PLANNING COMMISSION MEETING

Tuesday, December 11, 2018, 6:00 PM

Fairview City Hall – Council Chambers, 2nd Floor
1300 NE Village Street, Fairview, OR 97024

MEETING AGENDA

1. **CALL TO ORDER:** 6:00 p.m.

2. **CITIZENS WISHING TO SPEAK ON NON-AGENDA ITEMS**

3. **FINDINGS, CONCLUSION AND ORDER**

   File Number 2018-50-DR-SD

   Adopt final findings and conditions for Halsey Street & Fairview Parkway Mixed-Use Site, following November 27 public hearing and preliminary approval.

4. **PUBLIC HEARINGS**

   a. **File Number 2018-49-DR**
   Halsey Commons (21929 NE Halsey Street)
   Type III Quasi-Judicial Procedure

   Summary: The applicant proposes to construct a three-story mixed-use building with ground floor commercial and nine (9) apartment units in the Town Center Commercial District. The ground floor will include approximately 2,390 SF of commercial space and a 925 SF American with Disabilities (ADA) accessible apartment. The two upper stories will include a total of 8 apartment units with one and two bedroom units. 16 parking spaces will be located behind the building and a single access point is proposed from NE Halsey Street.

   Applicable Fairview Municipal Code Criteria:
   FMC 19.400 Administration of Land Use and Development Review
   FMC 19.413 Procedures
   FMC 19.424 Site Design Review – Application Review Procedure
   FMC 19.425 Site Design Review – Application Submission Requirements
   FMC 19.426 Site Design Review – Approval Criteria
   FMC 19.65 Town Center Commercial District (TCC)
   FMC 19.162 Access and Circulation
   FMC 19.163 Landscaping, Street Trees, Fences and Walls
   FMC 19.164 Vehicle and Bicycle Parking
   FMC 19.165 Public Facilities Standards
   FMC 19.165 Public Facilities Standards

b. File Number 2018-51-DR

Halsey Crossing
(Northwest corner of NE 223rd Avenue and Halsey Street)

Type III Quasi-Judicial Procedure

Summary: The applicant proposes to construct a mixed-use development in the Town Center Commercial District containing (7) seven buildings with a total of 84 dwelling units. The project includes (6) six multi-family residential buildings on the interior of the site, and (1) one mixed-use building along 223rd Avenue with 4,400 SF of ground floor retail and three upper stories of apartments. The site plan includes 108 parking stalls in surface lots and tuck-under spaces. Access will be provided from an existing shared driveway on Halsey Street and a new driveway on 223rd Avenue.

Applicable Fairview Municipal Code Criteria:

FMC 19.400 Administration of Land Use and Development Review
FMC 19.412 Description of Permit Procedures
FMC 19.413 Procedures
FMC 19.424 Site Design Review – Application Review Procedure
FMC 19.425 Site Design Review – Application Submission Requirements
FMC 19.426 Site Design Review – Approval Criteria
FMC 19.65 Town Center Commercial (TCC) District
FMC 19.105 Floodplain Overlay
FMC 19.105 Natural Resource Regulations
FMC 19.162 Access and Circulation
FMC 19.163 Landscaping, Street Trees, Fences and Walls
FMC 19.164 Vehicle and Bicycle Parking
FMC 19.165 Public Facilities Standards

5. COMMISSION AND STAFF UPDATES

6. TENTATIVE AGENDA

7. ADJOURNMENT

NEXT PLANNING COMMISSION MEETING:
TUESDAY, DEC. 18, 2018 – *if needed* – or TUESDAY, JAN. 8, 2019

Planning Commission hearings are broadcast live on Comcast Cable Channel 30 and Frontier FiOs Channel 38. Replays of the meeting are shown on Saturday at 12:30pm and Monday at 2:00pm following the original broadcast date. Meetings are also available for viewing on the MetroEast website. Further information is available on our web page at www.fairvieworegon.gov or by calling Devree Leymaster, City Recorder, 503-674-6224.

The meeting location is wheelchair accessible. A request for an interpreter for the hearing impaired or for other accommodations for person with disabilities should be made at least 48 hours before the meeting to: Devree Leymaster, 503-674-6224.

PLANNING COMMISSION STAFF REPORT
TYPE III SITE DESIGN REVIEW
FINDINGS AND STAFF RECOMMENDATION

Date of Report:	December 4, 2018
Staff Contact:	Eric Rutledge, Associate Planner rutledgee@ci.fairview.or.us 503-674-6205
Application Number:	2018-49-DR
Property Owner:	Dean and Marcia Hurford
Applicant:	Dean Hurford
Site Address:	21929 NE Halsey Street
Parcel Number/Tax ID:	R321104 & R321212
Proposal:	New three-story mixed-use building in the Town Center Commercial (TCC) zone, including nine apartment units and 2,390 SF of commercial space
Recommendation:	**Approval with Conditions**
Exhibits:	**A. Applicant's Narrative & Written Materials** 1. Application Narrative 2. Trip Generation Report 3. Stormwater Analysis 4. Geotechnical Report **B. Plans/Drawings** 1. Cover Sheet (Sheet P1.0)

2. Existing Conditions Survey
3. Site Plan (Sheet P3.0)
4. Erosion Control Plan (Sheet P4.0)
5. Erosion Control Plan Details (Sheet P5.0)
6. Street Frontage Improvement Plan (Sheet P6.0)
7. Transportation Details (Sheet P7.0)
8. Stormwater Plan (Sheet P8.0)
9. Stormwater Details (Sheet P9.0)
10. Sanitary Sewer and Water Plan (Sheet P10.0)
11. Landscape Plan (Sheet L1)
12. Building Elevations (Sheet A-221)
13. Ground Floor Plans (Sheet A-121)
14. Upper Floor Plans (Sheet A-122)

C. Department Referral Comments

1. Multnomah County Transportation Comments
2. Gresham Fire Comments

I. BACKGROUND & EXISTING CONDITIONS

Address/Location: 21929 NE Halsey Street

Acreage: 0.37 Acres

Comprehensive Plan: Commercial

Zoning Designation: Town Center Commercial

Zoning Overlays: None

Surround Zoning:

North: Town Center Commercial / Residential Multi-Family
South: Town Center Commercial
East: Town Center Commercial
West: Town Center Commercial

Streets/Classification: NE Halsey Street is a Minor Arterial under Multnomah County jurisdiction

Application Narrative:
The applicant proposes a three story mixed-use building in the Town Center Commercial (TCC) zone including 9 apartment units and 2,390 SF of commercial space. The ground floor will include 2,390 SF of commercial space and an ADA accessible apartment unit. The second and third floors will be occupied by 1- and 2-bedroom living units.

The building will be oriented towards Halsey Street and be located at the front property line. The primary commercial entrance will be located on Halsey Street to enhance the streetscape and provide a pedestrian entrance. 18 parking spaces are proposed behind the building that will be accessed from a single driveway on Halsey Street.
The primary residential entry will be located behind the building oriented towards the parking lot.

The application was concurrently reviewed by the Multnomah County Transportation Division for compliance with County Road Rules. The applicant has applied for a Road Rules Variance requesting a reduction in the required access spacing distance along NE Halsey Street.

Existing Site Conditions:
The site is 0.37 acres and currently features a single-family house built in 1960. Other improvements include a detached garage, driveway, landscaping, and perimeter fences and walls. The site slopes down to the north with an elevation change of 5 ft. There are no known water bodies or natural resources on the property. All trees on the site were removed.

Figure 1: Parcel boundaries and surrounding area. Source: Metro RLIS 2018

Figure 2: Aerial view of development site, approximate boundaries in red. Two commercial developments abut the site on each side. The Historic Fairview Neighborhood is also visible to the north of the site. Source: Google Maps. Date aerial image is unknown.

Figure 3: View of development site from Halsey Street, heading north. Source: Google Maps Street View (August 2018)

II. NOTICES & REFERRALS

Application Date:	June 28, 2018
Application Deemed Complete:	November 14, 2018
Public Hearing Date:	December 11, 2018
Public Notice Date/Type:	November 20, 2018 Notice in Outlook November 21, 2018 Notice to Property Owners November 30, 2018 Notice Posted to Site
Referrals:	Multnomah County Transportation Division Gresham Fire & Emergency Services Fairview Public Works/Engineering

III. APPLICABLE CRITERIA

This Type III application process requires a planning commission decision subject to the following requirements of the Fairview Municipal Code (FMC) Title 19:

A) Application Review Procedures
- FMC 19.400 Administration of Land Use Review
- FMC 19.413 Procedures
- FMC 19.424 Site Design Review – Application Review Procedure
- FMC 19.425 Site Design Review – Application Submission Requirements
- FMC 19.426 Site Design Review – Approval Criteria

B) Land Use Districts
- FMC 19.65 Town Center Commercial (TCC) District

C) Design Standards
- FMC 19.162 Access and Circulation
- FMC 19.163 Landscaping, Street Trees, Fences, and Walls
- FMC 19.164 Vehicle and Bicycle Parking
- FMC 19.165 Public Facilities Standards

IV. APPLICATION REVIEW PROCEDURE FINDINGS

Chapter 19.400 Administration of Land Use Review

19.400.030 Time limit on land use decisions for approval.

Unless otherwise specified in the decision or elsewhere in this title, an approved land use decision shall expire two years from date of final decision.

FINDINGS: If approved, this Site Design Review shall expire two (2) years from the date of final decision.

Condition of Approval: **The approval for application 2018-**49**-DR** CUP shall become null and void after two (2) years if construction activities have not commenced.

Chapter 19.413 Procedures

19.413.030 Type III procedure (quasi-judicial).

Type III decisions are made by the planning commission after a public hearing. Appeals of Type III decisions are reviewed and decided by the city council.

A. Public Notification. Notice of the public hearing shall be mailed to the property owner and applicant, if different, and to all property owners within 250 feet of the outer boundaries of the site, not less than 20 days prior to the date of the hearing. Notice must also be provided in a public newspaper at least 20 days prior to the hearing date. In addition, a sign indicating the date of the public hearing, shall be posted on the subject property not less than 10 days prior to the date of the hearing. Notice must also be provided at least 20 days prior to the scheduled hearing to any neighborhood or community organization recognized by the city whose boundaries include the subject property.

FINDINGS: A planning commission hearing on the application is scheduled for December 11, 2018 and public notification was provided by City staff in accordance with the requirements listed above.

Chapter 19.424 Site Design Review – Application Review Procedures

19.424.020 Determination of Type II and Type III applications.

Applications for site design review shall be subject to Type II or Type III review, based on the following criteria:

A. Residential buildings with three or fewer dwelling units shall be reviewed as a Type II application, except when development review is allowed under Chapter 19.423 FMC. Residential buildings with greater than three units shall be reviewed as a Type III application.

B. Commercial, industrial, public/semi-public, and institutional buildings with 5,000 square feet of gross floor area or smaller shall be reviewed as a Type II application, except when development review is allowed under Chapter 19.423 FMC. Commercial, industrial, public/semi-public, and institutional buildings with greater than 5,000 square feet of gross floor area shall be reviewed as a Type III application.

C. Developments with more than one building…

D. Developments with 25 or fewer off-street vehicle parking spaces…

FINDINGS: The proposal is for a mixed-use commercial building with greater than 5,000 SF of gross floor area. The building will also include more than 3 residential units. The Type III Site Design Review procedures apply.

Chapter 19.425 Site Design Review – Application Submission Requirements
19.425.010 General submission requirements.
The applicant shall submit an application containing all of the general information required by FMC 19.413.020 (Type II Application) or FMC 19.413.030 (Type III Application), as applicable. The type of application shall be determined in accordance with FMC 19.424.020.

FINDINGS: The applicant has submitted an application containing all of the information required for the Type III application and Site Design Review. The application was routed to all agencies with an interest in the development and was deemed complete on November 14, 2018.

Chapter 19.426 Site Design Review – Approval Criteria
19.426.001 Site design review approval criteria.
The review authority shall make written findings with respect to all of the following criteria when approving, approving with conditions, or denying an application.

19.426.010 Complete application.
The application must be complete, as determined in accordance with FMC 19.412.050, on types of applications, and Chapter 19.425 FMC.
19.426.020 Compliance with land use district provisions.

The application complies with all of the applicable provisions of the underlying land use district, including: building and yard setbacks, lot area and dimensions, density and floor area, lot coverage, building height, building orientation, architecture, and other special standards as may be required for certain land uses.

19.426.030 Upgrade existing development.

The applicant shall be required to upgrade any existing development that does not comply with the applicable land use district standards, in conformance with Chapter 19.530 FMC, Nonconforming Uses and Development.

19.426.040 Compliance with design standards.
The application complies with the design standards contained in Article III of this title. All of the following standards shall be met:

- *A. Chapter 19.162 FMC – Access and Circulation;*
- *B. Chapter 19.163 FMC – Landscaping, Street Trees, Fences and Walls;*
- *C. Chapter 19.164 FMC – Automobile and Bicycle Parking;*
- *D. Chapter 19.165 FMC – Public Facilities Standards;*
- *E. Other standards (telecommunications facilities, solid waste storage, environmental performance, signs), as applicable.*

19.426.050 Conditions.
All conditions required as part of an approval shall be met.

19.426.060 Exceptions.
Exceptions to criteria in FMC 19.426.040(A) through (E) may be granted only when approved as a variance.

FINDINGS: This application was deemed complete on November 14, 2018. Findings for 19.426.020 and 19.426.40 showing compliance with the underlying land use district and design standards are analyzed below. All conditions required as part of this approval must be met.

V. LAND USE DISTRICT FINDINGS

19.65.010 Purpose.
A city goal is to strengthen the town center commercial district as the "heart" of the community and as the logical place for people to gather and create a business center. The town center commercial district is intended to support this goal through elements of design and appropriate mixed use development. This chapter provides standards for the orderly improvement of the district based on the following principles:

A. Efficient use of land and urban services;

B. A mixture of land uses to encourage walking as an alternative to driving, and to provide more employment and housing options;

C. Both formal and informal community gathering places;

D. A distinct storefront character that identifies commercial districts;

E. Connections to neighborhoods and other employment areas;

F. Reduced reliance on the automobile and reduced parking needs.

19.65.020 Permitted land uses.

A. Permitted Uses. The land uses listed in Table 19.65.020.A are permitted in the town center commercial district, subject to the provisions of this chapter. Only land uses that are specifically listed in Table 19.65.020.A, and land uses that are approved as "similar" to those in Table 19.65.020.A, may be permitted. The land uses identified with a "CU" in Table 19.65.020.A require conditional use permit approval prior to development or a change in use.

1. Residential*
Single-Family
a. Single-family detached housing (existing housing only)
b. Zero-lot line housing (existing only)
c. Accessory dwellings
d. Manufactured homes – individual lots (existing housing only)
e. Single-family attached townhomes (CU)
Two-Family
f. Two-family housing (duplex) (CU)

Multifamily and Three-Family
g. Multifamily housing and triplexes (CU)

6. Commercial
*a. Auto-oriented uses and facilities (CU)*b. Entertainment (e.g., theaters, clubs, amusement uses)*
c. Hotels/motels
d. Medical and dental offices, clinics and laboratories
*e. Mixed use development (housing and other permitted use)**
f. Office uses (i.e., those not otherwise listed)
g. Personal and professional services (e.g., child care center, catering/food services, restaurants, laundromats and dry cleaners, barber shops and salons, banks and financial institutions, and similar uses)
h. Repair services (must be enclosed within building)
i. Retail trade and services, except auto-oriented uses
j. Uses similar to those listed above (subject to CU requirements, as applicable)

Uses marked with an asterisk (*) are subject to the standards in FMC 19.65.090, Special standards for certain uses.
Land uses marked with a CU shall require a conditional use permit.

B. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures in Chapter 19.480 FMC.

C. Land Uses Prohibited in the Commercial District. Only uses specifically listed in Table 19.65.020.A, and uses similar to those in Table 19.65.020.A, are permitted in this district.

The following uses are expressly prohibited: Industrial uses not permitted in section 7 of Table 19.65.020.A.

FINDINGS: The proposed use is a three-story vertical mixed-use building, an allowed use in the TCC zone. As described under FMC 19.65.090 both "vertical" mixed use (housing above the ground floor), and "horizontal" mixed use (housing on the ground floor) developments are allowed. The development is also subject to special standards for residential uses in the TCC zone. These standards are designed to conserve commercial land for commercial uses and provide compatibility guidelines for mixed-use projects. The proposed development complies or is conditioned to comply with all of the special standards for commercial/residential mixed-use developments.

19.65.030 Building setbacks.
In the town center commercial district, buildings are placed close to the street to create a vibrant pedestrian environment, to slow traffic down, provide a storefront character to the street, and encourage walking. The setback standards are flexible to encourage

public spaces between sidewalks and building entrances (e.g., extra-wide sidewalks, plazas, squares, outdoor dining areas, and pocket parks). The standards also encourage the formation of solid blocks of commercial and mixed use buildings for a walkable commercial area.

Building setbacks are measured from the wall or facade to the respective property line. Setbacks for porches are measured from the edge of the deck or porch to the property line. The setback standards, as listed on the following page, apply to primary structures as well as accessory structures. The standards may be modified only by approval of a variance.

Setback	***Min. Required***	***Max Allowed***	***Proposed***
Front	*0 ft.*	*10 ft.*	*0 ft.*
Rear	*15 ft. when a building abuts a residential district* *0 ft. when a building abuts all other districts*	*N/A*	*67 ft.*
Side	*0 ft.*	*N/A*	*5 ft. (west)* *29.5 ft. (east)*

FINDINGS: The development complies with all of the setback standards, as demonstrated in the table above.

D. Setback Exceptions. Eaves, chimneys, bay windows, overhangs, cornices, awnings, canopies, porches, decks, pergolas, and similar architectural features may encroach into setbacks by no more than four feet, subject to compliance with applicable standards of the Uniform Building Code and Uniform Fire Code. Walls and fences may be placed on the property line, subject to the requirements of Chapter 19.163 FMC, Landscaping, Street Trees, Fences and Walls.

FINDINGS: No setback exceptions are proposed or required.

19.65.040 Lot coverage, floor area ratio and maximum building size.

A. Lot Coverage. There is no maximum lot coverage requirement, except that compliance with other sections of this code may preclude full (100 percent) lot coverage for some land uses.

B. Floor Area Ratio. Floor Area Ratio (FAR) controls the bulk and mass of development. FAR is measured by dividing the gross enclosed area of all floors of a building (or combination of buildings in a single development) by the net land area of the development (not including street rights-of-way). For example, a 1.0 FAR equals two building stories (approximately 25 to 30 feet high) with 50 percent lot coverage. A FAR of 4.0 equals six building stories (more than 75 feet high) with 67 percent lot coverage. The following standard shall be met in all commercial, industrial and mixed use (residential with nonresidential) developments:

1. The maximum floor area shall be 1.0 in the town center commercial district.

FINDINGS: The applicant narrative indicates the proposed FAR is 0.84. The site area is 16,120 SF and the gross enclosed area is 13,540 SF. Note: gross area was calculated by staff based on site area provided on the Site Plan and FAR provided in the narrative (see Exhibit A1 Applicant Narrative and Exhibit B3 / Sheet P3.0 Site Plan).

C. Maximum Building Size. Individual maximum building size is 60,000 square feet.

FINDINGS: Based on the site area provided in the Site Plan and FAR provided in the narrative, the building size is approximately 13,540 SF.

19.65.050 Block layout and building orientation.
This section is intended to promote the walkable, storefront character of the town center commercial district by forming short blocks and orienting (placing or locating) buildings close to streets. Placing buildings close to the street also slows traffic down and provides more "eyes on the street," increasing the safety of public spaces. The standards, as listed on the following page and illustrated above, complement the front setback standards in FMC 19.65.030.

A. Applicability. This section applies to new land divisions and all of the following types of development (i.e., subject to site design review):

5. *Commercial and mixed use buildings subject to site design review. Compliance with all of the provisions of subsections B through E of this section shall be required.*

FINDINGS: The proposed mixed-use building is subject to Site Design Review and this section applies.

B. *Block Layout Standard. New land divisions and developments, which are subject to site design review, shall be configured to provide an alley or interior parking court, as shown above. Blocks (areas bound by public street right-of-way) shall have a length not exceeding 200 feet, and a depth not exceeding 200 feet. Pedestrian pathways shall be provided from the street right-of-way to interior parking courts between buildings, as necessary to ensure reasonably safe, direct, and convenient access to building entrances and off-street parking. Exceptions to this standard may be approved when all of the provisions of subsection C of this section, superblock developments, are met.*

FINDINGS: An interior parking lot is provided behind the behind, accessed via a new private driveway from NE Halsey Street. Due to site size, development of a single building and surrounding development pattern, an alley or parking court is not needed; the location of the parking lot behind the building meets the intent of this standard. A 6 ft. wide pedestrian pathway is proposed between the street and parking lot, running parallel to the private driveway access. The parcel is approximately 116 ft. wide along Halsey Street and 148 ft. deep along the west property line. This standard is met.

C. *Superblock Developments. Commercial and mixed use developments may exceed the block width and depth standards in subsection B of this section, when the total floor area of those developments (i.e., one or more buildings on one or more lots) exceeds 40,000 square feet on the ground floor. These "superblock developments" shall conform to all of the standards in subsections (C)(1) and (C)(2) of this section (see Figure 19.65.050.C):*

FINDINGS: The floor area is less than 40,000 SF and this standard does not apply.

D. *Building Orientation Standard. All of the developments listed in subsection A of this section shall be oriented to a street. The building orientation standard is met when all of the following criteria are met:*

1. *The minimum and maximum setback standards in FMC 19.65.030 are met;*

FINDINGS: The setbacks standards are met, as described above.

2. *Buildings have their primary entrance(s) oriented to (facing) the street. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard entrances (i.e., to a cluster of units or commercial spaces). Alternatively, a building may have its entrance facing a side when a direct pedestrian walkway not exceeding 15 feet in length is provided between the building entrance and the street right-of-way.*

FINDINGS: The primary entrance to the commercial space is oriented towards the street. An outdoor sitting area will be located outside the Halsey Street entrance to enhance the pedestrian experience. A secondary entrance facing the parking courtyard is proposed to serve residents and customers arriving by car. This standard is met.

3. *Off-street parking, driveways or other vehicular circulation shall not be placed between a building and the street which is used to comply with subsection (D)(2) of this section. On corner lots, buildings and their entrances should be oriented to the street corner, as shown above; parking, driveways and other vehicle areas shall be prohibited between buildings and street corners.*

FINDINGS: The off-street parking and vehicular circulation areas are located to the side and rear of the building. This standard is met.

E. Variances. Variances will be made in accordance with Chapter 19.520 FMC. The standard may be varied to address topographic or other physical constraints, in accordance with the provisions for Class B or C variances in Chapter 19.520 FMC.

FINDINGS: No variances are requested.

19.65.060 Building height.
All buildings in the town center commercial district shall comply with the following building height standards. The standards are intended to allow for development of appropriately scaled buildings with a storefront character:

A. Maximum Height. Buildings shall be no more than three stories or 45 feet in height, whichever is greater. The maximum height may be increased by 12 feet when housing is provided above the ground floor ("vertical mixed use"), as shown above. The building height increase for housing shall apply only to that portion of the building that contains housing.

B. Method of Measurement. "Building height" is measured as the vertical distance above a reference datum measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the average height of the highest gable of a pitched or hipped roof (see Figure 19.65.060 for examples of measurement). The reference datum shall be selected by either of the following, whichever yields a greater height of building:

1. The elevation of the highest adjoining sidewalk or ground surface within a five-foot horizontal distance of an exterior wall of the building when such sidewalk or ground surface is not more than 10 feet above the lowest grade;

2. An elevation 10 feet higher than the lowest grade when the sidewalk or ground surface described in subsection (B)(1) of this section is more than 10 feet above the lowest grade. The height of a stepped or terraced building is the maximum height of any segment of the building. Not included in the maximum height are: chimneys, bell towers, steeples, roof equipment, flagpoles, and similar features which are not for human occupancy.

FINDINGS: The proposed building height is approximately 33 ft. 4 in., measured as the average height of the pitched roof. The application does not describe the method of height measurement used. The overall site grade change is approximately 5 ft. and subsection (1) shall apply.

Condition of Approval: Prior to the issuance of building permits, revise the narrative and/or building elevations to indicate the building height reference datum and measurement methodology.

19.65.070 Architectural guidelines and standards.

A. Purpose and Applicability. The town center commercial district architectural guidelines standards are intended to provide detailed, human-scale design, while affording flexibility to use a variety of building styles. This section applies to all of the following types of buildings:

5. Commercial and mixed use buildings subject to site design review.

FINDINGS: The proposed mixed-use building is subject to Site Design Review and this section applies.

While the proposed building design complies with the architectural standards of this chapter, the applicant is encouraged to further consider how the building's design can enhance the desired main street character of Halsey Street and the storefront commercial nature of the proposed development. The ground floor of the building provides a distinct commercial character with storefront windows and brick facade. Upper stories, however, read as a distinctly residential building. While the upper story design may reflect the residential nature of the use with a visual separation from the ground floor and use of balconies, the applicant is encouraged to provide a more cohesive architectural style for the building as a whole that reflects the development's location in the heart of Fairview's commercial main street.

Design modifications to help achieve a more cohesive design include repeating ground floor commercial materials and colors though the upper stories; creating stronger vertical components extending from the bottom to top of the building; further articulating (with projections/recesses) the front facade with more bays to break up the massing at more regular horizontal intervals; and providing balcony railings with a more commercial/mixed use design. Such changes could help to support the "distinct storefront character" purpose of the TCC zone and enhance the sense of place identified in the Main Streets on Halsey vision.

B. Guidelines and Standards. Each of the following standards shall be met. An architectural feature used to comply with one standard may be used to comply with another standard.

1. Detailed Storefront Design. All buildings shall contribute to the storefront character and visual relatedness of town center commercial district buildings. This criterion is met by providing all of the architectural features listed in subsections (B)(1)(a) through (e) of this section along the front building elevation (i.e., facing the street), as applicable.

a. Corner building entrances on corner lots. Alternatively, a building entrance may be located away from the corner when the building corner is beveled or incorporates other detailing to reduce the angular appearance of the building at the street corner.

FINDINGS: The building is not located on a corner.

b. Regularly spaced and similar-shaped windows with window hoods or trim (all building stories).

FINDINGS: All elevations include regularly spaced and similar shaped windows including window trim. This standard is met.

c. Large display windows on the ground floor (nonresidential uses only). Bulkheads, piers and a storefront cornice (e.g., separates ground-floor from second story, as shown above) shall frame display windows.

FINDINGS: Large display windows are provided throughout the ground floor facing Halsey Street. A storefront window trim frames the display windows and a cement fascia separates the ground floor from the second story. This standard is met. Bulkheads are not provided, however, windows extend to the floor. This standard is met.

d. Decorative cornice at top of building (flat roof); or eaves provided with pitched roof.

FINDINGS: The roof is pitched and eaves are provided. This standard is met.

e. All residential buildings subject to design review shall comply with the residential district architectural guidelines, as listed in FMC 19.30.100.

FINDINGS: The proposed building is mixed-use and is required to comply with the architectural guidelines in this chapter. The residential district standards do not apply.

2. Design of Large-Scale Buildings and Developments. The standards in subsection (B)(2)(c) of this section shall apply to large-scale buildings and developments, as defined in subsections (B)(2)(a) and (b):

a. Buildings with greater than 20,000 square feet of enclosed ground-floor space (i.e., "large-scale"). Multitenant buildings shall be counted as the sum of all tenant spaces within the same building shell;

b. Multiple-building developments with a combined ground-floor space (enclosed) greater than 40,000 square feet

(e.g., shopping centers, public/institutional campuses, and similar developments);

c. All large-scale buildings and developments, as defined in subsections (B)(2)(a) and (b) of this section, shall provide human-scale design by conforming to all of the following criteria:

FINDINGS: The proposed mixed-use building is less than 20,000 SF and the large-scale buildings section does not apply.

19.65.080 Pedestrian and transit amenities

A. Purpose and Applicability. This section is intended to complement the building orientation standards in FMC 19.65.050, and the street standards in Chapter 19.165 FMC, by providing comfortable and inviting pedestrian spaces within the town center commercial district. Pedestrian amenities serve as informal gathering places for socializing, resting, and enjoyment of the city's town center commercial district, and contribute to a walkable district. This section applies to all of the following types of buildings:

5. Commercial and mixed use buildings subject to site design review.

FINDINGS: The proposed mixed-use building is subject to Site Design Review and this section applies.

B. Guidelines and Standards. Every development shall provide one or more of the "pedestrian amenities" listed in subsections (B)(1) through (B)(5) of this section. Pedestrian amenities may be provided within a public right-of-way when approved by the applicable jurisdiction.

1. A plaza, courtyard, square or extra-wide sidewalk next to the building entrance (minimum width of eight feet);

2. Sitting space (i.e., dining area, benches or ledges) between the building entrance and sidewalk (minimum of 16 inches in height and 30 inches in width);

3. Building canopy, awning, pergola, or similar weather protection (minimum projection of four feet over a sidewalk or other pedestrian space);

4. Public art which incorporates seating (e.g., fountain, sculpture, etc.);

5. Transit amenity, such as bus shelter or pullout, in accordance with the city's transportation system plan and guidelines established by Tri-Met.

FINDINGS: The site plan shows a 12.5 ft. wide sidewalk will be installed in front of the commercial building entrance. The applicant narrative also indicates a sitting space will be provided between the building entrance and the sidewalk, however the dimensions and details of the sitting space are not provided. Awnings or canopies are not shown on the elevations, however the center balconies will extend in front of the building and provide a roof covering over the commercial building entry.

Condition of Approval: Prior to the issuance of building permits, submit a revised site plan and detailed drawings specifying the location and dimensions of the sitting area between the front building entrance and the sidewalk.

19.65.090 Special standards for certain uses.
This section supplements the standards contained in FMC 19.65.030 through 19.65.080. It provides standards for the following land uses in order to control the scale and compatibility of those uses within the Town Center Commercial District:

- *Residential Uses*
- *Public and Institutional Uses*
- *Accessory Uses and Structures*
- *Automobile-Oriented Uses and Facilities*
- *Outdoor Storage and Display*

A. Residential Uses. Higher density residential uses, such as multifamily buildings and attached townhomes, are permitted to encourage housing near employment, shopping and services. All residential developments shall comply with the standards in subsections (A)(1) through (A)(6) of this section which are intended to require mixed use development; conserve the community's supply of commercial land for commercial uses; provide for designs which are compatible with a storefront character; avoid or minimize impacts associated with traffic and parking; and ensure proper management and maintenance of common areas. Residential uses which existed prior to the effective date of this code are exempt from this section.

1. Mixed Use Development Required. Residential uses shall be permitted only when part of a mixed use development (residential with commercial or public/institutional use). Both "vertical" mixed use (housing above the ground floor), and "horizontal" mixed use

(housing on the ground floor) developments are allowed, subject to the standards in subsections (A)(2) through (A)(6) of this section.

FINDINGS: The proposed building is a vertical mixed-use including 2,390 SF of commercial floor area and 7,409 SF of residential floor area. The proposed building complies with subsections 2-6 as described below.

2. *Limitation on Street-Level Housing. No more than 50 percent of a single street frontage may be occupied by residential uses. This standard is intended to reserve storefront space for commercial uses and public/institutional uses; it does not limit residential uses above the street level on upper stories, or behind street-level storefronts. For parcels with street access at more than one level (e.g., sloping sites with two street frontages), the limitation on residential building space shall apply to all street frontages.*

FINDINGS: 100% of the street frontage will be occupied by commercial uses. This standard is met.

3. *Density. There is no minimum or maximum residential density standard. Density shall be controlled by the applicable floor area and building height standards.*

FINDINGS: The proposal complies with the Floor Area Ratio and building height standards in the TCC zone. This standard is met.

4. *Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be oriented to alleys, placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of the building; except that side yards facing a street (i.e., corner yards) shall not be used for surface parking. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front building elevation by a minimum of five feet. On corner lots, garage entrances shall be oriented to a side street when access cannot be provided from an alley.*

FINDINGS: The parking lot is located behind the building and the driveway is located on the side of the building. This standard is met.

5. *Creation of Alleys. When a subdivision (e.g., four or more townhome lots) is proposed, a public or private alley shall be created for the purpose of vehicle access…*

FINDINGS: A subdivision is not requested or required. This standard does not apply.

6. *Common Areas. All common areas (e.g., walkways, drives, courtyards, private alleys, parking courts, etc.) and building exteriors shall be maintained by a homeowners association or other legal entity. Copies of any applicable covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.*

FINDINGS: The building will be owned and operated by a single owner. This standard does not apply.

B. *Public and Institutional Uses. Public and institutional uses (as listed in Table 19.65.020.A) are allowed in the town center commercial district, except that automobile-oriented uses shall comply with the standards in subsection D of this section…*

FINDINGS: Public and/or institutional are not proposed. This standard does not apply.

C. *Accessory Uses and Structures. Accessory uses and structures are of a nature customarily incidental and subordinate to the principal use or structure on the same lot. Typical accessory structures in the town center commercial district include small workshops, greenhouses, studios, storage sheds, and similar structures. Accessory uses and structures are allowed for all permitted land uses within the town center commercial district, as identified in Table 19.65.020.A. Accessory structures shall comply with the following standards:*

1. *Primary Use Required. An accessory structure shall not be allowed before or without a primary use.*

2. *Setback Standards. Accessory structures shall comply with the setback standards in FMC 19.65.030, except that the maximum setback provisions shall not apply.*

3. Design Guidelines. Accessory structures shall comply with town center commercial district design guidelines, as provided in FMC 19.65.070.

4. Restrictions. A structure shall not be placed over an easement that prohibits such placement. No structure shall encroach into the public right-of-way.

5. Compliance with subdivision standards. The owner may be required to remove an accessory structure as a condition of land division approval when removal of the structure is necessary to comply with setback standards.

FINDINGS: No accessory structures are proposed. This standard does not apply.

D. Automobile-Oriented Uses and Facilities. Automobile-oriented uses and facilities, as defined below, shall conform to all of the following standards in the town center commercial district. The standards are intended to provide a vibrant storefront character, slow traffic, and encourage walking.

1. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be accessed from alleys, placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of a building; except that side yards on corner lots shall not be used for surface parking. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front elevation by a minimum of five feet. On corner lots, garage entrances shall be oriented to a side street (i.e., away from the more major street) when vehicle access cannot be provided from an alley. Individual surface parking lots shall not exceed a total of 200 parking spaces, or one-half city block, whichever is smaller; larger parking areas shall be in multiple story garages.

FINDINGS: The parking lot is located behind the building and the driveway is located on the side of the building. This standard is met.

2. Automobile-Oriented Uses..

FINDINGS: Not automobile oriented uses are proposed. This standard does not apply.

E. Sidewalk Displays. Sidewalk display of merchandise and vendors shall be limited to cards, plants, gardening/floral products, food, books, newspapers, bicycles, and similar small items for sale or rental to pedestrians (i.e., non-automobile-oriented). A minimum clearance of five feet shall be maintained. Display of larger items, such as automobiles, trucks, motorcycles, buses, recreational vehicles/boats, construction equipment, building materials, and similar vehicles and equipment, is prohibited.

Condition of Approval: Sidewalk display of merchandise for the commercial space is limited to cards, plants, gardening/floral products, food, books, newspapers, bicyclers, and similar items for sale or rent to pedestrians.

F. Light Industrial Uses.

FINDINGS: No light industrial uses are proposed. This standard does not apply.

VI. DESIGN STANDARDS FINDINGS

Chapter 19.162 Access and Circulation

19.162.010 Purpose.

The purpose of this chapter is to ensure that developments provide safe and efficient access and circulation, for pedestrians and vehicles. FMC 19.162.020 provides standards for vehicular access and circulation. FMC 19.162.030 provides standards for pedestrian access and circulation. Standards for transportation improvements are provided in Chapter 19.165 FMC.

FMC 19.162.020 Vehicular Access and circulation

B. Applicability. This section shall apply to all public streets within the city and to all properties that abut these streets.

FINDINGS: Access, circulation, and traffic requirements are required to comply with Multnomah County standards. The development proposal has been reviewed and approved with conditions by County staff (see Exhibit C1). A Road Rules Variance to the access spacing standards was also requested in the application and approved subject to conditions. The applicant is required to construct half street improvements including a bicycle lane, street trees, lighting, curbs, sidewalks, and planter strips.

Note: The Trip Generation Report estimates a total of 2 morning peak hour trips and 7 evening park hour trips. A net increase of 123 daily trips is anticipated over the existing development. 60% of the trips will be to/from the west and 40% to/from the east. The sections of the Vehicular Access & Circulation chapter that apply are addressed below.

M. Fire Access and Parking Area Turnarounds. A fire equipment access drive shall be provided for any portion of an exterior wall of the first story of a building that is located more than 150 feet from an existing public street or approved fire equipment access drive. Parking areas shall provide adequate aisles or turnaround areas for service and delivery vehicles so that all vehicles may enter the street in a forward manner. For requirements related to cul-de-sacs, please refer to Chapter 19.165 FMC.

FINDINGS: Fire access and parking area turnarounds are determined by Gresham Fire & Emergency Services. The application has been reviewed by Gresham Fire and comments provided (Exhibit C2).

Condition of Approval: Prior to final occupancy, the applicant shall satisfy all fire access and water supply requirements as determined by Gresham Fire in Exhibit C2.

N. Vertical Clearances. Driveways, private streets, aisles, turnaround areas and ramps shall have a minimum vertical clearance of 13 feet 6 inches for their entire length and width.

FINDINGS: The site plan and narrative indicate all portions of proposed driveways, aisles, turnaround areas, and ramps have a vertical clearance of at least 13 ft. 6 in. This standard is met.

P. Construction. The following development and maintenance standards shall apply to all driveways and private streets, except that the standards do not apply to driveways serving one single-family detached dwelling:

1. Surface Options. Driveways, parking areas, aisles, and turnarounds may be paved with asphalt, concrete or comparable surfacing, or a durable nonpaving material may be used to reduce surface water runoff and protect water quality. Paving surfaces shall be subject to review and approval by the city engineer.

FINDINGS: The parking and driving areas will be paved with asphalt. This standard is met.

2. *Surface Water Management. When a paved surface is used, all driveways, parking areas, aisles and turnarounds shall have on-site collection or infiltration of surface waters to eliminate sheet flow of such waters onto public rights-of-way and abutting property. Surface water facilities shall be constructed in conformance with city standards.*

FINDINGS: An on-site stormwater system is proposed to collect and treat surface water runoff (see Stormwater Plan in Exhibit B8 / Sheet P8.0). On-site detention will be provided via a 400 linear foot (LF) underground detention facility. Stormwater will be released into an existing storm pipe to the north of the site on Parcel 5 of the Klondike Subdivision (property also owned by the applicant).

Condition of Approval: Prior to issuance of building permits, a final stormwater management plan is required showing the site complies with the 2016 Portland Stormwater Management Manual. Surface water facilities shall be constructed in conformance with City standards.

Condition of Approval: Prior to final occupancy, a permanent private stormwater easement for the benefit of the development parcel shall be recorded over Parcel 5 of the Klondike Subdivision.

Note: An existing 7 ft. wide private storm drainage easement is located around the rear property line of Lots 1-5 of the Klondike Subdivision.

19.162.030 Pedestrian access and circulation.
The standards presented in this code provide standards for safe, connected and user-friendly pedestrian connections and pathways that join neighborhoods and buildings within a development.

A. *Pedestrian Access and Circulation. To ensure safe, direct and convenient pedestrian circulation, all developments, except single-family detached housing (i.e., on individual lots), shall provide a continuous pedestrian and/or multi-use pathway system. (Pathways only provide for pedestrian circulation. Multi-use pathways accommodate pedestrians and bicycles.) The system of pathways shall be designed based on the standards in subsections (A)(1) through (5) of this section:*

1. *Continuous Pathways. The pathway system shall extend throughout the development site, and connect to all future phases of development, adjacent trails, public parks and open space areas whenever possible. The developer may also be required to connect*

or stub pathway(s) to adjacent streets and private property, in accordance with the provisions of FMC 19.162.020, Vehicular access and circulation, and the transportation standards in Chapter 19.165 FMC.

FINDINGS: The site is surrounded by residential and commercial development to the north, east, and west and future phases of development are not planned. There are no adjacent trails, public parks, or open space areas to provide a pedestrian connection to.

2. *Safe, Direct, and Convenient Pathways. Pathways within developments shall provide safe, reasonably direct and convenient connections between primary building entrances and all adjacent streets, based on the following definitions:*

    a. *"Reasonably direct" means a route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.*

    b. *"Safe and convenient" means bicycle and pedestrian routes that are reasonably free from hazards and provide a reasonably direct route of travel between destinations.*

    c. *For commercial, industrial, mixed use, public, and institutional buildings, the "primary entrance" is the main public entrance to the building. In the case where no public entrance exists, street connections shall be provided to the main employee entrance.*

    d. *For residential buildings the "primary entrance" is the front door (i.e., facing the street). For multifamily buildings in which each unit does not have its own exterior entrance, the "primary entrance" may be a lobby, courtyard or breezeway, which serves as a common entrance for more than one dwelling.*

3. *Connections within Development. For all developments subject to site design review, pathways shall connect all building entrances to one another. In addition, pathways shall connect all parking areas, storage areas, recreational facilities and common areas (as applicable), and adjacent developments to the site, as applicable.*

FINDINGS for 2-3: A pedestrian pathway is proposed along the north and east building walls, connecting the rear entrance to the Halsey Street sidewalk and front building entrance. The pathway is 8 ft. wide adjacent to the rear wall and 6 ft. wide adjacent to the side (east) wall. This standard is met.

4. Street Connectivity. Pathways (for pedestrians and bicycles) shall be provided at or near midblock where the block length exceeds the length required by FMC 19.162.020. Pathways shall also be provided where cul-de-sacs or dead-end streets are planned, to connect the ends of the streets together, to other streets, and/or to other developments, as applicable. Pathways used to comply with these standards shall conform to all of the following criteria:

FINDINGS: The block formation standard required for land divisions and large site developments in FMC 19.162.020(K) does not apply to this site. This standard does not apply.

5. Connections to Other Facilities. Proposed pathways shall be located to provide access to existing or planned commercial services and other neighborhood facilities, such as schools, shopping areas and park and transit facilities. To the greatest extent possible, access shall be reasonably direct, providing a route or routes that do not deviate unnecessarily from a straight line or that do not involve a significant amount of out-of-direction travel.

FINDINGS: The site is surrounded by residential and commercial development to the north, east, and west. Pedestrian connections to these developments are not practicable from within the site, and the Halsey Street sidewalk will serve as the primary pedestrian connection between nearby commercial developments. A pedestrian pathway is proposed to connect all building entrances to the public sidewalk.

B. Design and Construction. Pathways shall conform to all of the standards in subsections (B)(1) through (B)(5) of this section:

1. Vehicle/Pathway Separation. Where pathways are parallel and adjacent to a driveway or street (public or private), they shall be raised six inches and curbed, or separated from the driveway/street by a five-foot minimum strip with bollards, a landscape buffer, or other physical barrier. If a raised path is used, the ends of the raised portions must be equipped with curb ramps.

FINDINGS: A pedestrian pathway is proposed running adjacent and parallel to the primary driveway access. The proposed pedestrian pathway width is 6 ft. and the narrative indicates all sidewalks will be designed to ODOT standards.

Condition of Approval: Prior to issuance of building permits, submit revised detailed drawings that show the internal curbs and sidewalks designed to City of Fairview standards. Pedestrian improvements in the public right-of-way shall be constructed to Multnomah County standards.

2. *Housing/Pathway Separation. Pedestrian pathways shall be separated a minimum of five feet from all residential living areas on the ground floor, except at building entrances. Separation is measured as measured from the pathway edge to the closest dwelling unit. The separation area shall be landscaped in conformance with the provisions of Chapter 19.163 FMC, Landscaping, Street Trees, Fences and Walls. No pathway/building separation is required for commercial, industrial, public, or institutional uses.*

FINDINGS: A ground-floor residential unit is proposed for the northwest corner of the building. An 8 ft. landscaped area will separate the living unit from the parking area. No pedestrian facilities are proposed adjacent to the living area. This standard is met.

3. *Crosswalks. Where pathways cross a parking area, driveway, or street ("crosswalk"), they shall be clearly marked with contrasting paving materials, humps/raised crossings.*

Findings: The parking lot is compact and pedestrian crosswalks are not proposed or required.

4. *Pathway Surface. Pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other durable surface, at least six feet wide, and shall conform to ADA requirements. Multi-use paths (i.e., for bicycles and pedestrians) shall be the same materials, at least 10 feet wide. (See also Chapter 19.165 FMC, Transportation Standards for public, multi-use pathway standard.)*

FINDINGS: The proposed pathway widths are 8 ft. (rear) and 6 ft. (side). Pathways will be constructed of concrete. This standard is met.

Note: The Fairview Development code allows for two different pedestrian pathway widths. In addition to the 6 ft. standard noted above, the Public

Facilities standards in FMC 19.165.025(K) "Transportation Improvements – Internal Pathways" call for internal pathways to be at least 5 ft. in width. The Planning Commission has previously found that a 5 ft. width complies with ADA requirements and that the differing requirements created an unintended conflicts, and have approved pedestrian pathways at the 5 ft. width.

5. Accessible Routes. Pathways shall comply with the Americans with Disabilities Act, which requires accessible routes of travel.

Condition of Approval: Prior to the issuance of building permits, site development plans must comply with applicable ADA requirements.

Chapter 19.163 Landscaping, Street Trees, Fences and Walls

19.163.020 Landscape conservation.

A. Applicability. All development sites containing significant vegetation, as defined below, shall comply with the standards of this section. The purpose of this section is to incorporate significant native vegetation into the landscapes of development and protect vegetation that is subject to requirements of the significant environmental concern and riparian buffer overlay zones, Chapter 19.106 FMC. The use of mature, native vegetation within developments is a preferred alternative to removal of vegetation and re-planting. Mature landscaping provides summer shade and wind breaks, and allows for water conservation due to larger plants having established root systems.

B. Significant Vegetation. "Significant vegetation" means:

1. Significant Trees and Shrubs. Individual trees and shrubs with a trunk diameter of six inches or greater, as measured four feet above the ground (DBH), and all plants within the drip line of such trees and shrubs, shall be protected.

FINDINGS: The site does not contain any significant trees or vegetation as defined above. This section does not apply.

2. Sensitive Lands. Trees and shrubs on sites that have been designated as "sensitive lands," in accordance with Chapter 19.106 FMC, Natural Resource Regulations, and Chapter 19.105 FMC, Floodplain Overlay (e.g., due to slope, natural resource areas, wildlife habitat, etc.) shall be protected.

FINDINGS: The site does not contain any sensitive lands as described in the Natural Resource or Floodplain Overlay sections. This section does not apply.

3. Exception. Protection shall not be required for plants listed as non-native, invasive plants by the Oregon State University Extension Service in the applicable OSU bulletins for Multnomah County.

FINDINGS: No significant trees are proposed for protection.

19.163.025 Existing landscaping.

A. Applicability. This section shall apply to all developments.

B. Construction. All areas of significant vegetation shall be protected prior to, during, and after construction. Grading and operation of vehicles and heavy equipment is prohibited within significant vegetation areas, except as approved by the city for installation of utilities or streets. Such approval shall only be granted after finding that there is no other reasonable alternative to avoid the protected area, and any required mitigation is provided in conformance with Chapter 19.105 *FMC, Floodplain Overlay and Chapter* 19.106 *FMC, Natural Resource Regulations.*

C. Exemptions…

FINDINGS: The site does not contain any significant trees or vegetation and protection or exemptions from protection during construction are not required.

19.163.030 New landscaping.

A. Applicability. This section shall apply to all developments requiring site design review, and other developments with required landscaping.

FINDINGS: Site design review is required and this section applies.

B. Landscaping Plan Required. A landscape plan is required at the time of design review or other pertinent applications. All landscape plans shall conform to the requirements in FMC 19.420.020 (E), Landscape plans.

FINDINGS: A landscape plan has been submitted as part of the design review application (Exhibit B11 / Sheet L1). This standard is met.

C. Landscape Area Standards. The minimum percentage of required landscaping equals:

2. Town center commercial district: five percent of the site

FINDINGS: The total site area is 16,120 SF and the proposed landscaped area is 1,375 SF or 8.5%. This standard is met.

D. Landscape Materials. This section provides guidelines that ensure significant vegetation growth and establishment using a variety of size specifications and coverage recommendations.

Landscape materials include trees, shrubs, ground cover plants, nonplant ground covers, and outdoor hardscape features, as described below:

1. Native Vegetation. Native vegetation shall be preserved or planted where practicable.

FINDINGS: The landscape plan includes native vegetation such as Native Kinnikkinnick and Mountain Laurel. All other plants are ornamentals that perform well as landscaped plants in the region.

2. Plant Selection. A combination of deciduous and evergreen trees, shrubs and ground covers shall be used for all planted areas, the selection of which shall be based on local climate, exposure, water availability, and drainage conditions. As necessary, soils shall be amended to allow for healthy plant growth.

FINDINGS: The proposed landscaping includes a combination of evergreen and deciduous plant material. This standard is met.

3. Non-native, invasive plants, as per FMC 19.164.020(B), shall be prohibited.

FINDINGS: A majority of the plants are non-native deciduous plants, however, none are identified as invasive or nuisance plants in the Portland Plant List.

4. Hardscape features (i.e., patios, decks, plazas, etc.) may cover up to 15 percent of the required landscape area. Swimming pools, sports courts and similar active recreation facilities may not be counted toward fulfilling the landscape requirement.

FINDINGS: No hardscape features are proposed to be counted towards the required landscaping.

5. Nonplant Ground Covers. Bark dust, chips, aggregate or other nonplant ground covers may be used, but shall cover no more than five percent of the area to be landscaped. "Coverage" is measured

based on the size of plants at maturity or after five years of growth, whichever comes sooner.

FINDINGS: The landscape plan does not indicate that non-plant ground covers will be used. This standard is met.

6. *Tree Size. Trees shall have a minimum caliper size of 1.5 inches or greater, or be six feet or taller, at time of planting.*

FINDINGS: The landscape plan indicates all of the proposed trees will be 1.5 inch caliper at the time of planting. This standard is met.

7. *Shrub Size. Shrubs shall be planted from one-gallon containers or larger.*

FINDINGS: All of the proposed shrubs will be from at least 1 gallon containers at time of planting. This standard is met.

8. *Ground Cover Size. Ground cover plants shall be sized and spaced so that they grow together to cover a minimum of 80 percent of the underlying soil within three years.*

FINDINGS: Ground cover will include Native Kinnikkinnick and Andromeda. The landscape plan indicates the vegetation will provide complete coverage of the underlying soil. This standard is met.

9. *Significant Vegetation. Significant vegetation preserved in accordance with FMC 19.163.020 may be credited toward meeting the minimum landscape area standards. Credit shall be granted on a per square foot basis. The street tree standards of FMC 19.163.040 may be waived when trees preserved within the front yard provide the same or better shading and visual quality as would otherwise be provided by street trees.*

FINDINGS: No significant vegetation is proposed for preservation.

10. *Stormwater Facilities. Stormwater facilities (e.g., detention/retention ponds and swales) shall be landscaped with water tolerant, native plants.*

FINDINGS: The stormwater detention facility will be located under the parking area. This standard does not apply.

E. Landscape Design Standards. The landscape design standards provide guidelines within setback areas, parking areas, etc.

All yards, parking lots and required street tree planter strips shall be landscaped in accordance with the provisions of this chapter. Landscaping shall be installed with development to provide erosion control, visual interest, buffering, privacy, open space and pathway identification, shading and wind buffering, based on the following standards:

1. Yard Setback Landscaping. Landscaping shall satisfy the following criteria:

a. Provide visual screening and privacy within side and rear yards; while leaving front yards and building entrances mostly visible for security purposes;

b. Use shrubs and trees as windbreaks, as appropriate;

c. Retain natural vegetation, as practicable;

d. Define pedestrian pathways and open space areas with landscape materials;

e. Provide focal points within a development, such as signature trees (i.e., large or unique trees), hedges and flowering plants;

f. Use trees to provide summer shading within common open space areas, and within front yards when street trees cannot be provided;

g. Use a combination of plants for year-long color and interest;

h. Use landscaping to screen outdoor storage and mechanical equipment areas, and to enhance graded areas such as berms, swales and detention/retention ponds.

FINDINGS: Landscaping is proposed in the side and rear setbacks. The setback landscaping is also intended to serve as landscaping for the parking lot. Skyrocket Juniper will be provided around the perimeter of the site to provide privacy and a wind screen. A variety of flowering plants are used to create year-

long color and interest. Trees, including the Zelkova, will be used to provide focal points and visual interest. The standards in this section are met.

2. *Parking Areas. A minimum of five percent of the combined area of all parking areas, as measured around the perimeter of all parking spaces and maneuvering areas, shall be landscaped. Such landscaping shall consist of an evenly distributed mix of shade trees with shrubs and/or ground cover plants. "Evenly distributed" means that the trees and other plants are distributed around the parking lot perimeter and between parking bays to provide a partial canopy. At a minimum, one tree per five parking spaces total shall be planted to create a partial tree canopy over and around the parking area. All parking areas with more than 20 spaces shall include landscape islands with trees to break up the parking area into rows of not more than 12 contiguous parking spaces. All landscaped areas shall have minimum dimensions of four feet by four feet to ensure adequate soil, water, and space for healthy plant growth.*

FINDINGS: The total parking area is 7,583 SF and the parking lot landscaping area is 1,375 SF, or 15.7%. Four trees are proposed for the 18 parking spaces to provide a partial canopy over the parking area. This standard is met.

3. *Buffering and Screening Required. Buffering and screening are required under the following conditions:*

   a. *Parking/Maneuvering Area Adjacent to Streets and Drives…*

FINDINGS: There are no proposed parking or maneuvering areas adjacent to a street or drive. This standard does not apply.

   b. *Parking/Maneuvering Area Adjacent to Building. Where a parking or maneuvering area, or driveway, is adjacent to a building, the area shall be separated from the building by a raised pathway, plaza, or landscaped buffer no less than four feet in width. Raised curbs, bollards, wheel stops, or other design features shall be used to protect buildings from being damaged by vehicles. When parking areas are located adjacent to residential ground-floor living space, a landscape buffer is required to fulfill this requirement.*

FINDINGS: Parking/driving areas are located to the north and east side of the building. The northern parking lot is separated from the building by an 8 ft. wide sidewalk and landscaped area. The eastern drive aisle is separated from the building by a 6 ft. wide pathway. This standard is met.

c. Screening of Mechanical Equipment, Outdoor Storage, Service and Delivery Areas, and Automobile-Oriented Uses. All mechanical equipment, outdoor storage and manufacturing, and service and delivery areas, shall be screened from view from all public streets and residential districts. Screening shall be provided by one or more of the following: decorative wall (i.e., masonry or similar quality material), evergreen hedge, non-see-through fence, or a similar feature that provides a non-see-through barrier. Walls, fences, and hedges shall comply with the vision clearance requirements and provide for pedestrian circulation, in accordance with Chapter 19.162 FMC, Access and Circulation.

FINDINGS: An enclosed area for trash and recycling is proposed at the northeast corner of the site. The storage area will be visible from NE Halsey Street and screening is required. Details on the type and height of screening were not provided in the application.

Condition of Approval: Prior to the issuance of building permits, submit detailed drawings of the trash enclosure screening. Screening options include a decorative wall, evergreen edge, non-see through fence, or similar feature that provides a non-see-through barrier. Trash enclosures must also comply with the 2016 Source Control Manual, as a reference document to the Stormwater Management Manual, to control runoff of pollutants from trash and recycling.

19.163.040 Street trees.
The guidelines provided in this section promote healthy street trees and adequate canopy cover to provide shade, reduce stormwater runoff, and improve the appearance of a development.

FINDINGS: Street tree requirements are determined by Multnomah County as part of the NE Halsey Street half street improvements. Street trees are required as part of the development. See Exhibit C1 for full transportation and right-of-way comments.

19.163.050 Fences and walls.

The fences and walls section provides height limits for construction of new walls. The guidelines prevent walls that reduce pedestrian connectivity and sight clearance. The standards also provide guidelines relating to maintenance.

The following standards shall apply to all fences and walls:

A. General Requirements. All fences and walls shall comply with the standards of this section. The city may require installation of walls and/or fences as a condition of development approval, in accordance with conditional use permits or site design review. Walls built for required landscape buffers shall comply with FMC 19.163.030.

B. Dimensions.

1. The maximum allowable height of fences and walls is six feet, as measured from the lowest grade at the base of the wall or fence, except that retaining walls and terraced walls may exceed six feet when permitted as part of a site development approval, or as necessary to construct streets and sidewalks. A building permit is required for walls exceeding six feet in height, in conformance with the Uniform Building Code.

FINDINGS: No new fences or walls are proposed as part of the development. There is an existing chain link fence along the north property line and two concrete masonry walls along the side property lines. All fences and walls are proposed to remain.

2. The height of fences and walls within a front yard setback shall not exceed four feet (except decorative arbors, gates, etc.), as measured from the grade closest to the street right-of-way.

FINDINGS: The front setback is 0 ft. This standard does not apply.

3. Walls and fences to be built for required buffers shall comply with FMC 19.163.030.

FINDINGS: No buffers are required for site. This standard does not apply.

4. Fences and walls shall comply with the vision clearance standards of FMC 19.162.020.

FINDINGS: No fences or walls are proposed in the vision clearance area. This standard is met.

C. Maintenance. For safety and for compliance with the purpose of this chapter, walls and fences required as a condition of development approval shall be maintained in good condition, or otherwise replaced by the owner.

FINDINGS: No fences or walls are required as a condition of development approval.

D. Fences – Recreational Courts.

E. Swimming Pool Fences.

F. Barbed Wire Fencing.

G. Electrically Charged or Sharp Pointed Fencing.

H. Critical Facility Security Fences.

FINDINGS: Recreational courts, swimming pool fences, barbed wire fencing, electrically charged/sharp pointed fencing, and critical facility security fencing are not proposed. Standards D-H above do not apply.

Chapter 19.164 Vehicle and Bicycle Parking

19.164.020 Applicability.

All developments subject to site design review Chapter 19.420 FMC, including development of parking facilities, shall comply with the provisions of this chapter.

FINDINGS: Site design review is required as part of this application and this chapter applies.

19.164.030 Vehicle parking standards.

A. The minimum number of required off-street vehicle parking spaces (i.e., parking that is located in parking lots and garages and not in the street right-of-way) shall be determined based on the standards in Table 19.164.030.A.

There is no minimum number of off-street parking spaces required in the town center commercial district; however, the "maximum parking" standards of this chapter apply.

FINDINGS: The property is zoned TCC and there is no minimum off-street parking requirement. The site plan includes 18 off-street parking spaces.

B. Credit for On-Street Parking…

FINDINGS: The applicant is not seeking credit for on street parking.

C. Parking Location and Shared Parking.

1. Location. Vehicle parking is allowed only on approved parking shoulders (streets), within garages, carports and other structures, or on driveways or parking lots that have been developed in conformance with this code. Specific locations for parking are indicated in Article II of this title for some land uses (e.g., the requirement that parking be located to side or rear of buildings, with access from alleys, for some uses). (See also Chapter 19.162 FMC, Access and Circulation.)

FINDINGS: Vehicle parking will be located in a designated lot behind the building. As demonstrated in this report, the proposed location meets the location requirements outlined in Article II. This standard is met.

2. Off-Site Parking. Except for single-family dwellings, the vehicle parking spaces required by this chapter may be located on another parcel of land, provided the parcel is within 500 feet walking distance of the use it serves. The distance from the parking area to the use shall be measured from the nearest parking space to a building entrance, following a sidewalk or other pedestrian route. The right to use the off-site parking must be evidenced by a recorded deed, lease, easement, or similar written instrument.

FINDINGS: No off-site parking is proposed.

3. Mixed Uses. If more than one type of land use occupies a single structure or parcel of land, the total requirements for off-street vehicle parking shall be the sum of the requirements for all uses, unless it can be shown that the peak parking demands are actually less (i.e., the uses operate on different days or at different times of the day). In that case, the total requirements shall be reduced accordingly.

FINDINGS: There is no minimum off-street parking requirement in the TCC zone. The proposal complies with the maximum off-street parking requirement when a sum of the residential and commercial floor areas are applied.

4. Shared Parking. Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking

facilities used jointly, to the extent that the owners or operators show that the need for parking facilities does not materially overlap (e.g., uses primarily of a daytime versus nighttime nature), and provided that the right of joint use is evidenced by a recorded deed, lease, contract, or similar written instrument establishing the joint use.

FINDINGS: The applicant is not proposing shared parking facilities. This standard does not apply.

5. *Availability of Facilities. Owners of off-street parking facilities may post a sign indicating that all parking on the site is available only for residents, customers and/or employees, as applicable. Signs shall conform to the standards of Chapter 19.170 FMC, Sign Regulations.*

D. *Maximum Number of Parking Spaces. The number of parking spaces provided shall not exceed the standards in the following table:*

Use	***Max in Transit/Ped Areas***	***Proposed***
General office	3.4 per 1,000 SF	7 or (2.7 per 1,000 SF)
Residential	none	9

FINDINGS: The proposed parking does not exceed the allowed maximum. This standard is met.

E. *Parking Management. The planning director may require a parking management plan for development of any use that requires more than 10 parking spaces based on the minimum parking spaces provided in Table 19.164.030.A.*

FINDINGS: More than 10 spaces are not required. This standard does not apply.

F. *Parking Stall Standard Dimensions and Compact Parking Spaces. All off-street parking stalls shall be improved to conform to city standards for surfacing, stormwater management and striping, and provide dimensions in accordance with the following table. Disabled person parking shall conform to the standards and dimensions of this chapter. The number of compact parking spaces shall not exceed 40 percent of all parking spaces provided on site.*

FINDINGS: The parking lot will include 16 spaces and all spaces conform to dimension requirements. A total of 6 of the 16 parking spaces (37.5%) are proposed to be compact. This standard is met.

G. Variances. Developments may request exceptions to the parking standards; see FMC 19.520.030(A)(4).

FINDINGS: The applicant is not requesting a parking variance.

H. Disabled Person Parking Spaces. The following parking shall be provided for disabled persons, in conformance with the Americans with Disabilities Act (ADA)

FINDINGS: A parking area with 16 parking spaces requires one ADA space with a 96 in. wide van accessible aisle. The proposed parking area includes one ADA space with a 72 in.

Condition of Approval: Prior to the issuance of building permits, revise the site plan to include one ADA space with a 96 in. wide van accessible aisle.

I. In parking lots three acres and larger intended for use by the general public, pedestrian pathways shall be raised or separated from parking, parking aisles and travel lanes by a raised curb, concrete bumpers, bollards, landscaping or other physical barrier. If a raised pathway is used, curb ramps shall be provided in accordance with the Americans with Disabilities Act Accessibility Guidelines.

FINDINGS: The proposed parking is not over 3 acres. This standard does not apply.

19.164.040 Bicycle parking standards.
All uses which are subject to site design review shall provide bicycle parking, in conformance with the following standards, which are evaluated during site design review:

A. Number of Bicycle Parking Spaces. A minimum of two bicycle parking spaces per use is required for all uses with greater than 10 vehicle parking spaces. The following additional standards apply to specific types of development:

1. Multifamily Residences. Every residential use of four or more dwelling units shall provide bicycle parking spaces according to the following standards:

a. Short-term bicycle parking shall be provided at a ratio of one bicycle space for every 10 vehicle parking spaces and shall be located within 30 feet of the main entrance to the building, in a location that is easily accessible for bicycles.

b. Long-term bicycle parking shall be provided at a ratio of one bicycle space per dwelling unit. Sheltered bicycle parking spaces may be located within a garage, storage shed, basement, utility room or similar area. In those instances in which the residential complex has no garage or other easily accessible storage unit, the bicycle parking spaces may be sheltered from sun and precipitation under an eave, overhang, an independent structure, or similar cover.

5. Town Center Commercial District. Within the town center commercial district, bicycle parking for customers shall be provided along the street at a rate of at least one space per use. Individual uses shall provide their own parking, or spaces may be clustered to serve up to six bicycles. Bicycle parking spaces shall be located in front of the stores along the street, either on the sidewalks or in specially constructed areas such as pedestrian curb extensions. Inverted "U" style racks are recommended. Bicycle parking shall not interfere with pedestrian passage, leaving a clear area of at least 36 inches between bicycles and other existing and potential obstructions. Customer spaces may or may not be sheltered. When provided, sheltered parking (within a building, or under an eave, overhang, or similar structure) shall be provided at a rate of one space per 10 employees, with a minimum of one space per store.

FINDINGS: The applicant narrative indicates a total of 2 short-term and 2 long-term bicycle spaces are proposed. This proposal does not comply with the minimum requirements. Subsection (1) provides bike parking requirements for multi-family uses and subsection (5) provides standards for commercial uses in the TCC zone. A total of 3-short term spaces and a minimum of 10 long-term spaces are required.

	Short-term	**Long-term**

Multi-family Residential	1 Comment: 9 vehicle spaces are attributed to the residential use, requiring one short term space. Location must be within 30 ft. of main building entrance.	9 Comment: 9 dwelling units are proposed, requiring 9-long term spaces. Must be located in a garage, storage shed, basement, utility room or similar area. In those instances in which the residential complex has no garage or other easily accessible storage unit, the bicycle parking spaces may be sheltered from sun and precipitation under an eave, overhang, an independent structure, or similar cover.
Town Center Commercial	2 Comment: one space is required per use. Location must be located in front of the store along the street/sidewalk or specially constructed area.	2 Comment: one space is required per store. Total number of commercial stores not determined at this time. Spaces may be sheltered or unsheltered.
Total	**3**	**11**

Condition of Approval: Prior to issuance to final occupancy, include 3 short-term bicycle parking spaces and a minimum of 10 long-term bicycle spaces. One long-term space is required for each commercial store. The location of short and long-term bicycle parking must conform to the requirements in FMC 19.164.040(A).

B. Exemptions. This section does not apply to single-family, two-family, and three-family housing (attached, detached or manufactured housing), home occupations, agriculture and livestock uses, or other developments with fewer than eight vehicle parking spaces.

FINDINGS: This standard does not apply.

C. Location and Design. Bicycle parking shall be conveniently located with respect to both the street right-of-way and at least one building entrance (e.g., no farther away than the closest parking space). It should be incorporated whenever possible into building design and coordinated with

the design of street furniture when it is provided. Street furniture includes benches, streetlights, planters and other pedestrian amenities.

FINDINGS: The narrative indicates bicycle parking will be located at the front and rear of the building, however, the site plan does not indicate the exact location of the bicycle parking. All required short-term bicycle parking shall comply with the location and design requirements of this standard. The 11 long-term bicycle spaces required for the residential units are not subject to this standard.

Condition of Approval: Prior to issuance of building permits, revise the site plan to show all required short-term bicycle parking complies with the location requirements of FMC 19.164.040(C).

D. Visibility and Security. Bicycle parking should be visible to cyclists from street sidewalks or building entrances, so that it provides sufficient security from theft and damage.

FINDINGS: The location standards above will ensure the short-term bicycle parking is located near the entrances of the building. The building design proposes floor to ceiling windows along the front facade, providing good visibility and security for outdoor bike storage. This standard is met.

E. Options for Storage. Bicycle parking requirements for long-term and employee parking can be met by providing a bicycle storage room, bicycle lockers, racks, or other secure storage space inside or outside of the building.

FINDINGS: The location of long-term bicycle parking has not been determined. The long-term and employee bike parking spaces may be located in a bicycle storage room, bicycle lockers, racks, or other secure storage space inside or outside of the building.

F. Lighting. Bicycle parking shall be at least as well lit as vehicle parking for security.

FINDINGS: The site plan indicates a parking lot light will be provided in the parking area near the northeast corner of the building. No other lighting is indicated on the plan, however, the short-term vehicle parking is required to be located near building entrances and will be adequately lit.

Condition of Approval: If long-term bicycle parking is provide outside, lighting shall be provided at the same level as the vehicle parking area.

G. Reserved Areas. Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only.

Condition of Approval: Bicycle parking shall be clearly marked and reserved for bicycle parking only.

H. Hazards. Bicycle parking shall not impede or create a hazard to pedestrians. Parking areas shall be located so as to not conflict with vision clearance standards (Chapter 19.162 FMC, Access and Circulation).

FINDINGS: The exact location of bicycle parking has not been identified.

Condition of Approval: The location of bicycle parking shall not impede or create a hazard to pedestrians.

Chapter 19.165 Public Facilities Standards

19.165.010 Purpose and applicability.

A. Purpose. The purpose of this chapter is to provide planning and design standards for public and private transportation facilities and utilities. Streets are the most common public spaces, touching virtually every parcel of land…

B. When Standards Apply. Unless otherwise provided, the standard specifications for construction, reconstruction or repair of transportation facilities, utilities and other public improvements within the city shall occur in accordance with the standards of this chapter...

C. Standard Specifications. The city engineer shall establish standard construction specifications consistent with the design standards of this chapter and application of engineering principles. They are incorporated in this code by reference.

D. Conditions of Development Approval. No development may occur unless required public facilities are in place or guaranteed, in conformance with the provisions of this code. Improvements required as a condition of development approval that require a dedication of property for a public use, when not voluntarily accepted by the applicant, shall be roughly proportional to the impact of development. Findings in the development approval shall indicate how the required improvements are roughly proportional to the impact of the proposed development on public facilities.

E. Rough Proportionality Report. Where the applicant objects to the imposition of any applicable development standard under this chapter that required a dedication of property for a public use, the applicant must provide a rough proportionality report justifying an alternative level of improvements including:…

FINDINGS: NE Halsey Street is a Multnomah County road. All public improvement requirements associated the roadway shall meet Multnomah County standards (e.g. sidewalks, curb cuts, stormwater, etc.). All other public improvements are subject to the standards in this chapter.

19.165.025 Transportation improvements.

Sections A-J, L-W, and Z:

FINDINGS: These standards address access and transportation standards for NE Halsey Street which is under Multnomah County's jurisdiction. Half street improvements built to Multnomah County standards are required along the site frontage. The current right-of-way width is 45 ft. to centerline and additional right-of-way dedications are not required. Complete transportation comments are provided in Exhibit C1.

Condition of Approval: Prior to final occupancy, the applicant shall meet all of the Conditions of Approval required by Multnomah County for site access and street improvements (see Exhibit C1).

K. Internal Pathways. Pathways shall be at least five feet in unobstructed width and shall be constructed to sidewalk standards found in Standard Specifications for Public Works Construction, or according to Multnomah County or ODOT standards as applicable. The property owner shall keep a minimum of five feet of the pathway width clear of both permanent and temporary obstructions (e.g., utility poles, sandwich signs). Maintenance of internal pathways is the continuing obligation of the property owner or adjacent property owner. All work must comply with the city of Fairview public works construction standards.

FINDINGS: All proposed internal pathways are at least 5 ft. in width. As conditioned above, the internal pathways shall be constructed to City of Fairview standards.

X. Mail Boxes. Plans for mail boxes to be used shall be approved by the United States Postal Service (USPS).

FINDINGS: Mailboxes are proposed within the concrete median near the northeast corner of the building.

Condition of Approval: Prior to final occupancy, mailboxes shall be installed in accordance with approved plans from USPS.

Y. Streetlight Standards. Streetlights shall be installed in accordance with city standards.

FINDINGS: The property is located within the mid-county lighting district and is subject to district standards.

Condition of Approval: Prior to final occupancy the applicant shall meet the street light requirements of mid-county lighting district.

19.165.030 Public use areas.
Public use areas implement Comprehensive Plan policies that may require a developer to reserve a piece of land for future park and open space to serve the residents of the new development. Specific issues to consider include the amount of time the city has to purchase parkland and whether dedication of park land should count as a credit towards SDCs.

Findings: Dedication of a future park or open space area is not appropriate for this site. This standard does not apply.

19.165.040 Sanitary sewer and water service improvements.
The sanitary sewer and water service improvements ensure adequate sanitary sewer services to new developments.

19.165.040 Sanitary sewer and water service improvements.
The sanitary sewer and water service improvements ensure adequate sanitary sewer services to new developments.

A. Sewers and Water Mains Required. Sanitary sewers and water mains shall be installed to serve each new development and to connect developments to existing mains in accordance with the city's construction specifications and the applicable Comprehensive Plan policies.

B. Sewer and Water Plan Approval. Development permits for sewer and water improvements shall not be issued until the city engineer has approved all sanitary sewer and water plans in conformance with city standards.

C. Oversizing. Proposed sewer and water systems shall be sized to accommodate additional development within the area as projected by the Comprehensive Plan. The developer shall be entitled to system development charge credits for the oversizing.

D. Permits Denied. Development permits may be restricted by the city where a deficiency exists in the existing water or sewer system which cannot be rectified by the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of domestic water and sewerage treatment systems. Building moratoriums shall conform to the criteria and procedures contained in ORS 197.505 to 197.520.

FINDINGS:
A 10 in. public water main and 8 in. public sewer main are available along the north side of Halsey Street. The Sanitary Sewer and Water Plan (Exhibit B10 / Sheet P10.0) indicates sewer and water laterals will be connected to the public mains.

Condition of Approval: All public sanitary sewer and water improvements shall be reviewed and installed in conformance with City standards.

19.165.050 Storm drainage.
The storm drainage section requires developers to accommodate and treat stormwater runoff from buildings and parking lots.

A. General Provisions. The city shall issue a development permit only where adequate provisions for stormwater and flood water runoff have been made.

B. Accommodation of Upstream Drainage. Culverts and other drainage facilities shall be large enough to accommodate potential runoff from the entire upstream drainage area, whether inside or outside the development. Such facilities shall be subject to review and approval by the city engineer.

C. Effect on Downstream Drainage. Where it is anticipated by the city engineer that the additional runoff resulting from the development will overload an existing drainage facility, the city may deny approval of the development permit unless provisions have been made for improvement

of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with city standards.

D. Easements. Where a development is traversed by a watercourse, drainage way, channel or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance.

FINDINGS: A preliminary stormwater plan and report have been submitted by the applicant. Stormwater will be collected on-site and piped to an existing private stormwater facility to the north under the same ownership. Final design and analysis are required.

Condition of Approval: Prior to the issuance of building permits the applicant shall provide the city with a final Stormwater Management Plan demonstrating compliance with the 2014 Portland Stormwater Management Manual.

19.165.060 Utilities.
The utilities section provides standards regarding electric lines and cable. Many types of utilities now must be installed underground for safety and aesthetic purposes.

A. Underground Utilities. All utility lines including, but not limited to, those required for electric, communication, lighting and cable television services and related facilities shall be placed underground, except for surface-mounted transformers, surface-mounted connection boxes and meter cabinets which may be placed above ground, temporary utility service facilities during construction, and high capacity electric lines operating at 50,000 volts or above. The following additional standards apply to all new subdivisions, in order to facilitate underground placement of utilities…

B. Easements. Easements shall be provided for all underground utility facilities.

C. Exception to Undergrounding Requirement. The standard applies only to proposed subdivisions. An exception to the undergrounding requirement may be granted due to physical constraints, such as steep topography, sensitive lands, Chapter 19.106 FMC, or existing development conditions.

FINDINGS: A PGE transmission line is located in the public right-of-way along the north side of Halsey Street. Typical PGE transmission lines carry between 60,000 – 500,000 volts. Undergrounding electric utilities in this location is not required.

Condition of Approval: All utilities including those required for electric, communication, lighting and cable television services and related facilities shall be placed underground at time of development. This requirement does not apply to the existing high-voltage transmission lines along the north side of NE Halsey Street.

19.165.070 Easements.
The easements section provisions reserve adequate space for utilities.
Easements for sewers, storm drainage and water quality facilities, water mains, electric lines or other public utilities shall be dedicated on a final plat, or provided for in the deed restrictions. See also, Chapter 19.420 FMC, Development Review and Site Design Review and Chapter 19.430, Land Divisions and Lot Line Adjustments. The developer or applicant shall make arrangements with the city, the applicable district and each utility franchise for the provision and dedication of utility easements necessary to provide full services to the development. The city's standard width for public main line utility easements shall be 20 feet unless otherwise specified by the utility company, applicable district, or city engineer.

FINDINGS: New utility easements dedicated to the City of Fairview are not required for this development. As conditioned above, a private stormwater easement is required for the new stormwater piping proposed on Parcel 5 of the Klondike Subdivision.

19.165.080 Construction plan approval and assurances.
The construction plan approval portion ensures the completion of a development by a builder.

No public improvements, including sanitary sewers, storm sewers, streets, sidewalks, curbs, lighting, parks, or other requirements, shall be undertaken except after the plans have been approved by the city, permit fee paid, and permit issued. The permit fee is required to defray the cost and expenses incurred by the city for construction and other services in connection with the improvement. The permit fee shall be set by the city council. The city may require the developer or subdivider to provide bonding or other performance guarantees to ensure completion of required public improvements.

19.165.090 Installation.

A. Conformance Required. Improvements installed by the developer either as a requirement of these regulations or at his/her own option, shall conform to the requirements of this chapter, approved construction plans, and to improvement standards and specifications adopted by the city.

B. Adopted Installation Standards. The Standard Specifications for Public Works Construction, Oregon Chapter APWA shall be a part of the city's adopted installation standard(s); other standards may also be required upon recommendation of the city engineer.

C. Commencement. Work shall not begin until the city has been notified in advance.

D. Resumption. If work is discontinued for more than one month, it shall not be resumed until the city is notified.

E. City Inspection. Improvements shall be constructed under the inspection and to the satisfaction of the city. The city may require minor changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest. Modifications requested by the developer shall be subject to land use review under Chapter 19.415 FMC, Modifications to Approved Plans and Conditions of Approval. Any monuments that are disturbed before all improvements are completed by the subdivider shall be replaced prior to final acceptance of the improvements.

F. Engineer's Certification and As-Built Plans. A registered civil engineer shall provide written certification in a form required by the city that all improvements, workmanship and materials are in accord with current and standard engineering and construction practices, conform to approved plans and conditions of approval, and are of high grade, prior to city acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide three sets (one mylar, one electronic, one paper copy) of "as-built" plans, in conformance with the city engineer's specifications, for permanent filing with the city.

Condition of Approval: No public improvements, including sanitary sewers, storm sewers, streets, sidewalks, curbs, lighting, parks, or other requirements, shall be undertaken except after the plans have been approved by the city, permit fee paid, and permit issued.

VII. CONCLUSION AND RECOMMENDATIONS

STAFF RECOMMENDATION

Staff finds that the proposed application will meet the requirements of the City Code as conditioned, and recommends approval of the site design review permit.

PLANNING COMMISSION ALTERNATIVES

1. Approve the application based on the findings of compliance with City regulations and conditions of approval.
2. Modify the findings, reasons, or conditions, and approve the request as modified.
3. Deny the application based on the Commission's findings
4. Continue the Public Hearing to a date certain if more information is needed.

CONDITIONS OF APPROVAL

The application, as presented, meets or can meet applicable City codes and requirements, provided that the following conditions of approval are met. The site shall be developed in accordance with the applicant's approved plans, as attached and modified below.

A. General Requirements

1. The applicant agrees to comply with all regulations and requirements of the Fairview City Code which are current on this date, except where variance or deviation from such regulation and requirements have been specifically approved by formal Planning Commission action as documented by the records of this decision and/or the associated Conditions of Approval.

2. The approval for application 2018-49-DR shall become null and void after two (2) years if construction activities have not commenced.

3. Any signs on the site, including monument signs for the development and building signs for the commercial uses, must obtain a sign permit and comply with FMC 19.170.

B. Prior to Issuance of Building Permits

1. Prior to the issuance of building permits, revise the narrative and/or building elevations to indicate the building height reference datum and measurement methodology.

2. Prior to the issuance of building permits, submit a revised site plan and detailed drawings specifying the location and dimensions of the sitting area between the front building entrance and the sidewalk.

3. Prior to issuance of building permits, a final stormwater management plan is required showing the site complies with the 2014 Portland Stormwater

Management Manual. Surface water facilities shall be constructed in conformance with city standards.

4. Prior to issuance of building permits, submit revised detailed drawings that show the internal curbs and sidewalks designed to City of Fairview standards. Pedestrian improvements in the public right-of-way shall be constructed to Multnomah County standards.

5. Prior to the issuance of building permits, site development plans must comply with applicable ADA requirements.

6. Prior to the issuance of building permits, submit detailed drawings of the trash enclosure screening. Screening options include a decorative wall, evergreen edge, non-see through fence, or similar feature that provides a non-see-through barrier.

7. Prior to the issuance of building permits, revise the site plan to include one ADA space with a 96 in. wide van accessible aisle.

8. Prior to issuance of building permits, revise the site plan and narrative to include 3 short-term bicycle parking spaces and 11 long-term bicycle spaces. The location of short and long-term bicycle parking must conform to the requirements in FMC 19.164.040(A).

9. Prior to issuance of building permits, revise the site plan to show all required short-term bicycle parking complies with the location requirements of FMC 19.164.040(C).

10. Prior to the issuance of building permits the applicant shall provide the city with a final Stormwater Management Plan demonstrating compliance with the 2014 Portland Stormwater Management Manual.

C. Prior to Final Occupancy

1. Prior to final occupancy, a permanent private stormwater easement for the benefit of the development parcel shall be recorded over Parcel 5 of the Klondike Subdivision.

   Note: An existing 7 ft. wide private storm drainage easement is located around the rear property line of Lots 1-5 of the Klondike Subdivision.

2. Prior to issuance to final occupancy, include 3 short-term bicycle parking spaces and a minimum of 10 long-term bicycle spaces. One long-term space is required for each commercial store. The location of short and long-term bicycle parking must conform to the requirements in FMC 19.164.040(A).

3. If long-term bicycle parking is provide outside, lighting shall be provided at the same level as the vehicle parking area.

4. Bicycle parking shall be clearly marked and reserved for bicycle parking only.

5. The location of bicycle parking shall not impede or create a hazard to pedestrians.

6. Prior to final occupancy, mailboxes shall be installed in accordance with approved plans from USPS.

7. Prior to final occupancy the applicant shall meet the street light requirements of mid-county lighting district.

8. All public sanitary sewer and water improvements shall be reviewed and installed in conformance with City standards.

9. All utilities including those required for electric, communication, lighting and cable television services and related facilities shall be placed underground at time of development. This requirement does not apply to the existing high-voltage transmission lines along the north side of NE Halsey Street.

10. No public improvements, including sanitary sewers, storm sewers, streets, sidewalks, curbs, lighting, parks, or other requirements, shall be undertaken except after the plans have been approved by the city, permit fee paid, and permit issued.

11. Prior to final occupancy, the applicant shall meet all of the transportation standards and Conditions of Approval required by Multnomah County for site access and street improvements (see Exhibit C1).

12. Prior to final occupancy, the applicant shall satisfy all fire access and water supply requirements as determined by Gresham Fire in Exhibit C2.

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Proposed Project

The applicant proposes to construct a single mixed-use building consisting of ground floor commercial, a ground floor American with Disabilities Act (ADA) accessible apartment, and two additional floors consisting of four apartments each in the Town Center Commercial (TCC) zone. The building will consist of three floors total. Floor areas are summarized in Table 1 below. The building shall have a zero-foot lot line setback with frontage along NE Halsey street. The building shall utilize brick veneer, fiber cement vertical siding, and vinyl windows.

Table 1 -Floor Area Summary

Story	Unit Type	Number of Units	Floor Area Per Each (SF)
1	ADA Apartment	1	925
1	Commercial	1	2,390
2	Apartment	2	1,016
2	Apartment	2	605
3	Apartment	2	1,016
3	Apartment	2	605

The site layout consists of parking, a drive aisle, landscaping, underground stormwater detention, and a mechanical filter catch basin. A single access is proposed in the southeast corner of the site to access NE Halsey street. The drive aisle shall be paved and shall connect to the existing parking lot on the north end of the project. While not required by code parking is provided in the proposed project and summarized in Table 2 below. Bicycle parking is also provided in the stairwell on the north side as well as at the front entrance. Bicycle parking is also summarized in Table 2. Landscaping is summarized on the landscaping drawing included in this application package. Stormwater is summarized in the included stormwater report and drawings included in this package.

Table 2 – Parking Summary

Parking Type	Number of Units
ADA Parking	1
Standard Parking	9
Compact Parking	6
Front Bicycle Parking	2
Rear Bicycle Parking	2

Existing Conditions

The Halsey Commons Site Plan proposes to develop a 0.31-acre site consisting of two (2) parcels in the TCC zone. The project is located at 21929 NE Halsey Street in Fairview, Oregon and includes parcel numbers R321104 and R321212. The location of the site is shown on the vicinity map provided on the cover sheet of the Engineering Drawings included in this application package.

The existing site contains a permitted single-family residence, detached garage, looped driveway, concrete basketball court, and two sheds. There are three existing accesses to NE Halsey street. The site

slopes to the north away from Halsey street generally ranging from 2 to 8 percent. There are no known hazardous areas, sensitive habitat areas, or wetlands on site.

Applicable Requirements

Chapter 19.65 Town Center Commercial (TCC) District

19.65.010 Purpose

The goal of this project is to strengthen the town center commercial district by creating a mixed-use building that not only fits the character of the neighborhood, but also adds places for people to gather while providing pleasant spaces for people to live and work. Our goal was to use the land efficiently, encourage walking over parking and gathering, while providing a distinct storefront character that fits the neighborhood and the goals of this code.

19.65.020 Permitted land use

The proposed development is a three-story mixed-use building with commercial and an ADA accessible apartment on the ground floor. There are two additional stories consisting of four apartments per floor. This use is compliant with Fairview Municipal Code (FMC) Table 19.65.020.A

19.65.030 Building setbacks

The project proposes a zero-lot line setback where the code requires 0-10' maximum. The side yard setbacks are minimum 5 feet, setbacks are met. The rear yard setback is approximately 67' where 15' is required. See the proposed site plan included in the engineering drawings, sheet P3.0.

19.65.040 Lot Coverage, floor area ratio and maximum building size

The floor area ratio (FAR) is 0.84 which is under the maximum FAR of 1.

19.65.050 Block layout and building orientation

A. Applicability.

Subsection 5, commercial and mixed-use buildings applies to this proposal. This land use application package satisfies the submittal requirements of a site design review.

B. Block Layout Standard

An interior parking court is proposed with pedestrian pathways to it from the frontage of NE Halsey street. This standard is met.

C. Superblock Developments

This section is not applicable, the proposed development is not a super block development.

D. Building Orientation Standard

The minimum setbacks of FMC 190.65.030 are met. See the proposed site plan, engineering drawings sheet P3.0. The building's primary entrance is facing the street and there is a secondary entrance to the north. This standard is met.

E. Variances

This project does not propose any variances; therefore, this section is not applicable.

19.65.060 Building Height

A. Maximum Height

See response under section B below.

B. Method of Measurement

The proposed building is three stories, approximately 33' 4" at the midpoint of the roof. The maximum allowable height is three stories or 45'. Standards proposed in subsections A and B of FMC 19.65.060 are met.

19.65.70 Architectural guidelines and standards

A. Purpose and Applicability

Subsection 5, commercial and mixed-use buildings shall apply to this proposed application.

B. Guidelines and Standards

1. Detailed Storefront Design

Architectural drawings are provided as a part of this land use application. All criterion *(a – e)* set forth in this section are depicted on the provided elevation drawings. See Architectural drawing A-221 for more information. This standard is met.

2. Design of Large-Scale Buildings and Developments

The proposed single building has less than 20,000 square feet of floor space. This section does not apply.

19.65.080 Pedestrian and transit amenities

A. Purpose and Applicability

Subsection 5, commercial and mixed-use buildings shall apply to this proposed application.

B. Guidelines and Standards

The proposed site design provides a sitting space between the building entrance and sidewalk in accordance with subsection 2. The project is required to provide one or more of the pedestrian amenities. This standard is met.

19.65.090 Special standards for certain uses

Subsections A and E apply to this proposal. Subsections B, C, and D shall be omitted from further discussion.

A. Residential Uses

1. Mixed Use Development Required

The application proposes a mixed-use building combining commercial and residential. This standard is met.

2. Limitation on Street-Level Housing

The application proposes no residential use along the street frontage. The ADA apartment located on the ground floor shall be oriented towards the rear (north side) of the building. This standard is met.

3. Density

The proposed building meets applicable floor area and building height standards as shown in the relevant sections of this application. This standard is met.

4. Parking, Garages, and Driveways

All off-street vehicle parking is located at the rear of the building (north side) in a parking area. This standard is met.

5. Creation of Alleys

No subdivision is proposed with this application. This standard does not apply.

6. Common Areas

Copies of applicable covenants regarding common areas shall be provided to the city prior to building permit approval.

