	10	17
Total Analysis Volume [veh/h]	1266	114	58	1224	40	67
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results





V/C, Movement V/C Ratio	0.01	0.00	0.12	0.01	0.27	0.17
d_M, Delay for Movement [s/veh]	0.00	0.00	13.09	0.00	41.25	25.70
Movement LOS	A	A	B	A	E	D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.39	0.00	2.14	2.14
95th-Percentile Queue Length [ft/ln]	0.00	0.00	9.71	0.00	53.43	53.43
d_A, Approach Delay [s/veh]	0.00		0.59		31.51	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.49					
Intersection LOS	E					

Intersection Level Of Service Report

Intersection 6: Site Driveway (West)/SE Glencoe St

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	10	0	0	0	31	0	0	41	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	0.00	0.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	10	0	0	0	31	0	0	41	9
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	3	0	0	0	8	0	0	11	2
Total Analysis Volume [veh/h]	0	0	0	10	0	0	0	32	0	0	42	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results




V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.93	9.44	8.44	8.98	9.46	8.54	7.30	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.83	0.83	0.83	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.94			8.98			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.97											
Intersection LOS	A											

Intersection Level Of Service Report

Intersection 7: Site Driveway (East)/SE Glencoe St

Control Type:	Two-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.099

Intersection Setup

Name	Southbound		Eastbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	82	1	1	40	49	83
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	14.00	3.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	82	1	1	40	49	83
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	0	0	10	13	21
Total Analysis Volume [veh/h]	85	1	1	41	51	86
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results




V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.65	9.18	7.47	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.29	8.29	0.05	0.05	0.00	0.00
d_A, Approach Delay [s/veh]	9.64		0.18		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.16					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 8: SE 82nd Ave/SE Glencoe St

Control Type:	Two-way stop	Delay (sec / veh):	43.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.333

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	73	1267	1144	59	49	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	2.00	2.00	6.00	0.00	18.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	1267	1144	59	49	73
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	327	295	15	13	19
Total Analysis Volume [veh/h]	75	1306	1179	61	51	75
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results




V/C, Movement V/C Ratio	0.13	0.01	0.01	0.00	0.33	0.19
d_M, Delay for Movement [s/veh]	12.29	0.00	0.00	0.00	43.78	29.44
Movement LOS	B	A	A	A	E	D
95th-Percentile Queue Length [veh/ln]	0.45	0.00	0.00	0.00	2.76	2.76
95th-Percentile Queue Length [ft/ln]	11.31	0.00	0.00	0.00	68.99	68.99
d_A, Approach Delay [s/veh]	0.67		0.00		35.24	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.95					
Intersection LOS	E					

Intersection Level Of Service Report

Intersection 9: SE 82nd Ave/SE Orchard Ln

Control Type:	Two-way stop	Delay (sec / veh):	36.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.189

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	1325	38	6	1209	26	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	0.00	17.00	2.00	0.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1325	38	6	1209	26	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	349	10	2	318	7	6
Total Analysis Volume [veh/h]	1395	40	6	1273	27	22
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

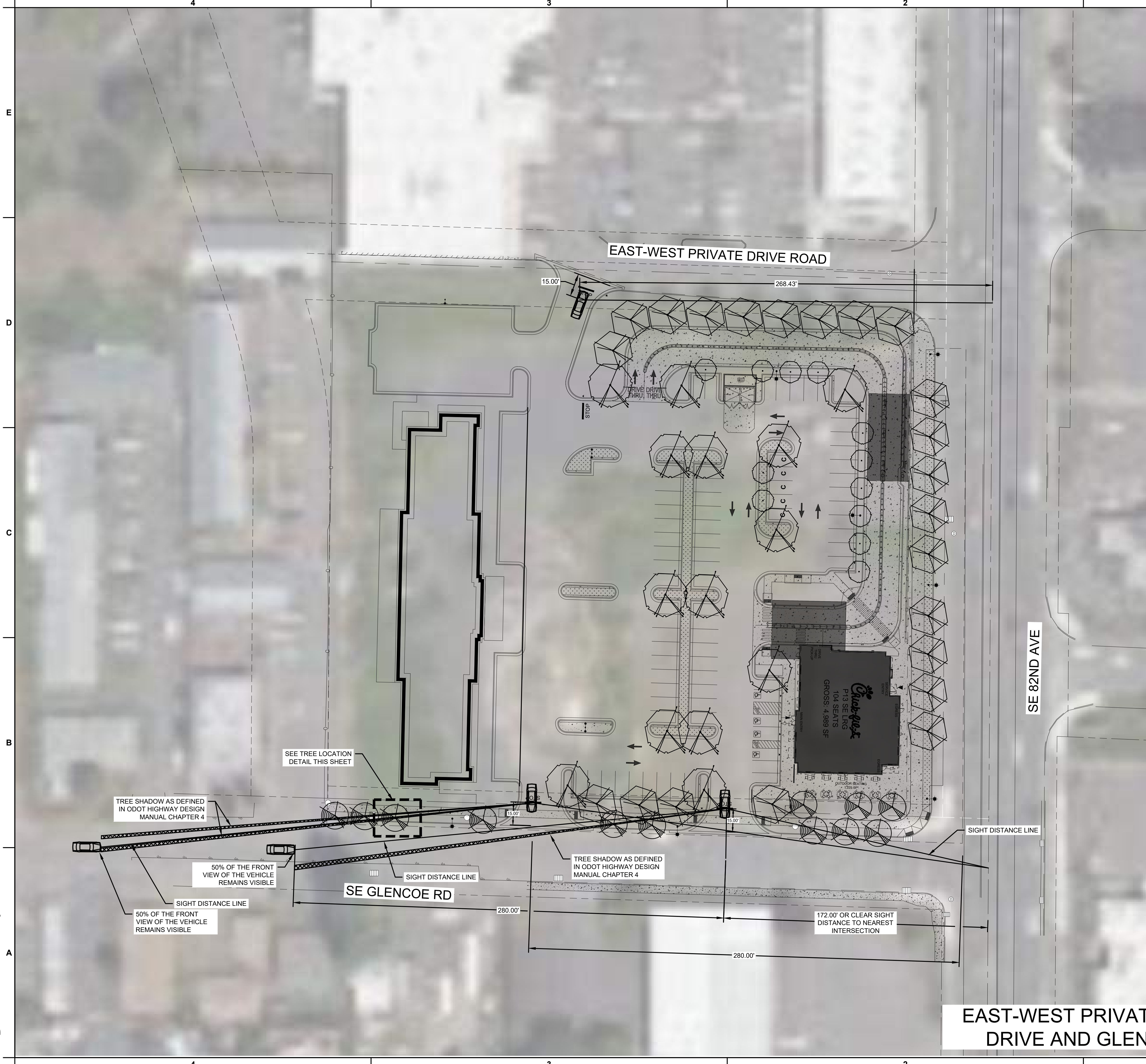
Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.01	0.19	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	14.14	0.00	36.10	20.81
Movement LOS	A	A	B	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.00	0.95	0.95
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.14	0.00	23.64	23.64
d_A, Approach Delay [s/veh]	0.00		0.07		29.23	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.55					
Intersection LOS	E					