E. Sidewalk Displays

Sidewalk displays shall be limited to small displays and maintain a clearance of five feet. This standard is met

Chapter 19.162 Access and Circulation

19.162.010 Purpose

The purpose of this chapter is to ensure that developments provide safe and efficient access and circulation, for pedestrians and vehicles. FMC 19.162.020 provides standards for vehicular access and circulation. FMC 19.162.030 provides standards for pedestrian access and circulation. Standards for transportation improvements are provided in Chapter 19.165 FMC. (Ord. 6-2001 § 1)

19.162.020 Vehicular access and circulation

The proposed development abuts NE Halsey street which is under Multnomah county jurisdiction.

C. Access Permit Required

Subsection 3 applies to this application. The proposed application meets Multnomah county standards.

D. Traffic Study Requirements

A trip generation report is required as part of this application. Lancaster Engineering has generated a report to be included as part of this application. This standard is met.

E. Conditions of Approval

Multnomah county has directed that the existing accesses be consolidated into a single access. The application proposes a single access to NE Halsey street adjacent to the east property line. Interior circulation allows for vehicles to turn around preventing vehicles from backing onto NE Halsey street. This standard is met.

F. Access Options

Subsection 3, option 3 applies to this application. The site plan proposes to access NE Halsey street a publicly owned street. This standard is met.

G. Access Spacing

The proposed access is approximately 800' from the two nearest intersections: NE Fairview Ave and NE Halsey; NE Village St and NE Halsey St. This standard is met.

H. Number of Access Points

The application proposes a consolidation of three existing accesses to a single access from NE Halsey street. This standard is met.

I. Shared Driveways

A shared driveway is not proposed with this application.

J. Figure 19.162.020.J provides examples of street layout and connectivity

Example section, no response.

K. Street Connectivity and Formation of Blocks Required

The application does not propose a land division or a large site development. This section does not apply.

L. Driveway Openings

Subsections 4 and 5 apply to this application. The site plan proposes a 23.5' access width and a concrete driveway apron based on Oregon Department of Transportation (ODOT) standard drawings. This standard is met.

M. Fire Access and Parking Area Turnarounds

The application proposes a 23.5' drive aisle and adequate space for delivery vehicle turnaround. This standard is met.

N. Vertical Clearances

The proposed access and drive aisles meet the minimum vertical clearance of 13 feet 6 inches. This standard is met.

O. Vision Clearance

The proposed access shall maintain the required sight distance triangle. This standard is met.

P. Construction

1. Surface Options

All driveways, parking areas, and drive aisles shall be paved. This standard is met.

2. Surface Water Management

All private stormwater is proposed to be treated and detained on site. This standard is met.

3. Driveway Aprons

The proposed driveway apron shall be concrete. This standard is met.

19.162.030 Pedestrian Pathway System for Multifamily Development

A. Pedestrian Access and Circulation

The application proposes a concrete sidewalk that is ADA compliant, illuminated, and contains landscaping in the right-of-way. Direct access to the main entrance of the commercial is from the street frontage and access to residential uses is provided via the aforementioned concrete sidewalk to the rear of the building. The connection to both entrances from the public right-of-way is continuous. Standards set forth in subsections 1-5 are met.

B. Design and Construction

The application proposes a concrete sidewalk meeting ODOT standard drawings. Details of the pathway are provided in the engineering drawings. The standards set forth in subsections 1 – 5 are met.

Chapter 19.163 Landscaping, Street Trees, Fences, and Walls

19.163.010 Purpose.

The purpose of this chapter is to promote community health, safety and welfare by protecting natural vegetation, and setting development standards for landscaping, street trees, fences and walls. Together, these elements of the natural and built environment contribute to the visual quality, environmental health and character of the community. Trees provide climate control through shading during summer

months and wind screening during winter. Trees and other plants can also buffer pedestrians from traffic. Walls, fences, trees and other landscape materials also provide vital screening and buffering between land uses. Landscaped areas help to control surface water drainage and can improve water quality, as compared to paved or built surfaces.

19.163.020 Landscape conservation

There is no known significant vegetation as defined in section 19.163.020(B). This section does not apply.

19.163.025 Existing landscaping

There is no known significant vegetation as defined in section 19.163.020(B). This section does not apply.

19.163.030 New landscaping

A. Applicability

A landscape plan is provided as part of the engineering drawings. The plan conforms to City of Fairview requirements. This standard is met.

B. Landscaping Plan Required

A landscape plan is provided as part of the engineering drawings. The plan conforms to City of Fairview requirements. This standard is met.

C. Landscape Area Standards

Subsection 2 applies to this application. The provided landscape included with this application package provides over the five percent minimum landscaping. This standard is met.

D. Landscape Materials

A landscape plan is provided with this application package that meets the standards set forth in subsections 1 – 10. Reference the landscape plan contained in the engineering drawings section. This standard is met.

E. Landscape Design Standards

A landscape plan is provided with this application package that meets the standards set forth in subsections 1 – 3. Reference the landscape plan contained in the engineering drawings section. This standard is met.

19.163.040 Street trees

Street trees shall be provided per the standards set forth in subsections A – G and the standards of Multnomah County. This standard is met.

19.163.050 Fences and walls

No new fences are proposed as a part of this application. The existing fences and walls are to the rear and side of the property and adhere to this section. See the existing conditions for fence and wall details. This section is met.

Chapter 19.164 Vehicle and Bicycle Parking

19.164.010 Purpose

The purpose of this chapter is to provide basic and flexible standards for development of vehicle and bicycle parking. The design of parking areas is critically important to the viability of some commercial areas, pedestrian and driver safety, the efficient and safe operation of adjoining streets, and community image and livability. Historically, some communities have required more parking than is necessary for some land uses, paving extensive areas of land that could be put to better use. Because vehicle parking facilities can occupy large amounts of land, they must be planned and designed carefully to use the land efficiently while maintaining the visual character of the community. This chapter recognizes that each development has unique parking needs by providing a flexible approach for determining parking space requirements (i.e., "minimum" and "performance- based" standards). This chapter also provides standards for bicycle parking because many people use bicycles for recreation, commuting, and general transportation. Children as well as adults need safe and adequate spaces to park their bicycles throughout the community. (Ord. 6-2001 § 1)

19.164.020 Applicability

This application package complies with this standard.

19.164.030 Vehicle parking standards

For the TTC zone there is no minimum number of parking spaces. This application proposes 16 vehicle parking spaces comprised of standard, compact, and ADA, as well as four bike spaces. The summary of parking spaces can be found in Table 2 of this narrative. The orientation, location, and size of spaces can be found in the engineering drawings, sheet P3.0. This standard is met.

19.164 Bicycle parking standards

A. Number of Bicycle Parking Spaces

Subsection 5 applies to this application. The summary of bicycle parking can be found in Table 2 of this narrative. There are two locations at the front and rear of the building. The

parking shall meet the standards of the remaining subsections of 19.164. This standard is met.

Chapter 19.165 Public Facilities Standards

19.165.010 Purpose and applicability

A. Purpose. The purpose of this chapter is to provide planning and design standards for public and private transportation facilities and utilities. Streets are the most common public spaces, touching virtually every parcel of land. Therefore, one of the primary purposes of this chapter is to provide standards for attractive and safe streets that can accommodate vehicle traffic from planned growth, and provide a range of transportation options, including options for driving, walking, bus transit and bicycling. This chapter is also intended to implement the city's transportation system plan.

19.165.020 Public Facilities standards

The application proposes frontage improvements along NE Halsey street. The improvements shall meet the standards of Multnomah county *(the jurisdictional authority)*, Mid County lighting district, and the city of Fairview. This standard is met.

19.165.025 Transportation standards

The application proposes frontage improvements along NE Halsey street. The improvements shall meet the standards of Multnomah county *(the jurisdictional authority)*, Mid County lighting district, and the city of Fairview. The engineering drawings show proposed frontage improvements. Additional construction information shall be provided with construction documents. This standard and those of all subsections of this section, are met.

19.165.030 Public use areas

This application does not propose a subdivision of land. This section does not apply.

19.165.040 Sanitary sewer and water service improvement

The sanitary sewer and water service improvements are depicted on the engineering drawings. Further detail shall be provided with construction drawings. All sewer and water shall meet the standards of the city of Fairview, Multnomah county, and Gresham fire. The standards of this section are met.

19.165.050 Storm drainage

A storm drainage report and plan sheet are provided as part of this application package. The storm facilities meet the 2016 City of Portland Stormwater Manual standards as adopted by the city of Fairview. This standard is met.

19.165.060 Utilities

Additional utilities such as electrical and cable shall be shown on the construction drawings and approved by Portland General Electric, Mid County lighting distric, and the city of Fairivew. This standard is met.

19.165.070 Easements

Any necessary easements shall be dedicated as part of the final plat and shown on construction drawings. This standard is met.

19.165.080 Construction plan approval and assurances

No construction shall take place, except possible early grading under an approved early grading permit, prior to approval of construction drawings by all governing agencies. This standard is met.

19.165.090 Installation

Construction drawings shall be prepared and submitted for review after land use approval and prior to construction. This standard is met.

Exhibit A2 Trip Generation Report

Technical Memorandum

REGISTERED PROFESSIONAL ENGINEER
83582PE
OREGON
DEC. 17, 2014
WILLIAM R. FARLEY
RENEWS: 12/31/2019

LANCASTER ENGINEERING
321 SW 4th Ave., Suite 400
Portland, OR 97204
phone: 503.248.0313
fax: 503.248.9251
lancasterengineering.com

To: Dean Hurford

From: Jessica Hijar
William Farley, PE

Date: October 23, 2018

Subject: 21929 NE Halsey Street
Trip Generation Memo

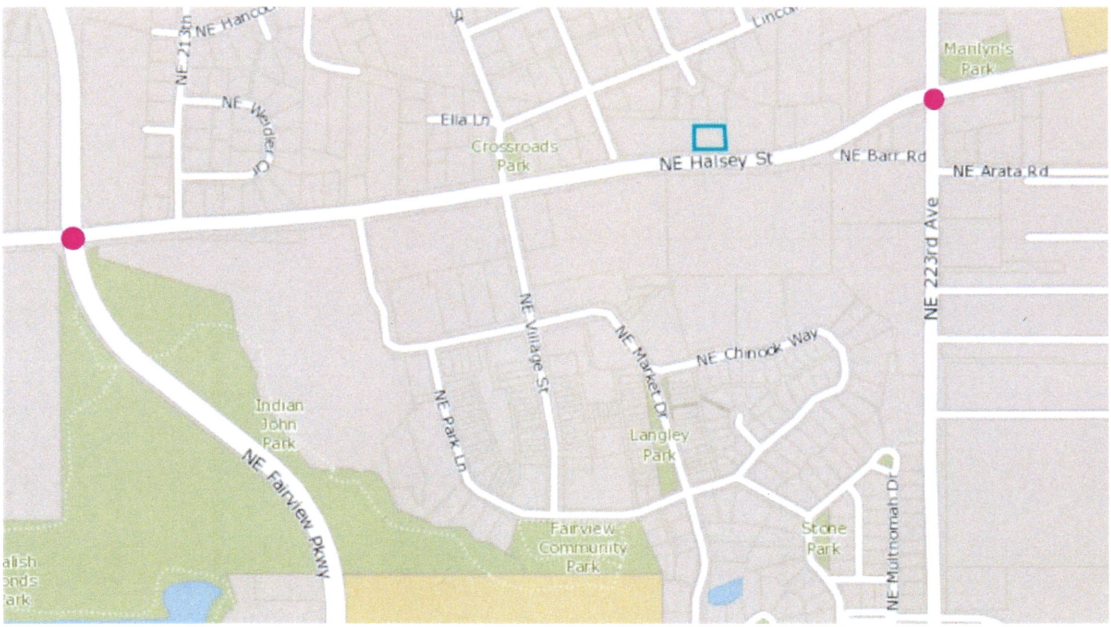
This memorandum provides a summary of the trip generation of the proposed mixed-use development at 21929 NE Halsey Street in Fairview, Oregon.

Project Description

The site is located on the northern side of NE Halsey Street, east of Fairview Parkway and west of NE Fairview Avenue/NE 223rd Avenue. The existing site has one single family home. The proposed development will be a mixed-use facility, consisting of nine apartment units and 2,390 square feet of commercial retail. The project site is surrounded by many other residential and commercial/retail uses.

A vicinity map showing the project site highlighted in blue and the applicable nearby intersections in pink is shown in Figure 1.

Figure 1 – Vicinity Map (image from PortlandMaps.com)



Trip Generation

To estimate the number of trips that will be generated by the proposed development, trip rates from the *Trip Generation Manual*[1] were used. Trip rates for land-use code #210, *Single Family Dwelling*, were used to estimate the existing trip generation of the site. Trip rates for land-use code #820, *Shopping Center*, and land-use code #221, *Multifamily Housing (Mid-Rise)*, were used to estimate the trip generation of the proposed development.

The trip generation calculations show that the proposed use of the site will generate a net total of 4 trips during the morning peak hour, 12 trips during the evening peak hour, and 128 trips on a typical weekday. The trip generation calculation results are summarized in Table 1.

Table 1 – Trip Generation Summary

ITE Code – Land Use	Size	Morning Peak Hour			Evening Peak Hour			Weekday Total
		In	Out	Total	In	Out	Total	
Existing								
210 – Single Family Dwelling	1 home	0	1	1	1	0	1	10
Proposed								
820 – Shopping Center	2,390 SF	1	1	2	4	5	9	90
221 – Multifamily Housing (Mid-Rise)	9 units	1	2	3	2	2	4	48
Net Site Trips		**2**	**2**	**4**	**5**	**7**	**12**	**128**

Trip Distribution

The directional distribution of site trips associated with the proposed development was estimated based on locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at nearby intersections. The following trip distribution is estimated for this development:

- 60 percent of site trips are estimated to travel to/from the west along NE Halsey Street.
- 40 percent of site trips are estimated to travel to/from the east along NE Halsey Street.

It is estimated that a majority of trips will travel to and from the west via Interstate 84 and Fairview Parkway, and approximately forty percent will be local trips, distributed north, south, and east at the intersection of NE

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

Fairview Avenue/NE 223rd Avenue at NE Halsey Street. A summary of the number of site trips impacting nearby intersections is shown in Table 2.

Table 2 - Number of Site Trips at Nearby Intersections

Intersection	Morning Peak Hour	Evening Peak Hour
Fairview Parkway at NE Halsey Street	2	7
NE Fairview Avenue at NE Halsey Street	2	5

Conclusions

The impacts associated with the proposed development are expected to be minor, as the proposed land uses are similar to the those within the site vicinity. Additionally, the proposed development is expected to contribute less than 10 trips to nearby intersections during each peak hour.

1e

Appendix

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 1

AM PEAK HOUR

Trip Rate: 0.74

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	**0**	**1**	**1**

PM PEAK HOUR

Trip Rate: 0.99

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	**1**	**0**	**1**

WEEKDAY

Trip Rate: 9.44

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**5**	**5**	**10**

SATURDAY

Trip Rate: 9.54

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**5**	**5**	**10**

Source: Trip Generation Manual, Tenth Edition

TRIP GENERATION CALCULATIONS

Land Use: Multifamily Housing (Mid-Rise)
Land Use Code: 221
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 9

AM PEAK HOUR

Trip Rate: 0.36

	Enter	Exit	Total
Directional Distribution	26%	74%	
Trip Ends	**1**	**2**	**3**

PM PEAK HOUR

Trip Rate: 0.44

	Enter	Exit	Total
Directional Distribution	61%	39%	
Trip Ends	**2**	**2**	**4**

WEEKDAY

Trip Rate: 5.44

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**24**	**24**	**48**

SATURDAY

Trip Rate: 4.91

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**22**	**22**	**44**

Source: TRIP GENERATION, Tenth Edition

TRIP GENERATION CALCULATIONS

Land Use: Shopping Center
Land Use Code: 820
Setting/Location General Urban/Suburban
Variable: 1,000 Sq. Ft. GFA
Variable Value: 2.39

AM PEAK HOUR

Trip Rate: 0.94

	Enter	Exit	Total
Directional Distribution	62%	38%	
Trip Ends	**1**	**1**	**2**

PM PEAK HOUR

Trip Rate: 3.81

	Enter	Exit	Total
Directional Distribution	48%	52%	
Trip Ends	**4**	**5**	**9**

WEEKDAY

Trip Rate: 37.75

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**45**	**45**	**90**

SATURDAY

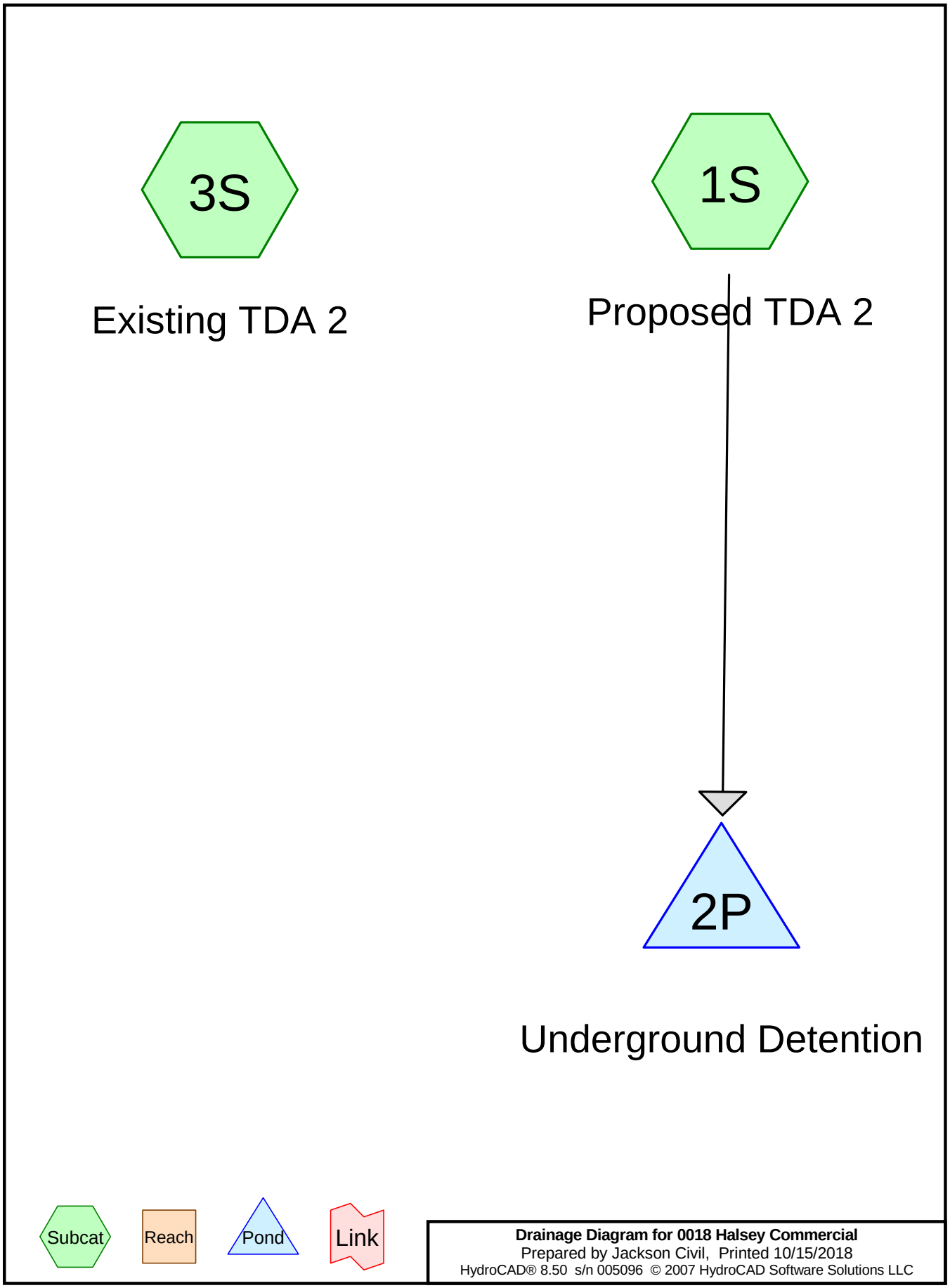
Trip Rate: 46.12

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**55**	**55**	**110**

Source: TRIP GENERATION, Tenth Edition

APPENDIX C

STORMWATER FLOW CONTROL ANALYSIS



Drainage Diagram for 0018 Halsey Commercial
Prepared by Jackson Civil, Printed 10/15/2018
HydroCAD® 8.50 s/n 005096 © 2007 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.020	70	Landscape (1S)
0.199	70	Landscaping (3S)
0.237	98	Parking (1S,3S)
0.132	98	Roof (1S,3S)
0.039	98	Sidewalk (1S,3S)
0.627		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed TDA 2 Runoff Area=0.313 ac 93.61% Impervious Runoff Depth>2.44"
Tc=5.0 min CN=70/98 Runoff=0.19 cfs 0.064 af

Subcatchment 3S: Existing TDA 2 Runoff Area=0.314 ac 36.62% Impervious Runoff Depth>1.32"
Tc=5.0 min CN=70/98 Runoff=0.09 cfs 0.035 af

Pond 2P: Underground Detention Peak Elev=1.17' Storage=0.023 af Inflow=0.19 cfs 0.064 af
Outflow=0.05 cfs 0.048 af

Total Runoff Area = 0.627 ac Runoff Volume = 0.098 af Average Runoff Depth = 1.88"
34.93% Pervious = 0.219 ac 65.07% Impervious = 0.408 ac

Summary for Subcatchment 1S: Proposed TDA 2

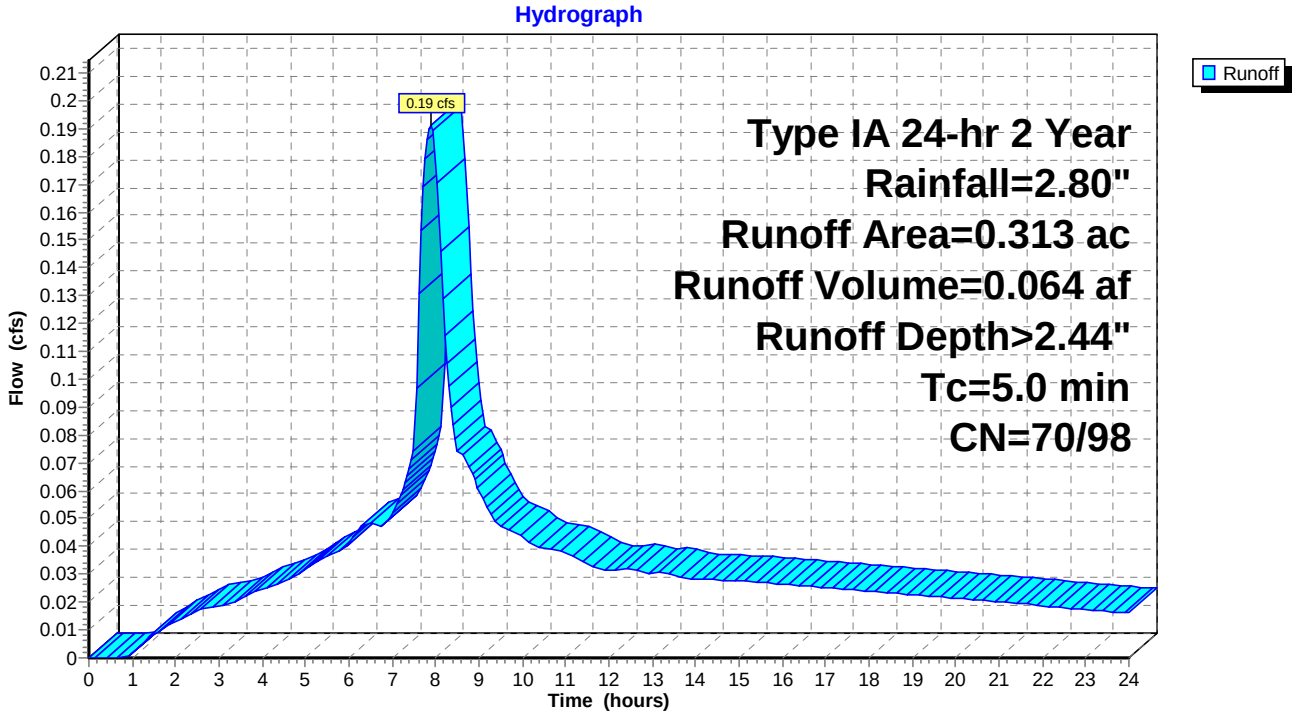
Runoff = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af, Depth> 2.44"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 Year Rainfall=2.80"

	Area (ac)	CN	Description
*	0.190	98	Parking
*	0.021	98	Sidewalk
*	0.082	98	Roof
*	0.020	70	Landscape
	0.313	96	Weighted Average
	0.020	70	Pervious Area
	0.293	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Proposed TDA 2



Summary for Subcatchment 3S: Existing TDA 2

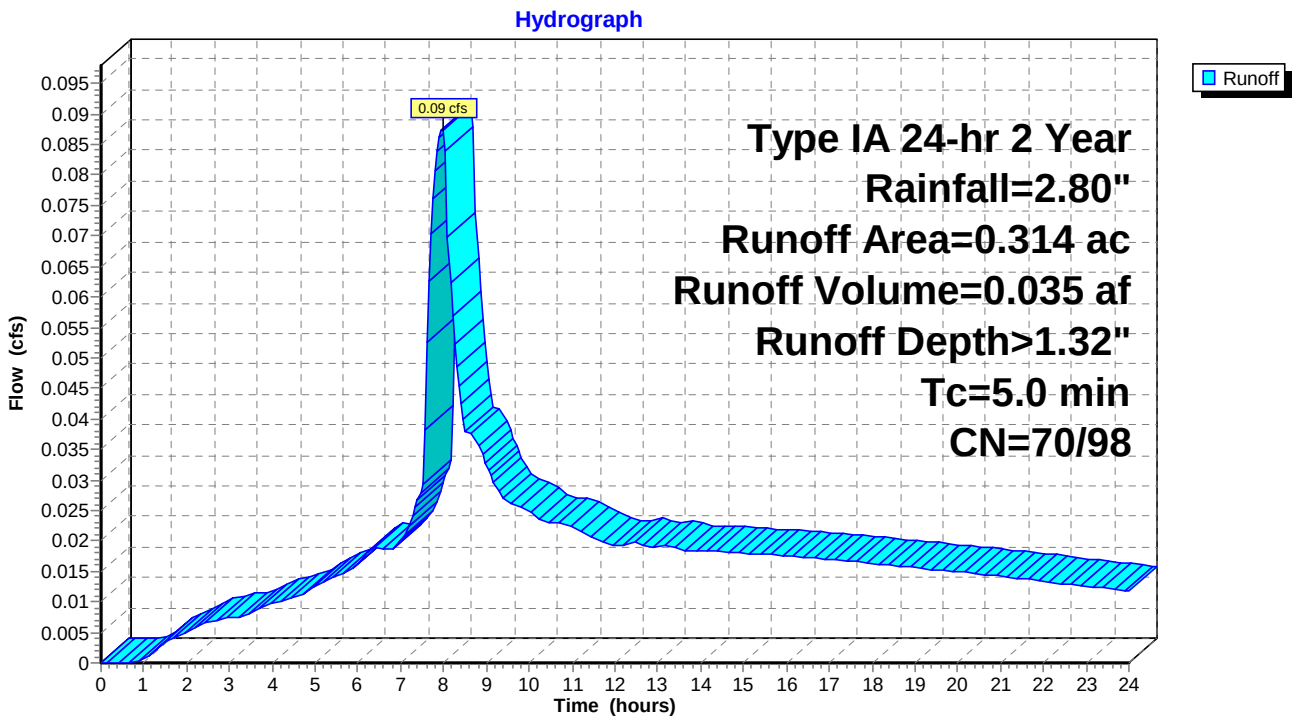
Runoff = 0.09 cfs @ 7.97 hrs, Volume= 0.035 af, Depth> 1.32"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 Year Rainfall=2.80"

	Area (ac)	CN	Description
*	0.047	98	Parking
*	0.018	98	Sidewalk
*	0.050	98	Roof
*	0.199	70	Landscaping
	0.314	80	Weighted Average
	0.199	70	Pervious Area
	0.115	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Existing TDA 2



Summary for Pond 2P: Underground Detention

Inflow Area = 0.313 ac, 93.61% Impervious, Inflow Depth > 2.44" for 2 Year event
Inflow = 0.19 cfs @ 7.90 hrs, Volume= 0.064 af
Outflow = 0.05 cfs @ 9.18 hrs, Volume= 0.048 af, Atten= 72%, Lag= 76.9 min
Primary = 0.05 cfs @ 9.18 hrs, Volume= 0.048 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.17' @ 9.18 hrs Surf.Area= 0.027 ac Storage= 0.023 af

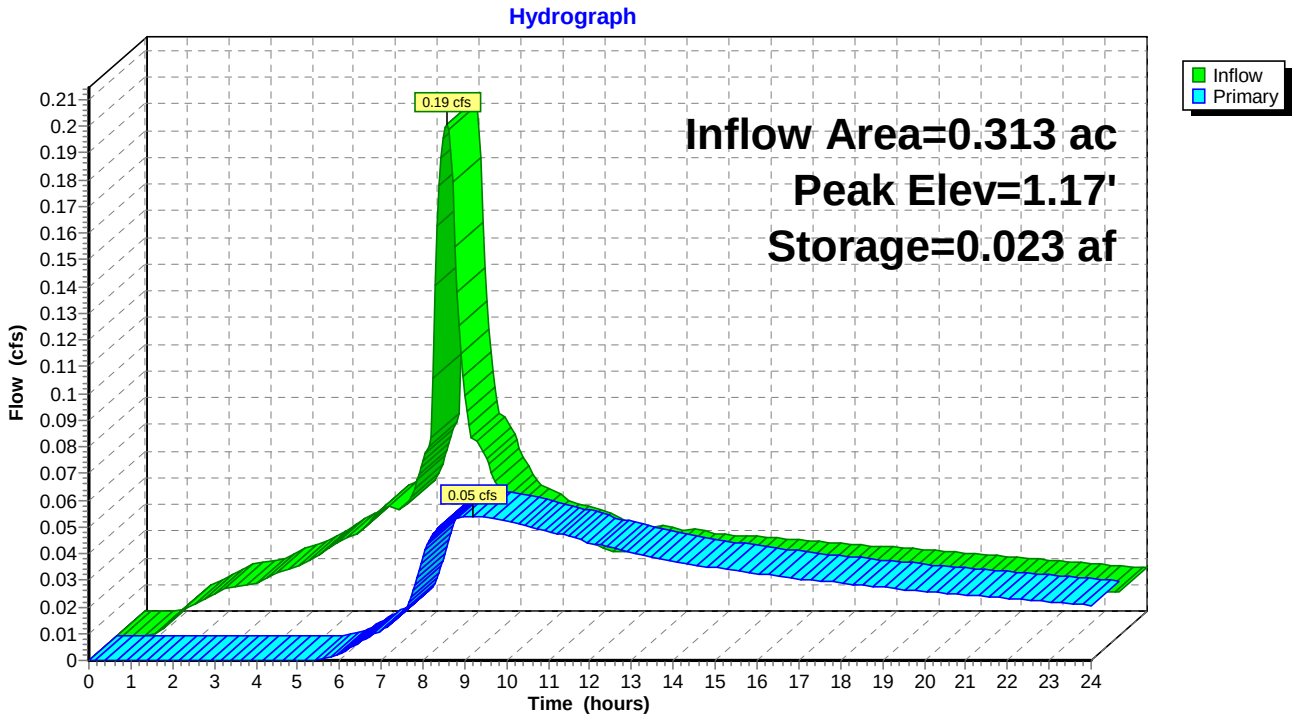
Plug-Flow detention time= 340.0 min calculated for 0.048 af (76% of inflow)
Center-of-Mass det. time= 186.6 min (859.4 - 672.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.065 af	**36.0"D x 400.00'L Horizontal Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	**Custom Weir/Orifice, C= 2.62** Elev. (feet) 0.50 1.17 1.17 1.50 Width (feet) 0.03 0.03 0.40 0.40
#2	Primary	1.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.05 cfs @ 9.18 hrs HW=1.17' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.05 cfs @ 2.68 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed TDA 2 Runoff Area=0.313 ac 93.61% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=70/98 Runoff=0.22 cfs 0.074 af

Subcatchment 3S: Existing TDA 2 Runoff Area=0.314 ac 36.62% Impervious Runoff Depth>1.61"
Tc=5.0 min CN=70/98 Runoff=0.11 cfs 0.042 af

Pond 2P: Underground Detention Peak Elev=1.23' Storage=0.025 af Inflow=0.22 cfs 0.074 af
Outflow=0.08 cfs 0.058 af

Total Runoff Area = 0.627 ac Runoff Volume = 0.116 af Average Runoff Depth = 2.22"
34.93% Pervious = 0.219 ac 65.07% Impervious = 0.408 ac

Summary for Subcatchment 1S: Proposed TDA 2

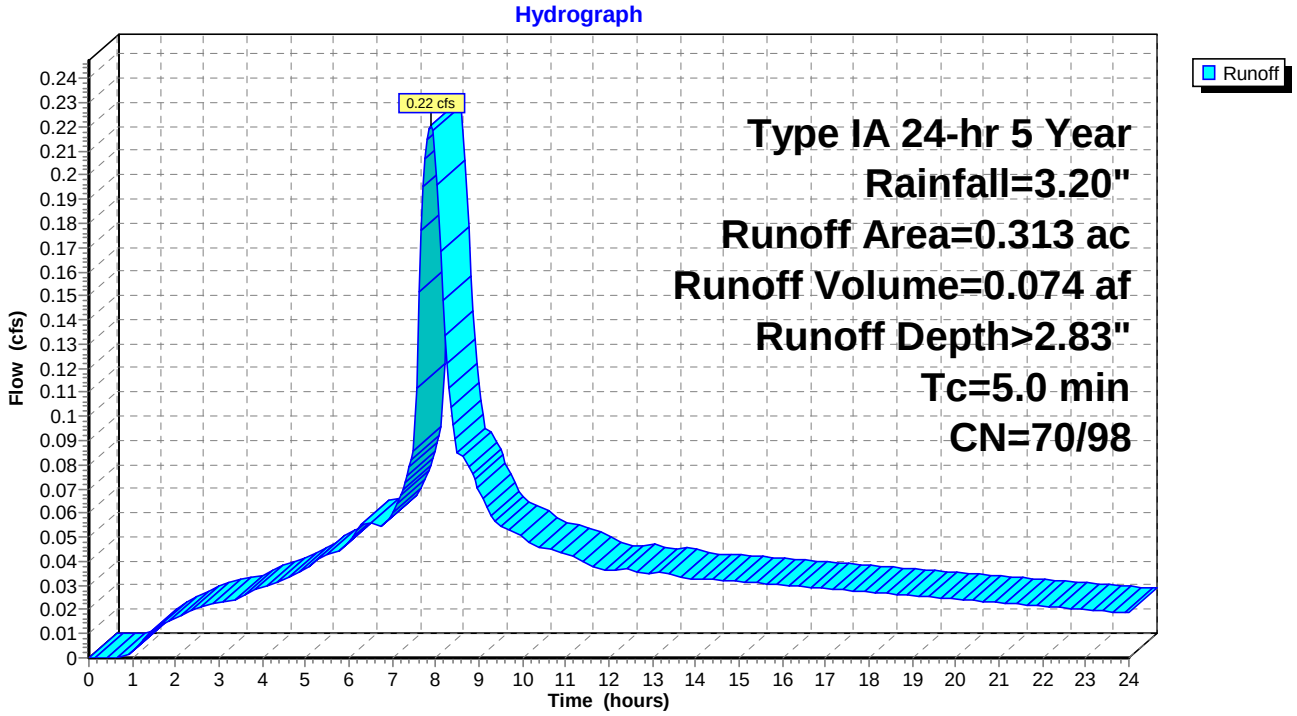
Runoff = 0.22 cfs @ 7.90 hrs, Volume= 0.074 af, Depth> 2.83"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5 Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.190	98	Parking
*	0.021	98	Sidewalk
*	0.082	98	Roof
*	0.020	70	Landscape
	0.313	96	Weighted Average
	0.020	70	Pervious Area
	0.293	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Proposed TDA 2



Summary for Subcatchment 3S: Existing TDA 2

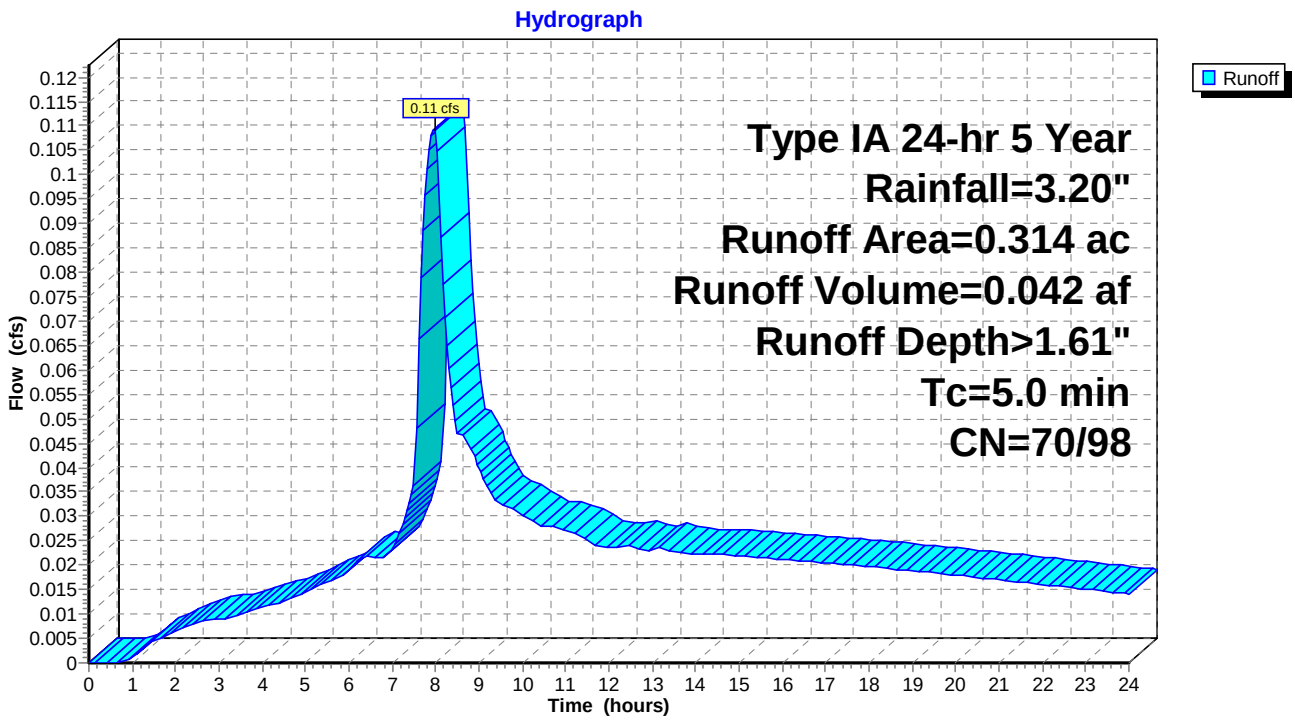
Runoff = 0.11 cfs @ 7.97 hrs, Volume= 0.042 af, Depth> 1.61"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5 Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.047	98	Parking
*	0.018	98	Sidewalk
*	0.050	98	Roof
*	0.199	70	Landscaping
	0.314	80	Weighted Average
	0.199	70	Pervious Area
	0.115	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Existing TDA 2



Summary for Pond 2P: Underground Detention

Inflow Area = 0.313 ac, 93.61% Impervious, Inflow Depth > 2.83" for 5 Year event
Inflow = 0.22 cfs @ 7.90 hrs, Volume= 0.074 af
Outflow = 0.08 cfs @ 8.70 hrs, Volume= 0.058 af, Atten= 63%, Lag= 48.2 min
Primary = 0.08 cfs @ 8.70 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.23' @ 8.70 hrs Surf.Area= 0.027 ac Storage= 0.025 af

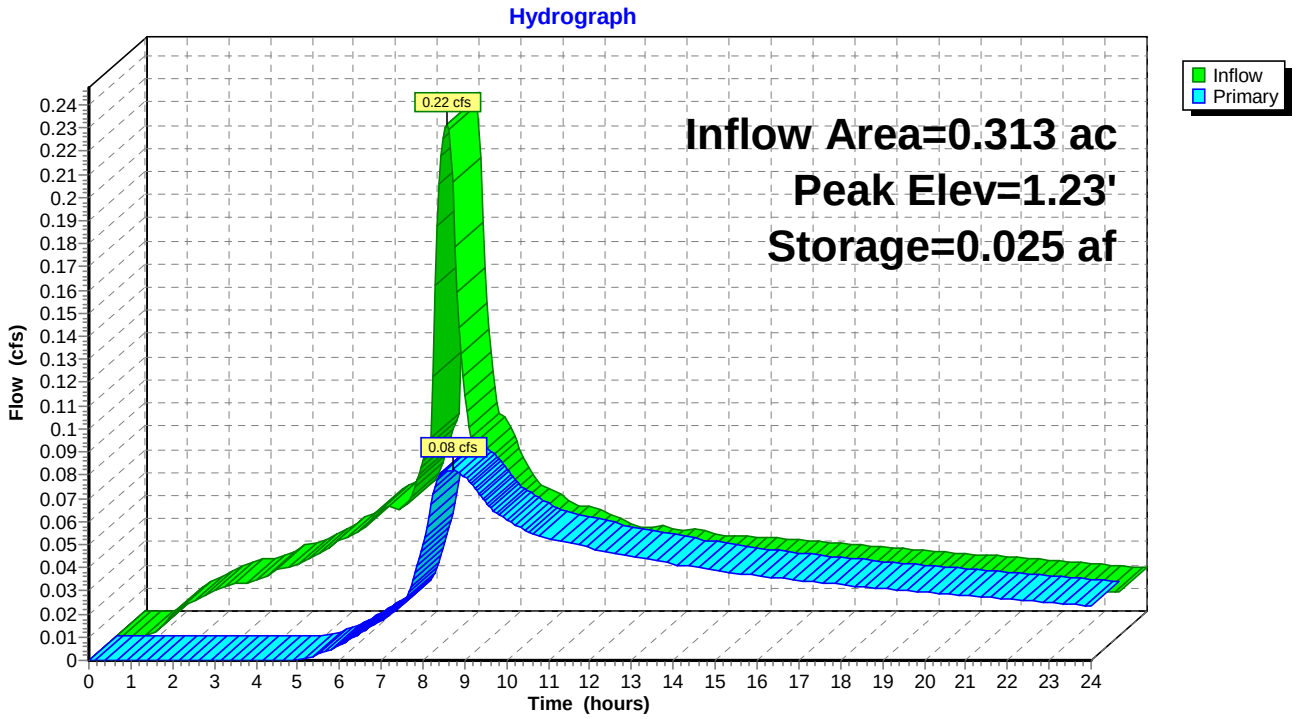
Plug-Flow detention time= 313.1 min calculated for 0.058 af (78% of inflow)
Center-of-Mass det. time= 170.9 min (840.2 - 669.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.065 af	**36.0"D x 400.00'L Horizontal Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	**Custom Weir/Orifice, C= 2.62** Elev. (feet) 0.50 1.17 1.17 1.50 Width (feet) 0.03 0.03 0.40 0.40
#2	Primary	1.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.08 cfs @ 8.70 hrs HW=1.23' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.08 cfs @ 1.78 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed TDA 2 Runoff Area=0.313 ac 93.61% Impervious Runoff Depth>3.21"
Tc=5.0 min CN=70/98 Runoff=0.25 cfs 0.084 af

Subcatchment 3S: Existing TDA 2 Runoff Area=0.314 ac 36.62% Impervious Runoff Depth>1.91"
Tc=5.0 min CN=70/98 Runoff=0.13 cfs 0.050 af

Pond 2P: Underground Detention Peak Elev=1.29' Storage=0.027 af Inflow=0.25 cfs 0.084 af
Outflow=0.12 cfs 0.067 af

Total Runoff Area = 0.627 ac Runoff Volume = 0.134 af Average Runoff Depth = 2.56"
34.93% Pervious = 0.219 ac 65.07% Impervious = 0.408 ac

Summary for Subcatchment 1S: Proposed TDA 2

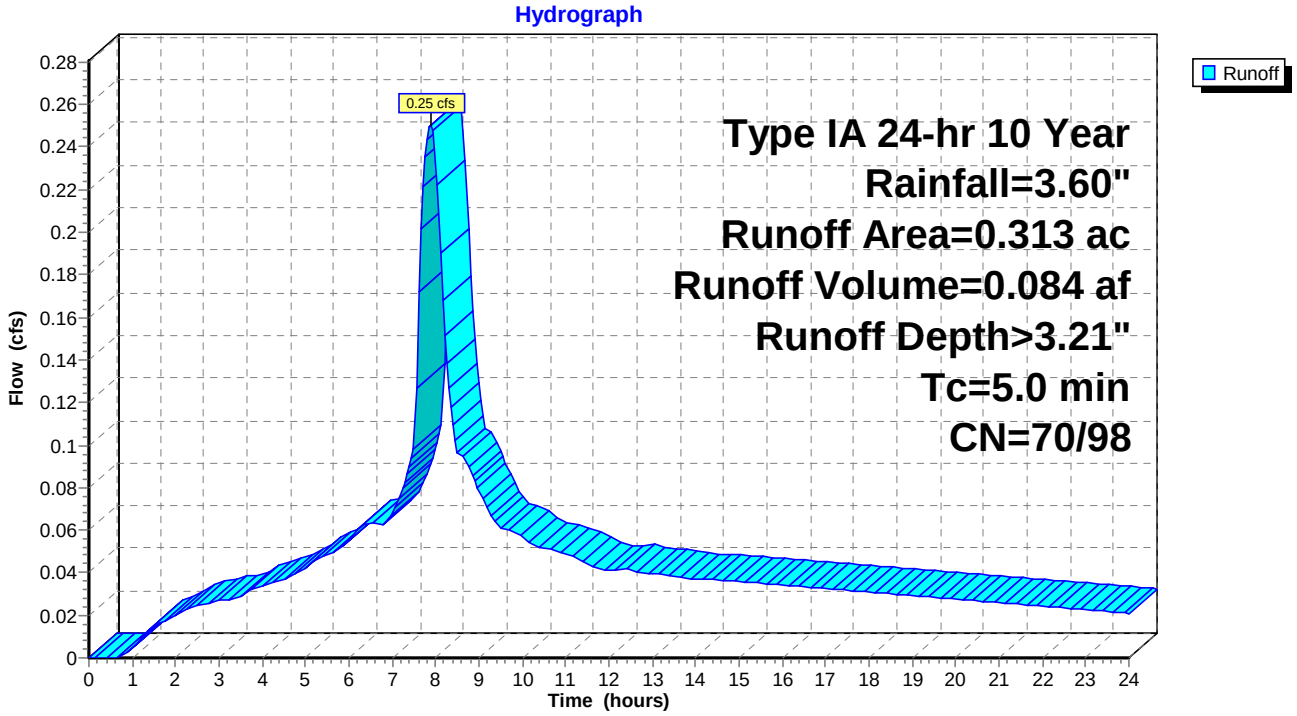
Runoff = 0.25 cfs @ 7.90 hrs, Volume= 0.084 af, Depth> 3.21"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 Year Rainfall=3.60"

	Area (ac)	CN	Description
*	0.190	98	Parking
*	0.021	98	Sidewalk
*	0.082	98	Roof
*	0.020	70	Landscape
	0.313	96	Weighted Average
	0.020	70	Pervious Area
	0.293	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Proposed TDA 2



Summary for Subcatchment 3S: Existing TDA 2

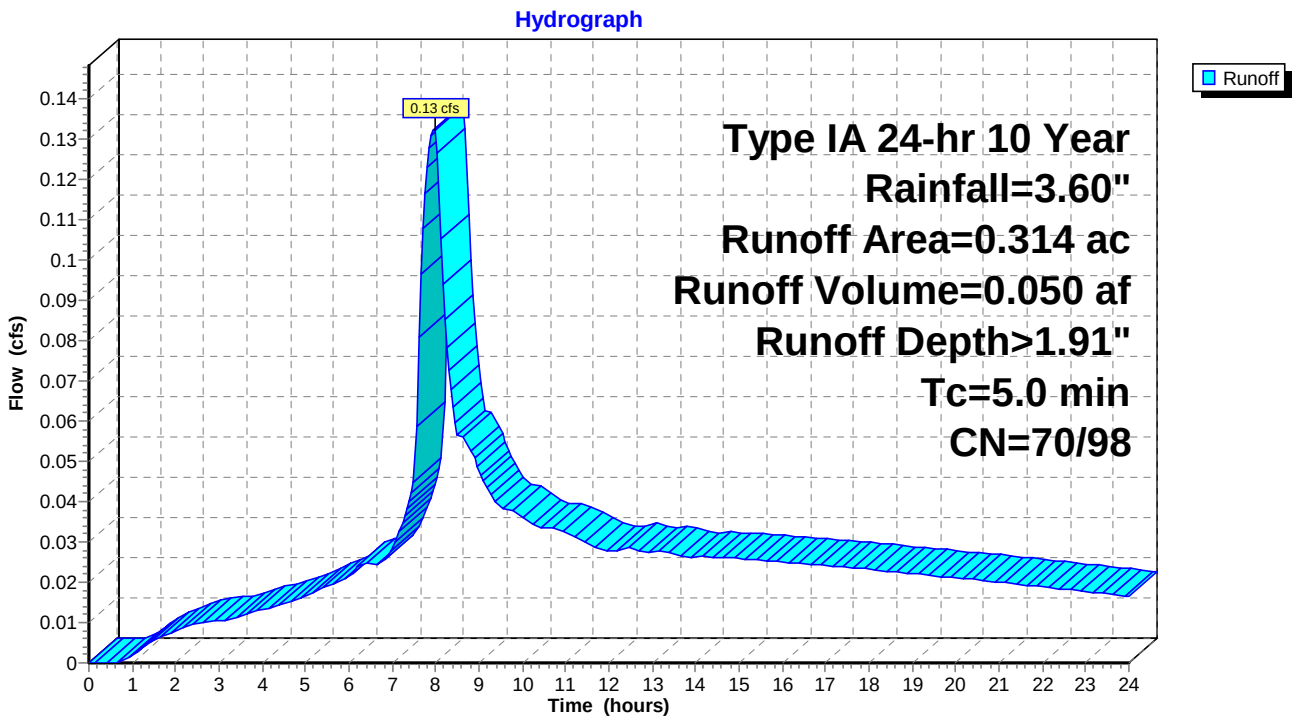
Runoff = 0.13 cfs @ 7.96 hrs, Volume= 0.050 af, Depth> 1.91"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 Year Rainfall=3.60"

	Area (ac)	CN	Description
*	0.047	98	Parking
*	0.018	98	Sidewalk
*	0.050	98	Roof
*	0.199	70	Landscaping
	0.314	80	Weighted Average
	0.199	70	Pervious Area
	0.115	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Existing TDA 2



Summary for Pond 2P: Underground Detention

Inflow Area = 0.313 ac, 93.61% Impervious, Inflow Depth > 3.21" for 10 Year event
Inflow = 0.25 cfs @ 7.90 hrs, Volume= 0.084 af
Outflow = 0.12 cfs @ 8.34 hrs, Volume= 0.067 af, Atten= 52%, Lag= 26.1 min
Primary = 0.12 cfs @ 8.34 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.29' @ 8.34 hrs Surf.Area= 0.027 ac Storage= 0.027 af

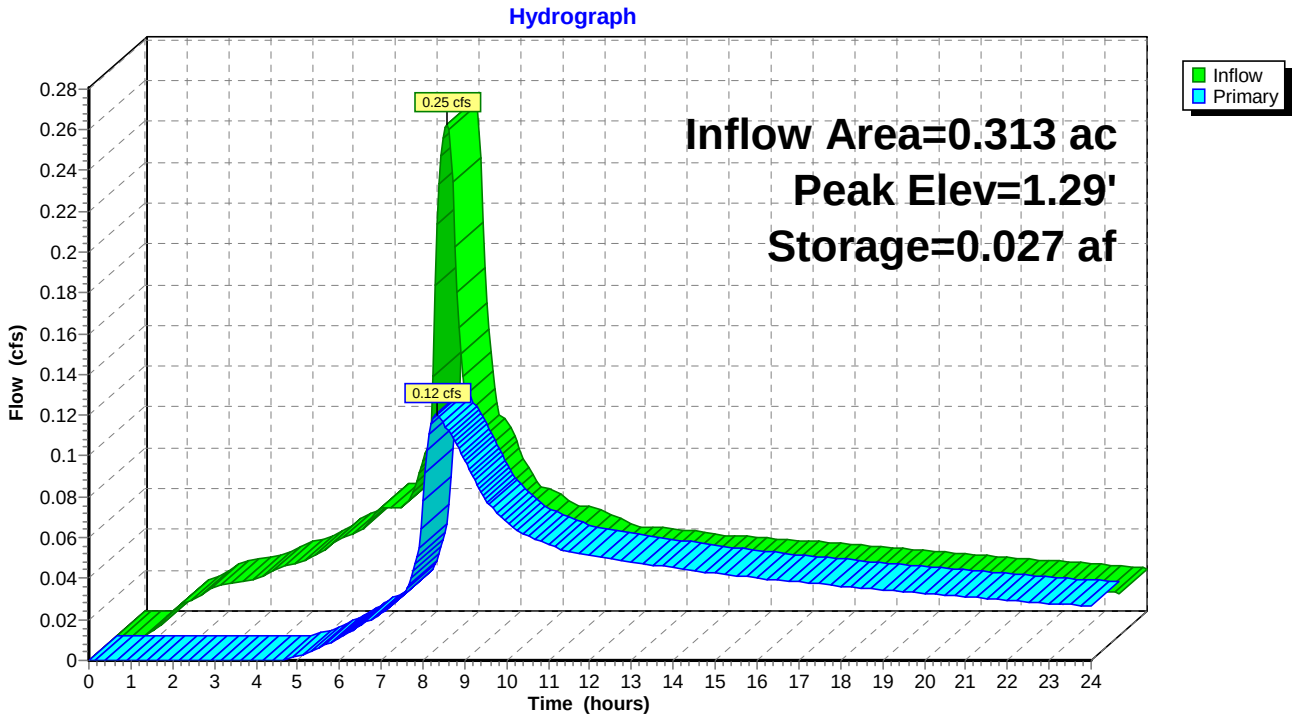
Plug-Flow detention time= 289.3 min calculated for 0.067 af (80% of inflow)
Center-of-Mass det. time= 156.4 min (822.9 - 666.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.065 af	**36.0"D x 400.00'L Horizontal Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	**Custom Weir/Orifice, C= 2.62** Elev. (feet) 0.50 1.17 1.17 1.50 Width (feet) 0.03 0.03 0.40 0.40
#2	Primary	1.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.12 cfs @ 8.34 hrs HW=1.29' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.12 cfs @ 1.75 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed TDA 2 Runoff Area=0.313 ac 93.61% Impervious Runoff Depth>3.60"
Tc=5.0 min CN=70/98 Runoff=0.28 cfs 0.094 af

Subcatchment 3S: Existing TDA 2 Runoff Area=0.314 ac 36.62% Impervious Runoff Depth>2.22"
Tc=5.0 min CN=70/98 Runoff=0.16 cfs 0.058 af

Pond 2P: Underground Detention Peak Elev=1.34' Storage=0.028 af Inflow=0.28 cfs 0.094 af
Outflow=0.16 cfs 0.077 af

Total Runoff Area = 0.627 ac Runoff Volume = 0.152 af Average Runoff Depth = 2.91"
34.93% Pervious = 0.219 ac 65.07% Impervious = 0.408 ac

Summary for Subcatchment 1S: Proposed TDA 2

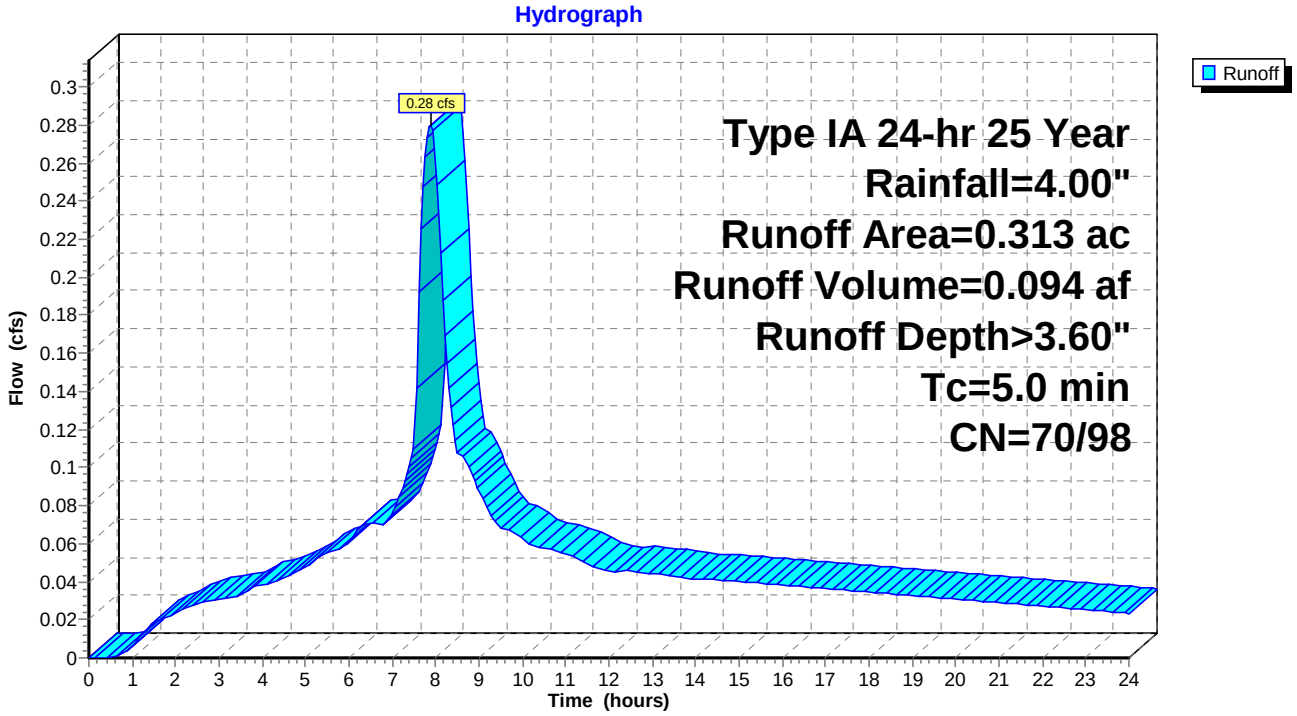
Runoff = 0.28 cfs @ 7.90 hrs, Volume= 0.094 af, Depth> 3.60"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 Year Rainfall=4.00"

	Area (ac)	CN	Description
*	0.190	98	Parking
*	0.021	98	Sidewalk
*	0.082	98	Roof
*	0.020	70	Landscape
	0.313	96	Weighted Average
	0.020	70	Pervious Area
	0.293	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Proposed TDA 2



Summary for Subcatchment 3S: Existing TDA 2

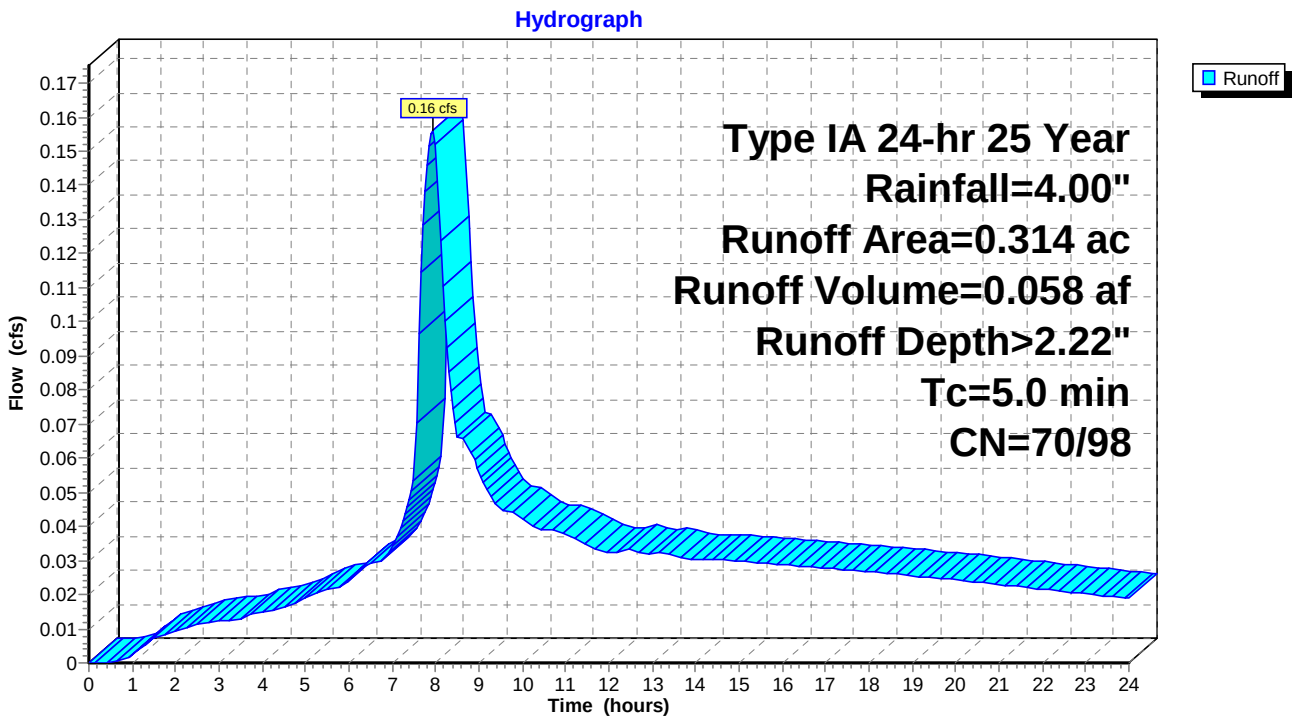
Runoff = 0.16 cfs @ 7.96 hrs, Volume= 0.058 af, Depth> 2.22"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 Year Rainfall=4.00"

	Area (ac)	CN	Description
*	0.047	98	Parking
*	0.018	98	Sidewalk
*	0.050	98	Roof
*	0.199	70	Landscaping
	0.314	80	Weighted Average
	0.199	70	Pervious Area
	0.115	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Existing TDA 2



Summary for Pond 2P: Underground Detention

Inflow Area = 0.313 ac, 93.61% Impervious, Inflow Depth > 3.60" for 25 Year event
Inflow = 0.28 cfs @ 7.90 hrs, Volume= 0.094 af
Outflow = 0.16 cfs @ 8.22 hrs, Volume= 0.077 af, Atten= 42%, Lag= 19.4 min
Primary = 0.16 cfs @ 8.22 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.34' @ 8.22 hrs Surf.Area= 0.027 ac Storage= 0.028 af

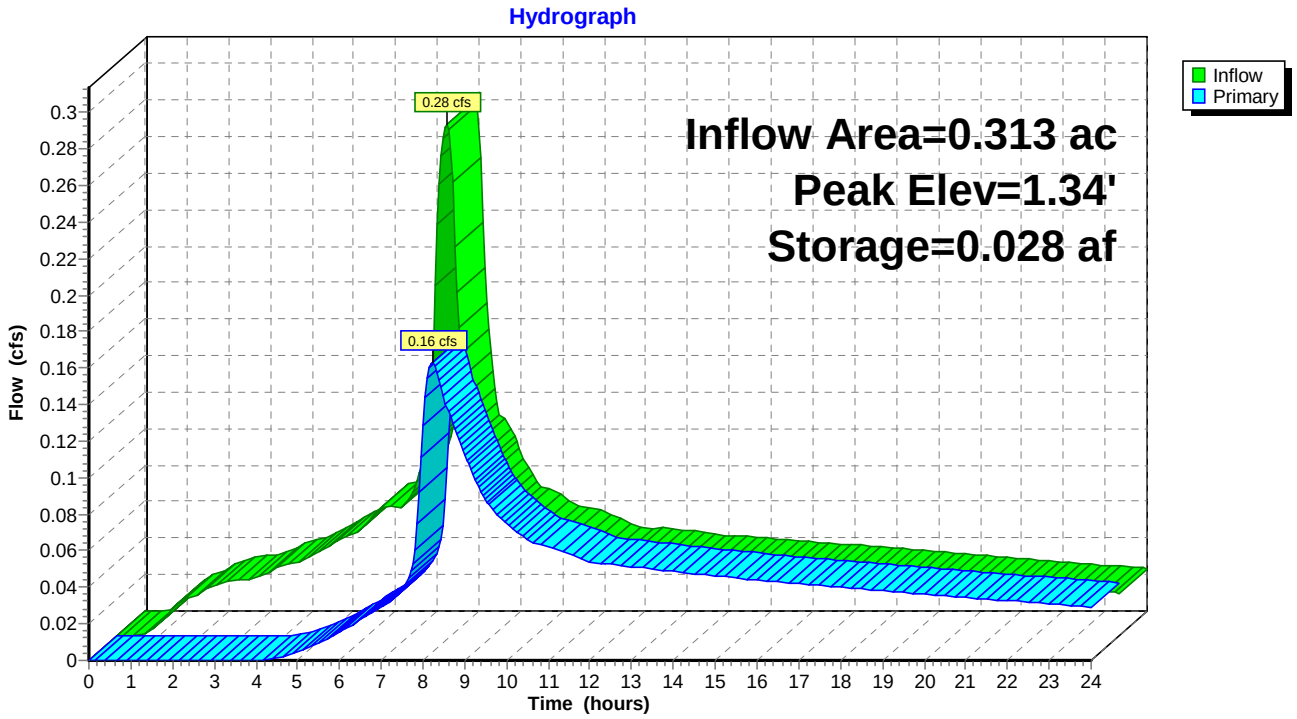
Plug-Flow detention time= 269.2 min calculated for 0.076 af (81% of inflow)
Center-of-Mass det. time= 144.2 min (808.4 - 664.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.065 af	**36.0"D x 400.00'L Horizontal Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	**Custom Weir/Orifice, C= 2.62** Elev. (feet) 0.50 1.17 1.17 1.50 Width (feet) 0.03 0.03 0.40 0.40
#2	Primary	1.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.16 cfs @ 8.22 hrs HW=1.34' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.16 cfs @ 1.83 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Proposed TDA 2 Runoff Area=0.313 ac 93.61% Impervious Runoff Depth>4.48"
Tc=5.0 min CN=70/98 Runoff=0.35 cfs 0.117 af

Subcatchment 3S: Existing TDA 2 Runoff Area=0.314 ac 36.62% Impervious Runoff Depth>2.95"
Tc=5.0 min CN=70/98 Runoff=0.21 cfs 0.077 af

Pond 2P: Underground Detention Peak Elev=1.44' Storage=0.031 af Inflow=0.35 cfs 0.117 af
Outflow=0.26 cfs 0.098 af

Total Runoff Area = 0.627 ac Runoff Volume = 0.194 af Average Runoff Depth = 3.71"
34.93% Pervious = 0.219 ac 65.07% Impervious = 0.408 ac

Summary for Subcatchment 1S: Proposed TDA 2

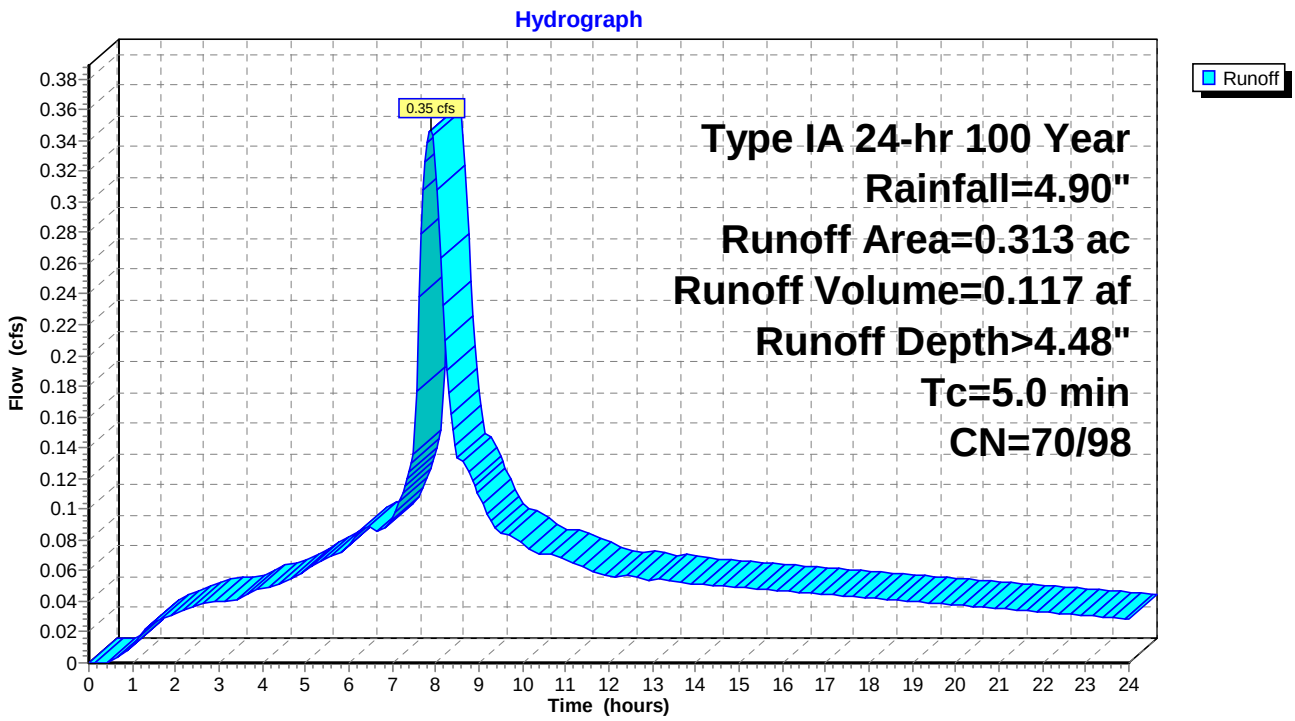
Runoff = 0.35 cfs @ 7.90 hrs, Volume= 0.117 af, Depth> 4.48"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 Year Rainfall=4.90"

	Area (ac)	CN	Description
*	0.190	98	Parking
*	0.021	98	Sidewalk
*	0.082	98	Roof
*	0.020	70	Landscape
	0.313	96	Weighted Average
	0.020	70	Pervious Area
	0.293	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Proposed TDA 2



Summary for Subcatchment 3S: Existing TDA 2

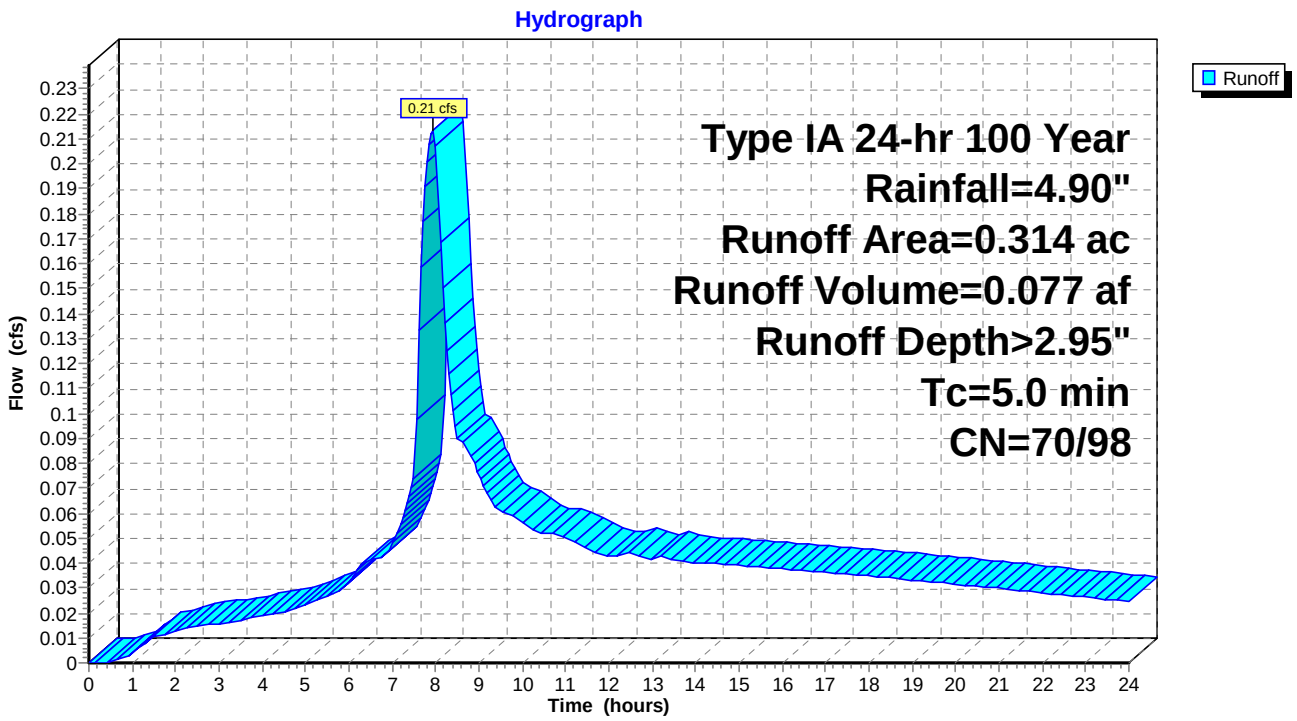
Runoff = 0.21 cfs @ 7.95 hrs, Volume= 0.077 af, Depth> 2.95"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 Year Rainfall=4.90"

	Area (ac)	CN	Description
*	0.047	98	Parking
*	0.018	98	Sidewalk
*	0.050	98	Roof
*	0.199	70	Landscaping
	0.314	80	Weighted Average
	0.199	70	Pervious Area
	0.115	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Existing TDA 2



Summary for Pond 2P: Underground Detention

Inflow Area = 0.313 ac, 93.61% Impervious, Inflow Depth > 4.48" for 100 Year event
Inflow = 0.35 cfs @ 7.90 hrs, Volume= 0.117 af
Outflow = 0.26 cfs @ 8.12 hrs, Volume= 0.098 af, Atten= 27%, Lag= 13.1 min
Primary = 0.26 cfs @ 8.12 hrs, Volume= 0.098 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.44' @ 8.12 hrs Surf.Area= 0.028 ac Storage= 0.031 af

Plug-Flow detention time= 235.1 min calculated for 0.098 af (84% of inflow)
Center-of-Mass det. time= 123.0 min (783.0 - 660.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.065 af	**36.0"D x 400.00'L Horizontal Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.50'	**Custom Weir/Orifice, C= 2.62** Elev. (feet) 0.50 1.17 1.17 1.50 Width (feet) 0.03 0.03 0.40 0.40
#2	Primary	1.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.25 cfs @ 8.12 hrs HW=1.44' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.25 cfs @ 2.02 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention

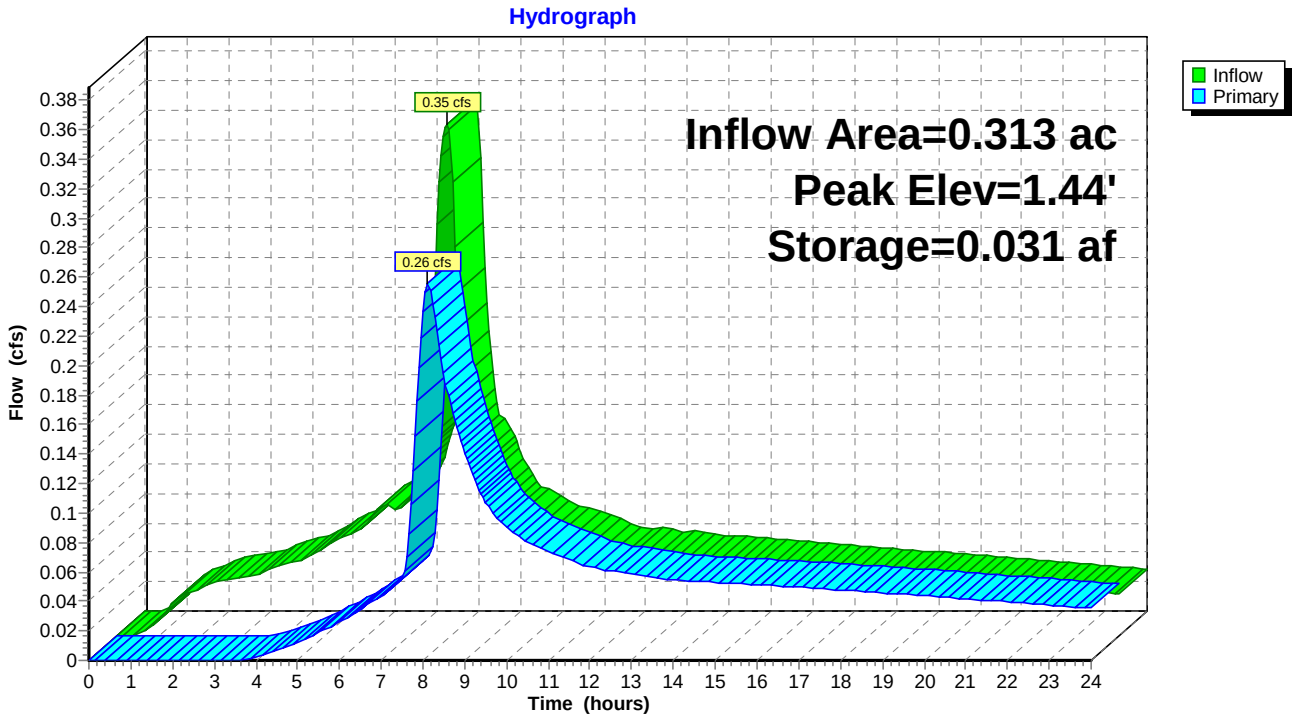


Table A-2. Curve Numbers for Urban Areas

Cover type and hydrological condition	Average percent impervious area	Curve Numbers by Hydrologic Soil Group			
		A	B	C	D
Open Space (lawns, parks, golf courses, cemeteries, etc.):					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50-75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious Area:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	93
Urban Districts:					
Commercial and business	85	85	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	82
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82

Soil Conservation Service, Urban Hydrology for Small Watersheds, Technical Release 55, pp. 2.5-2.8, June 1986.

Table A-3. Runoff Curve Numbers for Other Agricultural Lands

Cover type and hydrological condition	Hydrologic Condition	Curve Numbers by Hydrologic Soil Group			
		A	B	C	D
Pasture, grassland, or range-continuous forage for grazing:					
<50% ground cover or heavily grazed with no mulch	Poor	68	79	86	89
50 to 75% ground cover and not heavily grazed	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed	Good	39	61	74	80
Meadow-continuous grass, protected from grazing and generally mowed for hay		30	58	71	78
Brush-weed-grass mixture with brush as the major element:					
<50% ground cover	Poor	48	67	77	83
50-75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30	48	65	73
Woods-grass combination (orchard or tree farm)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning	Poor	45	66	77	83
Woods are grazed by not burned, and some forest litter covers the soil	Fair	36	60	73	79
Woods are protected from grazing and litter and brush adequately cover the soil	Good	30	55	70	77

Soil Conservation Service, Urban Hydrology for Small Watersheds, Technical Release 55, pp. 2.5-2.8, June 1986.

APPENDIX D

STORMWATER TREATMENT ANALYSIS

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ▪ Nick Fish, Commissioner ▪ Michael Jordan, Director

November 28, 2016

Stormwater Management Manual Approved
Manufactured Stormwater Treatment Technology

Oldcastle PerkFilter™ Media Filtration Device (using ZPC Filter Media)

Approval: November 28, 2016 through November 28, 2019

City of Portland Decision:
The **Oldcastle PerkFilter™ Media Filtration Device (using ZPC Filter Media)** meets the City of Portland pollution reduction requirements as per the 2014 Stormwater Management Manual (SWMM) under the criteria laid out in Appendix B: Submission Guidelines for Manufactured Stormwater Treatment Technologies.

Background:
As part of the application process, Oldcastle Stormwater Solutions (Oldcastle) submitted the Washington State Department of Ecology (DOE) Technology Assessment Protocol (TAPE) Technology Evaluation Report, including all appendices and performance monitoring data, to demonstrate that the PerkFilter Media Filtration Device (using ZPC Filter Media) meets the City of Portland's pollution reduction requirements.

Oldcastle gave a technical presentation to City staff, Portland State University students and faculty, and the public on July 20, 2016. The presentation was followed by a technical interview with the City of Portland review committee to discuss water quality performance, maintenance and overall use in the public right-of-way.

The City of Portland contracted with Portland State University's Department of Civil and Environmental Engineering (PSU) to provide third-party review of the submitted water quality performance data. PSU analyzed the provided data and found that the PerkFilter Media Filtration Device (using ZPC Filter Media) meets the pollution reduction requirements of the 2014 SWMM.

Additional information is available online for this system, including:

- Oldcastle PerkFilter product website
- DOE General Use Level Designation (GULD) for Basic (TSS) and Phosphorous Treatment for the PerkFilter Media Filtration Device (using ZPC Filter Media).

The City of Portland complies with all non-discrimination laws including Title VI (Civil Rights) and Title II (ADA).
To request a translation, accommodation or additional information, please call 503-823-7740, or use City TTY 503-823-6868, or Oregon Relay Service: 711.

Conditions of Use:

1. All configuration options for the PerkFilter Media Filtration Device (using ZPC Filter Media) are approved for pollution reduction. Selection of a specific configuration is the responsibility of the project designer.

2. Use of a PerkFilter Media Filtration Device (using ZPC Filter Media) does not exempt a project or site from required flow control requirements, operations and maintenance requirements, or other applicable requirements of the SWMM.

3. For use in the public right-of-way, the following conditions must be met:
   - Units must meet City of Portland street design requirements, including but not limited to H-20 vehicle load rating, non-slip surface, and American with Disabilities Act tolerances specific to surface grates or vault lids.

   - The Operations and Maintenance Plan for the two-year warranty period must address inspection frequencies.

4. Oldcastle-certified providers should be utilized for activation, inspection and maintenance of the system, unless otherwise trained and certified by the manufacturer.

Project Designer Responsibilities:

1. Ensuring that the conditions of use are met.

2. Ensuring that the project meets all applicable requirements of the Stormwater Management Manual, such as the Stormwater Infiltration and Discharge Hierarchy, in order to use PerkFilter Media Filtration Device (using ZPC Filter Media).

3. Ensuring that the design and installation of the units are appropriate for the project goals, site conditions, long-term maintenance requirements, and any other site-specific design requirements on private property or for use in the public right-of-way.

4. Sizing units to meet the current Stormwater Management Manual presumptive design approach and pollution reduction requirements. The pollution reduction capacity is flow-based and assumes a treatment flow intensity of 0.19 inches per hour, 5 minute time of concentration, and a 0.90 runoff coefficient using the Rational Method with treatment rates <u>based upon WA GULD approved flow rates</u>, in lieu of the manufacturer's standard flow rate. The treatment capacities for PerkFilter Media Filtration Device (using ZPC Filter Media) units, based on those assumptions, are provided in Table 1. For sites with different times of concentration, different rainfall intensities may be appropriate. See SWMM Chapter 1.3.4, page 1-40 for additional information.

Table 1. PerkFilter (using ZPC Filter Media) Sizing to Meet City of Portland Pollution Reduction Requirements

Cartridge Size/Stack Configuration	Cartridge Design Flow Rate (gpm/cartridge stack)	Maximum Drainage Area (acres/cartridge stack)	Cartridge Stacks Per Impervious Acre
12"	6.8	0.089	11.2
18"	10.2	0.133	7.5
12" + 12"	13.6	0.177	5.6
12" + 18"	17	0.221	4.5

5. Each site plan must undergo Oldcastle review before the City of Portland can approve the unit(s) for site installation. A letter that certifies that the project has been designed to manufacturer's specification must be submitted to BES prior to the appropriate design milestone. For public improvements, including public works permits, the letter must be submitted to BES prior to 60% plan review. For installation on private property, the letter must be submitted prior to building permit plan approval. The project designer is highly encouraged to work with Oldcastle prior to the appropriate review milestone in order to maximize placement and performance of the unit(s).

6. If the project designer wishes to vary from these conditions of approval, the project designer must use the Performance Design Approach.

Approval Conditions:

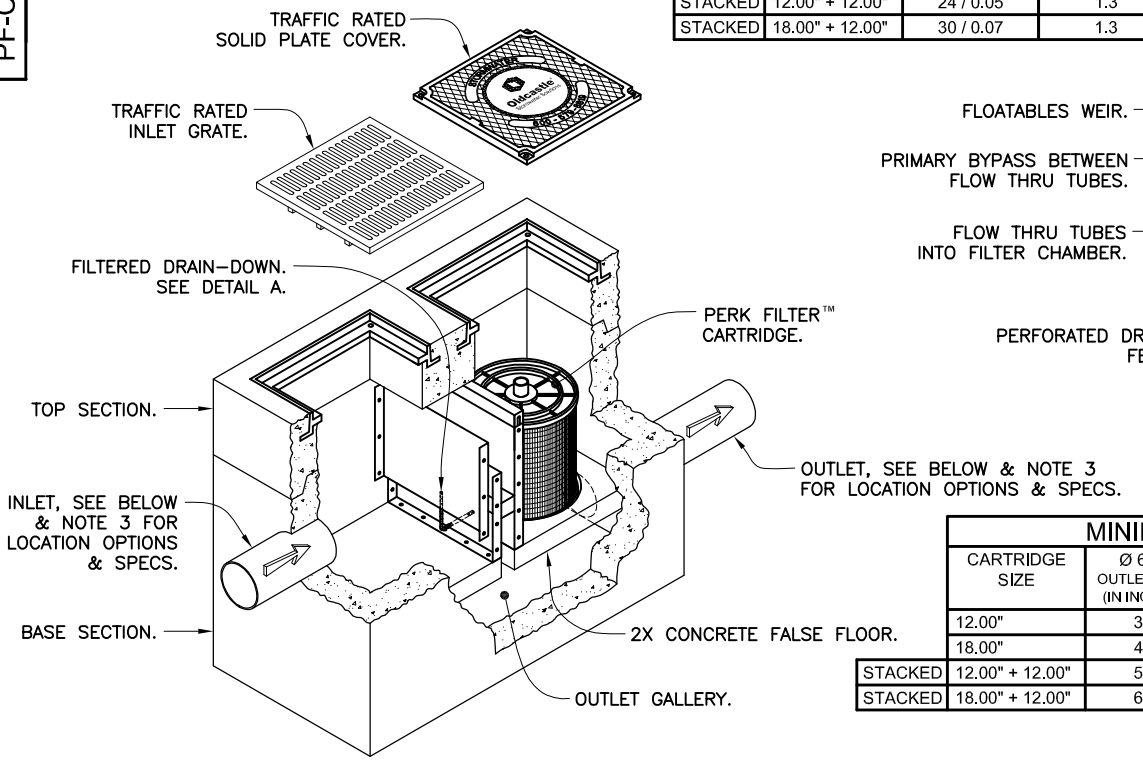
1. BES may at any time suspend or revoke approval if the performance of the technology does not meet performance criteria, or if the performance criteria change due to the local, state, or federal pollution reduction standards.

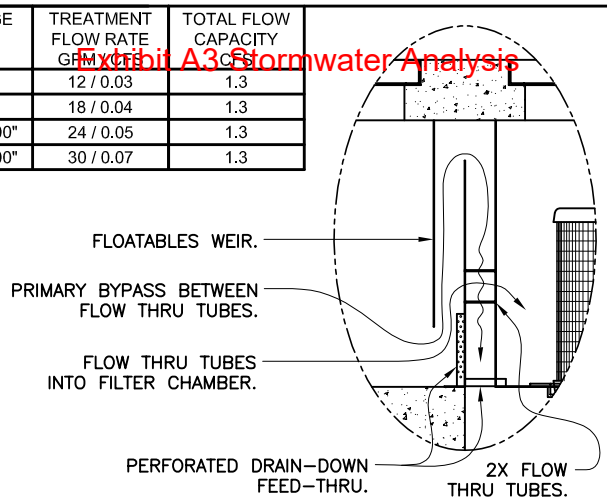
2. This approval expires on November 28, 2019, three years from the approval date. If no changes to the PerkFilter (using ZPC Filter Media) have occurred (such as, but not limited to, dimensional changes to the physical device, changes to the filtration media, changes to maintenance requirements, or changes in expected performance or device design criteria), the approval can be renewed as per the guidelines in effect at the time of renewal. If any changes, updates, or revisions have occurred to the PerkFilter (using ZPC Filter Media), the applicant must obtain DOE TAPE GULD certification and re-apply following submission guidelines in effect at the time of application.