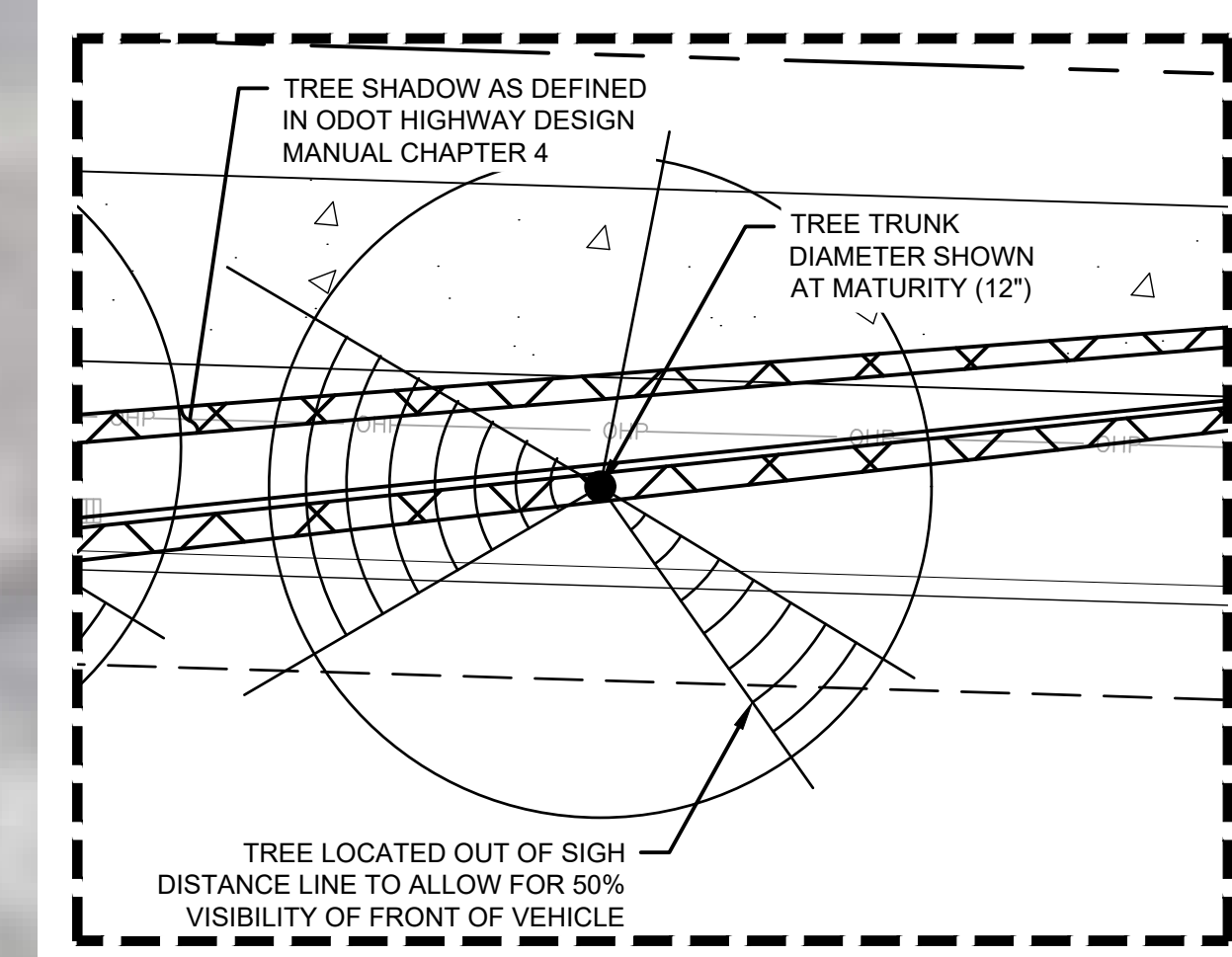
Appendix H: Driveway Sight Distance Exhibits

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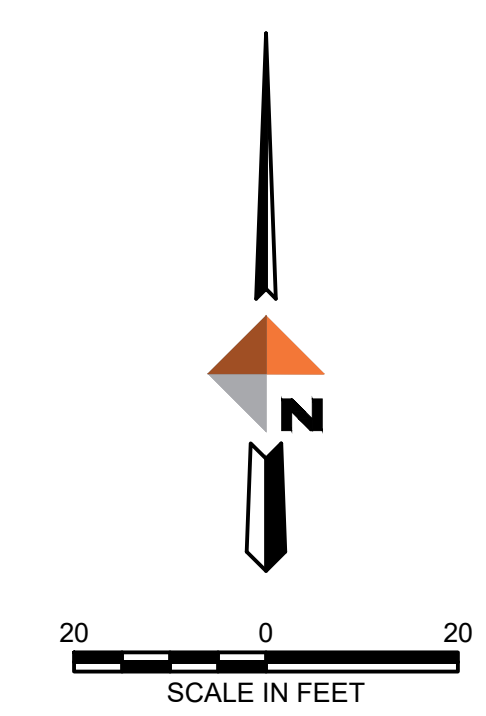


GENERAL NOTES:

1. ASSUMED DESIGN SPEED OF 25MPH OF EAST-WEST PRIVATE ACCESS DRIVE AND GLENCOE ROAD
2. SIGHT DISTANCE ANALYSIS WAS PERFORMED ACCORDING TO CLACKAMAS COUNTY ROADWAY STANDARDS (UPDATED JUNE 1, 2020) SECTION 240 - SIGHT DISTANCE



TREE LOCATION DETAIL
SCALE: 1" = 5'



Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998



309 SW 6TH AVENUE, #700
PORTLAND, OREGON 97204
971-280-8641

CHICK-FIL-A GLENCOE & 82ND PORTLAND, OREGON

FSR# 05098

REVISION SCHEDULE	
NO.	DESCRIPTION

CIVIL'S PROJECT #	14836.01
PRINTED FOR	DESIGN REVIEW
DATE	05/13/2022
DRAWN BY	JLG

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SIGHT DISTANCE EXHIBIT

C:\dowl_p\p\03986003 exhibits for Kittelson.dwg PLOT DATE 2022-11-9 13:48 SAVED DATE 2022-11-08 13:46 USER: russell



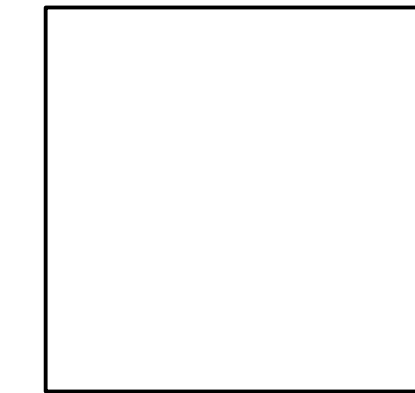
- GENERAL NOTES:**
1. ASSUMED DESIGN SPEED OF 25MPH OF EAST-WEST PRIVATE ACCESS DRIVE AND GLENCOE ROAD
 2. SIGHT DISTANCE ANALYSIS WAS PERFORMED ACCORDING TO CLACKAMAS COUNTY ROADWAY STANDARDS (UPDATED JUNE 1, 2020) SECTION 240 - SIGHT DISTANCE
 3. SEE TREE LOCATION DETAIL ON EAST-WEST PRIVATE ACCESS DRIVE SIGH DISTANCE EXHIBIT (SHEET 1 OF 3)



Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998



309 SW 6TH AVENUE, #700
PORTLAND, OREGON 97204
971-280-8641



CHICK-FIL-A GLENCOE & 82ND PORTLAND, OREGON

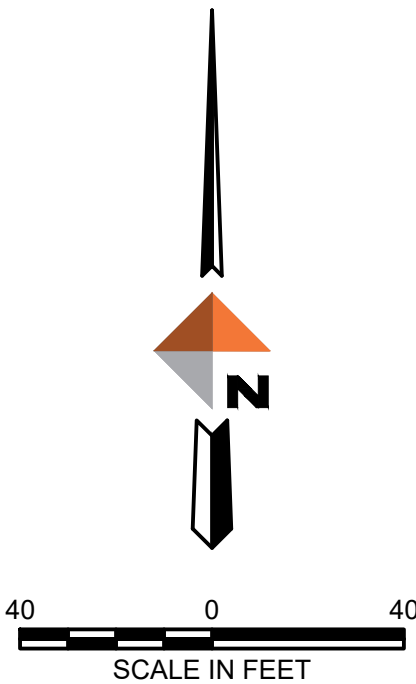
FSR# 05098

REVISION SCHEDULE	
NO.	DATE
DESCRIPTION	

CIVIL'S PROJECT #	14836.01
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SHEET
SIGHT DISTANCE
EXHIBIT
SHEET NUMBER



NORTH INTERSECTION ON 82ND AVE

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GENERAL NOTES:

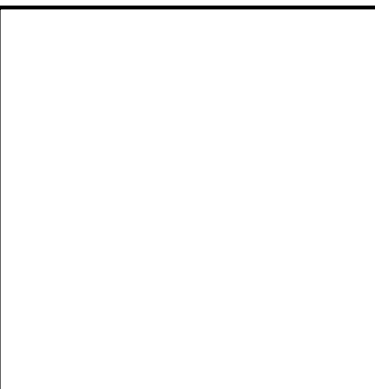
1. ASSUMED DESIGN SPEED OF 25MPH OF EAST-WEST PRIVATE ACCESS DRIVE AND GLENCOE ROAD
2. SIGHT DISTANCE ANALYSIS WAS PERFORMED ACCORDING TO CLACKAMAS COUNTY ROADWAY STANDARDS (UPDATED JUNE 1, 2020) SECTION 240 - SIGHT DISTANCE
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Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998