PF-CCB-0001

Exhibit A3 Stormwater Analysis

	CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
	12.00"	12 / 0.03	1.3
	18.00"	18 / 0.04	1.3
STACKED	12.00" + 12.00"	24 / 0.05	1.3
STACKED	18.00" + 12.00"	30 / 0.07	1.3



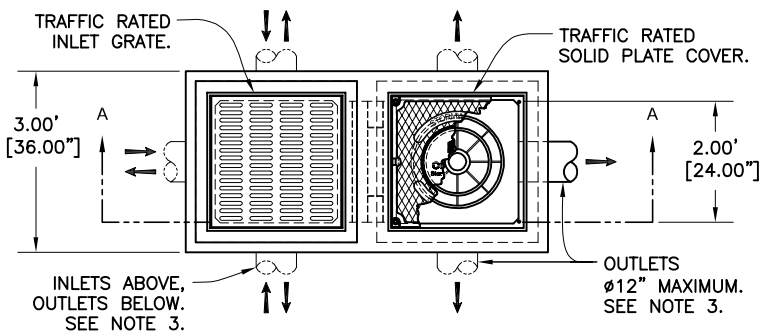


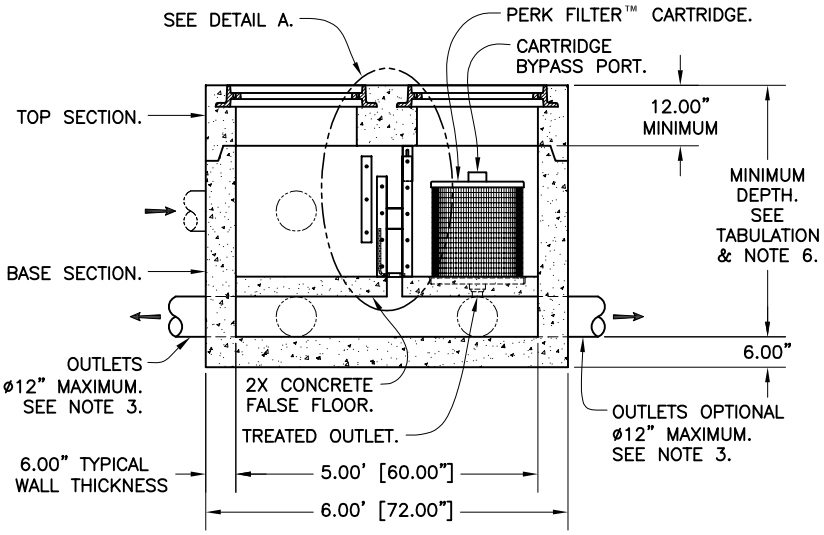
DETAIL A
INLET / BYPASS ASSEMBLY & DRAIN–DOWN SCALE: 2X

MINIMUM DEPTHS (SEE NOTE 6)					
	CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
	12.00"	39	41	43	45
	18.00"	46	48	50	52
STACKED	12.00" + 12.00"	56	58	60	62
STACKED	18.00" + 12.00"	63	65	67	69

Notes:

1. Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
2. Perk Filter™ Catch basin shall be supplied with traffic rated (H20) bicycle-proof grates and solid plate cover.
3. Inlet pipe(s) may enter device on three sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum.
4. Inlet chamber shall be supplied with a drain-down device designed to remove standing water between storm events.
5. Perk Filter™ cartridge shall be maintained in accordance with manufacturer recommendations.
6. For depths less than the specified minimum contact Oldcastle® Stormwater Solutions for engineering assistance.





SECTION A-A
SINGLE CARTRIDGE CONCRETE CATCH BASIN

Media Filtration

Perk Filter™

Concrete Catch Basin

Single Cartridge

Oldcastle® Stormwater Solutions

7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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DRAWING NO.	REV	ECO	DATE	
PF-CCB-0001	J	ECO–0144 ZHD 8/26/16	JPR 6/4/08	SHEET 1 OF 1

APPENDIX E

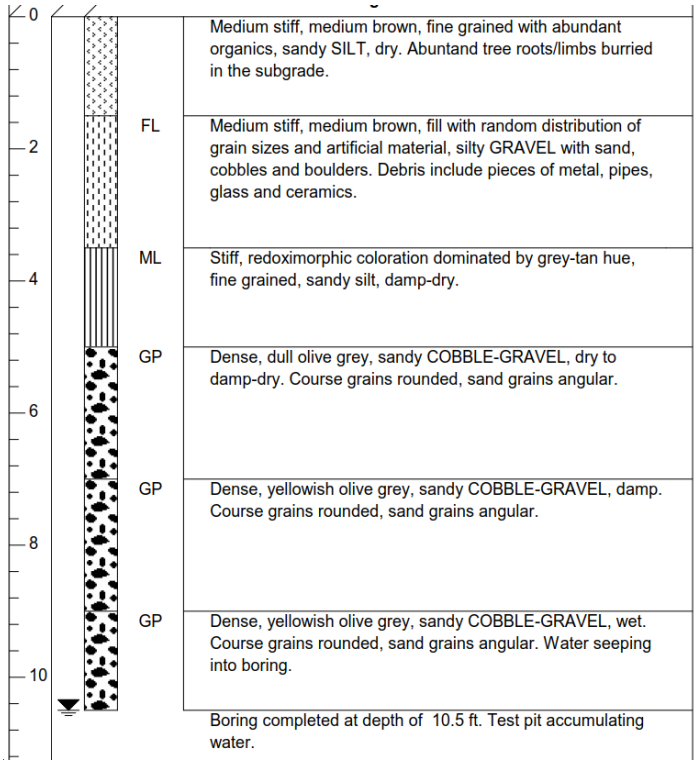
GEOTECHNICAL REPORT

Infiltration Test Results

Project:	21929 NE Halsey Street	Date:	02 July 2018
Location:	Fairview, Oregon 97024		
	Multnomah County Tax Lot Number 1N3E28DD -08500		
By:	Rachel Gipe, G.I.T. as supervised by Mia Mahedy-Sexton, PE, GE		

Rapid Soil Solutions (RSS) has prepared this letter, as requested, to present the findings of the test pit investigation conducted on July 2nd, 2018 at the above listed location.

RSS observed the placement of a single text pit on the subject property to a final depth of 10.5 feet below ground surface. RSS encountered ground water at 9 feet below the ground surface.



REGISTERED PROFESSIONAL ENGINEER
19244PE
OREGON
MIA C MAHEDY-SEXTON
EXPIRES: 12-31-2018

If you have any questions with this field report please contact me at the below numbers.

mia@rapidsoilsolutions.com 503-816-3689

Rapid Soil Solutions LLC

Exhibit B

HALSEY COMMONS

PRELIMINARY SITE PLANS

FAIRVIEW, OREGON 97024

CIVIL LEGEND

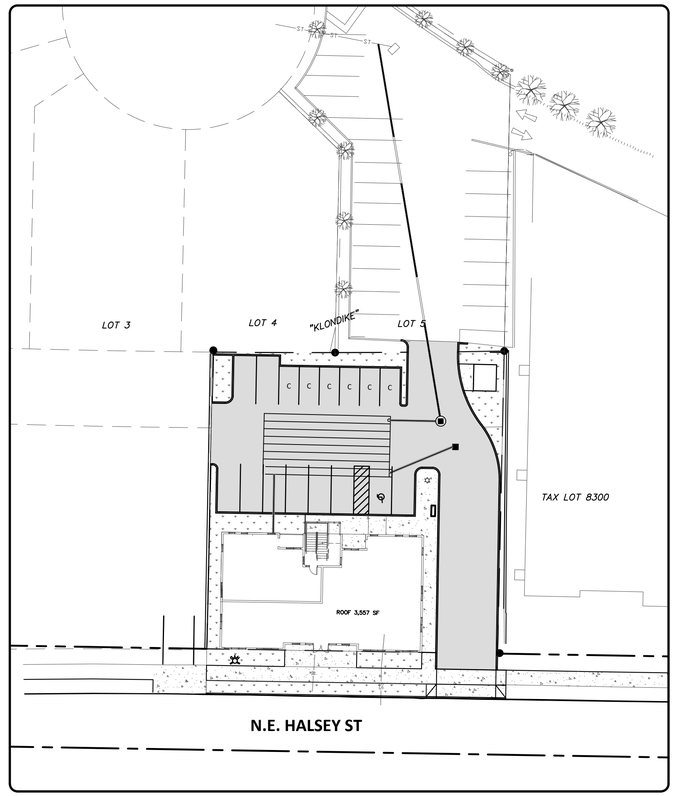
	EXISTING	PROPOSED		EXISTING	PROPOSED
DECIDUOUS TREE	12"MAPLE		STORM SEWER CLEAN OUT		
CONIFEROUS TREE	12"FIR		STORM SEWER CATCH BASIN		
FIRE HYDRANT			STORM SEWER MANHOLE		
WATER BLOWOFF			GAS METER		
WATER METER	WM		GAS VALVE	GV	
WATER VALVE	WV		GUY WIRE ANCHOR		
DOUBLE CHECK VALVE			POWER POLE		
AIR RELEASE VALVE			POWER VAULT	P	P
SANITARY SEWER CLEAN OUT			POWER JUNCTION BOX		
SANITARY SEWER MANHOLE			POWER PEDESTAL		
SIGN			COMMUNICATIONS VAULT	C	C
LIGHT POLE			TELEPHONE PEDESTAL	TP	
MAILBOX	MB		TELEVISION PEDESTAL	eTVP	

ABBREVIATIONS

TC	TOP OF CURB
BC	BOTTOM OF CURB
TP	TOP OF PAVEMENT
PC	POINT OF CURVATURE
PT	POINT OF TANGENT

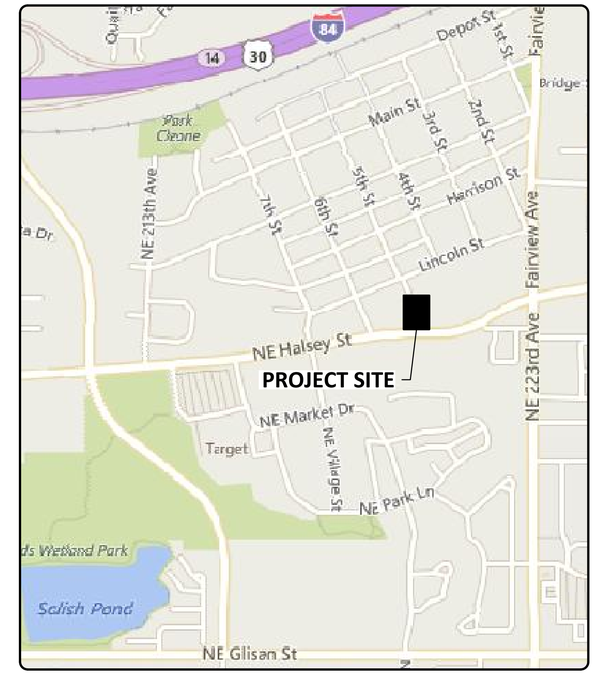
	EXISTING	PROPOSED
GRAVEL PAVEMENT		
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE		
BOUNDARY LINE		
PROPERTY LINE		
CENTERLINE		
DITCH		
SIDEWALK		
CURB		
EDGE OF PAVEMENT		
EASEMENT		
FENCE LINE	X	X
SILT FENCE		
GRAVEL EDGE		
POWER LINE	E	PWR
OVERHEAD WIRE	OHW	OHW
COMMUNICATIONS LINE	T	COM
GAS LINE	G	GAS
STORM SEWER LINE	ST	
SANITARY SEWER LINE	SS	SAN
WATER LINE	W	WAT



SITE MAP
1" = 30'

N



VICINITY MAP
NTS

OWNER/APPLICANT

DEAN & MARSHA HURFORD
CONTACT: DEAN HURFORD
22001 NE HALSEY
FAIRVIEW, OR 97024
(503) 730-7339
DEANHURF@YAHOO.COM

PROJECT ENGINEER

JACKSON CIVIL ENGINEERING, LLC
CONTACT: DEVIN JACKSON, P.E.
PO BOX 1746
BATTLE GROUND, WA 98604
(360) 901-6031
DEVIN@JACKSONCIVIL.COM

PROJECT ARCHITECT

AXIS DESIGN GROUP
CONTACT: TIM BRUNNER
52 NW 2ND STREET
GRESHAM, OR 97030
503-667-4252
TIMB@AXISDESIGNGROUP.COM

GEOTECHNICAL ENGINEER

RAPID SOIL SOLUTIONS
CONTACT: MIA MAHEDY-SEXTON
3915 SW PLUM
PORTLAND, OR 97219
503-816-3689
MIA@RAPIDSOILSOLUTIONS.COM

HORIZONTAL DATUM

NAD 83 (2011)
OREGON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, INTERNATIONAL FEET. BASED ON REAL TIME KINEMATIC CORRECTIONS FROM THE WASHINGTON STATE REFERENCE NETWORK.

VERTICAL DATUM

NAVD 88 (GEOID 2012B) BASED ON REAL TIME KINEMATIC CORRECTIONS FROM THE WASHINGTON STATE REFERENCE NETWORK.

SITE INFORMATION

TAX MAP	1N3E28DD-08500
TAX LOT #s:	R321104 & R321212
ADDRESS:	21929 NE HALSEY STREET FAIRVIEW, OR 97024
S/T/R:	SE 1/4, SE 1/4, S28, T1N, R3E, W.M.
SITE AREA:	0.37 ACRES (16,120 SF)
DISTURBED AREA:	0.37 ACRES (16,120 SF)

SHEET INDEX

SHEET #	SHEET TITLE
P1.0	PLANNING COVER SHEET
P2.0	EXISTING CONDITIONS (BY OTHERS)
P3.0	SITE PLAN
P4.0	EROSION CONTROL PLAN
P5.0	EROSION CONTROL DETAILS
P6.0	STREET FRONTAGE IMPROVEMENT PLAN
P7.0	TRANSPORTATION DETAILS
P8.0	STORMWATER PLAN
P9.0	STORMWATER DETAILS
P10.0	SANITARY SEWER AND WATER PLAN

Know what's **below.**
811 before you dig.

NOT FOR CONSTRUCTION

PLANNING COVER SHEET

HALSEY COMMONS
PRELIMINARY SITE PLANS
FAIRVIEW
TAX LOT: R-321104 & R-321212
OREGON
SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

DATE: October 18, 2018

REGISTERED PROFESSIONAL ENGINEER
90913PE
OREGON
JANUARY 12, 2018
DEVIN EARL JACKSON

EXPIRES: 06/30/19

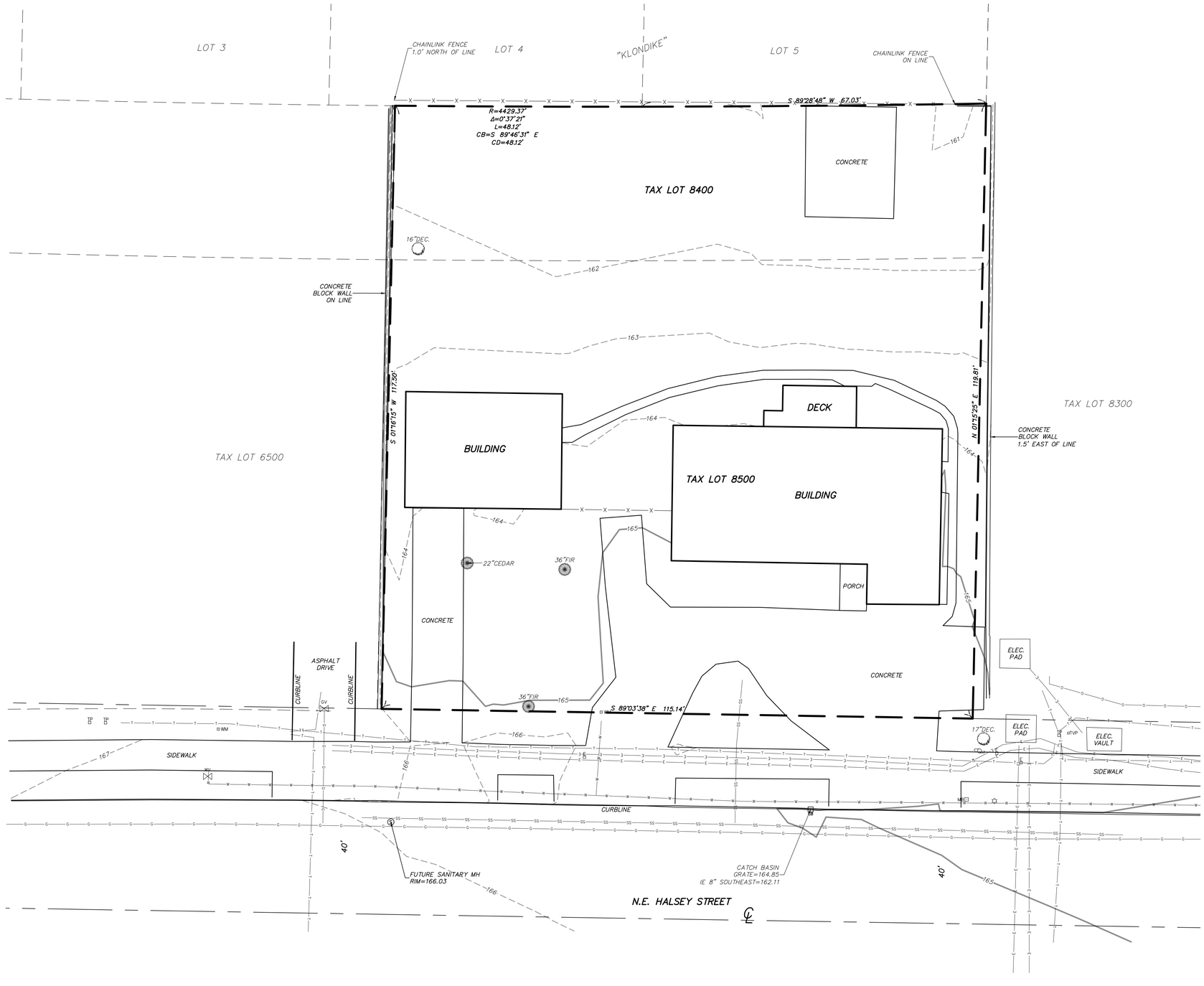
JOB NUMBER
0018

SHEET
P1.0

EXISTING CONDITIONS SURVEY

OF
TAX LOTS 8400 AND 8500
LOCATED IN THE SE 1/4 OF THE
SE 1/4 OF SECTION 28
T. 1 N., R. 3 E., W.M.
MULTNOMAH COUNTY, OREGON

JOB NO.: 2814
DATA COLLECT: MAY 2018
DRAWING DATE: 05-02-18
SHEET 1 OF 1



LEGEND:

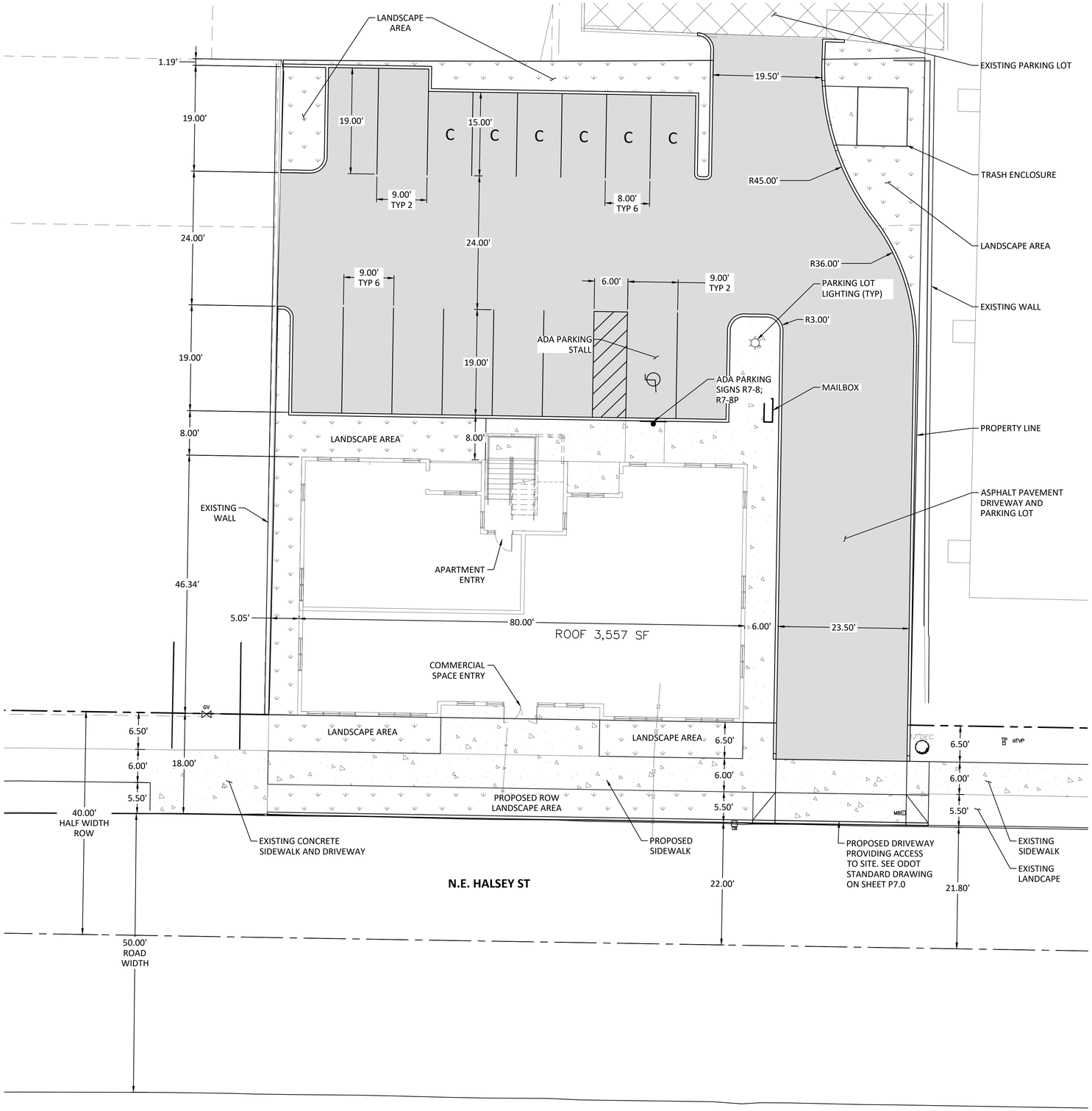
- WV — INDICATES WATER VALVE
- WM — INDICATES WATER METER
- GV — INDICATES GAS VALVE
- INDICATES TELEPHONE PEDESTAL
- BTVP — INDICATES TELEVISION PEDESTAL
- INDICATES ELECTRIC SERVICE BOX
- INDICATES POWER POLE
- INDICATES LIGHT POLE
- MB — INDICATES MAIL BOX
- INDICATES CATCH BASIN
- 12"FIR — INDICATES EVERGREEN TREE WITH TRUNK DIAMETER AND TYPE
- 12"MAPLE — INDICATES DECIDUOUS TREE WITH TRUNK DIAMETER AND TYPE
- INDICATES BOUNDARY
- INDICATES EDGE OF CONCRETE
- INDICATES 5 FOOT INTERVAL CONTOUR
- INDICATES 1 FOOT INTERVAL CONTOUR
- X — INDICATES FENCE LINE
- E — INDICATES ELECTRIC LOCATE
- G — INDICATES GAS LOCATE
- SS — INDICATES SANITARY LOCATE
- T — INDICATES TELEPHONE LOCATE
- W — INDICATES WATER LOCATE

10 5 0 10 15 20
SCALE 1 INCH = 10 FEET

HORIZONTAL DATUM:
NAD 83 (2011)
OREGON STATE PLANE COORDINATE SYSTEM,
NORTH ZONE, INTERNATIONAL FEET. BASED ON REAL TIME KINEMATIC CORRECTIONS FROM THE WASHINGTON STATE REFERENCE NETWORK.

VERTICAL DATUM:
NAVD 88 (GEOID 2012B) BASED ON REAL TIME KINEMATIC CORRECTIONS FROM THE WASHINGTON STATE REFERENCE NETWORK.

2008 C Street, Vancouver, WA 98663 | PH (360) 944-6519
PLS ENGINEERING



SITE PLAN

BUILDING INFORMATION		
BUILDING TYPE	# OF UNITS	TOTAL AREA
ADA APARTMENTS	1	925 SF
COMMERCIAL	-	2,390 SF
NON-ADA APARTMENTS	8	3,242 SF

PARKING TABLE		
DESCRIPTION	REQUIRED	PROVIDED
STANDARD STALLS	-	9
COMPACT STALLS	-	6
ADA STALLS	-	1

AREA TABLE		
GROSS AREA	0.37 ACRES (16,120 SF)	
DISTURBED AREA	0.37 ACRES (16,120 SF)	
PRIVATE PARKING AREA	7,583 SF	
PARKING LANDSCAPE	1,188 SF	15.67% OF PARKING AREA
PRIVATE LANDSCAPE AREA	1,375 SF	
ROW LANDSCAPE AREA	804 SF	
TOTAL LANDSCAPE AREA	2,179 SF	

GENERAL SITE NOTES

1. SITE ACCESS SHALL BE FROM NE HALSEY STREET. ONE ACCESS IS PROPOSED WITH THIS PROJECT.
2. THE BUILDING SHALL HAVE A 0' LOT LINE SETBACK.
3. PARKING AND DRIVE AISLES SHALL BE PAVED.
4. A COMPLETE SITE LIGHTING PLAN IS TO BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL. SITE LIGHTING SHALL MEET ALL CODE REQUIREMENTS OF THE MID-COUNTY LIGHTING DISTRICT AND THE CITY OF FAIRVIEW.
5. STREET LIGHT LUMINAIRE MOUNTING HEIGHTS TO BE 16-FT. STREET LIGHTS TO BE LOCATED APPROXIMATELY 18" BEHIND THE STREET CURB WITH AN APPROXIMATE 80-90-FT. POLE SPACING.
6. STREET LIGHT FIXTURE SHALL BE HOLOPHANE WASHINGTON POST-TOP FULL CUTOFF LED SERIES: WFCL2-P50-30K-AS-BK-L3-S-P7-A0. DETAIL PROVIDED ON SHEET P4.0.
7. THERE ARE NO KNOWN WETLANDS, FLOOD PLAINS, SHORELINE AREAS, WATERBODIES, SIGNIFICANT HABITAT, OR SIGNIFICANT HISTORIC SITES KNOWN ON SITE.

N

0 10 20 Feet

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

SITE PLAN

HALSEY COMMONS
PRELIMINARY SITE PLANS
FAIRVIEW, OREGON
TAX LOT: R-321104 & R-321212
SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

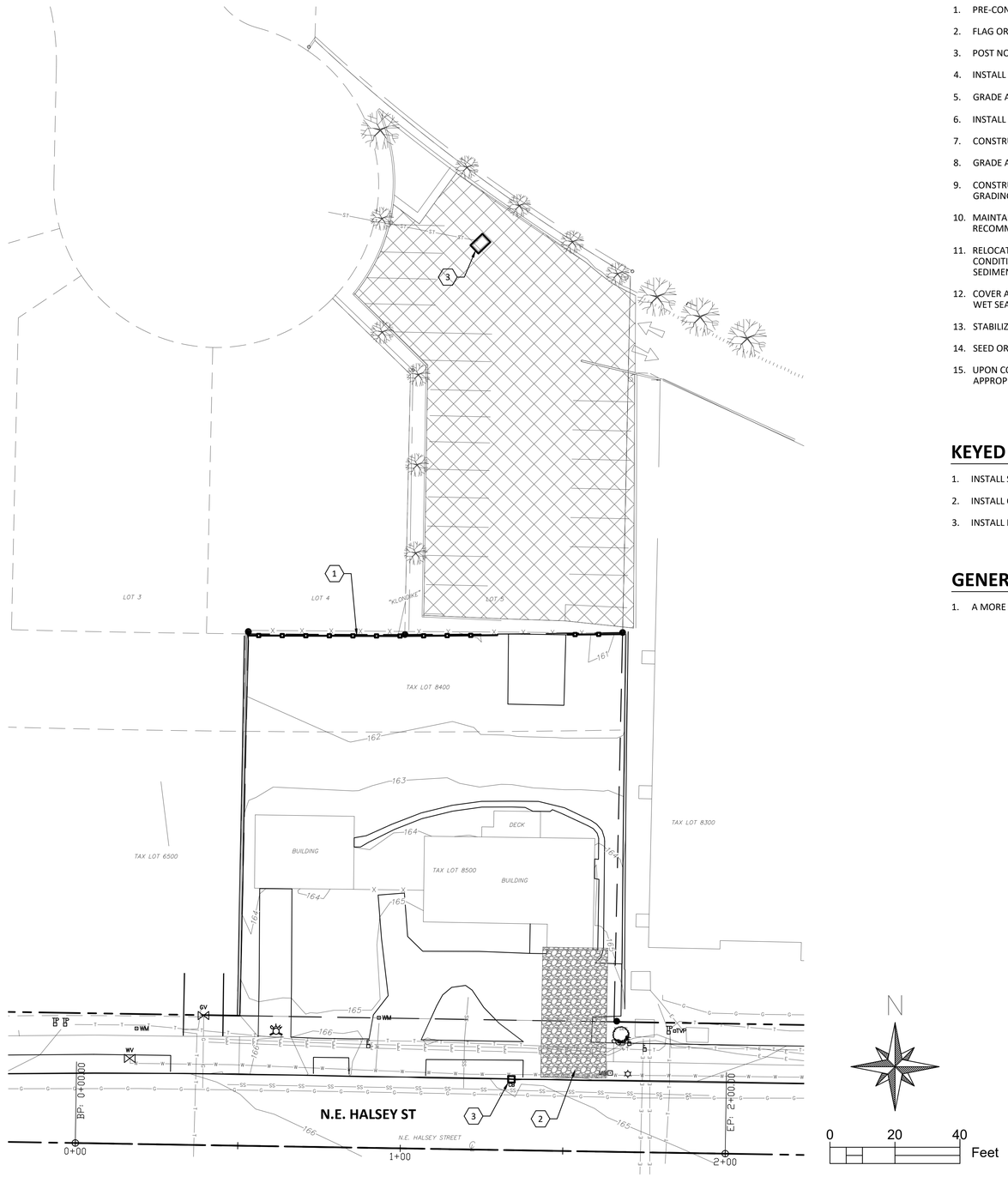
DATE: October 18, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2009 DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER
0018

SHEET
P3.0



SITE PLAN

RECOMMENDED CONSTRUCTION SEQUENCE FOR EROSION CONTROL

1. PRE-CONSTRUCTION MEETING.
2. FLAG OR FENCE CLEARING LIMITS.
3. POST NOTICE OF CONSTRUCTION ACTIVITY SIGN WITH NAME AND PHONE NUMBER OF EROSION SEDIMENT CONTROL SUPERVISOR.
4. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
5. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
6. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
7. CONSTRUCT SEDIMENT PONDS AND TRAPS.
8. GRADE AND STABILIZE CONSTRUCTION ROADS.
9. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC. SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
10. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CLARK COUNTY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
11. RELOCATE SURFACE WATER CONTROLS AND EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CLARK COUNTY EROSION AND SEDIMENT CONTROL STANDARDS.
12. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING OR EQUIVALENT.
13. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN SEVEN DAYS.
14. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
15. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

KEYED CONSTRUCTION NOTES

1. INSTALL SEDIMENT FENCE PER DETAIL, SHEET P5.0.
2. INSTALL CONSTRUCTION ENTRANCE PER DETAIL, SHEET P5.0.
3. INSTALL INLET PROTECTION PER DETAIL, SHEET P5.0.

GENERAL EROSION CONTROL NOTES

1. A MORE DETAILED EROSION CONTROL PLAN SHALL BE PREPARED AS NEEDED PRIOR TO BUILDING PERMITS.

Know what's **below.**
811 before you dig.

NOT FOR CONSTRUCTION

EROSION CONTROL PLAN

HALSEY COMMONS
PRELIMINARY SITE PLANS
FAIRVIEW **OREGON**
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON
CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
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WWW.JACKSONCIVIL.COM

DATE: October 18, 2018

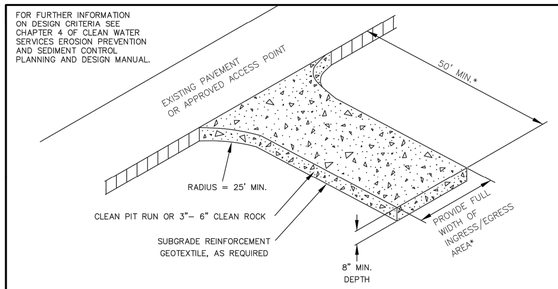
REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

EXPIRES: 06/30/19

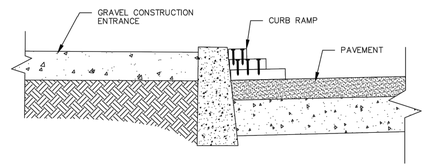
JOB NUMBER
0018

SHEET
P4.0

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.



*20' MIN. FOR SINGLE FAMILY AND DUPLEX RESIDENTIAL



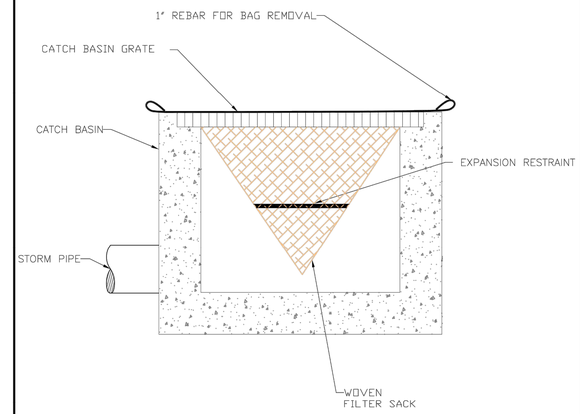
NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF– WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY
   20' LONG BY 20' WIDE 8" DEEP OF ¾" MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE 3–6" CLEAN ROCK, GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB–SOIL PUMPING.

CONSTRUCTION ENTRANCE

DRAWING NO. 855 REVISED 12–16

CleanWater Services



CATCH BASIN INSERT

NOTE:

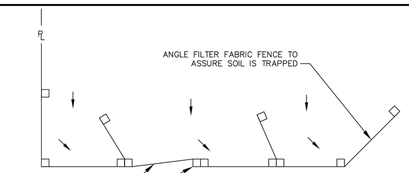
1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

INLET PROTECTION TYPE 5

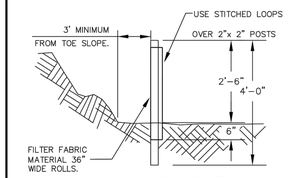
DRAWING NO. 920 REVISED 12–16

CleanWater Services



PLAN VIEW

NOT TO SCALE

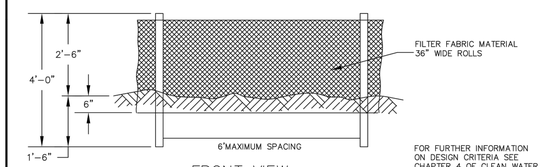


PROFILE

NOT TO SCALE

NOTES:

1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
5. PANELS MUST BE PLACED ACCORDING TO SPACING ON DETAIL NO.940



FRONT VIEW

NOT TO SCALE

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

SEDIMENT FENCE

DRAWING NO. 875 REVISED 12–16

CleanWater Services

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

HALSEY COMMONS
PRELIMINARY SITE PLANS

FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

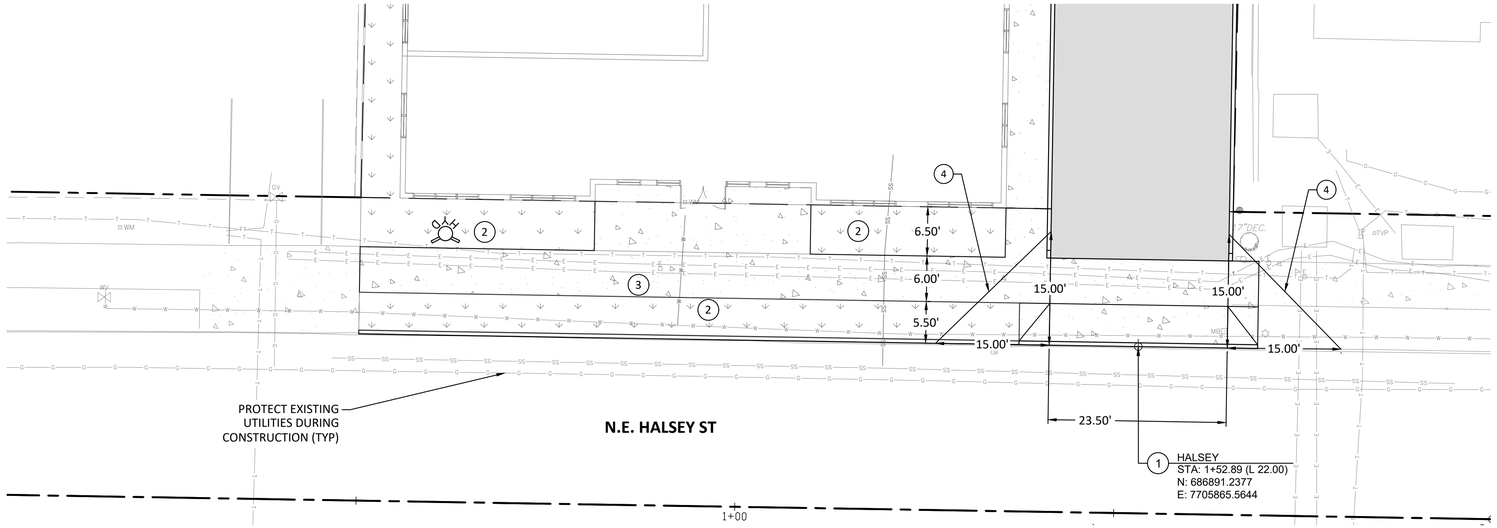
DATE: October 18, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER
0018

SHEET



SITE PLAN

GENERAL NOTES

1. FRONTAGE IMPROVEMENTS SHALL MEET MULTNOMAH COUNTY STANDARDS AND THE CITY OF FAIRVIEW STANDARDS. WHERE A CONFLICT BETWEEN STANDARDS EXISTS APPLICANT SHALL WORK WITH BOTH MUNICIPALITIES TO RESOLVE.

KEYED CONSTRUCTION NOTES (#)

1. INSTALL CONCRETE DRIVEWAY PER ODOT STANDARD DRAWING, SHEET P7.0.
2. INSTALL ROW LANDSCAPE THIS AREA. SEE LANDSCAPE PLAN FOR DETAILS.
3. INSTALL CONCRETE SIDEWALK PER ODOT STANDARD DRAWING, SHEET P7.0.
4. VISION CLEARANCE TRIANGLE. NO OBJECTS OVER 3' IN HEIGHT SHALL BE CONSTRUCTED AND/OR INSTALLED INSIDE VISION CLEARANCE TRIANGLE PER CITY OF FAIRVIEW MUNICIPAL CODE FIGURE 19.162.020.O

N

0 10 20 Feet

DRIVEWAY SPACING NOTES (#)

1. CENTERLINE TO CENTERLINE DRIVEWAY SPACING FROM PROPOSED DRIVEWAY TO EXISTING DRIVEWAY: 112'
2. CENTERLINE TO CENTERLINE DRIVEWAY SPACING FROM PROPOSED DRIVEWAY TO EXISTING DRIVEWAY: 191'
3. CENTERLINE TO CENTERLINE DRIVEWAY SPACING FROM PROPOSED DRIVEWAY TO EXISTING DRIVEWAY: 65'

N

0 60 120 Feet

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

STREET FRONTAGE IMPROVEMENT PLAN

HALSEY COMMONS
PRELIMINARY SITE PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

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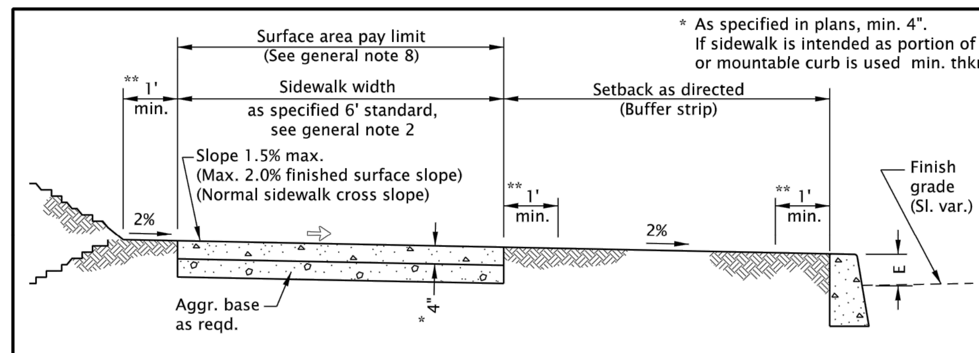
DATE: November 7, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

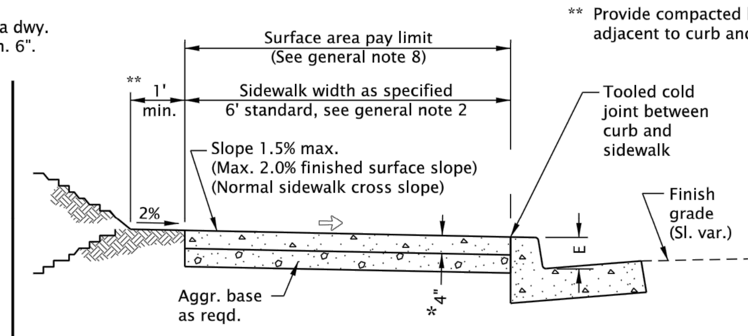
EXPIRES: 06/30/19

JOB NUMBER
0018

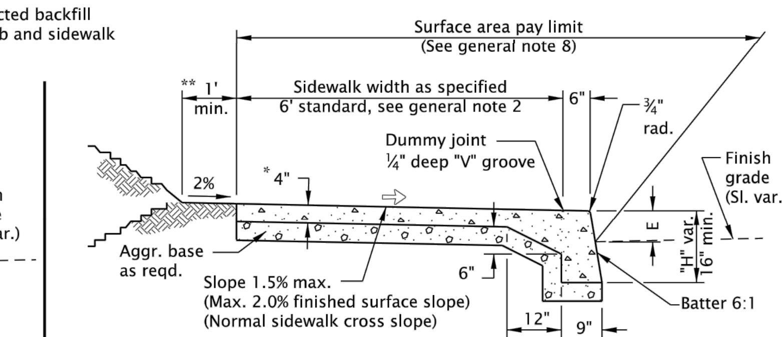
SHEET
P6.0



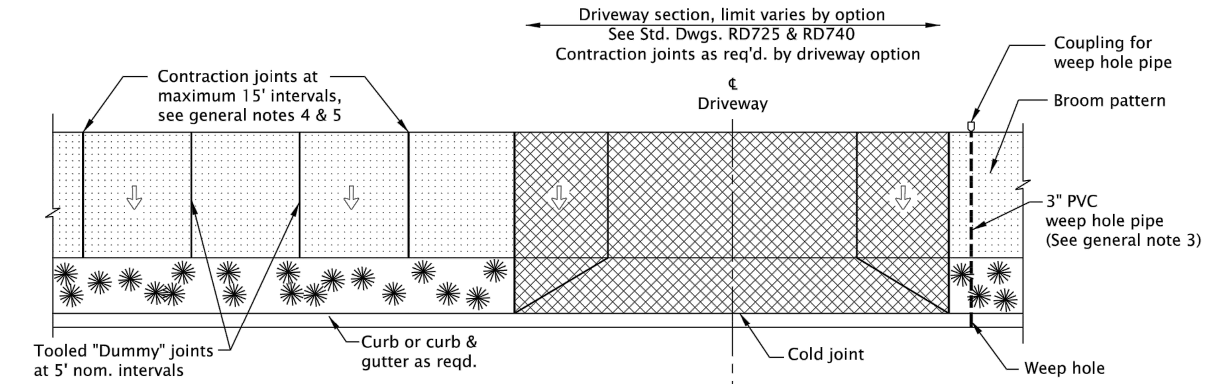
TYPICAL SETBACK SIDEWALK CROSS SECTION
E = curb exposure, see general note 6



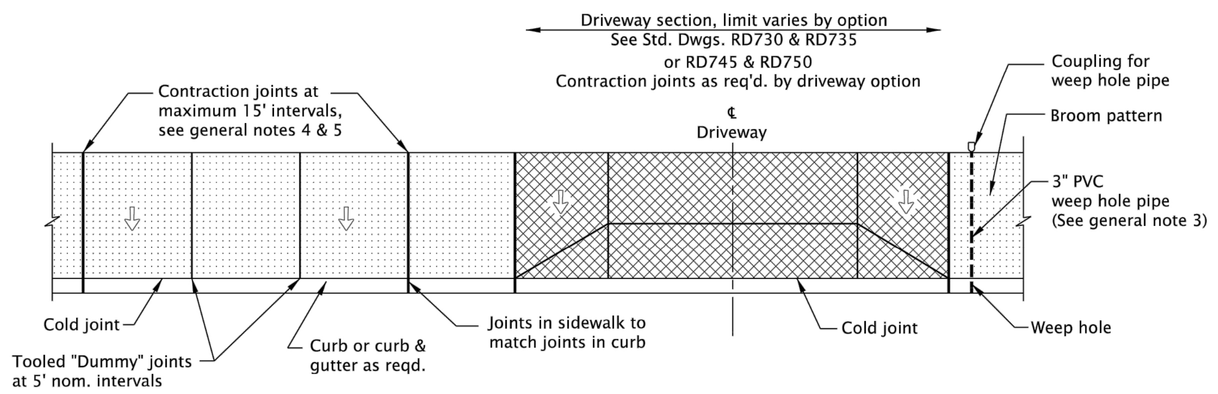
TYPICAL CURB SIDEWALK CROSS SECTION
E = curb exposure, see general note 6



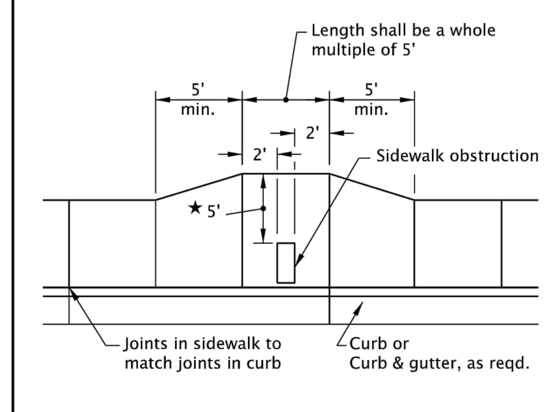
TYPICAL MONOLITHIC CURB & SIDEWALK CROSS SECTION
E = curb exposure, see general note 6



TYPICAL PLAN VIEW - SEPARATED SIDEWALK

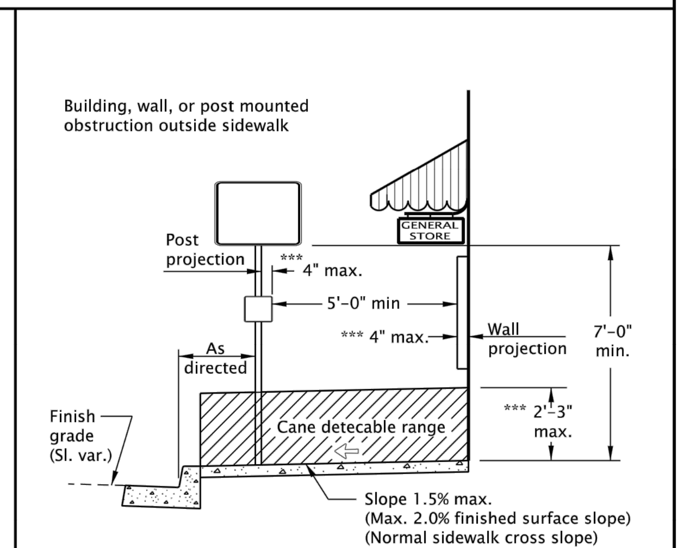


TYPICAL PLAN VIEW - CURB LINE SIDEWALK



★ When site constraints prohibit a 5' passage, the Engineer may direct this to be reduced, but no less than 4'.

REQUIRED SIDEWALK WIDENING AROUND OBSTRUCTIONS



*** Objects with base below 2'-3" may protrude any distance as long as the 5' circulation path is maintained. When an object with a base higher than 2'-3" protrudes further than 4" provide a detection below protrusion to delineate edge.

CLEAR CIRCULATION PATH

Sidewalk

General configuration of driveway pay limit (See general note 8), varies by option. (See project plans for details not shown)

⇦ Slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

GENERAL NOTES FOR ALL DETAILS:

1. Include additional paved or unpaved 2' clearance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
2. Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
3. Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. RD700 for weep hole detail.
4. Const. expansion joints at 200' maximum spacing, and at points of tangency, and at ends of each driveway. For monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing.
5. Const. contraction joints at 15' maximum spacing, and at ends of each driveway and curb ramp.
6. For curb details, see Std. Dwgs. RD700 & RD701.
7. Sidewalk details are based on ODOT applicable standards.
8. For driveway details not shown, see Std. Dwgs. RD725, RD730, RD735, RD740, RD745 & RD750.
9. See project plans for details not shown.

CALC. BOOK NO. N/A

BASELINE REPORT DATE 16-JUL-2018

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

OREGON STANDARD DRAWINGS

SIDEWALKS

2018

DATE	REVISION DESCRIPTION
01-2018	REVISED NOTE
07-2018	REVISED DETAIL & NOTES

rd720.dgn 16-JUL-2018

RD720

Effective Date: December 1, 2018 - May 31, 2019 RD720

HOLOPHANE LEADER IN LIGHTING SOLUTIONS

Catalog Number	WFCL2-P50-30K-AS-BK-L3-S-AO-P7	
Notes	Standard Mid County Spec for Arterials	Type

WFCL2
Utility Washington Series Luminaire Full Cutoff LED2

Mechanical
- Heavy grade A360 cast aluminum (<1% copper)
- Tool-less access with a spring-loaded latch
- Hidden hinge door allowing the door to swing open and remain open
- Optional internal or external NEMA twist lock photocontrol receptacle. Housing contains a tempered glass window to allow light to reach the cell for internal versions.
- Mount to slip-fitter that will accept 3" high by 2-7/8" to 3-1/8" O.D. pole tenon
- Decorative top cover contains stainless steel hinge which secures entry the LED optical chamber
- Polyester power coat paint to ensure maximum durability
- Finish meets 10,000-hour salt spray testing
- Holophane and RAL Classic finishes.

Electrical
- All surge protection meets ANSI/IEEE C62.41.2 10kV/10kA.
- Standard SPD meets 10kV/5kA per ANSI C136.2-2015.
- 20KV Option meets 20kV/10kA per ANSI C136.2-2015.
- Quick disconnect connectors for ease of installation and maintenance.
- Three pole terminal block is standard, with optional prewired leads for ease of installation
- LED drivers meets maximum total harmonic distortion (THD) of 20% and are ROHS compliant. Minimum operating temperature is -40C. Electronic driver has an estimated minimum life of 100,000 hours at 25°C.

Optical
- IP65 rated optical compartment
- LED circuit board located in the top cover
- Asymmetric or Symmetric full cutoff distributions
- 2700K, 3000K, 4000K, and 5000K CCT
- 70CRI Standard

Control Options
- Field Adjustable Output (AO) module - Onboard device that adjusts the light output and input wattage to meet site specific requirements. The AO module is preset at the factory to position number 8 (see chart).
- Wireless remote control for monitoring performance and/or maintenance of the system – ROAM
- Factory Programmed Driver (FPDxx) - Customize lumen output prior to manufacturing and still enables control leads so other options can also be used
- Long Life Photocontrols (PCLL) - 20 Year Life
- 3 and 7 pin photocontrol receptacles internally (P3, P7) or externally (P3E, P7E) mounted
- Part-night dimming (PND) enables luminaire to monitor and adjust 50% lumens based on season and geographic location, 8-day rolling average

Testing/Compliance
- UL 1598 - Wet Locations Safety Listing
- Suitable for ambient temperatures -40°C to 40°C

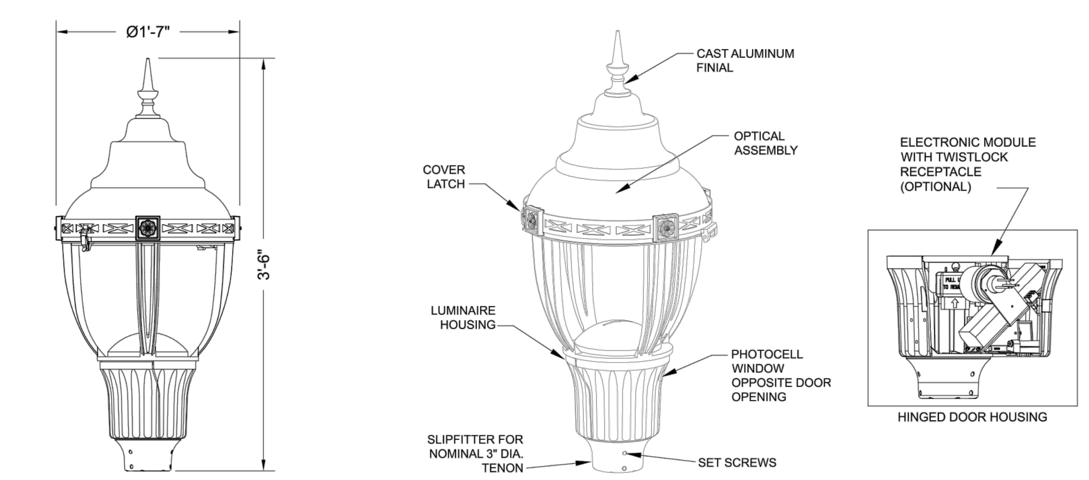
Manufacturing
- Manufactured in Crawfordsville, Indiana, ARRA compliant
- 100% electrical testing on all luminaires before shipment
- Ten (10) years minimum experience in manufacturing LED based products

Warranty
5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_Conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25°C.
Specifications subject to change without notice.

LED c UL us LISTED IP RATED

DIMENSIONAL DATA



WFCL2
Utility Washington Series Luminaire Full Cutoff LED2

HOLOPHANE LEADER IN LIGHTING SOLUTIONS

ORDERING INFORMATION **Example:** WFCL2 P20 30K AS GN L2 P7E

PLEASE CHOOSE:

Series	Led performance package	LED Color temperature	Voltage	Housing color	Optics	Finial
WFCL2 Utility Washington LED FCO	P10 1,500 nominal lumens (amber only)	AM True amber	AS Auto-sensing voltage (120 thru 277) 50/60 HZ	BK Black	L2 Type 2 distribution full cutoff	N None
	P20 4,500 nominal lumens	27K 2700K CCT	AH Auto-sensing voltage (347 thru 480) 50/60 HZ	GR Gray	L3 Type 3 distribution full cutoff	B Ball
	P30 6,500 nominal lumens	30K 3000K CCT		GH Graphite	L4 Type 4 distribution full cutoff	S Spike
	P40 8,500 nominal lumens	40K 4000K CCT		GN Green	L5 Type 5 distribution full cutoff	
	P50 11,500 nominal lumens	50K 5000K CCT		PP Prime paint		
				WH White		
				BZ Bronze		
				TDC RAL Color color (RAL**)		
				CMC Custom color match		

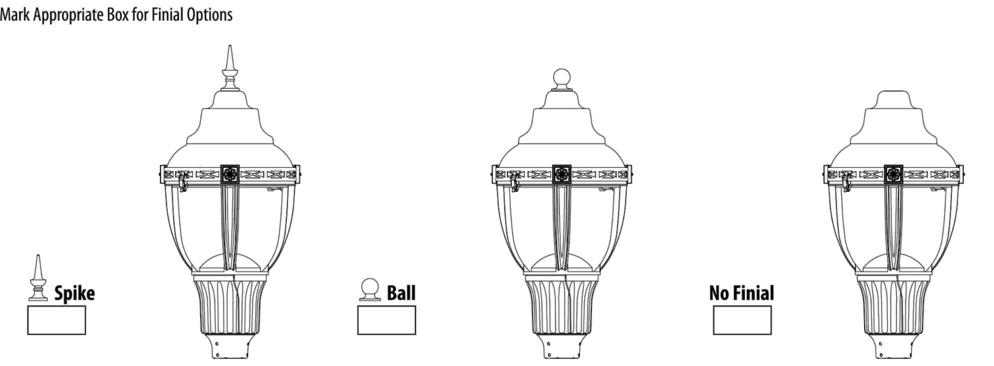
Options: *Option Compatibility Matrix on page 3 of 4*

AO	Field Adjustable Output	P3E	NEMA Twist Lock Dimming Photocontrol Receptacle - 3 PIN. Externally mounted	L1H	1.5 ft prewired leads
DE	ROAM Hardware DecoNode and DCM Factory Installed	P7E	NEMA Twist Lock Dimming Photocontrol Receptacle - 7 PIN. Externally mounted	L03	3ft prewired leads
FPDxx	Factory Programmed Driver	RME	ROAM Node (External)	L10	10 ft prewired leads
P3	NEMA Twist Lock photocontrol receptacle - 3 PIN receptacle only.	RME3	347V ROAM NODE (External)	L20	20 ft prewired leads
P7	NEMA Twist Lock Dimming photocontrol receptacle - 7 PIN receptacle only.	RME4	480V ROAM NODE (External)	L25	25 ft prewired leads
PCS	DTL twistoff photocontrol for solid-state lighting 120-277V	PSC	Shorting cap	L30	30 ft prewired leads
PCLL	DTL long life twistlock photocontrol for solid-state AS & AH	HSS	House side shield	NL1X1	NEMA Label 1" X 1"
PND	Part night dimming - down to 50%			NL2X2	NEMA Label 2" X 2"
P34	DTL twistlock photocontrol 347V			20KV	20kV/10kA surge protection
P48	DTL twistlock photocontrol 480V				

Accessories: *Order as separate catalog number.*

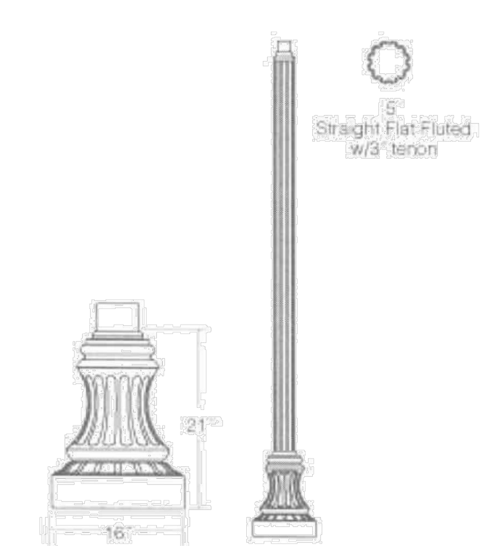
XXCL2HSS1	Field Accessory - Louvered house side shield (Qty 1)
XXCL2HSSJ50	Field Accessory - Louvered house side shield (Bulk Qty 50)
XXCL2SPD10KAS	10kV/5kA Extreme surge 120-277V
XXCL2SPD10KAH	10kV/5kA Extreme surge 480V
XXCL2SPD20KAS	20kV/10kA Extreme surge 120-277VV
XXCL2SPD20KAH	20kV/10kA Extreme surge 480V

FINIAL INFORMATION
Mark Appropriate Box for Finial Options



P2065 Specification Sheet

Project Name:	Location:	MFG: Philips Hadco
Fixture Type:	Catalog No.:	Qty:



Ordering Guide

Example: P2065 10 A T D

Product Code	P2065	
Pole Height	10 12 14 16	10' 12' 14' 16'
Finish	A B G H J	Black White Verde Bronze Green
Outlet Location (Optional)	T B	12" Down from Top - Aligned with House Side 4" Up from Top of Base - Aligned with House Side
Outlet Options (Optional)	D G	Standard Duplex GFI Duplex

Specifications

HOUSING:
356 HM high-strength, low-copper, proprietary cast aluminum alloy. 6005-T5 extruded aluminum. Anchor rods are hot dipped galvanized steel. Tenon is 356 HM sand cast aluminum.

FINISH:
A durable polyurethane enamel finish is applied after assemblies are shot blasted to create a surface profile which allows for the highest level of paint adhesion. Laboratory tested for superior weatherability and fade resistance in accordance with ASTM B-117-64 and ANSI/ASTM G53-77 specifications. For larger projects where a custom color is required, contact the factory for more information.

WARRANTY:
Three-year limited warranty.

OUTLET:
Standard Duplex Outlet has universal metal weatherproof cover. Weatherproof while in use. Heavy-duty all-metal construction. Lockable security cover. Meets NEC 406.9 (B). Weather resistant. GFI Duplex Outlet has dual-function indicator light, universal metal weatherproof cover. Weatherproof while in use. Heavy-duty all-metal construction. Lockable security cover. Meets NEC 406.9 (B). Weather resistant.

Tenon/Top:
3" OD

Bolt Circle:
8" - 12"

Anchor Rods:
(4) 3/4" dia. x 19"

Base Dimensions:
16 dia. x 21"

Hand Hole :
5" x 8"

Shaft:

ISO 9001:2008 Registered Page 1 of 2

PHILIPS HADCO

Note: Philips reserves the right to modify the above details to reflect changes in the cost of materials and/or production and/or design without prior notice. 100 Craftway Drive, Littlestown, PA 17340 | P: +1-717-359-7131 F: +1-717-359-9289 | http://www.hadco.com | Copyright 2013 Philips HW2

TRANSPORTATION DETAILS

HALSEY COMMONS
PRELIMINARY SITE PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

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P: (360) 901 - 6031
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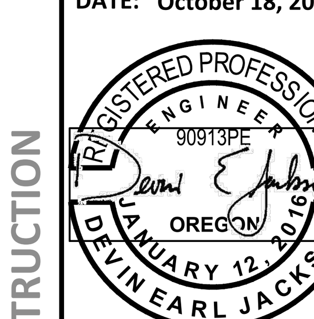
DATE: October 18, 2018

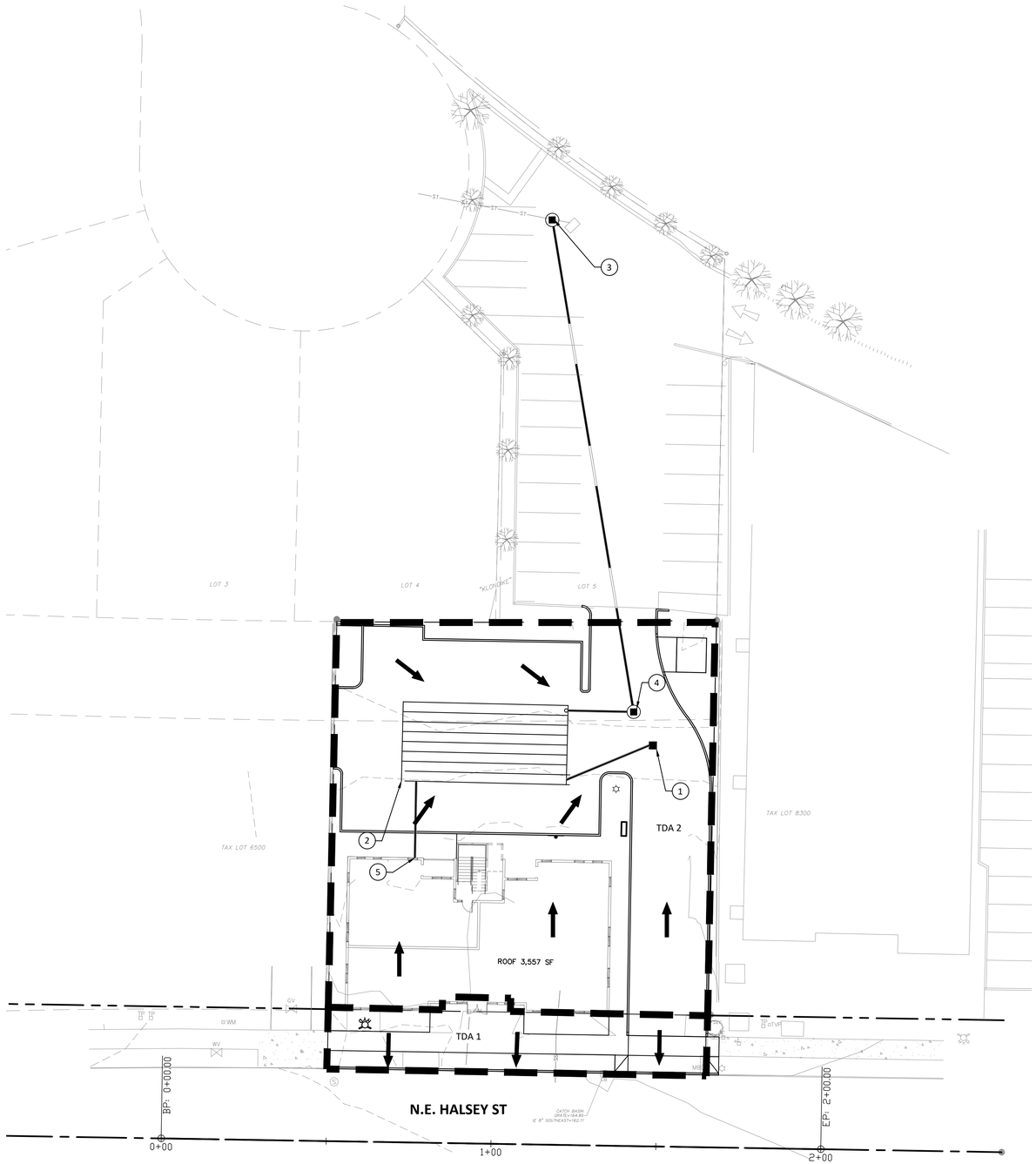


EXPIRES: 06/30/19

JOB NUMBER
0018

SHEET
P7.0

NOT FOR CONSTRUCTION



GENERAL NOTES

1. ALL PROPOSED STORMWATER FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
2. WATER QUALITY TREATMENT SHALL BE PROVIDED FOR IMPERVIOUS ROADWAY AND DRIVEWAY SURFACES BY MECHANICAL FILTERS.
3. THERE ARE NO KNOWN WETLANDS ON SITE.
4. STORMWATER RUNOFF FROM ROOF AREAS SHALL BE INFILTRATED USING PRIVATE FACILITIES.

KEYED CONSTRUCTION NOTES

(#)

1. SINGLE CARTRIDGE PERKFILTER CATCH BASIN . SEE PRELIMINARY STORMWATER TIR FOR DETAILS. EXACT LOCATION TO BE DETERMINED DURING FINAL DESIGN.
2. UNDERGROUND DETENTION 400 L.F. OF 36" PIPE WITH FLOW CONTROL STRUCTURE. SEE PRELIMINARY STORMWATER TIR FOR FACILITY DETAILS.
3. TIE INTO EXISTING STORM PIPE, INSTALL FLAT TOP MANHOLE, EXACT LOCATION TO BE DETERMINED DURING FINAL DESIGN.
4. FLAT TOP MANHOLE, EXACT LOCATION TO BE DETERMINED DURING FINAL DESIGN.
5. ROOF/FOUNDATION LATERAL

CIVIL LEGEND

PROPOSED STORM SEWER MANHOLE
PROPOSED STORM SEWER CLEANOUT
DRAINAGE FLOW ARROW
PROPOSED STORMWATER UNDERGROUND DETENTION
TDA BOUNDARY
PROPOSED STORM PIPE

PROPOSED LAND USE					
TDA	ROOF	PARKING	SIDEWALK	TOTAL IMPERVIIOUS	LANDSCAPE
1	0	443	821	1,264	408
2	3,557	8,330	895	12,782	882

N

0 20 40 Feet

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

STORMWATER PLAN

HALSEY COMMONS
PRELIMINARY SITE PLANS
FAIRVIEW
TAX LOT: R-321104 & R-321212
OREGON
SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

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REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

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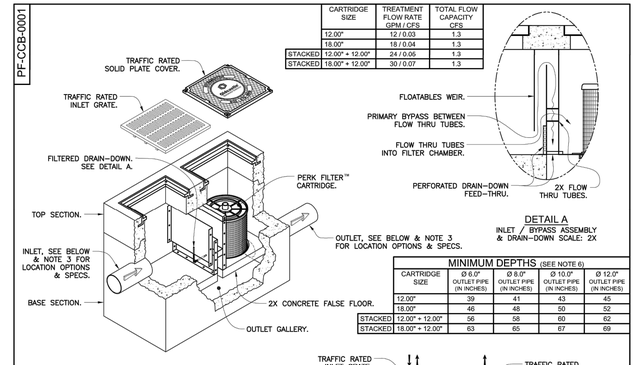
0018

SHEET
P8.0

PF-CCB-0001

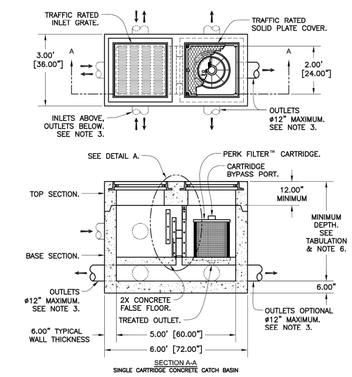
	CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
	12.00"	12 / 0.03	1.3
	18.00"	18 / 0.04	1.3
STACKED	12.00" + 12.00"	24 / 0.05	1.3
STACKED	18.00" + 12.00"	30 / 0.07	1.3



	MINIMUM DEPTHS (SEE NOTE 6)				
	CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
	12.00"	39	41	43	45
	18.00"	46	48	50	52
STACKED	12.00" + 12.00"	56	58	60	62
STACKED	18.00" + 12.00"	63	65	67	69

Notes:

1. Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
2. Perk Filter™ Catch basin shall be supplied with traffic rated (H20) bicycle-proof grates and solid plate cover.
3. Inlet pipe(s) may enter device on three sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum.
4. Inlet chamber shall be supplied with a drain-down device designed to remove standing water between storm events.
5. Perk Filter™ cartridge shall be maintained in accordance with manufacturer recommendations.
6. For depths less than the specified minimum contact Oldcastle® Stormwater Solutions for engineering assistance.



Media Filtration

Perk Filter™

Concrete Catch Basin

Single Cartridge

Oldcastle® Stormwater Solutions

7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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DRAWING NO.	REV	ECO	DATE	
PF-CCB-0001	J	ECO-0144 ZHD 8/26/16	JPR 6/4/08	SHEET 1 OF 1

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

STORMWATER DETAILS

HALSEY COMMONS

PRELIMINARY SITE PLANS

FAIRVIEW **OREGON**

TAX LOT: R-321104 & R-321212

SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

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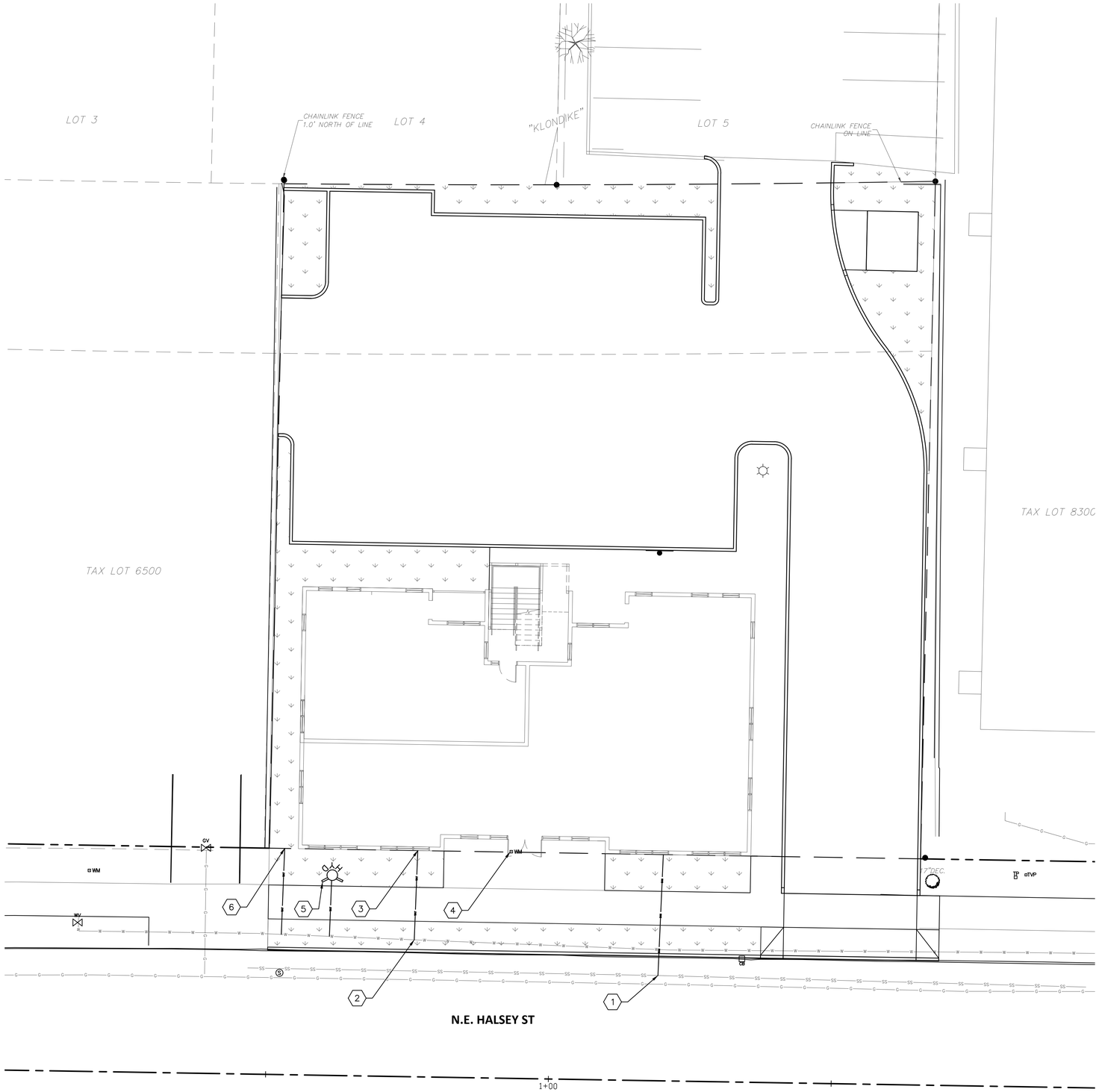
DATE: October 18, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

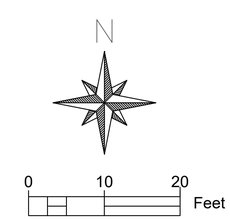
EXPIRES: 06/30/19

JOB NUMBER 0018

SHEET **P9.0**



SITE PLAN



WATER GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION AND INSTALLATION FOR WATER FACILITIES SHALL CONFORM TO CITY OF FAIRVIEW REQUIREMENTS.
2. MAINTAIN A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN SEWER AND WATER LINES.
3. MAINTAIN AN 18" HORIZONTAL SEPARATION BETWEEN SERVICE TAPS ON A WATER MAINLINE.
4. REMOVE EXISTING WATER METER AND CAP LINE.

SANITARY SEWER GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION AND INSTALLATION FOR SANITARY SEWER FACILITIES SHALL CONFORM TO CITY OF FAIRVIEW REQUIREMENTS.
2. MAINTAIN A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN SEWER AND WATER MAINLINES.

KEYED CONSTRUCTION NOTES

1. INSTALL 6" SANITARY SEWER LATERAL INTO EXISTING MAINLINE. REMOVE EXISTING 4" SANITARY SEWER LATERAL.
2. TAP EXISTING WATER MAIN AND INSTALL 1 ½" WATER SERVICE.
3. INSTALL WATERMETER INSIDE RIGHT-OF-WAY.
4. REMOVE EXISTING WATER METER AND CAP LINE.
5. TEE INTO EXISTING WATER MAIN. INSTALL FIRE HYDRANT WITH 4" LINE. FIRE HYDRANT SHALL BE MODEL HARRINGTON HPHA50-45NHWCAP AND INCLUDE STORZ QUICK ADAPTERS ON THE LARGE PORT.
6. INSTALL ¾" WATER SERVICE FOR IRRIGATION. EXACT LOCATION AND DETAILS OF IRRIGATION SYSTEM SHALL BE PROVIDED PRIOR TO BUILDING PERMIT.

Know what's **below.**
811 before you dig.

NOT FOR CONSTRUCTION

SANITARY SEWER AND WATER PLAN

HALSEY COMMONS
PRELIMINARY SITE PLANS

FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212
SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON
CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

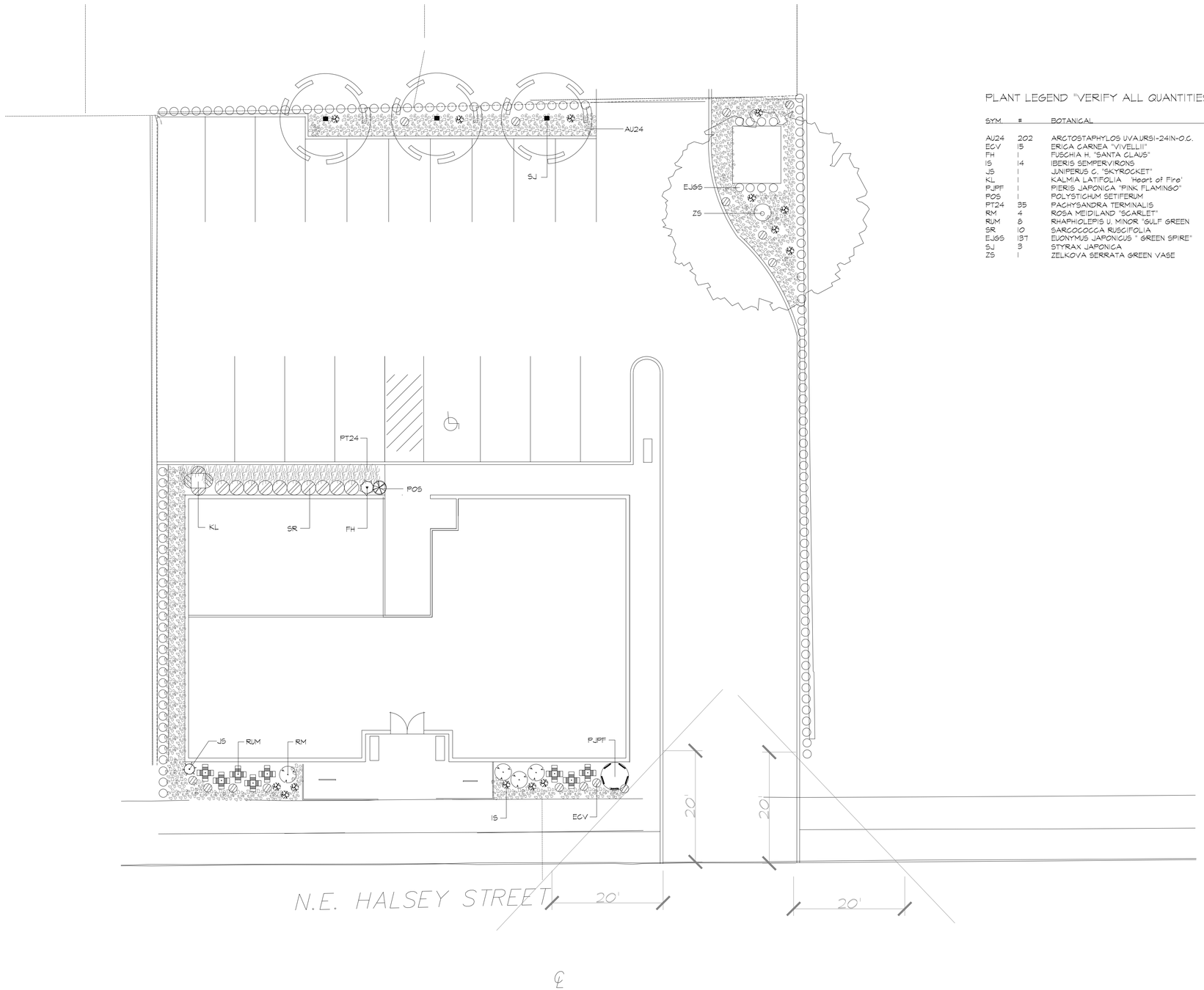
DATE: October 18, 2018

REGISTERED PROFESSIONAL ENGINEER
90913PE
OREGON
JANUARY 12, 2018
DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER
0018

SHEET
P10.0



PLANT LEGEND "VERIFY ALL QUANTITIES"

SYM.	#	BOTANICAL	COMMON	SIZE
AU24	202	ARCTOSTAPHYLOS UVA-URSI-24IN-O.C.	NATIVE KINNIKKINNICK	4 IN 24" O.C.
ECV	15	ERICA CARNEA "VIVELLII"	SPRING HEATHER	1 GAL
FH	1	FUSCHIA H. "SANTA CLAUS"	EVERGREEN FUSCHIA	2 GAL
IS	14	IBERIS SEMPERVIRONS	CANDYTUFT	1 GAL
JS	1	JUNIPERUS C. "SKYROCKET"	SKYROCKET JUNIPER	5FT - 6FT
KL	1	KALMIA LATIFOLIA "Heart of Fire'	Heart of Fire MOUNTAIN LAUREL	5 GAL
PJPF	1	PIERIS JAPONICA "PINK FLAMINGO"	ANDROMEDA	5 GAL
PO5	1	POLYSTIGHUM SETIFERUM	ALASKA LACE FERN	1 GAL
PT24	35	PACHYSANDRA TERMINALIS	PACHYSANDRA	4 IN 24" O.C.
RM	4	ROSA MEIDILAND "SCARLET"	SCARLET MEIDILAND ROSE	2 GAL
RUM	8	RHAPHIOLEPIS U. MINOR "GULF GREEN	DWARF YEDDO HAWTHORN	2 GAL
SR	10	SARCOCOCCA RUSCIFOLIA	TALL SARCOCOCCA	2 GAL
EJGS	157	EUONYMUS JAPONICUS " GREEN SPIRE"	GREEN SPIRE EUONYMUS	5 GAL
SJ	3	STYRAX JAPONICA	JAPANESE SNOWBELL	
ZS	1	ZELKOVA SERRATA GREEN VASE	GREEN VASE ZELKOVA	1-1/2 IN CAL

L1 PLANTING PLAN

AN IRRIGATION DESIGN WILL BE SUBMITTED FOR PERMIT SET

10'
0 5 10
SCALE IN FEET

MULCH
DARRELL MULCH
LANDSCAPE ARCHITECTURE
1907 N.E. 66TH AVENUE #168
PORTLAND, OREGON 97213
(503) 222-7416 TEL

HALSEY COMMONS
21929 NE HALSEY FAIRVIEW, OREGON 97024

DATE:	XXXX
PROJECT NO:	X
DESIGNED:	DM
DRAWN:	DM
CHECKED:	DM
REVISIONS:	

SHEET
L1
X

EXTERIOR MATERIALS

BRICK VENEER:
PACIFIC CLAY
2-1/4" EMPEROR
RUNNING BOND
COLOR: STERLING GREY

FIBER CEMENT SIDING PANELS:
JAMES HARDIE
HARDIPANEL VERTICAL SIDING
SMOOTH
PRE-PRIMED

PAINT COLOR:
SHERWIN WILLIAMS
CLASSICAL WHITE
(SW 2829)

FIBER CEMENT VERTICAL SIDING:
JAMES HARDIE
HARDIPANEL VERTICAL SIDING
SIERRA 8
PRE-PRIMED

PAINT COLOR:
SHERWIN WILLIAMS
NEW COLONIAL YELLOW
(SW 2853)

TRIM & FASCIA:
JAMES HARDIE
HARDIETRIM
SMOOTH
PRE-PRIMED
COLOR: COBBLESTONE

ALUMINUM STOREFRONT:
KAWNEER VERSGLAZE 451T
CLASSIC BRONZE

BALCONY & ENTRY DOORS:
KAWNEER NX-8900
CLASSIC BRONZE

STAIR TOWER & DECK RAILINGS:
DARK BRONZE

VINYL WINDOWS:
MILGARD
MONTECITO SERIES
CASEMENT TYPE
FRAME COLOR: CLAY

BIKE RACKS:
SITESCAPES
APEX
INVERTED U
2 SPACE RACK
SURFACE MOUNT
POWDER COATED
FINISH: BRONZE

COMPOSITE ROOFING:
OWENS CORNING
DRIFTWOOD

4 NORTH EXTERIOR ELEVATION - PROPOSED
SCALE: 3/16" = 1'-0"

2 WEST EXTERIOR ELEVATION - PROPOSED
SCALE: 3/16" = 1'-0"

3 SOUTH EXTERIOR ELEVATION - PROPOSED
SCALE: 3/16" = 1'-0"

1 EAST EXTERIOR ELEVATION - PROPOSED
SCALE: 3/16" = 1'-0"

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AXIS DESIGNGROUP
ARCHITECTURE & ENGINEERING, INC.
11104 S.E. STARK STREET
PORTLAND, OR 97216
T: 503.284.0988 | F: 503.546.9276

HALSEY CROSSING
NEW MULTIFAMILY /
MIXED USE PROJECT
NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

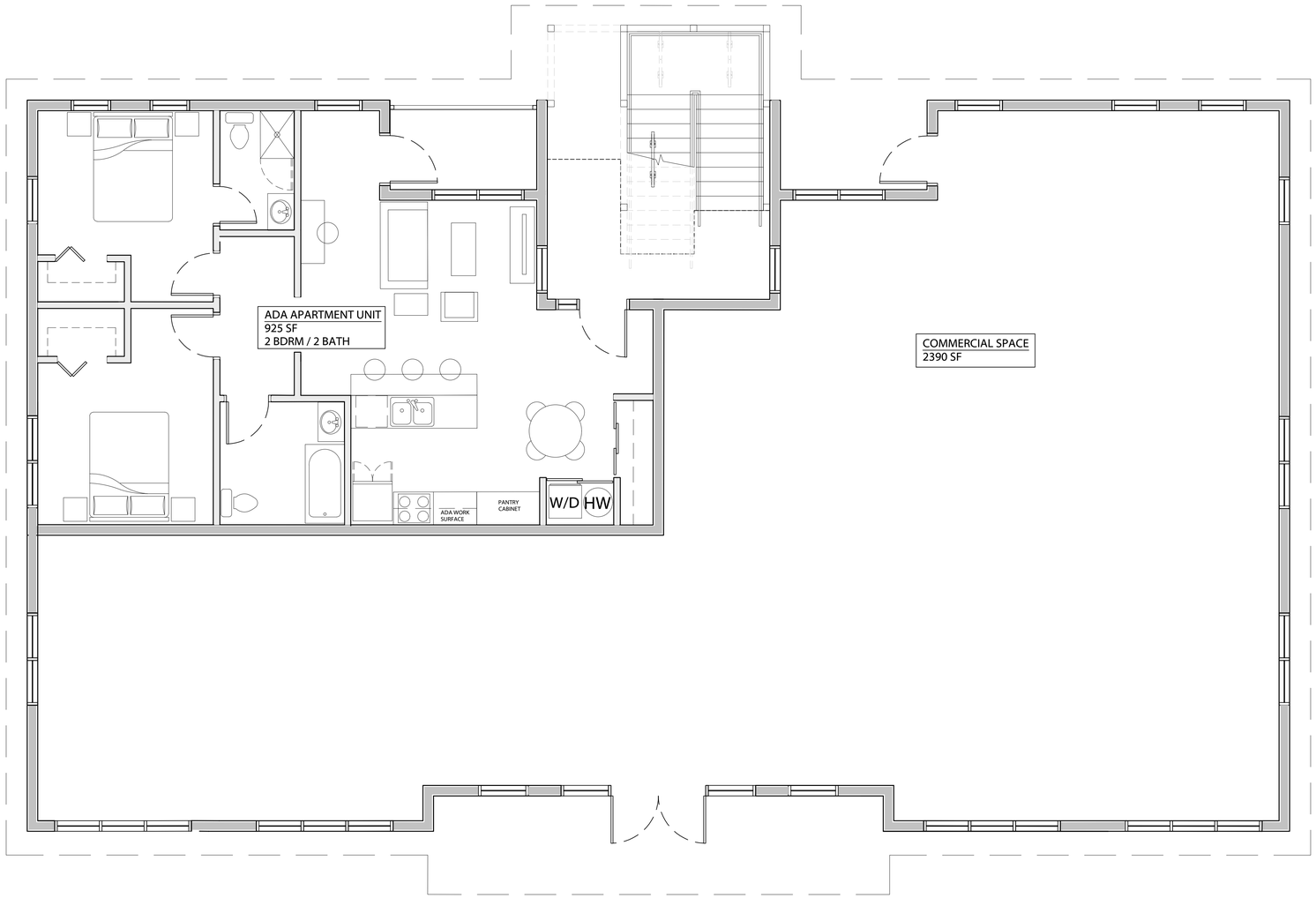
No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040
DATE: 09-25-18
ISSUED FOR: LAND USE 50%

SHEET TITLE
EXTERIOR ELEVATIONS
PROPOSED

SHEET NO.
A-221

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\Halsey Commons - A-221 - Exterior Elevations.dwg © Plot Date: Oct 5 18 @ Time: 3:48 PM



1 GROUND FLOOR PLAN - PROPOSED
SCALE: 1/4" = 1'-0"

N

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T: 503.284.0988 | F: 503.546.9276

HALSEY COMMONS
MULTIFAMILY / MIXED USE PROJECT

21929 NE HALSEY
FAIRVIEW, OR 97024

REVISIONS

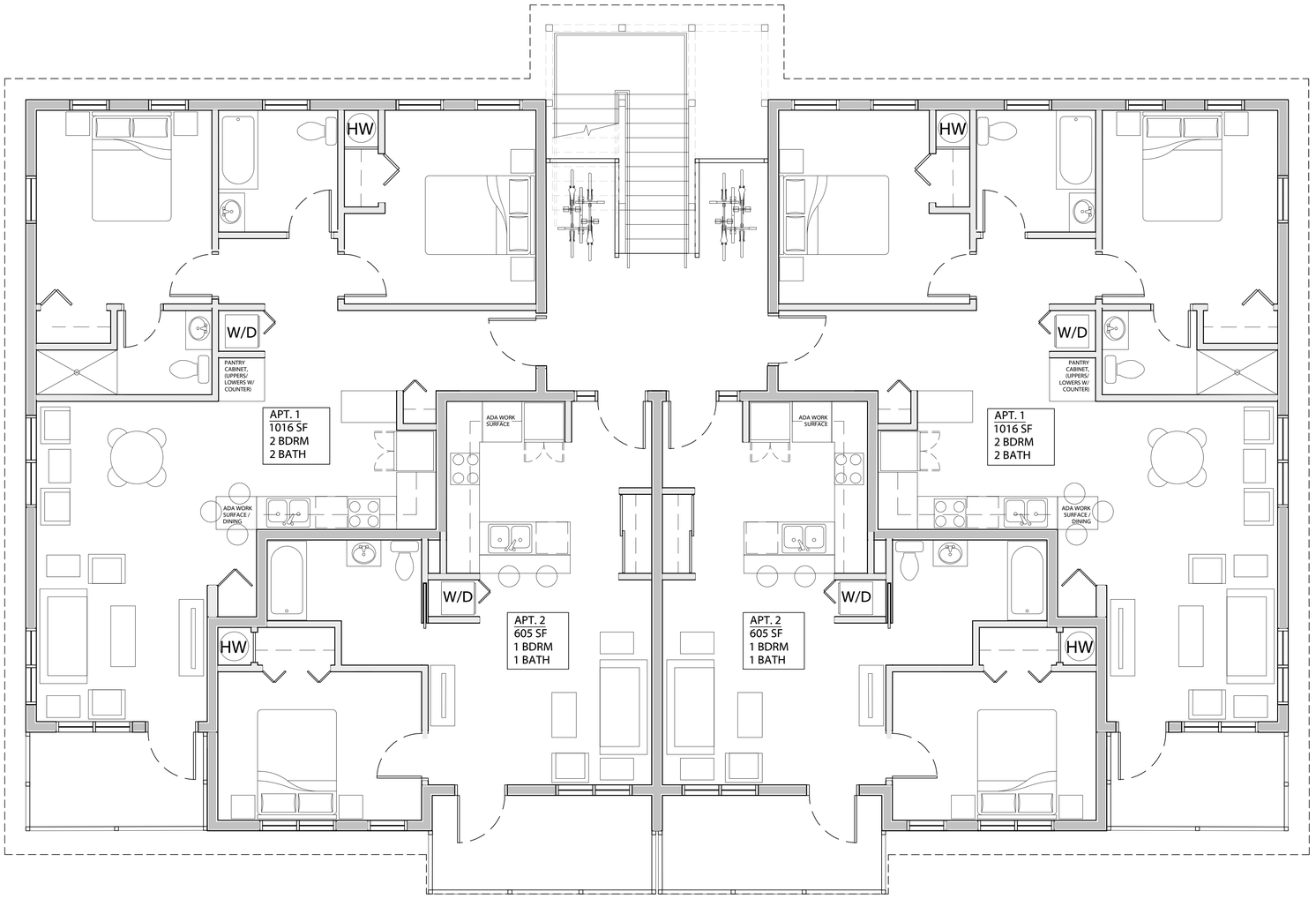
No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-056
DATE: 09-24-2018
ISSUED FOR: DESIGN REVIEW

SHEET TITLE
GROUND FLOOR PLAN - PROPOSED

SHEET NO.
A-121

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\Halsey Commons - A-121 - Ground Floor Plan.dwg @ Plot Date: Oct 5 18 @ Time: 1:11 PM



1 TYPICAL UPPER FLOOR PLAN - 2ND & 3RD FLOORS - PROPOSED
SCALE: 1/4" = 1'-0"

N

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HALSEY COMMONS MULTIFAMILY / MIXED USE PROJECT

21929 NE HALSEY
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-056

DATE: 09-24-2018
ISSUED FOR: DESIGN REVIEW

SHEET TITLE
TYPICAL UPPER FLOOR PLAN
2ND & 3RD FLOORS
PROPOSED

SHEET NO.
A-122

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\Halsey Commons - A-122 - Typical Upper Floor Plan.dwg @ Plot Date: Oct 5 18 @ Time: 1:17 PM

Department of Community Services
Transportation Division
http://multco.us/transportation-planning

1620 SE 190th Avenue, Portland, Oregon 97233-5910 • Phone (503) 988-5050

M E M O R A N D U M

TO: Eric Rutledge, Associate Planner, City of Fairview
Sarah Selden, Senior Planner, City of Fairview
Joanna Valencia, AICP, Manager, MultCo. Transportation Planning & Development

FROM: Scott Adams, AICP, Transportation Planner, MultCo. Transportation Planning & Development

DATE: December 4, 2018

SUBJECT: **EP-2018-10694 / 2018-49-DR, Halsey Commons (9-unit mixed-use building)**
21929 NE Halsey St., Fairview, OR 97024
R943280440 (front parcel)**, R943281840** (rear parcel, 21929 WI/)

Multnomah County Transportation Planning and Development has reviewed the above referenced application and provides the following **Findings and Conditions of approval** in support of approving the project and the Road Rules Variance requested for the proposed access configuration.

The comments provided in this memorandum are based on materials provided by the applicant and the City of Fairview. While every effort has been made to identify all related standards and issues, additional issues may arise and other standards not listed may become applicable as more information becomes available. Scope of this approval is therefore limited to the items that were reviewed as part of this application process.

The subject application proposal consists of Dean Hurford (owner/applicant) proposing a mixed-use development consisting of 2,390 SF of commercial space and 9 apartments. One access point is proposed. A new access onto NE Halsey St. (replacing three existing access points) will be located on the project's eastern edge. The new access does not meet driveway spacing standards for a Minor Arterial, requiring a Multnomah County Road Rules Variance (MCRRV).

The subject property is located at 21929 NE Halsey St. which is a Minor Arterial road under the jurisdiction of Multnomah County.

FINDINGS: Written findings are contained herein. The Multnomah County Road Rules are in **bold** font. Staff analysis and comments are identified as '**Staff:**' and address the applicable criteria. Staff comments may include a conclusionary statement in italic.

MCRR 4.000 Access to County Roads

MCRR 4.100 Application for New or Reconfigured Access: Applicants for a new, altered or reconfigured access onto a road under County Jurisdiction are required to submit a site plan. Applicants may be required to provide all or some of the following:

A. Traffic Study-completed by a registered traffic engineer;
B. Access Analysis-completed by a registered traffic engineer;
C. Sight Distance Certification from a registered traffic engineer; and
D. Other site-specific information requested by the County Engineer including a survey.

Staff:

The applicant has proposed closing three existing access points on NE Halsey St. (Minor Arterial) and constructing a new access point on the eastern edge of the site accessing NE Halsey St. The existing and new access point are shown on the applicant's site plans. All required information has been submitted.

Criterion is met.

MCRR 4.200 Number of Accesses Allowed: Reducing the number of existing and proposed access points on Arterials and Collectors and improving traffic flow and safety on all County roads will be the primary consideration when reviewing access proposals for approval. One driveway access per property is the standard for approval pursuant to the Multnomah County Code. Double frontage lots will be limited to access from the lower classification street. Shared access may be required in situations where spacing standards cannot be met or where there is a benefit to the transportation system. If more than one access is desired, a land use application must be submitted in compliance with applicable Multnomah County Codes.

Staff: This project will remove three existing access points and create one new access point on the eastern edge of the site accessing NE Halsey St.

Criterion is met.

MCRR 4.300 Location: All new access points shall be located so as to meet the access spacing standards laid out in the Design and Construction Manual.

Staff: For a Minor Arterial (NE Halsey St.), the minimum driveway spacing standard is 295 feet and minimum intersecting street setback is 148 feet (MCDCM, Table 1.2.5, Minimum Private Access Driveway Spacing Standards).

The proposed driveway on NE Halsey St. will be located 112 feet east of an existing driveway serving a mixed-use building (Carlino's Pizza & Deli, etc.) and 192 feet west of another mixed-use building (Bumpers Grill & Bar, etc.). On the opposite side of the street, an existing driveway being reused by Northbrook Apartments is 65 feet east of the proposed driveway at Halsey Commons. Through review of the submitted road rules variance, Multnomah County Transportation finds this substandard condition satisfactory, as the proposed driveway replaces three existing residential driveways, with the proposed driveway located on site's eastern edge. Additionally, the driveway spacing standards are subject to the road rules variance (below).

As conditioned, and through approval of the road rules variance, this criterion is met.

For the County Engineer to consider a variance request, it must be submitted in writing with the appropriate fee to the County prior to the issuance of any development permit. The written variance request shall be signed by a person with the authority to bind the applicant and shall include the following information as applicable:

A. Applicant name, telephone/fax number(s), email address, mailing address,

Applicant Response:

Dean Hurford
22001 NE Halsey Street
Fairview, OR 97024
503-730-7339
deanhurf@yahoo.com

B. Property location and zoning;

Applicant Response:

Two parcels: 21929 NE Halsey Street / R321104 & R321212.
Zoning: Town Center Commercial (TCC)

C. Current or intended use of the property;

Applicant Response:

Three-story mixed-use building and associated utilities, stormwater, and parking.

D. The nature and a full description of the requested variance;

Applicant Response:

The existing site has three points of access to NE Halsey Street. As part of the proposed development, the applicant wishes to consolidate the three accesses to a single access directly adjacent to the east property line. The proposed location maximizes spacing between adjacent driveways to the maximum extent feasible for the property. The proposed access would be deficient in driveway spacing requiring a roadway variance. The proposed access would be the only access serving the property.

E. Site plan, sight distance, pedestrian traffic, intersection alignment, traffic generation, vehicle mix, traffic circulation including impact on through traffic, and other similar traffic safety considerations;

Applicant Response:

The site plan is included with the land use application and depicts, location, sight distance triangle, and centerline to centerline spacing from adjacent driveways. A trip generation report is also provided as part of the land use application and addresses trips and expected vehicle mix.

F. Existing right-of-way or improvement limitations, and utility considerations;

Applicant Response:

NE Halsey street has a 90’ right-of-way width in the vicinity of the site frontage which is the standard for a

minor arterial. The application proposes to reduce points of access improving access control. No other frontage improvements are proposed, or limitations known.

G. Adjacent land uses, their types, access requirements, and impact of traffic on them;

Applicant Response:

Adjacent land uses include commercial and residential. Traffic impacts are summarized in the trip generation letter generated by Lancaster Engineering dated October 23rd, 2018 and are deemed to be minor. The letter summarizes adjacent uses and the proposed use, please reference for additional information.

H. Topography, grade, side hill conditions, and soil characteristics;

Applicant Response:

Topography generally slopes to the north however will remain relatively flat in the vicinity of the site frontage. Soil characteristics are defined as non-native fill.

I. Drainage characteristics and problems;

Applicant Response:

The existing frontage improvements drain to the street, and are proposed to continue to drain to the street. The proposal does increase landscaping thereby reducing impervious surface. The remainder of the site will drain away from NE Halsey where it will be collected, treated, and detained. There are no known stormwater issues.

J. Fire Department access requirements within a public right-of-way and their written approval of the proposed modification;

Applicant Response:

The proposal provides the needed width for fire department access to the site. The requested variance does not impact fire access.

K. Natural and historic features including but not limited to trees, shrubs or other significant vegetation, water courses, wetlands, rock outcroppings,
development limitation, areas of significant environmental concern, etc;

Applicant Response:

None known.

L. Multnomah County Comprehensive Plan policies applicable to the particular parcel or location.

Applicant Response:

Multnomah County policy provides for access control on minor arterials. In the existing condition the parcel has three points of access that do not meet spacing requirements. The proposal consolidates from three accesses to one, improving access control.

16.200 ***General Variance Criteria:*** **In order to be granted a variance, the applicant must demonstrate that:**

A. Special circumstances or conditions apply to the property or intended use that do not apply to other property in the same area. The circumstances or conditions may relate to the size, shape, natural features and topography of the property or the location or size of physical improvements on the site or the nature of the use compared to surrounding uses;

Applicant Response:

The property is bounded by NE Halsey St. serving as its only frontage. Disallowing access to NE Halsey would landlock the parcel.

Staff Response:

As identified in the applicant's response, NE Halsey St. is the site's only available frontage for access. Existing improvements also limit being able to meet spacing requirements on both the same side and opposite side of the development. As conditioned, the criterion is met.

B. The variance is necessary for the preservation and enjoyment of a substantial property right of the applicant and extraordinary hardship would result from strict compliance with the standards;

Applicant Response:

The property is bounded by adjacent uses with NE Halsey being its only frontage. The proposed access is the sole access and necessary for the use of the site.

Staff Response:

As identified in the applicant's response, NE Halsey St. is the site's only available frontage for access. In order to redevelop the property from its current condition (two dilapidated single-family detached houses) to a single apartment building with ground-level commercial space, the property needs access to NE Halsey St. As conditioned, the criterion is met.

C. The authorization of the variance will not be materially detrimental to the public welfare or injurious to other property in the vicinity, or adversely affect the appropriate development of adjoining properties;

Applicant Response:

The trip generation letter deems impacts from the proposed use as minor. Additionally the site currently utilizes three existing accesses. The proposal consolidates to one to improve upon access control in the corridor.

Staff Response:

As identified in the applicant's response, the trip generation letter (Lancaster Engineering, 10/23/18) notes that the site will generate fewer than 10 AM and PM peak-hour trips at the nearby study intersections of NE Halsey St./NE Fairview Pkwy. and NE Halsey St./NE Fairview Ave. [aka NE 223rd Ave.].

The redevelopment of this site will replace three existing access points with a single, new access point, improving the site's access management. A notice was sent out for the project, and no comments of concern were submitted. No adverse impacts are anticipated. As conditioned, the criterion is met.

D. The circumstances of any hardship are not of the applicant's making.

Applicant Response:

The applicant proposes to improve upon existing access control, by consolidation of accesses from three to one.

Staff Response:

As identified in the applicant's response, the site does not have opportunities for cross-access onto surrounding properties, so it's frontage on NE Halsey St. is the only option for access. Existing improvements not of the applicant's making limits the ability to meet spacing requirements.

MCRR 4.400 Width: Driveway, Private road and Accessway widths shall conform to the dimensions laid out in the Design and Construction Manual.

Staff: For a Commercial use, a new or reconfigured driveway must be a minimum 20 feet wide and maximum 34 feet wide (MCDCM, Table 1.2.4, Private Access Driveway Width Standards) The new NE Halsey St. driveway will be 23.5 feet wide.

Criterion is met.

MCRR 4.500 Sight Distance: All new or altered access points to roads under the County's jurisdiction must have a minimum sight distance equal to the standards in the Design and Construction Manual and AASHTO's A Policy on Geometric Design of Highways and Streets.

Staff: Multnomah County Road Rules Section 4.500 states that access points to roads under the County's jurisdiction must have a minimum sight distance equal to the standards in the County Design and Construction Manual or AASHTO's A Policy on Geometric Design of Highway and Streets. The applicant has submitted for the review of the County Transportation Division a sight distance certification, which provides an assessment of sight distance at the intersection in question consistent with AASHTO standards.

<u>NE Halsey St. Access</u>
The speed limit on NE Halsey St. is 35 mph and per AASHTO, requires 278 feet of sight distance to the east and west from the new full-movement driveway. The driveway will have 1,463 feet of sight distance to the west and 350 feet of sight distance to the east.

As conditioned, Criterion is met.

MCRR 5.000 Transportation Impact

MCRR 5.100 To determine if a Transportation Impact is caused by a proposed development, the County Engineer will determine the number of new trips generated by a site by one of the following methods:

A. Calculations from the most recent edition of the Institute of Transportation Engineers' Trip Generation (ITE); or

B. A site development transportation impact study conducted by a professional engineer registered in the State of Oregon and accepted by the County.

MCRR 5.200 The County Engineer will use the information obtained pursuant to sub-section 5.100 and/or the frontage length of the subject property to determine the pro-rata share of the requirements set forth in Section 6.000. The County Engineer determination of pro-rata share of improvements will expire twelve months from the date of the County Engineer's determination or after the associated land use permit is granted or closed. If expired, a review process and new determination will be required.

MCRR 5.300 Except where special circumstances require the County Engineer to make an alternate determination, any new construction or alteration which will increase the number of trips generated by a site by more than 20 percent, by more than 100 trips per day or by more than 10 trips in the peak hour shall be found to have a Transportation Impact. A minimum increase of 10 new trips per day is required to find a Transportation Impact.

Staff: The Multnomah County Road Rules defines a Transportation Impact as the effect of any new construction or alteration which will increase the number of trips generated by a site by more than 20 percent, by more than 100 trips per day or by more than 10 trips in the peak hour [MCRR 3.000]. A minimum increase of 10 new trips per day is required to find a transportation impact.

The applicant's 10/23/18 Trip Generation letter notes that the site will generate 4 new trips in the AM peak hour and 12 new trips in the PM peak hour, adding fewer than 10 AM and PM peak-hour trips to the nearby study intersections of NE Halsey St./NE Fairview Pkwy. and NE Halsey St./NE Fairview Ave. [aka NE 223rd Ave.]. Under these conditions, nearby intersections will continue to operate at an acceptable Level of Service (LOS).

As conditioned, this criterion is met.

MCRR 6.000 Improvement Requirements

MCRR 6.100 *Site Development:* All subject parties with respect to any property proposed for development, including but not limited to the owner of the site and the applicant (if different than the owner), will be responsible for improvements to the right-of-way for any said development of the property which is found to cause a Transportation Impact, those improvements shall include:

A. Dedication of Right of Way Requirement: The subject parties are responsible for a pro-rata share, as determined by the County Engineer, of right-of-way and easement dedications necessary to bring the affected, existing, created or planned public streets and other facilities within and abutting the development to the current County standard. The dedication of the required easements and right-of-way may be conditions of approval of Design Review or any other development permit related to the proposal.

Staff: The applicant's site plan shows the ROW as 45 feet from centerline, meeting the County's Design and Construction Manual standard for Minor Arterial (90 feet of ROW).

Criterion is met.

B. Frontage Improvement Requirements: Frontage Improvement Requirements: In addition to easement and right-of-way dedication requirements, a prorate share may include half-street improvements along all of the site's County Road frontage(s). Right of Way improvements shall satisfy the standards of the County Design and Construction Manual based upon the functional classification of the road(s). The commitment to improve the affected streets or other facilities to the required standards shall be conditions of approval of Design Review or any other development permit related to the proposal. Half-street improvements can include all of the following:

- **a. Street widening/improvement**
- **b. Utility cut restoration**
- **c. Curb and sidewalk**
- **d. Driveway relocation/replacement/removal**
- **e. Traffic controls**
- **f. Drainage facilities**
- **g. Lighting facilities**
- **h. Bicycle facilities**
- **i. Signal conduit facilities**
- **j. Street trees**
- **k. Other appropriate facility or right of way requirements as required by applicable statutes, codes and regulations.**

Staff: As indicated above, this project creates a Transportation Impact and thus half-street improvements will be required to meet the County's preferred cross-sections in the Design and Construction Manual (DCM 2.2.1).

The applicant's site plan shows removal of an existing curb-tight 5 foot sidewalk, replacing it with a 5.5 foot planting strip, 6.5 foot sidewalk, and 6.5 foot landscape area at the back of the sidewalk (within ROW), meeting the design intent of both the Multnomah County DCM and the *Main Streets on Halsey* plan. Improvements will also need to meet ADA standards.

As conditioned, criterion is met.

C. Required Submissions by Subject Parties. Subject parties shall submit to the County Engineer the following: engineered plans, traffic studies, traffic analysis, reports, surveys or similar documents as requested or required by the County Engineer under this Subsection 6.100 or as may additionally be required under Section 18.

Staff: The applicant's 10/23/18 Traffic Generation letter detailed peak-hour trip generation levels that will not adversely impact Level of Service (LOS) on nearby intersections. Additionally, the applicant's site plan indicates that a 15 foot by 15 foot vision clearance triangle will be maintained at the access point's intersection with NE Halsey St., with no objects over 3 feet in height within the sight triangle.

As conditioned, criterion is met.

26.000 Stormwater and Drainage
26.100 Onsite management of Stormwater is a priority for County.

Staff: Multnomah County Transportation engineering staff reviewed the Stormwater Report (October 2018) on October 31, 2018 and found all conditions satisfactory. No stormwater is being sent into County right-of-way, as this development is treating and storing stormwater onsite with a cartridge filter and underground detention pipes.

Criterion is met.

Conditions of Approval:

1. **Access Permit:** Applicant will need to obtain an Access Permit for the new access point onto NE Halsey St prior to building permit approval. (**MCRR 4.100**)

2. **Half-Street Improvements and Construction Permit:** Applicant will need to obtain a Construction Permit for half-street improvements on NE Halsey St. prior to construction activity. Half-street improvements to be constructed include: (DCM Table 2.2.1)**:**
   - **I. Grade/rock/pave to commercial depth between existing pavement and new curb;**
   - **II. Construct bicycle lanes as required;**
   - **III. Furnish street trees as required;**
   - **IV. Furnish street lighting facilities as required;**
     Please contact Chet Hagen, Mid-County Street Lighting District Administrator, at chet.hagen@multco.us or 503-988-0164 for more information.
   - **V. Construct Multnomah County standard concrete curb and 6-foot wide concrete sidewalk in compliance with ADA specifications;**
   - **VI. Install underground traffic control devices conduit and related equipment as required;**
   - **VII. Construct storm drainage facilities as required.**

3. **ADA Standards**: Prior to issuance of the Certificate of Occupancy the applicant will need to demonstrate compliance of all sidewalks/ramps along the frontage of the property with ADA standards. The applicant will need to obtain a permit from Multnomah County for any ADA improvements within the right-of-way.

4. **Stormwater:** Any alteration of the storm water discharge onto County right of way requires a Discharge Permit. Any alteration of storm water drainage to the existing discharge needs to be reviewed by the County. Increased run-off to incorporated Multnomah County could negatively impact the roadway system.
5. **Sight Distance:** The property owner/developer shall maintain the sight distance from all access points, including maintenance of vegetation.

Fairview File #: 18-24
Multi Use Commercial Bldg/21929 NE Halsey.
FROM: Kyle Stuart, Gresham Fire (kyle.stuart@GreshamOregon.gov)
DATE: 12/4/2018
FIRE COMMENTS:

NOTE: Limited information at this time. All of the following will need to be provided on a separate FIRE ACCESS and WATER SUPPLY page with the building permit plans.

1. Provide fire flow per Oregon Fire Code Appendix B. Fire flow for apartment buildings varies based on construction and square footage. ***OFC App B Table B105.1.***

2. A temporary address of 6" shall be provided at each construction entrance prior to the arrival of materials or workers. ***OFC 505 & 3301***

3. The site addressing shall meet the Gresham Fire Addressing Policy. This policy is available upon request. ***OFC 505.1***

4. Public fire hydrant distances are not indicated on the plans. They must be shown. Without knowing the Construction type a fire hydrant is required to be within 250ft of the front drive entrance and within 400ft of the farthest portion of the building. All fire hydrants shall have STORZ quick adapters on the large port. The model required is Harrington HPHA50-45NHWCAP. ***OFC 507***

5. A fire hydrant shall be within 50 feet of the fire sprinkler system "FDC's". ***OFC Appendix C 102.2 & NFPA 13E***

6. Fire hydrant locations shall be identified by the installation of reflective markers. The markers shall be BLUE. They shall be located adjacent and to the side of the centerline of the access road way that the fire hydrant is located on. In case that there is no center line, then assume a centerline, and place the marker accordingly. ***OFC 508.5.4***

7. Prior to applying for a building permit provide a fire flow test and report. The fire flow report will verify that the correct fire flow is available and will be required to have been conducted within the last 12 months. ***OFC 507.3 & B-101.1***

8. Required Fire Dept. Access Roads on site shall be designed to support an apparatus weighing 75,000 lb. gross vehicle weight. Provide an engineer's letter stating the access road meets those requirements at time of building permit submittal. ***OFC, Appendix D, Section D102.1***

9. All Fire Dept. Access Roads shall be drawn to scale and shown clearly on plans. The access roads shall be constructed and maintained prior to and during construction. The

minimum width is 26' wide to provide access for aerial ladder trucks. Show these dimension son plans. ***OFC 1410, 503.2.1 & D103.1***

10. At least one of the required aerial fire access roads shall be located a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. Show thee distances on plans. This will be required to be approved by the fire code official. ***OFC App D-105.3***

11. If building is proposed to be under 30ft as discussed in meeting 12/4/2018 items 9 and 10 will not be a requirement and the minimum fire access width will be reduced to 20ft.

12. No Parking Fire Lane signage or curb marking will be required. Fire access roads 20' – 26' wide do not allow parking on either side within that space. Parking spaces outside that space are acceptable. Indicate signage or curb marking on the building permit plans. I can email you our policy. ***OFC D 103.6***

13. The turning radius for all emergency apparatus roads shall be: 28' inside and 48' outside radius. ***OFC 503.2.4***

14. Each building is required to be provided with fire sprinklers. This includes balconies, decks and ground floor patios. ***903, 903.3.1.2***

15. A fire alarm system will be required. ***OFC 903.4 and 907***

16. Per Chief Scott Lewis no turn around will be required for 210ft access. ***OFC 503.2.5***

STAFF REPORT – TYPE III
FINDINGS AND NOTICE OF DECISION

Date of Report:	December 4, 2018
Staff Contact:	Sarah Selden, Senior Planner
Application Number:	2018-51-DR
Applicant:	Axis Design Group Architecture & Engineering
Property Owner:	Dean Hurford
Site Address:	No site address; NW Corner of NE 223rd (also known as Fairview Ave.) and Halsey Street
Parcel Number/Tax ID:	1N3E28DD -07900; 7800; 8001
Proposal:	Development of mixed-use site including: o Six three-story multi-family residential buildings containing 10-12 units each o One four-story mixed-use building along NE 223rd Avenue with 4,400 sq. ft. of ground floor commercial space and 18 upper story residential units o 108 on-site parking spaces The land use request is for Site Design Review with a Natural Resource Boundary Verification permit for Fairview Creek. A Road Rules Variance to access standards for NE 223rd Avenue has been reviewed concurrently by Multnomah County Transportation.
Recommendation:	Approval subject to conditions listed on pages 71-76.

Exhibits: **A. Agency Referral Comments & Conditions**

1. Multnomah County Transportation
2. Gresham Fire

B. Applicant's Narrative

1. Applicant's Narrative (dated 11-15-18)

C. Applicant's Exhibits

1. Cover Sheet
2. Survey – Natural Resources and Floodplain
3. Existing Stormwater Basin Plan
4. Proposed Stormwater and Grading Plan
5. Stormwater Details
6. Utilities Plan
7. Site Analysis Map
8. Site Plan
9. Exterior Elevations – Building Type 'A'
10. Exterior Elevations – Building Type 'B'
11. Exterior Elevations – Building 'C'
12. Traffic Impact Study
13. Preliminary Stormwater Report
14. Neighborhood Meeting Documentation

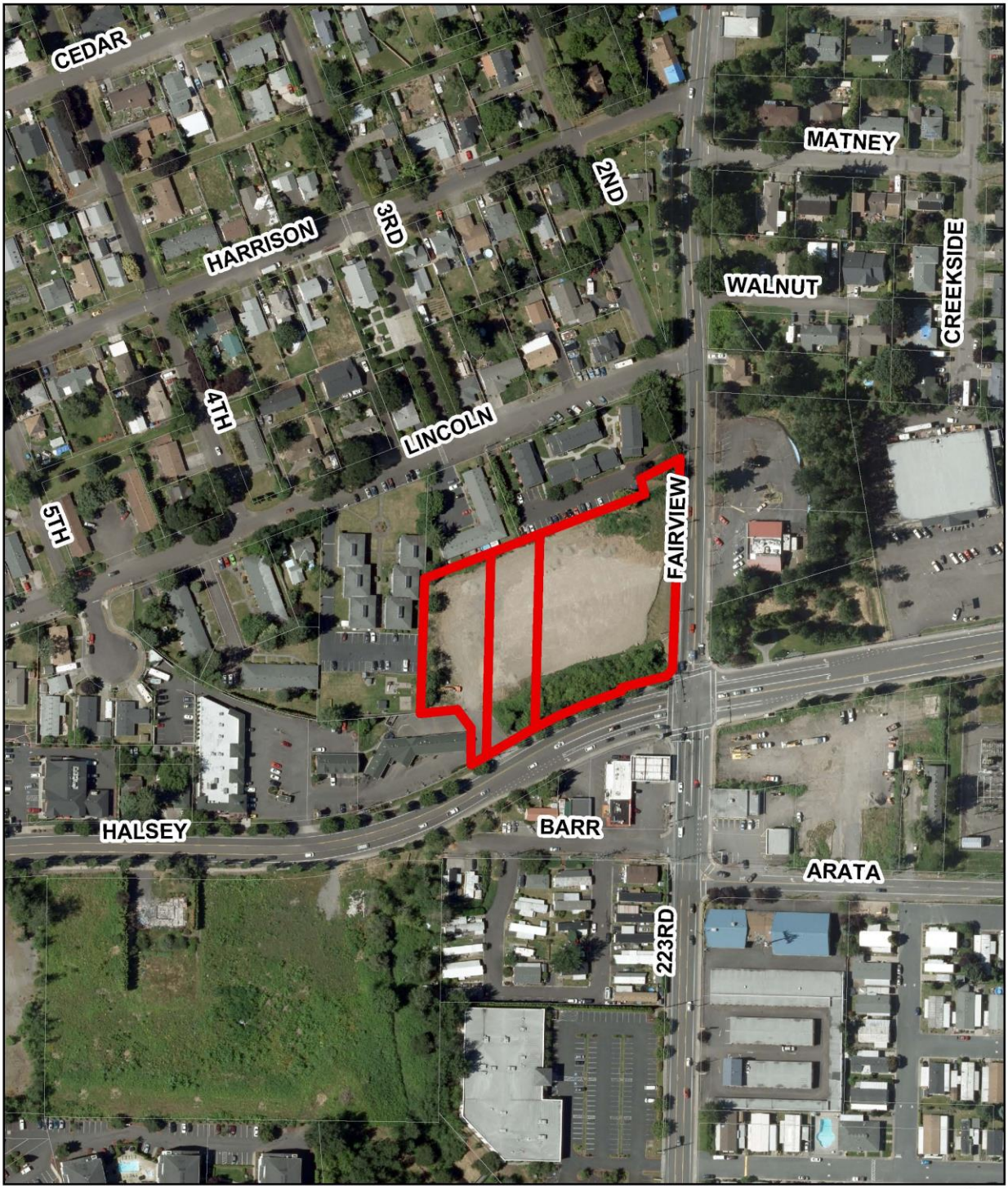
I. BACKGROUND & EXISTING CONDITIONS

Acreage:	2.65 acres
Comprehensive Plan:	Commercial
Zoning Designation:	Town Center Commercial (TCC)
Zoning Overlays:	Floodplain Overlay
Surround Land Use/ Zoning:	North: Apartments/Residential Multi-Family (R/MF) zone South: Chevron gas station and mobile homes/TCC zone East: Marilyn's (City) Park and Alexander's Bar & Grill/TCC Zone West: Apartments in R/MF zone and Scrubby's Car Wash in TCC Zone
Streets/Classification:	Halsey Street: Minor Arterial Fairview Parkway: Major Collector

Existing Site Conditions: The site is vacant, with sparse grassy vegetation and imported fill. Significant vegetation is limited to the Fairview Creek riparian corridor, which runs along the southern property line. The site is relatively flat, sloping gradually to the south towards Fairview Creek. An existing driveway at the west edge of the site crosses tax lots 7800 and 8001 and provides shared access to the east side of Scrubby's.

Aerial view of vacant development site, looking north.

Street view of site looking north from the intersection of NE 223rd Avenue and Halsey Street. The site is seen on the left, with the vegetated Fairview Creek riparian area along Halsey.



Proposed Development Site

City of Fairview
1300 NE Village Street
Fairview, OR 97024
(503) 665-7929
www.fairvieworegon.gov

1 inch = 200 feet

Print Date: 11/21/2018
Printed By: rutledgee

This map is for informational purposes only and the City cannot accept responsibility for any errors, omissions, or positional inaccuracy. This map is provided "AS-IS".

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II. NOTICES & REFERRALS

Application Date:	June 28, 2018
Application Deemed Complete:	November 19, 2018
Public Hearing Date:	December 11, 2018
Public Notice Date/Type:	Notice mailed to property owners within 250 ft. of site: November 21, 2018 Notice in Gresham Outlook newspaper: November 20, 2018 Site Posted with Sign: November 30, 2018
Referrals:	Multnomah County Transportation Gresham Fire

III. APPLICABLE CRITERIA

This Type III application process requires a Planning Commission decision subject to the following requirements of the Fairview Municipal Code (FMC) Title 19:

A) Application Review Procedures

FMC 19.400	Administration of Land Use and Development Review
FMC 19.412	Description of Permit Procedures
FMC 19.413	Procedures
FMC 19.424	Site Design Review – Application Review Procedure
FMC 19.425	Site Design Review – Application Submission Requirements
FMC 19.426	Site Design Review – Approval Criteria
FMC 19.440	Conditional Use Permits

B) Land Use Districts

FMC 19.65	Town Center Commercial (TCC) District
FMC 19.105	Floodplain Overlay
FMC 19.106	Natural Resource Regulations

C) Design Standards

FMC 19.162	Access and Circulation
FMC 19.163	Landscaping, Street Trees, Fences and Walls
FMC 19.164	Vehicle and Bicycle Parking
FMC 19.165	Public Facilities Standards

IV. APPLICATION REVIEW PROCEDURE FINDINGS

19.400 Administration of Land Use and Development Review

This article specifies that land use approval expires two years from the date of decision application.

> **FINDINGS:** If approved, this Site Design Review decision shall expire two (2) years from the date of final decision.
>
> **Condition of Approval:** This approval for application 2018-51-DR shall become null and void after two (2) years if construction activities have not commenced.

19.412 Description of Permit Procedures

19.412.010 Preapplication conferences: establishes that a preapplication conference is required for Type II, III, and IV applications.

> **FINDINGS:** A pre-application conference was held for this application on June 7, 2018. This standard is met.

19.412.020 Forms, applications, and filing fees: specifies what information must be included in applications and requests for action.

> **FINDINGS:** The application met all of the specified submission requirements with the exception of a Landscape Plan. ORS 227.178(2) states that an application shall be deemed complete when an applicant has submitted all local submittal requirements, or has stated in writing that they will not provide any additional information. The applicant noted they will not provide a separate landscape plan until building permit submittal, but the Site Plan shows the percentage landscaping and location of trees and shrubs.

19.412.030: Concurrent review of multiple applications: states that applications for more than one land use review on the same property may be processed in a single hearing.

> **FINDINGS:** This applicant involves a concurrent Type III Site Design Review, Type III Conditional Use Review (development in floodplain) and Type I Boundary Verification. All requests are for the same properties as part of a consolidated site plan, and will be reviewed in a single hearing. This standard is met.

19.412.040 Consistency with state statutes: applies ORS 22.178 the 120 day timeline for final action to Fairview land use applications.

> **FINDINGS:** This application was deemed complete on November 19, 2018. The 120-day deadline for final action on this land use application is March 19, 2019.

FMC 19.412.050 Determination of completeness: Requires that land use applications be reviewed for consistency with the submission requirements, and that notice of completeness or incompleteness be given to the applicant within 30 days of application receipt.

> **FINDINGS:** The land use application was submitted on June 28, 2018. A notice of incompleteness was sent on July 23, 2018. Incomplete items were then submitted and the application was deemed completed on November 19, 2018. This standard is met.

19.413 Procedures

19.413.030 Type III procedure (quasi-judicial): Establishes the planning commission as the decision make and outlines the procedures for a public hearing, notice of public hearing, and notice of decision.

> **FINDINGS:** This is a Type III land use application with a decision by the Planning Commission. Notice was provided to surrounding property owners, published in the Gresham Outlook, and posted at the site, as described on page three of this report. This standard is met.

19.420 Development Review and Site Design Review

19.422 Applicability

19.420.010 Purpose: describes the intent of the development and site design review standards. 19.422.010: describes the development types subject to the site design review procedure, which includes new commercial and mixed-use buildings.

> **FINDINGS:** This application requires site design review. This standard is met.

19.424 Site Design Review – Application Review Procedure

FMC 19.424.010: Procedure and *FMC 19.424.020: Determination of Type II and Type III applications:* Establish that Commercial, industrial, public/semi-public, and institutional buildings with greater than 5,000 square feet of gross floor area, residential buildings with more than three units, developments with more than one building, and developments with more than 25 off-street parking spaces shall be reviewed as a Type III application.

> **FINDINGS:** This application requires a Type III review procedure and is being processed accordingly. This standard is met.

19.425 Site Design Review – Application Submission Requirements

This article lists the information required to be submitted as part of a site design review application, with specific requirements to be included on a site analysis map, proposed site plan, architectural drawings, preliminary grading plan, and landscape plan.

FINDINGS: See findings for *19.412.020.* This standard is met.

19.426 Site Design Review – Approval Criteria

FMC 19.426.001: Site design review approval criteria
The review authority shall make written findings with respect to all of the following criteria when approving, approving with conditions, or denying an application.

FMC 19.426.010: Complete application
The application must be complete, as determined in accordance with FMC 19.412.050, on types of applications, and Chapter 19.425FMC.

FMC 19.426.020: Compliance with land use district provisions
The application complies with all of the applicable provisions of the underlying land use district, including: building and yard setbacks, lot area and dimensions, density and floor area, lot coverage, building height, building orientation, architecture, and other special standards as may be required for certain land uses.

FMC 19.426.040: Compliance with design standards
The application complies with the design standards contained in Article III of this title. All of the following standards shall be met:

A. Chapter 19.162 FMC – Access and Circulation;

B. Chapter 19.163 FMC – Landscaping, Street Trees, Fences and Walls;

C. Chapter 19.164 FMC – Automobile and Bicycle Parking;

D. Chapter 19.165 FMC – Public Facilities Standards;

E. Other standards (telecommunications facilities, solid waste storage, environmental performance, signs), as applicable.

FMC 19.426.050: Conditions
All conditions required as part of an approval shall be met.

FMC 19.426.060: Exceptions
Exceptions to criteria in FMC 19.426.040(A) through (E) may be granted only when approved as a variance.

FINDINGS: This application was determined to be complete on November 19, 2018. Per FMC 19.426.020 and 19.426.40, compliance with the underlying Town Center Commercial land use district, Floodplain Overlay, Natural Resource Regulations, and the design standards in FMC Article III are analyzed below. All conditions required as part of this approval must be met.

V. LAND USE DISTRICT FINDINGS

Chapter 19.65: Town Center Commercial (TCC) District

19.65.010 Purpose.

A city goal is to strengthen the town center commercial district as the "heart" of the community and as the logical place for people to gather and create a business center. The town center commercial district is intended to support this goal through elements of design and appropriate mixed use development. This chapter provides standards for the orderly improvement of the district based on the following principles:

A. Efficient use of land and urban services;

B. A mixture of land uses to encourage walking as an alternative to driving, and to provide more employment and housing options;

C. Both formal and informal community gathering places;

D. A distinct storefront character that identifies commercial districts;

E. Connections to neighborhoods and other employment areas;

F. Reduced reliance on the automobile and reduced parking needs.

FINDINGS: The proposed development meets the purpose of the Town Center Commercial zone by providing additional housing options, and providing residential and commercial uses in close proximity to one another. The ground floor commercial use in the mixed-use building along NE 223rd (Building C) provides a storefront character, and a community gathering place located at the plaza along the south end of the building.

19.65.020 Permitted land uses.

A. Permitted Uses. The land uses listed in Table 19.65.020.A are permitted in the town center commercial district, subject to the provisions of this chapter. Only land uses that are specifically listed in Table 19.65.020.A, and land uses that are approved as "similar" to those in Table 19.65.020.A, may be permitted. The land uses identified

with a "CU" in Table 19.65.020.A require conditional use permit approval prior to development or a change in use.

Table 19.65.020.A
Land Uses and Building Types Permitted in the Town Center Commercial District

1. Residential* *Single-Family* *a. Single-family detached housing (existing housing only)* *b. Zero-lot line housing (existing only)* *c. Accessory dwellings* *d. Manufactured homes – individual lots (existing housing only)* *e. Single-family attached townhomes (CU)* *Two-Family* *f. Two-family housing (duplex) (CU)* *Multifamily and Three-Family* *g. Multifamily housing and triplexes (CU)* *Residential care* *h. Residential care homes and facilities (CU)* *i. Family day care (12 or fewer children)* *2. Home occupations* *3. Bed and breakfast inns and vacation rentals (CU)*	***4. Public and Institutional**** *a. Churches and places of worship* *b. Clubs, lodges, similar use* *c. Government offices and facilities (administration, public safety, transportation, utilities, and similar uses)* *d. Libraries, museums, community centers, concert halls and similar uses* *e. Public parking lots and garages* *f. Private utilities* *g. Public parks and recreational facilities* *h. Schools (public and private)* *i. Special district facilities* *j. Telecommunications equipment – antennas pursuant to Chapter 19.245 FMC* *k. Telecommunications equipment – monopoles (CU) pursuant to Chapter 19.245 FMC* *l. Uses similar to those listed above subject to applicable CU requirements* ***5. Accessory Uses and Structures**** ***6. Commercial*** *a. Auto-oriented uses and facilities (CU)**	*b. Entertainment (e.g., theaters, clubs, amusement uses)* *c. Hotels/motels* *d. Medical and dental offices, clinics and laboratories* *e. Mixed use development (housing and other permitted use)** *f. Office uses (i.e., those not otherwise listed)* *g. Personal and professional services (e.g., child care center, catering/food services, restaurants, laundromats and dry cleaners, barber shops and salons, banks and financial institutions, and similar uses)* *h. Repair services (must be enclosed within building)* *i. Retail trade and services, except auto-oriented uses* *j. Uses similar to those listed above (subject to CU requirements, as applicable)* *7. Industrial** *Light manufacture (e.g., small-scale crafts, electronic equipment, furniture, similar goods when in conjunction with retail) (CU)*
Uses marked with an asterisk (*) are subject to the standards in FMC 19.65.090, Special standards for certain uses. *Land uses marked with a CU shall require a conditional use permit.*		

B. Determination of Similar Land Use. Similar use determinations shall be made in conformance with the procedures in Chapter 19.480 FMC.

C. Land Uses Prohibited in the Commercial District. Only uses specifically listed in Table 19.65.020.A, and uses similar to those in Table 19.65.020.A, are permitted in this district. The following uses are expressly prohibited: Industrial uses not permitted in section 7 of Table 19.65.020.A.

FINDINGS: The proposal is a mixed-use commercial/residential development that includes housing and other permitted commercial uses. This is listed as a permitted use in *Table 19.65.020.A, under 6.e.* As described under 19.65.090 and addressed later in this report, *Both "vertical" mixed use (housing above the ground floor), and "horizontal" mixed use (housing on the ground floor) developments are allowed...*This proposal is for a "horizontal" mixed-use development. The applicant will be required as a condition of approval to consolidate the three tax lots. The narrative further notes that the property will be owned and managed by a single entity.

Proposed residential uses are apartments. The applicant intends to lease the ground floor commercial spaces to uses in the categories of medical and dental offices, clinics and laboratories; office uses; personal and professional services; and retail trade and services, except auto-oriented uses. This standard is met.

19.65.030 Building setbacks.

In the town center commercial district, buildings are placed close to the street to create a vibrant pedestrian environment, to slow traffic down, provide a storefront character to the street, and encourage walking. The setback standards are flexible to encourage public spaces between sidewalks and building entrances (e.g., extra-wide sidewalks, plazas, squares, outdoor dining areas, and pocket parks). The standards also encourage the formation of solid blocks of commercial and mixed use buildings for a walkable commercial area.

Building setbacks are measured from the wall or facade to the respective property line. Setbacks for porches are measured from the edge of the deck or porch to the property line. The setback standards, as listed on the following page, apply to primary structures as well as accessory structures. The standards may be modified only by approval of a variance.

A. Front Setbacks.

1. Minimum Setback. There is no minimum front setback required.

2. *Maximum Setback. The maximum allowable front setback is 10 feet. This standard is met when a minimum of 80 percent of the front building elevation is placed no more than 10 feet back from the front property line. On parcels with more than one building, this standard applies to the largest building. The setback standard may be increased when a usable public space with pedestrian amenities (e.g., extra-wide sidewalk, plaza, pocket park, outdoor dining area or town square with seating) is provided between the building and front property line. (See also pedestrian amenities standards in FMC 19.65.080, and architectural standards in FMC 19.65.070 for related building entrance standards.)*

FINDINGS: Building C, located along NE 223rd, is located at the property line with a 0 ft. setback. This is the largest building on the site, and complies with the maximum front setback of 10 ft. Along Halsey Street, the location of Fairview Creek along the property line prevents buildings from being sited within 10 ft. of the property line
This standard is met.

B. *Rear Setbacks.*

1. *Minimum Setback. The minimum rear setback for all structures shall be zero feet, except for doorways which will be recessed to assure safe exiting, for street-access lots, and eight feet for alley-access lots (distance from building to rear property line or alley easement) in order to provide space for parallel parking. When a building abuts a residential district the minimum rear setback shall be 15 feet.*

2. *Through-Lots. For buildings on through-lots (lots with front and rear frontage onto a street), the front setbacks in subsection A of this section shall apply.*

FINDINGS: A 15 ft. minimum rear setback is required along the northern property line abutting the apartments in the R/MF zone. The site plan provides a minimum 24 ft. setback from the rear property line. This standard is met.

C. *Side Setbacks. There is no minimum side setback required, except that buildings shall conform to the vision clearance standards in FMC 19.162.020 and the applicable fire and building codes for attached structures, firewalls, and related requirements.*

FINDINGS: While no side setback is required, the building located closest to the western side property line (Building B1) has a setback of approximately 17 ft. A northern edge of this property line abuts the R/MF zone, and also exceeds the 15 ft. minimum rear setback abutting a residential district. This standard is met.

D. Setback Exceptions. Eaves, chimneys, bay windows, overhangs, cornices, awnings, canopies, porches, decks, pergolas, and similar architectural features may encroach into setbacks by no more than four feet, subject to compliance with applicable standards of the Uniform Building Code and Uniform Fire Code. Walls and fences may be placed on the property line, subject to the requirements of Chapter 19.163 FMC, Landscaping, Street Trees, Fences and Walls.

FINDINGS: No setback exceptions are requested.

19.65.040 Lot coverage, floor area ratio and maximum building size.

A. Lot Coverage. There is no maximum lot coverage requirement, except that compliance with other sections of this code may preclude full (100 percent) lot coverage for some land uses.

B. Floor Area Ratio. Floor Area Ratio (FAR) controls the bulk and mass of development. FAR is measured by dividing the gross enclosed area of all floors of a building (or combination of buildings in a single development) by the net land area of the development (not including street rights-of-way). For example, a 1.0 FAR equals two building stories (approximately 25 to 30 feet high) with 50 percent lot coverage. A FAR of 4.0 equals six building stories (more than 75 feet high) with 67 percent lot coverage. The following standard shall be met in all commercial, industrial and mixed use (residential with nonresidential) developments:

1. The maximum floor area shall be 1.0 in the town center commercial district.

C. Maximum Building Size. Individual maximum building size is 60,000 square feet.

FINDINGS for A-C: The proposed development has a floor area ratio (FAR) of 0.84, with a total floor area of 92,161 sq. ft. This does not exceed the maximum FAR of 1.0. Total square footage of individual buildings ranges from approximately 11,000 sq. ft. for the residential buildings to approximately 24,000 sq. ft. for the mixed-use building. This standard is met.

19.65.050 Block layout and building orientation.

This section is intended to promote the walkable, storefront character of the town center commercial district by forming short blocks and orienting (placing or locating) buildings close to streets. Placing buildings close to the street also slows traffic down and provides more "eyes on the street," increasing the safety of public spaces. The standards, as listed on the following page and illustrated above, complement the front setback standards in FMC 19.65.030.

A. Applicability. This section applies to new land divisions and all of the following types of development (i.e., subject to site design review):

1. *Three or more single-family attached townhomes on their own lots (i.e., townhomes subject to site design review);*
2. *Duplex and triplex developments with more than one building (i.e., duplex and triplex developments subject to site design review);*
3. *Multifamily housing;*
4. *Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and*
5. *Commercial and mixed use buildings subject to site design review.*
6. *Compliance with all of the provisions of subsections B through E of this section shall be required.*

FINDINGS: The proposal includes the uses listed in 3 (multifamily housing) and 5 (mixed-use) above. This standard applies.

B. Block Layout Standard. New land divisions and developments, which are subject to site design review, shall be configured to provide an alley or interior parking court, as shown above. Blocks (areas bound by public street right-of-way) shall have a length not exceeding 200 feet, and a depth not exceeding 200 feet. Pedestrian pathways shall be provided from the street right-of-way to interior parking courts between buildings, as necessary to ensure reasonably safe, direct, and convenient access to building entrances and off-street parking. Exceptions to this standard may be approved when all of the provisions of subsection C of this section, superblock developments, are met.

FINDINGS: The site dimensions are approximately 337 ft. along both frontages. No new streets are proposed, and all parking is located in an interior parking lot between buildings. Pedestrian pathways are provided to the interior parking court along the Halsey Street access driveway, and along NE 223rd Avenue on the north and south ends of Building C. The location of Fairview Creek along the Halsey Street frontage precludes additional pedestrian connections from Halsey Street to the interior of the site. This standard is met.

C. Superblock Developments. Commercial and mixed use developments may exceed the block width and depth standards in subsection B of this section, when the total floor area of those developments (i.e., one or more buildings on one or more lots) exceeds

40,000 square feet on the ground floor. These "superblock developments" shall conform to all of the standards in subsections (C)(1) and (C)(2) of this section (see Figure 19.65.050.C):…..

FINDINGS: The total ground floor square footage for the development site does not exceed 40,000 sq. ft. This standard does not apply.

D. Building Orientation Standard. All of the developments listed in subsection A of this section shall be oriented to a street. The building orientation standard is met when all of the following criteria are met:

1. *The minimum and maximum setback standards in FMC 19.65.030 are met;*
2. *Buildings have their primary entrance(s) oriented to (facing) the street. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard entrances (i.e., to a cluster of units or commercial spaces). Alternatively, a building may have its entrance facing a side when a direct pedestrian walkway not exceeding 15 feet in length is provided between the building entrance and the street right-of-way.*
3. *Off-street parking, driveways or other vehicular circulation shall not be placed between a building and the street which is used to comply with subsection (D)(2) of this section. On corner lots, buildings and their entrances should be oriented to the street corner, as shown above; parking, driveways and other vehicle areas shall be prohibited between buildings and street corners.*

FINDINGS: The maximum setback is met for the largest building on the site, Building C along NE 223rd Avenue. This building has primary entrances facing NE 223rd, and all parking is located to the rear of the building. This standard is met.

E. Variances. Variances will be made in accordance with Chapter 19.520 FMC. The standard may be varied to address topographic or other physical constraints, in accordance with the provisions for Class B or C variances in Chapter 19.520 FMC.

FINDINGS: No variances are requested.

19.65.060 Building height.

All buildings in the town center commercial district shall comply with the following building height standards. The standards are intended to allow for development of appropriately scaled buildings with a storefront character:

A. Maximum Height. Buildings shall be no more than three stories or 45 feet in height, whichever is greater. The maximum height may be increased by 12 feet when housing is provided above the ground floor ("vertical mixed use"), as shown above.

The building height increase for housing shall apply only to that portion of the building that contains housing.

B. *Method of Measurement. "Building height" is measured as the vertical distance above a reference datum measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the average height of the highest gable of a pitched or hipped roof (see Figure 19.65.060 for examples of measurement)…*

FINDINGS: The residential buildings have a maximum height of 33'8" to the average height/midpoint of the peaked roof, complying with the maximum height of 45 ft.

Mixed-use Building C is a vertical mixed-use building and qualifies for the additional 12 ft. in height, or a maximum of 57 ft., per subsection A above. Housing is provided on all upper stories above the entire ground floor commercial building footprint, and therefore the entire building may be built to 57 ft. in height as measured to the midpoint of the roof. The height of Building C is 53 ft. to the midpoint. This standard is met.

19.65.070 Architectural guidelines and standards.

A. *Purpose and Applicability. The town center commercial district architectural guidelines standards are intended to provide detailed, human-scale design, while affording flexibility to use a variety of building styles. This section applies to all of the following types of buildings:*

1. *Three or more single-family attached townhomes on their own lots (i.e., townhomes subject to site design review);*
2. *Duplex and triplex developments with more than one building (i.e., duplex and triplex developments subject to site design review);*
3. *Multifamily housing;*
4. *Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and*
5. *Commercial and mixed use buildings subject to site design review.*

FINDINGS: The proposal includes the uses listed in 3 and 5 above. This standard applies. Subsection e below establishes that residential buildings are subject to the residential district architectural guidelines; the storefront design guidelines do not apply to the residential-only buildings.

B. Guidelines and Standards. Each of the following standards shall be met. An architectural feature used to comply with one standard may be used to comply with another standard.

1. Detailed Storefront Design. All buildings shall contribute to the storefront character and visual relatedness of town center commercial district buildings. This criterion is met by providing all of the architectural features listed in subsections (B)(1)(a) through (e) of this section along the front building elevation (i.e., facing the street), as applicable.

a. Corner building entrances on corner lots. Alternatively, a building entrance may be located away from the corner when the building corner is beveled or incorporates other detailing to reduce the angular appearance of the building at the street corner.

FINDINGS: The development site is a corner lot, however, Fairview Creek and its associated 80 ft. riparian buffer (40 ft. in each direction from the centerline of the creek) preclude development up to the property's corner. The corner of Building C, along NE 223rd, is located approximately 94 ft. north of the Halsey Street corner. A beveled corner is intended to be located right at the corner, and would not function as a corner design element when placed behind the creek. The design instead features a 24 ft. wide plaza at the corner that is connected to the NE 223rd Avenue sidewalk. The edge of the south building facade, facing the plaza, features storefront windows to create an inviting and open pedestrian space.

b. Regularly spaced and similar-shaped windows with window hoods or trim (all building stories).

FINDINGS: Overall, the facade has a symmetrical design meeting this standard. The east elevation of Building C faces NE 223rd Avenue and serves as the commercial storefront for the development. The ground floor is designed with regularly spaced aluminum storefront windows of the same dimension. Pedestrian weather protection is provided along the ground floor with metal canopies alternating with roofs where sections of the facade are recessed. Upper story windows are shown with trim. This standard is met.

c. Large display windows on the ground floor (nonresidential uses only). Bulkheads, piers and a storefront cornice (e.g., separates ground-floor from second story, as shown above) shall frame display windows.

FINDINGS: Aluminum storefront windows measuring approximately 6 ft. in width and 10 ft. in height are located with regular spacing along the ground floor facade, occupying 49% of the facade length. Building overhangs and metal canopies provide a cornice-like separation. Windows are divided into panes with a bulkhead appearance, and are surrounded by brick clad wall materials, that provide some appearance of piers separating the storefront windows. The provision of piers and large storefront windows would be strengthened by providing windows along approximately 60% of the facade length, separated by narrower sections of brick more similar to piers. The applicant is encouraged to revise the ground floor storefront accordingly.

d. *Decorative cornice at top of building (flat roof); or eaves provided with pitched roof.*

FINDINGS: Two foot wide eaves overhang the ends of the building. This standard is met.

e. *All residential buildings subject to design review shall comply with the residential district architectural guidelines, as listed in FMC 19.30.100.*

FMC 19.30.100 *Design standards.*

A. *Purpose. The architectural standards are intended to provide detailed, human-scale design, while affording flexibility to use a variety of building styles.*

B. *Applicability. This section applies to all of the following types of buildings, and shall be applied during site design review:*

1. *Single-family attached townhomes which are subject to site design review (three or more attached units);*
2. *Multifamily housing;*
3. *Public and institutional buildings;*
4. *Residential commercial and mixed use buildings; and*
5. *Duplexes and triplexes.*

C. *Standards. All buildings which are subject to this section shall comply with all of the following standards…*

1. *Building Form. The continuous horizontal distance (i.e., as measured from end-wall to end-wall) of individual buildings shall not exceed 120 feet. All buildings shall incorporate design features such as offsets, balconies, projections, window reveals, or similar elements to preclude large expanses of uninterrupted building surfaces, as shown in the above figure. Along the vertical face of a structure, such features shall occur at a minimum of every 35 feet, and on each floor shall contain at least two of the following features:*

   FINDINGS: The residential buildings (Buildings A and B) measure 80 ft. by approximately 46 ft. (Building type A) and 50 ft. (Building type B). The maximum wall length is met. Recesses and extensions provide compliance with the additional design feature requirements.

   a. *Recess (e.g., deck, patio, courtyard, entrance or similar feature) that has a minimum depth of five feet;*

      FINDINGS: Recessed covered balconies with a minimum 6 ft. depth are provided on each floor. Side exposure of the balconies provides this design element on buildings sides as well as the front and back.

   b. *Extension (e.g., floor area, deck, patio, entrance, or similar feature) that projects a minimum of two feet and runs horizontally for a minimum length of four feet; and/or*

      FINDINGS: The "A" buildings are shown with a (4) four-foot deep projecting balcony on the upper two stories of the south elevations. A projecting covered entry on the north side of the buildings extends up all stories.

   c. *Offsets or breaks in roof elevation of two feet or greater in height.*

2. *Eyes on the Street. All building elevations visible from a street right-of-way shall provide doors, porches, balconies, and/or windows. A minimum of 60 percent of front (i.e., street-facing) elevations, and a minimum of 30 percent of side and rear building elevations shall meet this standard. "Percent of elevation" is measured as the horizontal plane (lineal feet) containing doors,*

porches, balconies, terraces and/or windows. The standard applies to each full and partial building story.

FINDINGS: This standard does not apply to the residential buildings, which are located in the interior of the site, and are not clearly visible from a public right-of-way.

3. *Detailed Design. All buildings shall provide detailed design along all elevations (i.e., front, rear and sides). Detailed design shall be provided by using at least three of the following architectural features on all elevations, as appropriate for the proposed building type and style (may vary features on rear/side/front elevations):*

   a. *Dormers;*
   b. *Gables;*
   c. *Recessed entries;*
   d. *Covered porch entries;*
   e. *Cupolas or towers;*
   f. *Pillars or posts;*
   g. *Eaves (minimum six-inch projection);*
   h. *Off-sets in building face or roof (minimum 16 inches);*
   i. *Window trim (minimum four inches wide);*
   j. *Bay windows;*
   k. *Balconies;*
   l. *Decorative patterns on exterior finish (e.g., scales/shingles, wainscoting, ornamentation, and similar features);*
   m. *Decorative cornices and rooflines (e.g., for flat roofs);*
   n. *An alternative feature providing visual relief, similar to options in subsections (C)(3)(a) through (m) of this section.*

   FINDINGS: All building elevations show the 3-4 of the following elements. This standard is met.

   Condition of Approval: Window trim must be a minimum of (4) four inches wide as a required detailed design element.

BUILDING TYPE A *(along creek)*	**North elevation**	**South elevation**	**East elevation**	**West elevation**
Features	Eaves Balconies Window trim Gable (over entry)	Eaves Balconies Window trim Gable (center)	Eaves Balconies Window trim	Eaves Balconies Window trim
BUILDING TYPE B				
Features	Eaves Balconies Window trim Gable (over entry)	Eaves Balconies Window trim Gable (center)	Eaves Balconies Window trim	Eaves Balconies Window trim

2. *Design of Large-Scale Buildings and Developments. The standards in subsection (B)(2)(c) of this section shall apply to large-scale buildings and developments, as defined in subsections (B)(2)(a) and (b):*

    a. *Buildings with greater than 20,000 square feet of enclosed ground-floor space (i.e., "large-scale"). Multitenant buildings shall be counted as the sum of all tenant spaces within the same building shell;*

    b. *Multiple-building developments with a combined ground-floor space (enclosed) greater than 40,000 square feet (e.g., shopping centers, public/institutional campuses, and similar developments);*

    c. *All large-scale buildings and developments, as defined in subsections (B)(2)(a) and (b) of this section, shall provide human-scale design by conforming to all of the following criteria:…*

FINDINGS: None of the proposed buildings include greater than 20,000 sq. ft. of ground floor space, and the total ground floor square footage of the development does not exceed 40,000 sq. ft. This standard does not apply.

19.65.080 Pedestrian and transit amenities

A. *Purpose and Applicability. This section is intended to complement the building orientation standards in FMC 19.65.050, and the street standards in Chapter 19.165 FMC, by providing comfortable and inviting pedestrian spaces within the town center commercial district. Pedestrian amenities serve as informal*

gathering places for socializing, resting, and enjoyment of the city's town center commercial district, and contribute to a walkable district. This section applies to all of the following types of buildings:

1. *Three or more single-family attached townhomes on their own lots (i.e., townhomes subject to site design review);*
2. *Duplex and triplex developments with more than one building (i.e., duplex and triplex developments subject to site design review);*
3. *Multifamily housing;*
4. *Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and*
5. *Commercial and mixed use buildings subject to site design review.*

FINDINGS: This proposal includes the building types listed in 3 and 5. This section applies.

B. *Guidelines and Standards. Every development shall provide one or more of the "pedestrian amenities" listed in subsections (B)(1) through (B)(5) of this section. Pedestrian amenities may be provided within a public right-of-way when approved by the applicable jurisdiction.*

1. *A plaza, courtyard, square or extra-wide sidewalk next to the building entrance (minimum width of eight feet);*
2. *Sitting space (i.e., dining area, benches or ledges) between the building entrance and sidewalk (minimum of 16 inches in height and 30 inches in width);*
3. *Building canopy, awning, pergola, or similar weather protection (minimum projection of four feet over a sidewalk or other pedestrian space);*
4. *Public art which incorporates seating (e.g., fountain, sculpture, etc.);*
5. *Transit amenity, such as bus shelter or pullout, in accordance with the city's transportation system plan and guidelines established by Tri-Met.*

FINDINGS: Pedestrian amenities are proposed around mixed-use Building C. A 10 ft. wide sidewalk is provided along the NE 223rd Avenue facade (option 1), a courtyard is provided at the southeast corner of the building (option 1), and weather protection is provided along the entire facade. This standard is met.

19.65.090 Special standards for certain uses.

This section supplements the standards contained in FMC 19.65.030 through 19.65.080. It provides standards for the following land uses in order to control the scale and compatibility of those uses within the Town Center Commercial District:

- *Residential Uses*
- *Public and Institutional Uses*
- *Accessory Uses and Structures*
- *Automobile-Oriented Uses and Facilities*
- *Outdoor Storage and Display*

A. *Residential Uses. Higher density residential uses, such as multifamily buildings and attached townhomes, are permitted to encourage housing near employment, shopping and services. All residential developments shall comply with the standards in subsections (A)(1) through (A)(6) of this section which are intended to require mixed use development; conserve the community's supply of commercial land for commercial uses; provide for designs which are compatible with a storefront character; avoid or minimize impacts associated with traffic and parking; and ensure proper management and maintenance of common areas. Residential uses which existed prior to the effective date of this code are exempt from this section.*

1. *Mixed Use Development Required. Residential uses shall be permitted only when part of a mixed use development (residential with commercial or public/institutional use). Both "vertical" mixed use (housing above the ground floor), and "horizontal" mixed use (housing on the ground floor) developments are allowed, subject to the standards in subsections (A)(2) through (A)(6) of this section.*

   FINDINGS: The proposed development includes both "vertical" mixed use in Building C along NE 223rd Avenue, and "horizontal" mixed use with residential buildings provided behind the commercial/residential building.

2. *Limitation on Street-Level Housing. No more than 50 percent of a single street frontage may be occupied by residential uses. This standard is intended to reserve storefront space for commercial uses and public/institutional uses; it does not limit residential uses above the street level on upper stories, or behind street-level storefronts. For parcels with street access at more than one level (e.g., sloping sites with two street frontages), the limitation on residential building space shall apply to all street frontages.*

   FINDINGS: The development side has frontage on two streets, NE 223rd Avenue and Halsey Street. Development is set back from the Halsey Street frontage by over 50 ft. due to the intervening Fairview Creek riparian area. This condition precludes a street-

level storefront development along Halsey. Along NE 223rd Avenue, there is no street-level housing; all ground floor building space will be occupied by commercial uses. This standard is met.

3. *Density. There is no minimum or maximum residential density standard. Density shall be controlled by the applicable floor area and building height standards.*

   FINDINGS: No requirement/no findings

4. *Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be oriented to alleys, placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of the building; except that side yards facing a street (i.e., corner yards) shall not be used for surface parking. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front building elevation by a minimum of five feet. On corner lots, garage entrances shall be oriented to a side street when access cannot be provided from an alley.*

   FINDINGS: No parking is proposed between the street and the building along either NE 223rd Avenue or Halsey Street. A limited number of spaces are located on the north side of Building C, on either side of the NE 223rd Avenue access driveway, and along the sides of the Halsey Street access driveway. All other parking is located in a surface lot in the interior of the site, and in tuck-under spaces on the north/back side of residential buildings B1, B2, and B3. This standard is met.

5. *Creation of Alleys. When a subdivision (e.g., four or more townhome lots) is proposed, a public or private alley shall be created for the purpose of vehicle access. Alleys are not required when existing development patterns or topography make construction of an alley impracticable. As part of a subdivision, the city may require dedication of right-of-way or easements, and construction of pathways between townhome lots (e.g., between building breaks) to provide pedestrian connections through a development site, in conformance with Chapter 19.162 FMC, Access and Circulation.*

   FINDINGS: No subdivision is proposed with this application. This standard does not apply.

6. *Common Areas. All common areas (e.g., walkways, drives, courtyards, private alleys, parking courts, etc.) and building exteriors shall be maintained by a homeowners association or other legal entity. Copies of any applicable*

covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.

FINDINGS: The property will be owned by a single entity, and no HOA or common tracts created.

B. *Public and Institutional Uses. Public and institutional uses (as listed in Table 19.65.020.A) are allowed in the town center commercial district…*

FINDINGS: No public or institutional uses are currently proposed.

C. *Accessory Uses and Structures. Accessory uses and structures are of a nature customarily incidental and subordinate to the principal use or structure on the same lot. Typical accessory structures in the town center commercial district include small workshops, greenhouses, studios, storage sheds, and similar structures. Accessory uses and structures are allowed for all permitted land uses within the town center commercial district, as identified in Table 19.65.020.A. Accessory structures shall comply with the following standards:….*

FINDINGS: No accessory structures are currently proposed.

CONDITIONAL OF APPROVAL: Any accessory structures proposed in the future shall be reviewed by the City for compliance with applicable standards.

D. *Automobile-Oriented Uses and Facilities. Automobile-oriented uses and facilities, as defined below, shall conform to all of the following standards in the town center commercial district. The standards are intended to provide a vibrant storefront character, slow traffic, and encourage walking.*

1. *Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be accessed from alleys, placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of a building; except that side yards on corner lots shall not be used for surface parking. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front elevation by a minimum of five feet. On corner lots, garage entrances shall be oriented to a side street (i.e., away from the more major street) when vehicle access cannot be provided from an alley. Individual surface parking lots shall not exceed a total of 200 parking spaces, or one-half city block, whichever is smaller; larger parking areas shall be in multiple story garages.*

FINDINGS: All parking areas are located to the side or behind the buildings, and no garages are proposed. The total number of off-street parking spaces is 108. This standard is met.

2. *Automobile-Oriented Uses. "Automobile-oriented use" means automobiles and/or other motor vehicles are an integral part of the use. These uses are restricted because, when unrestricted, they detract from the pedestrian-friendly, storefront character of the district and can consume large amounts of land relative to other permitted uses. Automobile-oriented uses shall comply with the following standards:…*

FINDINGS: No automobile-oriented uses are proposed.

E. *Sidewalk Displays. Sidewalk display of merchandise and vendors shall be limited to cards, plants, gardening/floral products, food, books, newspapers, bicycles, and similar small items for sale or rental to pedestrians (i.e., non-automobile-oriented). A minimum clearance of five feet shall be maintained. Display of larger items, such as automobiles, trucks, motorcycles, buses, recreational vehicles/boats, construction equipment, building materials, and similar vehicles and equipment, is prohibited.*

FINDINGS: No proposed sidewalk displays have been noted in the application.

CONDITIONAL OF APPROVAL: Any sidewalk display proposed in the future shall be reviewed by the City for compliance with FMC 19.65.090.E.

F. *Light Industrial Uses….*

FINDINGS: No automobile-oriented uses are proposed.

VI. DESIGN STANDARDS FINDINGS

19.162: Access and Circulation

19.162.020 Vehicular access and circulation

A. *Intent and Purpose. The intent of this section is to manage vehicle access to development through a connected street system, while preserving the flow of traffic in terms of safety, roadway capacity, and efficiency. …*

B. *Applicability. This section shall apply to all public streets within the city and to all properties that abut these streets.*

C. Access Permit Required. Access to a public street requires an access permit in accordance with the following procedures:

1. Permits for access to city streets shall be subject to review and approval by the city engineer based on the standards contained in this chapter, and the provisions of the transportation standards. An access permit may be in the form of a letter to the applicant, or it may be attached to a land use decision notice as a condition of approval. In either case, an access permit will be reviewed consistent with the procedures required for the complementary development permit. If no development permit is requested, the access permit shall be reviewed consistent with a Type III process.

FINDINGS: Access permits are required from the Multnomah County for both Halsey Street and NE 223rd Avenue.

CONDITIONAL OF APPROVAL: Prior to issuance of permits, the applicant shall obtain an access permit from Multnomah County Transportation for access to Halsey Street and NE 223rd Avenue. See Multnomah County Transportation comments, Exhibit A-1.

D. Traffic Study Requirements. The city may require a traffic study prepared by a qualified professional to determine access, circulation and other transportation requirements.

A traffic study must be provided for any proposed development that includes more than 10 dwellings or generates at least 100 vehicle trips per day. The traffic study shall include those adjacent intersections that will receive more than 50 vehicle trips per day.

FINDINGS: Multnomah County Transportation required a traffic impact study, which was was prepared by the applicant based on a scope approved by Multnomah County (see Exhibit A-1). The study estimates that the site will generate 35 morning peak hour trips and 44 evening peak hour trips. The study looked at projected traffic volumes and service levels through 2020 and found that the nearby intersections would continue operating at County-approved levels. Intersection sight distance was also analyzed and found to be adequate assuming maintenance of vegetation. This standard is met.

E. Conditions of Approval. The city may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit,

to ensure the safe and efficient operation of the street. When obtaining access to off-street parking areas (both to and from), backing onto a public street shall not be permitted, except for single-family dwellings.

Conditions of Approval: The site plan includes access on both Halsey and NE 223rd. The Halsey Street access is located at the west end of the site, and was constructed as a shared access drive to serve the Scrubby's Car Wash building and the development site. This access point will provide full turning movement onto Halsey Street. This is the only location where a shared access is possible on the site. A secondary access point is proposed on NE 223rd Avenue as a limited right-in, right-out driveway. This access requires approval of a Variance to Multnomah County Road Rules, due to two factors: 1) The Multnomah County access standard is one driveway per site; a variance is required for two access points, and 2) Major Collectors (NE 223rd Ave.) require driveways to be spaced 148 ft. apart, which is not met by the existing driveway location. The County has approved the variance subject to conditions, as outlined in Exhibit A-1.

F. Access Options. When vehicle access is required for development (i.e., for off-street parking, delivery, service, drive-through facilities, etc.), access shall be provided by one of the following methods. These methods are "options" to the developer/subdivider, unless one method is specifically required by "Special Standards for Certain Uses." A minimum of 10 feet per lane is required.

1. *Option 1. Access is from an existing or proposed alley or mid-block lane. If a property has access to an alley or lane, direct access to a public street is not permitted.*

2. *Option 2. Access is from a private street or driveway connected to an adjoining property that has direct access to a public street (i.e., "shared driveway"). A public access easement covering the driveway shall be recorded in this case to assure access to the closest public street for all users of the private street/drive.*

3. *Option 3. Access is from a public street adjacent to the development parcel. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access. Street accesses shall comply with the access spacing.*

4. *Subdivisions Fronting onto an Arterial Street. New residential subdivisions fronting onto an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints,*

access may be provided by consolidating driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes).

5. *Double-Frontage Lots. When a lot has frontage onto two or more streets, access shall be provided first from the street with the lowest classification. For example, access shall be provided from a local street before a collector or arterial street. Except for corner lots, the creation of new double-frontage lots shall be prohibited in the residential district, unless topographic or physical constraints require the formation of such lots. When double-frontage lots are permitted in the residential district, a landscape buffer with trees and/or shrubs and ground cover not less than 20 feet wide shall be provided between the back yard fence/wall and the sidewalk or street; maintenance shall be assured by the owner (i.e., through homeowners association, etc.).*

FINDINGS on F.1-5: This application proposes use of Options 3 and 5. Under Option 3, a new access is proposed from NE 223rd Avenue, and an existing access from Halsey Street will provide shared access between the development site and adjacent car wash. Under Option 5, this site has two frontages and NE 223rd is the lower classification roadway. This standard is met.

G. *Access Spacing. Access spacing ensures safe connections to local and arterial streets. Driveway accesses shall be separated from other driveways and street intersections in accordance with the following standards and procedures:*

1. *Local Streets. A minimum of 50 feet separation (as measured from the sides of the driveway/street) shall be required on local streets (i.e., streets not designated as collectors or arterials), except as provided in subsection (G)(3) of this section.*

2. *Arterial and Collector Streets. Access spacing on collector and arterial streets, and at controlled intersections (i.e., with four-way stop sign or traffic signal) shall be determined based on the policies and standards contained in the city's transportation system plan. Access to Interstate 84 is subject to the jurisdiction of ODOT.*

3. *Special Provisions for All Streets. Direct street access may be restricted for some land uses, in conformance with the provisions of Chapters 19.20 through 19.155 – Land Use Districts. For example, access consolidation, shared access, and/or access separation greater than that specified by subsections (G)(1) and (G)(2) of this section may be required by the city, county or ODOT for the purpose of protecting the function, safety and operation of the street for all users. (See subsection I of this section.) Where no*

other alternatives exist, the permitting agency may allow construction of an access connection along the property line farthest from an intersection. In such cases, directional connections (i.e., right in/out, right in only, or right out only) may be required.

FINDINGS for G.1 - 3: Halsey Street is a Minor Arterial and NE 223rd Avenue is a Major Collector. Both streets are under the jurisdiction of Multnomah County. The applicant has requested and Multnomah County Transportation approved a Road Rules Variance to the County access standards, which limit sites to one access point located on the lower classification roadway. The variance will allow a right-in/right-out access from NE 223rd Avenue. See Multnomah County Transportation comments as Exhibit A-1.

Conditions of Approval: See conditions outlined in Exhibit A-1.

H. Number of Access Points. Reducing the number of access points on a street provides pedestrians fewer obstructions, fewer points at which automobile traffic crosses the sidewalk, and fewer opportunities for conflicts between through traffic and vehicles using access points.

For single-family (detached and attached), two-family, and three-family housing types, one street access point is permitted per lot, when alley access cannot otherwise be provided; except that two access points may be permitted for two-family and three-family housing on corner lots (i.e., no more than one access per street), subject to the access spacing standards in subsection G of this section. The number of street access points for multiple-family, commercial, industrial, and public/institutional developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required, in conformance with subsection I of this section in order to maintain the required access spacing, and minimize the number of access points.

FINDINGS: See Multnomah County Transportation comments and conditions as Exhibit A-1.

I. Shared Driveways. Shared driveways serve to reduce impermeable surfaces, reduce visual blight associated with large expanses of pavement, and provide more linear curb space for on-street parking. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The city shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:

1. *Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).*

2. *Access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.*

3. *Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, parcel configuration, and similar conditions) prevent extending the street/driveway in the future.*

FINDINGS: The west end of the Halsey Street frontage has an existing driveway serving the adjacent use, which will be shared with the development site.

Condition of Approval: Prior to issuance of building permits, provide the City with a copy of the shared access easement for the Halsey Street driveway.

J. *Figure 19.162.020.J provides examples of street layout and connectivity.*

K. *Street Connectivity and Formation of Blocks Required. In order to promote efficient vehicular and pedestrian circulation throughout the city, land divisions and large site developments shall produce complete blocks bounded by a connecting network of public and/or private streets, in accordance with the following standards:*

1. *Mixed-use and residential development proposed on sites five acres or greater must submit a site plan that identifies conceptual street connections that are consistent with the transportation system plan.*

2. *Block Length and Perimeter. The maximum block length and perimeter shall not exceed:*

   *****

   b. *Two hundred feet length and 1,200 feet perimeter in the town center commercial district, except as provided by FMC 19.65.050, Block layout and building orientation;*

   *****

FINDINGS for J-K: The development site is 2.53 acres, and is not subject to K.1. The application does not include a land division and is not classified as a large site development according to the TCC zone definition of "Large Scale Buildings and Developments", therefore K.2 does not apply.

3. *Street Standards. Public and private streets shall also conform to FMC 19.165.020, Transportation standards, FMC 19.162.030, Pedestrian access and circulation, and applicable Americans with Disabilities Act (ADA) design standards.*

   FINDINGS: No public or private streets are proposed.

4. *A variance to street spacing standards may be granted pursuant to FMC 19.520.030 (Class B variances) when resources are present that are mapped on the Natural Resources Map, where street spacing can be achieved at a minimum of 800 feet and no greater than 1,200 feet.*

   FINDINGS: No public or private streets are proposed, and therefore this standard does not apply.

5. *Exception. Exceptions to the above standards may be granted when blocks are divided by one or more pathway(s), where spacing is no more than 330 feet as measured from the right-of-way or easement line and in conformance with the provisions of FMC 19.162.030(A). Pathways shall be located to minimize out-of-direction travel by pedestrians and may be designed to accommodate bicycles.*

   FINDINGS: The street spacing standards do not apply, therefore no exception is needed.

L. *Driveway Openings. All driveway openings must comply with the "Standard Specifications for Public Works Construction," pages 53 – 55. Driveway openings or curb cuts shall be within the minimum width necessary to provide the required number of vehicle travel lanes (10 feet for each travel lane). The following standards (i.e., as measured where the front property line meets the sidewalk or right-of-way) are required to provide adequate site access, minimize surface water runoff, and avoid conflicts between vehicles and pedestrians:*

   1. *Single-family, two-family, and three-family…*

   2. *Multiple-family uses…*

3. *Multiple-family uses with more than eight dwelling units and off-street parking areas with 16 or more parking spaces, shall have a minimum driveway width of 24 feet, and a maximum width of 30 feet. These dimensions may be increased if the city engineer determines that more than two lanes are required based on the number of trips generated or the need for turning lanes.*

4. *Access widths for all other uses shall be based on 10 feet of width for every travel lane, except that driveways providing direct access to parking spaces shall conform to the parking area standards in Chapter 19.164 FMC, Vehicle and Bicycle Parking.*

5. *Driveway Aprons. Driveway aprons (when required) shall be constructed of concrete and shall be installed between the street right-of-way and the private drive, as shown above. Driveway aprons shall conform to ADA standards for sidewalks and pathways, which require a continuous route of travel that is a minimum of three feet in width, with a cross slope not exceeding two percent.*

FINDINGS for L.1-5: Proposed driveway opening widths for the NE 223rd Avenue access is 26 ft. The existing Halsey Street driveway is 34 ft. 6 in. in width, and is not proposed to be modified to serve the development site. These standards are met. The Multnomah County standard for commercial driveway widths is 20-34 ft., which is met by the proposal.

Condition of Approval: Driveway construction details were not provided with the land use submittal. All driveway openings shall be constructed to meet Fairview Public Works specifications including conforming to ADA standards.

M. *Fire Access and Parking Area Turnarounds. A fire equipment access drive shall be provided for any portion of an exterior wall of the first story of a building that is located more than 150 feet from an existing public street or approved fire equipment access drive. Parking areas shall provide adequate aisles or turnaround areas for service and delivery vehicles so that all vehicles may enter the street in a forward manner. For requirements related to cul-de-sacs, please refer to Chapter 19.165 FMC.*

N. *Vertical Clearances. Driveways, private streets, aisles, turnaround areas and ramps shall have a minimum vertical clearance of 13 feet 6 inches for their entire length and width.*

FINDINGS for M-N: The site has been designed to meet Fire Code access requirements, including minimum 26 ft. widths for all access and state vertical clearance. Two access points provide a through connection without the need for a turnaround.

Condition of Approval: Prior to the issuance of building permits the applicant shall prepare a final Fire Access and Water Supply Plans to be reviewed and approved by Gresham Fire. The Plans shall address all of the Oregon Fire Code standards as stated in the Gresham Fire comments in Exhibit A-2.

O. Vision Clearance. No signs, structures or vegetation in excess of three feet in height shall be placed in "vision clearance areas," as shown above. The city engineer upon finding that more sight distance is required may increase the minimum vision clearance area (i.e., due to traffic speeds, roadway alignment, etc.).

FINDINGS: The site plan indicates that a 15 ft. by 15 ft. sight clearance triangle will be maintained at each driveway's intersection with the public street. This standard is met.

Condition of Approval: Signs, structures, and vegetation over three feet shall not be located in the vision clearance area. The final Landscape Plan shall comply with the Vision Clearance requirement.

P. Construction. The following development and maintenance standards shall apply to all driveways and private streets, except that the standards do not apply to driveways serving one single-family detached dwelling:

1. *Surface Options. Driveways, parking areas, aisles, and turnarounds may be paved with asphalt, concrete or comparable surfacing, or a durable nonpaving material may be used to reduce surface water runoff and protect water quality. Paving surfaces shall be subject to review and approval by the city engineer.*

2. *Surface Water Management. When a paved surface is used, all driveways, parking areas, aisles and turnarounds shall have on-site collection or infiltration of surface waters to eliminate sheet flow of such waters onto public rights-of-way and abutting property. Surface water facilities shall be constructed in conformance with city standards.*

3. *Driveway Aprons. When driveway approaches or "aprons" are required to connect driveways to the public right-of-way, they shall be paved with concrete surfacing (see also subsection L of this section).*

FINDINGS: The site plan shows driveway aprons as concrete. This standard is met.

19.162.030 Pedestrian access and circulation.

The standards presented in this code provide standards for safe, connected and user-friendly pedestrian connections and pathways that join neighborhoods and buildings within a development.

A. Pedestrian Access and Circulation. To ensure safe, direct and convenient pedestrian circulation, all developments, except single-family detached housing (i.e., on individual lots), shall provide a continuous pedestrian and/or multi-use pathway system. (Pathways only provide for pedestrian circulation. Multi-use pathways accommodate pedestrians and bicycles.) The system of pathways shall be designed based on the standards in subsections (A)(1) through (5) of this section:

1. Continuous Pathways. The pathway system shall extend throughout the development site, and connect to all future phases of development, adjacent trails, public parks and open space areas whenever possible. The developer may also be required to connect or stub pathway(s) to adjacent streets and private property, in accordance with the provisions of FMC 19.162.020, Vehicular access and circulation, and the transportation standards in Chapter 19.165 FMC.

FINDINGS: Pathways are proposed throughout the development site (See additional detail below). No future phases of development are planned on the subject site. The adjacent properties are developed and do not present an opportunity for pedestrian connections as presently developed. Sidewalks on the site's public street frontages will provide connections to the surrounding area. An existing sidewalk along Halsey Street will be retained, and the sidewalk along NE 223rd Avenue will be reconstructed according to the current Major Collector cross section, and extended to the north end of the development site. This standard is met.

2. Safe, Direct, and Convenient Pathways. Pathways within developments shall provide safe, reasonably direct and convenient connections between primary building entrances and all adjacent streets, based on the following definitions:

a. "Reasonably direct" means a route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.

b. "Safe and convenient" means bicycle and pedestrian routes that are reasonably free from hazards and provide a reasonably direct route of travel between destinations.

c. *For commercial, industrial, mixed use, public, and institutional buildings, the "primary entrance" is the main public entrance to the building. In the case where no public entrance exists, street connections shall be provided to the main employee entrance.*

d. *For residential buildings the "primary entrance" is the front door (i.e., facing the street). For multifamily buildings in which each unit does not have its own exterior entrance, the "primary entrance" may be a lobby, courtyard or breezeway, which serves as a common entrance for more than one dwelling.*

FINDINGS: Pathways are connect building entrances to the adjacent street and meet the standard as follows:

Mixed-Use Building C: The sidewalk extends to the building and storefront entries along the NE 223rd Avenue frontage. The sidewalk and a hardscape plaza extend around all sides of the building.

Residential Buildings A (along creek): Entries to buildings A1-A3 are located on the north side of the building and provide walk-up access to each floor; all units are accessed from the building's interior only. A walkway connects the entries to the internal sidewalk network, providing connectivity to both Halsey Street and NE 223rd Avenue.

Residential Buildings B (along north): Entries to buildings B1-B3 are located on the south side of the building and similarly provide walk-up access to each floor; all units are accessed from the building's interior only. A walkway connects the entries to the internal sidewalk network, providing connectivity to both Halsey Street and NE 223rd Avenue. Buildings B1-B3 include tuck-under parking spaces along the north side of the building. A 4 ft. 10 in. concrete pathway appears to extend the length of the tuck-under parking area.

3. *Connections within Development. For all developments subject to site design review, pathways shall connect all building entrances to one another. In addition, pathways shall connect all parking areas, storage areas, recreational facilities and common areas (as applicable), and adjacent developments to the site, as applicable.*

FINDINGS for 1-3: The site plan includes concrete sidewalks along the length of each set of residential buildings, intervening the buildings and parking lot. These sidewalks loop through the interior of the site around all residential buildings, and extend to the small playground on the east

end of the "A" building, and to mixed-use Building C. All parking aisles, with the exception of 11 spaces along the site's western edge and three spaces at the site's northeast corner, are bordered by sidewalk. Trash enclosures located these two parking locations are not connected by a pathway.

4. *Street Connectivity. Pathways (for pedestrians and bicycles) shall be provided at or near midblock where the block length exceeds the length required by FMC 19.162.020. Pathways shall also be provided where cul-de-sacs or dead-end streets are planned, to connect the ends of the streets together, to other streets, and/or to other developments, as applicable. Pathways used to comply with these standards shall conform to all of the following criteria:*

    a. *Multi-use pathways (i.e., for pedestrians and bicyclists) are no less than 10 feet wide and located within a 20-foot-wide right-of-way or easement that allows access for emergency vehicles.*

    b. *If the streets within the subdivision or neighborhood are lighted, the pathways shall also be lighted.*

    c. *Stairs or switchback paths using a narrower right-of-way/easement may be required in lieu of a multi-use pathway where grades are steep.*

    d. *The city may require landscaping within the pathway easement/right-of-way for screening and the privacy of adjoining properties.*

    e. *The hearings body or planning director may determine, based upon facts in the record, that a pathway is impracticable due to: physical or topographic conditions (e.g., freeways, railroads, extremely steep slopes, sensitive lands, and similar physical constraints); buildings or other existing development on adjacent properties that physically prevent a connection now or in the future, considering the potential for redevelopment; and sites where the provisions of recorded leases, easements, covenants, restrictions, or other agreements recorded as of the effective date of this code prohibit the pathway connection.*

    FINDINGS: The block lengths along both streets are approximately 330 ft., which exceeds the 200 ft. block length standard. Fairview Creek prevents a pedestrian connection at a closer interval, however, a sidewalk is proposed along the east side of the Halsey Street access driveway, located approximately 250 ft. from the intersection. Along NE 223rd Avenue, two pathways provide connectivity to the interior of the site at regular intervals. This standard is met.