309 SW 6TH AVENUE, #700
PORTLAND, OREGON 97204
971-280-8641



CHICK-FIL-A
GLENCOE & 82ND
PORTLAND, OREGON

FSR# 05098

REVISION SCHEDULE

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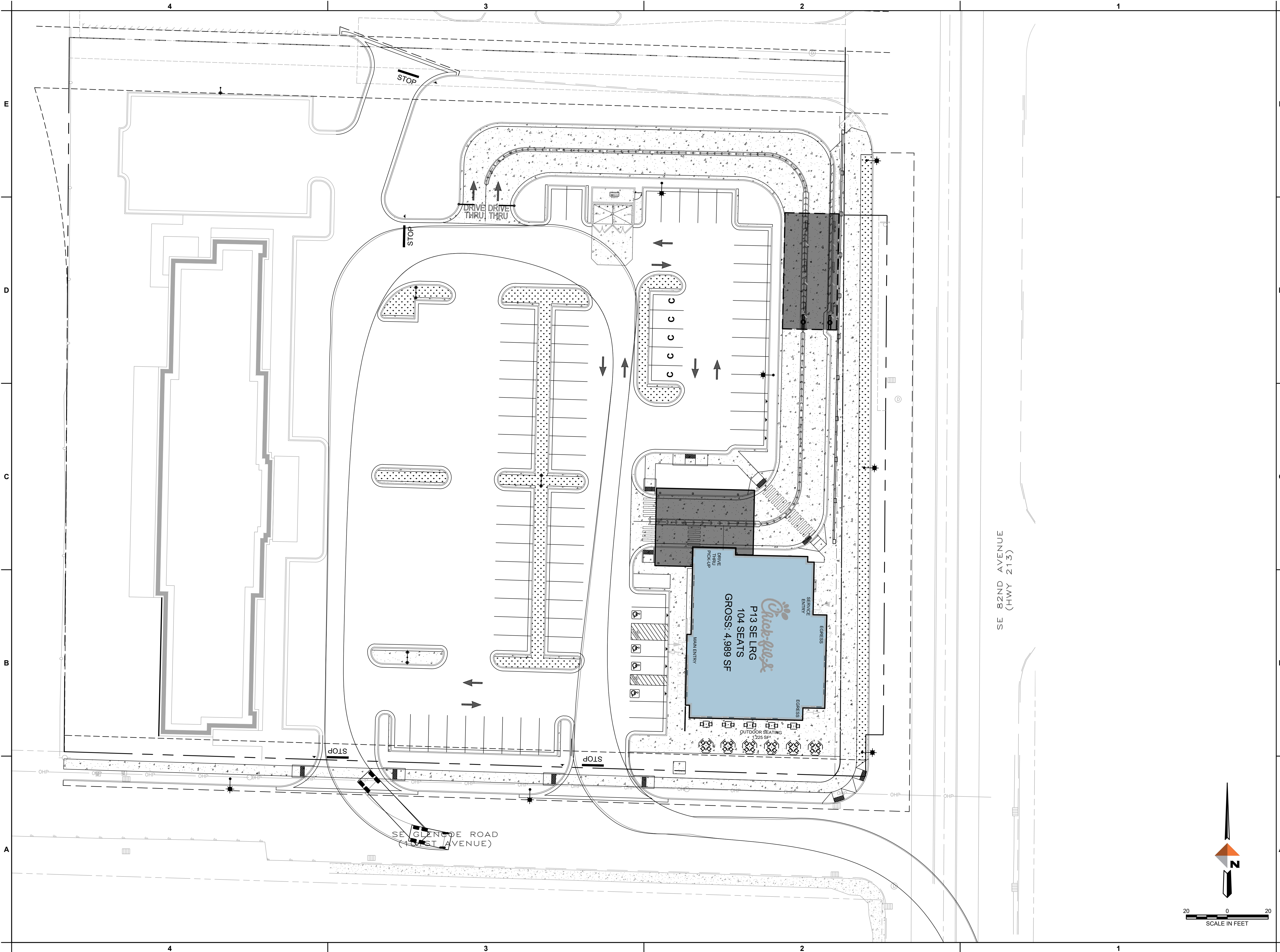
SHEET

SIGHT DISTANCE
EXHIBIT

SHEET NUMBER

Appendix I:
Delivery Truck Circulation Exhibit

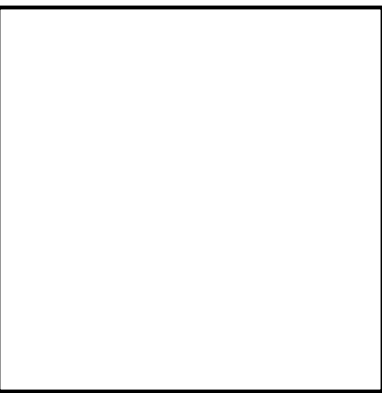
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Chick-fil-A
5200 Buffington Road
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30349-2998



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PORTLAND, OREGON 97204
971-280-8641



CHICK-FIL-A GLENCOE & 82ND PORTLAND, OREGON

FSR# 05098

REVISION SCHEDULE	
NO.	DESCRIPTION

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SHEET

TRUCK TURNING
CIRCULATION
SHEET NUMBER

APPENDIX K:

Kittelson **S**upplemental **M**emo

Supplemental Memorandum

November 11, 2022

Project# 27862

To: Christian Snuffin, PE, PTOE
Clackamas County Department of Transportation & Development
150 Beaver Creek Road
Oregon City, OR 97045

Avi Tayar, PE
Oregon Department of Transportation (ODOT) Region 1
123 NW Flanders Street
Portland, OR 97209



EXPIRES: 12/31/23

From: Chris Brehmer, PE & Julia Kuhn, PE & Megan Mannion

RE: SE 82nd Avenue Chick-fil-A TIS Supplement - SE Johnson Creek Boulevard / SE 82nd Avenue Analysis

To supplement the Transportation Impact Study (TIS) for the proposed SE 82nd Avenue Chick-fil-A development submitted November 2022, the enclosed memorandum provides crash, traffic, and queuing analyses for the SE Johnson Creek Boulevard / SE 82nd Avenue intersection. This supplemental information was prepared in response to ODOT staff scoping direction.

Crash Analysis

ODOT provided crash history for the five-year period from January 1, 2016 to December 31, 2020. Consistent with the TIS, the crash type classifications at the intersection were reviewed to assess whether crash patterns might be identifiable. Table 1 summarizes the reported crashes by type and severity. Appendix "A" provides detailed crash data at the study intersection.

Table 1: Reported Crash History (2016 – 2020)

Study Intersection	Crash Type								Severity		Total
	Angle	Turn	Rear-End	Side Swipe	Fixed Object	Ped/Bike	Head-On	Backing	PDO ¹	Injury	
SE Johnson Creek Boulevard / SE 82 nd Avenue	11	9	42	4	1	1	0	1	31	38	69

¹PDO = Property damage only

As shown, one crash involved a bicycle, in which a vehicle traveling westbound through the intersection failed to give the right-of-way to a bicycle traveling northbound.

The critical crash rate was calculated at SE Johnson Creek Boulevard / SE 82nd Avenue following the analysis methodology presented in the APM (Reference 1), consistent with the TIS. Table 2 summarizes the crash rate assessment and compares it to the observed crash rate.

Table 2: Intersection Critical Crash Rate Assessment

Study Intersection	90 th Percentile Rate ^{1,2}	Observed Crash Rate ¹	Observed Crash Rate > 90 th Percentile Rate
SE Johnson Creek Boulevard / SE 82 nd Avenue	0.86	0.86	No

Per the APM, intersections with crash rates that exceed the 90th percentile values shown in APM Exhibit 4-1 or with a crash rate that exceeds its critical crash rate should be flagged for further analysis. As shown in Table 2, the observed crash rate is equal to the critical crash rate but does not exceed it.

ODOT maintains a Safety Priority Index System (SPIS) lists to identify existing hazardous intersections for potential safety improvements. The SPIS list considers the crash data for the three prior years and provides a SPIS score calculated based on three factors:

- Frequency of crashes (25% of the SPIS score)
- Rate of crashes (25% of the SPIS score)
- Severity of crashes (50% of the SPIS score)

The SE Johnson Creek Boulevard / SE 82nd Avenue intersection appears in the ODOT Region 1 Year 2020 Top 15% Safety Priority Index System (SPIS) Sites list, falling in the 95% ranking for the years 2018-2020.

Clackamas County is in the process of designing SE Johnson Creek Boulevard Intersection Improvements between SE 79th Place and SE 82nd Avenue, including construction of a new traffic signal at the intersection of SE 79th Place / SE Johnson Creek Boulevard¹. Right of way activities are scheduled to start in September 2023 with construction scheduled to begin spring 2024. Funding for the project is sourced from All Roads Transportation Safety (ARTS) Grant, Clackamas County Development Agency Funds, Condition of Approval Permit Funds, County Road Funds, and Community Road Funds.

Based on the crash data analysis and considering the County-led improvement project, no specific safety-related measures were identified at the SE Johnson Creek Boulevard / SE 82nd Avenue intersection as part of the proposed Chick-fil-A site development.

Operational Analysis

As documented in the TIS, Table 5-2a of the *Clackamas County Comprehensive Plan* sets performance evaluation standards for the urban area (Reference 2). The intersection of SE Johnson Creek Boulevard / SE 82nd Avenue is subject to the ODOT mobility target of a volume-to-capacity (V/C) ≤ 0.99 and the County standard of a maximum V/C ratio of 0.99 during the first hour of the weekday PM peak hour.

Traffic counts, signal timing, and the existing conditions analysis were obtained from the County project on SE Johnson Creek Boulevard from 79th Place to 82nd Avenue². To be consistent with the County Traffic Analysis Report, we used the same Synchro traffic models which reflect the anticipated new signal to the west in future conditions. Appendix "B" contains the Existing Traffic Conditions, 2024 Background Traffic Conditions, and 2024 Total Traffic Conditions intersection analysis worksheets.

¹ Source: <https://www.clackamas.us/engineering/johnson-creek-79th-place>

² SE Johnson Creek Blvd: 79th Pl – 82nd Avenue Technical Analysis Memorandum, Clackamas County Project CI-300320355. September 22, 2022.

Existing Traffic Conditions

Turning movement counts were collected at the intersection in March 2022 as part of the Johnson Creek Project. On the day of the counts, the evening peak hour occurred from 4:00 PM to 5:00 PM. Appendix "C" contains the traffic count worksheets. Figure 1 summarizes the existing traffic volumes and corresponding operational analysis. As shown, the intersection currently operates well within the County and ODOT criteria.

2024 Background Traffic Conditions

Consistent with the TIS, a two-percent annual growth rate was applied to the existing traffic volumes to develop the 2024 background traffic volumes (the same annual growth rate was assumed for future modeling of the intersection in the County's project). Figure 1 also illustrates the 2024 background traffic volumes and corresponding operational analysis for the weekday PM peak hour. As shown, the intersection continues to operate within the County and ODOT performance criteria.

Site Trips

As noted in the TIS, the trip generation was informed by a trip generation study conducted at four nearby Chick-fil-A sites in the greater Portland area. The TIS trip generation is shown in Table 3.

Table 3: Trip Generation

Land Use	Data Source	Size	Weekday Mid-day Peak Hour Trips			Weekday PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Fast Food Restaurant with Drive-Through	Chick-fil-A data	4,989 SF	325	160	165	242	121	121
Less Pass-by Trips ¹			-179	-88	-91	-133	-67	-66
Net New Trips			146	72	74	109	54	55

¹ Assumed pass-by trip rates are: 55% for Mid-day and PM peak hours per ITE *Trip Generation Manual*, 11th Edition for a fast food restaurant with drive-through

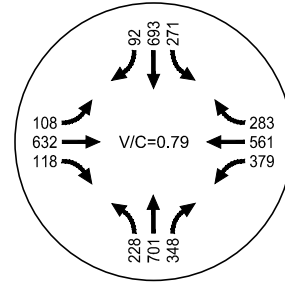
As shown in the TIS, fifty percent of the site-generated trips are assumed to travel to/from the site from the north via SE 82nd Avenue. This results in 56 total site-generated trips (28 in/28 out) traveling to/from the intersection of SE Johnson Creek Boulevard / SE 82nd Avenue during the PM peak hour. The site-generated trips are shown on Figure 1.

2024 Total Traffic Conditions

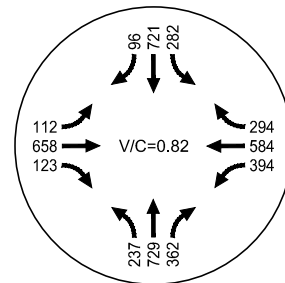
The site-generated traffic was added to the year 2024 background traffic volumes to arrive at the total traffic volumes for the weekday PM peak hour. Figure 1 summarizes the total traffic volumes and corresponding traffic operations. As shown, the intersection is expected to continue to satisfy County and ODOT performance metrics under total traffic conditions.



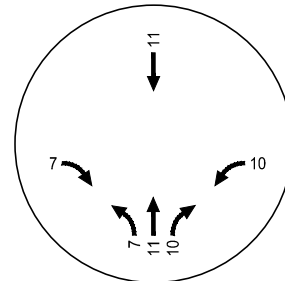
EXISTING TRAFFIC CONDITIONS



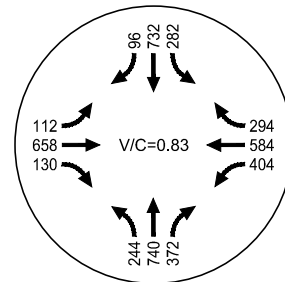
2024 BACKGROUND TRAFFIC CONDITIONS



SITE TRIPS



2024 TOTAL TRAFFIC CONDITIONS



SE Johnson Creek Blvd / SE 82nd Avenue Intersection Operations
Clackamas, OR

Figure
1

Queuing Analysis

Table 4 summarizes the 95th percentile queues during the PM peak hour at SE Johnson Creek Boulevard / SE 82nd Avenue. Queues are rounded up to the nearest vehicle length (approximately 25 feet). Movements in **bold** indicate the 95th percentile queue is greater than the available storage.

Table 4: Summary of 95th Percentile Queues

Study Intersection	Movement	Available Storage (feet)	2022 Existing Traffic Conditions	2024 Background Traffic Conditions	2024 Total Traffic Conditions
			PM (feet)	PM (feet)	PM (feet)
SE Johnson Creek Boulevard / SE 82 nd Avenue	NBL	325	300	300	300
	NBT	525	375	400	400
	NBR	150	125	150	150
	SBL	100 ¹	350	375	375
	SBT	575	375	375	400
	SBR	125	25	25	25
	EBL	125 ¹	200	200	200
	EBT	450	400	425	425
	EBR	125 ²	50	50	50
	WBL	200	250	250	275
	WBTR	950	500	525	525

Where: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = left-turn, TR = shared through/right,

¹ Additional storage available in two-way left-turn lane.

² Additional storage available. 225' available until blocking driveway.

As shown, the southbound left-turn and eastbound left-turn 95th percentile queues currently exceed the available storage under existing traffic conditions and are expected to continue to do so under 2024 traffic conditions. Given the project does not increase the 95th percentile queue lengths of these movements, we do not recommend any mitigations at this time. The County's analyses also identified comparable queues in the future year 2025 and did not identify changes to the required queue storage. Given the relatively small impact of site-generated trips (10 westbound left-turns) and the County's improvement project, no changes are recommended at the intersection in conjunction with the proposed Chick-fil-A.

Findings and Recommendations

Based on the results of this report, the proposed Chick-fil-A can be constructed while maintaining acceptable operations at the SE Johnson Creek Boulevard / SE 82nd Avenue intersection. No capacity-based mitigation needs were identified in conjunction with the proposed Chick-fil-A development.

References

1. Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. June 8, 2022 Update.
2. Clackamas County. *Clackamas County Comprehensive Plan*. January 2022
3. Transportation Research Board. *Highway Capacity Manual, 6th Edition*. 2016.

Appendix

- A. ODOT Crash Data
- B. Traffic Conditions Analysis Worksheets
- C. Traffic Counts

Appendix A: ODOT Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
ANGLE	0	4	1	5	0	6	0	4	1	2	3	5	0	0
REAR-END	0	2	3	5	0	2	0	4	1	3	2	5	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	1	0	1	0	0
2020 TOTAL	0	7	4	11	0	9	0	8	3	6	5	11	0	0
YEAR: 2019														
ANGLE	0	1	1	2	0	1	0	1	1	0	2	2	0	0
REAR-END	0	3	3	6	0	3	0	4	2	5	1	6	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	0	3	0	2	1	3	0	0
2019 TOTAL	0	5	6	11	0	5	0	8	3	7	4	11	0	0
YEAR: 2018														
ANGLE	0	1	1	2	0	2	0	0	2	0	2	2	0	0
REAR-END	0	3	2	5	0	3	0	3	1	4	1	5	0	0
SIDESWIPE - MEETING	0	1	0	1	0	2	0	1	0	0	1	1	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2018 TOTAL	0	6	4	10	0	8	0	6	3	6	4	10	0	0
YEAR: 2017														
ANGLE	0	3	0	3	0	4	0	1	2	2	1	3	0	0
REAR-END	0	3	4	7	0	4	0	3	3	3	4	7	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2017 TOTAL	0	7	4	11	0	9	0	5	5	6	5	11	0	0
YEAR: 2016														
BACKING	0	0	1	1	0	0	0	1	0	0	1	1	0	0
FIXED / OTHER OBJECT	0	1	0	1	0	3	0	0	1	1	0	1	0	1
REAR-END	0	10	9	19	0	16	0	11	8	14	5	19	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	0	0	1	1	0	1	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	2	1	3	0	4	0	3	0	2	1	3	0	0
2016 TOTAL	0	13	13	26	0	23	0	16	10	19	7	26	0	1
FINAL TOTAL	0	38	31	69	0	54	0	43	24	44	25	69	0	1