5. *Connections to Other Facilities. Proposed pathways shall be located to provide access to existing or planned commercial services and other neighborhood facilities, such as schools, shopping areas and park and transit facilities. To the greatest extent possible, access shall be reasonably direct, providing a route or routes that do not deviate unnecessarily from a straight line or that do not involve a significant amount of out-of-direction travel.*

FINDINGS: The interconnected network of internal sidewalks and perimeter sidewalks provide reasonably direction connections to the surrounding area. This standard is met.

B. *Design and Construction. Pathways shall conform to all of the standards in subsections (B)(1) through (B)(5) of this section:*

1. *Vehicle/Pathway Separation. Where pathways are parallel and adjacent to a driveway or street (public or private), they shall be raised six inches and curbed, or separated from the driveway/street by a five-foot minimum strip with bollards, a landscape buffer, or other physical barrier. If a raised path is used, the ends of the raised portions must be equipped with curb ramps.*

FINDINGS: A curbed sidewalk is located adjacent to the Halsey Street access driveway, and along the public streets.

Condition of Approval: All pathways adjacent to a driveway or street shall be raised (6) six inches and curbed, or separated by a landscape buffer. Sidewalks in the Multnomah County right-of-way must comply with all County construction standards.

2. *Housing/Pathway Separation. Pedestrian pathways shall be separated a minimum of five feet from all residential living areas on the ground floor, except at building entrances. Separation is measured as measured from the pathway edge to the closest dwelling unit. The separation area shall be landscaped in conformance with the provisions of Chapter 19.163 FMC, Landscaping, Street Trees, Fences and Walls. No pathway/building separation is required for commercial, industrial, public, or institutional uses.*

FINDINGS: The residential buildings contain ground floor units. The site plan shows a 5 ft. landscape area between the edge of the pathway and the building. This standard is met.

3. *Crosswalks. Where pathways cross a parking area, driveway, or street ("crosswalk"), they shall be clearly marked with contrasting paving materials, humps/raised crossings.*

   FINDINGS: Crosswalks are shown in five locations within the private access drive, through the surface parking areas. Paving materials are not indicated on the plans.

   Condition of Approval: Prior to issuance of permits, revise the site plan to show compliance with the requirement for contrasting paving materials or humps/raised crossings.

4. *Pathway Surface. Pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other durable surface, at least six feet wide, and shall conform to ADA requirements. Multi-use paths …*

5. *Accessible Routes. Pathways shall comply with the Americans with Disabilities Act, which requires accessible routes of travel.*

   FINDINGS for 4-5: All pathways/sidewalks are shown as concrete. The Fairview Development code allows for two different pedestrian pathway widths. In addition to the 6 ft. standard noted above, the Public Facilities standards in FMC 19.165.025(K) "Transportation Improvements – Internal Pathways" calls for internal pathways to be at least 5 ft. in width. The Planning Commission has previously found that a 5 ft. width complies with ADA requirements and that the differing requirements created an unintended conflict, and have approved pedestrian pathways at the 5 ft. width. With the exception of the pathway along the west/back side of Building C, which measures 8 ft. 6 in. in width, all internal pathways are shown as 5 feet wide. Additional meandering walkways have a crushed gravel surface and a narrower width. These walkways provide additional connectivity through the site, but are not needed to meet pedestrian access and circulation requirements. This standard is met.

   Condition of Approval: All pedestrian pathways to be shown on the final site plan, in compliance with conditions of approval, shall be at least 5 ft. in width, constructed with asphalt or concrete, and shall meet ADA requirements.

19.163: Landscaping, Street Trees, Fences and Walls

19.163.020 Landscape conservation

A. Applicability. All development sites containing significant vegetation, as defined below, shall comply with the standards of this section. The purpose of this section is to incorporate significant native vegetation into the landscapes of development and protect vegetation that is subject to requirements of the significant environmental concern and riparian buffer overlay zones, Chapter 19.106 FMC. The use of mature, native vegetation within developments is a preferred alternative to removal of vegetation and re-planting. Mature landscaping provides summer shade and wind breaks, and allows for water conservation due to larger plants having established root systems.

B. Significant Vegetation. "Significant vegetation" means:

1. Significant Trees and Shrubs. Individual trees and shrubs with a trunk diameter of six inches or greater, as measured four feet above the ground (DBH), and all plants within the drip line of such trees and shrubs, shall be protected.

2. Sensitive Lands. Trees and shrubs on sites that have been designated as "sensitive lands," in accordance with Chapter 19.106 FMC, Natural Resource Regulations, and Chapter 19.105 FMC, Floodplain Overlay (e.g., due to slope, natural resource areas, wildlife habitat, etc.) shall be protected.

3. Exception. Protection shall not be required for plants listed as non-native, invasive plants by the Oregon State University Extension Service in the applicable OSU bulletins for Multnomah County.

C. Mapping and Protection Required. Significant vegetation shall be mapped as required by this code. Significant trees shall be mapped individually and identified by species and size (diameter at four feet above grade, or "DBH"). A "protection" area shall be defined around the edge of all branches (drip-line) of each tree (drip lines may overlap between trees). The city also may require an inventory, survey, or assessment prepared by a qualified professional when necessary to determine vegetation boundaries, building setbacks, and other protection or mitigation requirements.

FINDINGS: The Site Analysis Map (Exhibit C-7) shows that significant vegetation is limited to the Fairview Creek riparian buffer. Per standard B.1 of this section, all trees and shrubs within the protected riparian area is considered significant vegetation and shall be protected. This buffer extends

40 ft. on either side of the creek's centerline. The Site Analysis Map shows 14 trees within the buffer area, which are to be protected.

Conditions of Approval: Any vegetation removal within the Fairview Creek buffer shall be subject to review by the City, and shall comply with the standards in FMC 19.106, Natural Resource Regulations.

D. Protection Standards. All of the following protection standards shall apply to significant vegetation areas:

1. Protection of Significant Trees. Significant trees identified as meeting the criteria in subsection (B)(1) of this section shall be retained whenever practicable. Preservation may become impracticable when it would prevent reasonable development of public streets, utilities, or land uses permitted by the applicable land use district.

2. Sensitive Lands. Sensitive lands shall be protected in conformance with the provisions of Chapters 19.105 and 19.106 FMC.

3. Conservation Easements and Dedications. When necessary to implement the Comprehensive Plan, the city may require dedication of land or recordation of a conservation easement to protect sensitive lands, including groves of significant trees. This will be addressed on a case by case basis.

FINDINGS: See findings for FMC 19.106, Natural Resource Regulations.

19.163.025 Existing landscaping.

A. Applicability. This section shall apply to all developments.

B. Construction. All areas of significant vegetation shall be protected prior to, during, and after construction. Grading and operation of vehicles and heavy equipment is prohibited within significant vegetation areas, except as approved by the city for installation of utilities or streets. Such approval shall only be granted after finding that there is no other reasonable alternative to avoid the protected area, and any required mitigation is provided in conformance with Chapter 19.105 FMC, Floodplain Overlay and Chapter 19.106 FMC, Natural Resource Regulations.

C. Exemptions. The protection standards in FMC 19.163.020(D) shall not apply in the following situations:

1. Dead, Diseased, and/or Hazardous Vegetation. Vegetation that is dead or diseased, or poses a hazard to personal safety, property or the health of other trees, may be removed. Prior to tree removal, the applicant shall provide a report

from a certified arborist or other qualified professional to determine whether the subject tree is diseased or poses a hazard, and any possible treatment to avoid removal, except as provided by subsection (C)(2) of this section.

2. *Emergencies. Significant vegetation may be removed in the event of an emergency without land use approval when the vegetation poses an immediate threat to life or safety, as determined by the planning director. The planning director shall prepare a notice or letter of decision within 10 days of the tree(s) being removed. The decision letter or notice shall explain the nature of the emergency and be on file and available for public review at City Hall.*

FINDINGS: All significant vegetation is located in the riparian buffer. See findings for FMC 19.106, Natural Resource Regulations.

19.163.030: New landscaping

A. *Applicability. This section shall apply to all developments requiring site design review, and other developments with required landscaping.*

B. *Landscaping Plan Required. A landscape plan is required at the time of design review or other pertinent applications. All landscape plans shall conform to the requirements in FMC 19.420.020 (E), Landscape plans.*

FINDINGS: A separate landscape plan was not submitted with the Site Design Review application; the applicant requested the application be reviewed without this information.

Condition of Approval: Prior to issuance of permits, submit a landscape plan that includes all information required in FMC 19.420.020 (E) and conforms to all landscaping standards in this chapter (19.163).

C. *Landscape Area Standards. The minimum percentage of required landscaping equals:*
*****

2. *Town center commercial district: five percent of the site.*

*****

FINDINGS: The site plan indicates that 11.8% of the site will be landscaped, in addition to the Fairview Creek riparian buffer area, which constitutes an additional 16% of the site. This exceeds the 5% minimum required in the TCC zone. This standard is met.

Condition of Approval: The landscape plan shall provide an equal or greater percentage of landscaping as shown on the final site plan approved by the Planning Commission.

D. Landscape Materials. This section provides guidelines that ensure significant vegetation growth and establishment using a variety of size specifications and coverage recommendations.

Landscape materials include trees, shrubs, ground cover plants, nonplant ground covers, and outdoor hardscape features, as described below:

1. *Native Vegetation. Native vegetation shall be preserved or planted where practicable.*

2. *Plant Selection. A combination of deciduous and evergreen trees, shrubs and ground covers shall be used for all planted areas, the selection of which shall be based on local climate, exposure, water availability, and drainage conditions. As necessary, soils shall be amended to allow for healthy plant growth.*

3. *Non-native, invasive plants, as per FMC 19.164.020(B), shall be prohibited.*

4. *Hardscape features (i.e., patios, decks, plazas, etc.) may cover up to 15 percent of the required landscape area. Swimming pools, sports courts and similar active recreation facilities may not be counted toward fulfilling the landscape requirement.*

5. *Nonplant Ground Covers. Bark dust, chips, aggregate or other nonplant ground covers may be used, but shall cover no more than five percent of the area to be landscaped. "Coverage" is measured based on the size of plants at maturity or after five years of growth, whichever comes sooner.*

6. *Tree Size. Trees shall have a minimum caliper size of 1.5 inches or greater, or be six feet or taller, at time of planting.*

7. *Shrub Size. Shrubs shall be planted from one-gallon containers or larger.*

8. *Ground Cover Size. Ground cover plants shall be sized and spaced so that they grow together to cover a minimum of 80 percent of the underlying soil within three years.*

9. *Significant Vegetation. Significant vegetation preserved in accordance with FMC 19.163.020 may be credited toward meeting the minimum landscape area standards. Credit shall be granted on a per square foot basis. The street tree standards of FMC 19.163.040 may be waived when trees preserved within the front yard provide the same or better shading and visual quality as would otherwise be provided by street trees.*

   FINDINGS & Condition of Approval: Proposed landscape materials have not been provided. Prior to issuance of permits, submit a landscape plan that conforms to the standards in D.1-9 of this section.

10. Stormwater Facilities. Stormwater facilities (e.g., detention/retention ponds and swales) shall be landscaped with water tolerant, native plants.

FINDINGS: No stormwater planters are proposed.

E. Landscape Design Standards. The landscape design standards provide guidelines within setback areas, parking areas, etc.

All yards, parking lots and required street tree planter strips shall be landscaped in accordance with the provisions of this chapter. Landscaping shall be installed with development to provide erosion control, visual interest, buffering, privacy, open space and pathway identification, shading and wind buffering, based on the following standards:

1. Yard Setback Landscaping. Landscaping shall satisfy the following criteria:…..

Condition of Approval: The landscape plan shall conform to the standards in E.1 of this section.

2. Parking Areas. A minimum of five percent of the combined area of all parking areas, as measured around the perimeter of all parking spaces and maneuvering areas, shall be landscaped. Such landscaping shall consist of an evenly distributed mix of shade trees with shrubs and/or ground cover plants. "Evenly distributed" means that the trees and other plants are distributed around the parking lot perimeter and between parking bays to provide a partial canopy. At a minimum, one tree per five parking spaces total shall be planted to create a partial tree canopy over and around the parking area. All parking areas with more than 20 spaces shall include landscape islands with trees to break up the parking area into rows of not more than 12 contiguous parking spaces. All landscaped areas shall have minimum dimensions of four feet by four feet to ensure adequate soil, water, and space for healthy plant growth.

FINDINGS: The site plan notes that 5.4% of the parking lot area (5,970 sq. ft.) will be landscaped. The requirement of one tree per five parking stalls applies to surface parking stalls and not to tuck under stalls. The site plan includes 85 surface parking stalls, which requires a total of 17 parking lot trees. The parking aisles located at the center of the site include more than 20 spaces and require landscape islands. The site plan shows no more than 11 contiguous spaces, separated by landscape islands and crosswalks.

Condition of Approval: The landscape plan shall provide evenly distributed trees of a species that will provide a partial canopy over and around the parking area. All landscape islands shall be a minimum of 4 ft. by 4 ft. in size.

3. *Buffering and Screening Required. Buffering and screening are required under the following conditions:*

    a. *Parking/Maneuvering Area Adjacent to Streets and Drives. Where a parking or maneuvering area is adjacent and parallel to a street or driveway, a decorative wall (masonry or similar quality material), arcade, trellis, evergreen hedge, or similar screen shall be established parallel to the street or driveway. The required wall or screening shall provide breaks, as necessary, to allow for access to the site and sidewalk by pedestrians via pathways. The design of the wall or screening shall also allow for visual surveillance of the site for security. Evergreen hedges used to comply with this standard shall be a minimum of 36 inches in height at maturity, and shall be of such species, number and spacing to provide the required screening within one year after planting. Any areas between the wall/hedge and the street/driveway line shall be landscaped with plants or other ground cover. All walls shall be maintained in good condition, or otherwise replaced by the owner.*

    FINDINGS: Three parking spaces are located along either side of the NE 223rd Avenue driveway. A 30 in. brick wall is proposed on either side of the driveway opening to screen the parking stalls.

    Condition of Approval: The landscape plan shall include plants in the area between the brick wall and the sidewalk to buffer and soften the appearance of the wall.

    b. *Parking/Maneuvering Area Adjacent to Building. Where a parking or maneuvering area, or driveway, is adjacent to a building, the area shall be separated from the building by a raised pathway, plaza, or landscaped buffer no less than four feet in width. Raised curbs, bollards, wheel stops, or other design features shall be used to protect buildings from being damaged by vehicles. When parking areas are located adjacent to residential ground-floor living space, a landscape buffer is required to fulfill this requirement.*

    FINDINGS: Parking areas adjacent to the residential buildings are separated from the building by a 5 ft. curbed sidewalk and 5 ft. landscape area. The driveway behind Building C is separated from the building by a curbed 8 ft. 6 in. sidewalk. This standard is met.

    c. *Screening of Mechanical Equipment, Outdoor Storage, Service and Delivery Areas, and Automobile-Oriented Uses. All mechanical equipment, outdoor storage and manufacturing, and service and delivery areas, shall be screened from view from all public streets and*

residential districts. Screening shall be provided by one or more of the following: decorative wall (i.e., masonry or similar quality material), evergreen hedge, non-see-through fence, or a similar feature that provides a non-see-through barrier. Walls, fences, and hedges shall comply with the vision clearance requirements and provide for pedestrian circulation, in accordance with Chapter 19.162 FMC, Access and Circulation.

FINDINGS: Equipment and storage shown on the site plan is limited to two trash enclosures, located near each driveway entrance. The site plan indicates the trash enclosures will be constructed of painted CMU walls with a metal paneled gate. No other outdoor storage or equipment is shown on the site plan. The trash enclosure located at the northeast corner of the site is located adjacent to a driveway and parking lot in the R/MF district. Mature trees abut this portion of the site, and additional landscaping is proposed around the enclosure. This standard is met.

Condition of Approval: Any mechanical equipment and additional storage areas must be screened from view in compliance with the screening requirements in FMC 16.163.030.E.3.c.

19.163.040 Street trees

A. Soil Preparation, Planting and Care. The developer shall be responsible for planting street trees, including soil preparation, ground cover material, staking, and temporary irrigation for two years after planting. The developer shall also be responsible for tree care (pruning, watering, fertilization, and replacement as necessary) during the first two years after planting.

B. Assurances. The city shall require the developer to provide a performance and maintenance bond in an amount determined by the city engineer, to ensure the planting of the tree(s) and care during the first two years after planting.

C. Growth Characteristics. Trees shall be selected based on growth characteristics and site conditions, including available space, overhead clearance, soil conditions, exposure, and desired color and appearance. The following should guide tree selection…

D. Caliper Size. The minimum caliper size at planting shall be 1.5 inches, based on the American Association of Nurserymen Standards.

E. Spacing and Location. Street trees shall be planted within existing and proposed planting strips, and in sidewalk tree wells on streets without planting strips. Street tree spacing shall be based upon the type of tree(s) selected and the canopy size at maturity. In general, trees shall be spaced no more than 30 feet apart, except where

planting a tree would conflict with existing trees, retaining walls, utilities and similar physical barriers.

FINDINGS: The site plan shows 6 new street trees to be planted in a 10 ft. landscape strip along NE 223rd Avenue.

Condition of Approval: The Multnomah County design and Construction Manual includes a list of recommended street trees. Street tree species shall be selected from this list, approved by Multnomah County, and shall be planted no more than 30 feet on center.

Condition of Approval: All street trees shall be installed according to County specifications.

Condition of Approval: Prior to final occupancy the street trees must be installed and inspected or a performance and maintenance bond shall be posted in an amount determined by the County Engineer to ensure planting of the trees and care during the first two years.

F. *Maintenance and Irrigation. The use of drought-tolerant plant species is encouraged, and may be required when irrigation is not available. Irrigation shall be provided for plants that are not drought-tolerant. If the plantings fail to survive, the property owner shall replace them with an equivalent specimen (i.e., evergreen shrub replaces evergreen shrub, deciduous tree replaces deciduous tree, etc.). All other landscape features required by this code shall be maintained in good condition, or otherwise replaced by the owner.*

FINDINGS: The landscape plan specifies that irrigation will be provided for planting areas. The developer will water the trees until established and provide ongoing maintenance.

Condition of Approval: The property owner shall maintain all landscaped areas in perpetuity upon completion and they shall be kept free from weeds and debris and maintained in a healthy, growing condition and shall receive regular pruning, fertilizing, mowing and trimming. Any damaged, dead, diseased, or decaying plant material shall be replaced within 30 days.

G. *Additional Requirements. Additional buffering and screening may be required for specific land uses, as identified by Article II of this title, and the city may require additional landscaping through the conditional use permit process.*

FINDINGS: The site plan shows a 6 ft. tall concrete retaining wall along the western portion of the north property line and along the western

property line, adjacent to the apartment complexes in the R/MF district. The apartment complexes adjacent to the northwest are at a lower grade than the development site, with apartment buildings and an outdoor play area located within 25 ft. of the property line. Shrubs are shown along the middle and east ends of the north property line.

Condition of Approval: The landscape plan shall include vegetation that sufficiently screens the parking and driveway areas of the development site from adjacent multifamily uses.

19.163.050 Fences and walls.

The fences and walls section provides height limits for construction of new walls. The guidelines prevent walls that reduce pedestrian connectivity and sight clearance. The standards also provide guidelines relating to maintenance.

The following standards shall apply to all fences and walls:

A. General Requirements. All fences and walls shall comply with the standards of this section. The city may require installation of walls and/or fences as a condition of development approval, in accordance with conditional use permits or site design review. Walls built for required landscape buffers shall comply with FMC 19.163.030.

B. Dimensions.

1. *The maximum allowable height of fences and walls is six feet, as measured from the lowest grade at the base of the wall or fence, except that retaining walls and terraced walls may exceed six feet when permitted as part of a site development approval, or as necessary to construct streets and sidewalks. A building permit is required for walls exceeding six feet in height, in conformance with the Uniform Building Code.*

2. *The height of fences and walls within a front yard setback shall not exceed four feet (except decorative arbors, gates, etc.), as measured from the grade closest to the street right-of-way.*

3. *Walls and fences to be built for required buffers shall comply with FMC 19.163.030.*

4. *Fences and walls shall comply with the vision clearance standards of FMC 19.162.020.*

C. Maintenance. For safety and for compliance with the purpose of this chapter, walls and fences required as a condition of development approval shall be maintained in good condition, or otherwise replaced by the owner.

FINDINGS: The applicant proposes constructing new concrete retaining walls along portions of the north, west and east property lines to support regrading the site. The retaining wall is not proposed to exceed 6 ft. in height. with a 4 ft. fence above prevent falls. Low (30 in.) brick walls flanking the NE 223rd driveway entrance are proposed to meet screening requirements. This standard is met.

D-H: Address fences for specific uses.

FINDINGS: These standards do not apply to this development.

<u>19.164: Vehicle and Bicycle Parking</u>

19.164.030 Vehicle parking standards

A. The minimum number of required off-street vehicle parking spaces (i.e., parking that is located in parking lots and garages and not in the street right-of-way) shall be determined based on the standards in Table 19.164.030.A.

   There is no minimum number of off-street parking spaces required in the town center commercial district; however, the "maximum parking" standards of this chapter apply.

   FINDINGS: This site is located in the Town Center Commercial district, and therefore no off-street vehicle parking is required. The standards for maximum number of spaces for commercial uses do apply, and are addressed below. The proposed site plan includes 85 surface parking spaces and 23 tuck-under spaces. All parking will be located on-site. The applicant notes that 24 of the surface spaces will be allocated to the commercial uses and that the parking spaces will be signed for commercial vs. residential parking.

B. Credit for On-Street Parking….

   FINDINGS: No on-street parking is proposed.

C. Parking Location and Shared Parking.

   1. Location. Vehicle parking is allowed only on approved parking shoulders (streets), within garages, carports and other structures, or on driveways or parking lots that have been developed in conformance with this code. Specific locations for parking are indicated in Article II of this title for some land uses (e.g., the requirement that parking be located to side or rear of

buildings, with access from alleys, for some uses). (See also Chapter 19.162 FMC, Access and Circulation.)

FINDINGS: All parking spaces are shown in paved surface lots and tuck under garages, and are located to the rear of buildings. This standard is met.

2. Off-Site Parking….

   FINDINGS: No off-site parking is proposed.

3. Mixed Uses. If more than one type of land use occupies a single structure or parcel of land, the total requirements for off-street vehicle parking shall be the sum of the requirements for all uses, unless it can be shown that the peak parking demands are actually less (i.e., the uses operate on different days or at different times of the day). In that case, the total requirements shall be reduced accordingly.

   FINDINGS: There are no parking requirements in the TCC zone.

4. Shared Parking…

   FINDINGS: No shared parking is proposed.

5. Availability of Facilities. Owners of off-street parking facilities may post a sign indicating that all parking on the site is available only for residents, customers and/or employees, as applicable. Signs shall conform to the standards of Chapter 19.170 FMC, Sign Regulations.

   FINDINGS: The applicant proposes posting signs designating parking for the residential vs. commercial uses. All signs shall comply with FMC 19.170.

D. Maximum Number of Parking Spaces. The number of parking spaces provided shall not exceed the standards in the following table:…

FINDINGS: The code limits parking for commercial uses, with stricter limitations placed on transit/ped areas. The site is served by two bus lines with adjacent bus stops, and is located along a designated main street intended for pedestrian orientation, therefore the “transit/ped area” maximums apply. While specific tenants are not yet known, applying the Retail/Commercial maximum parking ratio of 5.1 spaces/1,000 sq.ft. would all a maximum of 23 commercial spaces. Any restaurant uses would allow 19.1 spaces/1,000 sq. ft., and General Office 3.4/1,000 sq. ft. The number of proposed commercial spaces can reasonably comply with

the maximums given the potential mix of commercial tenants. This standard is met.

19.164.040 Bicycle parking standards.
All uses which are subject to site design review shall provide bicycle parking, in conformance with the following standards, which are evaluated during site design review:

A. Number of Bicycle Parking Spaces. A minimum of two bicycle parking spaces per use is required for all uses with greater than 10 vehicle parking spaces. The following additional standards apply to specific types of development:

1. Multifamily Residences. Every residential use of four or more dwelling units shall provide bicycle parking spaces according to the following standards:

a. Short-term bicycle parking shall be provided at a ratio of one bicycle space for every 10 vehicle parking spaces and shall be located within 30 feet of the main entrance to the building, in a location that is easily accessible for bicycles.

b. Long-term bicycle parking shall be provided at a ratio of one bicycle space per dwelling unit. Sheltered bicycle parking spaces may be located within a garage, storage shed, basement, utility room or similar area. In those instances in which the residential complex has no garage or other easily accessible storage unit, the bicycle parking spaces may be sheltered from sun and precipitation under an eave, overhang, an independent structure, or similar cover.

FINDINGS: This standard applies to all multifamily residential units on the site, including those located in the mixed-use building. The site includes 84 residential units, and 84 vehicle parking spaces are proposed to be allocated to the use.

<u>Short-term requirement:</u> 9 spaces required (8.4 rounded up), located within 30 ft. of main entrance. Bike parking adjacent to the residential buildings is not shown on the site plan.

<u>Long-term requirement:</u> 84 spaces required, located in sheltered location. Long-term bike parking locations are not shown on the site plan.

Condition of Approval: Prior to issuance of building permits, revise the site plan to show a minimum of 9 total short-term bike parking spaces located in easily accessible locations within 30 ft. of the main building

entrances, and a total of 84 long-term spaces for tenants, located either inside a building/s or in sheltered outdoor locations.

2. Commercial Retail, Office, and Institutional Developments….

   FINDINGS: This standard is superseded by the Town Center Commercial District requirements below.

3. Schools…
4. Colleges and Trade Schools…

   FINDINGS: These uses are not proposed. This standard does not apply.

5. Town Center Commercial District. Within the town center commercial district, bicycle parking for customers shall be provided along the street at a rate of at least one space per use. Individual uses shall provide their own parking, or spaces may be clustered to serve up to six bicycles. Bicycle parking spaces shall be located in front of the stores along the street, either on the sidewalks or in specially constructed areas such as pedestrian curb extensions. Inverted "U" style racks are recommended. Bicycle parking shall not interfere with pedestrian passage, leaving a clear area of at least 36 inches between bicycles and other existing and potential obstructions. Customer spaces may or may not be sheltered. When provided, sheltered parking (within a building, or under an eave, overhang, or similar structure) shall be provided at a rate of one space per 10 employees, with a minimum of one space per store.

   FINDINGS: Based on the front building elevation for Building C, four ground floor commercial spaces/uses are proposed. This will require at least 4 bike parking spaces for customers. An additional one space per employee with a minimum of one per use shall also be provided. The site plan shows 4 bike racks along the front of mixed-use Building C. The proposed location in front of the building meets pedestrian clearance requirements, and is located beneath a 4-5 ft.-wide canopy that will shelter the bikes to comply with the employee and customer parking requirements.

   Condition of Approval: Prior to final occupancy show compliance with the minimum number of required bike parking spaces based on final number of tenant spaces.

6. Multiple Uses. For buildings with multiple uses…

FINDINGS: This standard is superseded by the TCC zone standard above.

B. Exemptions. This section does not apply to single-family, two-family, and three-family housing (attached, detached or manufactured housing), home occupations, agriculture and livestock uses, or other developments with fewer than eight vehicle parking spaces.

FINDINGS: This development is not exempt.

C. Location and Design. Bicycle parking shall be conveniently located with respect to both the street right-of-way and at least one building entrance (e.g., no farther away than the closest parking space). It should be incorporated whenever possible into building design and coordinated with the design of street furniture when it is provided. Street furniture includes benches, streetlights, planters and other pedestrian amenities.

FINDINGS: The bike parking locations for Building C are conveniently located in front of the building near the entrances, in compliance with the TCC zone standard above. Additional bike parking is shown in the commercial plaza location on the south end of the building. The location of bike parking near the residential buildings is not shown on the plans. No details have been included on proposed street furnishings, including bike racks.

Condition of Approval: Prior to issuance of permits, provide details on proposed bike racks and any additional street furniture to show coordinated design is met. See also condition for 19.164.040.A(1)(b) above.

D. Visibility and Security. Bicycle parking should be visible to cyclists from street sidewalks or building entrances, so that it provides sufficient security from theft and damage.

FINDINGS: Bike parking is required to be located near ally building entrances and will help to meet this standard. Bike parking shown in front of mixed-use Building C provides good visibility.

Condition of Approval: Outdoor bike parking serving the residential uses must be located in visible locations.

E. Options for Storage. Bicycle parking requirements for long-term and employee parking can be met by providing a bicycle storage room, bicycle lockers, racks, or other secure storage space inside or outside of the building.

FINDINGS: Bike racks outside of the mixed-use building comply with this requirement for employee bike parking. Location of long-term bike parking for

residential uses is not shown on the site plan. The condition of approval for 19.164.040.A(1)(b) addresses the location of these spaces.

F. Lighting. Bicycle parking shall be at least as well lit as vehicle parking for security.

G. Reserved Areas. Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only.

H. Hazards. Bicycle parking shall not impede or create a hazard to pedestrians. Parking areas shall be located so as to not conflict with vision clearance standards (Chapter 19.162 FMC, Access and Circulation).

Condition of Approval: Prior to issuance of building permits, revise the site plans and elevations to show compliance with standards 19.164.040(F)-(H), including exterior lighting, and sufficient spacing for pedestrian access. Outdoor bike parking locations shall be included on the Lighting Plan, which will be provided at the time of building permit submittal, according to Site Lighting Note 1 on the site plan.

Chapter 19.165 Public Facilities Standards

19.165.010: Purpose and applicability

A. Purpose. The purpose of this chapter is to provide planning and design standards for public and private transportation facilities and utilities. Streets are the most common public spaces, touching virtually every parcel of land….

B. When Standards Apply. Unless otherwise provided, the standard specifications for construction, reconstruction or repair of transportation facilities, utilities and other public improvements within the city shall occur in accordance with the standards of this chapter….

C. Standard Specifications. The city engineer shall establish standard construction specifications …

D. Conditions of Development Approval No development may occur unless required public facilities are in place or guaranteed, in conformance with the provisions of this code. Improvements required as a condition of development approval that require a dedication of property for a public use, when not voluntarily accepted by the applicant, shall be roughly proportional.

FINDINGS: The applicant must comply with all City of Fairview requirements for utilities, and all Multnomah County requirements for the public ROW.

E. Rough Proportionality Report. Where the applicant objects to the imposition of any applicable development standard…

FINDINGS: All public improvement requirements will come from Multnomah County.

19.165.020 Transportation standards.

Transportation standards are necessary so that the Fairview street system remains intact and well connected. Streets are critical to the connection of neighborhoods, businesses, schools, etc. It is important to regulate roadway sizes, locations and right-of-way dimensions.

The street standards are based directly on the Fairview transportation system plan. Traffic calming measures are addressed in the adopted transportation system plan. The city of Fairview has no formalized traffic-calming plan, but has recently adopted a speed hump management program. The street alignment illustrations used in the proposed code are taken directly from the transportation system plan.

19.165.025 Transportation improvements.

Findings: Standards A-J address public streets, which are under Multnomah County's jurisdiction. The proposal shall comply with all Multnomah County requirements for the design and construction of improvements in the NE 223rd Avenue and Halsey Street right-of-way. See Multnomah County comments as Exhibit C-1.

K. Internal Pathways. Pathways shall be at least five feet in unobstructed width and shall be constructed to sidewalk standards found in Standard Specifications for Public Works Construction, or according to Multnomah County or ODOT standards as applicable. The property owner shall keep a minimum of five feet of the pathway width clear of both permanent and temporary obstructions (e.g., utility poles, sandwich signs). Maintenance of internal pathways is the continuing obligation of the property owner or adjacent property owner. All work must comply with the city of Fairview public works construction standards.

FINDINGS: Proposed internal pathways are five feet in width.

Condition of Approval: All internal pathways shall be constructed to Fairview Public Works Standard Specifications, and shall be maintained by the property owner.

Standards L-O, and Q-W and Z:

FINDINGS: These standards do not apply. They address the creation of new streets and alleys, none of which are proposed.

P. Curbs, Curb Cuts, Ramps, and Driveway Approaches. Concrete curbs, curb cuts, wheelchair, bicycle ramps and driveway approaches shall be constructed in accordance with standards specified in Chapter 19.162 FMC, Access and Circulation.

Condition of Approval: Facilities within the Multnomah County right-of-way shall be constructed in accordance with County standards. Facilities constructed onsite shall meet the standards specified in FMC Chapter 19.162 FMC, Access and Circulation.

X. Mail Boxes. Plans for mail boxes to be used shall be approved by the United States Postal Service.

Condition of Approval: Prior to final occupancy, a plan for mail boxes throughout the development site shall be approved by the United States Postal Service.

Y. Streetlight Standards. Streetlights shall be installed in accordance with city standards.

FINDINGS: The Site Plans shows 4 new street lights will be installed along NE 223rd Avenue. The Site Lighting Notes include specifications and state that street lights will be installed 18" behind the curb at spacing of 80-90 ft. intervals, and will meet all Mid-County Lighting District Standards. This standard is met.

19.165.030 Public use areas.
Public use areas implement Comprehensive Plan policies that may require a developer to reserve a piece of land for future park and open space to serve the residents of the new development…

FINDINGS: This section does not apply. No public park or open space land is required of this development.

19.165.040 Sanitary sewer and water service improvements.
The sanitary sewer and water service improvements ensure adequate sanitary sewer services to new developments.

A. Sewers and Water Mains Required. Sanitary sewers and water mains shall be installed to serve each new development and to connect developments

to existing mains in accordance with the city's construction specifications and the applicable Comprehensive Plan policies.

B. Sewer and Water Plan Approval. Development permits for sewer and water improvements shall not be issued until the city engineer has approved all sanitary sewer and water plans in conformance with city standards.

C. Oversizing. Proposed sewer and water systems shall be sized to accommodate additional development within the area as projected by the Comprehensive Plan. The developer shall be entitled to system development charge credits for the oversizing.

D. Permits Denied. Development permits may be restricted by the city where a deficiency exists in the existing water or sewer system which cannot be rectified by the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of domestic water and sewerage treatment systems. Building moratoriums shall conform to the criteria and procedures contained in ORS 197.505 to 197.520.

FINDINGS (water): Water is provided to the site from an existing 10" cast iron city water main located in NE 223rd Ave. There are no existing water meters at the site. Private utilities will connect to the public main adjacent to the NE 223rd Ave driveway, where a valve and water meter will be installed.

Condition of Approval: Prior to receiving a building permit the applicant shall submit a water connection application and pay all applicable fees.

Condition of Approval: Prior to receiving a building permit the development will need to meet fire flow verification standards set by Gresham Fire and Emergency Services. The City of Fairview "Residential Fire-Flow Verification" form must be submitted with the building permit application.

Condition of Approval: Public Works shall approve backflow assembly devices to be installed at service connections.

FINDINGS (sewer): A sanitary sewer lateral connection is available to this site from an existing 15" diameter concrete sanitary sewer pipe, City sanitary sewer main located in NE 223rd Ave. The Utility Plan shows the sewer lateral will connect to the public main adjacent to the site's NE 223rd Ave. driveway.

Condition of Approval: The applicant shall provide sanitary sewer capacity (in gpd) in writing to determine capacity accommodation with the City's existing sanitary sewer system designed capacity.

19.165.050 Storm drainage.
The storm drainage section requires developers to accommodate and treat stormwater runoff from buildings and parking lots.

A. General Provisions. The city shall issue a development permit only where adequate provisions for stormwater and flood water runoff have been made.

B. Accommodation of Upstream Drainage. Culverts and other drainage facilities shall be large enough to accommodate potential runoff from the entire upstream drainage area, whether inside or outside the development. Such facilities shall be subject to review and approval by the city engineer.

C. Effect on Downstream Drainage. Where it is anticipated by the city engineer that the additional runoff resulting from the development will overload an existing drainage facility, the city may deny approval of the development permit unless provisions have been made for improvement of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with city standards.

D. Easements. Where a development is traversed by a watercourse, drainage way, channel or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance.

FINDINGS: A Preliminary Stormwater Report was prepared by a registered professional engineer and submitted with the land use application. Preliminary stormwater and grading plans can be found as Exhibits C-3, C-4 and C-5.

High ground water and poor infiltration rates make the use of vegetated stormwater detention swales infeasible. All stormwater runoff will drain into catchbasins and be conveyed through storm pipes to a series of underground detention chambers sized to detain the 25-year 24-hour storm event, as required by the 2016 Portland Stormwater Manual. Runoff from the parking lots will be treated through mechanical filters prior to entering the detention chambers. Treated stormwater from the detention chambers will then be released into

Fairview Creek, with flows controlled to half the predeveloped rate. Fairview Public Works has reviewed the preliminary stormwater plans and found them to meet City requirements. This standard is met.

Condition of Approval: Prior to issuance of building permits, the applicant shall submit a final Stormwater Management Plan. Prior to issuance of any grading permits, the applicant is required to obtain a DEQ issued 1200-C Stormwater General Construction Permit.

19.165.060 Utilities

The utilities section provides standards regarding electric lines and cable. Many types of utilities now must be installed underground for safety and aesthetic purposes.

A. Underground Utilities. All utility lines including, but not limited to, those required for electric, communication, lighting and cable television services and related facilities shall be placed underground, except for surface-mounted transformers, surface-mounted connection boxes and meter cabinets which may be placed above ground, temporary utility service facilities during construction, and high capacity electric lines operating at 50,000 volts or above. The following additional standards apply to all new subdivisions, in order to facilitate underground placement of utilities:

1. The developer shall make all necessary arrangements with the serving utility to provide the underground services. Care shall be taken to ensure that all above ground equipment does not obstruct vision clearance areas for vehicular traffic;

2. The city reserves the right to approve the location of all surface-mounted facilities;

3. All underground utilities, including sanitary sewers and storm drains installed in streets by the developer, shall be constructed prior to the surfacing of the streets; and

4. Stubs for service connections shall be long enough to avoid disturbing the street improvements when service connections are made.

B. Easements. Easements shall be provided for all underground utility facilities.

C. Exception to Undergrounding Requirement. The standard applies only to proposed subdivisions. An exception to the undergrounding requirement may be granted due to physical constraints, such as steep topography, sensitive lands, Chapter 19.106 FMC, or existing development conditions.

FINDINGS: The narrative indicates all on-site utilities will be placed underground, and that the applicant is coordinating with the City and PGE to underground overhead utilities located in the NE 223rd Avenue right-of-way. This standard is met.

Condition of Approval: Prior to the issuance of building permits, the applicant shall submit an undergrounding plan for all proposed and existing utilities. Surface mounted transformers, surface mounted electric boxes, and above-ground electric power lines 50,000 volts and greater are exempt from this requirement.

19.165.070 Easements.
The easements section provisions reserve adequate space for utilities.
Easements for sewers, storm drainage and water quality facilities, water mains, electric lines or other public utilities shall be dedicated on a final plat, or provided for in the deed restrictions…

FINDINGS: No public easements are located or proposed on the site. All utilities are located in the public right-of-way.

19.165.080 Construction plan approval and assurances
The construction plan approval portion ensures the completion of a development by a builder.

No public improvements, including sanitary sewers, storm sewers, streets, sidewalks, curbs, lighting, parks, or other requirements, shall be undertaken except after the plans have been approved by the city, permit fee paid, and permit issued. The permit fee is required to defray the cost and expenses incurred by the city for construction and other services in connection with the improvement. The permit fee shall be set by the city council. The city may require the developer or subdivider to provide bonding or other performance guarantees to ensure completion of required public improvements.

Condition of Approval: Prior to beginning construction, all construction plans must be approved by the City and Multnomah County, development permit fees paid, and permits issued.

19.165.090 Installation

A. Conformance Required. Improvements installed by the developer either as a requirement of these regulations or at his/her own option, shall conform to the requirements of this chapter, approved construction plans, and to improvement standards and specifications adopted by the city.

B. Adopted Installation Standards. The Standard Specifications for Public Works Construction, Oregon Chapter APWA shall be a part of the city's adopted installation standard(s); other standards may also be required upon recommendation of the city engineer.

C. Commencement. Work shall not begin until the city has been notified in advance.

D. Resumption. If work is discontinued for more than one month, it shall not be resumed until the city is notified.

E. City Inspection. Improvements shall be constructed under the inspection and to the satisfaction of the city. The city may require minor changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest. Modifications requested by the developer shall be subject to land use review under Chapter 19.415 FMC, Modifications to Approved Plans and Conditions of Approval. Any monuments that are disturbed before all improvements are completed by the subdivider shall be replaced prior to final acceptance of the improvements.

F. Engineer's Certification and As-Built Plans. A registered civil engineer shall provide written certification in a form required by the city that all improvements, workmanship and materials are in accord with current and standard engineering and construction practices, conform to approved plans and conditions of approval, and are of high grade, prior to city acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide three sets (one mylar, one electronic, one paper copy) of "as-built" plans, in conformance with the city engineer's specifications, for permanent filing with the city.

Condition of Approval: Prior to final occupancy, the applicant shall demonstrate compliance with all public facility installation requirements described in subsections A-F of FMC 19.165.090.

Chapter 19.106: Natural Resource Regulations

19.106.010 Purpose

A. The city has determined through review, investigation and development of appropriate regulation and guidelines to promote the application and utilization of the city's Comprehensive Plan, that the city's major water features the Columbia River, Fairview Creek, Osburn Creek, No Name

Creek, Raintree Creek, Salmon Creek, Clear Creek, Fairview Lake, Columbia Slough, and associated wetlands and riparian areas, and upland habitat areas, as defined herein, are a valuable and irreplaceable natural resource to the community.

19.106.040 Resource protection area requirements

A. Standards outlined in this section apply to the city's riparian resources and upland habitats as shown on the city of Fairview natural resource map adopted by the city council on September 5, 2012, (hereon referred to as "the map") which includes the Columbia River and Fairview Creek, Osburn Creek, No Name Creek, Salmon Creek, Rain Tree Creek, and Clear Creek, and mapped wetlands and upland habitat.

B. Each resource has been designated with a specific protection area as shown on the map. The map shows Fairview's riparian resources that are subject to either a 35-, 40-, 55-, or 80-foot riparian buffer resource protection area. The protection areas are measured from the centerline of the creek in each direction either 35, 40, 55, or 80 feet as shown on the map. Where there are multiple reaches of waterbodies the protection area shall be measured from the centerline of each reach.

1. Riparian Resource Protection Areas. The riparian resource protection area includes the mapped resource and the area of land immediately adjacent to the edges of banks located along the Columbia River and Fairview Creek, Osburn Creek, No Name Creek, Salmon Creek, Rain Tree Creek, and Clear Creek.

b. The 40-foot resource protection area applies to:

- *Fairview Creek from the city detention pond located just north of Fairview Village north toward Smith Memorial Church, as shown on the adopted map.*
- *No Name Creek*
- *Rain Tree Creek*

FINDINGS: Fairview Creek runs east-west along the southern boundary of the site and is shown on the Natural Resource Map with the designated 40-foot buffer.

Table 19.106.040(B)
Permitted and Prohibited Uses

A	***Vegetation Management***	***40-foot RPA***
1	*Vegetation removal, excessive tree trimming or cutting, or disturbance of ground cover or removal of forest debris without an approved permit.*	*Prohibited*
2	*Planting of vegetation listed as nuisance on the Metro Native Plant List.*	*Prohibited*
3	*Invasive vegetation removal of 300 square feet or less (per calendar year).*	*Permitted*
4	*Removal of more than 300 square feet of plants categorized as a nuisance or invasive species on the Metro Native Plant list. After removal all open soils shall be replanted with native vegetation and/or protected from erosion (per calendar year).*	*Type I*
B	***Tree Removal and Pruning***	***40-foot RPA***
2	*Limited tree removal or major pruning of trees six inches or greater in diameter under the following circumstances:* *a. The tree is dead, diseased or dying and cannot be saved as determined by a certified arborist. The tree should be topped to alleviate the hazard.* *b. For major pruning, if a tree is pruned in excess causing it to die, three trees six inches in diameter or greater must be planted as mitigation.* ***Tree removal associated with a development permit or land use application will be reviewed through the applicable application process.*	*Type I*
D	***Site Development/Alteration***	***40-foot RPA***
2	*Earth disturbing activities not associated with an approved permit.*	*Prohibited*
3	*Activities prohibited by Chapter 16.05 FMC, flood hazard overlay zone.*	*Prohibited*
5	*Development of permitted structures allowed in the underlying zone within the resource protection area subject to FMC 19.106.040(D), Exception Process.*	*Type III**
6	*Type I boundary verification process to demonstrate proposed development is not located within a designated natural resource area or required protection area (FMC 19.106.070(A)).*	*Type I*
11	*Public and private pathways, trail systems, and boardwalks, subject to construction standards of FMC 19.106.040(C).*	*Type II*

FINDINGS: Landscape notes provided on the site plan state that landscaping in the resource buffer will be limited to: A) Removal of invasive vegetation (300 S.F. max per year); B) Limited Tree Pruning of trees with trunks greater than 6" in diameter; C) Planting of Native Vegetation; D) Installation of required storm facilities; and E) Installation of a private trail. These activities are permitted subject to the limitations and procedures outlined in *Table 19.106.040(B).*

Condition of Approval: All activity in the Fairview Creek resource buffer area is subject to the standards and procedures in FMC 19.06.

C. Development and Construction Standards. The following standards apply to development and construction in the resource protection areas identified in this section (this section and as permitted in Table 19.106.040(B)). These standards do not apply to Fairview Lake or natural resources located within Fairview Village. An applicant wishing to deviate from these standards to increase the allowable development footprint may make a request to the planning commission through the Type III review process and the exception process listed in subsection D of this section. The request may only be made for permitted uses listed in Table 19.106.040(B).

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4. Private natural pathways or trails shall be no wider than 30 inches. Where trails or paths include stairs, the stair width shall not exceed 50 inches. Trails and pathways shall be constructed using nonhazardous, pervious materials where applicable. Raised boardwalks may be considered by the public works director only when needed to lessen impacts to resource areas. Trails shall provide the most direct access to the resource area and shall not excessively meander.

FINDINGS: A meandering private pathway is proposed along the northern edge of the resource buffer, adjacent to buildings A1-A3. As shown on the site plan, the proposed pathway is 30" wide and constructed crushed granite. This standard is met.

***

9. Erosion/sedimentation control devices shall be installed between the area to be disturbed by the proposed development and construction and the adjacent water feature; these devices shall comply with specifications and procedures outlined in the soil erosion control ordinance (Chapter 16.15FMC), must be installed prior to any soil disturbance, and remain in place during construction and afterwards until the soil has stabilized.

Condition of Approval: Prior to site disturbance, an erosion control plan shall be approved and erosion/sedimentation control devices installed between the area to be disturbed by the proposed development and construction and the adjacent water feature, in compliance with specifications and procedures outlined in the soil erosion control ordinance (Chapter 16.15FMC). Erosion control devices shall remain in place during construction and afterwards until the soil has stabilized.

***

14. Protection of Resource Protection Area During Site Development. During development of any site containing an applicable resource protection area identified in this section, the following standards apply:
    a. Work areas shall be marked to reduce potential damage to resource areas.
    b. Trees within applicable resource protection areas shall not be used as anchors for stabilizing construction equipment.
    c. Native soils disturbed during development shall be conserved on the property.
    d. An erosion and sediment control plan is required and shall be prepared in compliance with requirements set forth by the city's public works standards.
    e. Site preparation and construction practices shall be followed that prevent drainage of hazardous materials or erosion, pollution, or sedimentation to any applicable resource protection area adjacent to the project area.

    Condition of Approval: Temporary fencing shall be installed at the edge of the riparian corridor prior to construction and shall be maintained throughout the construction period.

19.106.070 Permit process for permitted uses

A. Boundary Verification. To determine whether the standards of this chapter apply to a proposed development activity at any given location, the boundaries of any designated natural resources on or near the site shall be verified. A Type I boundary verification application is not required when the applicant demonstrates that the development will be greater than 40 feet from the estimated outer boundary of the mapped resource protection area. This shall be shown on the applicant's site plan submitted with the development (building permit) application.

The Type I boundary verification process is required for activities proposed within:

Table 19.106.070(A)

Resource Type	***Location of Development***	***Application Required***
35-foot and 40-foot resource protection area	*Greater than 15 feet from the outer limits of the 35- or 40-foot resource protection area*	*Type I boundary verification required prior to site development or earth disturbing activity*

B. *Boundary Verification Process. A Type I boundary verification process is required as defined in Table 19.106.070(A) in order to verify the proximity of the proposed development to a mapped resource or associated protection area and to identify the required land use application type….*

Findings: The applicant is not proposing any development within the 40-foot resource protection area, however a portion of Building A1's exterior wall, and the majority of the south building wall of buildings A2 and A3 are located at the boundary of the riparian buffer. Due to this proximity, a boundary verification was required for Fairview Creek. The applicant has submitted a survey by a licensed surveyor verifying the boundaries of the 40 ft. resource protection area, measured from the centerline of Fairview Creek. This standard is met.

C. *Land Use Application Requirements. Before a permit is issued for an alteration or development within or adjacent to a mapped natural resource or protection area, an application must be submitted to the city of Fairview by the person or entity requesting the alteration or development. The application shall include:…*

Findings: The applicant has submitted all required information for a Type I boundary verification. This standard is met.

19.106.100 Floodplain ordinance

Areas adjacent to any of the city of Fairview's water resources are also regulated by the city's floodplain overlay district. All riparian buffer alterations must be in compliance with the applicable standards of the floodplain overlay zone before permit issuance. Where regulations of the natural resource overlay zone differ from those found in the floodplain overlay zone, the more restrictive standards shall apply.

Findings: See findings for 19.105 and 16.05.

<u>Chapter 19.105: Floodplain Overlay</u>

19.105.010 Purpose

It is the purpose of this chapter to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas.

19.105.020 Area affected

This section shall apply to all areas designated as areas of special flood hazard by the federal insurance administration on its current flood hazard boundary map (FHBM), applicable to and including all areas within the boundaries of the city of Fairview or more current information such as Metro flood management maps, if demonstrated to be accurate.

19.105.030 Compliance
No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of Chapter 16.05 FMC.

19.105.040 Procedures
A development permit shall be obtained before construction or development begins within any area of special flood hazard. Requirements for the permit as well as specific and general standards are outlined in Chapter 16.05 FMC.

19.105.050 Permitted uses
The following uses are permitted outright:
A. Excavation and fill required to plant any new trees or vegetation.
B. Restoration or enhancement of floodplains, riparian areas, upland and streams.

19.105.060 Conditional uses
The following uses are permitted conditionally:
A. All uses allowed in the base zone or existing flood hazard overlay zone.

19.105.070 Prohibited uses
The following uses are not permitted:
A. Any use otherwise prohibited in the base zone or existing flood hazard overlay zone.
B. Any uncontained area of hazardous materials as defined by DEQ.

19.105.090 Performance standards
A. Any development should maintain or increase the capacity of the flood management area.
B. All fill placed at or below design flood elevation shall be balanced with at least an equal amount of soil material removal.
C. Excavation of areas that would be filled with water in non-stormwater conditions is not to be counted as part of the floodplain balance referenced in subsection B of this section.
D. Temporary fills permitted during construction shall be removed in a timely manner.

FINDINGS: Approximately one-third of the site is located within a 100 year floodplain on FEMA's 2009 flood insurance rate map (FIRM). These areas are subject to the City's Floodplain Overlay, which requires compliance with FMC Chapter 16.05 Flood Damage Prevention. Permitted fill on the site has raised the elevation of the southern portion of the site, and current site surveys show a different location for the base flood elevation compared to the FIRM map. The applicant, in coordination with the City, will be pursuing a letter of map revision (LOMR) to change the location of the mapped floodplain prior to applying for building permits. This can be achieved through the LOMR process based on better ground elevation data and/or authorized fill. Based on current site

elevation data, a revision should result in the footprint for buildings A1, A2, and A3 (currently shown in the FEMA floodplain) being removed from the floodplain. Should they remain in the mapped floodplain, these buildings would be required to be elevated at least one foot above base flood elevation, in compliance with FMC 16.05.

Conditions of Approval: Site development must comply with FMC 19.05 and FMC 16.05 for any portion of the site located within the floodplain and floodway. See additional findings under 16.05.

Chapter 19.105: Flood Damage Prevention

16.05.030 General provisions

A. This chapter applies to all areas of "special flood hazards" within the city as described in subsection B of this section.

B. The areas of special flood hazard are those areas identified by the Federal Insurance Administration in a report entitled "The Flood Insurance Study for the Multnomah County, Oregon and Incorporated Areas" (dated December 18, 2009) (hereinafter "study") along with accompanying FIRMs. Those documents are adopted by reference and declared to be part of this chapter. A copy of the maps and study are on file in the office of the public works director. The best available information for flood hazard area identification shall be the basis for regulation until a new FIRM is issued.

C. No structure shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this chapter. The city may seek any remedy lawfully available to it to effect compliance and in the event the city is compelled to seek judicial redress for violation(s) of this chapter, the city shall be entitled to recover its reasonable attorneys and expert witness fees both at trial and on appeal.

D. This chapter is not intended to repeal, abrogate or impair existing easements, covenants or deed restrictions. Where these regulations and another local, state or federal law conflict, the more restrictive shall control.

E. If any section, clause, sentence, or phrase of this chapter is held to be invalid or unconstitutional, then said holding shall in no way affect the validity of the remaining portions hereof.

F. These regulations shall be considered minimum requirements, construed in favor of the city and not deemed to either limit or repeal any other powers granted the city by state or federal law or its inherent plenary powers.

16.05.050: General standards for flood hazard reduction

1. *In all areas of special flood hazards, the following is required:*
    1. *Anchoring.*
        a. All new construction and substantial improvement(s) shall be anchored to prevent flotation, collapse, or lateral movement of the structure; and
        b. All manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement and installed using methods and practices designed to minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (see FEMA's "Manufactured Home Installation in Flood Hazard Areas").

    2. *Construction Materials and Methods.*
        a. All new construction and substantial improvement(s) shall be constructed with materials and utility equipment resistant to flood damage;
        b. All new construction and substantial improvement(s) shall be constructed using methods and practices designed to minimize flood damage; and
        c. Electrical, heating, ventilation, plumbing, air-conditioning and other service equipment/facilities shall be designed and/or elevated or located to prevent water from entering or accumulating within the components during flooding.

2. *In areas of special flood hazard where base flood elevation data has been provided (Zones A1-30, AH, AE, A and V), the following requirements are to be met:*

    1. *Residential Construction. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to a minimum of one foot above the base flood elevation. Fully enclosed areas subject to flooding below the lowest floor are either prohibited or be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be certified by an Oregon registered/licensed professional engineer or architect or meet or exceed the following minimum criteria:*

        a. *A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;*
        b. *The bottom of all openings shall be no higher than one foot above grade; and*
        c. *Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.*

FINDINGS: The applicant's narrative states that all new construction will meet the standards of this section. The base flood elevation established from FEMA's National Flood Insurance Program FIRM map is 159.5 ft. The applicant's 2018 site survey shows that the majority of the site outside of the Fairview Creek riparian buffer has been elevated above 159.5 ft., as a result of prior permitted fill. A portion of the site along the NE 223rd Avenue remains below this elevation, including the public sidewalk and part of the building footprint for mixed-use Building C.

Standard B.1 of this section requires that all new residential construction located in the floodplain (including mixed-use residential/commercial) have the lowest floor elevated to one foot above the base flood elevation. This would require the ground floor of Building C to be elevated to 160.5 ft. in grade, if any portion of the building remains in the mapped floodplain. This elevation is approximately two feet above the adjacent sidewalk grade. To provide access to ground floor commercial uses, the applicant is proposing to construct an elevated sidewalk along the building's street frontage, adjacent to the public sidewalk. This would be required if the base flood elevation remains at an elevation higher than the adjacent right-of way. Should map revisions result in the Building C footprint being located outside of the floodway, an elevated sidewalk along the NE 223rd Avenue frontage would not be required.

*****

9. *Floodway Established.*
    a. *In areas where a regulatory floodway has been designated, no encroachments (including fill), new construction, substantial improvement(s) and/or other development shall occur unless certification by a registered professional civil engineer is provided demonstrating that said encroachments will not result in any increase in flood levels during a base flood discharge. All new construction and any substantial improvement(s) shall comply with all applicable flood hazard reduction provisions.*

FINDINGS & Conditions: A regulatory floodway is mapped along Fairview Creek, abutting buildings A1, A2 and A3. No construction shall occur in the floodway, unless certified by a registered engineer not to increase flood levels.

VII. CONCLUSION AND RECOMMENDATIONS

STAFF RECOMMENDATION

Staff finds that the proposed application meets, or can meet the requirements of the City Code as conditioned, and recommends approval of the site design review and natural resources review subject to the following conditions of this report.

PLANNING COMMISSION ALTERNATIVES

1. Approve the application based on the findings of compliance with City regulations and conditions of approval.
2. Modify the findings, reasons, or conditions, and approve the request as modified.
3. Deny the application based on the Commission's findings
4. Continue the Public Hearing to a date certain if more information is needed.

CONDITIONS OF APPROVAL

The application, as presented, meets or can meet applicable City codes and requirements, provided that the following conditions of approval are met. The site shall be developed in accordance with the applicant's approved plans, as attached and modified below.

A. General Requirements

1. Any modifications to the plans included as exhibits to this report, as approved by the Planning Commission, except those changes relating to the Building Codes, will require approval by the City.

2. Regardless of the content of material presented for this Planning Commission, including application text and exhibits, staff reports, testimony and/or discussions, the applicant agrees to comply with all regulations and requirements of the Fairview City Code which are current on this date, EXCEPT where variance or deviation from such regulation and requirements have been specifically approved by formal Planning Commission action as documented by the records of this decision and/or the associated Conditions of Approval.

3. This approval for application 2018-51-DR shall become null and void after two (2) years if construction activities has not commenced.

4. After the application is approved, changes are subject to the procedures and approval criteria in FMC 19.415 Amendments to Decisions.

5. Prior to receiving development permits all plans must be approved by the City, development permit fees paid, and permits issued.

6. No signs shall be installed without a sign permit issued by the City of Fairview. Sign area, size and location shall be in accordance with the City's Development Code Title 19.170.

7. Any sidewalk display proposed in the future shall be reviewed by the City for compliance with above standard.

8. Prior to the issuance of building permits the applicant shall prepare a final Fire Access and Water Supply Plans to be reviewed and approved by Gresham Fire. The Plans shall address all of the Oregon Fire Code standards as stated in the Gresham Fire comments in Exhibit A-2.

9. Signs, structures, and vegetation over three feet shall not be located in the vision clearance area. The final Landscape Plan shall comply with the Vision Clearance requirement.

B. Prior to grading/site disturbance

1. Prior to the issuance of any development permit or construction activity on the site, the applicant shall submit a construction management plan for review and approval by the Public Works Department. The plan shall include but is not limited to, a tentative development timeline, any significant impacts (noise/vibrations, street closures, etc.), a construction vehicle parking plan, names of persons who can be contacted to correct problems, hours of construction activity, and any work that may occur within a public right-of-way. Such use of a right-of-way may require a separate permit through the City or County.

2. The applicant shall obtain a grading and erosion control permit from the Public Works Department no more than 30 days before grading is commenced on site.

C. Public Improvements/Facilities

1. Prior to issuance of permits, the applicant shall obtain an access permit from Multnomah County Transportation for access to Halsey Street and 223rd Avenue.

2. Prior to issuance of building permits, provide the City with a copy of the shared access easement for the Halsey Street driveway.

3. All driveway openings shall be constructed to meet Fairview Public Works specifications including conforming to ADA standards.

4. Prior to receiving a building permit the applicant shall submit a water connection application and pay all applicable fees.

5. Prior to receiving a building permit the development will need to meet fire flow verification standards set by Gresham Fire and Emergency Services. The City of Fairview "Residential Fire-Flow Verification" form must be submitted with the building permit application.

6. The applicant shall provide sanitary sewer capacity (in gpd) in writing to determine capacity accommodation with the City's existing sanitary sewer system designed capacity.

7. Prior to the issuance of building permits, the applicant shall submit an undergrounding plan for all proposed and existing utilities. Surface mounted transformers, surface mounted electric boxes, and above-ground electric power lines 50,000 volts and greater are exempt from this requirement.

8. Prior to final occupancy, the applicant shall demonstrate compliance with all public facility installation requirements described in subsections A-F of FMC 19.165.090.

9. Prior to beginning construction, all construction plans must be approved by the City and Multnomah County, development permit fees paid, and permits issued.

D. Landscaping, Street Trees, and Fences

1. Prior to issuance of permits, submit a landscape plan that includes all information required in FMC 19.420.020 (E) and conforms to all landscaping standards in FMC 19.163.

2. The landscape plan shall provide evenly distributed trees of a species that will provide a partial canopy over and around the parking area. All landscape islands shall be a minimum of 4 ft.

3. The landscape plan shall provide an equal or greater percentage of landscaping as shown on the final site plan approved by the Planning Commission.

4. The landscape plan shall include plants in the area between the brick wall and the NE 223rd Avenue sidewalk to buffer and soften the appearance of the wall.

5. The landscape plan shall include vegetation that sufficiently screens the parking and driveway areas of the development site from adjacent multifamily uses.

6. The Multnomah County design and Construction Manual includes a list of recommended street trees. Street tree species shall be selected from this list, approved by Multnomah County, and shall be planted no more than 30 feet on center.

7. All street trees shall be installed according to County specifications.

8. Prior to final occupancy the street trees must be installed and inspected or a performance and maintenance bond shall be posted in an amount determined by the County Engineer to ensure planting of the trees and care during the first two years.

9. Any mechanical equipment must be screened from view in compliance with the screening requirements in FMC 16.163.030.E.3.c.

10. The property owner shall maintain all landscaped areas in perpetuity upon completion and they shall be kept free from weeds and debris and maintained in a healthy, growing condition and shall receive regular pruning, fertilizing, mowing and trimming. Any damaged, dead, diseased, or decaying plant material shall be replaced within 30 days.

E. Vehicle/Bike Parking and Pedestrian Access

1. The applicant shall be required to comply with all conditions set forth in Multnomah County's transportation decision for this site, as outlined in Exhibit A-1. These conditions shall be made part of this land use review and decision and any subsequent development permit.

2. All pathways adjacent to a driveway or street shall be raised (6) six inches and curbed, or separated by a landscape buffer. Sidewalks in the Multnomah County right-of-way must comply with all County construction standards.

3. All pedestrian pathways to be shown on the final site plan, in compliance with conditions of approval, shall be at least 5 ft. in width, constructed with asphalt or concrete, and shall meet ADA requirements.

4. Prior to issuance of permits, revise the site plan to show compliance with the requirement for contrasting paving materials or humps/raised crossings.

5. Prior to issuance of building permits, revise the site plan to show a minimum of 9 total short-term bike parking spaces located in easily accessible locations within 30 ft. of the main building entrances, and a total of 84 long-term spaces for tenants, located either inside a building/s or in sheltered outdoor locations.

6. Prior to final occupancy show compliance with the minimum number of required bike parking spaces based on final number of tenant spaces.

7. Prior to issuance of permits, provide details on proposed bike racks and any additional street furniture to show coordinated design is met.

8. Outdoor bike parking serving the residential uses must be located in visible locations.

9. Prior to issuance of building permits, revise the site plans and elevations to show compliance with standards 19.164.040(F)-(H), including exterior lighting, and sufficient spacing for pedestrian access. Outdoor bike parking locations shall be included on the Lighting Plan, which will be provided at the time of building permit submittal, according to Site Lighting Note 1 on the site plan.

10. Facilities within the Multnomah County right-of-way shall be constructed in accordance with County standards. Facilities constructed onsite shall meet the standards specified in FMC Chapter 19.162 FMC, Access and Circulation.

F. Natural Resource and Floodplain

1. All activity in the Fairview Creek resource buffer area is subject to the standards and procedures in FMC 19.06.

2. Prior to site disturbance, an erosion control plan shall be approved and erosion/sedimentation control devices installed between the area to be disturbed by the proposed development and construction and the adjacent water feature, in compliance with specifications and procedures outlined in the soil erosion control ordinance (Chapter 16.15FMC). Erosion control

devices shall remain in place during construction and afterwards until the soil has stabilized.

3. Temporary fencing shall be installed at the edge of the riparian corridor prior to construction and shall be maintained throughout the construction period.

4. Site development must comply with FMC 19.05.

5. No construction shall occur in the floodway, unless certified by a registered engineer not to increase flood levels.

G. Building Design

1. Window trim must be a minimum of (4) four inches wide as a required detailed design element.

2. Any accessory structures proposed in the future shall be reviewed by the City for compliance with applicable standards.

H. Prior to Final Occupancy

1. Prior to final building occupancy approval, copies of any applicable CC&R's and Operations and Maintenance Agreements must be recorded and provided to the city.

2. Prior to final occupancy all mail boxes shall be installed in accordance with approved plan from USPS.

3. Public Works shall approve backflow assembly devices to be installed at appropriate service locations.

4. All ground mounted utility appurtenances such as transformers, AC condensers, backflow devices, etc., shall be located out of public view and adequately screened in such a manner as to minimize the visual and acoustical impact. To the extent possible, equipment shall be located behind the building, on the side of the building or outside public view. Equipment within public view shall be screened to and may include a combination of landscaping and/or masonry or lattice walls or berms. All gas and electrical meters shall be concealed and/or painted to match the building.

Department of Community Services
Transportation Division
http://multco.us/transportation-planning

Multnomah County

1620 SE 190th Avenue, Portland, Oregon 97233-5910 • Phone (503) 988-5050

M E M O R A N D U M

TO: Eric Rutledge, Associate Planner, City of Fairview
Sarah Selden, Senior Planner, City of Fairview
Joanna Valencia, AICP, Manager, MultCo. Transportation Planning & Development

FROM: Scott Adams, AICP, Transportation Planner, MultCo. Transportation Planning & Development

DATE: December 4, 2018

SUBJECT: **EP-2018-10506 / 2018-51-DR, Halsey Crossing (84-units, 6 residential bldgs., 1 mixed-use bldg.)**
Three parcels at NW Corner of NE 223rd Ave. & NE Halsey St., Fairview, OR 97024
R943280390, R943282510, R943270210

Multnomah County Transportation Planning and Development has reviewed the above referenced application and provides the following **Findings and Conditions of approval** in support of approving the project and the Road Rules Variance requested for the proposed access configuration.

The comments provided in this memorandum are based on materials provided by the applicant and the City of Fairview. While every effort has been made to identify all related standards and issues, additional issues may arise and other standards not listed may become applicable as more information becomes available. Scope of this approval is therefore limited to the items that were reviewed as part of this application process.

The subject application proposal consists of Dean Hurford (owner/applicant) proposing a mixed-use development consisting of 4,400 SF of commercial space and 84 apartments. Two access points are proposed. A new access onto NE 223rd Ave. [aka NE Fairview Ave.] will be located on the project's northeastern edge, with right-in/right-out access. A second access will located on the site's southwestern corner, using existing access onto NE Halsey St. (currently serving Scrubby's Car Wash) The new access does not meet driveway spacing standards for a Minor Arterial, requiring a Multnomah County Road Rules Variance (MCRRV).

The subject property has frontage on NE Halsey St. (Minor Arterial) and NE 223rd Ave. (Major Collector), both roads are under the jurisdiction of Multnomah County.

Findings

FINDINGS: Written findings are contained herein. The Multnomah County Road Rules are in **bold** font. Staff analysis and comments are identified as '**Staff:**' and address the applicable criteria. Staff comments may include a conclusionary statement in italic.

MCRR 4.000 Access to County Roads

MCRR 4.100 Application for New or Reconfigured Access: Applicants for a new, altered or reconfigured access onto a road under County Jurisdiction are required to submit a site plan. Applicants may be required to provide all or some of the following:

A. Traffic Study-completed by a registered traffic engineer;
B. Access Analysis-completed by a registered traffic engineer;
C. Sight Distance Certification from a registered traffic engineer; and
D. Other site-specific information requested by the County Engineer including a survey.

Staff:

The applicant has proposed creating a new access onto NE 223rd Ave. [aka NE Fairview Ave.] (Major Collector) and using an existing access onto NE Halsey St. (Minor Arterial). The new and existing access points are shown on the applicant's site plans. Driveway spacing has been documented for the new access onto NE 223rd Ave., while driveway spacing for the existing access on NE Halsey St. has not been documented as of November 29, 2018.

With existing information, Criterion is not met.

MCRR 4.200 Number of Accesses Allowed: Reducing the number of existing and proposed access points on Arterials and Collectors and improving traffic flow and safety on all County roads will be the primary consideration when reviewing access proposals for approval. One driveway access per property is the standard for approval pursuant to the Multnomah County Code. Double frontage lots will be limited to access from the lower classification street. Shared access may be required in situations where spacing standards cannot be met or where there is a benefit to the transportation system. If more than one access is desired, a land use application must be submitted in compliance with applicable Multnomah County Codes.

Staff: This project proposes more than one access point for a single site, and thus requires a Multnomah County Road Rules Variance.

As conditioned, Criterion is met.

MCRR 4.300 Location: All new access points shall be located so as to meet the access spacing standards laid out in the Design and Construction Manual.

Staff: For a Minor Arterial (NE Halsey St.), the minimum driveway spacing standard is 295 feet and minimum intersecting street setback is 148 feet. For a Major Collector (NE 223rd Ave./Fairview Ave.), the minimum driveway spacing standard is 148 feet and minimum intersecting street setback is 98 feet. (MCDCM, Table 1.2.5, Minimum Private Access Driveway Spacing Standards).

<u>NE Halsey St. Access</u>
The existing access on NE Halsey St. will is located 336 feet east of an existing access serving a mixed-use building (Bumpers Grill & Bar, etc.) and 101 feet west of an existing access at the Chevron gas station on the south side of the street.

NE 223rd Ave./NE Fairview Ave. Access

The proposed right-in/right-out access onto NE 223rd Ave./NE Fairview Ave. is 98 feet south of an existing access on the same side of the street. On the opposite (east) side of the street, existing access points are 43 feet north and 129 feet south of the proposed access point.

However, Multnomah County Transportation finds these conditions satisfactory, as the proposed access only allows right-in/right-out turning movements. Additionally, the driveway spacing standards are subject to the road rules variance (below).

As conditioned, and through approval of the road rules variance, this criterion is met.

Multnomah County Road Rules Variance

For the County Engineer to consider a variance request, it must be submitted in writing with the appropriate fee to the County prior to the issuance of any development permit. The written variance request shall be signed by a person with the authority to bind the applicant and shall include the following information as applicable:

A. Applicant name, telephone/fax number(s), email address, mailing address,

Applicant Response:

Dean Hurford
17809 NE Marine Dr., SP C-10
Portland, OR 97230
503-730-7339
deanhurf@yahoo.com

B. Property location and zoning;

Applicant Response:

Three unaddressed parcels in northwest corner of the intersection of NE 223rd Ave. and NE Halsey St.:
R943280390, R943282510, R943270210
Zoning: Town Center Commercial (TCC)

C. Current or intended use of the property;

Applicant Response:

The existing site is vacant. The land use application proposes a mixed use of apartments and commercial space. Please see the land use application narrative for additional information.

D. The nature and a full description of the requested variance;

Applicant Response:

The application requests a variance to the driveway spacing criteria. The site due to its proximity to existing driveways (43' and 98' away) and the intersection of NE 223rd Ave and NE Halsey Street cannot meet the spacing requirements. Strict adherence to the number of access points and access spacing criteria will render the site impossible to develop.

E. Site plan, sight distance, pedestrian traffic, intersection alignment, traffic generation, vehicle mix, traffic circulation including impact on through traffic, and other similar traffic safety considerations;

Applicant Response:

The land use application package contains site plans prepared by Axis Design Group and a traffic study prepared by Lancaster Engineering. Please reference these documents for further discussion.

F. Existing right-of-way or improvement limitations, and utility considerations;

Applicant Response:

The request doesn't impact right-of-way or utilities.

G. Adjacent land uses, their types, access requirements, and impact of traffic on them;

Applicant Response:

The adjacent land uses are a mix of residential and commercial. A traffic study has been prepared by Lancaster Engineering as part of the land use application. Please reference the study for further information.

H. Topography, grade, side hill conditions, and soil characteristics;

Applicant Response:

The site is generally flat and consists of fill material.

I. Drainage characteristics and problems;

Applicant Response:

The majority of the site naturally sheds to Fairview creek in the existing condition and will continue to do so under this proposal.

J. Fire Department access requirements within a public right-of-way and their written approval of the proposed modification;

Applicant Response:

The proposal does not negatively impact fire department access.

K. Natural and historic features including but not limited to trees, shrubs or other significant vegetation, water courses, wetlands, rock outcroppings,
development limitation, areas of significant environmental concern, etc;

Applicant Response:

Fairview Creek meanders along the properties southern line, or the site's frontage to NE Halsey Street.

L. Multnomah County Comprehensive Plan policies applicable to the particular parcel or location.

Applicant Response:

The Multnomah County Comprehensive Plan does not have jurisdiction over the site and therefore does not apply, as the site is within the City of Fairview.

16.200 ***General Variance Criteria:*** **In order to be granted a variance, <u>the applicant must demonstrate that</u>:**

A. Special circumstances or conditions apply to the property or intended use that do not apply to other property in the same area. The circumstances or conditions may relate to the size, shape, natural features and topography of the property or the location or size of physical improvements on the site or the nature of the use compared to surrounding uses;

Applicant Response:

The existing property has frontage along NE 223rd Ave and NE Halsey Street. The frontage is deficient in regards to driveway spacing its full length making it impossible to meet the driveway spacing criteria for the site. While the site does have frontage along NE Halsey, access is naturally restricted due to Fairview Creek. The application proposes to utilize an existing access along the westernmost property line. The application proposes a single new frontage on NE 223rd Ave at the northernmost location along the existing frontage. This location is proposed to provide access to the site while moving the access as far away from the existing intersection of NE 223rd and NE Halsey.

Staff Response:

As identified in the applicant's response, NE Halsey St. is the site's only currently available access. Adding a second, right-in/right-out access onto NE 223rd Ave./NE Fairview Ave. will help trip distribution and route choice from the site, in addition to providing two access points for emergency responders and other service providers. As conditioned, the criterion is met.

B. The variance is necessary for the preservation and enjoyment of a substantial property right of the applicant and extraordinary hardship would result from strict compliance with the standards;

Applicant Response:

Without the proposed access on NE 223rd the property would be landlocked. Under this application access is proposed to NE Halsey for circulation however the access is located on an adjacent parcel.

Staff Response:

As identified in the applicant's response, the existing access onto NE Halsey St. is located on an adjacent parcel (via easement), so the proposed access onto NE 223rd Ave./Fairview Ave. provides access to the site outright without requiring an easement across a nearby parcel. As conditioned, the criterion is met.

C. The authorization of the variance will not be materially detrimental to the public welfare or injurious to other property in the vicinity, or adversely affect the appropriate development of adjoining properties;

Applicant Response:

The driveway is located at the northernmost location on the property to increase distance from the existing intersection of NE 223rd and NE Halsey. The proposed location shall meet City of Fairview sight triangle requirements increasing visibility and safety. Finally, the proposed location isn't expected to adversely affect adjacent properties as most adjacent properties have existing access locations.

Staff Response:

As identified in the applicant's response, the new access onto NE 223rd Ave./Fairview Ave. is located as far away as possible from the intersection of NE 223rd Ave. and NE Halsey St., keeping the intersection free

from overlapping conflict points. Additionally, the access provides trip distribution and route choice from the site, in addition to providing two access points for emergency responders and other service providers. Notice of the project was sent, and no comments were received. Adverse impacts are not anticipated. As conditioned, the criterion is met.

D. The circumstances of any hardship are not of the applicant's making.

Applicant Response:

The subject property cannot meet driveway spacing along 223rd. Its proximity to an intersection and adjacent driveways makes future development on the property impossible without a variance to the driveway spacing criteria.

Staff Response:

As identified in the applicant's response, the proposed access onto NE 223rd Ave. is necessary and subsequently cannot meet driveway spacing standards due to existing driveways from other parcels in immediate proximity to it that are not of the applicant's making. This criterion is met.

MCRR 4.400 Width: Driveway, Private road and Accessway widths shall conform to the dimensions laid out in the Design and Construction Manual.

Staff: For a Commercial use, a new or reconfigured driveway must be a minimum 20 feet wide and maximum 34 feet wide (MCDCM, Table 1.2.4, Private Access Driveway Width Standards) The NE Halsey St. driveway is 34 feet wide and the proposed driveway onto NE 223rd Ave./NE Fairview Ave. will be 26 feet side.

Criterion is met.

MCRR 4.500 Sight Distance: All new or altered access points to roads under the County's jurisdiction must have a minimum sight distance equal to the standards in the Design and Construction Manual and AASHTO's A Policy on Geometric Design of Highways and Streets.

Staff: Multnomah County Road Rules Section 4.500 states that access points to roads under the County's jurisdiction must have a minimum sight distance equal to the standards in the County Design and Construction Manual or AASHTO's A Policy on Geometric Design of Highway and Streets. The applicant has submitted for the review of the County Transportation Division a sight distance certification, which provides an assessment of sight distance at the intersection in question consistent with AASHTO standards.

<u>NE Halsey St. Access</u>
The speed limit on NE Halsey St. is 35 mph and per AASHTO, requires 278 feet of sight distance to the east and west from the new full-movement driveway. The driveway will have 450 feet of sight distance to the west and 620 feet of sight distance to the east.

<u>NE 223rd Ave./NE Fairview Ave. Access</u>
The speed limit on NE 223rd Ave. St. is 35 mph and per AASHTO, requires 278 feet of sight distance to the north and south from the new right-in/right-out driveway. Due to obstructions, the intersection sight distance is limited, however, the proposed access is as the crest of a hill, allowing for stopping sight distance in excess of the required minimums. The driveway will have 500 feet of sight distance to the north and 500 feet of sight distance to the south.

In consideration these factors, Multnomah County Transportation finds the sight distances from the proposed access points satisfactory at this time.

As conditioned, Criterion is met.

MCRR 5.000 Transportation Impact

MCRR 5.100 To determine if a Transportation Impact is caused by a proposed development, the County Engineer will determine the number of new trips generated by a site by one of the following methods:

A. Calculations from the most recent edition of the Institute of Transportation Engineers' Trip Generation (ITE); or

B. A site development transportation impact study conducted by a professional engineer registered in the State of Oregon and accepted by the County.

MCRR 5.200 The County Engineer will use the information obtained pursuant to sub-section 5.100 and/or the frontage length of the subject property to determine the pro-rata share of the requirements set forth in Section 6.000. The County Engineer determination of pro-rata share of improvements will expire twelve months from the date of the County Engineer's determination or after the associated land use permit is granted or closed. If expired, a review process and new determination will be required.

MCRR 5.300 Except where special circumstances require the County Engineer to make an alternate determination, any new construction or alteration which will increase the number of trips generated by a site by more than 20 percent, by more than 100 trips per day or by more than 10 trips in the peak hour shall be found to have a Transportation Impact. A minimum increase of 10 new trips per day is required to find a Transportation Impact.

Staff: The Multnomah County Road Rules defines a Transportation Impact as the effect of any new construction or alteration which will increase the number of trips generated by a site by more than 20 percent, by more than 100 trips per day or by more than 10 trips in the peak hour [MCRR 3.000]. A minimum increase of 10 new trips per day is required to find a transportation impact.

The applicant's 11/7/18 Traffic Impact Study notes that the site will generate 35 new trips in the AM peak hour and 44 new trips in the PM peak hour. Under these conditions, nearby intersections will continue to operate at an acceptable Level of Service (LOS). Intersections studied were:

- NE Sandy Blvd./NE 223rd Ave.
- NE Halsey St./NE Fairview Pkwy.
- NE Halsey St./NE Village St.-7th St.
- Western site access onto NE Halsey St.
- Northern site access onto NE 223rd Ave.
- NE Halsey St./NE 223rd Ave.
- NE 223rd Ave./NE Arata Road-NE Barr Rd.

As conditioned, this criterion is met.

MCRR 6.000 Improvement Requirements

MCRR 6.100 *Site Development:* All subject parties with respect to any property proposed for development, including but not limited to the owner of the site and the applicant (if different than the owner), will be responsible for improvements to the right-of-way for any said development of the property which is found to cause a Transportation Impact, those improvements shall include:

A. Dedication of Right of Way Requirement: The subject parties are responsible for a pro-rata share, as determined by the County Engineer, of right-of-way and easement dedications necessary to bring the affected, existing, created or planned public streets and other facilities within and abutting the development to the current County standard. The dedication of the required easements and right-of-

way may be conditions of approval of Design Review or any other development permit related to the proposal.

Staff: The applicant's site plan shows a 10 foot ROW dedication on NE 223rd Ave. (half-street portion of Major Collector 80 foot ROW standard) and a 5 foot ROW dedication on NE Halsey St. (half-street portion of Minor Arterial 90 foot ROW standard). These ROW dedications meet the County's Design and Construction Manual standards.

Criterion is met.

B. Frontage Improvement Requirements: Frontage Improvement Requirements: In addition to easement and right-of-way dedication requirements, a prorate share may include half-street improvements along all of the site's County Road frontage(s). Right of Way improvements shall satisfy the standards of the County Design and Construction Manual based upon the functional classification of the road(s). The commitment to improve the affected streets or other facilities to the required standards shall be conditions of approval of Design Review or any other development permit related to the proposal. Half-street improvements can include all of the following:

- **a. Street widening/improvement**
- **b. Utility cut restoration**
- **c. Curb and sidewalk**
- **d. Driveway relocation/replacement/removal**
- **e. Traffic controls**
- **f. Drainage facilities**
- **g. Lighting facilities**
- **h. Bicycle facilities**
- **i. Signal conduit facilities**
- **j. Street trees**
- **k. Other appropriate facility or right of way requirements as required by applicable statutes, codes and regulations.**

Staff: As indicated above, this project creates a Transportation Impact and thus half-street improvements will be required to meet the County's preferred cross-sections in the Design and Construction Manual (DCM 2.2.1).

Along NE 223rd Ave., the applicant's site plan shows removal of an existing curb-tight 6 foot sidewalk, replacing it with a 10 foot planting strip and a 7 foot sidewalk, meeting the design intent of the Multnomah County DCM. No changes are proposed to the existing sidewalks along the southern portion of NE 223rd Ave. and NE Halsey St. due to proximity and environmental constraints of Fairview Creek.

As conditioned, criterion is met.

C. Required Submissions by Subject Parties. Subject parties shall submit to the County Engineer the following: engineered plans, traffic studies, traffic analysis, reports, surveys or similar documents as requested or required by the County Engineer under this Subsection 6.100 or as may additionally be required under Section 18.

Staff: The applicant's 11/7/18 Traffic Impact Study noted that peak-hour trip generation levels that will not adversely impact Level of Service (LOS) on nearby intersections. Additionally, the applicant's site plan indicates that a 15 foot by 15 foot vision clearance triangle will be maintained at the access points' intersections with NE Halsey St. and NE 223rd Ave., with no objects over 3 feet in height within the sight triangle.

As conditioned, criterion is met.

26.000 Stormwater and Drainage
26.100 Onsite management of Stormwater is a priority for County.

Staff: Multnomah County Transportation engineering staff reviewed the Stormwater Report (October 2018) on November 13, 2018 and found all conditions satisfactory. No stormwater is being sent into County right-of-way, as this development is treating and storing stormwater onsite with cartridge filters and underground detention pipes.

Criterion is met.

Conditions of Approval:

1. **Access Permit:** Applicant will need to obtain Access Permits for the access point onto NE Halsey St. and new access point onto NE 223rd Ave. prior to building permit approval. (**MCRR 4.100**)

2. **Half-Street Improvements and Construction Permit:** Applicant will need to obtain a Construction Permit for half-street improvements on NE 223rd Ave. prior to construction activity. Half-street improvements to be constructed include: (DCM Table 2.2.1)**:**
   - **I. Grade/rock/pave to commercial depth between existing pavement and new curb;**
   - **II. Construct bicycle lanes as required;**
   - **III. Furnish street trees as required;**
   - **IV. Furnish street lighting facilities as required;**
     Please contact Chet Hagen, Mid-County Street Lighting District Administrator, at chet.hagen@multco.us or 503-988-0164 for more information.
   - **V. Construct Multnomah County standard concrete curb and 6-foot wide concrete sidewalk in compliance with ADA specifications;**
   - **VI. Install underground traffic control devices conduit and related equipment as required;**
   - **VII. Construct storm drainage facilities as required.**

3. **ADA Standards**: Prior to issuance of the Certificate of Occupancy the applicant will need to demonstrate compliance of all sidewalks along the frontage of the property with ADA standards. The applicant will need to obtain a permit from Multnomah County for any ADA improvements within the right-of-way.

4. **Stormwater:** Any alteration of the storm water discharge onto County right of way requires a Discharge Permit. Any alteration of storm water drainage to the existing discharge needs to be reviewed by the County. Increased run-off to incorporated Multnomah County could negatively impact the roadway system.
5. **Sight Distance:** The property owner/developer shall maintain the sight distance from all access points, including maintenance of vegetation.

PROJECT #: 2018-38
FROM: Duston Yacapin, Gresham Fire (Duston.Yacapin@GreshamOregon.gov)
DATE: 11/08/2018
FIRE COMMENTS:

NOTE: Building permit plans shall include a separate "FIRE ACCESS AND WATER SUPPLY PLAN" indicating all of the following!

1. Provide fire flow per Oregon Fire Code Appendix B. ***OFC App B Table B105.1.***

2. Temporary addresses of 6" shall be provided at EACH construction entrance prior to ANY construction materials or workers are onsite***. OFC 505 & 3301***

3. The building addressing shall meet the Gresham Fire Addressing Policy. ***OFC 505.1***

4. Fire hydrant locations are not indicated on the plans. They must be shown. Without knowing the building construction types or sizes, a PUBLIC fire hydrant is required to be within 225 feet of the main entrance driveway. The furthest point on each building shall be no more than 400 feet from a hydrant. Hydrants considered for this address cannot cross a major thoroughfare. Public/Private fire hydrants will be required to be installed. All fire hydrants shall have STORZ quick adapters on the large port. The model required is Harrington HPHA50-45NHWCAP. ***OFC 507***

5. A fire hydrant shall be within 50 feet of the fire sprinkler system "FDC". FDC connection points shall have a Storz type connection on them. ***OFC Appendix C 102.2 & NFPA 13E***

6. Fire hydrant locations shall be identified by the installation of reflective markers. The markers shall be BLUE. They shall be located adjacent and to the side of the centerline of the access road way that the fire hydrant is located on. In case that there is no center line, then assume a centerline, and place the marker accordingly. ***OFC 508.5.4***

7. Prior to applying for a building permit, provide a fire flow test report. The fire flow report will verify that the correct fire flow is available and will be required to have been conducted within the last 12 months. ***OFC 507.3 & B-101.1***

8. All Fire Dept. Access Roads shall be drawn to scale and shown clearly on plans. The access roads shall be constructed and maintained prior to and during construction. The minimum width is required to be 26' to provide access for aerial ladder trucks and if the highest point of a building is over 30' high. Dead end access roads more than 150 feet shall be provided with an approved turnaround. ***OFC 503.2.1 & Appendix D***

9. Required Fire Dept. Access Roads on site shall be designed to support an apparatus weighing 75,000 lb. gross vehicle weight. Provide an engineer's letter stating the access road meets those requirements at time of building permit submittal. ***OFC, Appendix D, Section D102.1***

10. No Parking Fire Lane signage or curb marking will be required. Fire access roads 20' – 26' wide do not allow parking on either side within that space. Parking spaces outside of that space are acceptable. Indicate signage or curb marking on the building permit plans. I can email you our policy. ***OFC D 103.6***

11. Sprinklers will be required. ***OFC 903***

12. A fire alarm system will be required. ***OFC 907***

13. If a gate is installed on a fire access road, it must meet the requirements of the Gresham Fire Gate Policy. ***OFC 506.1***

14. The turning radius for all emergency apparatus roads shall be: 28' inside and 48' outside radius. ***OFC 503.2.4***

15. All Fire Dept. Access Roads shall be constructed and maintained prior to and during construction. ***OFC 1410***

16. Access roads shall not exceed 12% grade. ***OFC 503.2.7***

17. A lockbox will be required for fire department access. Knoxbox.com ***OFC 506***

18. Fire apparatus access shall comply with the requirements of OFC 503 and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building. ***OFC 503.1.1***

19. If any buildings are over thirty feet tall, two fire apparatus roads will be required, and aerial access will be required. ***OFC D105***

20. Standpipes will be required. ***OFC 905***

EXHIBIT B-1

AXIS DESIGN GROUP
ARCHITECTURE & ENGINEERING, INC.