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

068 CASCADE HWY NORTH

Intersection Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

January 1, 2016 through December 31, 2020																										
D R S U P G S W																										
SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE																		
INVEST	E L M H R	DAY/TIME	CITY	CMPT/MLG	FIRST	STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR QTY	MOVE												
UNLOC?	D C J L K	LAT/LONG	URBAN AREA	MILEPNT	SECOND	STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	OWNER	FROM	PRTC	INJ	A S	LICNS	PED							
				LRS		INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E X	RES	LOC	ERROR	ACTN	EVENT	CAUSE
														02	NONE	0	STOP									
														PRVTE	N	S								011		00
														PSNGR	CAR		01	DRVR	NONE	24	F	OR-Y	000	000		00
																					OR<25					
84013	N N N	04/06/2016	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	S-OTHER	01	NONE	9	TURN-R								29	
NONE	N	Wed 11A		MN	0		N		TRF	SIGNAL	N	DRY	REAR	N/A	N	W							000		00	
			PORTLAND UA	7.54			06	2			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000		00
No	45 27	25.11 -122	34 44.82	006800100S00																						
														02	NONE	9	TURN-R									
														N/A	N	W							013		00	
														PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000		00
01998	N N N	05/04/2016	CLACKAMAS	1	14		INTER	CROSS	N		N	UNK	S-1STOP	01	NONE	0	STRGHT								29	
NONE	N	Wed 10A		MN	0		N		L-GRN-SIG		N	WET	REAR	PRVTE	N	S							000		00	
			PORTLAND UA	7.54			06	2			N	DAY	INJ	PSNGR	CAR		01	DRVR	NONE	59	M	OR-Y	026	000		29
No	45 27	25.11 -122	34 44.82	006800100S00																	OR<25					
														02	NONE	0	STOP									
														PRVTE	N	S							012		00	
														PSNGR	CAR		01	DRVR	INJC	32	F	OR-Y	000	000		00
																					OR<25					
02523	N N N	06/04/2016	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE	9	STRGHT								13	
NONE	N	Sat 3P		MN	0		N		TRF	SIGNAL	N	DRY	SS-O	N/A	N	S							000		00	
			PORTLAND UA	7.54			06	0			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000		00
No	45 27	25.11 -122	34 44.82	006800100S00																						
														02	NONE	9	STOP									
														N/A	N	S							011		00	
														PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000		00
83555	N N N	11/09/2016	CLACKAMAS	1	14		INTER	CROSS	N		N	CLR	S-1STOP	01	NONE	9	STRGHT								29	
NONE	N	Wed UNK		MN	0		N		TRF	SIGNAL	N	DRY	REAR	N/A	N	S							000		00	
			PORTLAND UA	7.54			06	2			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000		00
No	45 27	25.11 -122	34 44.82	006800100S00																						
														02	NONE	9	STOP									
														N/A	N	S							011		00	
														PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000		00

068 CASCADE HWY NORTH

Intersection Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

[illegible]

068 CASCADE HWY NORTH

Intersection Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

S U P G S W E A / C O										RD# FC CONN #		INT-TYP					SPCL USE																										
SER#	INVEST	UNLOC?	D	C	J	L	K	DATE	COUNTY	CITY	URBAN AREA	MILEPNT	SECOND STREET	DIRECT	CHAR	(#LANES)	INT-REL	TRAFF	OFFRD	WTHR	SURF	COLL	TYP	OWNER	VEH TYPE	MOVE	FROM	TO	P#	TYPE	SVRTY	A	S	LICNS	PED	ERROR	ACTN	EVENT	CAUSE				
								LAT/LONG				LRS	INTERSECTION	SEQ#	LOCTN				DRVWY	LIGHT	SVRTY		V#																				
84026	N	N	N					11/18/2016	CLACKAMAS			1	14		INTER		CROSS	N		N	RAIN	S-1	STOP	01	NONE	9	STRGHT														29		
NONE							N	Fri	5P			MN	0		E			TRF	SIGNAL		N	WET	REAR		N/A		E	W											000		00		
										PORTLAND UA			7.54		06		2			N	DLIT	PDO		PSNGR	CAR					01	DRVR	NONE	00	U	UNK		000		000		00		
No			45	27		25.11	-122	34	44.82				006800100S00																														
																								02	NONE	9	STOP																
																								N/A		E	W													011		00	
																								PSNGR	CAR					01	DRVR	NONE	00	U	UNK		000		000		00		
85237	N	N	N					12/13/2016	CLACKAMAS			1	14		INTER		CROSS	N		N	CLR	S-1	STOP	01	NONE	9	STRGHT														29		
NONE							N	Tue	5P			MN	0		E			TRF	SIGNAL		N	DRY	REAR		N/A		E	W											000		00		
										PORTLAND UA			7.54		06		2			N	DUSK	PDO		PSNGR	CAR					01	DRVR	NONE	00	U	UNK		000		000		00		
No			45	27		25.11	-122	34	44.82				006800100S00																														
																								02	NONE	9	STOP																
																								N/A		E	W													011		00	
																								PSNGR	CAR					01	DRVR	NONE	00	U	UNK		000		000		00		
00213	N	N	N					01/13/2017	CLACKAMAS			1	14		INTER		CROSS	N		N	SNOW	S-1	STOP	01	NONE	0	STRGHT														124	29	
NO RPT							N	Fri	6A			MN	0		E			TRF	SIGNAL		N	ICE	REAR		PRVTE		E	W											000		00		
										PORTLAND UA			7.54		06		2			N	DLIT	INJ		PSNGR	CAR					01	DRVR	NONE	35	M	OR-Y		026		000		29		
No			45	27		25.11	-122	34	44.82				006800100S00																														
																								02	NONE	0	STOP																
																								PRVTE		E	W														011		00
																								PSNGR	CAR					01	DRVR	INJC	49	M	OR-Y		000		000		00		
01911	N	N	N					05/16/2017	CLACKAMAS			1	14		INTER		CROSS	N		N	RAIN	S-1	STOP	01	NONE	0	STRGHT														29		
NO RPT							N	Tue	2A			MN	0		E			TRF	SIGNAL		N	WET	REAR		UNKN		E	W											000		00		
										PORTLAND UA			7.54		06		2			N	DARK	INJ									01	DRVR	NONE	00	U	UNK		026		000		29	
No			45	27		25.11	-122	34	44.82				006800100S00																														
																								02	NONE	0	STOP																
																								PRVTE		E	W														011		00
																								PSNGR	CAR					01	DRVR	INJC	26	M	OR-Y		000		000		00		
00783	N	N	N					03/02/2018	CLACKAMAS			1	14		INTER		CROSS	N		N	CLR	S-1	STOP	01	NONE	9	STRGHT														29		
NONE							N	Fri	5P			MN	0		E			TRF	SIGNAL		N	DRY	REAR		N/A		E	W											000		00		
										PORTLAND UA			7.54		06		2			N	DAY	PDO		PSNGR	CAR					01	DRVR	NONE	00	U	UNK		000		000		00		
No			45	27		25.11	-122	34	44.82				006800100S00																														

068 CASCADE HWY NORTH

Intersection Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

[illegible]

068 CASCADE HWY NORTH

Intersection Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

[illegible]

068 CASCADE HWY NORTH

Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

SER#	P	G	S	W	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A	S	PED	ACTN	EVENT	CAUSE
INVEST	E	L	M	H	R	CITY	CMPT/MLG	FIRST	STREET	RD CHAR	OWNER	FROM	G	E	LOC			
UNLOC?	D	C	J	L	K	LAT/LONG	LRS	INTERSECTION	SEQ#	LOCTN	(#LANES)	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY

SER#	INVEST UNLOC?	P D C	G A J	S M L	W H R K	DATE DAY/TIME LAT/LONG	COUNTY CITY URBAN AREA	RD# CMPT/MLG MILEPNT LRS	FC	CONN # FIRST STREET SECOND INTERSECTION SEQ#	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL TYP SVRVTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	A PRTC INJ G E LICNS PED LOC ERROR	S X RES	CAUSE				
00336	NONE		N	N	N	01/19/2016 Tue 12P	CLACKAMAS PORTLAND UA	1 MN	14 0		CROSS	N TRF SIGNAL	N N WET	RAIN S-1STOP REAR	01 NONE N/A	9 STRGHT W E		00 DRVR NONE 00 U UNK	000	000	29 00			
No		45	27	25.11	-122	34 44.82			7.54	006800100S00	06	2	N DAY	PDO		PSNGR CAR		01			00	000	00	
																02 NONE N/A	9 STOP W E		01			011	00	00
																PSNGR CAR		01				000	000	00
01995	NONE		N	N	N	04/27/2017 Thu 7A	CLACKAMAS PORTLAND UA	1 MN	14 0		CROSS	N TRF SIGNAL	N N DRY	CLR S-1STOP REAR	01 NONE PRVTE	0 STRGHT W E		01 DRVR NONE 20 F OR-Y OR<25	026	000	29	00	00	
No		45	27	25.11	-122	34 44.82			7.54	006800100S00	06	0	N DAY	INJ		PSNGR CAR		01				000	000	29
																02 NONE PRVTE	0 STOP W E		01			011	00	00
																PSNGR CAR		01				000	000	00
																		02				000	000	00
82716	NONE		N	N	N	11/15/2017 Wed 6P	CLACKAMAS PORTLAND UA	1 MN	14 0		CROSS	N TRF SIGNAL	N N DRY	CLR S-1STOP REAR	01 NONE N/A	9 STRGHT W E		01 DRVR NONE 00 U UNK	000	000	29 00			
No		45	27	25.11	-122	34 44.82			7.54	006800100S00	06	2	N DUSK	PDO		UNKNOWN		01				000	000	00
																02 NONE N/A	9 STOP W E					011	00	00
																UNKNOWN		01				000	000	00
83191	NONE		N	N	N	04/18/2018 Wed 3P	CLACKAMAS PORTLAND UA	1 MN	14 0		CROSS	N TRF SIGNAL	N N DRY	CLR S-1STOP REAR	01 NONE N/A	9 STRGHT W E		01 DRVR NONE 00 U UNK	000	000	29 00			
No		45	27	25.11	-122	34 44.82			7.54	006800100S00	06	2	N DAY	PDO		PSNGR CAR		01				000	000	00
																02 NONE N/A	9 STOP W E					011	00	00
																PSNGR CAR		01				000	000	00
00538	NONE		N	N	N	02/15/2019 Fri 3P	CLACKAMAS PORTLAND UA	1 MN	14 0		CROSS	N TRF SIGNAL	N N WET	RAIN S-1STOP REAR	01 NONE N/A	9 STRGHT W E		01 DRVR NONE 00 U UNK	000	000	29 00			
No		45	27	25.11	-122	34 44.81			7.54	006800100S00	06	2	N DAY	PDO		PSNGR CAR		01				000	000	00

068 CASCADE HWY NORTH

Intersection Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

[illegible]

068 CASCADE HWY NORTH

Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

SER#	P	G	S	W	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A	S	PED	ACTN	EVENT	CAUSE											
INVEST	E	L	M	H	R	CITY	CMPT/MLG	FIRST	STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR QTY	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACTN	EVENT	CAUSE	
UNLOC?	D	C	J	L	K	LAT/LONG	LRS	INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACTN	EVENT	CAUSE
																02	NONE	0	STRGHT							000		00	
																	PRVTE	E W											
																	PSNGR	CAR		01	DRVR	INJC	50	M	OTH-Y	097	000	00	
																							N-RES						
04769	N	N	N		11/13/2017	CLACKAMAS	1	14		INTER	CROSS	N		CLR	ANGL-OTH	01	NONE	0	STRGHT								04		
STATE				N	Mon	12P	MN	0		CN		TRF	SIGNAL	N	DRY	ANGL		PRVTE	S N						000		00		
						PORTLAND UA		7.54		02		2		N	DAY	INJ		PSNGR	CAR		01	DRVR	NONE	55	M	OTH-Y	04		
No	45	27	25.11	-122	34	44.82	006800100S00																N-RES		020	000	00		
																02	NONE	0	STRGHT							000		00	
																	PRVTE	E W											
																	PSNGR	CAR		01	DRVR	INJC	71	M	OR-Y	000	000	00	
																							OR<25						
01021	N	N	N	N	03/22/2018	CLACKAMAS	1	14		INTER	CROSS	N		RAIN	ANGL-OTH	01	NONE	9	STRGHT								04		
STATE				N	Thu	6A	MN	0		CN		TRF	SIGNAL	N	WET	ANGL		N/A	E W						000		00		
						PORTLAND UA		7.54		02		0		N	DLIT	PDO		PSNGR	CAR		01	DRVR	NONE	00	U	UNK	00		
No	45	27	25.12	-122	34	44.81	006800100S00																UNK		000	000	00		
																02	NONE	9	STRGHT							000		00	
																	N/A	S N											
																	PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000	00	
																							UNK						
01193	N	N	N		04/07/2018	CLACKAMAS	1	14		INTER	CROSS	N		RAIN	ANGL-OTH	01	NONE	0	STRGHT								04		
NO RPT				N	Sat	9P	MN	0		CN		TRF	SIGNAL	N	WET	ANGL		PRVTE	E W						000		00		
						PORTLAND UA		7.54		02		2		N	DLIT	INJ		PSNGR	CAR		01	DRVR	INJB	31	F	OR-Y	00		
No	45	27	25.12	-122	34	44.82	006800100S00																OR<25		000	000	00		
																02	NONE	0	STRGHT							000		00	
																	PRVTE	S N											
																	PSNGR	CAR		01	DRVR	INJC	36	F	OR-Y	020	000	04	
																							OR<25						
00024	N	Y	N	N	01/04/2019	CLACKAMAS	1	14		INTER	CROSS	N		RAIN	ANGL-OTH	01	NONE	9	STRGHT								04		
STATE				N	Fri	12A	MN	0		CN		TRF	SIGNAL	N	WET	ANGL		N/A	S N						000		00		
						PORTLAND UA		7.54		02		0		N	DLIT	PDO		PSNGR	CAR		01	DRVR	NONE	00	U	UNK	00		
No	45	27	25.11	-122	34	44.84	006800100S00																UNK		000	000	00		
																02	NONE	9	STRGHT							000		00	
																	N/A	E W											
																	PSNGR	CAR		01	DRVR	NONE	00	U	UNK	000	000	00	
																							UNK						

068 CASCADE HWY NORTH

Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

SER#	P	G	S	W	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE	MOVE	A	S	LICNS	PED	ACTN	EVENT	CAUSE
INVEST	E	L	M	H	R	CITY	MILEPNT	FIRST	STREET	LEGS	DIRECT	TRAF-	RNDBT	SURF	COLL TYP	OWNER	FROM	PRTC	INJ	G	E	RES	LOC	ERROR	
UNLOC?	D	C	J	L	K	LAT/LONG	LRS	INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	F#	TYPE	SVRTY	E	X		
01338	N	N	N			05/24/2020																			
NO RPT				N		Sun 7P																			
No	45	27	25.12	-122	34	44.83																			

Intersection Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR.
January 1, 2016 through December 31, 2020

[illegible]

068 CASCADE HWY NORTH D	Intersectional Crashes at SE 82nd Ave, Cascade Hwy (#068) & SE Johnson Creek Blvd in Clackamas County, OR. January 1, 2016 through December 31, 2020
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SER#	P	G	S	W	DATE	COUNTY	RD#	FC	CONN #	INT-TYP	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE	A	S	E	LICNS	PED	ACTN	EVENT	CAUSE									
INVEST	E	L	M	H	R	CITY	MILEPNT	SECOND STREET	DIRECT	LEGS	TRAF-	RNCBT	SURF	COLL TYP	OWNER	MOVE	G	E	RES	LOC	ERROR											
UNLOC?	D	C	J	L	K	LAT/LONG	URBAN AREA	LRS	INTERSECTION	SEQ#	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR					
																	02	NONE	0	TURN-L												
																		PRVTE														
																		PSNGR	CAR		01	DRVR	INJB	26	F	OR-Y		000		000		00
																			OR<25													
02882	N	N	N	N	N	10/26/2020	CLACKAMAS	1	14		INTER		CROSS	N				01	NONE	0	STRGHT											27,04
STATE						Mon	6A	MN	0		CN		TRF	SIGNAL	N	CLD	ANGLED		PRVTE		S	N								000		00
															</																	

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST		
ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST		
CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST		
COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST		
CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN,ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST			DRIVER RESIDENCE CODE TRANSLATION LIST		
LIC CODE	SHORT DESC	LONG DESCRIPTION	RES CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)	1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
1	OR-Y	VALID OREGON LICENSE	2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY	3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
3	SUSP	SUSPENDED/REVOKED	4	N-RES	NON-RESIDENT
4	EXP	EXPIRED	9	UNK	UNKNOWN IF OREGON RESIDENT
8	N-VAL	OTHER NON-VALID LICENSE			
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH			

ERROR CODE TRANSLATION LIST		
ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNUED FROM WRONG LANE
007	TO WRONG	TURNUED INTO WRONG LANE
008	ILLEG U	U-TURNUED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR	SHORT	
CODE	DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST		
EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST		
FUNC CLASS	DESCRIPTION	
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE	
02	RURAL PRINCIPAL ARTERIAL - OTHER	
06	RURAL MINOR ARTERIAL	
07	RURAL MAJOR COLLECTOR	
08	RURAL MINOR COLLECTOR	
09	RURAL LOCAL	
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE	
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP	
14	URBAN PRINCIPAL ARTERIAL - OTHER	
16	URBAN MINOR ARTERIAL	
17	URBAN MAJOR COLLECTOR	
18	URBAN MINOR COLLECTOR	
19	URBAN LOCAL	
78	UNKNOWN RURAL SYSTEM	
79	UNKNOWN RURAL NON-SYSTEM	
98	UNKNOWN URBAN SYSTEM	
99	UNKNOWN URBAN NON-SYSTEM	