HALSEY CROSSING

MIXED USE DEVELOPMENT

Design Review Application

November 15th, 2018

PREPARED FOR:
Dean Hurford
NE 223rd and Halsey Street
Fairview, OR, 97204

11104 S.E. STARK ST., PORTLAND, OR 97216 | 52 N.W. 2ND ST., GRESHAM, OR 97030 | 503.284.0988 | AXISDESIGNGROUP.COM

EXHIBIT B-1

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INTRODUCTION TO DEVELOPMENT PROJECT

i. General Information

Applicant:	**First Last Name** AXIS Design Group Architecture & Engineering, Inc. 11104 S.E. Stark Street Portland, OR 97216
Phone:	(503) 284-0988
Email:	erinu@axisdesigngroup.com
Owner:	**Dean Hurford** 1105 Sitka Ave. Newberg, OR 97132
Phone:	503-730-7339
Email:	deanhurf@yahoo.com
Project Name:	**Halsey Crossing** NW Corner of NE 223rd and Halsey St. Fairview, OR 97204
Application Type:	Type III Design Review
Property ID:	R320850, R517405, R321098
County:	Multnomah
State ID (Primary):	1N3E28DD -07900, 1N3E28DD -08001, 1N3E28DD -07800
Alt Account #:	R943270210, R943282510, R943280390
Site Size:	118,123 S.F.
Use:	Mixed Use; Residential & Commercial
Zoning:	Town Center Commercial (TCC)

ii. Summary of Application

The scope of this proposal is the construction of a mixed use residential and commercial development on a vacant parcel in the City of Fairview. Due to the location and scale of the project, it is subject to Type III design review.

iii. Existing Conditions

The subject property is located at the northwest corner of the intersection of NE 223rd St and NE Halsey St. It comprises taxlots 7800, 7900, and 8001 and covers a total of 118,123 SF, or 2.71 acres. The site is bounded by NE Halsey St. to the south, NE

223rd Ave. to the East, residential multifamily development to the north and west, and by commercial development to the southeast.

Fairview Creek runs along the southern boundary of the site, parallel with NE Halsey St. This portion of the creek is designated with a 40' required resource protection area. Portions of the site, principally located in the southeast area of the property, are currently designated as flood hazard areas.

The property is zoned Town Center Commercial (TCC). The Floodplain Overlay zone is also applied to this site.

Adjacent properties to the north and west of the site are zoned for Residential Multi-Family (R/MF). Adjacent properties to the Southeast, South, and East are zoned for Town Center Commercial (TCC). Marilyn's City Park is adjacent to the site at the northeast corner of the intersection of NE Halsey and 223rd.

iv. Proposed Development

The applicant is proposing to develop the site with a mixed use project consisting of multifamily residential and commercial uses. The project will consist of seven structures comprising a total of 84 dwelling units. One four-story building will contain 18 dwelling units above approximately 4,400 sf of ground-floor commercial space. There will be three three-story, 10 unit buildings and three three-story, 12 unit buildings. 108 parking stalls will be provided; 84 stalls will serve residents and 24 will be provided for commercial tenants. Two trash enclosures will be constructed. Frontage improvements including new sidewalks, curbs, street trees and landscaping along 223rd Ave. are proposed.

19.30 – RESIDENTIAL (R) DISTRICT

19.30.100 – Design standards

A. Purpose. The architectural standards are intended to provide detailed, human-scale design, while affording flexibility to use a variety of building styles.

B. Applicability. This section applies to all of the following types of buildings, and shall be applied during site design review:

1. Single-family attached townhomes which are subject to site design review (three or more attached units);

2. Multifamily housing;

3. Public and institutional buildings;

4. Residential commercial and mixed use buildings; and

5. Duplexes and triplexes.

C. Standards. All buildings which are subject to this section shall comply with all of the following standards. The graphics provided with each standard are intended to show examples of how to comply. Other building styles and designs can be used to comply, so long as they are consistent with the text of this section. An architectural feature (i.e., as shown in the graphics) may be used to comply with more than one standard.

1. Building Form. The continuous horizontal distance (i.e., as measured from end-wall to end-wall) of individual buildings shall not exceed 120 feet. All buildings shall incorporate design features such as offsets, balconies, projections, window reveals, or similar elements to preclude large expanses of uninterrupted building surfaces, as shown in the above figure. Along the vertical face of a structure, such features shall occur at a minimum of every 35 feet, and on each floor shall contain at least two of the following features:

a. Recess (e.g., deck, patio, courtyard, entrance or similar feature) that has a minimum depth of five feet;

b. Extension (e.g., floor area, deck, patio, entrance, or similar feature) that projects a minimum of two feet and runs horizontally for a minimum length of four feet; and/or

c. Offsets or breaks in roof elevation of two feet or greater in height.

RESPONSE: Per FMC 19.65.070.B.1.e, these standards apply to the residential buildings in this proposal. The mixed use building is governed by the standards in FMC 19.65. The proposed residential buildings measure 80' in length, complying with the maximum building length of 120.' Per the site plans and elevations (sheets A-101, A-221-A and A-221-B), the buildings' front facades feature recesses greater than 5,' extensions greater than 2,' and breaks in roof elevation greater than 2' in height, occurring at intervals less than 35.'

---

2. Eyes on the Street. All building elevations visible from a street right-of-way shall provide doors, porches, balconies, and/or windows. A minimum of 60 percent of front (i.e., street-facing) elevations, and a minimum of 30 percent of side and rear building elevations shall meet this standard. "Percent of elevation" is measured as the horizontal plane (lineal feet) containing doors, porches, balconies, terraces and/or windows. The standard applies to each full and partial building story.

RESPONSE: As indicated on site plans and elevations (sheets A-101, A-221-A, A-221-B and A-221-C), the required features for eyes on the street are present on all elevations of the proposed residential buildings.

---

3. Detailed Design. All buildings shall provide detailed design along all elevations (i.e., front, rear and sides). Detailed design shall be provided by using at least three of the following architectural features on all elevations, as appropriate for the proposed building type and style (may vary features on rear/side/front elevations):

a. a. Dormers;
b. b. Gables;
c. c. Recessed entries;
d. d. Covered porch entries;
e. e. Cupolas or towers;
f. f. Pillars or posts;
g. g. Eaves (minimum six-inch projection);
h. h. Off-sets in building face or roof (minimum 16 inches);
i. i. Window trim (minimum four inches wide);
j. j. Bay windows;
k. k. Balconies;
l. l. Decorative patterns on exterior finish (e.g., scales/shingles, wainscoting, ornamentation, and similar features);
m. m. Decorative cornices and rooflines (e.g., for flat roofs);
n. n. An alternative feature providing visual relief, similar to options in subsections (C)(3)(a) through (m) of this section.

RESPONSE: As indicated on site plans and elevations (sheets A-101, A-221-A, A-221-B and A-221-C), the proposed residential buildings' elevations feature gables, recessed entries, 16" eave projections, offsets in the facades, decorative window trim, balconies, and decorative patterns on exterior finish.

19.65 – TOWN CENTER COMMERCIAL (TCC) DISTRICT

19.65.020 – Permitted Land Uses

The land uses listed in Table 19.65.020.A are permitted in the town center commercial district, subject to the provisions of this chapter. Only land uses that are specifically listed in Table 19.65.020.A, and land uses that are approved as "similar" to those in Table 19.65.020.A, may be permitted. The land uses identified with a "CU" in Table 19.65.020.A require conditional use permit approval prior to development or a change in use.

1. Residential
   - Single-Family
     - a. Single-family detached housing (existing housing only)
     - b. Zero-lot line housing (existing only)
     - c. Accessory dwellings
     - d. Manufactured homes – individual lots (existing housing only)
     - e. Single-family attached townhomes (CU)
   - Two-Family
     - f. Two-family housing (duplex) (CU)
   - Multifamily and Three-Family
     - g. Multifamily housing and triplexes (CU)
   - Residential care
     - h. Residential care homes and facilities (CU)
     - i. Family day care (12 or fewer children)

6. Commercial
   - o. Auto-oriented uses and facilities (CU)
   - p. Entertainment (e.g., theaters, clubs, amusement uses)
   - q. Hotels/motels
   - r. Medical and dental offices, clinics and laboratories
   - s. Mixed use development (housing and other permitted use)
   - t. Office uses (i.e., those not otherwise listed)
   - u. Personal and professional services (e.g., child care center, catering/food services, restaurants, laundromats and dry cleaners, barber shops and salons, banks and financial institutions, and similar uses)
   - v. Repair services (must be enclosed within building)
   - w. Retail trade and services, except auto-oriented uses
   - x. Uses similar to those listed above (subject to CU requirements, as applicable)

RESPONSE: The proposed mixed use project includes 84 residential units and 4,400 sf of commercial space. The latter will be leased to commercial tenants in categories d, f, g, or i above. Collectively, the project falls under category e., mixed use (housing and other permitted use) and is thus allowed by right in the TCC zone.

19.65.030 Building setbacks

A. Front Setbacks.
   1. Minimum Setback. There is no minimum front setback required.
   2. Maximum Setback. The maximum allowable front setback is 10 feet. This standard is met when a minimum of 80 percent of the front building elevation is placed no more than 10 feet back from the front property line. On parcels with more than one building, this standard applies to the largest building. The setback standard may be increased when a usable public space with pedestrian amenities (e.g., extra-wide sidewalk, plaza, pocket park, outdoor dining area or town square with seating) is provided between the building and front property line. (See

also pedestrian amenities standards in FMC 19.65.080, and architectural standards in FMC 19.65.070 for related building entrance standards.)

B. Rear Setbacks.
   1. Minimum Setback. The minimum rear setback for all structures shall be zero feet, except for doorways which will be recessed to assure safe exiting, for street-access lots, and eight feet for alley-access lots (distance from building to rear property line or alley easement) in order to provide space for parallel parking. When a building abuts a residential district the minimum rear setback shall be 15 feet.
   2. Through-Lots. For buildings on through-lots (lots with front and rear frontage onto a street), the front setbacks in subsection A of this section shall apply.

C. Side Setbacks. There is no minimum side setback required, except that buildings shall conform to the vision clearance standards in FMC 19.162.020 and the applicable fire and building codes for attached structures, firewalls, and related requirements.

D. Setback Exceptions. Eaves, chimneys, bay windows, overhangs, cornices, awnings, canopies, porches, decks, pergolas, and similar architectural features may encroach into setbacks by no more than four feet, subject to compliance with applicable standards of the Uniform Building Code and Uniform Fire Code. Walls and fences may be placed on the property line, subject to the requirements of Chapter 19.163 FMC, Landscaping, Street Trees, Fences and Walls. (Ord. 6-2001 § 1)

RESPONSE: The proposal complies with setback standards as indicated on the proposed site plan (sheet A-101). Building C is located at the east (front) lot line. It has a 0' setback. The allowed range is 0' – 10'. Building B1, is set back approximately 17'-6" from the westernmost (rear) lot line; the minimum required distance for this setback is 0'. Buildings are sited approximately 24' and 60' from the north and south (side) lot lines respectively. There is no minimum or maximum required setback for side lot lines. Buildings A1-A3 are located approximately 66' from the southernmost (front) lot line (after ROW dedication), due to the existing creek and resource protection area.

19.65.040 Lot coverage, floor area ratio and maximum building size

A. Lot Coverage. There is no maximum lot coverage requirement, except that compliance with other sections of this code may preclude full (100 percent) lot coverage for some land uses.

B. Floor Area Ratio. Floor Area Ratio (FAR) controls the bulk and mass of development. FAR is measured by dividing the gross enclosed area of all floors of a building (or combination of buildings in a single development) by the net land area of the development (not including street rights-of-way). For example, a 1.0 FAR equals two building stories (approximately 25 to 30 feet high) with 50 percent lot coverage. A FAR of 4.0 equals six building stories (more than 75 feet high) with 67 percent lot coverage. The following standard shall be met in all commercial, industrial and mixed use (residential with nonresidential) developments:

   1. The maximum floor area shall be 1.0 in the town center commercial district.

C. C. Maximum Building Size. Individual maximum building size is 60,000 square feet.

RESPONSE: The proposal is consistent with the lot coverage standard, which does not specify a minimum or maximum. The proposed development comprises 92,161 sf of total building area on a 110,084 sf lot (after ROW dedication), for an overall FAR of 0.84. This is below the allowable maximum FAR of 1.0. The largest proposed building is 24,142 sf, which is less than the individual building maximum of 60,000 sf.

19.65.050 – Block Layout and Building Orientation

This section is intended to promote the walkable, storefront character of the town center commercial district by forming short blocks and orienting (placing or locating) buildings close to streets. Placing buildings close to the street also slows traffic down and provides more "eyes on the street," increasing the safety of public spaces. The standards, as listed on the following page and illustrated above, complement the front setback standards in FMC 19.65.030.

A. Applicability. This section applies to new land divisions and all of the following types of development (i.e., subject to site design review):

1. Three or more single-family attached townhomes on their own lots (i.e., townhomes subject to site design review);
2. Duplex and triplex developments with more than one building (i.e., duplex and triplex developments subject to site design review);
3. Multifamily housing;
4. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and
5. Commercial and mixed use buildings subject to site design review.

Compliance with all of the provisions of subsections B through E of this section shall be required.

B. Block Layout Standard. New land divisions and developments, which are subject to site design review, shall be configured to provide an alley or interior parking court, as shown above. Blocks (areas bound by public street right-of-way) shall have a length not exceeding 200 feet, and a depth not exceeding 200 feet. Pedestrian pathways shall be provided from the street right-of-way to interior parking courts between buildings, as necessary to ensure reasonably safe, direct, and convenient access to building entrances and off-street parking. Exceptions to this standard may be approved when all of the provisions of subsection C of this section, superblock developments, are met.

C. Superblock Developments. Commercial and mixed use developments may exceed the block width and depth standards in subsection B of this section, when the total floor area of those developments (i.e., one or more buildings on one or more lots) exceeds 40,000 square feet on the ground floor. These "superblock developments" shall conform to all of the standards in subsections (C)(1) and (C)(2) of this section (see Figure 19.65.050.C):

1. Create a "Shopping Street." Each development has at least one street or drive designed with the basic elements of a good pedestrian-oriented shopping street: buildings oriented (placed) close to both sides of a "main street," which may be public or private; on-street parking; wide sidewalks (e.g., eight to 12 feet typical); street trees; pedestrian-scale lighting and other similar enhancements.

2. Provide Usable Pedestrian Space. "Pedestrian space" means a plaza or extra-wide pathway/sidewalk near one or more building entrances. Each development provides street trees or planters, space for outdoor seating, canopies or awnings, and on-street parking (in selected areas) to improve the pedestrian environment along internal private drives.

D. Building Orientation Standard. All of the developments listed in subsection A of this section shall be oriented to a street. The building orientation standard is met when all of the following criteria are met:

1. The minimum and maximum setback standards in FMC 19.65.030 are met;

2. Buildings have their primary entrance(s) oriented to (facing) the street. Building entrances may include entrances to individual units, lobby entrances, entrances oriented to pedestrian plazas, or breezeway/courtyard

entrances (i.e., to a cluster of units or commercial spaces). Alternatively, a building may have its entrance facing a side when a direct pedestrian walkway not exceeding 15 feet in length is provided between the building entrance and the street right-of-way.

3. Off-street parking, driveways or other vehicular circulation shall not be placed between a building and the street which is used to comply with subsection (D)(2) of this section. On corner lots, buildings and their entrances should be oriented to the street corner, as shown above; parking, driveways and other vehicle areas shall be prohibited between buildings and street corners.

RESPONSE: No new blocks or superblock developments are being created. The requirements of D Building Orientation Standard apply to this project: As described above, the proposal complies with the setback standards of FMC 19.65.030. The project consists of seven structures, the largest of which (Building C) is aligned parallel with the front lot line. As indicated on the site plan (sheet A-101) and elevation drawing (sheets A-221-C) Building C places commercial entries and storefronts on Fairview Avenue facing the sidewalk. Per the site plan, all surface parking is placed mid-site and no parking areas are situated between the street-facing building (Building C) and the front lot line.

19.65.060 – Building Height

A. Maximum Height. Buildings shall be no more than three stories or 45 feet in height, whichever is greater. The maximum height may be increased by 12 feet when housing is provided above the ground floor ("vertical mixed use"), as shown above. The building height increase for housing shall apply only to that portion of the building that contains housing.

B. Method of Measurement. "Building height" is measured as the vertical distance above a reference datum measured to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the average height of the highest gable of a pitched or hipped roof (see Figure 19.65.060 for examples of measurement). The reference datum shall be selected by either of the following, whichever yields a greater height of building:

1. The elevation of the highest adjoining sidewalk or ground surface within a five-foot horizontal distance of an exterior wall of the building when such sidewalk or ground surface is not more than 10 feet above the lowest grade;

2. An elevation 10 feet higher than the lowest grade when the sidewalk or ground surface described in subsection (B)(1) of this section is more than 10 feet above the lowest grade. The height of a stepped or terraced building is the maximum height of any segment of the building. Not included in the maximum height are: chimneys, bell towers, steeples, roof equipment, flagpoles, and similar features which are not for human occupancy. (Ord. 6-2001 § 1)

RESPONSE: As indicated on elevation drawings (sheets A-221), Buildings A1-3 and B1-3 are 36'-9" at their highest points. They comply with the 45' standard for single-use buildings. The average height of the gable roof of mixed-use Building C measures approximately 53.' It complies with the height limit for buildings which contain housing above another use, or 57' total.

19.65.070 – Architectural guidelines and standards

A. Purpose and Applicability. The town center commercial district architectural guidelines standards are intended to provide detailed, human-scale design, while affording flexibility to use a variety of building styles. This section applies to all of the following types of buildings:

1. Three or more single-family attached townhomes on their own lots (i.e., townhomes subject to site design review);

2. Duplex and triplex developments with more than one building (i.e., duplex and triplex developments subject to site design review);

3. Multifamily housing;

4. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

5. Commercial and mixed use buildings subject to site design review.

B. Guidelines and Standards. Each of the following standards shall be met. An architectural feature used to comply with one standard may be used to comply with another standard.

1. Detailed Storefront Design. All buildings shall contribute to the storefront character and visual relatedness of town center commercial district buildings. This criterion is met by providing all of the architectural features listed in subsections (B)(1)(a) through (e) of this section along the front building elevation (i.e., facing the street), as applicable.

a. Corner building entrances on corner lots. Alternatively, a building entrance may be located away from the corner when the building corner is beveled or incorporates other detailing to reduce the angular appearance of the building at the street corner.

b. Regularly spaced and similar-shaped windows with window hoods or trim (all building stories).

c. Large display windows on the ground floor (nonresidential uses only). Bulkheads, piers and a storefront cornice (e.g., separates ground-floor from second story, as shown above) shall frame display windows.

d. Decorative cornice at top of building (flat roof); or eaves provided with pitched roof.

e. All residential buildings subject to design review shall comply with the residential district architectural guidelines, as listed in FMC 19.30.100.

RESPONSE: Detailed Storefront Design: The presence of Fairview Creek and its attendant buffer zone adjacent to the southern property line effectively creates a mid-block condition for the portion of the lot fronting on Fairview Ave. Therefore the corner building entrance on corner lot standard is not applicable to the subject. As shown on elevation sheet A-221-C Building C features regularly spaced and similar-shaped windows with trim and large display windows on the ground floor commercial spaces. Ground floor walls are articulated and clad in brick, framing display windows. The building features a pitched roof with prominent eaves along most of the elevation. The central portion of the roofline features a decorative cornice where a roof deck is situated. As indicated in the response to FMC 19.30.100 above, all residential district architectural guidelines are met.

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2. Design of Large-Scale Buildings and Developments. The standards in subsection (B)(2)(c) of this section shall apply to large-scale buildings and developments, as defined in subsections (B)(2)(a) and (b):

a. Buildings with greater than 20,000 square feet of enclosed ground-floor space (i.e., "large-scale"). Multitenant buildings shall be counted as the sum of all tenant spaces within the same building shell;

b. Multiple-building developments with a combined ground-floor space (enclosed) greater than 40,000 square feet (e.g., shopping centers, public/institutional campuses, and similar developments);

c. All large-scale buildings and developments, as defined in subsections (B)(2)(a) and (b) of this section, shall provide human-scale design by conforming to all of the following criteria:

i. Incorporate changes in building direction (i.e., articulation) and divide large masses into varying heights and sizes, as shown above. Such changes may include building offsets; projections; changes in elevation or horizontal direction; sheltering roofs; terraces; a distinct pattern of divisions in surface materials; and use of windows, screening trees; small-scale lighting (e.g., wall-mounted lighting, or up-lighting); and similar features.

ii. Every building elevation adjacent to a street with a horizontal dimension of more than 100 feet, as measured from end-wall to end-wall, shall have a building entrance; except that building elevations that are unable to provide an entrance due to the internal function of the building space (e.g., mechanical equipment, areas where the public or employees are not received, etc.) may not be required to meet this standard. Pathways shall connect all entrances to the street right-of-way, in conformance with Chapter 19.162 FMC, Access and Circulation. (Ord. 6-2001 § 1)

RESPONSE: The proposed buildings do not fall under the definition of Large Scale Buildings per this section.

19.65.080 – Pedestrian and transit amenities

A. Purpose and Applicability. This section is intended to complement the building orientation standards in FMC 19.65.050, and the street standards in Chapter 19.165 FMC, by providing comfortable and inviting pedestrian spaces within the town center commercial district. Pedestrian amenities serve as informal gathering places for socializing, resting, and enjoyment of the city's town center commercial district, and contribute to a walkable district. This section applies to all of the following types of buildings:

1. Three or more single-family attached townhomes on their own lots (i.e., townhomes subject to site design review);

2. Duplex and triplex developments with more than one building (i.e., duplex and triplex developments subject to site design review);

3. Multifamily housing;

4. Public and institutional buildings, except that the standard shall not apply to buildings which are not subject to site design review or those that do not receive the public (e.g., buildings used solely to house mechanical equipment, and similar uses); and

5. Commercial and mixed use buildings subject to site design review.

B. Guidelines and Standards. Every development shall provide one or more of the "pedestrian amenities" listed in subsections (B)(1) through (B)(5) of this section. Pedestrian amenities may be provided within a public right-of-way when approved by the applicable jurisdiction.

1. A plaza, courtyard, square or extra-wide sidewalk next to the building entrance (minimum width of eight feet);

2. Sitting space (i.e., dining area, benches or ledges) between the building entrance and sidewalk (minimum of 16 inches in height and 30 inches in width);

3. Building canopy, awning, pergola, or similar weather protection (minimum projection of four feet over a sidewalk or other pedestrian space);

4. Public art which incorporates seating (e.g., fountain, sculpture, etc.);

5. Transit amenity, such as bus shelter or pullout, in accordance with the city's transportation system plan and guidelines established by Tri-Met. (Ord. 6-2001 § 1)

RESPONSE: As indicated on the elevation drawing (sheet A-221-C), Building C features projecting canopies for weather protection facing Fairview Avenue. Additional sidewalk width is provided at three inset bays along the main façade where commercial entries are located.

19.65.090 – Special standards for certain uses

This section supplements the standards contained in FMC 19.65.030 through 19.65.080. It provides standards for the following land uses in order to control the scale and compatibility of those uses within the Town Center Commercial District:

- **Residential Uses**
- Public and Institutional Uses
- Accessory Uses and Structures
- Automobile-Oriented Uses and Facilities
- Outdoor Storage and Display

A. Residential Uses. Higher density residential uses, such as multifamily buildings and attached townhomes, are permitted to encourage housing near employment, shopping and services. All residential developments shall comply with the standards in subsections (A)(1) through (A)(6) of this section which are intended to require mixed use development; conserve the community's supply of commercial land for commercial uses; provide for designs which are compatible with a storefront character; avoid or minimize impacts associated with traffic and parking; and ensure proper management and maintenance of common areas. Residential uses which existed prior to the effective date of this code are exempt from this section.

1. Mixed Use Development Required. Residential uses shall be permitted only when part of a mixed use development (residential with commercial or public/institutional use). Both "vertical" mixed use (housing above the ground floor), and "horizontal" mixed use (housing on the ground floor) developments are allowed, subject to the standards in subsections (A)(2) through (A)(6) of this section.

2. Limitation on Street-Level Housing. No more than 50 percent of a single street frontage may be occupied by residential uses. This standard is intended to reserve storefront space for commercial uses and public/institutional uses; it does not limit residential uses above the street level on upper stories, or behind street-level storefronts. For parcels with street access at more than one level (e.g., sloping sites with two street frontages), the limitation on residential building space shall apply to all street frontages.

3. Density. There is no minimum or maximum residential density standard. Density shall be controlled by the applicable floor area and building height standards.

4. Parking, Garages, and Driveways. All off-street vehicle parking, including surface lots and garages, shall be oriented to alleys, placed underground, placed in structures above the ground floor, or located in parking areas located behind or to the side of the building; except that side yards facing a street (i.e., corner yards) shall not be used for surface parking. All garage entrances facing a street (e.g., underground or structured parking) shall be recessed behind the front building elevation by a minimum of five feet. On corner lots, garage entrances shall be oriented to a side street when access cannot be provided from an alley.

5. Creation of Alleys. When a subdivision (e.g., four or more townhome lots) is proposed, a public or private alley shall be created for the purpose of vehicle access. Alleys are not required when existing development patterns or topography make construction of an alley impracticable. As part of a subdivision, the city may require dedication of right-of-way or easements, and construction of pathways between townhome lots (e.g., between building breaks) to provide pedestrian connections through a development site, in conformance with Chapter 19.162 FMC, Access and Circulation.

6. Common Areas. All common areas (e.g., walkways, drives, courtyards, private alleys, parking courts, etc.) and building exteriors shall be maintained by a homeowners association or other legal entity. Copies of any applicable covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.

RESPONSE:
1. The proposal is a mixed use project consisting of residential apartments and 4,400sf of commercial space.
2. 100% of the ground level of Building C, the only building which directly abuts a right of way, is commercial.
3. The project accommodates 84 dwelling units within the allowed height and floor area standards.
4. All of the proposed parking is located mid-site. Buildings A1-3 are located between NE Halsey and the primary parking area. Building C is between NE Fairview Ave. and this parking area. Smaller parking areas are located to the sides of Building C and Building A1. No parking is located between buildings and public rights-of-way.
5. No subdivision is proposed.
6. The entire property will be owned and managed by a single entity. No common tracts are proposed.

CHAPTER 19.105 – FLOODPLAIN OVERLAY

19.105.020 – Area Affected

This section shall apply to all areas designated as areas of special flood hazard by the federal insurance administration on its current flood hazard boundary map (FHBM), applicable to and including all areas within the boundaries of the city of Fairview or more current information such as Metro flood management maps, if demonstrated to be accurate. (Ord. 6-2001 § 1)

RESPONSE: Approximately one third of the subject property is designated in a 100 year floodplain per FEMA's 2009 flood insurance rate map (FIRM), as is shown on sheet G-001. More recent, permitted site grading has raised the elevation of a portion of the site. The existing site elevations are reflected in the June 2018 site survey and are also shown on sheet G-001. The applicant intends to provide FEMA with a letter of map amendment (LOMA) to update the floodplain elevation.

19.105.030 – Compliance

No structure or land shall hereafter be constructed, located, extended, converted or altered without full compliance with the terms of Chapter 16.05 FMC. (Ord. 6-2001 § 1)

RESPONSE: See responses to FMC 16.05

19.105.040 – Procedures

A development permit shall be obtained before construction or development begins within any area of special flood hazard. Requirements for the permit as well as specific and general standards are outlined in Chapter 16.05 FMC. (Ord. 6-2001 § 1)

RESPONSE: Development permit will be obtained per FMC 16.05

19.105.050 – Permitted uses

The following uses are permitted outright:

A. Excavation and fill required to plant any new trees or vegetation.

B. Restoration or enhancement of floodplains, riparian areas, upland and streams. (Ord. 6-2001 § 1)
RESPONSE: Refer to the Preliminary Stormwater Report by the Civil Engineer. See also Landscape Notes, sheet A-101.

RESPONSE: New plantings are proposed as part of the development proposal. The stream buffer corridor will not be disturbed.

19.105.060 – Conditional uses

The following uses are permitted conditionally:

A. All uses allowed in the base zone or existing flood hazard overlay zone. (Ord. 6-2001 § 1)

RESPONSE: The proposed residential and commercial mixed-use development is permitted by-right in the base TCC zone. It is thus conditional in the Floodplain Overlay zone.

19.105.070 – Prohibited uses

The following uses are not permitted:

A. Any use otherwise prohibited in the base zone or existing flood hazard overlay zone.

B. Any uncontained area of hazardous materials as defined by DEQ. (Ord. 6-2001 § 1)

RESPONSE: No prohibited uses are proposed.

19.105.090 – Performance Standards

A. Any development should maintain or increase the capacity of the flood management area.
B. All fill placed at or below design flood elevation shall be balanced with at least an equal amount of soil material removal.

C. Excavation of areas that would be filled with water in non-stormwater conditions is not to be counted as part of the floodplain balance referenced in subsection B of this section.
D. Temporary fills permitted during construction shall be removed in a timely manner.

RESPONSE: Refer to the Preliminary Stormwater Report by the Civil Engineer.

CHAPTER 19.106 – NATURAL RESOURCE REGULATIONS

19.106.040 – Resource protection area requirements

A. Standards outlined in this section apply to the city's riparian resources and upland habitats as shown on the city of Fairview natural resource map adopted by the city council on September 5, 2012, (hereon referred to as "the map") which includes the Columbia River and Fairview Creek, Osburn Creek, No Name Creek, Salmon Creek, Rain Tree Creek, and Clear Creek, and mapped wetlands and upland habitat.
B. Each resource has been designated with a specific protection area as shown on the map. The map shows Fairview's riparian resources that are subject to either a 35-, 40-, 55-, or 80-foot riparian buffer resource protection area. The protection areas are measured from the centerline of the creek in each direction either 35, 40, 55, or 80 feet as shown on the map. Where there are multiple reaches of waterbodies the protection area shall be measured from the centerline of each reach.

Other water resources that appear on the map, but are enclosed in pipes, culverts, or similar structures, are not subject to the provisions of this chapter, except where a proposed activity such as an excavation will expose or directly disturb the protected water feature. Site development on properties containing unexposed mapped water quality features shall not prevent the future possibility of daylighting the water feature. If an applicant chooses to daylight a water feature, the maximum buffer width of the underlying designation may not apply to the portion that will be daylighted/exposed. However, a minimum buffer width of 25 feet from centerline shall be applied.

1. Riparian Resource Protection Areas. The riparian resource protection area includes the mapped resource and the area of land immediately adjacent to the edges of banks located along the Columbia River and Fairview Creek, Osburn Creek, No Name Creek, Salmon Creek, Rain Tree Creek, and Clear Creek.

Each resource protection area has a specific required buffer of either 80 feet (160-foot total width), 55 feet (110-foot total width), 40 feet (80-foot total width), and 35 feet (70-foot total width) as set forth below and as shown on the adopted map. The resource protection area shall be measured from the centerline of the creek.

a. The 80-foot resource protection area applies to:

• Fairview Creek from the city's southern boundary of Glisan Street to the eastern portion of Fairview Community Park. However, the platted buffer designated with the development of the Fairview Village shall apply to the northern portion of Fairview Creek where it abuts the Village commercial, Village apartment and Village townhouse zones as shown on the adopted map. The southern side of

Fairview Creek where it abuts city of Fairview property is subject to an 80-foot resource protection area as shown on the map.

b. The 55-foot resource protection area applies to:

• Fairview Creek at the property line between the northern property line of 15 Matney Street and the southern property line of 2010 Fairview Avenue, as shown on the adopted map, running northward to Fairview Lake.

• Salmon Creek

• Columbia River; the Columbia River protection area shall be measured from the mean high water line.

c. The 40-foot resource protection area applies to:

• Fairview Creek from the city detention pond located just north of Fairview Village north toward Smith Memorial Church, as shown on the adopted map.

• No Name Creek

• Rain Tree Creek

d. The 35-foot resource protection area applies to:

• Osburn Creek

e. Previously Platted Protection Areas. Previous subdivision developments set aside resource areas for Fairview Creek and Osburn Creek (and associated wetlands) in easements and tracts. Development was permitted around the resource and the buffer was reviewed at time of development. The map shows the protection area as the mapped tract or easement and development is only permitted within the mapped areas as provided on the plat and/or conditions of the development approval.

i. Lakeshore Estates 2.
ii. Heron Point.
iii. Pelfrey South Shore Estates 1 and 2.

RESPONSE: The portion of Fairview Creek that traverses the site is designated in the 40' buffer zone, as designated by the City of Fairview Natural Resources Map adopted on September 5, 2012.

2. Wetland Resource Protection Areas. A buffer area which measures at least 50 feet shall be established between any mapped wetland areas identified on the map and any proposed development. Permitted uses within the underlying zone are allowed to be constructed on properties with mapped wetlands when the

development is not located within the wetland or the 50-foot wetland buffer. However, development within 15 feet of a wetland buffer is subject to a Type I wetland boundary verification process (FMC 19.106.070(A)). Mitigation shall be required for all development within the required wetland buffer (subsection (E)(2)(b) of this section).

Minor development is permitted through the Type I and Type II land use process as shown in Table 19.106.040(B).

Significant development within the 50-foot buffer may be permitted subject to a Type III land use application and when the applicant demonstrates:

- The development is the minimum necessary to allow legal use of the property; and
- The development complies with U.S. Army Corps of Engineers and Division of State Land permit requirements.

3. Upland Habitat Resource Protection Areas. Upland habitat areas provide valuable functions to the city's riparian and wetland areas and to fish and wildlife. The purpose of this section is to encourage habitat friendly development while minimizing impact on water quality and fish and wildlife habitat functions. Development within 15 feet of a mapped upland habitat area is subject to a Type I boundary verification process.

Development of uses listed in Table 19.106.040(B) is permitted on areas mapped with an upland habitat designation subject to the exception process in subsection (D) of this section. To achieve the goals of re-establishing forest canopy that meets the ecological values and functions when development intrudes into an upland habitat area, tree replacement and vegetation planting are required per subsection (E) of this section, Mitigation.

RESPONSE: There are no mapped wetlands on the site. The majority of the site outside the stream buffer is designated upland habitat. The owner agrees to work with the city to implement mitigation plans that will be issued as conditions of approval.

A	**Vegetation Management**	**40-foot RPA**
1	Vegetation removal, excessive tree trimming or cutting, or disturbance of ground cover or removal of forest debris without an approved permit.	Prohibited
2	Planting of vegetation listed as nuisance on the Metro Native Plant List.	Prohibited
3	Invasive vegetation removal of 300 square feet or less (per calendar year).	Permitted
4	Removal of more than 300 square feet of plants categorized as a nuisance or invasive species on the Metro Native Plant list. After removal all open soils shall be replanted with native vegetation and/or protected from erosion (per calendar year).	Type I
5	Native plantings and vegetation management plans.	Type I

6	Maintenance of existing landscaping and gardens. This exemption extends to the installation of new irrigation and drainage facilities and/or erosion control features as well as to landscaping activities that do not involve: a. Removal of native plants or required mitigation. b. Planting of any vegetation identified as a nuisance or invasive species on the Metro Native Plant List. c. Anything that produces an increase in impervious area. d. Other changes that could result in increased direct stormwater discharges to the resource area.	Permitted
B	**Tree Removal and Pruning**	**40-foot RPA**
1	Tree removal for trees that present an emergency situation with immediate danger to persons or property. Emergency situations may include, but are not limited to, situations in which a tree or portion of a tree has been compromised and has damaged or is damaging structures or utilities, or private or public property or where a tree or portion of a tree is prohibiting safe passage in the public right-of-way. Examples include trees that have fallen into or against an occupied building or trees downed across power lines or roadways. The emergency exemption is limited to removal of the trees or portion of the tree as necessary to eliminate the hazard. Damages or impacts to vegetation within the resource area resulting from the tree removal shall be repaired after the emergency has been resolved.	Permitted
2	Limited tree removal or major pruning of trees six inches or greater in diameter under the following circumstances: a. The tree is dead, diseased or dying and cannot be saved as determined by a certified arborist. The tree should be topped to alleviate the hazard. b. For major pruning, if a tree is pruned in excess causing it to die, three trees six inches in diameter or greater must be planted as mitigation. **Tree removal associated with a development permit or land use application will be reviewed through the applicable application process.	Type I
C	**Maintenance and Repair**	**40-foot RPA**
1	Normal maintenance, repair, alteration, or demolition of existing legal structures and facilities; provided, that the following criteria are met: a. There is no change in the location or increase in the footprint of any building, impervious surface, or outdoor storage within the resource protection area. b. No other site changes are proposed that could result in the increased direct stormwater discharge to the natural resource area. c. Legally nonconforming structures within resource protection areas are subject to FMC 19.106.090, Nonconforming uses and structures within resource protection areas.	Type I
2	Emergency procedures or activities that are necessary to remove or abate hazards to person or property; provided, that the time frame for such remedial or preventative action is too short to allow for compliance with the requirements of this chapter. After the emergency, the person or agency undertaking the action shall repair any impacts to the designated natural resource resulting from the emergency action; example, remove any temporary flood protection such as sandbags, restore hydrologic connections, or replant disturbed areas with native vegetation.	Permitted
3	Normal maintenance and repair of existing stormwater facilities in accordance with stormwater management plan approved by the city.	Permitted
4	Routine maintenance of existing public recreation, utility facilities, access, streets, driveways, and/or parking improvements that disturbed a resource area, provided such activities provide a mitigation plan for restoration of the disturbed area.	Type I
D	**Site Development/Alteration**	**40-foot RPA**
1	Activities prohibited by an easement.	Prohibited
2	Earth disturbing activities not associated with an approved permit.	Prohibited
3	Activities prohibited by Chapter 16.05 FMC, flood hazard overlay zone.	Prohibited

4	Receiving areas for toxic or hazardous or sanitary waste fills and uncontained hazardous materials, as defined by DEQ.	Prohibited
5	Development of permitted structures allowed in the underlying zone within the resource protection area subject to FMC 19.106.040(D), Exception Process.	Type III*
6	Type I boundary verification process to demonstrate proposed development is not located within a designated natural resource area or required protection area (FMC 19.106.070(A)).	Type I
7	Alteration of a stream bank, bed, or water flow without approved permits.	Prohibited
8	Alteration of stream bank, bed or water flow.	Type III
9	Direct stormwater discharge into waterbodies without obtaining a permit.	Prohibited
10	Installation of required storm management facilities.	Type III
11	Public and private pathways, trail systems, and boardwalks, subject to construction standards of FMC 19.106.040(C).	Type II
12	Impervious pathways and pathways greater than five feet in width.	Type III
13	Viewing areas on parcels zoned for commercial and public use provided no more than 300 square feet of impervious surface is disturbed per 100 feet by 100 feet of resource protection area. For properties with commercial zoning, outdoor patio or seating areas utilizing the aesthetics associated with the adjacent natural resource may occupy no more than 500 square feet of the resource protection area. Encroachments may be subject to buffer averaging where feasible.	Type II
14	Benches and outdoor furniture and interpretive signage and displays provided such facilities do not disturb more than 20 square feet of impervious surface within the designated natural resource area.	Type I
	Uses listed as "Permitted" means they are permitted outright and a land use permit is not required.	

*Type III – Subject to standards of FMC 19.106.040(D)(1)(e), Buffer Averaging.

RESPONSE: The proposal requires a boundary verification to demonstrate proposed development is not located within a designated natural resource area. Sheet G-001 addresses the information needed for the boundary verification. The proposed private trail shown on sheet A-101 complies with the requirements of FMC 19.106.040(C)(4) as described below.

C. Development and Construction Standards. The following standards apply to development and construction in the resource protection areas identified in this section (this section and as permitted in Table 19.106.040(B)). These standards do not apply to Fairview Lake or natural resources located within Fairview Village. An applicant wishing to deviate from these standards to increase the allowable development footprint may make a request to the planning commission through the Type III review process and the exception process listed in subsection D of this section. The request may only be made for permitted uses listed in Table 19.106.040(B).

1. All plantings installed must be native plantings approved on the Metro Native Plant List and be deemed compatible with the environment in which they are to be planted. Plantings shall be in compliance with subsection E of this section, Mitigation.

2. Benches may not exceed eight feet in length and may be no larger than the average industry standards for bench width.

3. Areas disturbed for seating and viewing cannot exceed 300 square feet of applicable resource protection area. Only one seating or viewing area may be installed per 100 feet by 100 feet of applicable resource protection area. Mitigation shall be provided consistent with subsection E of this section.

4. Private natural pathways or trails shall be no wider than 30 inches. Where trails or paths include stairs, the stair width shall not exceed 50 inches. Trails and pathways shall be constructed using nonhazardous, pervious materials where applicable. Raised boardwalks may be considered by the public works director only when needed to lessen impacts to resource areas. Trails shall provide the most direct access to the resource area and shall not excessively meander.

5. Public pathways on public property or easements shall be no wider than five feet and shall be constructed using nonhazardous, pervious materials where applicable. Pathways may be larger than five feet if necessary to comply with ADA requirements or if the public works director deems necessary. Trails shall be constructed using nonhazardous, pervious materials where applicable. Raised boardwalks may be considered only when the applicant demonstrates they are needed to lessen negative impacts to the resource area.

6. Stream bank, bed, or water alteration proposals and applications shall be prepared by a qualified professional and must include submission of a city of Fairview habitat assessment form.

7. Minor encroachments in commercial areas for outdoor seating or resource viewing may not exceed 500 square feet in area per 100 lineal feet of resource buffer. Encroachments are subject to mitigation requirements and resource protection area buffer averaging.

8. Use of heavy machinery or herbicides for invasive and nonnative plant removal is not permitted unless special exception is granted by the public works director.

9. Erosion/sedimentation control devices shall be installed between the area to be disturbed by the proposed development and construction and the adjacent water feature; these devices shall comply with specifications and procedures outlined in the soil erosion control ordinance (Chapter 16.15FMC), must be installed prior to any soil disturbance, and remain in place during construction and afterwards until the soil has stabilized.

10. Stormwater detention and filtration facilities which are designed according to the best management practices described in the standard specifications ordinance and related ordinances and technical guidance manuals shall be provided when applicable.

11. Bridges, culverts and similar structures shall be designed and constructed to facilitate fish passage during periods of low stream flow.

12. Roads, bridges, culverts, and utility crossings of a waterbody or associated riparian buffer area shall conform with Oregon Department of Fish and Wildlife (ODFW) requirements for such crossings or obtain ODFW approval for any deviation from them; however, such crossings shall be avoided when practical alternative routing exists, and roads

shall be constructed away from waterbodies and riparian areas, except at crossings, which shall be aligned perpendicular to the resource site.

13. Temporary disturbances may not exceed more than 25 percent of the area of the applicable resource protection area. Temporary disturbances are those that occur during an allowed or approved development activity but will not persist beyond completion of the project. Temporary disturbances include, but are not limited to, construction access ways, material staging and stockpile areas, and excavation areas for building foundations, utilities, stormwater facilities, etc.

14. Protection of Resource Protection Area During Site Development. During development of any site containing an applicable resource protection area identified in this section, the following standards apply:

a. Work areas shall be marked to reduce potential damage to resource areas.

b. Trees within applicable resource protection areas shall not be used as anchors for stabilizing construction equipment.

c. Native soils disturbed during development shall be conserved on the property.

d. An erosion and sediment control plan is required and shall be prepared in compliance with requirements set forth by the city's public works standards.

e. Site preparation and construction practices shall be followed that prevent drainage of hazardous materials or erosion, pollution, or sedimentation to any applicable resource protection area adjacent to the project area.

15. Additional Development Standards for Mapped Wetlands. The following standards apply to all wetland areas identified on the map:

a. A buffer area which measures at least 50 feet shall be established between the wetland areas and the proposed development as a condition of development permit approval. The required buffer area width as well as its treatment or enhancement shall be established during the land use review process, after consultation with DSL or ODFW staff.

b. Properties which contain wetland areas shall have a preliminary delineation of the wetland boundary approved by Division of State Land (DSL) or Department of Fish and Wildlife (ODFW) staff before any development permit is issued. If the preliminary delineation requires an additional "jurisdictional delineation" study of the boundary, this must be completed by the applicant's biologist and approved by DSL staff before building permits are issued. If the preliminary delineation demonstrates that the development will occur outside of the 50-foot buffer, a Type I land use permit is required to demonstrate and document that the development is in fact outside the 50-foot buffer of the delineated wetland.

c. Wetland areas shall be protected in their natural state to preserve water quality and maintain water retention, overflow and natural functions as follows:

i. Activity within wetland areas is subject to the permit requirements of the Division of State Lands (DSL) and the U.S. Army Corps of Engineers. No building permit will be issued for such activity unless all pertinent state and federal requirements are met. The Division of State Lands will be notified of any regulated development proposed in a wetland area. Proposed activities within the wetland area are subject to a Type III land use application and mitigation requirements outlined in subsection (E)(3) of this section.

ii. Any proposed dredging or filling of a wetland area will require issuance of a DSL permit or a finding by the agency that a permit is not necessary, before building permits are issued by the city. All such activity (which requires a DSL permit) will require the applicant to demonstrate, as part of a Type III land use application, that the activity is necessary to develop on that part of the property outside of the wetland, that there is no practical alternative to impacting the wetland, and that measures (described in the application) will be taken to minimize the fill area and other negative impacts. These findings may be waived if, in the opinion of DSL or ODFW, the applicant proposes to create a replacement wetland area on the property that will be of superior value to wildlife compared to the impacted area. Any approved work within the designated wetland buffer is subject to mitigation requirements of subsection (E)(3) of this section.

iii. The city will not approve a partition or subdivision in a wetland area that proposes to create a lot, which because more than 50 percent of its area is a designated wetland, would be unbuildable without variance approval.

iv. Construction sites adjacent to wetland areas shall be required to install erosion/sedimentation control devices between the land area to be disturbed and the wetland area. All such devices shall conform with the specifications and procedure outlined in the city's erosion control ordinance.

v. Developments adjacent to wetland areas which have significant impervious surface areas must have stormwater detention and filtration facilities as part of their approved design. The design of such facilities shall conform to the best management practices (BMPs) described in the city's standard specifications ordinance and related ordinances and technical/guidance manuals.

vi. The city may also require the use of tools such as dedication and conservation easements as a means to fully protect wetland areas during the development review process.

RESPONSE: Proposed site elements comply with the above Development and Construction standards. Additional compliance details will be provided on Civil and Landscape documents.
In particular, the proposed crushed gravel trail shown on sheet A-101 complies with the pathway standards per 19.106.040(C)(4) as follows:
- The proposed trail is intended for private use by residents of the site.
- The proposed trail width is 30 inches.
- The proposed surfacing is a natural, non-hazardous and permeable material.

D. Exception Process. Any proposed development within a riparian resource protection area, upland habitat areas, or the required 50-foot buffer for wetland areas must file an exception application with the city of Fairview. The intent of the exception process is to allow reasonable development of property while providing protection for water and wildlife resources.

The exception process does not apply to:

• Mapped buffers within the Fairview Village; or

• Properties abutting Fairview Lake.

1. The applicant may utilize the following methods for avoiding or minimizing development within the upland habitat area and riparian resource protection areas. Exception applications must demonstrate compliance with the following criteria:

a. Building setback flexibility to avoid or minimize development within the upland habitat or riparian resource protection area. The minimum building setback of the base zone may be reduced to any distance between the base zone minimum and zero, unless the reduction conflicts with fire or life safety requirements.

b. Flexible landscaping requirements to avoid or minimize development within the habitat or resource protection area. Minimum percentage landscaping requirements, apart from those required for parking lots, street trees, buffers, and required mitigation areas, may be met by preserving the upland habitat area.

c. Facilities that infiltrate stormwater on site, including the associated piping, may be placed within the upland habitat or riparian resource protection area so long as the forest canopy and areas within the drip lines of trees are not disturbed. However, if disturbance cannot be avoided, then the disturbed areas shall be mitigated per subsection (E)(2) of this section, Option 2. Such facilities may include, but are not limited to, vegetated swales, rain gardens, vegetated filter strip, and vegetated infiltration basins. Only native vegetation may be planted in these facilities.

d. Flexible site design (on-site density transfer) to avoid or minimize development within the upland habitat or riparian resource protection area.

i. Residential development proposals on lands with upland habitat or riparian resource protection areas may transfer up to 50 percent of the permitted density permitted on the mapped upland habitat portion

or riparian resource protection area of the site onto the portion of the site that is not designated as upland habitat area when the proposal completely avoids development within the resource protection or upland habitat area.

ii. In order to accommodate any transferred residential densities, dimensional standards and lot sizes may be adjusted by no more than 20 percent.

iii. Density transfers on commercial and industrial zoned land. The transfer credit of 10,000 square feet floor area ratio (FAR) per acre of land with an upland habitat or riparian resource protection designation on the project site is permitted when development is not proposed in the protected area.

iv. Mixed-Use Zones. The density transfer credit can be factored using subsections (D)(1)(d)(i) and (D)(1)(d)(ii) of this section, depending on the type of development proposed.

v. All remaining upland habitat or riparian resource protection areas shall be permanently restricted from development and maintained for habitat functions by making a public dedication or executing a restrictive covenant.

e. Buffer Averaging. Buffer averaging is permitted for new development activities, excluding any existing building footprint area already encroaching into the riparian resource area. Reductions from the standard buffer setback distances shall be accomplished through averaging the buffer distance on a site. Buffer averaging involves decreasing a portion of the riparian buffer within the proposed development site and increasing the buffer in another area. The new buffer area will need to provide equivalent or enhanced protection of the functions or values of the riparian resource area and provided the total area contained in the buffer on the proposed development site does not decrease.

i. Criteria for buffer averaging include:

(A) The resource protection area may not be reduced more than 60 percent (or 24 feet) in the 40-foot resource protection area, 50 percent in the 55-foot resource protection area (or 27.5 feet) and 40 percent in the 80-foot resource protection area (or 32 feet).

(B) Buffering averaging is allowed with the following site assessment prepared by a qualified professional. At a minimum the assessment shall contain:

(1) A description of the proposed development, including a site plan and distance to property lines.

(2) A description and illustration of the relationship between the proposed development and the riparian resource protection area.

(3) An assessment and illustration of the existing condition of the riparian resource protection area within and adjacent to the project area. This assessment must include, when appropriate, a wetland delineation report approved by DSL and acreage.

(4) An analysis, based upon best available science, of how the averaged buffer area will provide protection that is equal to or better than the current buffer area.

(5) A discussion of alternatives that would have less impact on the resource protection area and associated buffer.

(C) Any proposed buffer averaging requires enhancement and mitigation of the remaining resource protection area and the new buffer averaging area. A mitigation plan must be prepared that meets subsection E of this section, Mitigation.

(D) Wherever practical, reductions in the buffer distance shall occur adjacent to lower value or less sensitive areas within the buffer site and the expansion of the buffer in compensation shall occur within higher value or more sensitive areas.

(E) To the extent practicable, wherever riparian buffers are reduced from the standard setbacks, the buffer shall be increased on the opposite bank of the channel across from the area where the reduction is allowed.

(F) A development permit shall be obtained before construction or development begins within any area of special flood hazard. Requirements for the permit as well as specific and general standards are outlined in Chapters 16.05 and 19.105 FMC.

f. Disturbance of upland habitat areas cannot exceed 50 percent of the designated upland habitat area.

2. Mitigate Development Impacts. All development approved through the exception process must comply with mitigation requirements of subsection E of this section. Mitigation must be targeted to the most degraded portions, as identified by the resource habitat assessment process, of the resource protection area first. Remaining mitigation requirements shall be spread throughout the resource protection area.

3. Exception Application Procedures and Requirements. All exception applications must be approved by the planning commission at a public hearing.

The applicant must submit a written narrative, site plan, and Fairview habitat assessment form that demonstrates the following:

a. Narrative description and associated site plan demonstrating how the proposal complies with exception requirements as set forth in this section.

b. Completed city of Fairview habitat assessment form. The public works director may require the applicant to hire a qualified professional to conduct the habitat assessment.

c. Application requirements listed in FMC 19.106.070.

RESPONSE: See sheets G-001 and A-101 for location of development in proximity to the 40-ft. resource protection area.

E. Mitigation. The purpose of mitigation is to compensate for negative impacts that occur to the natural resource and designated protection area as a result of development activity. Vegetation mitigation is required for the following activities and development:

1. Tree Removal within a Resource Protection Area, Not Associated with a Development.

a. Dead, Diseased or Dying Trees. Regardless if associated with development or not, all dead, diseased, or dying trees that are removed from a designated protection area shall be replaced with one new tree of at least two-inch caliper or at least six feet overall height after planting. Tree replacement is not required for diseased trees that may spread the disease to adjacent trees.

An arborist report will be required if the tree does not display any signs that the tree is dead, diseased, or dying. An exception to the requirement for mitigation may be granted by the public works director when the applicant demonstrates that a replacement tree has already been planted in anticipation of tree removal, or if the existing site conditions otherwise preclude tree replacement (due to existing dense canopy coverage or other ecological reasons).

Trees and large wood debris that are cut down shall remain within the buffer area to the greatest extent feasible to provide wildlife habitat. All hazardous trees to be removed shall only remove the portion necessary to alleviate the hazard.

b. Removal of Viable Trees. Removal of any healthy, viable trees greater than six inches in diameter when not associated with a development within a resource protection area is subject to the mitigation requirements listed in Table 19.106.040(E)(1).

Trees and large wood debris that are cut down shall remain within the buffer area when feasible to provide wildlife habitat.

2. Mitigation Requirements Associated with Development. Mitigation is required for all development:

- Within a designated resource protection area (riparian areas, wetlands, and upland habitat areas).
- Within 10 feet of the outer boundary of the 40-foot riparian resource protection area.

An applicant may choose between Option 1 and Option 2 listed below. However, if development is proposed that does not include removal of trees, that applicant must comply with Option 2.

Option 1. Mitigation is based on the number of trees removed. Dead, diseased, or dying trees must be mitigated per subsection (E)(1)(a) of this section.

Table 19.106.040(E)(1)

Size of Viable/Healthy Tree Removed	Mitigation Required per Tree Removed
6- to 12-inch diameter	1 tree and 1 shrub
13- to 18-inch diameter	2 trees and 3 shrubs
19- to 24-inch diameter	3 trees and 6 shrubs
25- to 30-inch diameter	4 trees and 9 shrubs
Over 30-inch diameter	5 trees and 15 shrubs

Option 2. The mitigation option shall be calculated based on the size of disturbance area within the mapped protection area. Native trees and shrubs are required to be planted at a rate of one tree and five shrubs for every 100 square feet of disturbance area. All fractions shall be rounded to the nearest whole number of trees and shrubs. Bare ground must be planted or seeded with native grasses or herbs.

3. Mitigation Plan and Planting Requirements (For All Types of Required Mitigation). A mitigation plan including a calculation demonstrating compliance with vegetation mitigation requirements must be submitted with the land use application and consistent with this subsection E and shall include the following:

a. A tree removal plan showing all trees greater than six inches in diameter to be removed must be submitted with the land use application. The tree removal plan must clearly label healthy/viable trees, and dead, diseased, or hazardous trees.

b. Plant Size. Replacement trees must be at least two inches in caliper measured at six inches above the ground level for field grown trees or above the soil for container grown trees. Oak or madrone trees shall be a minimum one-gallon size. Shrubs must be in at least a one-gallon container or equivalent ball and burlap and must be at least 12 inches in height.

c. Plant Spacing. When feasible, trees shall be planted between eight and 12 feet on plant center and shrubs shall be planted between four and five feet on center or clustered in single species groups of no more than four plants, with each cluster planted between eight and 10 feet on center.

d. Plant Diversity. Shrubs must consist of at least two different species. If 10 trees or more are planted, no more than 50 percent of the trees may be of the same genus.

e. Native Plants. Only resource-specific native plants identified on the most updated version of the Metro Native Plant List are permitted.

f. Location of Mitigation Area. All vegetation must be planted on the applicant's site within the resource protection area first. If there is not sufficient room within the resource protection area, planting may occur contiguous to the resource protection area. If the vegetation is planted outside the resource protection area, then the applicant shall preserve the contiguous area by executing a deed restriction such as a restrictive covenant.

g. Invasive Vegetation. Invasive, nonnative or noxious vegetation must be removed within the mitigation area prior to planting mitigation vegetation.

h. Tree and Shrub Survival. A minimum of 80 percent of the trees and shrubs planted shall remain alive on the fifth anniversary of the date that the mitigation planting is complete.

i. Monitoring and Reporting. Monitoring of the mitigation site is the ongoing responsibility of the property owner. Plants that die must be replaced in kind. For a period of five years, the property owner must submit an annual report to the city of Fairview public works director documenting the survival of the trees and shrubs on the mitigation site.

j. To enhance survival of mitigation plantings the following practices are recommended, but not required:

i. Mulching. Mulch new plantings a minimum of three inches in depth and 18 inches in diameter to retain moisture and discourage weed growth.

ii. Irrigation. Water new plantings one inch per week between June 15th and October 15th for the three years following planting.

iii. Weed Control. Remove or control nonnative or noxious vegetation throughout maintenance period.

4. Vegetation Mitigation Bank. An applicant seeking to vary the number and size of trees and shrubs required to be planted on site under this subsection E but who will comply with all other provisions of this subsection E may seek approval to utilize the vegetation mitigation bank.

a. The applicant shall submit:

i. A calculation of the number of trees and shrubs the applicant would be required to plant under subsection (E)(1), (E)(2) or (E)(3) of this section.

ii. The number and size of trees and shrubs that the applicant proposes to plant on the development site within designated protection areas.

iii. The applicant's mitigation site monitoring and reporting plan.

b. Approval Criteria. A request to vary the number and size of trees and shrubs to be planted shall be approved if the applicant demonstrates that the proposed planting will achieve, at the end of the fifth year after initial planting, comparable or better mitigation results than the number and size required under subsection E of this section.

c. Upon demonstration that required vegetation mitigation cannot be planted within the protection area, the applicant may request the public works director to determine which of the following mitigation bank methods will be used. The applicant may appeal the public works director's decision to the planning commission.

i. Require the applicant to plant the vegetation on a city owned property.

ii. Require the applicant to plant the vegetation on a private property within the designated natural resource protection area. If vegetation is planted outside of the resource protection area, the planted vegetation shall be placed in a conservation easement.

iii. Pay a fee in lieu of the required vegetation for the city to use on other restoration projects.

d. Application Process. The request to utilize the mitigation bank shall be reviewed with the applicable land use application submitted for the proposed development. Mitigation bank requests for Type III activities shall be reviewed along with the Type III application. Mitigation bank requests for Type II activities shall be reviewed along with the Type II application. (Ord. 10-2015 § 2 (Exh. 1); Ord. 3-2012 §§ 2, 3 (Att. 2))

RESPONSE: Please refer to the Landscape Notes on the site plan (sheet A-101) for forthcoming documents to be submitted with details of mitigation compliance. A complete Landscape Plan will be provided at the time of building permit submittal.

19.106.050 – Fairview Creek and Clear Creek conservation easements within Fairview Village

A. Concurrent with development of any site containing Fairview Creek or Clear Creek, a conservation easement shall be granted to the city. The conservation easement of approximately 100 feet for Fairview Creek and 75 feet for Clear Creek will provide a control mechanism for these creek corridors. The easements, which shall extend not less than 50 feet from Fairview Creek centerline and not less than 37.5 feet from Clear Creek centerline in either direction, will protect water quality, provide for wildlife movement and enhance the neighborhood aesthetics by providing a greenbelt through the single-family residential area.

B. Within the 100-foot protected area along Fairview Creek, development and resource alteration, other than mitigation or enhancement, will be prohibited within 70 feet of the corridor centered on the creek. The other 15 feet remaining on either side may allow wooden fences up to six feet in height and plantings using only materials shown on the Fairview Village

plant list. Trees existing within the 100-foot corridor shall be nurtured and protected. Plantings that appear on the approved list are encouraged especially where they would provide shade to the creek from direct sun.

C. Within the 75-foot protected area along Clear Creek, development and resource alteration, other than mitigation or enhancement, will be prohibited within 45 feet of the corridor centered on the creek. The other 15 feet remaining on either side may allow wooden fences up to six feet in height with plantings using only materials shown on the Fairview plant list (Fairview uses the Metro Plant List). Trees existing within the 75-foot corridor shall be nurtured and protected. Plantings that appear on the approved list are encouraged especially where they would provide shade to the creek from direct sun.

D. Variance. An applicant may apply for a Class C variance to the conservation easement standards provided in subsections A through C of this section. (Ord. 3-2012 §§ 2, 3 (Att. 2))

19.106.070 Permit process for permitted uses.

A. Boundary Verification. To determine whether the standards of this chapter apply to a proposed development activity at any given location, the boundaries of any designated natural resources on or near the site shall be verified. A Type I boundary verification application is not required when the applicant demonstrates that the development will be greater than 40 feet from the estimated outer boundary of the mapped resource protection area. This shall be shown on the applicant's site plan submitted with the development (building permit) application.

The Type I boundary verification process is required for activities proposed within:

Table 19.106.070(A)

Resource Type	Location of Development	Application Required
35-foot and 40-foot resource protection area	Greater than 15 feet from the outer limits of the 35- or 40-foot resource protection area	Type I boundary verification required prior to site development or earth disturbing activity

B. Boundary Verification Process. A Type I boundary verification process is required as defined in Table 19.106.070(A) in order to verify the proximity of the proposed development to a mapped resource or associated protection area and to identify the required land use application type. The applicant shall submit the following:

1. Detailed property description and scaled site plan of the property that includes all existing conditions on site.

2. A copy of the applicable natural resource map section.

3. The latest available aerial photo of the property with property lines shown.

4. A scaled site plan demonstrating the location and boundary of the natural resource and designated protection area in relation to the proposed development. The site plan must be drawn to an architect or engineer scale.

5. Any other factual information that the applicant wished to provide to support the boundary verification.

6. The public works director may require a wetland delineation be conducted based on the proximity of the development to the mapped wetland.

C. Land Use Application Requirements. Before a permit is issued for an alteration or development within or adjacent to a mapped natural resource or protection area, an application must be submitted to the city of Fairview by the person or entity requesting the alteration or development. The application shall include:

1. All proposed developments on parcels with a designated natural resource protection area require a site plan to demonstrate the proximity of a development to the mapped resource areas. The site plan shall include:

a. Verification of boundaries of the designated resource protection areas (FMC 19.106.070(A)).

b. Identification of existing disturbed areas within the applicable resource protection buffer. Required mitigation will focus on restoring the existing disturbed areas.

c. Location of the 100-year floodplain and floodway boundaries as defined by the Federal Emergency Management Agency.

d. Topography shown by contour lines of two-foot intervals for slopes less than 15 percent and by 10-foot intervals for slopes 15 percent or greater.

e. Identification of the proposed development including all building footprints or building/development envelope, site property improvements, utilities and landscaping.

f. Show the proposed limits of any grading required for the project.

2. A completed land use application form with legal description and address of the concerned property, owner's authorization, and the information requested thereon.

3. Application fee as set forth by resolution.

4. A written narrative which describes:

a. The proposed alteration or development.

b. Materials to be used.

c. The purpose or reasons for the alteration or development.

d. Alterations considered to determine no practicable alternatives exist to the proposed encroachment, alteration, or development.

e. How the impacts have been minimized and/or mitigated.

5. Scaled drawing or drawings of the proposed alteration showing:

a. Overall specifications and dimensions for the proposed alterations or development.

b. The location of any wetlands or waterbodies on the property including the delineation of the designated natural resource protection area.

c. Location of the:

i. 100-year floodplain and floodway boundary as defined by the Federal Emergency Management Agency (FEMA).

ii. Distance from the development to the resource protection areas.

iii. Resource features such as waterbodies or wetlands.

d. Degraded resource areas as identified through the habitat assessment process.

e. Depth of cuts and fills, final slopes, descriptions of fill material, etc.

f. Proposed erosion control measures.

6. Vegetation mitigation plan and monitoring plan. Description of any vegetation that will be removed and of vegetation to be planted, including a landscaping plan showing plant types, location, size and quantities.

7. Habitat assessment form and narrative as required by FMC 19.106.040(D), Exception Process.

8. Written documentation that all required or pertinent state and federal permits have been submitted. Permits may be required from the State Division of Lands, the Oregon Department of Fish and Wildlife, the United States Army Corps of Engineers, the Environmental Protection Agency, the Federal Emergency Management Agency and/or other agencies.

RESPONSE: See sheet G-001 for boundary verification of the on-site portion of Fairview Creek.

D. Expiration of Approved Applications. The approval of a land use application shall be valid for two years. Approved land use applications and plans may be renewed through the Type I review process for an additional two years upon demonstrating that the original approved plan still meets the applicable criteria provided in this chapter. (Ord. 3-2012 §§ 2, 3 (Att. 2))

19.106.080 – Map Amendments and administration

A. The natural resources map ("map") shows the locations of riparian resources, wetlands, upland habitat and other special resource features. The natural resources map ("map") is a general indicator of protected resources and their associated vegetated corridors; the location of actual resource protection areas is determined according to the parameters established in Table 19.106.080(A).

Table 19.106.080(A)
Riparian Resources

Resource Type	Protected Feature	Width of Resource Protection Area
40-foot resource protection area	Fairview Creek from Halsey Street to northern property line of 15 Matney Street No Name Creek Rain Tree Creek	Total resource width 80 feet, measured 40 feet in each direction from centerline of creek.

[1] The platted conservation easement within the Fairview Village development shall apply where it abuts the Village commercial, Village apartments, and Village townhouse zones as shown on the adopted map. The southern side of Fairview Creek where it abuts city of Fairview property is subject to the 75-foot resource protection area.

B. Boundary Amendments. In some cases changes and corrections may need to be made to the map. Changes to resource boundaries shall be reviewed through the Type II land use process. To propose a correction or change to the map, the applicant shall submit the following information depending on the resource type:

1. Waterbodies (Rivers, Streams, Springs, and Lakes). An applicant who believes that a waterbody as shown on the map should be corrected may submit a map amendment request that includes the following:

a. A hydrology report prepared by a professional engineer, demonstrating whether or not the drainage meets the definition of a protected water feature.

b. A topographic map of the site with contour intervals of five feet or less that shows the specific location on the subject property.

c. A report prepared by a qualified professional that gives a detailed reasoning for the proposed map amendment. The report must also include a description of the qualifications and experience of all persons that contributed to the report.

d. A description of the incorrect mapping and reasoning supporting the proposed amendments. A map shall also be submitted showing the mapped boundaries and the proposed boundary changes. The map shall be drawn to an engineer or architect scale.

e. Any additional information necessary to address each of the detailed verification criteria provided in this section.

2. Wetlands. An applicant who believes that a wetland area shown on the map should be corrected may submit a map amendment request that includes the following:

a. A wetland delineation report, prepared by a professional wetland specialist in accordance with the 1996 Oregon Freshwater Wetland Assessment Methodology and following the wetland delineation process established by Department of State Lands (DSL), demonstrating the location of any wetlands on the site.

b. The delineation report will be accepted by the city only after approval by DSL.

c. A description of the incorrect mapping and reasoning supporting the proposed amendments. A map shall also be submitted showing the mapped boundaries and the proposed boundary changes. The map shall be drawn to an engineer or architect scale.

d. A topographic map of the site with contour intervals of five feet or less, that shows the specific location of the wetland on the subject property.

e. The public works director shall confer with DSL and Metro to confirm delineation and the hydrology report, as may be needed, prior to issuing a notice of decision on a requested map correction.

f. A report prepared by a qualified professional that gives a detailed reasoning for the proposed map amendment. The report must also include a description of the qualifications and experience of all persons that contributed to the report.

g. Any additional information necessary to address each of the detailed verification criteria provided in this section.

3. Upland Habitat Areas. An applicant who believes that an upland habitat area shown on the map should be corrected may submit a map amendment request that includes the following:

a. A city of Fairview habitat assessment form demonstrating the values and functions of the upland habitat area.

b. A report prepared by a qualified professional that gives a detailed reasoning for the proposed map amendment. The report must also include a description of the qualifications and experience of all persons that contributed to the report.

c. A description of the incorrect mapping and reasoning supporting the proposed amendments. A map shall also be submitted showing the mapped boundaries and the proposed boundary changes. The map shall be drawn to an engineer or architect scale.

d. Any additional information necessary to address each of the detailed verification criteria provided in this section.

4. Boundary Modification Approval Criteria. The city shall update the map if the wetland or hydrology report submitted demonstrates the following:

a. That there was an error in the original mapping.

b. That the boundaries of the resource have changed since the most recent update to the map ("map").

c. That a protected water feature or resource no longer exists because that area has been legally filled, culverted, or developed prior to the effective date of the ordinance codified in this chapter.

C. Map Administration.

1. Updates to the Map. When a boundary verification, conducted in accordance with the standards of FMC 19.106.070(B) demonstrates an error in the location of a resource area shown on the map, the city shall update the map to incorporate the corrected information as soon as practicable. Changes to the map are not considered amendments to the city's Comprehensive Plan, the applicable Comprehensive Plan map, or to the zoning map.

2. Mapping Implications of Allowed Disturbances.

a. Riparian Resources. Permanent disturbances within a riparian resource, whether they legally occurred prior to the adoption of this section or are allowed according to the standards of FMC 19.106.040, do not affect the way related riparian resources are shown on the map.

b. Upland Habitat Areas. When disturbances are allowed within the upland habitat area, in accordance with the applicable standards of FMC 19.106.040, the city may update the map to show that the permanently disturbed area is no longer considered an upland habitat area. (Ord. 3-2012 §§ 2, 3 (Att. 2))

19.106.090 – Nonconforming uses and structures within resource protection areas

Should a nonconforming structure, development footprint, or nonconforming portion of structure be destroyed by any means to an extent more than 75 percent of its current value as assessed by the Multnomah County assessor, it shall be reconstructed only in conformity with the current development code.

Rebuilding of nonconforming structures and development footprints destroyed less than 75 percent of the current value assessed by the Multnomah County assessor shall be rebuilt within five years from the date the structure was destroyed/damaged. (Ord. 3-2012 §§ 2, 3 (Att. 2))

RESPONSE: No existing nonconforming uses or structures are located on the site.

19.106.100 – Floodplain ordinance

Areas adjacent to any of the city of Fairview's water resources are also regulated by the city's floodplain overlay district. All riparian buffer alterations must be in compliance with the applicable standards of the floodplain overlay zone before permit issuance. Where regulations of the natural resource overlay zone differ from those found in the floodplain overlay zone, the more restrictive standards shall apply. (Ord. 3-2012 §§ 2, 3 (Att. 2))

RESPONSE: Refer to responses to FMC 19.105 and 16.05.

19.162 – ACCESS AND CIRCULATION

19.162.020 - Vehicular access and circulation

B. Applicability. This section shall apply to all public streets within the city and to all properties that abut these streets.

C. Access Permit Required. Access to a public street requires an access permit in accordance with the following procedures:

1. Permits for access to city streets shall be subject to review and approval by the city engineer based on the standards contained in this chapter, and the provisions of the transportation standards. An access permit may be in the form of a letter to the applicant, or it may be attached to a land use decision notice as a condition of approval. In either case, an access permit will be reviewed consistent with the procedures required for the complementary development permit. If no development permit is requested, the access permit shall be reviewed consistent with a Type III process.

2. Permits for access to state highways shall be subject to review and approval by the Oregon Department of Transportation (ODOT), except when ODOT has delegated this responsibility to the city or Multnomah County. In that case, the city or county shall determine whether access is granted based on its adopted standards.

3. Permits for access to county highways shall be subject to review and approval by Multnomah County, except where the county has delegated this responsibility to the city, in which case the city shall determine whether access is granted based on adopted county standards.

RESPONSE: The proposal creates one new vehicular access point to a city street; a two way, right-in/right-out only drive way entrance on Fairview Avenue, near the northeast corner of the site. The applicant is seeking an access permit as part of this design review application and has submitted a Road Rules Variance Application to Multnomah County. Secondary site access is provided via an existing shared access driveway on NE Halsey.

D. Traffic Study Requirements. The city may require a traffic study prepared by a qualified professional to determine access, circulation and other transportation requirements.

A traffic study must be provided for any proposed development that includes more than 10 dwellings or generates at least 100 vehicle trips per day. The traffic study shall include those adjacent intersections that will receive more than 50 vehicle trips per day.

A freight network impact statement is to be included in all traffic studies for proposed developments on properties identified as industrial lands in Title 4 of the Metro Urban Growth Management Functional Plan. The purpose of this statement is to analyze potential adverse effects of the proposed development on the regional freight system as identified in the regional transportation plan (RTP) and the Fairview transportation system plan. Freight routes located in Fairview include Interstate 84, Marine Drive, 223rd Avenue, Fairview Parkway, Sandy Boulevard, and Glisan Street.

RESPONSE: A traffic study is included with this application; no mitigation is necessary or recommended in conjunction with the proposed development.

E. Conditions of Approval. The city may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street. When obtaining access to off-street parking areas (both to and from), backing onto a public street shall not be permitted, except for single-family dwellings.

F. Access Options. When vehicle access is required for development (i.e., for off-street parking, delivery, service, drive-through facilities, etc.), access shall be provided by one of the following methods. These methods are "options" to the developer/subdivider, unless one method is specifically required by "Special Standards for Certain Uses." A minimum of 10 feet per lane is required.

1. Option 1. Access is from an existing or proposed alley or mid-block lane. If a property has access to an alley or lane, direct access to a public street is not permitted.

2. Option 2. Access is from a private street or driveway connected to an adjoining property that has direct access to a public street (i.e., "shared driveway"). A public access easement covering the driveway shall be recorded in this case to assure access to the closest public street for all users of the private street/drive.

3. Option 3. Access is from a public street adjacent to the development parcel. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access. Street accesses shall comply with the access spacing.

4. Subdivisions Fronting onto an Arterial Street. New residential subdivisions fronting onto an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints, access may be provided by consolidating driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes).

5. Double-Frontage Lots. When a lot has frontage onto two or more streets, access shall be provided first from the street with the lowest classification. For example, access shall be provided from a local street before a collector or arterial street. Except for corner lots, the creation of new double-frontage lots shall be prohibited in the residential district, unless topographic or physical constraints require the formation of such lots. When double-frontage lots are permitted in the residential district, a landscape buffer with trees and/or shrubs and ground cover not less than 20 feet wide shall be provided between the back yard fence/wall and the sidewalk or street; maintenance shall be assured by the owner (i.e., through homeowners association, etc.).

Important cross-references to other code sections: Provisions in Articles II and III of this title may require buildings placed at or near the front property line and driveways and parking areas oriented to the side or rear yard. The city may require the dedication of public right-of-way and construction of a street (e.g., frontage road, alley or other street) when the development impact is proportionate to the need for such a street, and the street is identified by the Comprehensive Plan or an adopted local streets plan. (Please refer to the transportation standards in Chapter 19.165 FMC.)

RESPONSE: The subject property has frontages on two sides; NE Halsey on the south and NE Fairview Avenue on the East. Fairview's Transportation System Plan functional classification map identifies Halsey as a Minor Arterial and Fairview Ave as Major Collector; Halsey carries the higher classification. An existing curb cut and driveway provide access from NE Halsey. This drive is shared with an existing commercial use on the abutting property to the west. A second driveway is proposed on Fairview Ave, approximately 260' north of the intersection. The City is requiring a 10' ROW dedication on Fairview Ave. This dedication is indicated on the site plan, sheet A-101.

G. Access Spacing. Access spacing ensures safe connections to local and arterial streets. Driveway accesses shall be separated from other driveways and street intersections in accordance with the following standards and procedures:

1. Local Streets. A minimum of 50 feet separation (as measured from the sides of the driveway/street) shall be required on local streets (i.e., streets not designated as collectors or arterials), except as provided in subsection (G)(3) of this section.

2. Arterial and Collector Streets. Access spacing on collector and arterial streets, and at controlled intersections (i.e., with four-way stop sign or traffic signal) shall be determined based on the policies and standards contained in the city's transportation system plan. Access to Interstate 84 is subject to the jurisdiction of ODOT.

3. Special Provisions for All Streets. Direct street access may be restricted for some land uses, in conformance with the provisions of Chapters 19.20 through 19.155 – Land Use Districts. For example, access consolidation, shared access, and/or access separation greater than that specified by subsections (G)(1) and (G)(2) of this section may be required by the city, county or ODOT for the purpose of protecting the function, safety and operation of the street for all users. (See subsection I of this section.) Where no other alternatives exist, the permitting agency may allow construction of an access connection along the property line farthest from an intersection. In such cases, directional connections (i.e., right in/out, right in only, or right out only) may be required.

RESPONSE: As noted above, the subject property has frontage on an arterial and a collector. One vehicle access point is proposed on each frontage; an existing curb cut and drive, approximately 295' east of the intersection will provide access on Halsey. It is currently providing access to a commercial use west of the site and will be shared with this use in future. A second vehicular access point, approximately 310' north of the intersection, is proposed on Fairview Ave. Halsey is classified as an arterial and Fairview is a collector. See sheet A-100 for all distances from existing and proposed driveways to adjacent driveways and street intersection.

H. Number of Access Points. Reducing the number of access points on a street provides pedestrians fewer obstructions, fewer points at which automobile traffic crosses the sidewalk, and fewer opportunities for conflicts between through traffic and vehicles using access points.

For single-family (detached and attached), two-family, and three-family housing types, one street access point is permitted per lot, when alley access cannot otherwise be provided; except that two access points may be permitted for two-family and three-family housing on corner lots (i.e., no more than one access per street), subject to the access spacing standards in subsection G of this section. The number of street access points for multiple-family, commercial, industrial, and public/institutional developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required, in conformance with subsection I of this section in order to maintain the required access spacing, and minimize the number of access points.

I. Shared Driveways. Shared driveways serve to reduce impermeable surfaces, reduce visual blight associated with large expanses of pavement, and provide more linear curb space for on-street parking.

The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The city shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:

1. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).

2. Access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.

3. Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

RESPONSE: Access via Halsey is shared with an existing commercial use on the adjacent property to the west. The permitted, shared access driveway is located on the subject property.

J. Figure 19.162.020.J provides examples of street layout and connectivity.

K. Street Connectivity and Formation of Blocks Required. In order to promote efficient vehicular and pedestrian circulation throughout the city, land divisions and large site developments shall produce complete blocks bounded by a connecting network of public and/or private streets, in accordance with the following standards:

1. Mixed-use and residential development proposed on sites five acres or greater must submit a site plan that identifies conceptual street connections that are consistent with the transportation system plan.

2. Block Length and Perimeter. The maximum block length and perimeter shall not exceed:

a. Five hundred thirty feet length and 1,600 feet perimeter in the residential district;

b. Two hundred feet length and 1,200 feet perimeter in the town center commercial district, except as provided by FMC 19.65.050, Block layout and building orientation;

c. Three hundred feet length and 1,200 feet perimeter in the corridor commercial district and neighborhood commercial;

d. Not applicable to the general industrial district; and

e. Seven hundred feet length and 1,700 feet perimeter in the light industrial district, except as required for commercial developments subject to FMC 19.80.060(F).

3. Street Standards. Public and private streets shall also conform to FMC 19.165.020, Transportation standards, FMC 19.162.030, Pedestrian access and circulation, and applicable Americans with Disabilities Act (ADA) design standards.

4. A variance to street spacing standards may be granted pursuant to FMC 19.520.030 (Class B variances) when resources are present that are mapped on the Natural Resources Map, where street spacing can be achieved at a minimum of 800 feet and no greater than 1,200 feet.

5. Exception. Exceptions to the above standards may be granted when blocks are divided by one or more pathway(s), where spacing is no more than 330 feet as measured from the right-of-way or easement line and in conformance with the provisions of FMC 19.162.030(A). Pathways shall be located to minimize out-of-direction travel by pedestrians and may be designed to accommodate bicycles.

RESPONSE: The subject property's total area is 2.53 acres (after ROW dedication). It is below the five acre threshold where street connectivity standards apply.

L. Driveway Openings. All driveway openings must comply with the "Standard Specifications for Public Works Construction," pages 53 – 55. Driveway openings or curb cuts shall be within the minimum width necessary to provide the required number of vehicle travel lanes (10 feet for each travel lane). The following standards (i.e., as measured where the front property line meets the sidewalk or right-of-way) are required to provide adequate site access, minimize surface water runoff, and avoid conflicts between vehicles and pedestrians:

1. Single-family, two-family, and three-family uses shall have a minimum driveway width of 10 feet, and a maximum width of 24 feet, except that one recreational vehicle pad driveway may be provided in addition to the standard driveway for lots containing more than 10,000 square feet of area.

2. Multiple-family uses with between four and seven dwelling units shall have a minimum driveway width of 20 feet, and a maximum width of 24 feet.

3. Multiple-family uses with more than eight dwelling units, and off-street parking areas with 16 or more parking spaces, shall have a minimum driveway width of 24 feet, and a maximum width of 30 feet. These dimensions may be increased if the city engineer determines that more than two lanes are required based on the number of trips generated or the need for turning lanes.

4. Access widths for all other uses shall be based on 10 feet of width for every travel lane, except that driveways providing direct access to parking spaces shall conform to the parking area standards in Chapter 19.164 FMC, Vehicle and Bicycle Parking.

5. Driveway Aprons. Driveway aprons (when required) shall be constructed of concrete and shall be installed between the street right-of-way and the private drive, as shown above. Driveway aprons shall conform to ADA standards for sidewalks and pathways, which require a continuous route of travel that is a minimum of three feet in width, with a cross slope not exceeding two percent.

RESPONSE: The proposed driveway on Fairview Ave is 26' wide. This is consistent with the standard for Multiple-family uses with 16 or more parking spaces. The existing commercial driveway on Halsey measures approximately 34' wide. As indicated on Site Plan A-101, driveway aprons for proposed driveway will conform to ADA standards.

M. Fire Access and Parking Area Turnarounds. A fire equipment access drive shall be provided for any portion of an exterior wall of the first story of a building that is located more than 150 feet from an existing public street or approved fire equipment access drive. Parking areas shall provide adequate aisles or turnaround areas for service and delivery vehicles so that all vehicles may enter the street in a forward manner. For requirements related to cul-de-sacs, please refer to Chapter 19.165 FMC.

N. Vertical Clearances. Driveways, private streets, aisles, turnaround areas and ramps shall have a minimum vertical clearance of 13 feet 6 inches for their entire length and width.

O. Vision Clearance. No signs, structures or vegetation in excess of three feet in height shall be placed in "vision clearance areas," as shown above. The city engineer upon finding that more sight distance is required may increase the minimum vision clearance area (i.e., due to traffic speeds, roadway alignment, etc.).

RESPONSE: As indicated on Site Plan A-101, adequate fire truck access is provided on the site. No structures impinge on vertical clearance for drive access and driveways conform to vision clearance standards.

P. Construction. The following development and maintenance standards shall apply to all driveways and private streets, except that the standards do not apply to driveways serving one single-family detached dwelling:

1. Surface Options. Driveways, parking areas, aisles, and turnarounds may be paved with asphalt, concrete or comparable surfacing, or a durable nonpaving material may be used to reduce surface water runoff and protect water quality. Paving surfaces shall be subject to review and approval by the city engineer.

2. Surface Water Management. When a paved surface is used, all driveways, parking areas, aisles and turnarounds shall have on-site collection or infiltration of surface waters to eliminate sheet flow of such waters onto public rights-of-way and abutting property. Surface water facilities shall be constructed in conformance with city standards.

3. Driveway Aprons. When driveway approaches or "aprons" are required to connect driveways to the public right-of-way, they shall be paved with concrete surfacing (see also subsection L of this section). (Ord. 2-2017 § 1 (Exh. A); Ord. 5-2009 § 2 (Att. 1); Ord. 6-2001 § 1)

RESPONSE: Driveways, parking areas and aisles will be paved with asphaltic concrete. A preliminary drainage plan is included in this application, detailing surface water drainage and runoff mitigation – see sheet C101 and the Preliminary Stormwater Report for additional details. An existing concrete apron is located at the access point on Halsey. A new concrete apron is proposed at the east entrance on Fairview Ave.

19.162.030 - Pedestrian access and circulation

The standards presented in this code provide standards for safe, connected and user-friendly pedestrian connections and pathways that join neighborhoods and buildings within a development.

A. Pedestrian Access and Circulation. To ensure safe, direct and convenient pedestrian circulation, all developments, except single-family detached housing (i.e., on individual lots), shall provide a continuous pedestrian and/or multi-use pathway system. (Pathways only provide for pedestrian circulation. Multi-use pathways accommodate pedestrians and bicycles.) The system of pathways shall be designed based on the standards in subsections (A)(1) through (5) of this section:

1. Continuous Pathways. The pathway system shall extend throughout the development site, and connect to all future phases of development, adjacent trails, public parks and open space areas whenever possible. The developer may also be required to connect or stub pathway(s) to adjacent streets and private property, in accordance with the provisions of FMC 19.162.020, Vehicular access and circulation, and the transportation standards in Chapter 19.165 FMC.

2. Safe, Direct, and Convenient Pathways. Pathways within developments shall provide safe, reasonably direct and convenient connections between primary building entrances and all adjacent streets, based on the following definitions:

a. "Reasonably direct" means a route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.

b. "Safe and convenient" means bicycle and pedestrian routes that are reasonably free from hazards and provide a reasonably direct route of travel between destinations.

c. For commercial, industrial, mixed use, public, and institutional buildings, the "primary entrance" is the main public entrance to the building. In the case where no public entrance exists, street connections shall be provided to the main employee entrance.

d. For residential buildings the "primary entrance" is the front door (i.e., facing the street). For multifamily buildings in which each unit does not have its own exterior entrance, the "primary entrance" may be a lobby, courtyard or breezeway, which serves as a common entrance for more than one dwelling.

3. Connections within Development. For all developments subject to site design review, pathways shall connect all building entrances to one another. In addition, pathways shall connect all parking areas, storage areas, recreational facilities and common areas (as applicable), and adjacent developments to the site, as applicable.

4. Street Connectivity. Pathways (for pedestrians and bicycles) shall be provided at or near midblock where the block length exceeds the length required by FMC 19.162.020. Pathways shall also be provided where cul-de-sacs or dead-end streets are planned, to connect the ends of the streets together, to other streets, and/or to other developments, as applicable. Pathways used to comply with these standards shall conform to all of the following criteria:

a. Multi-use pathways (i.e., for pedestrians and bicyclists) are no less than 10 feet wide and located within a 20-foot-wide right-of-way or easement that allows access for emergency vehicles.

b. If the streets within the subdivision or neighborhood are lighted, the pathways shall also be lighted.

c. Stairs or switchback paths using a narrower right-of-way/easement may be required in lieu of a multi-use pathway where grades are steep.

d. The city may require landscaping within the pathway easement/right-of-way for screening and the privacy of adjoining properties.

e. The hearings body or planning director may determine, based upon facts in the record, that a pathway is impracticable due to: physical or topographic conditions (e.g., freeways, railroads, extremely steep slopes, sensitive lands, and similar physical constraints); buildings or other existing development on adjacent properties that physically prevent a connection now or in the future, considering the potential for redevelopment; and sites where the provisions of recorded leases, easements, covenants, restrictions, or other agreements recorded as of the effective date of this code prohibit the pathway connection.

5. Connections to Other Facilities. Proposed pathways shall be located to provide access to existing or planned commercial services and other neighborhood facilities, such as schools, shopping areas and park and transit facilities. To the greatest extent possible, access shall be reasonably direct, providing a route or routes that do not deviate unnecessarily from a straight line or that do not involve a significant amount of out-of-direction travel.

B. Design and Construction. Pathways shall conform to all of the standards in subsections (B)(1) through (B)(5) of this section:

1. Vehicle/Pathway Separation. Where pathways are parallel and adjacent to a driveway or street (public or private), they shall be raised six inches and curbed, or separated from the driveway/street by a five-foot minimum strip with bollards, a landscape buffer, or other physical barrier. If a raised path is used, the ends of the raised portions must be equipped with curb ramps.

2. Housing/Pathway Separation. Pedestrian pathways shall be separated a minimum of five feet from all residential living areas on the ground floor, except at building entrances. Separation is measured as measured from the pathway edge to the closest dwelling unit. The separation area shall be landscaped in conformance with the provisions of Chapter 19.163 FMC, Landscaping, Street Trees, Fences and Walls. No pathway/building separation is required for commercial, industrial, public, or institutional uses.