HIGHWAY COMPONENT TRANSLATION LIST	
CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST	
CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST		
CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMPS
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

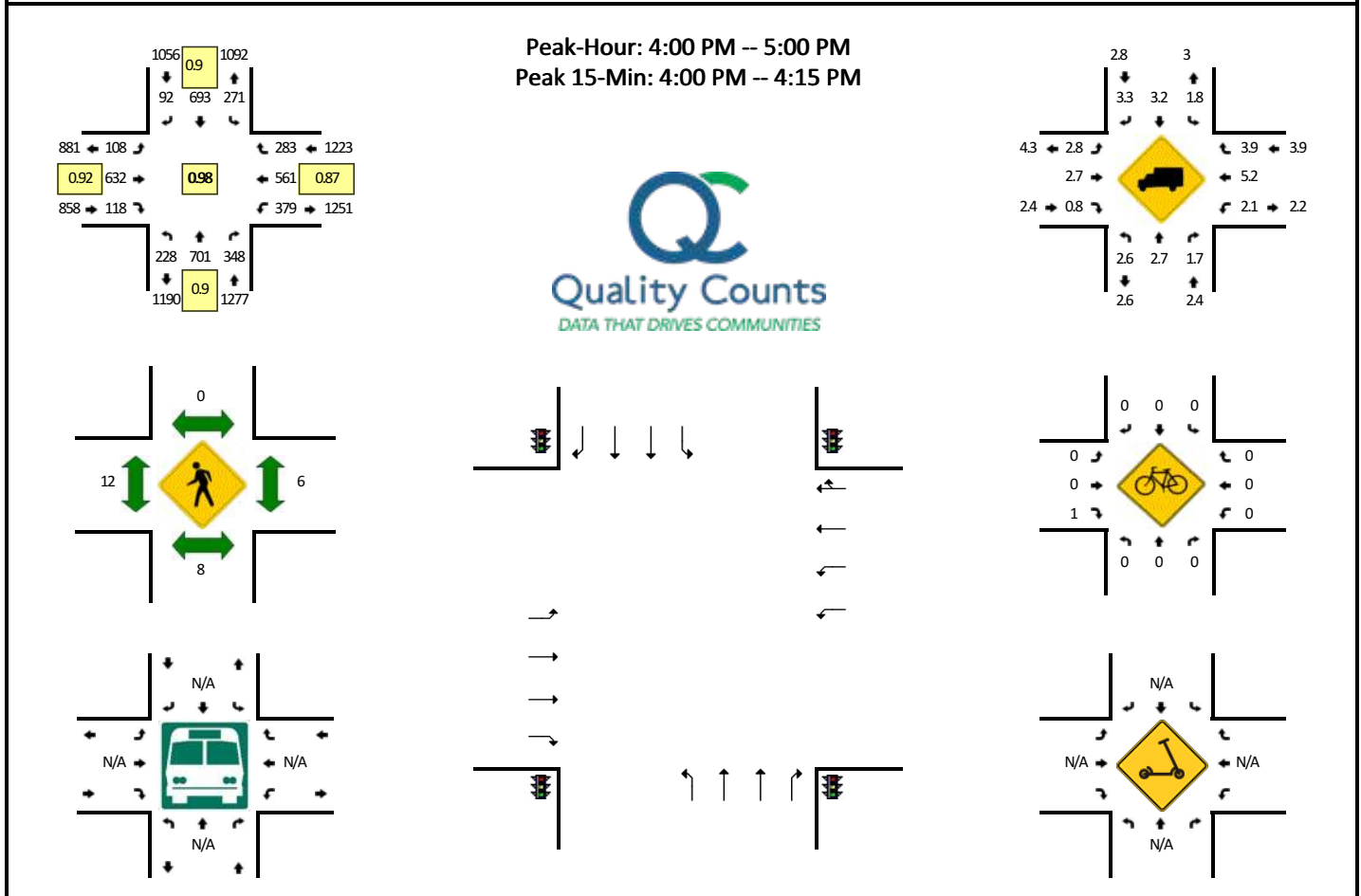
WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

Appendix B: Traffic Conditions Analysis Worksheets

LOCATION: SE 82nd Ave -- SE Johnson Creek Blvd
CITY/STATE: Clackamas, OR

QC JOB #: 15608506
DATE: Wed, Mar 2 2022



5-Min Count Period Beginning At	SE 82nd Ave (Northbound)				SE 82nd Ave (Southbound)				SE Johnson Creek Blvd (Eastbound)				SE Johnson Creek Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	24	81	37	0	20	69	11	0	6	49	9	0	35	45	21	0	407	
4:05 PM	21	64	35	0	20	62	8	0	8	48	9	0	21	45	18	0	359	
4:10 PM	14	51	29	0	26	66	6	0	11	50	11	0	39	37	18	0	358	
4:15 PM	25	51	32	0	26	47	9	0	10	49	15	0	39	49	24	0	376	
4:20 PM	10	53	18	0	14	53	8	0	5	68	10	0	34	56	28	0	357	
4:25 PM	28	63	19	0	27	52	11	0	7	53	13	0	28	32	25	0	358	
4:30 PM	17	69	29	0	27	59	9	0	9	51	9	0	29	45	23	0	376	
4:35 PM	15	54	22	0	25	74	8	0	12	44	3	0	33	46	18	0	354	
4:40 PM	23	61	38	0	21	50	2	0	9	53	5	0	22	40	22	0	346	
4:45 PM	17	35	36	0	17	58	5	0	9	54	12	0	40	54	19	0	356	
4:50 PM	18	62	26	0	24	59	4	0	12	53	11	0	28	59	29	0	385	
4:55 PM	16	57	27	0	24	44	11	0	10	60	11	0	31	53	38	0	382	4414
5:00 PM	20	56	35	1	29	39	7	0	10	40	10	0	35	34	21	0	337	4344
5:05 PM	18	50	25	1	30	51	8	0	7	44	9	0	34	48	16	0	341	4326
5:10 PM	14	80	31	0	18	58	9	0	11	46	7	0	21	45	12	0	352	4320
5:15 PM	10	70	27	0	24	59	7	0	11	48	9	0	26	33	18	0	342	4286
5:20 PM	16	44	32	0	24	53	9	0	11	44	9	0	30	47	25	0	344	4273
5:25 PM	14	42	33	0	13	71	10	0	7	48	14	0	37	53	22	0	364	4279
5:30 PM	11	46	22	0	17	48	4	0	9	45	11	0	38	51	27	0	329	4232
5:35 PM	16	48	21	0	20	49	5	0	7	40	15	0	31	47	24	0	323	4201
5:40 PM	11	38	23	0	30	54	9	0	2	35	9	0	17	48	27	0	303	4158
5:45 PM	16	46	33	0	18	53	9	0	1	35	4	0	34	35	15	0	299	4101
5:50 PM	11	52	19	0	13	68	10	0	7	33	6	0	27	29	25	0	300	4016
5:55 PM	14	57	28	0	23	52	7	0	10	27	10	0	40	32	15	0	315	3949
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	236	784	404	0	264	788	100	0	100	588	116	0	380	508	228	0	4496	
Heavy Trucks	0	24	4	0	8	32	0	0	4	28	0	0	16	36	16	0	168	
Buses																		
Pedestrians		8				0				4				0			12	
Bicycles	0	0	0		0	0	0		0	0	4		0	0	0		4	
Scooters																		

Comments:












Appendix C: Traffic Counts

Queues

Year 2022 Existing Traffic Conditions

3: SE 82nd Ave & SE Johnson Creek Blvd

Weekday PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	110	645	120	387	861	233	715	355	277	707	94
v/c Ratio	0.80	0.91	0.29	0.83	0.94	0.81	0.59	0.48	0.86	0.55	0.15
Control Delay	101.2	71.6	9.2	74.5	65.4	77.7	41.3	8.7	80.2	38.9	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.2	71.6	9.2	74.5	65.4	77.7	41.3	8.7	80.2	38.9	3.2
Queue Length 50th (ft)	100	302	0	177	376	207	291	29	245	275	0
Queue Length 95th (ft)	#199	#399	52	#239	#495	289	372	118	#346	367	24
Internal Link Dist (ft)		438			967		524			531	
Turn Bay Length (ft)	300		325	275				275	350		165
Base Capacity (vph)	143	738	424	490	946	369	1214	740	372	1278	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.87	0.28	0.79	0.91	0.63	0.59	0.48	0.74	0.55	0.15

Intersection Summary
























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: SE 82nd Ave & SE Johnson Creek Blvd