3. Crosswalks. Where pathways cross a parking area, driveway, or street ("crosswalk"), they shall be clearly marked with contrasting paving materials, humps/raised crossings.

4. Pathway Surface. Pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other durable surface, at least six feet wide, and shall conform to ADA requirements. Multi-use paths (i.e., for bicycles and pedestrians) shall be the same materials, at least 10 feet wide. (See also Chapter 19.165 FMC, Transportation Standards for public, multi-use pathway standard.)

4. Accessible Routes. Pathways shall comply with the Americans with Disabilities Act, which requires accessible routes of travel.

RESPONSE: An existing sidewalk extends along all of the site's NE Halsey frontage and a portion of the Fairview Ave frontage. The Fairview frontage will be reconstructed to include a new landscaped planter strip with street trees and a pedestrian path consistent with the standards of this section. The typical Multnomah County Urban Collector Cross-Section will be provided at the area of improved frontage, however, as indicated on Site Plan A-101 and as discussed in the responses to sections FMC 19.105 and 16.05, a transition in sidewalk elevations is proposed to address the implications of the floodplain elevation at Building C.

Additionally, a new, pedestrian trail is propoesed along the north edge of the Fairview Creek buffer area, between the creek and the new residential buildings. This trail connects the sidewalk via a pedestrian plaza on Fairview Ave and a side walk extension at the southwest corner from Halsey. As indicated on Site Plan A-101, a network of pedestrian pathways throughout the site provides access in a manner consistent with the requirements of this section. As noted on Site Plan A-101, paths are to conform to the standards for surface materials and ADA accessibility.

19.163 – LANDSCAPING, STREET TREES, FENCES, AND WALLS

19.163.020 – Landscape conservation

A. Applicability. All development sites containing significant vegetation, as defined below, shall comply with the standards of this section. The purpose of this section is to incorporate significant native vegetation into the landscapes of development and protect vegetation that is subject to requirements of the significant environmental concern and riparian buffer overlay zones, Chapter 19.106 FMC. The use of mature, native vegetation within developments is a preferred alternative to removal of vegetation and re-planting. Mature landscaping provides summer shade and wind breaks, and allows for water conservation due to larger plants having established root systems.

B. Significant Vegetation. "Significant vegetation" means:

1. Significant Trees and Shrubs. Individual trees and shrubs with a trunk diameter of six inches or greater, as measured four feet above the ground (DBH), and all plants within the drip line of such trees and shrubs, shall be protected.

2. Sensitive Lands. Trees and shrubs on sites that have been designated as "sensitive lands," in accordance with Chapter 19.106 FMC, Natural Resource Regulations, and Chapter 19.105 FMC, Floodplain Overlay (e.g., due to slope, natural resource areas, wildlife habitat, etc.) shall be protected.

3. Exception. Protection shall not be required for plants listed as non-native, invasive plants by the Oregon State University Extension Service in the applicable OSU bulletins for Multnomah County.

C. Mapping and Protection Required. Significant vegetation shall be mapped as required by this code. Significant trees shall be mapped individually and identified by species and size (diameter at four feet above grade, or "DBH"). A "protection" area shall be defined around the edge of all branches (drip-line) of each tree (drip lines may overlap between trees). The city also may require an inventory, survey, or assessment prepared by a qualified professional when necessary to determine vegetation boundaries, building setbacks, and other protection or mitigation requirements.

D. Protection Standards. All of the following protection standards shall apply to significant vegetation areas:

1. Protection of Significant Trees. Significant trees identified as meeting the criteria in subsection (B)(1) of this section shall be retained whenever practicable. Preservation may become impracticable when it would prevent reasonable development of public streets, utilities, or land uses permitted by the applicable land use district.

2. Sensitive Lands. Sensitive lands shall be protected in conformance with the provisions of Chapters 19.105 and 19.106 FMC.

3. Conservation Easements and Dedications. When necessary to implement the Comprehensive Plan, the city may require dedication of land or recordation of a conservation easement to protect sensitive lands, including groves of significant trees. This will be addressed on a case by case basis. (Ord. 3-2012 § 6; Ord. 6-2001 § 1)

RESPONSE: A 40' resource protection buffer extends to either side of the centerline of Fairview Creek, along the south edge of the property. As described in responses to Chapters 19.105 and 19.106, and shown on sheets G-001 and A-101, the footprint of all building development is located outside of the buffer zone. No mapped significant vegetation exists elsewhere on the site outside the buffer area.

19.163.025 – Existing Landscaping

A. Applicability. This section shall apply to all developments.

B. Construction. All areas of significant vegetation shall be protected prior to, during, and after construction. Grading and operation of vehicles and heavy equipment is prohibited within significant vegetation areas, except as approved by the city for installation of utilities or streets. Such approval shall only be granted after finding that there is no other reasonable alternative to avoid the protected area, and any required mitigation is provided in conformance with Chapter 19.105 FMC, Floodplain Overlay and Chapter 19.106 FMC, Natural Resource Regulations.

C. Exemptions. The protection standards in FMC 19.163.020(D) shall not apply in the following situations:

1. Dead, Diseased, and/or Hazardous Vegetation. Vegetation that is dead or diseased, or poses a hazard to personal safety, property or the health of other trees, may be removed. Prior to tree removal, the applicant shall provide a report from a certified arborist or other qualified professional to determine whether the subject tree is diseased or poses a hazard, and any possible treatment to avoid removal, except as provided by subsection (C)(2) of this section.

2. Emergencies. Significant vegetation may be removed in the event of an emergency without land use approval when the vegetation poses an immediate threat to life or safety, as determined by the planning director. The planning director shall prepare a notice or letter of decision within 10 days of the tree(s) being removed. The decision letter or notice shall explain the nature of the emergency and be on file and available for public review at City Hall. (Ord. 3-2012 § 6; Ord. 6-2001 § 1)

RESPONSE: Modifications to vegetation within the buffer zone surrounding Fairview Creek will be limited to what is described in the Landscape Notes, Site Plan A-101. There is no designated significant vegetation elsewhere on the site.

19.163.030 - New landscaping

A. Applicability. This section shall apply to all developments requiring site design review, and other developments with required landscaping.

B. Landscaping Plan Required. A landscape plan is required at the time of design review or other pertinent applications. All landscape plans shall conform to the requirements in FMC 19.420.020 (E), Landscape plans.

C. Landscape Area Standards. The minimum percentage of required landscaping equals:

1. Residential districts: 20 percent of the site.

2. Town center commercial district: five percent of the site.

3. General industrial district: 10 percent of the site.

4. Light industrial district: 10 percent of the site.

5. Corridor commercial district: five percent of the site.

6. Neighborhood commercial district: 10 percent of the site.

RESPONSE: 11.8% of the proposed development area will be landscaped. This is in addition to the creek and riparian buffer area which constitute 16.1% of the overall site area. The proposed landscaping exceeds the requirement for the Town Center Commercial district.

D. Landscape Materials. This section provides guidelines that ensure significant vegetation growth and establishment using a variety of size specifications and coverage recommendations.

Landscape materials include trees, shrubs, ground cover plants, nonplant ground covers, and outdoor hardscape features, as described below:

1. Native Vegetation. Native vegetation shall be preserved or planted where practicable.

2. Plant Selection. A combination of deciduous and evergreen trees, shrubs and ground covers shall be used for all planted areas, the selection of which shall be based on local climate, exposure, water availability, and drainage conditions. As necessary, soils shall be amended to allow for healthy plant growth.

3. Non-native, invasive plants, as per FMC 19.164.020(B), shall be prohibited.

4. Hardscape features (i.e., patios, decks, plazas, etc.) may cover up to 15 percent of the required landscape area. Swimming pools, sports courts and similar active recreation facilities may not be counted toward fulfilling the landscape requirement.

5. Nonplant Ground Covers. Bark dust, chips, aggregate or other nonplant ground covers may be used, but shall cover no more than five percent of the area to be landscaped. “Coverage” is measured based on the size of plants at maturity or after five years of growth, whichever comes sooner.

6. Tree Size. Trees shall have a minimum caliper size of 1.5 inches or greater, or be six feet or taller, at time of planting.

7. Shrub Size. Shrubs shall be planted from one-gallon containers or larger.

8. Ground Cover Size. Ground cover plants shall be sized and spaced so that they grow together to cover a minimum of 80 percent of the underlying soil within three years.

9. Significant Vegetation. Significant vegetation preserved in accordance with FMC 19.163.020 may be credited toward meeting the minimum landscape area standards. Credit shall be granted on a per square foot basis. The street tree standards of FMC 19.163.040 may be waived when trees preserved within the front yard provide the same or better shading and visual quality as would otherwise be provided by street trees.

10. Stormwater Facilities. Stormwater facilities (e.g., detention/retention ponds and swales) shall be landscaped with water tolerant, native plants.

RESPONSE: As indicated on the Site Plan A-101 and in the Preliminary Stormwater Report, landscaping, hardscaping and stormwater features are being provided in compliance with the standards of this section.

E. Landscape Design Standards. The landscape design standards provide guidelines within setback areas, parking areas, etc.

All yards, parking lots and required street tree planter strips shall be landscaped in accordance with the provisions of this chapter. Landscaping shall be installed with development to provide erosion control, visual interest, buffering, privacy, open space and pathway identification, shading and wind buffering, based on the following standards:

1. Yard Setback Landscaping. Landscaping shall satisfy the following criteria:

a. Provide visual screening and privacy within side and rear yards; while leaving front yards and building entrances mostly visible for security purposes;

b. Use shrubs and trees as windbreaks, as appropriate;

c. Retain natural vegetation, as practicable;

d. Define pedestrian pathways and open space areas with landscape materials;

e. Provide focal points within a development, such as signature trees (i.e., large or unique trees), hedges and flowering plants;

f. Use trees to provide summer shading within common open space areas, and within front yards when street trees cannot be provided;

g. Use a combination of plants for year-long color and interest;

h. Use landscaping to screen outdoor storage and mechanical equipment areas, and to enhance graded areas such as berms, swales and detention/retention ponds.

RESPONSE: As indicated in the Landscape Notes on Site Plan A-101, yard setback landscaping shall be consistent with the standards of this section. A complete Landscape Plan shall be provided at the time of building permit submittal.

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2. Parking Areas. A minimum of five percent of the combined area of all parking areas, as measured around the perimeter of all parking spaces and maneuvering areas, shall be landscaped. Such landscaping shall consist of an evenly distributed mix of shade trees with shrubs and/or ground cover plants. “Evenly distributed” means that the trees and other plants are distributed around the parking lot perimeter and between parking bays to provide a partial canopy. At a minimum, one tree per five parking spaces total shall be planted to create a partial tree canopy

over and around the parking area. All parking areas with more than 20 spaces shall include landscape islands with trees to break up the parking area into rows of not more than 12 contiguous parking spaces. All landscaped areas shall have minimum dimensions of four feet by four feet to ensure adequate soil, water, and space for healthy plant growth.

3. Buffering and Screening Required. Buffering and screening are required under the following conditions:

a. Parking/Maneuvering Area Adjacent to Streets and Drives. Where a parking or maneuvering area is adjacent and parallel to a street or driveway, a decorative wall (masonry or similar quality material), arcade, trellis, evergreen hedge, or similar screen shall be established parallel to the street or driveway. The required wall or screening shall provide breaks, as necessary, to allow for access to the site and sidewalk by pedestrians via pathways. The design of the wall or screening shall also allow for visual surveillance of the site for security. Evergreen hedges used to comply with this standard shall be a minimum of 36 inches in height at maturity, and shall be of such species, number and spacing to provide the required screening within one year after planting. Any areas between the wall/hedge and the street/driveway line shall be landscaped with plants or other ground cover. All walls shall be maintained in good condition, or otherwise replaced by the owner.

b. Parking/Maneuvering Area Adjacent to Building. Where a parking or maneuvering area, or driveway, is adjacent to a building, the area shall be separated from the building by a raised pathway, plaza, or landscaped buffer no less than four feet in width. Raised curbs, bollards, wheel stops, or other design features shall be used to protect buildings from being damaged by vehicles. When parking areas are located adjacent to residential ground-floor living space, a landscape buffer is required to fulfill this requirement.

c. Screening of Mechanical Equipment, Outdoor Storage, Service and Delivery Areas, and Automobile-Oriented Uses. All mechanical equipment, outdoor storage and manufacturing, and service and delivery areas, shall be screened from view from all public streets and residential districts. Screening shall be provided by one or more of the following: decorative wall (i.e., masonry or similar quality material), evergreen hedge, non-see-through fence, or a similar feature that provides a non-see-through barrier. Walls, fences, and hedges shall comply with the vision clearance requirements and provide for pedestrian circulation, in accordance with Chapter 19.162 FMC, Access and Circulation. (Ord. 6-2001 § 1)

RESPONSE: As indicated on Site Plan A-101, all parking areas include landscaping that complies with the standards of this section; screening is provided from adjacent properties and public rights-of-way.

19.163.040 – Street Trees

The guidelines provided in this section promote healthy street trees and adequate canopy cover to provide shade, reduce stormwater runoff, and improve the appearance of a development.

Street trees shall be planted for all developments that are subject to land division or site design review. Requirements for street tree planting strips are provided in Chapter 19.165 FMC, Public Facility Standards. Planting of unimproved streets shall be deferred until the construction of curbs and sidewalks. Street trees shall conform to the following standards and guidelines:

A. Soil Preparation, Planting and Care. The developer shall be responsible for planting street trees, including soil preparation, ground cover material, staking, and temporary irrigation for two years after planting. The developer shall also be responsible for tree care (pruning, watering, fertilization, and replacement as necessary) during the first two years after planting.

B. Assurances. The city shall require the developer to provide a performance and maintenance bond in an amount determined by the city engineer, to ensure the planting of the tree(s) and care during the first two years after planting.

C. Growth Characteristics. Trees shall be selected based on growth characteristics and site conditions, including available space, overhead clearance, soil conditions, exposure, and desired color and appearance. The following should guide tree selection:

1. Provide a broad canopy where shade is desired.

2. Use low-growing trees for spaces under utility wires.

3. Select trees which can be “limbed-up” where vision clearance is a concern.

4. Use narrow or “columnar” trees where awnings or other building features limit growth, or where greater visibility is desired between buildings and the street.

5. Use species with similar growth characteristics on the same block for design continuity.

6. Avoid using trees that are susceptible to insect damage, and avoid using trees that produce excessive seeds or fruit.

7. Select trees that are well adapted to the environment, including soil, wind, sun exposure, and exhaust. Drought-resistant trees should be used in areas with sandy or rocky soil.

8. Select trees for their seasonal color, as desired.

9. Use deciduous trees for summer shade and winter sun.

D. Caliper Size. The minimum caliper size at planting shall be 1.5 inches, based on the American Association of Nurserymen Standards.

E. Spacing and Location. Street trees shall be planted within existing and proposed planting strips, and in sidewalk tree wells on streets without planting strips. Street tree spacing shall be based upon the type of tree(s) selected and the canopy size at maturity. In general, trees shall be spaced no more than 30 feet apart, except where planting a tree would conflict with existing trees, retaining walls, utilities and similar physical barriers.

F. Maintenance and Irrigation. The use of drought-tolerant plant species is encouraged, and may be required when irrigation is not available. Irrigation shall be provided for plants that are not drought-tolerant. If the plantings fail to survive, the property owner shall replace them with an equivalent specimen (i.e., evergreen shrub replaces evergreen shrub, deciduous tree replaces deciduous tree, etc.). All other landscape features required by this code shall be maintained in good condition, or otherwise replaced by the owner.

G. Additional Requirements. Additional buffering and screening may be required for specific land uses, as identified by Article II of this title, and the city may require additional landscaping through the conditional use permit process. (Ord. 6-2001 § 1)

RESPONSE: As indicated on Site Plan A-101, new street trees will be planted on Fairview Avenue. As indicated in the Landscape Notes, trees and landscaping will conform to the standards of this section.

19.163.050 - Fences and walls

The fences and walls section provides height limits for construction of new walls. The guidelines prevent walls that reduce pedestrian connectivity and sight clearance. The standards also provide guidelines relating to maintenance.

The following standards shall apply to all fences and walls:

A. General Requirements. All fences and walls shall comply with the standards of this section. The city may require installation of walls and/or fences as a condition of development approval, in accordance with conditional use permits or site design review. Walls built for required landscape buffers shall comply with FMC 19.163.030.

B. Dimensions.

1. The maximum allowable height of fences and walls is six feet, as measured from the lowest grade at the base of the wall or fence, except that retaining walls and terraced walls may exceed six feet when permitted as part of a site development approval, or as necessary to construct streets and sidewalks. A building permit is required for walls exceeding six feet in height, in conformance with the Uniform Building Code.

2. The height of fences and walls within a front yard setback shall not exceed four feet (except decorative arbors, gates, etc.), as measured from the grade closest to the street right-of-way.

3. Walls and fences to be built for required buffers shall comply with FMC 19.163.030.

4. Fences and walls shall comply with the vision clearance standards of FMC 19.162.020.

C. Maintenance. For safety and for compliance with the purpose of this chapter, walls and fences required as a condition of development approval shall be maintained in good condition, or otherwise replaced by the owner.

D. Fences – Recreational Courts. Any recreational court, with the consent of the planning commission, may be enclosed by a wire fence not to exceed 12 feet in height; provided, that no part of the court fence is within 20 feet of any street.

E. Swimming Pool Fences. A swimming pool, or other manmade outside body of water, which has a minimum depth of three and one-half feet shall be enclosed with a fence not less than four feet and not more than six feet in height. The fence shall not have any opening, holes or gaps therein larger than six inches square, except for doors or gates. The fence gates shall be equipped with a self-closing, self-catching device. The dwelling unit and/or accessory building can be used as part of the enclosure.

F. Barbed Wire Fencing. Barbed wire fencing may be permitted for property zoned commercial or industrial when the wire is employed on the top of any other type of fencing, and when the barbed wire is a minimum of six feet above the finished ground surface. Standard barbed wire fencing may be used to enclose property which is zoned agricultural.

G. Electrically Charged or Sharp Pointed Fencing. No electrically charged or sharp pointed fencing (other than barbed wire fencing) shall be constructed or maintained within the city limits except that electrically charged fencing may be permitted when the following standards are met:

1. Allowed only in general industrial, light industrial and agricultural holding zoning districts.

2. The electric fence shall not exceed 10 feet in height and shall be completely surrounded by a nonelectric fence or wall a minimum of six feet in height.

3. A minimum one-foot separation shall be maintained between the electric fence and surrounding nonelectric fence or wall, except at gates/entrances.

4. The fence shall be clearly posted with warning signs that include the statement, “Danger – Electric Fence,” or an equivalent, together with a pictorial warning, at an interval of not more than 30 feet.

5. An approved method to manually disconnect electrical power to all portions of the fence and/or gates shall be provided and approved by the fire chief.

6. All necessary permits shall be obtained prior to installation from the city of Fairview.

H. Critical Facility Security Fences. Notwithstanding subsections (B)(2), (F), and (G) of this section, a facility that is located in any zoning district which is deemed a critical facility for the public health and safety, emergency management or homeland security purposes may include installation of fencing as follows:

1. A facility subject to this provision includes but is not limited to water or sewer pump station, well, public works yard, emergency management and other communications facilities, public safety facilities, flood control structures,

public and private utility installations, or water tower or other facility deemed to be a similar use under Chapter 19.480 FMC.

2. Security fencing may not exceed six feet in height surrounding all or a portion of the facility, except that barbed wire, razor wire or other similar measure designed to impede access may be added to the top of a fence not less than six feet in height.

3. The vertical dimension of security measures such as barbed wire located along the top of a fence shall not exceed 18 inches.

4. The combined height of a fence and additional security measures may not exceed seven and one-half feet in height. (Ord. 12-2015 § 2 (Exh. A), 2015; Ord. 5-2011 § 1; Ord. 6-2001 § 1)

RESPONSE: New concrete retaining walls will be constructed along portions of the North, West and East property boundaries to support regrading of the site. No walls will be constructed for purposes of screening. Fences for fall protection will be erected on top of retaining walls. Adjacent landscaping will be provided for screening as indicated on Site Plan A-101.

19.164 – VEHICLE AND BICYCLE PARKING

19.164.030 – Vehicle parking standards

A. The minimum number of required off-street vehicle parking spaces (i.e., parking that is located in parking lots and garages and not in the street right-of-way) shall be determined based on the standards in Table 19.164.030.A.

There is no minimum number of off-street parking spaces required in the town center commercial district; however, the "maximum parking" standards of this chapter apply.

RESPONSE: Parking is provided for 108 vehicles.

B. Credit for On-Street Parking.

1. The credit for on-street parking allows a reduction of one off-street parking space for every one on-street parking space adjacent to the development if deemed appropriate by the city.

2. On-Street Parking Credit. The amount of off-street parking required shall be reduced by one off-street parking space for every uncommitted on-street parking space adjacent to the development. On-street parking shall follow the established configuration of existing on-street parking, except that angled parking may be allowed for some streets, where permitted by city standards. The following constitutes an on-street parking space:

a. Parallel parking, each 24 feet of uninterrupted curb;

b. Fifty-degree diagonal, each with 12 feet of curb;

c. Ninety-degree (perpendicular) parking, each with 10 feet of curb;

d. Curb space must be connected to the lot which contains the use;

e. Parking spaces that would not obstruct a required clear vision area, nor any other parking that violates any law or street standard; and

f. On-street parking spaces credited for a specific use may not be used exclusively by that use, but shall be available for general public use at all times. No signs or actions limiting general public use of on-street spaces is permitted.

RESPONSE: No on-street parking is possible on NE Halsey or on Fairview Ave.

C. Parking Location and Shared Parking.

1. Location. Vehicle parking is allowed only on approved parking shoulders (streets), within garages, carports and other structures, or on driveways or parking lots that have been developed in conformance with this code. Specific locations for parking are indicated in Article II of this title for some land uses (e.g., the requirement that parking be located to side or rear of buildings, with access from alleys, for some uses). (See also Chapter 19.162FMC, Access and Circulation.)

2. Off-Site Parking. Except for single-family dwellings, the vehicle parking spaces required by this chapter may be located on another parcel of land, provided the parcel is within 500 feet walking distance of the use it serves. The distance from the parking area to the use shall be measured from the nearest parking space to a building entrance, following a sidewalk or other pedestrian route. The right to use the off-site parking must be evidenced by a recorded deed, lease, easement, or similar written instrument.

3. Mixed Uses. If more than one type of land use occupies a single structure or parcel of land, the total requirements for off-street vehicle parking shall be the sum of the requirements for all uses, unless it can be shown that the peak parking demands are actually less (i.e., the uses operate on different days or at different times of the day). In that case, the total requirements shall be reduced accordingly.

4. Shared Parking. Required parking facilities for two or more uses, structures, or parcels of land may be satisfied by the same parking facilities used jointly, to the extent that the owners or operators show that the need for parking facilities does not materially overlap (e.g., uses primarily of a daytime versus nighttime nature), and provided that the right of joint use is evidenced by a recorded deed, lease, contract, or similar written instrument establishing the joint use.

5. Availability of Facilities. Owners of off-street parking facilities may post a sign indicating that all parking on the site is available only for residents, customers and/or employees, as applicable. Signs shall conform to the standards of Chapter 19.170 FMC, Sign Regulations.

RESPONSE: Vehicle parking is located in parking lot areas behind buildings. Signage will be posted indicating which spaces are allocated to residential and commercial users.

D. Maximum Number of Parking Spaces. The number of parking spaces provided shall not exceed the standards in the following table:

Use	Maximum in Transit/Ped. Areas	Maximum in All Other Areas
General Office	3.4/1,000 s.f.	4.1
Light Industrial	none	none
Warehouse (150,000 s.f. or larger)	0.4	0.5
Schools, Colleges, etc.	0.3	0.3
Tennis, Racquetball Courts	1.3	1.5

Use	Maximum in Transit/Ped. Areas	Maximum in All Other Areas
Sports Club/Recreation Facilities	5.4	6.5
Retail/Commercial, Including Shop Centers	5.1	6.2
Bank with Drive-In	5.4	6.5
Movie Theater (spaces/seats)	0.4	0.5
Fast Food with Drive-In	12.4	14.9
Other Restaurants	19.1	23
Worship Places (spaces/seats)	0.6	0.8
Medical/Dental Clinic	4.9	5.9
Residential Uses	none	none
Hotel/Motel	none	none
Single-Family Detached	none	none
Residential, less than 500 s.f. per unit, one bedroom	none	none
Multifamily/Townhouse/1 bedroom	none	none
Multifamily/Townhouse/2 bedroom	none	none
Multifamily/Townhouse/3 bedroom	none	none

RESPONSE: There is no maximum for residential parking. Commercial parking maximums are specific to uses. The final tenant mix for the commercial space is unknown at the time of submittal. 4,400 sf of commercial space is proposed. 24 stalls of dedicated retail parking are proposed. Assuming retail tenants, the maximum allowed parking would be 28 stalls. The application is consistent with this standard.

E. Parking Management. The planning director may require a parking management plan for development of any use that requires more than 10 parking spaces based on the minimum parking spaces provided in Table 19.164.030.A. The parking management plan shall be prepared by a qualified parking or traffic consultant or certified engineer and should include the following:

1. Defining a study area and time period necessary to evaluate parking supply and demand in the area consistent with the planning period for the city's transportation system plan.

2. Surveying the capacity of the parking supply options in the study area such as shared parking, transit stations or other high-efficiency parking management alternatives.

3. Defining a study area and time period necessary to evaluate parking supply and demand in the area consistent with the planning period for the city's transportation system plan.

4. Surveying the capacity of the parking supply options in the study area such as shared parking, transit stations or other high-efficiency parking management alternatives.

RESPONSE: No conditions necessitating a parking management plan are anticipated.

F. Parking Stall Standard Dimensions and Compact Parking Spaces. All off-street parking stalls shall be improved to conform to city standards for surfacing, stormwater management and striping, and provide dimensions in accordance with the following table. Disabled person parking shall conform to the standards and dimensions of this chapter. The number of compact parking spaces shall not exceed 40 percent of all parking spaces provided on site.

Minimum Parking Space and Aisle Dimensions

Angle (A)	Type	Width (B)	Curb Length (C)	1-Way Aisle Width (D)	2-Way Aisle Width (D)	Stall Depth
90°	Standard Compact Disabled	9 ft. 7 ft. 6 in.	9 ft. 7 ft. 6 in.	24 ft. 22 ft.	24 ft. 24 ft.	19 ft. 15 ft.

G. Variances. Developments may request exceptions to the parking standards; see FMC 19.520.030(A)(4).

Important cross-references: See also Article II of this title, land use district standards; Chapter 19.162 FMC, Access and Circulation; Chapter 19.163 FMC, Landscaping, Street Trees, Fences and Walls; and FMC 19.165.050, Storm drainage.

RESPONSE: 39 of the 108 proposed parking stalls, or 36% are compact. The remainder are standard size stalls with dimensions indicated on Site Plan A-101. Two-way drive aisles are 26' wide. The one way-drive aisle along the North side of the site is 24' wide at vehicle parking areas and 10' wide where routing to/from the primary drive aisle. All proposed spaces are 90° angle spaces.

H. Disabled Person Parking Spaces. The following parking shall be provided for disabled persons, in conformance with the Americans with Disabilities Act (Figure 19.164.030.H):

Minimum Number of Accessible Parking Spaces
ADA Standards for Accessible Design 4.1.2 (5)

Total Number of Parking spaces Provided (per lot)	Total Minimum Number of Accessible Parking Spaces (60" & 96" aisles)	Van Accessible Parking Spaces with min. 96" wide access aisle	Accessible Parking Spaces with min. 60" wide access aisle
	Column A		
1 to 25	1	1	0
26 to 50	2	1	1
51 to 75	3	1	2
76 to 100	4	1	3
101 to 150	5	1	4
151 to 200	6	1	5
201 to 300	7	1	6
301 to 400	8	1	7
401 to 500	9	2	7
501 to 1000	2% of total parking provided in each lot	1/8 of Column A*	7/8 of Column A**
1001 and over	20 plus 1 for each 100 over 1000	1/8 of Column A*	7/8 of Column A**

* one out of every 8 accessible spaces ** 7 out of every 8 accessible parking spaces

I. In parking lots three acres and larger intended for use by the general public, pedestrian pathways shall be raised or separated from parking, parking aisles and travel lanes by a raised curb, concrete bumpers, bollards, landscaping or other physical barrier. If a raised pathway is used, curb ramps shall be provided in accordance with the Americans with Disabilities Act Accessibility Guidelines. (Ord. 2-2017 § 1 (Exh. A); Ord. 3-2010 § 5; Ord. 8-2002 §§ 1 – 3; Ord. 6-2001 § 1)

RESPONSE: Per Figure 16.164.030.H the total number of required ADA accessible spaces is 5; 4 standard spaces and one van accessible space. As indicated on Site Plan A-101, 5 ADA accessible spaces are provided. All are van-accessible.

19.164.040 – Bicycle parking standards

All uses which are subject to site design review shall provide bicycle parking, in conformance with the following standards, which are evaluated during site design review:

A. Number of Bicycle Parking Spaces. A minimum of two bicycle parking spaces per use is required for all uses with greater than 10 vehicle parking spaces. The following additional standards apply to specific types of development:

1. Multifamily Residences. Every residential use of four or more dwelling units shall provide bicycle parking spaces according to the following standards:

a. Short-term bicycle parking shall be provided at a ratio of one bicycle space for every 10 vehicle parking spaces and shall be located within 30 feet of the main entrance to the building, in a location that is easily accessible for bicycles.

b. Long-term bicycle parking shall be provided at a ratio of one bicycle space per dwelling unit. Sheltered bicycle parking spaces may be located within a garage, storage shed, basement, utility room or similar area. In those instances in which the residential complex has no garage or other easily accessible storage unit, the bicycle parking spaces may be sheltered from sun and precipitation under an eave, overhang, an independent structure, or similar cover.

2. Commercial Retail, Office, and Institutional Developments. Commercial retail, office, and institutional developments shall provide bicycle parking spaces according to the following standards:

a. Short-term bicycle parking shall be provided at a ratio of one bicycle space for every 10 vehicle parking spaces and shall be located within 50 feet of the main entrance to the building, in a location that is easily accessible for bicycles.

b. Long-term bicycle parking shall be provided at a ratio of one bicycle space per employee.

3. Schools. Elementary and middle schools, both private and public, shall provide one bicycle parking space for every eight students and employees. High schools shall provide one bicycle parking space for every five students and employees. All spaces shall be long-term spaces sheltered under an eave, overhang, independent structure, or similar cover.

4. Colleges and Trade Schools. Colleges and trade schools shall provide one bicycle parking space for every eight motor vehicle spaces plus one space for every dormitory unit. Fifty percent of the bicycle parking spaces shall be sheltered under an eave, overhang, independent structure, or similar cover.

5. Town Center Commercial District. Within the town center commercial district, bicycle parking for customers shall be provided along the street at a rate of at least one space per use. Individual uses shall provide their own parking, or spaces may be clustered to serve up to six bicycles. Bicycle parking spaces shall be located in front of the stores along the street, either on the sidewalks or in specially constructed areas such as pedestrian curb extensions. Inverted “U” style racks are recommended. Bicycle parking shall not interfere with pedestrian passage, leaving a clear area of at least 36 inches between bicycles and other existing and potential obstructions. Customer spaces may or may not be sheltered. When provided, sheltered parking (within a building, or under an eave, overhang, or similar structure) shall be provided at a rate of one space per 10 employees, with a minimum of one space per store.

6. Multiple Uses. For buildings with multiple uses (such as a commercial or mixed use center), bicycle parking standards shall be calculated by using the total number of motor vehicle parking spaces required for the entire development. A minimum of one bicycle parking space for every 10 motor vehicle parking spaces is required.

B. Exemptions. This section does not apply to single-family, two-family, and three-family housing (attached, detached or manufactured housing), home occupations, agriculture and livestock uses, or other developments with fewer than eight vehicle parking spaces.

C. Location and Design. Bicycle parking shall be conveniently located with respect to both the street right-of-way and at least one building entrance (e.g., no farther away than the closest parking space). It should be incorporated whenever possible into building design and coordinated with the design of street furniture when it is provided. Street furniture includes benches, streetlights, planters and other pedestrian amenities.

D. Visibility and Security. Bicycle parking should be visible to cyclists from street sidewalks or building entrances, so that it provides sufficient security from theft and damage.

E. Options for Storage. Bicycle parking requirements for long-term and employee parking can be met by providing a bicycle storage room, bicycle lockers, racks, or other secure storage space inside or outside of the building.

F. Lighting. Bicycle parking shall be at least as well lit as vehicle parking for security.

G. Reserved Areas. Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only.

H. Hazards. Bicycle parking shall not impede or create a hazard to pedestrians. Parking areas shall be located so as to not conflict with vision clearance standards (Chapter 19.162 FMC, Access and Circulation). (Ord. 2-2017 § 1 (Exh. A); Ord. 6-2001 § 1)

RESPONSE: Proposed residential short term bike parking consists of two spaces for each of the six residential buildings, for a total of 12 spaces. 12 long term spaces are provided for each residential building for a total of 72. Seven short-term bike parking spaces are provided for commercial tenants; four sheltered and three unsheltered spaces. Long term commercial bike parking will be provided per code upon tenant space build-out.

19.165 – PUBLIC FACILITIES STANDARDS

19.165.025 – Transportation improvements

19.165.025 Transportation improvements.
A. Development Standards. No development shall occur unless the development has frontage or approved access to a public street, in conformance with the provisions of Chapter 19.162 FMC, Access and Circulation, and the following standards are met:

1. Streets within or adjacent to a development shall be improved in accordance with the transportation system plan and the provisions of this chapter;

2. Development of new streets, and additional street width or improvements planned as a portion of an existing street, shall be improved in accordance with this section, and public streets shall be dedicated to the applicable city, county or state jurisdiction;

3. New streets and drives connected to a collector or arterial street shall be paved; and

4. The city may accept a future improvement guarantee (e.g., owner agrees not to remonstrate (object) against the formation of a local improvement district in the future) in lieu of street improvements if one or more of the following conditions exist:

a. A partial improvement may create a potential safety hazard to motorists or pedestrians;

b. Due to the developed condition of adjacent properties it is unlikely that street improvements would be extended in the foreseeable future and the improvement associated with the project under review does not, by itself, provide increased street safety or capacity, or improved pedestrian circulation;

c. The improvement would be in conflict with an adopted capital improvement plan; or

d. The improvement is associated with an approved land partition on property zoned residential and the proposed land partition does not create any new streets.

RESPONSE: The subject property has frontage onto two public streets which are fully improved. The proposed site plan includes ROW dedication and street frontage improvements for street trees and a new sidewalk on Fairview Ave.

B. Variances. Variances to the transportation design standards in this section may be granted by means of a Class B variance, as governed by Article V of this title, Exceptions to Code Standards. A variance may be granted under this provision only if a required improvement is not feasible due to topographic constraints or constraints posed by sensitive lands Chapter 19.106 FMC.

C. Creation of Rights-of-Way for Streets and Related Purposes. Streets shall be created through the approval and recording of a final subdivision or partition plat; except the city may approve the creation of a street by acceptance of a deed; provided, that the street is deemed essential by the city council for the purpose of implementing the transportation system plan, and the deeded right-of-way conforms to the standards of this code. All deeds of dedication shall be in a form prescribed by the city engineer and shall name “the public” as grantee.

D. Creation of Access Easements. The city may approve an access easement established by deed when the easement is necessary to provide for access and circulation in conformance with Chapter 19.162 FMC, Access and Circulation. Setback standards do not permit conflicting structures to be built in public easements.

E. Street Location, Width and Grade. Except as noted below, the location, width and grade of all streets shall conform to the transportation system plan, and an approved street plan or subdivision plat. Street location, width and grade shall be determined in relation to existing and planned streets, topographic conditions, public convenience and safety, and in appropriate relation to the proposed use of the land to be served by such streets:

1. Street grades shall be approved by the city engineer in accordance with the design standards in subsection O of this section; and

2. Where the location of a street is not shown in an existing street plan (see subsection H of this section), the location of streets in a development shall either:

a. Provide for the continuation and connection of existing streets in the surrounding areas, conforming to the street standards of this chapter, or

b. Conform to a street plan adopted by the planning commission, if it is impractical to connect with existing street patterns because of particular topographical or other existing conditions of the land. Such a plan shall be based on the type of land use to be served, the volume of traffic, the capacity of adjoining streets and the need for public convenience and safety.

F. Minimum Rights-of-Way and Street Sections. Street rights-of-way and improvements shall be the widths as required in the “Standards” section of the Fairview transportation system plan. A variance shall be required to vary the standards found in the Fairview transportation system plan. Where a range of width is indicated, the width shall be determined by the decision-making authority based upon the following factors:

1. Street classification in the transportation system plan;

2. Anticipated traffic generation;

3. On-street parking needs;

4. Sidewalk and bikeway requirements based on anticipated level of use;

5. Requirements for placement of utilities;

6. Street lighting;

7. Minimize drainage, slope, and sensitive lands impacts, as identified by Chapter 19.106 FMC;

8. Street tree location, as provided for in Chapter 19.163 FMC;

9. Protection of significant vegetation, as provided for in Chapter 19.163 FMC;

10. Safety and comfort for motorists, bicyclists, and pedestrians;

11. Street furnishings (e.g., benches, lighting, bus shelters, etc.), when provided;

12. Access needs for emergency vehicles; and

13. Transition between different street widths (i.e., existing streets and new streets), as applicable.

RESPONSE: No new subdivisions, streets or rights of way are being proposed.

G. Traffic Signals and Neighborhood Traffic Management.

1. Traffic management features, such as traffic circles, curb extensions, narrow residential streets, and special paving, may be used to slow traffic in neighborhoods and areas with high pedestrian traffic.

2. Traffic signals shall be required with development when traffic signal warrants are met, in conformance with the Highway Capacity Manual and Manual of Uniform Traffic Control Devices. The location of traffic signals shall be noted on approved street plans. Where a proposed street intersection will result in an immediate need for a traffic signal, a signal meeting approved specifications shall be installed. The developer's cost and the timing of improvements shall be included as a condition of development approval.

3. Preferred neighborhood traffic management tools are detailed in the Fairview transportation system plan.

RESPONSE: A traffic study is included with this application; no mitigation is necessary or recommended in conjunction with the proposed development.

H. Future Street Plan and Extension of Streets.

1. A future street plan shall be filed by the applicant in conjunction with an application for a subdivision in order to facilitate orderly development of the street system. The plan shall show the pattern of existing and proposed future streets from the boundaries of the proposed land division and shall include other parcels within 500 feet surrounding and adjacent to the proposed land division. The street plan is not binding; rather it is intended to show potential future street extensions with future development.

2. Streets shall be extended to the boundary lines of the parcel or tract to be developed, when the city council determines that the extension is necessary to give street access to, or permit a satisfactory future division of, adjoining land. The point where the streets temporarily end shall conform to subsections (H)(2)(a) through (d) of this section:

a. These extended streets or street stubs to adjoining properties are not considered to be cul-de-sacs since they are intended to continue as through streets when the adjoining property is developed.

b. A barricade (e.g., fence, bollards, boulders or similar vehicle barrier) shall be constructed at the end of the street by the subdivider and shall not be removed until authorized by the city or other applicable agency with jurisdiction over the street. The cost of the barricade shall be included in the street construction cost.

c. Temporary turnarounds (e.g., hammerhead or bulb-shaped configuration) shall be constructed for stub streets over 150 feet in length.

d. In the case of dead-end stub streets that will connect to streets on adjacent sites in the future, notification that the street is planned for future extension shall be posted on the stub street until the street is extended and shall inform the public that the dead-end street may be extended in the future.

I. Street Alignment and Connections.

1. Mixed-use and residential development proposed on sites five acres or greater must submit a site plan that identifies conceptual street connections that are consistent with the transportation system plan.

2. Staggering of streets making “T” intersections at collectors and arterials shall not be designed so that jogs of less than 300 feet on such streets are created, as measured from the centerline of the street.

3. Spacing between local street intersections shall have a minimum separation of 125 feet, except where more closely spaced intersections are designed to provide an open space, pocket park, common area or similar neighborhood amenity. This standard applies to four-way and three-way (offset) intersections.

4. All local and collector streets which abut a development site shall be extended within the site to provide through circulation unless the applicant demonstrates that extension is prevented by environmental or topographical constraints, existing development patterns or compliance with other standards in this code. This exception applies when it is not possible to redesign or reconfigure the street pattern to provide required extensions. Land is considered topographically constrained if the slope is greater than 15 percent for a distance of 250 feet or more. In the case of environmental or topographical constraints, the mere presence of a constraint is not sufficient to show that a street connection is not possible. The applicant must show why the environmental or topographic constraint precludes some reasonable street connection.

5. Proposed streets or street extensions shall be located to provide direct access to existing or planned commercial services and other neighborhood facilities, such as schools, shopping areas and parks and transit facilities.

6. In order to promote efficient vehicular and pedestrian circulation throughout the city, the design of subdivisions and alignment of new streets shall conform to the following standards in Chapter 19.162 FMC, Access and Circulation. The maximum block length shall not exceed:

a. Five hundred thirty feet in the residential district;

b. Two hundred feet in the town center commercial district, except as provided by FMC 19.65.050, Block layout and building orientation;

c. Not applicable to the general industrial district;

d. Seven hundred feet in the light industrial district, except as required for commercial developments subject to Chapter 19.80 FMC;

e. Three hundred feet in the corridor commercial district;

f. Three hundred feet in the neighborhood commercial district.

7. A variance to street spacing standards may be granted pursuant to FMC 19.520.030 (Class B variances) when resources are present that are mapped on the Natural Resources Map, where street spacing can be achieved at a minimum of 800 feet and no greater than 1,200 feet.

8. Exceptions to the standards in this subsection may be granted when:

a. Habitat quality or the length of the crossing required prevents a full street connection, pursuant to Chapter 19.106 FMC;

b. An access way is provided at or near midblock, in conformance with the provisions of Chapter 19.162 FMC.

RESPONSE: No new subdivisions, streets or rights of way are being proposed.

J. Sidewalks, Planter Strips, Bicycle Lanes. Sidewalks, planter strips, and bicycle lanes shall be installed in conformance with applicable provisions of the transportation system plan, the Comprehensive Plan, and adopted street plans. Maintenance of sidewalks, curbs, and planter strips is the continuing obligation of the adjacent property owner. All work must comply with the city of Fairview public works construction standards.

RESPONSE: 10' of ROW dedication will occur along Fairview Ave. Street frontage improvements including new street trees and sidewalk are shown on Site Plan A-101.

K. Internal Pathways. Pathways shall be at least five feet in unobstructed width and shall be constructed to sidewalk standards found in Standard Specifications for Public Works Construction, or according to Multnomah County or ODOT standards as applicable. The property owner shall keep a minimum of five feet of the pathway width clear of both permanent and temporary obstructions (e.g., utility poles, sandwich signs). Maintenance of internal pathways is the continuing obligation of the property owner or adjacent property owner. All work must comply with the city of Fairview public works construction standards.

RESPONSE: Internal paths and sidewalks are consistent with the standards of this section, as shown on Site Plan A-101.

L. Intersection Angles. Streets shall be laid out so as to intersect at an angle as near to a right angle as practicable, except where topography requires a lesser angle or where a reduced angle is necessary to provide an open space, pocket park, common area or similar neighborhood amenity. In addition, the following standards shall apply:

1. Streets shall have at least 25 feet of tangent adjacent to the right-of-way intersection unless topography requires a lesser distance;

2. Intersections which are not at right angles shall have a minimum corner radius of 20 feet along the right-of-way lines of the acute angle; and

3. Right-of-way lines at intersection with arterial streets shall have a corner radius of not less than 20 feet.

RESPONSE: No streets or rights of way are being proposed.

M. Existing Rights-of-Way. Whenever existing rights-of-way adjacent to or within a tract are of less than standard width, additional rights-of-way shall be provided at the time of subdivision or development, subject to the provision of FMC 19.165.025 (C).

RESPONSE: Since the subject is not a subdivision this section does not apply.

N. Cul-de-Sacs. A dead-end street shall be no more than 200 feet long, shall not provide access to greater than eight dwelling units, and shall only be used when environmental or topographical constraints, existing development patterns, or compliance with other standards in this code preclude street extension and through circulation:

1. All cul-de-sacs shall terminate with a circular turnaround. Circular turnarounds shall have a radius of no less than 25 feet, and not more than a radius of 40 feet (i.e., from center to edge of pavement); except that turnarounds may be larger when they contain a landscaped island or parking bay in their center. When an island or parking bay is provided, there shall be a fire apparatus lane of 20 feet in width; and

2. The length of the cul-de-sac shall be measured along the centerline of the roadway from the near side of the intersecting street to the farthest point of the cul-de-sac.

O. Grades and Curves. Grades shall not exceed 10 percent on arterials, 12 percent on collector streets, or 12 percent on any other street (except that local or residential access streets may have segments with grades up to 15 percent for distances of no greater than 250 feet), and:

1. Centerline curve radii shall not be less than 700 feet on arterials, 500 feet on major collectors, 350 feet on minor collectors, or 100 feet on other streets; and

2. Streets intersecting with a minor collector or greater functional classification street, or streets intended to be posted with a stop sign or signalization, shall provide a landing averaging five percent or less. Landings are that portion of the street within 20 feet of the edge of the intersecting street at full improvement.

RESPONSE: No streets or culs-de-sac are being created.

P. Curbs, Curb Cuts, Ramps, and Driveway Approaches. Concrete curbs, curb cuts, wheelchair, bicycle ramps and driveway approaches shall be constructed in accordance with standards specified in Chapter 19.162 FMC, Access and Circulation.

RESPONSE: As indicated in applicant responses to FMC 19.162 and Site Plan A-101, curbs, curb cuts, wheelchair, bicycle ramps and driveway approaches shall be designed to comply with applicable standards.

Q. Streets Adjacent to Railroad Right-of-Way. Wherever the proposed development contains or is adjacent to a railroad right-of-way, a street approximately parallel to and on each side of such right-of-way at a distance suitable for the appropriate use of the land shall be created. New railroad crossings and modifications to existing crossings are subject to review and approval by Oregon Department of Transportation.

RESPONSE: No Railroad rights-of-way are adjacent.

R. Development Adjoining Arterial Streets. Where a development adjoins or is crossed by an existing or proposed arterial street, the development design shall separate residential access and through traffic, and shall minimize traffic conflicts. The design shall include one or more of the following:

1. A parallel access street along the arterial with a landscape buffer separating the two streets;

2. Deep lots abutting the arterial or major collector to provide adequate buffering with frontage along another street. Double-frontage lots shall conform to the buffering standards in FMC 19.163.030;

3. Screen planting at the rear or side property line to be contained in a non-access reservation (e.g., public easement or tract) along the arterial;

4. Other treatment suitable to meet the objectives of this subsection; or

5. If a lot has access to two streets with different classifications, primary access shall be from the lower classification street, in conformance with Chapter 19.162 FMC.

S. Alleys, Public or Private. Alleys shall conform to the standards in the Fairview transportation system plan. While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have a radius of not less than 12 feet.

T. Private Streets. Private streets shall not be used to avoid connections with public streets. Gated communities (i.e., where a gate limits access to a development from a public street) are prohibited. Design standards for private streets shall conform to the provisions of the Fairview transportation system plan.

U. Street Names. No street name shall be used which will duplicate or be confused with the names of existing streets in Multnomah County, except for extensions of existing streets. Street names, signs and numbers shall conform to the established pattern in the surrounding area, except as requested by emergency service providers.

V. Survey Monuments. Upon completion of a street improvement and prior to acceptance by the city, it shall be the responsibility of the developer's registered professional land surveyor to provide certification to the city that all boundary and interior monuments shall be reestablished and protected.

W. Street Signs. The city, county or state with jurisdiction shall install all signs for traffic control and street names. The cost of signs required for new development shall be the responsibility of the developer. Street name signs shall be installed at all street intersections. Stop signs and other signs may be required.

X. Mail Boxes. Plans for mail boxes to be used shall be approved by the United States Postal Service.

Y. Streetlight Standards. Streetlights shall be installed in accordance with city standards.

Z. Street Cross-Sections. All street cross-sections must comply with the Standard Specifications for Public Works Construction pages 40-51. The final lift of asphalt or concrete pavement shall be placed on all new constructed public roadways prior to final city acceptance of the roadway and within one year of the conditional acceptance of the roadway unless otherwise approved by the city engineer. The final lift shall also be placed no later than when 90 percent of the structures in the new development are completed or one year from the commencement of initial construction of the development, whichever is less. All work must comply with public works construction standards.

1. Sub-base and leveling course shall be of select crushed rock;

2. Surface material shall be of Class C or B asphaltic concrete;

3. The final lift shall be Class C asphaltic concrete as defined by APWA standard specifications; and

4. No lift shall be less than one and one-half inches in thickness. (Ord. 2-2017 § 1 (Exh. A); Ord. 3-2012 § 6; Ord. 6-2001 § 1)

RESPONSE: With the exception of Mail Boxes, R-Z of this section generally govern standards for the creation of new streets and rights-of-way within subdivisions. The subject is not a subdivision and now streets or rights of way are being created. Mailboxes will be of an approved, standard design type and plans will be submitted for approval by the USPS, as is indicated on Site Plan A-101.

19.165.030 – Public use areas

Public use areas implement Comprehensive Plan policies that may require a developer to reserve a piece of land for future park and open space to serve the residents of the new development. Specific issues to consider include the amount of time the city has to purchase parkland and whether dedication of park land should count as a credit towards SDCs.

A. Dedication Requirements.

1. Where a proposed park, playground or other public use shown in a plan adopted by the city is located in whole or in part in a subdivision, the city may require the dedication or reservation of this area on the final plat for the subdivision.

2. If determined by the planning commission to be in the public interest in accordance with adopted Comprehensive Plan policies, and where an adopted plan of the city does not indicate proposed public use areas, the city may require the dedication or reservation of areas within the subdivision of a character, extent and location suitable for the development of parks and other public uses.

3. All required dedications of public use areas shall conform to FMC 19.430.150(D), Conditions of approval.

B. Acquisition by Public Agency. If the developer is required to reserve land area for a park or playground, the land shall be acquired by the appropriate public agency within 12 months following final plat approval, at a price agreed upon prior to approval of the plat, or the reservation shall be released to the property owner.

C. System Development Charge Credit. Dedication of land to the city for public use areas shall be eligible as a credit toward any required system development charge for parks. (Ord. 6-2001 § 1)

RESPONSE: No dedications of public parks are proposed. A new Creekside trail will be constructed on the north of the creek buffer that will be open to resident and public use.

19.05.040 - Sanitary sewer and water service improvements

The sanitary sewer and water service improvements ensure adequate sanitary sewer services to new developments.

A. Sewers and Water Mains Required. Sanitary sewers and water mains shall be installed to serve each new development and to connect developments to existing mains in accordance with the city's construction specifications and the applicable Comprehensive Plan policies.

B. Sewer and Water Plan Approval. Development permits for sewer and water improvements shall not be issued until the city engineer has approved all sanitary sewer and water plans in conformance with city standards.

C. Oversizing. Proposed sewer and water systems shall be sized to accommodate additional development within the area as projected by the Comprehensive Plan. The developer shall be entitled to system development charge credits for the oversizing.

D. Permits Denied. Development permits may be restricted by the city where a deficiency exists in the existing water or sewer system which cannot be rectified by the development and which if not rectified will result in a threat to public health or safety, surcharging of existing mains, or violations of state or federal standards pertaining to operation of domestic water

and sewerage treatment systems. Building moratoriums shall conform to the criteria and procedures contained in ORS 197.505 to 197.520. (Ord. 6-2001 § 1)

RESPONSE: See sheet C200 Utility Plan for the proposed location of new sanitary sewer and water mains.

19.165.050 – Storm drainage

The storm drainage section requires developers to accommodate and treat stormwater runoff from buildings and parking lots.

A. General Provisions. The city shall issue a development permit only where adequate provisions for stormwater and flood water runoff have been made.

B. Accommodation of Upstream Drainage. Culverts and other drainage facilities shall be large enough to accommodate potential runoff from the entire upstream drainage area, whether inside or outside the development. Such facilities shall be subject to review and approval by the city engineer.

C. Effect on Downstream Drainage. Where it is anticipated by the city engineer that the additional runoff resulting from the development will overload an existing drainage facility, the city may deny approval of the development permit unless provisions have been made for improvement of the potential condition or until provisions have been made for storage of additional runoff caused by the development in accordance with city standards.

D. Easements. Where a development is traversed by a watercourse, drainage way, channel or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance. (Ord. 6-2001 § 1)

RESPONSE: All stormwater will be detained, filtered and infiltrated on-site. Refer to sheet C101 and the Preliminary Stormwater Report.

19.165.060 - Utilities

The utilities section provides standards regarding electric lines and cable. Many types of utilities now must be installed underground for safety and aesthetic purposes.

A. Underground Utilities. All utility lines including, but not limited to, those required for electric, communication, lighting and cable television services and related facilities shall be placed underground, except for surface-mounted transformers, surface-mounted connection boxes and meter cabinets which may be placed above ground, temporary utility service facilities during construction, and high capacity electric lines operating at 50,000 volts or above. The following additional standards apply to all new subdivisions, in order to facilitate underground placement of utilities:

1. The developer shall make all necessary arrangements with the serving utility to provide the underground services. Care shall be taken to ensure that all above ground equipment does not obstruct vision clearance areas for vehicular traffic;

2. The city reserves the right to approve the location of all surface-mounted facilities;

3. All underground utilities, including sanitary sewers and storm drains installed in streets by the developer, shall be constructed prior to the surfacing of the streets; and

4. Stubs for service connections shall be long enough to avoid disturbing the street improvements when service connections are made.

B. Easements. Easements shall be provided for all underground utility facilities.

C. Exception to Undergrounding Requirement. The standard applies only to proposed subdivisions. An exception to the undergrounding requirement may be granted due to physical constraints, such as steep topography, sensitive lands, Chapter 19.106 FMC, or existing development conditions. (Ord. 3-2012 § 6; Ord. 6-2001 § 1)

RESPONSE: Within the site, all utilities will be placed underground. Additionally, in coordination with the City and PGE, the applicant is pursuing undergrounding of existing overhead utilities located in the Fairview Ave right-of-way.

19.165.070 - Easements

The easements section provisions reserve adequate space for utilities.

Easements for sewers, storm drainage and water quality facilities, water mains, electric lines or other public utilities shall be dedicated on a final plat, or provided for in the deed restrictions. See also, Chapter 19.420 FMC, Development Review and Site Design Review and Chapter 19.430, Land Divisions and Lot Line Adjustments. The developer or applicant shall make arrangements with the city, the applicable district and each utility franchise for the provision and dedication of utility easements necessary to provide full services to the development. The city's standard width for public main line utility easements shall be 20 feet unless otherwise specified by the utility company, applicable district, or city engineer. (Ord. 6-2001 § 1)

RESPONSE: No plat is being created. All utilities are located in adjacent public right-of-way.

19.165.080 - Construction plan approval and assurances

The construction plan approval portion ensures the completion of a development by a builder.

No public improvements, including sanitary sewers, storm sewers, streets, sidewalks, curbs, lighting, parks, or other requirements, shall be undertaken except after the plans have been approved by the city, permit fee paid, and permit issued. The permit fee is required to defray the cost and expenses incurred by the city for construction and other services in connection with the improvement. The permit fee shall be set by the city council. The city may require the developer or subdivider to provide bonding or other performance guarantees to ensure completion of required public improvements. (Ord. 6-2001 § 1)

RESPONSE: Proposed public improvements consist of right of way improvements to Fairview Ave; new curbs, sidewalks, street trees and landscaping. The applicant will submit plans for approval and associated fees.

19.165.090 - Installation

A. Conformance Required. Improvements installed by the developer either as a requirement of these regulations or at his/her own option, shall conform to the requirements of this chapter, approved construction plans, and to improvement standards and specifications adopted by the city.

B. Adopted Installation Standards. The Standard Specifications for Public Works Construction, Oregon Chapter APWA shall be a part of the city's adopted installation standard(s); other standards may also be required upon recommendation of the city engineer.

C. Commencement. Work shall not begin until the city has been notified in advance.

D. Resumption. If work is discontinued for more than one month, it shall not be resumed until the city is notified.

E. City Inspection. Improvements shall be constructed under the inspection and to the satisfaction of the city. The city may require minor changes in typical sections and details if unusual conditions arising during construction warrant such changes in the public interest. Modifications requested by the developer shall be subject to land use review under

Chapter 19.415 FMC, Modifications to Approved Plans and Conditions of Approval. Any monuments that are disturbed before all improvements are completed by the subdivider shall be replaced prior to final acceptance of the improvements.

F. Engineer's Certification and As-Built Plans. A registered civil engineer shall provide written certification in a form required by the city that all improvements, workmanship and materials are in accord with current and standard engineering and construction practices, conform to approved plans and conditions of approval, and are of high grade, prior to city acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide three sets (one mylar, one electronic, one paper copy) of "as-built" plans, in conformance with the city engineer's specifications, for permanent filing with the city. (Ord. 6-2009 § 4; Ord. 6-2001 § 1)

RESPONSE: Civil engineers stamped drawings will be submitted for improvements located in the public right-of-way.

19.250 – MINIMUM DENSITIES

19.250.210 – Minimum density

A. When single-family lots are created through partition or subdivision, a minimum density permitted in the zone is required on all parcels within the R zones. For purposes of this section, the number of lots required shall be determined by multiplying the maximum density, exclusive of potentially allowable density transfer, by 0.8.

B. In all multifamily zones 80 percent of the allowable density must be achieved by all residential developments. (Ord. 6-2001 § 1)

RESPONSE: Per FMC 19.65.090.A.3, there is no minimum or maximum residential density for the Town Center Commercial zone.

16.05 – FLOOD DAMAGE PREVENTION

16.05.050 - General standards for flood hazard reduction

A. In all areas of special flood hazards, the following is required:

1. Anchoring.

    a. All new construction and substantial improvement(s) shall be anchored to prevent flotation, collapse, or lateral movement of the structure; and

    b. All manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement and installed using methods and practices designed to minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (see FEMA's "Manufactured Home Installation in Flood Hazard Areas").

2. Construction Materials and Methods.

    a. All new construction and substantial improvement(s) shall be constructed with materials and utility equipment resistant to flood damage;

b. All new construction and substantial improvement(s) shall be constructed using methods and practices designed to minimize flood damage; and

c. Electrical, heating, ventilation, plumbing, air-conditioning and other service equipment/facilities shall be designed and/or elevated or located to prevent water from entering or accumulating within the components during flooding.

3. Utilities.

a. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

b. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into, the systems and discharge from the systems into flood waters; and

c. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding consistent with rules adopted by DEQ.

4. Subdivision Proposals.

a. All subdivision proposals shall be consistent with the need to minimize flood damage;

b. All subdivision proposals shall have public utilities/facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage;

c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and

d. Where base flood elevation data has not been provided nor available from an authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or five acres, whichever is less.

5. Review of Building Permits. Where elevation data is unavailable through the Flood Insurance Study, FIRM or other authoritative source, building permit applications shall be reviewed with the aim of promoting safety from flooding. Use of historical data, high water marks, photographs of past flooding, etc. should be used where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

6. AH Zone Drainage. Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.

B. In areas of special flood hazard where base flood elevation data has been provided (Zones A1-30, AH, AE, A and V), the following requirements are to be met:

1. Residential Construction. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to a minimum of one foot above the base flood elevation. Fully enclosed areas subject to flooding below the lowest floor are either prohibited or be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be certified by an Oregon registered/licensed professional engineer or architect or meet or exceed the following minimum criteria:

a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;

b. The bottom of all openings shall be no higher than one foot above grade; and

c. Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

2. Nonresidential Construction. New construction and/or substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated at or above the base flood elevation or, together with attendant utility and sanitary facilities, shall:

a. Be flood-proofed such that below the base flood level, the structure is watertight with walls substantially impermeable to the passage of water;

b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

c. Be certified by an Oregon registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans.

3. Elevated Nonresidential Structures. All elevated nonresidential structures not flood-proofed and with space below the lowest floor are either prohibited or must be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be certified by an Oregon registered/licensed professional engineer or architect or meet or exceed the following minimum criteria:

a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;

b. The bottom of all openings shall be no higher than one foot above grade; and

c. Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

4. Persons flood-proofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the flood-proofed level (e.g., a building flood-proofed to the base flood level will be rated as one foot below).

5. Manufactured Homes.

a. All manufactured homes placed or substantially improved on sites:

i. In a new manufactured home park or subdivision;

ii. Outside a manufactured home park or subdivision;

iii. In an expansion to an existing manufactured home park or subdivision; or

iv. In an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as the result of a flood, shall be elevated on a permanent foundation such that the finished floor of the manufactured home is elevated to a minimum 18 inches (46 cm) above the base flood elevation (BFE) and is securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.

b. Manufactured homes placed or substantially improved on sites in an existing manufactured home park or subdivision within Zones A1-30, AH, and AE on the city’s FIRM not otherwise subject to the above are to be elevated so that either:

i. The finished floor of the manufactured home is elevated to a minimum of 18 inches (46 cm) above the base flood elevation; or

ii. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches (92 cm) in height above grade and securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.

6. Recreational Vehicles. Recreational vehicles placed on sites in special flood hazard zones are required to:

a. Be on the site for fewer than 180 consecutive days;

b. Be licensed and ready for highway use on its wheels or jacking system and attached to the site only by quick disconnect type utility and security devices;

c. Have no permanently attached additions; or, alternatively,

d. Meet the elevation and anchoring requirements for manufactured homes.

7. Below-Grade Crawlspaces. Below-grade crawlspaces are allowed subject to standards found in FEMA's Technical Bulletin 11-01 "Crawlspace Construction for Buildings Located in Special Flood Hazard Areas":

a. The building must be designed and anchored to resist flotation, collapse, and lateral movement as a result of hydrodynamic and/or hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can be addressed through openings described below.

b. Crawlspace construction is not allowed in areas with flood velocities greater than five feet per second unless designed by an Oregon registered/licensed architect or professional engineer.

c. The crawlspace is an enclosed area below the base flood elevation (BFE) and must have openings equalizing hydrostatic pressures by allowing the automatic entry and exit of floodwaters with the bottom of each flood vent opening no more than one foot above the lowest adjacent exterior grade.

d. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.

e. Any building utility systems within the crawlspace must be elevated above BFE or designed so floodwaters cannot enter or accumulate within the system components. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.

f. The interior grade of a crawlspace below the BFE must not be more than two feet below the lowest adjacent exterior grade.

g. The height of the below-grade crawlspace measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall must not exceed four feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analysis and building code requirements for flood hazard areas.

h. There must be a drainage system providing for removal of floodwaters from the interior area of the crawlspace such that the area is drained within a reasonable time after a flood event. The system will vary as a result of the site gradient and other drainage characteristics. Possible options include natural drainage through porous, well-drained soils and installation of drainage systems such as perforated pipes, drainage tiles, gravel or crushed stone top allow for drainage by gravity or mechanical means.

i. The velocity of floodwaters at the site should not exceed five feet per second for any crawlspace. For velocities in excess of five feet per second, other foundation types should be used.

For more detailed information, refer to FEMA Technical Bulletin 11-01.

8. Floodway Not Established. Where a regulatory floodway has not been designated, no new construction, substantial improvement(s) or other development (including fill) is permitted within Zones A1-30 and AE on the city's FIRM, unless the cumulative effect(s) of the proposed development, when combined with other existing and anticipated development, does not increase the water surface elevation of the base flood more than one foot at any point within the city.

9. Floodway Established.

a. In areas where a regulatory floodway has been designated, no encroachments (including fill), new construction, substantial improvement(s) and/or other development shall occur unless certification by a registered professional civil engineer is provided demonstrating that said encroachments will not result in any increase in flood levels during a base flood discharge. All new construction and any substantial improvement(s) shall comply with all applicable flood hazard reduction provisions.

b. Projects for stream habitat restoration may be permitted in a floodway, provided:

i. The project qualifies for a Department of the Army, Portland District Regional General Permit for Stream Habitat Restoration (NWP-2007-1023);

ii. A qualified professional (a Registered Professional Engineer, staff of Natural Resources Conservation Service (NRCS) or staff of Oregon or federal fisheries, natural resources or water resources agencies) has provided a feasibility analysis and certification that the project was designed to keep any rise in 100-year flood levels to as close to zero as practically possible given the goals of the project; and

iii. No structures would be impacted by a potential rise in flood elevation; and

iv. An agreement to monitor the project, correct problems, and ensure that flood-carrying capacity remains unchanged is included as part of the local approval.

c. Manufactured dwellings may be located in floodways only under the following circumstances:

i. If there is an existing manufactured dwelling, placement was permitted at the time of the original installation and its continued use is not a threat to life, health, property, or the general welfare of the public; or

ii. A new manufactured dwelling is replacing an existing one where the original placement was permitted at the time and the replacement will not be a threat to life, health, property or the general welfare of the public; and

iii. The location of the dwelling meets all the following:

(A) Demonstration that the manufactured dwelling and any accessory building(s), structure(s) or other improvement(s) will not result in any increase in flood levels during the occurrence of a base flood discharge;

(B) The replacement dwelling and any accessory building(s)/structure(s) have a finished floor elevation of at least 18 inches (46 cm) above the BFE;

(C) The replacement dwelling is placed and secured to a foundation support system designed by an Oregon professional engineer or architect and approved by the city;

(D) The replacement dwelling, its foundation supports and any accessory building(s)/structure(s) or property improvement(s) do not displace water so as to cause a rise in water level or divert water in a manner likely to cause erosion/damage to other properties;

(E) The replacement dwelling is appropriately zoned; and

(F) Location of the replacement dwelling will not violate any other local, state or federal law.

10. Shallow Flooding Areas. The following restrictions apply in shallow flooding areas:

a. New construction and substantial improvements of residential structures and manufactured homes shall have the lowest floor (including basement) elevated above the highest grade adjacent to the building, a minimum of one foot above the depth number specified on the FIRM and at least two feet if no depth number is specified.

b. New construction and substantial improvements of nonresidential structures shall either:

i. Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or

ii. Together with attendant utility and sanitary facilities, be completely flood-proofed to or above that level such that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect.

c. Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

d. Recreational vehicles placed on sites must either:

i. Be on the site for fewer than 180 consecutive days; and

ii. Be fully licensed and ready for highway use, on its wheels or jacking system, be attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or

iii. Meet the elevation and anchoring requirements for manufactured homes set out above.

11. Critical Facilities.

a. Construction of new critical facilities shall, to the extent possible, be located outside the limits of the Special Flood Hazard Area (SFHA) (100-year floodplain).

b. Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above BFE or to the height of the 500-year flood, whichever is higher. Access to and from the facility should be protected to the height noted. Flood-proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible. (Ord. 10-2009 § 1 (Exh. A))

RESPONSE: All new construction shall meet the standards of this section. New residential construction shall be built with slab on grade foundations located 1 ft. minimum above the base flood elevation (BFE). New commercial construction shall be built with a slab on grade foundation at or above the BFE. The BFE used for design is 159.5 ft., which is the creek cross section obtained by averaging the BFE of 159 ft. downstream and the BFE of 160 ft. upstream. See the 2009 FEMA FIRM on sheet G-001 for BFE locations.

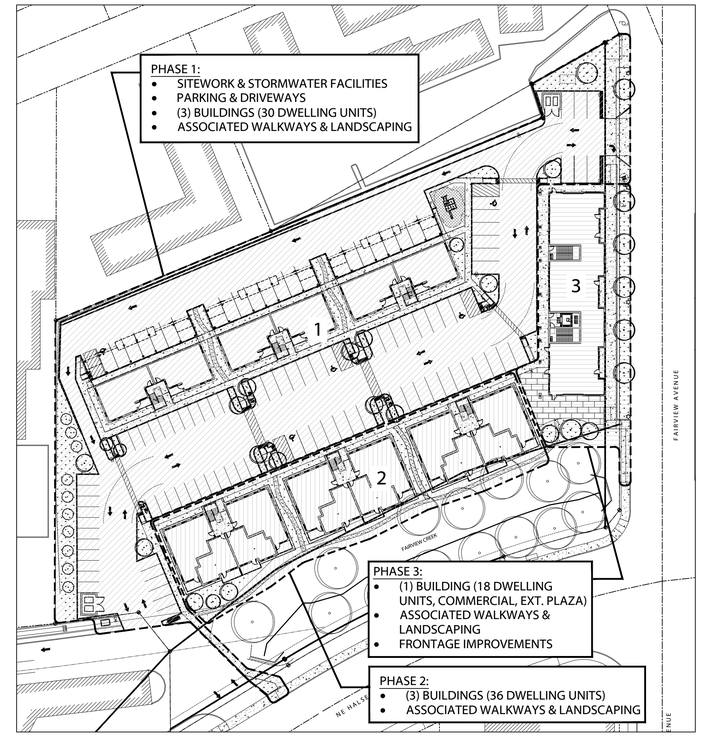
EXHIBIT C-1

HALSEY CROSSING

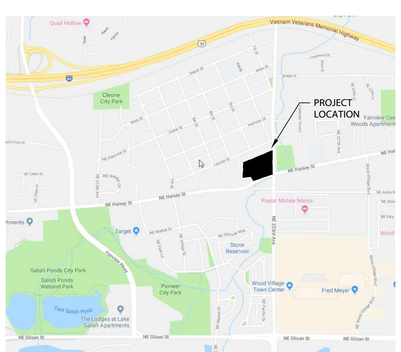
A MIXED USE AND MULTIFAMILY DEVELOPMENT

NW CORNER OF NE HALSEY ST. & NE 223RD AVE. (FAIRVIEW AVE), FAIRVIEW, OR.

DESIGN REVIEW



1 CONSTRUCTION PHASING PLAN - PROPOSED
SCALE: 1" = 50'-0"



LOCATION MAP
SCALE: N.T.S.

VICINTY MAP
SCALE: N.T.S.

SHEET INDEX

SHEET NUMBER	SHEET TITLE	ISSUE LOG: DESIGN REVIEW (10.12.18)	DESIGN REVIEW, UPDATED SUBMITTAL (11.15.18)		
GENERAL					
G-000	COVER SHEET	•	•		
G-001	SURVEY SITE PLAN, NATURAL RESOURCES AND FLOODPLAIN		•		
CIVIL					
C100	EXISTING BASIN PLAN	•			
C101	PROPOSED STORMWATER AND GRADING PLAN	•			
C150	STORMWATER DETAILS	•			
C151	STORMWATER DETAILS	•			
C200	UTILITY PLAN		•		
ARCHITECTURAL					
A-100	SITE ANALYSIS MAP	•	•		
A-101	SITE PLAN - PROPOSED	•	•		
A-221-A	EXTERIOR ELEVATIONS - BUILDING TYPE 'A' - PROPOSED	•			
A-221-B	EXTERIOR ELEVATIONS - BUILDING TYPE 'B' - PROPOSED	•			
A-221-C	EXTERIOR ELEVATIONS - BUILDING 'C' - PROPOSED	•	•		

PROJECT DESCRIPTION

A MIXED USE PROJECT WITH MULTIFAMILY RESIDENTIAL AND COMMERCIAL USES IS PROPOSED TO BE CONSTRUCTED IN (3) PHASES.

THE PROJECT FEATURES (7) BUILDINGS THAT PROVIDE (84) DWELLING UNITS TOTAL. ONE 4-STORY MIXED USE BUILDING CONTAINS (18) DWELLING UNITS ABOVE 4,400 SF GROUND-FLOOR COMMERCIAL SPACE WITH AN ADJACENT EXTERIOR PLAZA. THE (6) MULTIFAMILY BUILDINGS CONSIST OF (3) 3-STORY,10-UNIT BUILDINGS WITH TUCK UNDER PARKING AND (3) 3-STORY, 12-UNIT BUILDINGS.

A TOTAL OF (108) PARKING STALLS WILL BE PROVIDED; (84) STALLS WILL SERVE RESIDENTS AND (24) WILL BE PROVIDED FOR COMMERCIAL TENANTS.

(2) TRASH ENCLOSURES WILL BE CONSTRUCTED AND A SMALL PLAYGROUND PROVIDED FOR RESIDENTS. FRONTAGE IMPROVEMENTS ALONG 223RD AVE. ARE PROPOSED.

FAIRVIEW CREEK RUNS THROUGH THE SOUTHERN EDGE OF THE SITE. A 40-FT. RESOURCE PROTECTION AREA WILL BE MAINTAINED ON EITHER SIDE OF THE CREEK.

SITE INFORMATION

ADDRESS:	NW CORNER OF NE HALSEY & 223RD AVE (FAIRVIEW AVE) FAIRVIEW, OR 97024
PROPERTY ID's:	R320850 R321098 R517405
COUNTY:	MULTNOMAH
JURISDICTION:	CITY OF FAIRVIEW
FIRE DISTRICT:	GRESHAM FIRE
ZONING:	TOWN CENTER COMMERCIAL (TCC)
PROPOSED USE:	MIXED-USE & MULTIFAMILY
PROPOSED OCCUPANCY CLASSIFICATIONS:	GROUPS M, B, R-2 & U w/ Fire Sprinklers

PROJECT TEAM:

OWNER:
DEAN HURFORD
21935 NE HALSEY ST.
FAIRVIEW, OR 97024
TEL: (503) 730-7339
EMAIL: deanhurf@yahoo.com

ARCHITECT:
TIMOTHY BRUNNER
AXIS DESIGN GROUP
11104 SE STARK ST.
PORTLAND, OR 97216
TEL: (503) 284-0988
CONTACT: ERIN UPHAM
EMAIL: erinu@axisdesigngroup.com

CIVIL ENGINEER:
JACKSON CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA 98601
TEL: (360) 901-6031
CONTACT: DEVIN JACKSON
EMAIL: devin@jacksoncivil.com

SURVEYOR:
PLS ENGINEERING
2008 C STREET
VANCOUVER, WA 98663
TEL: (360) 944-6519
CONTACT: MIKE WEISENBORN
EMAIL: mike@plsengineering.com

TRAFFIC ENGINEER:
LANCASTER ENGINEERING
321 SW 4TH AVENUE, SUITE 400
PORTLAND, OR 97204
TEL: (503) 248-0313
CONTACT: WILL FARLEY
EMAIL: will@lancasterengineering.com

GEOTECH:
EARTH EARLY INC.
PO BOX 1512
RIDGEFIELD, WA 98642
TEL: (360) 600-6518
CONTACT: DON BRUNO

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HALSEY CROSSING
NEW MULTIFAMILY / MIXED USE PROJECT
NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040

DATE: 11-15-18
ISSUED FOR: DESIGN REVIEW

SHEET TITLE
COVER SHEET

SHEET NO.
G-000

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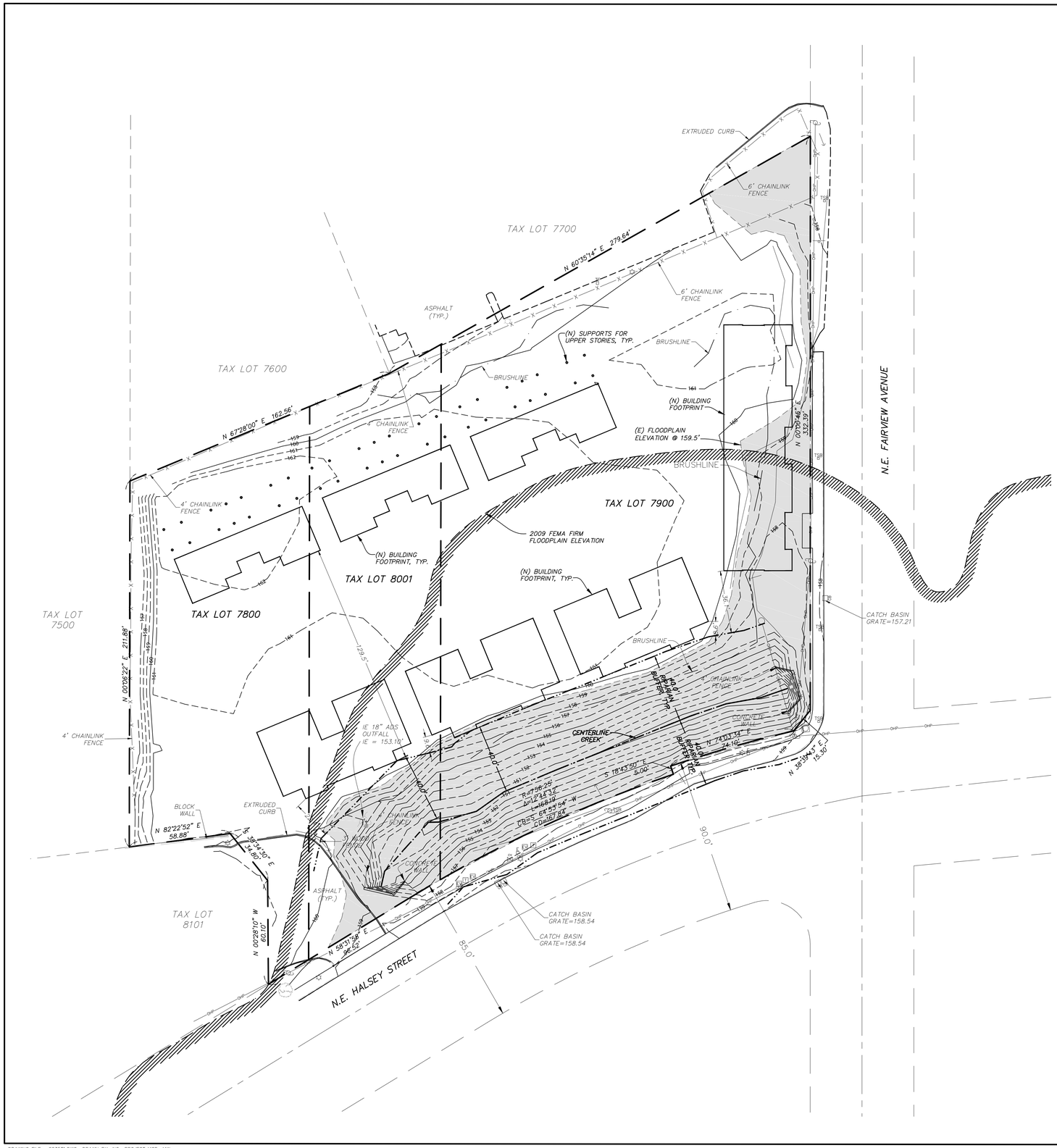
EXISTING CONDITIONS SURVEY

IN THE SE 1/4 OF SECTION 28
T. 1 N., R. 3 E., W.M.
MULTNOMAH COUNTY, OREGON

JOB NO.: 28.35
DATA COLLECT: JUNE 2018
DRAWING DATE: 07-25-18
SHEET 1 OF 1



LEGEND:

- INDICATES TRAFFIC SIGNAL BOX
- INDICATES TRAFFIC SIGNAL POLE
- INDICATES POWER POLE WITH DIRECTION OF OVERHEAD LINES
- INDICATES GUY ANCHOR
- INDICATES LIGHT POLE
- INDICATES SIGN
- INDICATES ELECTRIC VAULT
- INDICATES ELECTRIC SERVICE BOX
- INDICATES TRANSFORMER
- INDICATES CONTROL VALVE
- INDICATES CATCH BASIN
- INDICATES BOUNDARY
- INDICATES EDGE OF ASPHALT
- INDICATES EDGE OF CONCRETE
- INDICATES EDGE OF GRAVEL
- INDICATES 5 FOOT INTERVAL CONTOUR
- INDICATES 1 FOOT INTERVAL CONTOUR
- INDICATES FENCE LINE
- INDICATES OVER HEAD POWER

30 15 0 30 45 60
SCALE 1 INCH = 30 FEET

2008 C Street, Vancouver, WA 98663 | PH (360) 944-6519

PLS ENGINEERING

DRAWING FILE: 283571.DWG DRAWN BY: NG PROJECT MGR: MW

NATURAL RESOURCE REGULATIONS

NARRATIVE

THE APPLICANT PROPOSES TO DEVELOP THIS SITE WITH A MIXED USE PROJECT CONSISTING OF 7 TOTAL BUILDINGS, COMPRISING 84 RESIDENTIAL DWELLING UNITS AND 4,400 SF OF GROUND-FLOOR COMMERCIAL SPACE. ADDITIONALLY, 108 TOTAL PARKING SPACES ARE PROPOSED, ALONG WITH 2 TRASH ENCLOSURES, NEW DRIVEWAYS, SIDEWALKS, CURBS, STREET TREES AND LANDSCAPING.

THE WOOD-FRAME BUILDINGS ARE PROPOSED TO BE CLAD WITH THE FOLLOWING MATERIALS: BRICK, CEMENTITIOUS VERTICAL SIDING AND SIDING PANELS, HORIZONTAL-RIB METAL PANELS AND WOOD TRIM. EXTERIOR BALCONIES AND ENTRYWAYS ARE PROPOSED TO FEATURE THE FOLLOWING MATERIALS: METAL RAILINGS AND AWNINGS. SITE WORK PROPOSED INCLUDES THE FOLLOWING MATERIALS: CONCRETE SIDEWALKS, ASPHALTIC CONCRETE DRIVEWAYS AND CRUSHED GRANITE PATHWAYS.

THE PURPOSE OF THIS DEVELOPMENT IS TO PROVIDE THE COMMUNITY WITH MARKET-RATE HOUSING, VITAL COMMERCIAL SPACE WITH PUBLIC PLAZA AND THE PRESERVATION OF THE NATURAL AREA ALONG FAIRVIEW CREEK AS IT RUNS THROUGH THE SITE.

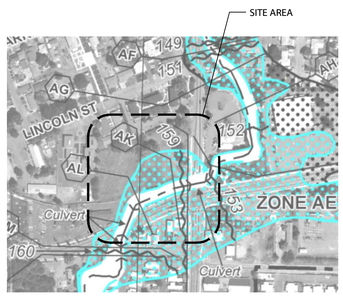
IMPACTS TO THE CREEK AND ASSOCIATED RIPARIAN ZONE ARE MINIMIZED BY LOCATING BUILDING FOOTPRINTS OUTSIDE OF THIS AREA AND DETAINING AND FILTERING STORMWATER BEFORE RELEASE INTO THE CREEK. SEE SHEETS A-101 SITE PLAN-PROPOSED AND C101 PROPOSED STORMWATER AND GRADING PLAN FOR ADDITIONAL DESCRIPTION OF PROPOSED DEVELOPMENT.

GENERAL NOTES

1. THIS EXISTING VACANT SITE WAS DOCUMENTED BY SURVEY IN JUNE 2018. SURVEY INCLUDED EXISTING GRADES, THE CENTERLINE LOCATION OF FAIRVIEW CREEK AND SOME UTILITIES.
2. THE 40-FT. RESOURCE PROTECTION AREA HAS BEEN DETERMINED, BY THE ARCHITECT, BY OFFSETTING THE CREEK CENTERLINE BY 40-FT. ON EITHER SIDE, IN 2-DIMENSIONAL PLAN VIEW.
3. PORTIONS OF THIS SITE ARE LOCATED IN THE FLOODPLAIN. THE EXISTING FLOODPLAIN PER THE 2018 SITE SURVEY IS SHOWN IN ADDITION TO THE OFFICIAL FLOODPLAIN AREA PER FEMA'S 2009 FIRM MAP. RECENT, PERMITTED SITE GRADING HAS RAISED SITE ELEVATIONS SINCE THE DATE THE FIRM MAP WAS CREATED. DURING CONSTRUCTION OF THIS PROJECT, A LETTER OF MAP AMENDMENT (LOMA) IS TO BE SUBMITTED TO FEMA TO REQUEST UPDATE TO THE FIRM MAP.
4. FOR ADDITIONAL SITE PROPERTY IMPROVEMENTS, UTILITIES AND LANDSCAPING, PLEASE SEE A-101 SITE PLAN-PROPOSED AND C200 UTILITY PLAN.
5. FOR PRELIMINARY GRADING, SEE C101 PROPOSED STORMWATER AND GRADING PLAN. A COMPLETE SITE GRADING PLAN IS TO BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL.
6. FOR PRELIMINARY LANDSCAPE INFORMATION, SEE SHEET A-101 SITE PLAN - PROPOSED. A COMPLETE LANDSCAPE PLAN IS TO BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL.

LEGEND

(E) AREA OF SITE IN FLOODPLAIN (AT OR BELOW 159.5-FT. ELEVATION)



FEMA FIRM MAP, 12/18/2009

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HALSEY CROSSING
NEW MULTIFAMILY / MIXED USE PROJECT
NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040
DATE: 11-15-18
ISSUED FOR: DESIGN REVIEW
SHEET TITLE
SURVEY SITE PLAN, NATURAL RESOURCES & FLOODPLAIN
SHEET NO.
G-001

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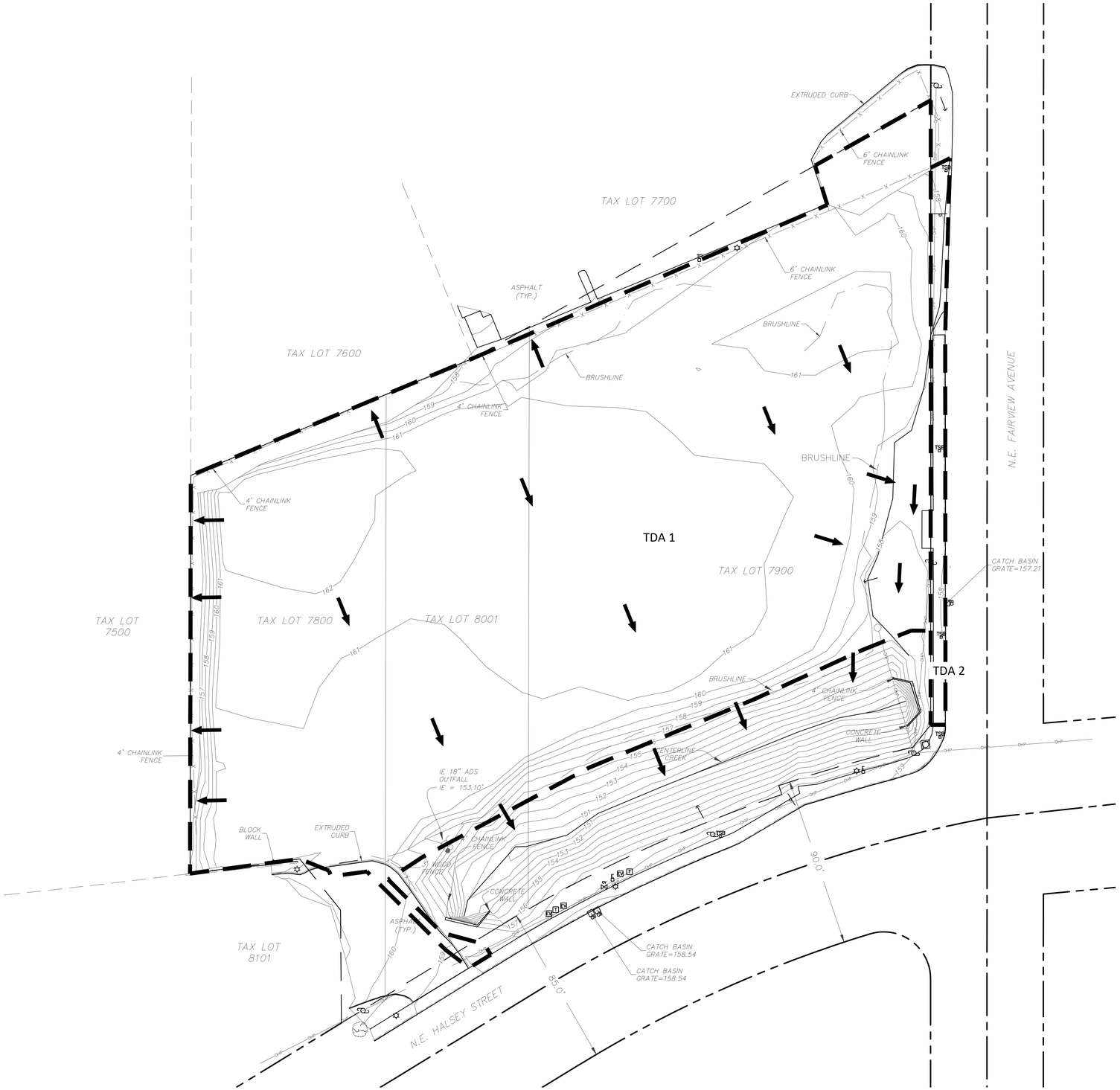
EXHIBIT C-3



THRESHOLD DISCHARGE AREA

IMPERVIOUS AREA: 0 ACRE

PERVIOUS AREA: 2.14 ACRE (93,218 SF)

GROUNDCOVER : POOR QUALITY GRASS AND SHRUBS

FLOW/DISCHARGE: SITE GENERALLY FLOWS TO THE SOUTH AND DISCHARGES RUNOFF TO FAIRVIEW CREEK

CIVIL LEGEND

DRAINAGE FLOW ARROW

TDA BOUNDARY

N

0 30 60 Feet

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

PRELIMINARY - NOT FOR CONSTRUCTION

EXISTING BASIN PLAN

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

DATE: OCT 3, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER 0022

SHEET **C100**

GENERAL NOTES

1. ALL PROPOSED STORMWATER FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
2. WATER QUALITY TREATMENT SHALL BE PROVIDED FOR IMPERVIOUS ROADWAY AND DRIVEWAY SURFACES BY MECHANICAL FILTERS.
3. THERE ARE NO KNOWN WETLANDS ON SITE.
4. STORMWATER RUNOFF FROM ROOF AREAS SHALL BYPASS TREATMENT.