Year 2022 Existing Traffic Conditions
Weekday PM Peak Hour












												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	632	118	379	561	283	228	701	348	271	693	92
Future Volume (vph)	108	632	118	379	561	283	228	701	348	271	693	92
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	5.0	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.96
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	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1562	3433	3275		1752	3505	1551	1770	3505	1500
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1562	3433	3275		1752	3505	1551	1770	3505	1500
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	110	645	120	387	572	289	233	715	355	277	707	94
RTOR Reduction (vph)	0	0	96	0	46	0	0	0	203	0	0	60
Lane Group Flow (vph)	110	645	24	387	815	0	233	715	152	277	707	34
Confl. Peds. (#/hr)			8	8			12		6	6		12
Heavy Vehicles (%)	3%	3%	1%	2%	5%	4%	3%	3%	2%	2%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8						6			2
Actuated Green, G (s)	11.0	28.5	28.5	19.0	37.0		22.9	48.5	48.5	25.5	51.1	51.1
Effective Green, g (s)	11.0	28.5	28.5	19.0	37.0		22.9	48.5	48.5	25.5	51.1	51.1
Actuated g/C Ratio	0.08	0.20	0.20	0.14	0.26		0.16	0.35	0.35	0.18	0.37	0.37
Clearance Time (s)	4.5	4.5	4.5	5.0	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.3	2.3	2.3	3.0	2.3		2.3	4.3	4.3	2.3	4.3	4.3
Lane Grp Cap (vph)	137	713	317	465	865		286	1214	537	322	1279	547
v/s Ratio Prot	0.06	0.18		c0.11	c0.25		0.13	c0.20		c0.16	c0.20	
v/s Ratio Perm			0.02						0.10			0.02
v/c Ratio	0.80	0.90	0.08	0.83	0.94		0.81	0.59	0.28	0.86	0.55	0.06
Uniform Delay, d1	63.4	54.4	45.1	58.9	50.4		56.5	37.6	33.2	55.5	35.4	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.8	14.8	0.1	12.1	18.0		15.6	2.1	1.3	19.9	1.7	0.2
Delay (s)	90.2	69.2	45.2	71.0	68.4		72.1	39.7	34.5	75.4	37.1	29.1
Level of Service	F	E	D	E	E		E	D	C	E	D	C
Approach Delay (s)		68.6			69.2			44.1			46.2	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			56.3			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.5			
Intersection Capacity Utilization			87.3%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: SE 82nd Ave & SE Johnson Creek Blvd

Year 2024 Background Conditions

Weekday PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	114	671	126	402	896	242	744	369	288	736	98
v/c Ratio	0.83	0.92	0.30	0.85	0.96	0.83	0.63	0.51	0.88	0.59	0.16
Control Delay	108.3	67.9	8.6	76.0	68.5	78.4	43.1	10.5	81.3	40.5	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.3	67.9	8.6	76.0	68.5	78.4	43.1	10.5	81.3	40.5	3.7
Queue Length 50th (ft)	109	320	3	186	398	215	310	42	254	292	0
Queue Length 95th (ft)	m#204	#422	m40	#259	#533	301	390	140	#379	384	28
Internal Link Dist (ft)		438			967		524			531	
Turn Bay Length (ft)	300		325	275				275	350		165
Base Capacity (vph)	143	739	428	490	946	369	1178	723	372	1244	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.91	0.29	0.82	0.95	0.66	0.63	0.51	0.77	0.59	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
























Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: SE 82nd Ave & SE Johnson Creek Blvd

Year 2024 Background Conditions
Weekday PM Peak Hour












												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	658	123	394	584	294	237	729	362	282	721	96
Future Volume (vph)	112	658	123	394	584	294	237	729	362	282	721	96
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	5.0	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
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	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1562	3433	3276		1752	3505	1551	1770	3505	1527
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1562	3433	3276		1752	3505	1551	1770	3505	1527
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	114	671	126	402	596	300	242	744	369	288	736	98
RTOR Reduction (vph)	0	0	100	0	45	0	0	0	202	0	0	63
Lane Group Flow (vph)	114	671	26	402	851	0	242	744	167	288	736	35
Confl. Peds. (#/hr)			8	8			12		6	6		12
Heavy Vehicles (%)	3%	3%	1%	2%	5%	4%	3%	3%	2%	2%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8						6			2
Actuated Green, G (s)	11.1	29.1	29.1	19.3	37.8		23.4	47.0	47.0	26.1	49.7	49.7
Effective Green, g (s)	11.1	29.1	29.1	19.3	37.8		23.4	47.0	47.0	26.1	49.7	49.7
Actuated g/C Ratio	0.08	0.21	0.21	0.14	0.27		0.17	0.34	0.34	0.19	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	5.0	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.3	2.3	2.3	3.0	2.3		2.3	4.3	4.3	2.3	4.3	4.3
Lane Grp Cap (vph)	138	728	324	473	884		292	1176	520	329	1244	542
v/s Ratio Prot	0.07	0.19		c0.12	c0.26		0.14	c0.21		c0.16	c0.21	
v/s Ratio Perm			0.02						0.11			0.02
v/c Ratio	0.83	0.92	0.08	0.85	0.96		0.83	0.63	0.32	0.88	0.59	0.06
Uniform Delay, d1	63.5	54.3	44.7	58.9	50.4		56.4	39.2	34.6	55.4	36.9	29.8
Progression Factor	1.13	0.93	0.95	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.5	15.3	0.1	13.4	21.4		16.8	2.6	1.6	21.6	2.1	0.2
Delay (s)	99.5	65.8	42.6	72.3	71.8		73.2	41.8	36.3	77.0	38.9	30.0
Level of Service	F	E	D	E	E		E	D	D	E	D	C
Approach Delay (s)		66.8			72.0			45.9			47.9	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			57.7			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.5			
Intersection Capacity Utilization			89.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

3: SE 82nd Ave & SE Johnson Creek Blvd

Year 2024 Total Conditions

Weekday PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	114	671	133	412	896	249	755	380	288	747	98
v/c Ratio	0.83	0.93	0.31	0.87	0.96	0.84	0.64	0.53	0.88	0.61	0.16
Control Delay	108.3	68.5	8.6	77.5	68.5	79.0	43.4	11.4	81.3	41.1	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.3	68.5	8.6	77.5	68.5	79.0	43.4	11.4	81.3	41.1	3.7
Queue Length 50th (ft)	109	320	3	191	398	221	316	50	254	300	0
Queue Length 95th (ft)	m#204	#422	m42	#270	#533	309	396	153	#379	391	28
Internal Link Dist (ft)		438			967		524			531	
Turn Bay Length (ft)	300		325	275				275	350		165
Base Capacity (vph)	143	738	434	490	946	369	1178	723	372	1233	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.91	0.31	0.84	0.95	0.67	0.64	0.53	0.77	0.61	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
























Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: SE 82nd Ave & SE Johnson Creek Blvd

Year 2024 Total Conditions
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	658	130	404	584	294	244	740	372	282	732	96
Future Volume (vph)	112	658	130	404	584	294	244	740	372	282	732	96
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	5.0	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
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	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	3505	1562	3433	3276		1752	3505	1551	1770	3505	1527
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1752	3505	1562	3433	3276		1752	3505	1551	1770	3505	1527
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	114	671	133	412	596	300	249	755	380	288	747	98
RTOR Reduction (vph)	0	0	105	0	45	0	0	0	202	0	0	63
Lane Group Flow (vph)	114	671	28	412	851	0	249	755	178	288	747	35
Confl. Peds. (#/hr)			8	8			12		6	6		12
Heavy Vehicles (%)	3%	3%	1%	2%	5%	4%	3%	3%	2%	2%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8						6			2
Actuated Green, G (s)	11.1	29.0	29.0	19.4	37.8		23.8	47.0	47.0	26.1	49.3	49.3
Effective Green, g (s)	11.1	29.0	29.0	19.4	37.8		23.8	47.0	47.0	26.1	49.3	49.3
Actuated g/C Ratio	0.08	0.21	0.21	0.14	0.27		0.17	0.34	0.34	0.19	0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	5.0	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.3	2.3	2.3	3.0	2.3		2.3	4.3	4.3	2.3	4.3	4.3
Lane Grp Cap (vph)	138	726	323	475	884		297	1176	520	329	1234	537
v/s Ratio Prot	0.07	0.19		c0.12	c0.26		0.14	c0.22		c0.16	0.21	
v/s Ratio Perm			0.02						0.11			0.02
v/c Ratio	0.83	0.92	0.09	0.87	0.96		0.84	0.64	0.34	0.88	0.61	0.06
Uniform Delay, d1	63.5	54.4	44.8	59.0	50.4		56.2	39.4	34.9	55.4	37.3	30.1
Progression Factor	1.13	0.93	0.96	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.5	15.6	0.1	15.3	21.4		17.8	2.7	1.8	21.6	2.2	0.2
Delay (s)	99.5	66.3	42.9	74.3	71.8		74.1	42.1	36.7	77.0	39.6	30.3
Level of Service	F	E	D	E	E		E	D	D	E	D	C
Approach Delay (s)		67.0			72.6			46.4			48.3	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			58.1			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			18.5			
Intersection Capacity Utilization			89.4%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												