THRESHOLD DISCHARGE AREA

PAVEMENT: 0.98 ACRE (42,689 SF)

SIDEWALK: 0.33 ACRE (14,375 SF)

ROOF: 0.67 ACRE (29,185 SF)

LANDSCAPE: 0.16 ACRE (6,970 SF)

FLOW/DISCHARGE: SITE PROPOSES TO TREAT, DETAIN, AND DISCHARGE RUNOFF TO FAIRVIEW CREEK

PROPOSED FACILITIES

(#)

1. DETENTION: 150 STORMTECH SC740 CHAMBERS INSIDE A ROCK GALLERY
2. TREATMENT: PERKFILTER CATCH BASINS FOR A TOTAL OF 12 FILTERS

CIVIL LEGEND

PROPOSED STORM SEWER MANHOLE

PROPOSED PERKFILTER CATCH BASIN

DRAINAGE FLOW ARROW

PROPOSED STORMWATER UNDERGROUND DETENTION

TDA BOUNDARY

PROPOSED STORM PIPE

N

0 30 60 Feet

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

PROPOSED STORMWATER AND GRADING PLAN

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212
SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

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EXPIRES: 06/30/19

JOB NUMBER
0022

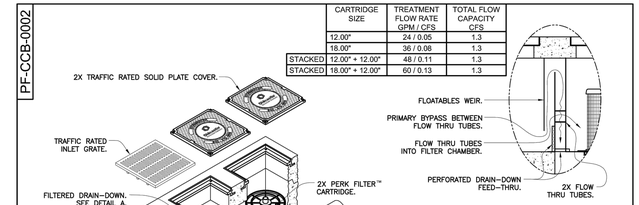
SHEET
C101

PRELIMINARY - NOT FOR CONSTRUCTION

EXHIBIT C-5

PF-CCB-0002

	CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
	12.00"	24 / 0.05	1.3
	18.00"	36 / 0.08	1.3
STACKED	12.00" + 12.00"	48 / 0.11	1.3
STACKED	18.00" + 12.00"	60 / 0.13	1.3

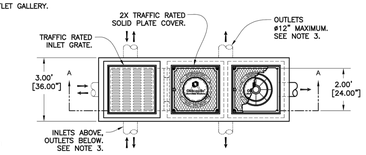


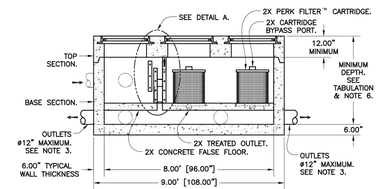
MINIMUM DEPTHS (SEE NOTE 6)

	CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
	12.00"	39	41	43	45
	18.00"	46	48	50	52
STACKED	12.00" + 12.00"	56	58	60	62
STACKED	18.00" + 12.00"	63	65	67	69

Notes:

1. Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
2. Perk Filter™ Catch basin shall be supplied with traffic rated (H20) bicycle-proof grates and solid plate cover.
3. Inlet pipe(s) may enter device on three sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum.
4. Inlet chamber shall be supplied with a drain-down device designed to remove standing water between storm events.
5. Perk Filter™ cartridge shall be maintained in accordance with manufacturer recommendations.
6. For depths less than the specified minimum contact Oldcastle® Stormwater Solutions for engineering assistance.





Media Filtration

Perk Filter™
Concrete Catch Basin
Double Cartridge
(End Grate Configuration)

Oldcastle® Stormwater Solutions
7302 I Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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DRAWING NO.	REV.	ECO	DRN.	CHK.	DATE	SHEET
PF-CCB-0002	J	ECO--0144	ZHD	8/26/16	JPR 6/4/08	SHEET 1 OF 1

STORMWATER DETAILS

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212
SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
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BATTLE GROUND, WA
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WWW.JACKSONCIVIL.COM

DATE: OCT 3, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2016 DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER
0022

SHEET
C150

PRELIMINARY - NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

EXHIBIT C-5

ADVANCED DRAINAGE SYSTEMS, INC.

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH DC-780.
2. CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. 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.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES 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 AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE DC-780 CHAMBER SYSTEM

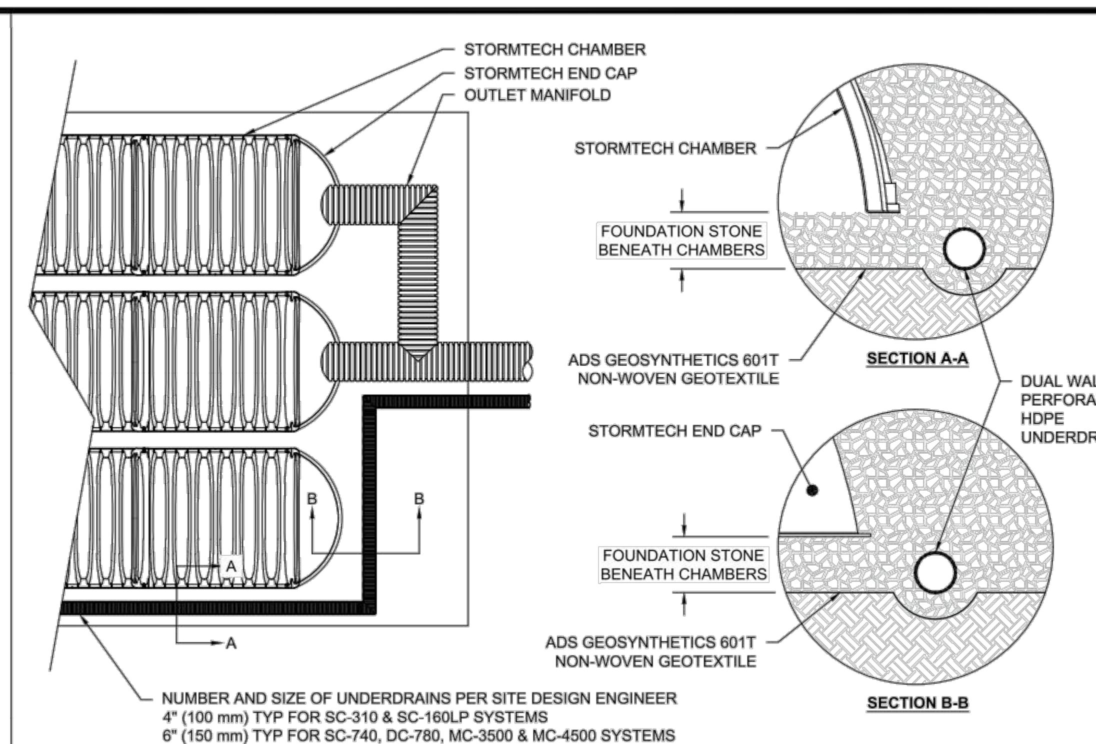
1. STORMTECH DC-780 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH DC-780 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN 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.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. 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

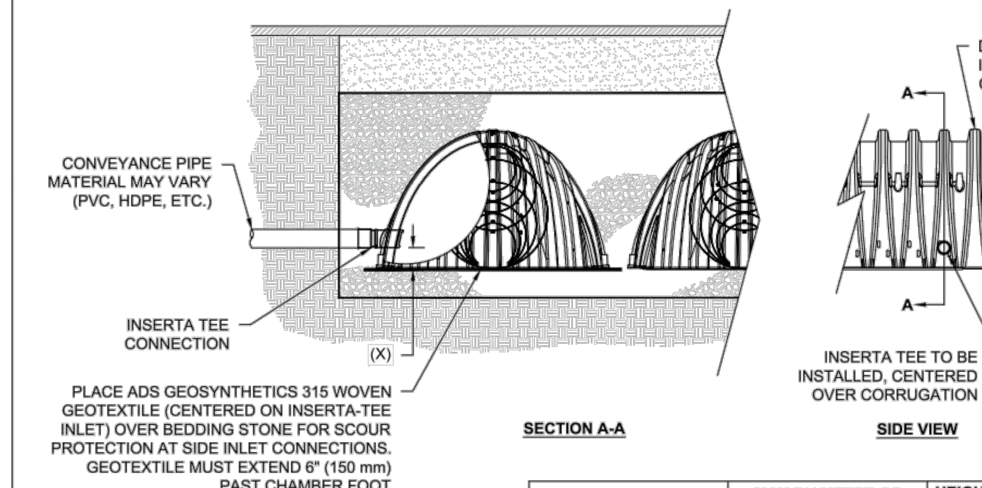
1. STORMTECH DC-780 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER DC-780 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. 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 THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY 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.



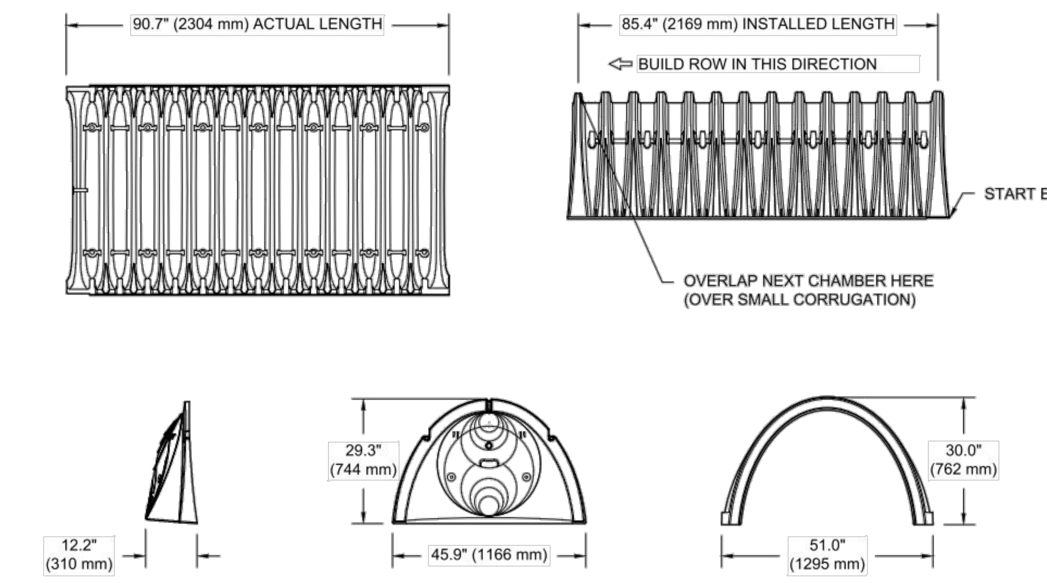
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

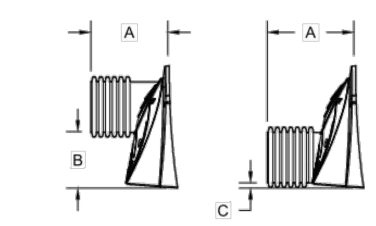
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	46.2 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.20 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, 9" (229 mm) BELOW, AND 6" (152 mm) BETWEEN CHAMBERS



STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

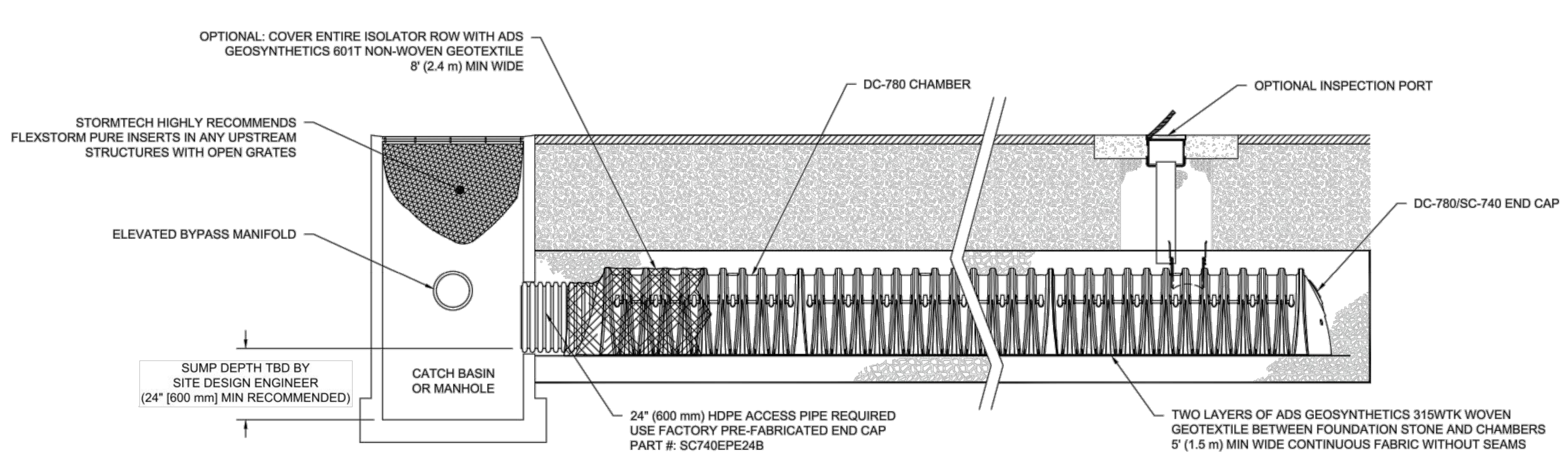
PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T / SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T/ SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

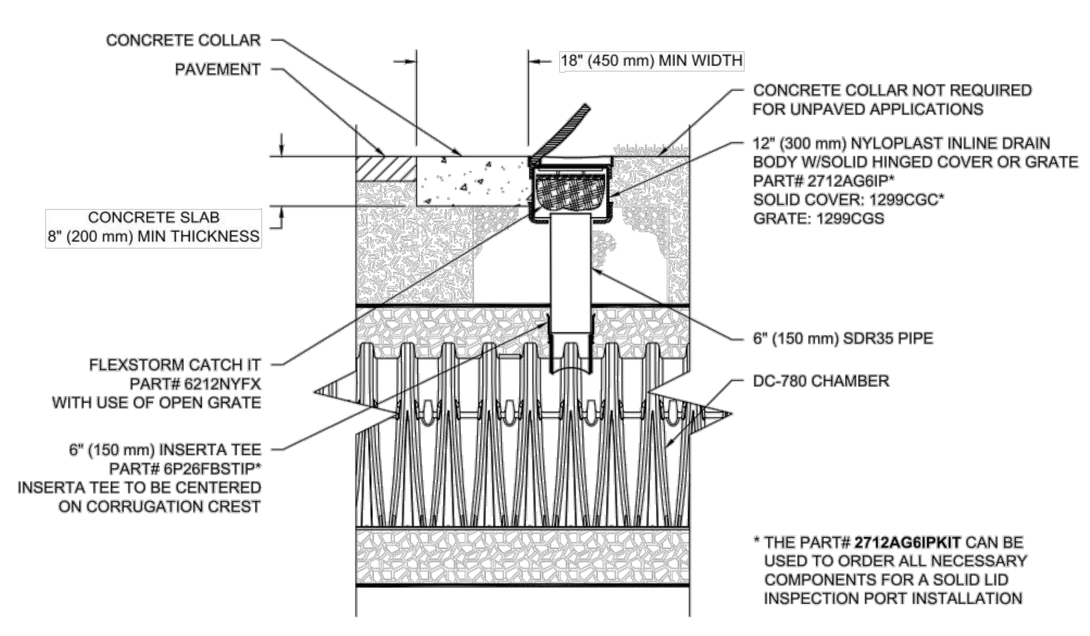
* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 DC-780 TECHNICAL SPECIFICATIONS



3 DC-780 ISOLATOR ROW DETAIL



* THE PART# **2712AG6IPKIT** CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW 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 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 ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW 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 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

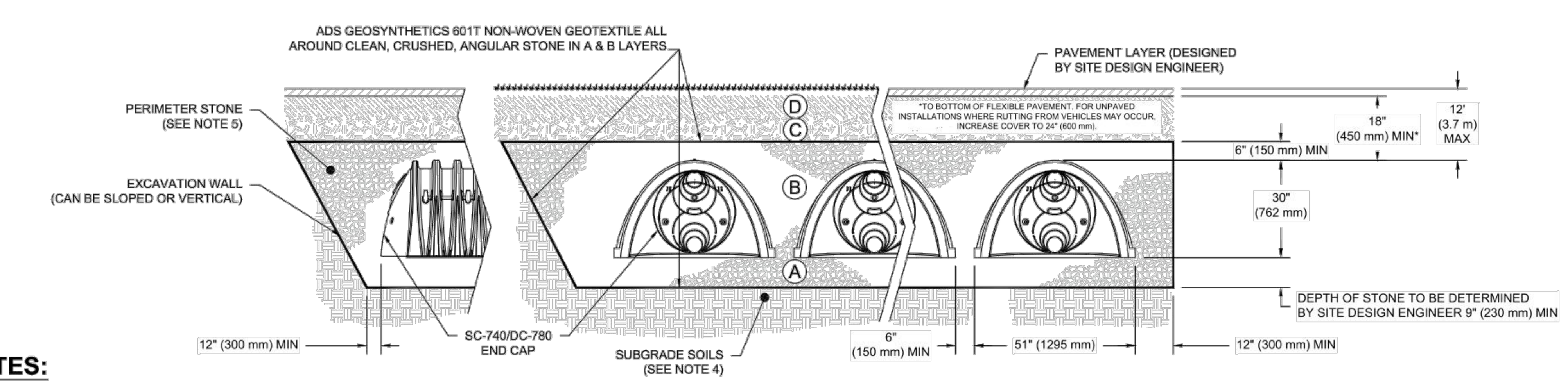
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

4 DC-780 6" (150 mm) INSPECTION PORT DETAIL

ACCEPTABLE FILL MATERIALS: STORMTECH DC-780 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 18" (450 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 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
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, 357, 4, 467, 5, 56, 57	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, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. 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".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. 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.



NOTES:

1. DC-780 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. DC-780 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. 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.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. 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.

NOT FOR CONSTRUCTION

1 DC-780 CROSS SECTION DETAIL

DRAWN: JLM | DATE: 08/28/18
REVIEWED: JLM | PROJECT NO:
REV: | NOT TO SCALE

DC-780 STANDARD DETAILS

StormTech® Detention • Retention • Water Quality
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

ADVANCED DRAINAGE SYSTEMS, INC.

SHEET 1 OF 1

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON REFERENCED STANDARDS. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT, UNLESS THE PLANS ARE SIGNED AND SEALED BY THE SITE DESIGN ENGINEER. THE SITE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION AND SEALING THE DOCUMENT. IT IS THE SITE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

PRELIMINARY - NOT FOR CONSTRUCTION

STORMWATER DETAILS

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

DATE: OCT 3, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2016 DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER 0022

SHEET C151

EXHIBIT C-6

WATER GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION AND INSTALLATION FOR WATER FACILITIES SHALL CONFORM TO CITY OF FAIRVIEW REQUIREMENTS.
2. MAINTAIN A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN SEWER AND WATER LINES.
3. MAINTAIN AN 18" HORIZONTAL SEPARATION BETWEEN SERVICE TAPS ON A WATER MAINLINE.
4. REMOVE EXISTING WATER METER AND CAP LINE.

SANITARY SEWER GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION AND INSTALLATION FOR SANITARY SEWER FACILITIES SHALL CONFORM TO CITY OF FAIRVIEW REQUIREMENTS.
2. MAINTAIN A MINIMUM OF 10' HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN SEWER AND WATER MAINLINES.

KEYED CONSTRUCTION NOTES

1. CORE EXISTING MANHOLE AND INSTALL SANITARY SEWER LINE.
2. TEE INTO EXISTING WATER MAIN AND INSTALL VALVE AND WATER WATER METER INSIDE OF RIGHT-OF-WAY.
3. INSTALL FIRE HYDRANT WITH 4" LINE. FIRE HYDRANT SHALL BE MODEL HARRINGTON HPHA50-45NHWCAP AND INCLUDE STORZ QUICK ADAPTERS ON THE LARGE PORT.
4. INSTALL SANITARY SEWER MANHOLE.

UTILITIES PLAN

HALSEY CROSSING

PRELIMINARY STORMWATER AND GRADING PLANS

FAIRVIEW OREGON

TAX LOT: R-321104 & R-321212

SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
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DATE: OCT 3, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

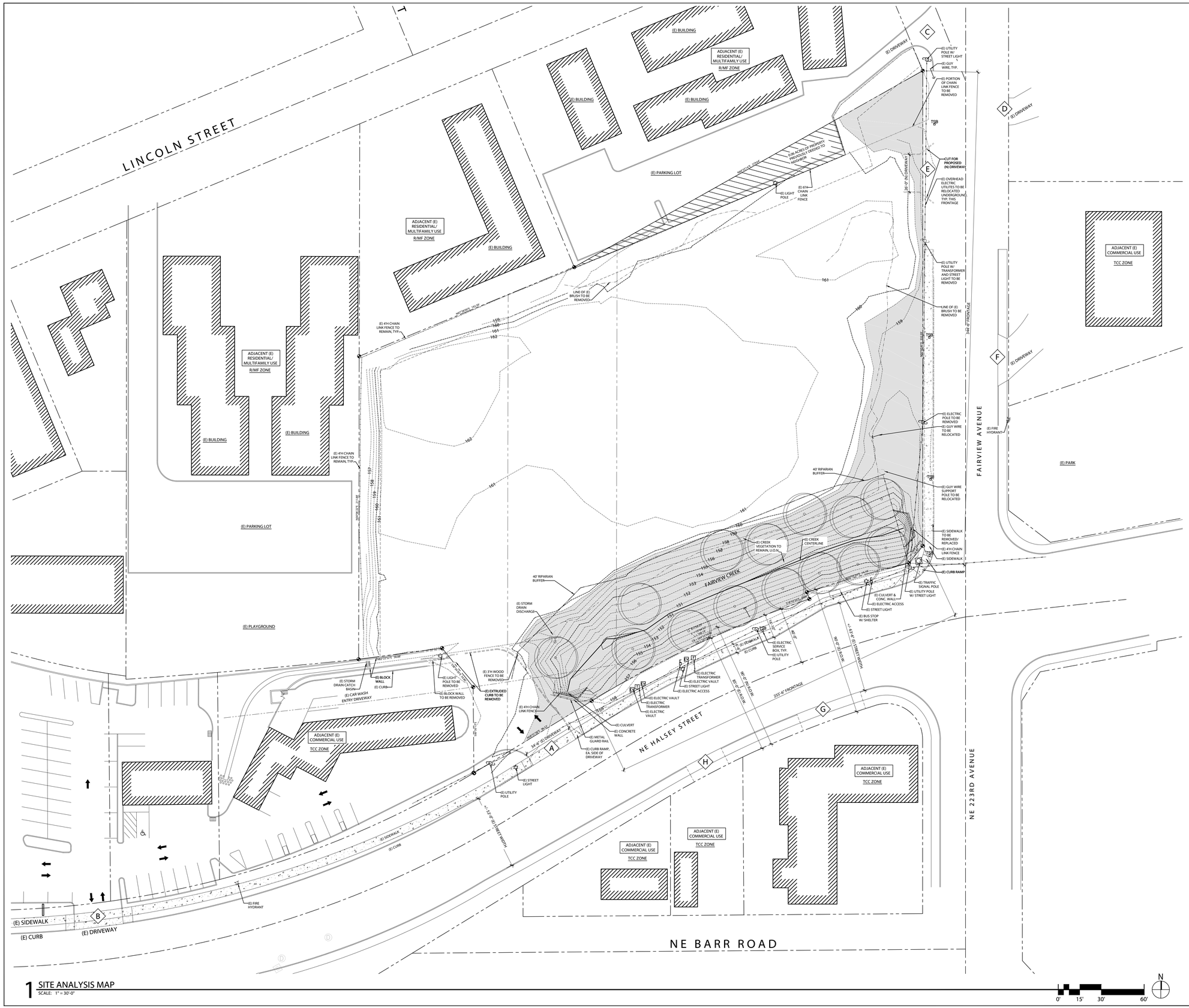
EXPIRES: 06/30/19

JOB NUMBER
0022

SHEET
C200

PRELIMINARY - NOT FOR CONSTRUCTION

EXHIBIT C-7



1 SITE ANALYSIS MAP
SCALE: 1" = 30'-0"

0' 15' 30' 60'

SITE PLAN LEGEND

- PROPERTY LINE
- CENTER LINE OF STREET
- TREE - SEE LANDSCAPE NOTES, SHEET A-101

DRIVEWAY SPACING NOTES

#	DISTANCE	DESCRIPTION
A.	295'	(E) DRIVEWAY C.L. TO STREET INTERSECTION C.L.
B.	336'	(E) DRIVEWAY C.L. TO (E) DRIVEWAY C.L. @ A
C.	99'	(E) DRIVEWAY C.L. TO (N) DRIVEWAY C.L. @ E
D.	43'	(E) DRIVEWAY C.L. TO (N) DRIVEWAY C.L. @ E
E.	310'	(N) DRIVEWAY C.L. TO STREET INTERSECTION C.L.
F.	130'	(E) DRIVEWAY C.L. TO (N) DRIVEWAY C.L. @ E
G.	190'	(E) DRIVEWAY C.L. TO (E) DRIVEWAY C.L. @ A
H.	89'	(E) DRIVEWAY C.L. TO (E) DRIVEWAY C.L. @ A

LEGEND

(E) AREA OF SITE IN FLOODPLAIN (AT OR BELOW 159.5-FT. ELEVATION)

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21935 NE HALSEY ST.
FAIRVIEW, OR 97024
TEL: (503) 730-7339
EMAIL: deanhurf@yahoo.com

ARCHITECT:
TIMOTHY BRUNNER
AXIS DESIGN GROUP
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PORTLAND, OR 97216
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321 SW 4TH AVENUE, SUITE 400
PORTLAND, OR 97204
TEL: (503) 248-0313
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HALSEY CROSSING NEW MULTIFAMILY / MIXED USE PROJECT

NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

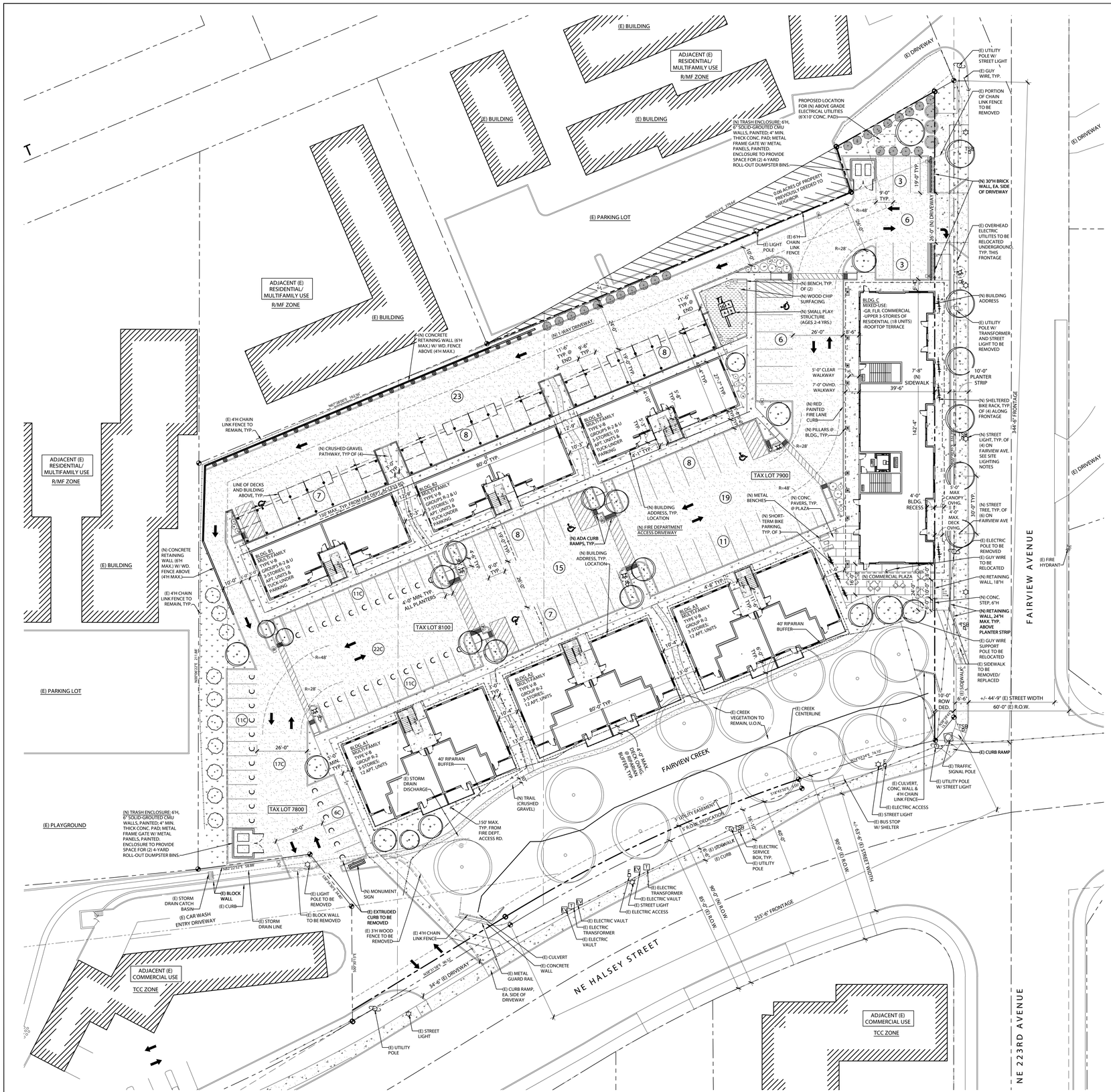
No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040
DATE: 11-15-18
ISSUED FOR: DESIGN REVIEW

SHEET TITLE
SITE ANALYSIS MAP

SHEET NO.
A-100

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\18-040 A-100 & 101 - Site Analysis Map & Proposed Plan.dwg @ Plot Date: Nov 15 18 @ Time: 12:01 PM



1 SITE PLAN - PROPOSED
SCALE: 1" = 25'-0"

SITE LIGHTING NOTES

1. A COMPLETE SITE LIGHTING PLAN TO BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL. SITE LIGHTING TO MEET ALL CODE REQUIREMENTS OF MID-COUNTY LIGHTING DISTRICT AND THE CITY OF FAIRVIEW.
2. STREET LIGHT LUMINAIRE MOUNTING HEIGHTS TO BE 16-FT. STREET LIGHTS TO BE LOCATED APPROXIMATELY 18" BEHIND THE STREET CURB WITH AN 80-90-FT. POLE SPACING.
3. STREET LIGHT FIXTURE TO BE HOLOPHANE WASHINGTON POST-TOP FULL CUTOFF LED SERIES: WFCL2-P50-30K-AS-BK-L3-S-P7-A0 (MODEL PICTURED TO THE RIGHT)

4. MINIMUM AVERAGE ILLUMINANCE TO BE PROVIDED: 0.45-FOOTCANDLE. MAXIMUM AVERAGE-TO-MINIMUM RATIO: 4.0

LANDSCAPE NOTES

1. LANDSCAPING SHOWN IS FOR GENERAL PURPOSES ONLY. A COMPLETE LANDSCAPE PLAN IS TO BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL.
2. ALL SITE LANDSCAPING IS TO MEET ALL REQUIREMENTS OF FMC 19.163, AND WILL INCLUDE THE FOLLOWING:
   A. LOCATIONS, SIZES AND SPECIES OF PROPOSED PLANT MATERIALS
   B. PROPOSED PERVIOUS SURFACE MATERIALS
   C. PROPOSED PLAY AREA EQUIPMENT AND SURFACING
   D. SPECIFICATIONS FOR SOIL AT THE TIME OF PLANTING
   E. STREET TREE SPECIFICATIONS, INCLUDING SIZE, SPECIES, SOIL PREPARATION, PLANTING & CARE. STREET TREES ARE TO COMPLY WITH FMC 19.163.040 AND THE MULTNOMAH COUNTY ROW STANDARDS.
3. IRRIGATION IS TO BE PROVIDE THROUGHOUT THE SITE TO LANDSCAPED AREAS.
4. THERE ARE NO EXISTING MATURE AND PROTECTED TREES ON SITE OUTSIDE THE FAIRVIEW CREEK RESOURCE PROTECTION AREA.
5. LANDSCAPING INSIDE THE FAIRVIEW CREEK RESOURCE PROTECTION AREA WILL COMPLY WITH FMC 19.106 AND BE LIMITED TO THE FOLLOWING:
   A. REMOVAL OF INVASIVE VEGETATION (300 SF MAX. PER YEAR)
   B. LIMITED TREE PRUNING OF TREES WITH TRUNKS GREATER THAN 6" IN DIAMETER.
   C. PLANTING OF NATIVE VEGETATION
   D. INSTALLATION OF REQUIRED STORM MANAGEMENT FACILITIES.
   E. INSTALLATION OF A PRIVATE TRAIL PER PLAN.

SITE PLAN LEGEND

- PROPERTY LINE
- CENTER LINE OF STREET
- LINE OF EASEMENT
- FENCE
- (E) OVERHEAD POWER LINES
- (N) FIRE HYDRANT, U.O.N.
- (N) FIRE DEPARTMENT CONNECTION
- DIRECTIONAL ARROW - PAINTED
- DENOTES NUMBER OF PARKING SPACES
- C DENOTES COMPACT PARKING SPACE
- (N) POLE-MOUNTED LIGHT FIXTURE - SEE SITE LIGHTING PLANS
- (N) BIKE RACK
- CONCRETE PAVING
- ASPHALTIC CONCRETE PAVING
- LANDSCAPING - SEE LANDSCAPE NOTES
- TREE - SEE LANDSCAPE NOTES
- SHRUBS - SEE LANDSCAPE NOTES
- SMALL PLANTS - SEE LANDSCAPE NOTES

SITE PLAN GENERAL NOTES

1. BUILDING AND SITE SIGNAGE IS TO COMPLY WITH FMC 19.170 AND WILL BE SUBMITTED UNDER SEPARATE PERMIT.
2. PORTIONS OF THIS SITE ARE LOCATED IN THE FLOODPLAIN. FOR ADDITIONAL INFORMATION, SEE SHEET G-001.
4. AT NEW FIRE HYDRANTS, BLUE REFLECTIVE MARKERS ARE TO BE INSTALLED ADJACENT AND TO THE SIDE OF THE CENTERLINE OF THE ACCESS ROADWAY.
5. NEW FIRE DEPT. ACCESS DRIVEWAY SHALL BE DESIGNED TO SUPPORT AN APPARATUS WEIGHING 75,000 LB. GROSS VEHICLE WEIGHT; AN ENGINEER'S LETTER TO BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL.
6. A FIRE FLOW TEST IS TO BE CONDUCTED AND A REPORT IS TO BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL.
7. BUILDING ADDRESSES TO BE LOCATED PER PLAN AND SHALL BE 6"H MIN.; APARTMENT NUMBERS TO BE 4"H MIN.; TEMPORARY BUILDING ADDRESSES TO BE PROVIDED AT EACH CONSTRUCTION ENTRANCE PRIOR TO CONSTRUCTION ACTIVITIES.
8. ALL NEW BUILDINGS TO BE PROVIDED WITH AUTOMATIC FIRE SPRINKLER COVERAGE THROUGHOUT.
9. ALL NEW SIDEWALKS, PATHWAYS, DRIVEWAY APRONS AND CURB RAMPS ARE TO CONFORM TO ADA STANDARDS.
10. MAILBOX LOCATIONS WILL BE PROVIDED AT THE TIME OF BUILDING PERMIT SUBMITTAL. MAILBOXES WILL BE OF AN APPROVED, STANDARD DESIGN TYPE AND PLANS WILL BE SUBMITTED FOR APPROVAL BY USPS.

SITE CONDITIONS

SITE AREA (AFTER DEDICATIONS):			
LOT 7800:		25,778 SF	23.4%
LOT 8100:		22,340 SF	20.3%
LOT 7900:		61,966 SF	56.3%
TOTAL SITE AREA:	(2.53 ACRES)	110,084 SF	100.0%
PROPOSED PERVIOUS SITE AREA:			
LANDSCAPE AREA:		12,974 SF	11.8%
CREEK & RIPARIAN BUFFER:		17,737 SF	16.1%
OTHER PERVIOUS AREA:		6,825 SF	6.2%
TOTAL PERVIOUS AREA:		30,800 SF	34.1%
PROPOSED IMPERVIOUS SITE AREA:			
BUILDING FOOTPRINT:			
BUILDING A1:		3,561 SF	3.2%
BUILDING A2:		3,561 SF	3.2%
BUILDING A3:		3,561 SF	3.2%
BUILDING B1:		2,031 SF	1.8%
BUILDING B2:		2,031 SF	1.8%
BUILDING B3:		2,031 SF	1.8%
BUILDING C:		5,400 SF	4.9%
ASPHALT PARKING AREA:		44,603 SF	40.5%
HARDSCAPE AREA:		11,105 SF	10.1%
TOTAL IMPERVIOUS AREA:		72,395 SF	65.9%
PROPOSED DWELLING COUNT:			
BUILDING A1:		12 UNITS	
BUILDING A2:		12 UNITS	
BUILDING A3:		12 UNITS	
BUILDING B1:		10 UNITS	
BUILDING B2:		10 UNITS	
BUILDING B3:		10 UNITS	
BUILDING C:		18 UNITS	
TOTAL DWELLING UNITS:		84 UNITS	
AUTOMOBILE PARKING:			
MIN. REQUIRED RESIDENTIAL PARKING:		0 SPACES	
MIN. REQUIRED COMMERCIAL PARKING:		0 SPACES	
PROPOSED RESIDENTIAL PARKING:		84 SPACES	
PROPOSED COMMERCIAL PARKING:		24 SPACES	
TOTAL AUTOMOBILE PARKING:		108 SPACES	
% COMPACT SPACES PROPOSED:		36.1%	
BIKE PARKING:			
RESIDENTIAL:			
PROPOSED SHORT-TERM:		2 SPACES PER EA. OF 6 BUILDINGS TOTAL: 12 SHORT-TERM SPACES	
PROPOSED LONG-TERM:		12 SPACES PER EA. OF BUILDINGS TOTAL: 72 LONG-TERM SPACES	
COMMERCIAL:			
PROPOSED SHORT-TERM:		7 SPACES (4 SHELTERED, 3 UNSHELTERED)	
PROPOSED LONG-TERM:		PER CODE UPON COMMERCIAL TENANT SPACE BUILD OUT	
PARKING LOT LANDSCAPING:			
PROPOSED PARKING LANDSCAPE AREA:		5,970 SF (5.4%)	
REQUIRED # OF PARKING LOT TREES:		17	
PROPOSED # OF PARKING LOT TREES:		17	
PROPOSED BUILDING AREA:			
BUILDING A1:		11,221 SF	
BUILDING A2:		11,221 SF	
BUILDING A3:		11,221 SF	
BUILDING B1:		11,452 SF	
BUILDING B2:		11,452 SF	
BUILDING B3:		11,452 SF	
BUILDING C:		24,142 SF	
TOTAL BUILDING AREA:		92,161 SF	
FLOOR AREA RATIO (FAR):			
MAXIMUM ALLOWABLE FAR:		1.00	
PROPOSED FAR:		0.84	

EXHIBIT C-8

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HALSEY CROSSING NEW MULTIFAMILY / MIXED USE PROJECT

NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040
DATE: 11-15-18
ISSUED FOR: DESIGN REVIEW
SHEET TITLE
SITE PLAN - PROPOSED
SHEET NO.

A-101

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\18-040 A-100 & 101 - Site Analysis Map & Site Plan Proposed.dwg @ Plot Date: Nov 19 18 @ Time: 11:02 AM

EXHIBIT C-9

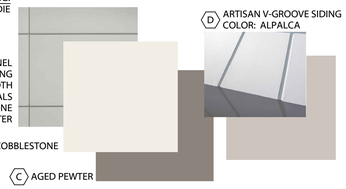
EXTERIOR MATERIALS

BRICK VENEER:
MANUF: PACIFIC CLAY
STYLE: EMPEROR
PATTERN: RUNNING BOND (1/3)

A CHARCOAL

CEMENTICIOUS SIDING:
MANUF: JAMES HARDIE

HARDIPANEL
VERTICAL SIDING
TEXTURE: SMOOTH
WITH 1" REVEALS
COLORS: COBBLESTONE
& AGED PEWTER



D ARTISAN V-GROOVE SIDING
COLOR: ALPALCA

B COBBLESTONE

C AGED PEWTER

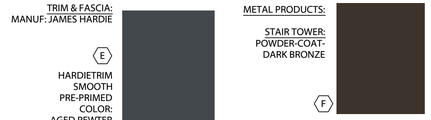
TRIM & FASCIA:
MANUF: JAMES HARDIE

E

HARDIETRIM
SMOOTH
PRE-PRIMED
COLOR:
AGED PEWTER

METAL PRODUCTS:

STAIR TOWER:
POWDER-COAT-
DARK BRONZE

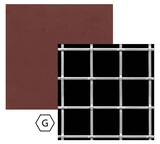


F

METAL PRODUCTS:

DECK RAILINGS
METAL TUBE STEEL FRAME
FINISH: POWDER COAT
COLOR: MATCH TO AEP SPAN
COOL COLONIAL RED (BLDG C)

INFILL PANELS
MANUF: McNICHOLS
STYLE: WOVEN WIRE
2" SQUARE OPENING
FINISH: POWDER COAT
TO MATCH RAILINGS



G

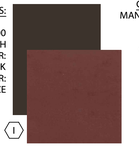
RESIDENTIAL WINDOWS:

MANUF: MILGUARD
STYLE:
TRINSIC SERIES
CASEMENT OR FIXED
COLOR:
CLASSIC BROWN

H

RESIDENTIAL DOORS:

KAWNEER NX-8900
PERMADIZE FINISH
DOOR COLOR:
BRICK
FRAME COLOR:
DARK BRONZE



I

COMPOSITE ROOFING:
MANUF: OWENS CORNING

DURATION
COLOR: ESTATE GRAY

J

BIKE RACKS:
MANUF: SITESCAPES

APEX INVERTED U
2 SPACE RACK
SURFACE MOUNT
POWDER COATED
FINISH: BRONZE

K

4 NORTH EXTERIOR ELEVATION - BUILDING TYPE 'A' - PROPOSED
SCALE: 3/16" = 1'-0"

2 WEST EXTERIOR ELEVATION - BUILDING TYPE 'A' - PROPOSED
SCALE: 3/16" = 1'-0"

3 SOUTH EXTERIOR ELEVATION - BUILDING TYPE 'A' - PROPOSED
SCALE: 3/16" = 1'-0"

1 EAST EXTERIOR ELEVATION - BUILDING TYPE 'A' - PROPOSED
SCALE: 3/16" = 1'-0"

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HALSEY CROSSING NEW MULTIFAMILY / MIXED USE PROJECT

NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040
DATE: 10-12-18
ISSUED FOR: DESIGN REVIEW

SHEET TITLE
EXTERIOR ELEVATIONS
BUILDING TYPE 'A'
PROPOSED

SHEET NO.

A-221-A

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\18-040 A-221 - Exterior Elevations Bldg A.dwg @ Plot Date: Oct 12 18 @ Time: 1:20 PM

EXHIBIT C-10

EXTERIOR MATERIALS

BRICK VENEER:
MANUF: PACIFIC CLAY
STYLE: EMPEROR
PATTERN: RUNNING BOND (1/3)

A STERLING GRAY

CEMENTICIOUS SIDING:
MANUF: JAMES HARDIE

B HARDIPANEL VERTICAL SIDING
TEXTURE: SMOOTH
WITH 1" REVEALS
COLOR: COBBLE STONE

C ARTISAN V-GROOVE SIDING
COLOR: IRON GRAY

TRIM & FASCIA:
MANUF: JAMES HARDIE

D HARDIETRIM
SMOOTH
PRE-PRIMED
COLOR: AGED PEWTER

METAL PRODUCTS:

STAIR TOWER AND TUCK UNDER PARKING FRAMING:
POWDER-COAT-DARK BRONZE

E

METAL PRODUCTS:

DECK RAILINGS
METAL TUBE STEEL FRAME
FINISH: POWDER COAT
COLOR: MATCH TO AEP SPAN COOL COLONIAL RED (BLDG C)

INFILL PANELS
MANUF: McNICHOLS
STYLE: WOVEN WIRE
2" SQUARE OPENING
FINISH: POWDER COAT
TO MATCH RAILINGS

F

RESIDENTIAL WINDOWS:

MANUF: MILGUARD
STYLE:
TRINSIC SERIES
CASEMENT OR FIXED
COLOR:
CLASSIC BROWN

G

RESIDENTIAL DOORS:

KAWNEER NX-8900
PERMADIZE FINISH
DOOR COLOR:
BRICK
FRAME COLOR:
DARK BRONZE

H

BIKE RACKS:
MANUF: SITESCAPES

APEX INVERTED U
2 SPACE RACK
SURFACE MOUNT
POWDER COATED
FINISH: BRONZE

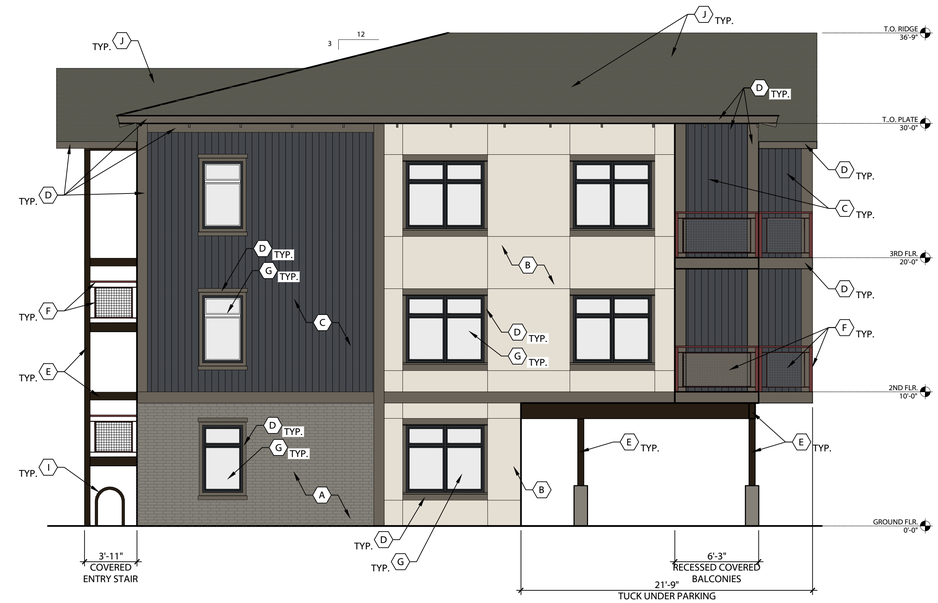
I

COMPOSITE ROOFING:
MANUF: OWENS CORNING

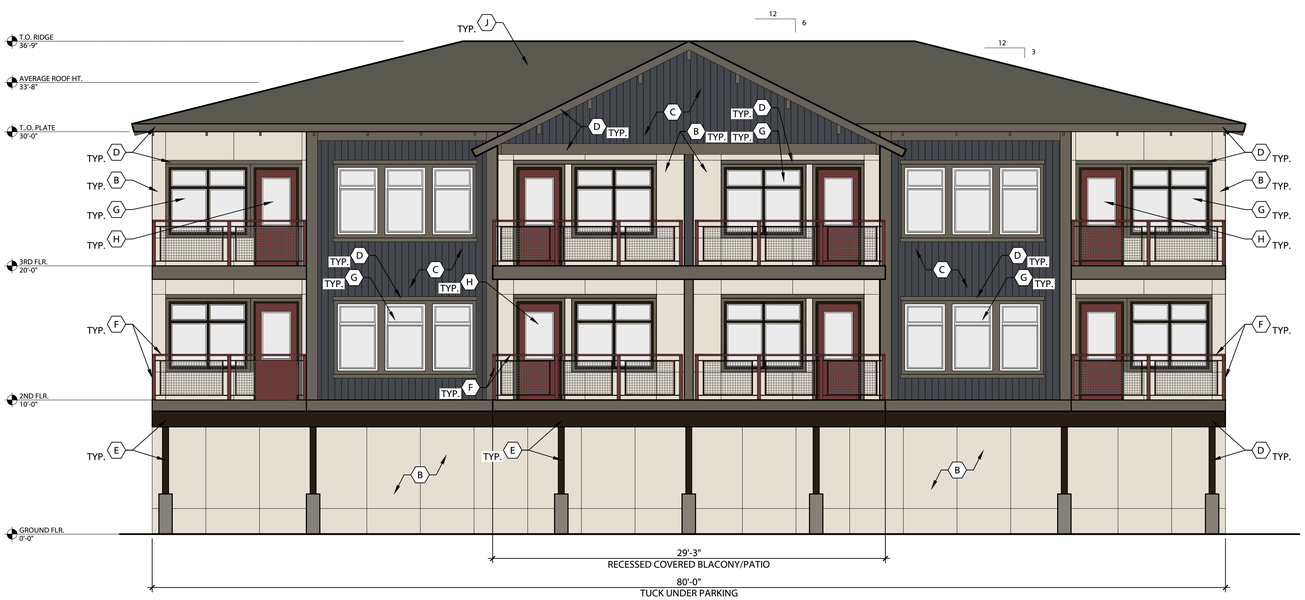
DURATION
COLOR: ESTATE GRAY

J

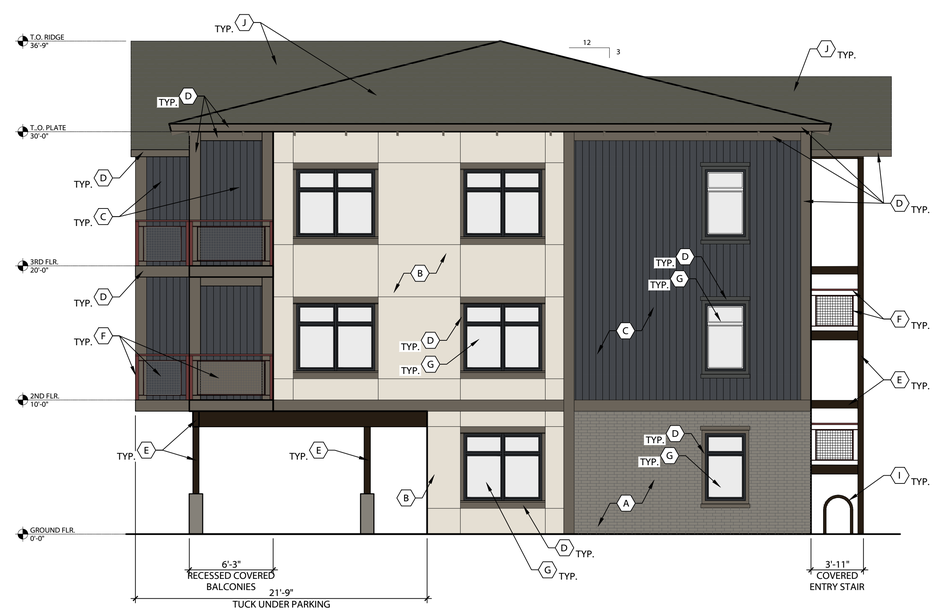
4 NORTH EXTERIOR ELEVATION - BUILDING TYPE 'B' - PROPOSED
SCALE: 3/16" = 1-0"



2 WEST EXTERIOR ELEVATION - BUILDING TYPE 'B' - PROPOSED
SCALE: 3/16" = 1-0"



3 SOUTH EXTERIOR ELEVATION - BUILDING TYPE 'B' - PROPOSED
SCALE: 3/16" = 1-0"



1 EAST EXTERIOR ELEVATION - BUILDING TYPE 'B' - PROPOSED
SCALE: 3/16" = 1-0"

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HALSEY CROSSING
NEW MULTIFAMILY /
MIXED USE PROJECT
NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040
DATE: 10-10-18
ISSUED FOR: DESIGN REVIEW

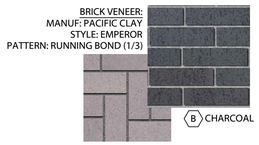
SHEET TITLE
EXTERIOR ELEVATIONS
BUILDING TYPE 'B'
PROPOSED

SHEET NO.
A-221-B

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\18-040 A-222- Exterior Elevations Bldg B.dwg @ Plot Date: Oct 12 18 @ Time: 1:24 PM

EXHIBIT C-11

EXTERIOR MATERIALS



BRICK VENEER:
MANUF: PACIFIC CLAY
STYLE: EMPEROR
PATTERN: RUNNING BOND (1/3)

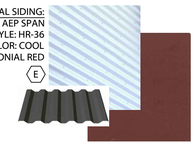
(A) STERLING GRAY

(B) CHARCOAL

CEMENTICIOUS SIDING:
MANUF: JAMES HARDIE

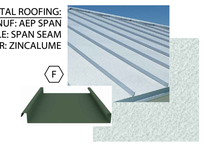
(C) HARDIPANEL VERTICAL SIDING
TEXTURE: SMOOTH WITH 1" REVEALS
COLOR: COBBLE STONE

(D) ARTISAN V-GROVE SIDING
COLOR: GRAY SLATE



METAL SIDING:
MANUF: AEP SPAN
STYLE: HR-36
COLOR: COOL COLONIAL RED

(E)



METAL ROOFING:
MANUF: AEP SPAN
STYLE: SPAN SEAM
COLOR: ZINCALUME

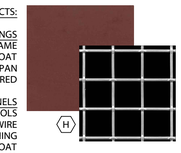
(F)

METAL PRODUCTS:

ALUMINUM STOREFRONTS
MANUF: KAWNEER
STYLE: VERSGLAZE 451T
COLOR: CLASSIC BRONZE

METAL CANOPIES AND TRIM FLASHING
COLOR: MATCH TO CLASSIC BRONZE

(G)

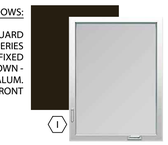


METAL PRODUCTS:

DECK RAILINGS
METAL TUBE STEEL FRAME
FINISH: POWDER COAT
COLOR: MATCH TO AEP SPAN COOL COLONIAL RED

INFILL PANELS
MANUF: McNICHOLS
STYLE: WOVEN WIRE
2" SQUARE OPENING
FINISH: POWDER COAT TO MATCH RAILINGS

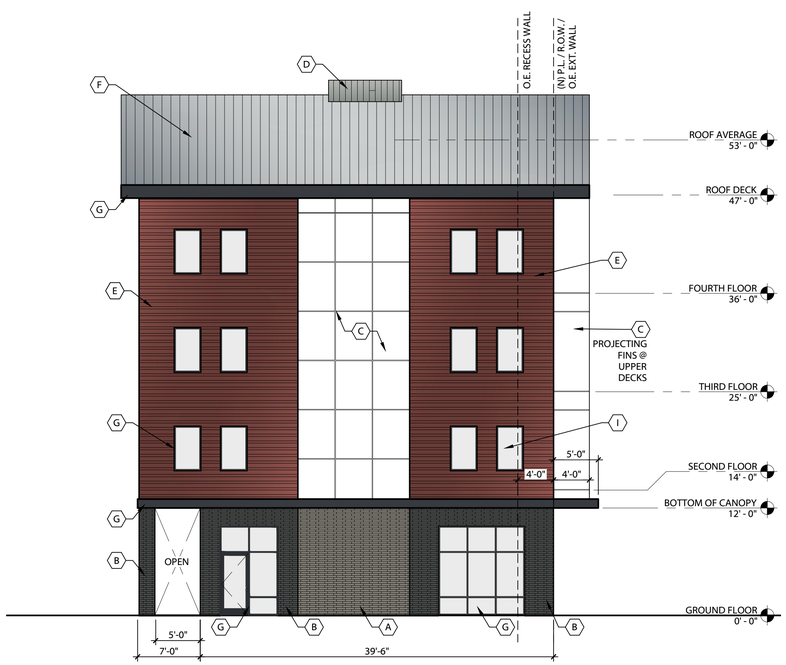
(H)



RESIDENTIAL WINDOWS:

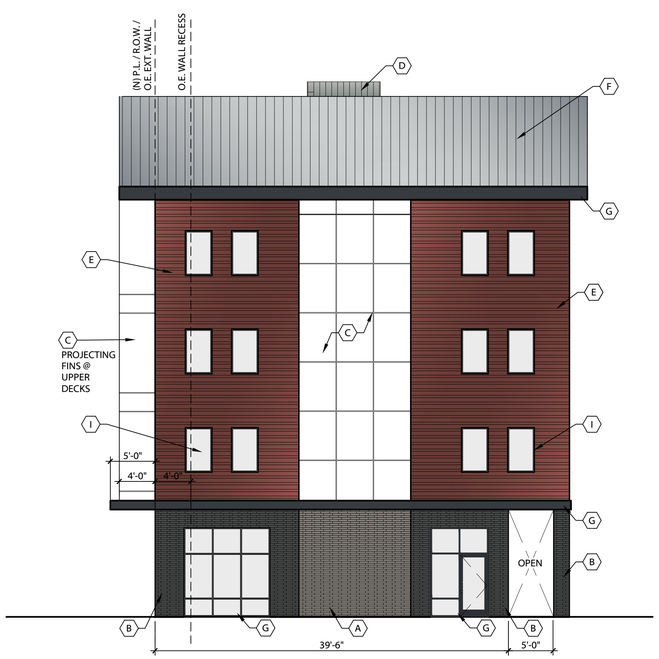
MANUF: MILGUARD
STYLE: TRINSIC SERIES
CASEMENT OR FIXED
COLOR: CLASSIC BROWN - MATCH TO ALUM. STOREFRONT

(I)



4 SOUTH EXTERIOR ELEVATION - BUILDING 'C' - PROPOSED
SCALE: 1/8" = 1-0"

3 WEST EXTERIOR ELEVATION - BUILDING 'C' - PROPOSED
SCALE: 1/8" = 1-0"



2 NORTH EXTERIOR ELEVATION - BUILDING 'C' - PROPOSED
SCALE: 1/8" = 1-0"

1 EAST EXTERIOR ELEVATION -BUILDING 'C' - PROPOSED
SCALE: 1/8" = 1-0"

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HALSEY CROSSING NEW MULTIFAMILY / MIXED USE PROJECT

NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: SJM
CHECKED BY: TRB
JOB NO: 18-040
DATE: 11-15-18
ISSUED FOR: DESIGN REVIEW

SHEET TITLE
EXTERIOR ELEVATIONS
BUILDING 'C'
PROPOSED

SHEET NO.

A-221-C

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\18-040 A-222 - Exterior Elevations Bldg C.dwg @ Plot Date: Nov 15 18 @ Time: 3:42 PM

EXHIBIT C-12

Halsey Crossing

Transportation Impact Study

Multnomah County, Oregon

Date:
November 7, 2018

Prepared for:
Dean Hurtford

Prepared by:
Jessica Hijar
William Farley, PE

REGISTERED PROFESSIONAL ENGINEER
83582PE
OREGON
DEC. 17, 2014
WILLIAM R. FARLEY

RENEWAL: 12/31/2019

LANCASTER ENGINEERING

321 SW 4th Ave., Suite 400 | Portland, OR 97204 | 503.248.0313 | lancasterengineering.com

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EXHIBIT C-12

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Executive Summary

- A mixed-use development consisting of 84 apartment units and 4,400 square feet of retail is proposed at the northwest corner of NE Halsey Street at NE 223rd Avenue in Fairview, Oregon.
- With reductions taken for internalization and pass-by trips,the proposed development is projected to generate a net total of 35 site trips during the morning peak hour and 44 site trips during the evening peak hour.
- All study intersetcion are projected to operate within Multnomah County's performance standards through full build-out of the proposed development. No operational mitigation is necessary or recommended in conjunction with the proposed development.
- Queuing was examined for the site access intersections. For the highest volume scenario, Year 2020 Background plus Site Trips evening peak hour, 95th percentile queue lengths were calculated to be approxmately two vehicles or less on the major road at each site access. No queuing related mitgiation is recommended.
- No significant trends or crash patterns were identified at the study intersections. No saftey mitgiation is recommended.
- Traffic signal warrants were analyzed for all unsignalized intersections and were not met under any analysis scenario.

Project Description and Location

Introduction

The proposed Halsey Crossing mixed-use development will include the construction of an 84 apartment units and 4,400 square feet of commercial space on a property located northwest of the intersection of NE Halsey Street at NE 223rd Avenue in Fairview, Oregon. This report addresses the impacts of the proposed development on the nearby street system.

Based on correspondence with the Multnomah County staff, this study includes safety and capacity/level-of-service analyses for the morning and evening peak hours at the following intersections:

- NE Sandy Boulevard at NE 223rd Avenue;
- NE Halsey Street at NE Fairview Parkway;
- NE Halsey Street at NE Village Street/7th Street;
- NE Halsey Street at NE Fairview Avenue/223rd Avenue;
- NE Halsey Street at Western Site Access;
- NE 223rd Avenue at Northern Site Access; and
- NE Arata Road/Barr Road at NE 223rd Avenue.

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the proposed use and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level-of-service calculations is included in the appendix to this report.

Project and Location Description

The project site is located in the northwest corner of the intersection of NE Halsey Street at NE 223rd Avenue in Fairview, Oregon. The site will share an existing access onto NE Halsey Street with the adjacent property to the west. A new site access will be constructed along NE Fairview Avenue that will serve right-in/right-out traffic only. Although the current site plan shows 84 apartment units and 4,400 square feet of leasable commercial space, a conservative assumption of 85 apartment units and 4,500 square feet of retail was used for analysis.

Vicinity Streets

The proposed project is expected to primarily impact five nearby roadways. A description of each of the vicinity roadways is shown in Table 1.

Table 1: Vicinity Roadway Characteristic Summary

Roadway	Jurisdiction	Functional Classification	Cross-Section	Speed	On-street Parking	Bicycle Lanes	Curbs	Sidewalks
NE Halsey Street	Multnomah County	Arterial	2 to 5 lanes	35 mph Posted	Not Permitted	Both Sides	Partial Both Sides	Partial Both Sides
NE Fairview Parkway	Multnomah County	Arterial	3 to 5 lanes	40 mph Posted	Not Permitted	Both sides	Both Sides	Both Sides
NE Village Street	Multnomah County	Local Road	2 Lanes	20 mph Posted	South of Market Dr	None	Partial Both Sides	Partial Both Sides
NE 7th Street	Multnomah County	Local Road	2 Lanes	25 mph Statutory	North of Lincoln St	None	Partial Both Sides	Partial Both Sides
NE Fairview Avenue	Multnomah County	Collector	2 to 4 Lanes	45 mph Posted	Not Permitted	Partial Both Sides	Partial Both Sides	Partial Both Sides
NE 223rd Avenue	Multnomah County	Collector	2 to 4 Lanes	45 mph Posted	Not Permitted	Partial Both Sides	Partial Both Sides	Partial Both Sides
NE Sandy Boulevard	Multnomah County	Arterial	2 to 4 Lanes	40 mph Posted	Partial North Side	Partial Both Sides	Partial Both Sides	Partial Both Sides
NE Arata Road	Multnomah County	Collector	2 Lanes	35 mph Posted	Not Permitted	None	Partial Both Sides	Partial Both Sides
NE Barr Road	Multnomah County	Local Road	2 Lnaes	25 mph Statutory	Not Permitted	None	None	None

Note: Functional Classification based on *Multnomah County TSP*

Study Intersections

A majority of site trips generated by the proposed development are expected to impact five nearby intersections of significance. A summarized description of these intersections is provided in Table 2.

Table 2: Study Intersection Description Summary

Number	Name	Geometry	Traffic Control	Notes
1	NE Halsey Street at NE Fairview Parkway	Four-Legged	Traffic Signal	Protected NB/SB & EB/WB Left-Turn Lanes Dedicated EB Right-Turn Lane
2	NE Halsey Street at NE Village Street/7th Avenue	Four-Legged	Traffic Signal	Permitted NB/SB & EB/WB Left-Turn Lanes Dedicated EB Right-Turn Lane
3	NE Halsey Street at NE Fairview Avenue/223rd Avenue	Four-Legged	Traffic Signal	Protected NB/SB & EB/WB Left-Turn Lanes Dedicated EB/WB & NB Right-Turn Lanes
6	NE Sandy Boulevard at NE 223rd Avenue	Four-Legged	Traffic Signal	FYA NB/SB & EB/WB Left-Turn Lanes EB & NB Right-Turn Lanes
7	NE Arata Road/Barr Road at NE 223rd Avenue	Four-Legged	Traffic Signal	Staggered Two-Way Stop Control for EB/WB Approaches

Note: Flashing-Yellow-Arrow denoted as FYA.

Transit

The project site is located near two transit lines that have stops within a quarter-mile walking/biking distance of the site. Complete sidewalks and adequate crossing measures at intersections are available between the project site the transit stop locations allowing for safe and comfortable travel for transit users.

Tri-Met bus line #21 – *Sandy Blvd/223rd* connects Parkrose, Fairview and Gresham via Sandy, 238th, Halsey, 223rd/Fairview, and Division. Weekday service is scheduled from approximately 5:15 AM to 2:00 AM and has headways of approximately 15 to 30 minutes. Saturday and Sunday service is scheduled from approximately 5:00 AM to 2:00 AM and has headways of approximately 30 to 60 minutes.

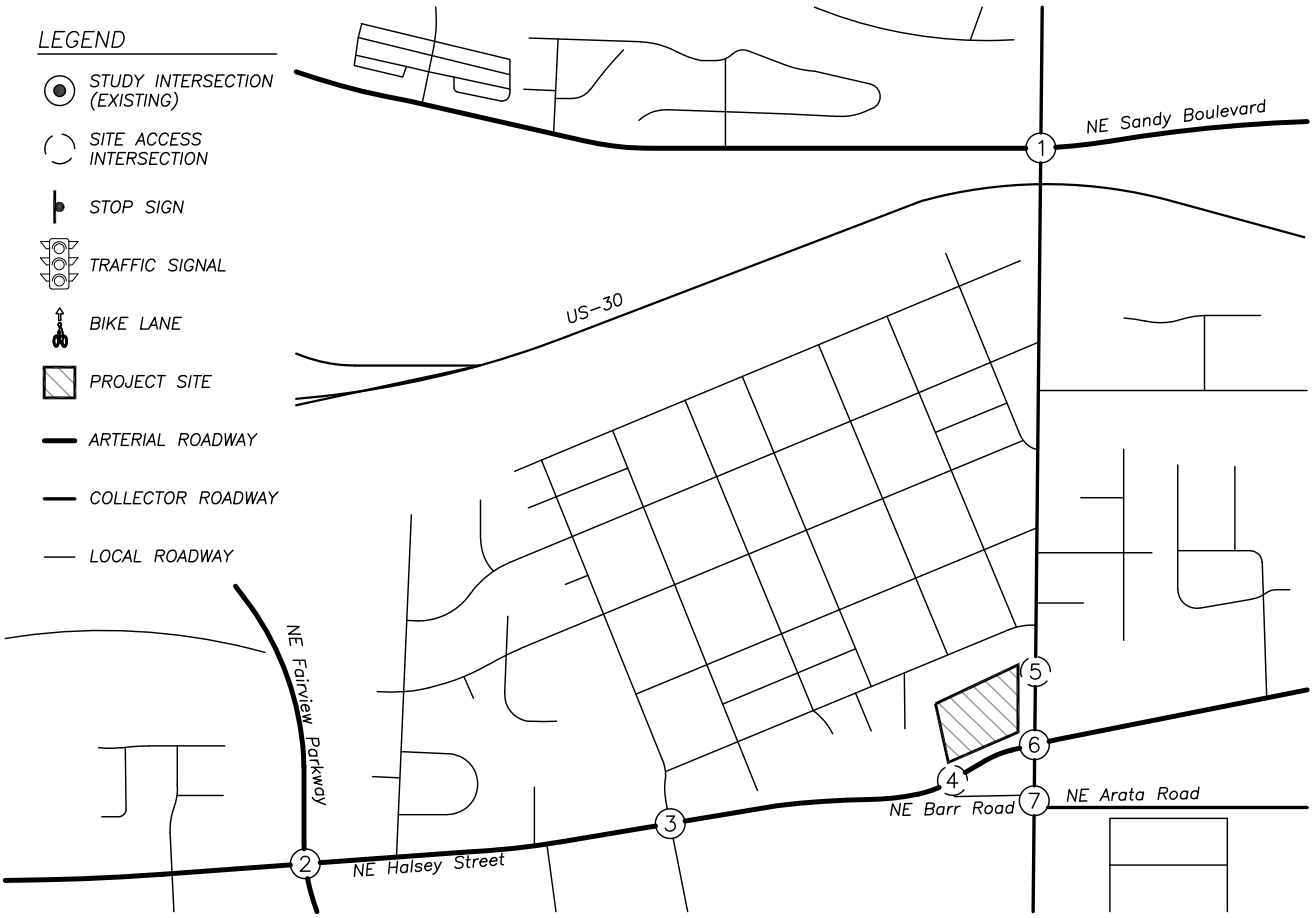
TriMet bus line #77 – *Broadway/Halsey* provides service between Montgomery Park and the City of Troutdale, with notable stops near Legacy Good Samaritan Hospital, Portland City Center, Moda Center, Memorial Coliseum, Rose Quarter Transit Center, Lloyd Center, Hollywood Transit Center, and Glenn Otto Park. Weekday service is scheduled from approximately 5:00 AM to 11:30 PM and has headways of approximately 10 to 30 minutes. Saturday service is scheduled from approximately 5:40 AM to 11:40 PM and has headways

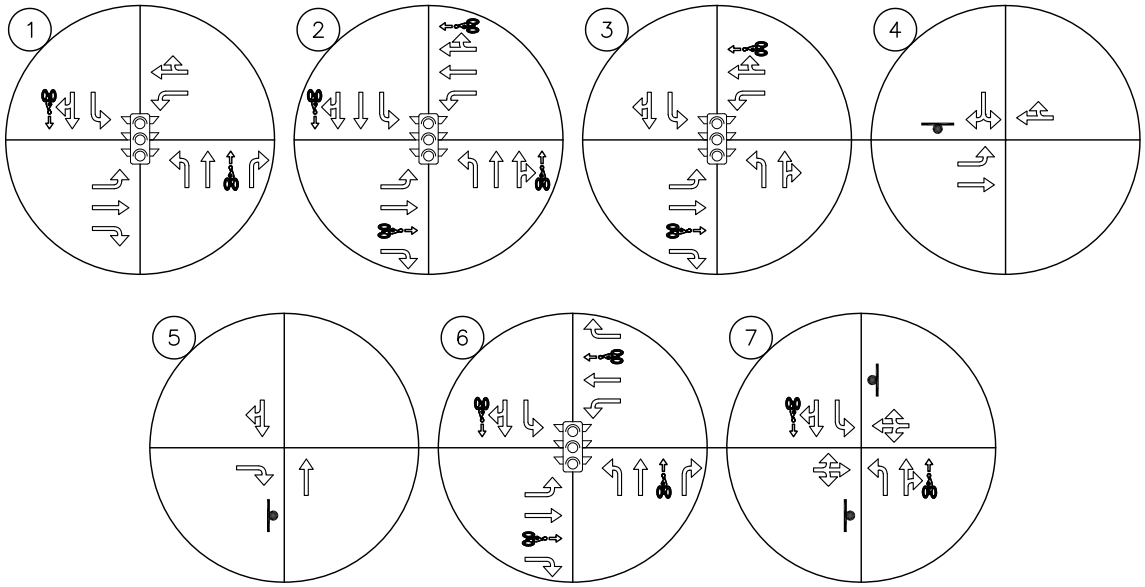
of approximately 25 to 30 minutes. Sunday service is scheduled from approximately 5:50 AM to 11:45 PM and has headways of approximately 30 to 60 minutes.

Traffic Counts

Traffic counts were conducted at the study intersections on Thursday, November 1st, 2018, between 7:00 AM to 9:00 AM and between 4:00 PM and 6:00 PM. Since NE Arata Road is currently blocked to traffic, historical traffic counts were used that was collected on Tuesday, March 10, 2015, between 7:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM. In order to estimate the existing year 2018 traffic volumes, a growth rate of 2 percent per year was used for a period of three years. Data was used from each intersection's respective morning and evening peak hours.

Figure 2 on page 7 shows the existing morning and evening peak hour traffic volumes at the study intersections.



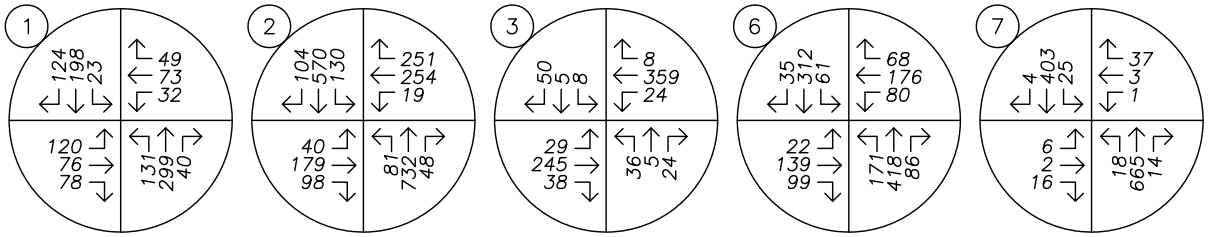


VICINITY MAP

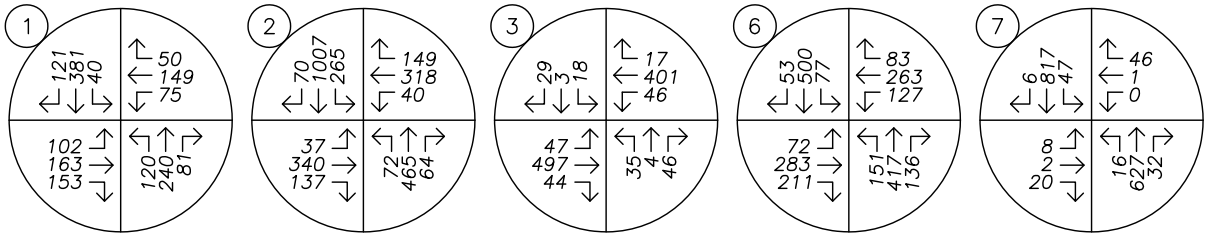
no scale

FIGURE 1

AM PEAK HOUR



PM PEAK HOUR



TRAFFIC VOLUMES
Year 2018 Existing Conditions
AM & PM Peak Hours

no scale

FIGURE 2

Site Trips

Trip Generation

To estimate the number of trips that will be generated by the proposed mixed-use development, trip rates from the *Trip Generation Manual*[1] were used. Data from land-use code 221, *Apartment (Mid-Rise)*, was used to estimate the trips associated with the residential component of the property, and land use code 820, *Shopping Center*, was used to estimate the trip generation associated with the leasable commercial space.

A key characteristic of a mixed-use development is that trips between the various land uses can be made on site without utilizing the major street system. Based on the methodology used in the *National Cooperative Highway Research Program Report 684*, as detailed in the *Trip Generation Handbook*[2], an internalization rate of 11 percent was calculated for the evening peak hour.

In addition to internal trips, reductions can be made for pass-by trips. Pass-by trips are trips that leave the adjacent roadway to patronize a land-use and then continue to their original direction of travel. Pass-by trips do not add additional vehicles to the surrounding transportation system; however, they do add additional turning movements at the site access intersection. All pass-by trips were assumed to divert from NE Halsey Street.

The trip generation calculations show that the proposed development is projected to generate a net increase of approximately 35 site trips during the morning peak hour and 44 site trips during the evening peak hour. The trip generation estimates of the proposed development are summarized in Table 3 below. Detailed trip generation calculations are included in the technical appendix to this report.

Table 3: Trip Generation Summary

	ITE Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday Total
			In	Out	Total	In	Out	Total	
Apartments	221	85 units	8	23	31	23	14	37	456
Internalization (0%/11%)			*0*	*0*	*0*	*-2*	*-2*	*-4*	*-50*
Shopping Center	820	4,500 sf	2	2	4	8	9	17	170
Internalization (0%/11%)			*0*	*0*	*0*	*-1*	*-1*	*-2*	*-19*
Pass-By (0%/34%)			*0*	*0*	*0*	*-2*	*-2*	*-4*	*-51*
Net Site Trips			**10**	**25**	**35**	**26**	**18**	**44**	**506**

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual,* 10th Edition, 2017.
[2] Institute of Transportation Engineers, *Trip Generation Handbook,* 3rd Edition, 2017.

Trip Distribution

The directional distribution of site trips to/from the project site was estimated based on locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at study intersections.

The following trip distribution was estimated and used for analysis:

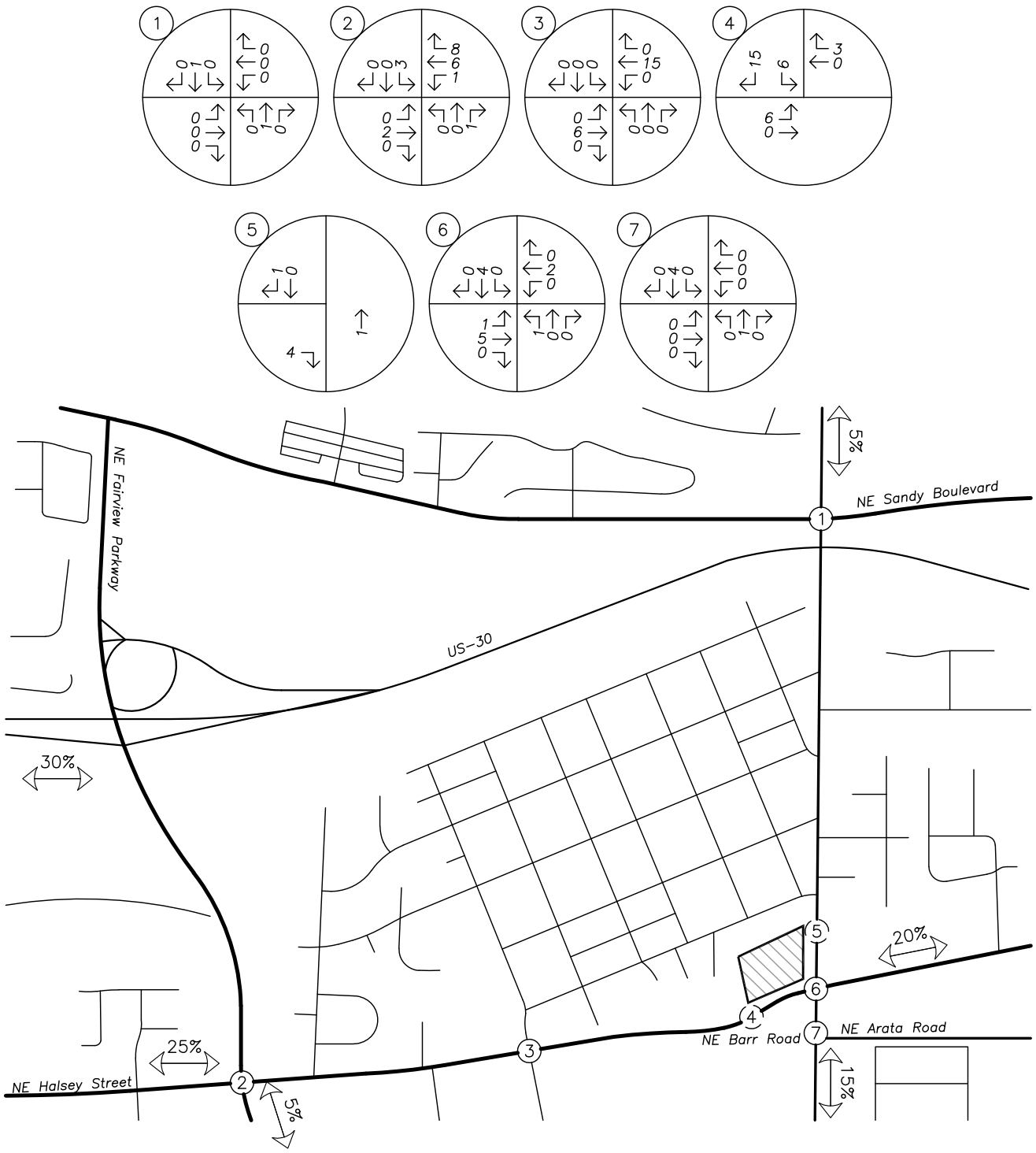
- Approximately 30 percent of site trips will travel to/from the north along NE Fairview Parkway;
- Approximately 25 percent of site trips will travel to/from the west along NE Halsey Street;
- Approxiamtely 20 percent of site trips will travel to/from the east along NE Halsey Street;
- Approximately 15 percent of site trips will travel to/from the south along NE 223rd Avenue;
- Approximately 5 percent of site trips will travel to/from the north along NE Fairview Avenue, and
- Approximately 5 percent of site trips will travel to/from the south along Fairview Parkway.

The trip assignment for the net site trips generated by the proposed development during the morning and evening peak hours are shown in Figure 3 on page 10 and Figure 4 on page 11. A figure showing the primary and pass-by site trips during the evening peak hour is provided in the technical appendix.

LEGEND

XX% PERCENT OF PROJECT TRIPS

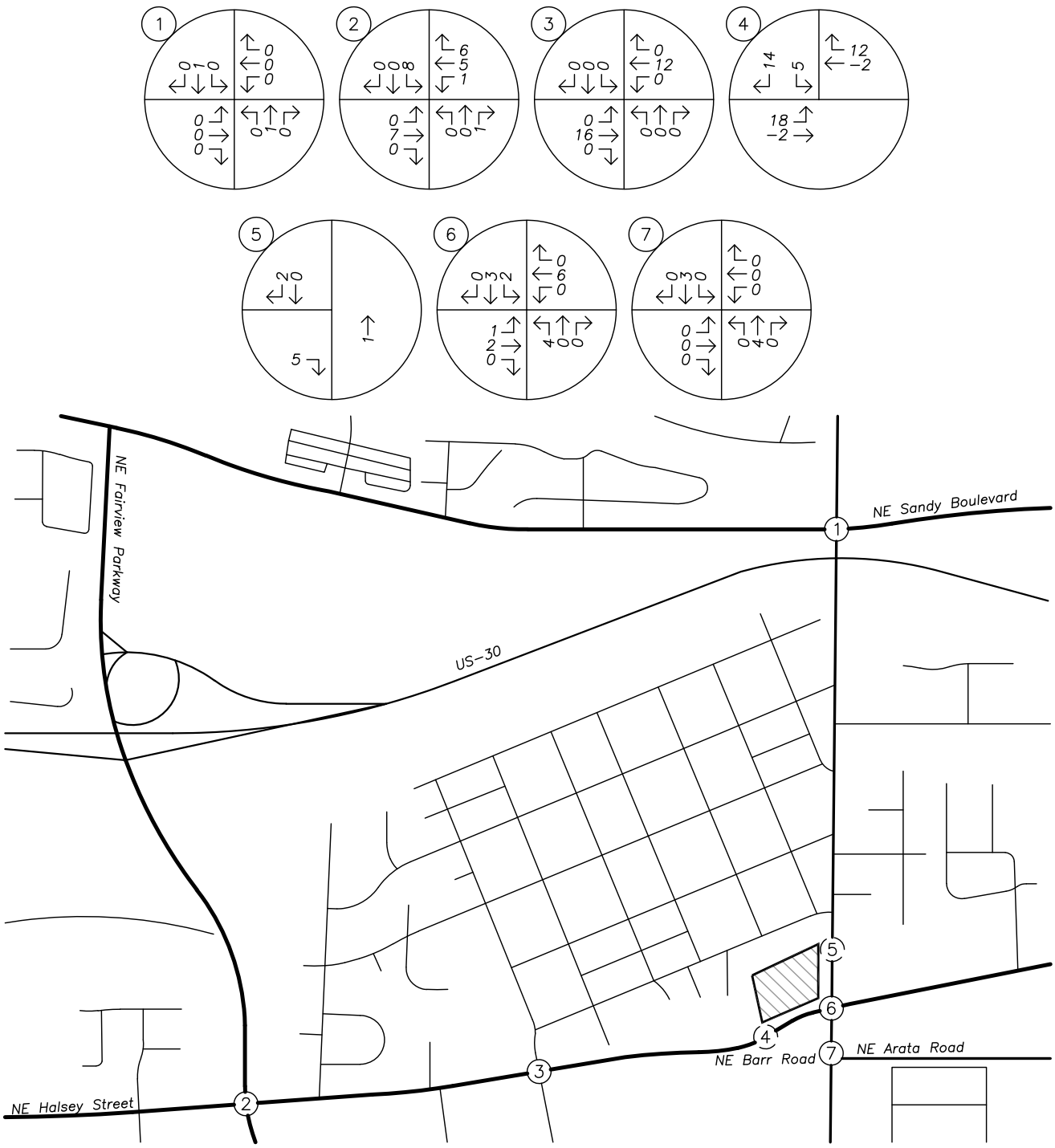
TRIP GENERATION			
	IN	OUT	TOTAL
AM	10	25	35



SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development Plan – Net Site Trips
AM Peak Hour

no scale

FIGURE 3



SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development Plan – Net Site Trips
PM Peak Hour

no scale

FIGURE 4

Operational Analysis

Background Volumes

To provide analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. In order to calculate the future traffic volumes at the study intersections, a compounded growth rate of two percent per year for an assumed build-out condition of two years was applied to the measured existing traffic volumes to approximate year 2020 background conditions.

In addition to the growth described above, there are several in-process developments that are currently approved for construction near the site vicinity and are expected to impact nearby study intersections. The in-process development includes the following:

- Sandy/223rd Mixed Use Development
- Northbrook Apartments
- Halsey/207th/Fairview Mixed Use Development
- Enviroworks
- Wood Village Mixed Use Development

Additional trips corresponding to each in-process development were added to the year 2020 background volumes approximated for each of the study intersections.

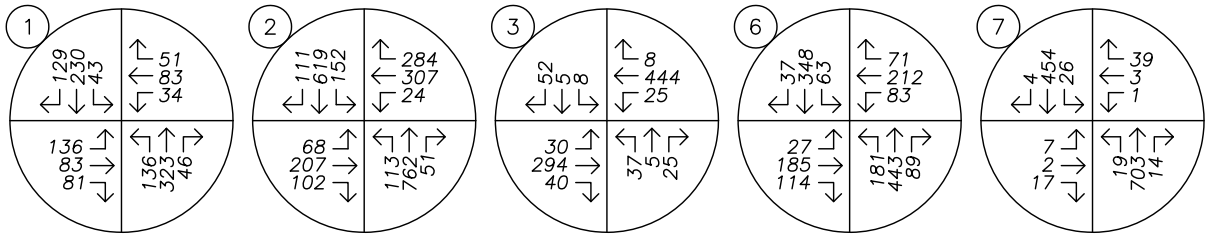
Figure 5 on page 13 shows the projected year 2020 background traffic volumes at the study intersections during the morning and evening peak hours.

Background Volumes plus Site Trips

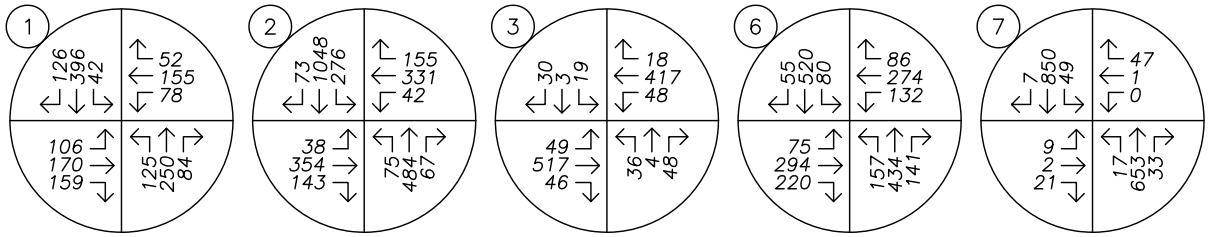
Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the projected year 2020 background traffic volumes to obtain the expected 2020 background volumes plus site trips.

Figure 6 on page 14 shows the projected year 2020 peak hour background traffic volumes plus proposed development site trips at the study intersections during the morning and evening peak hours.

AM PEAK HOUR



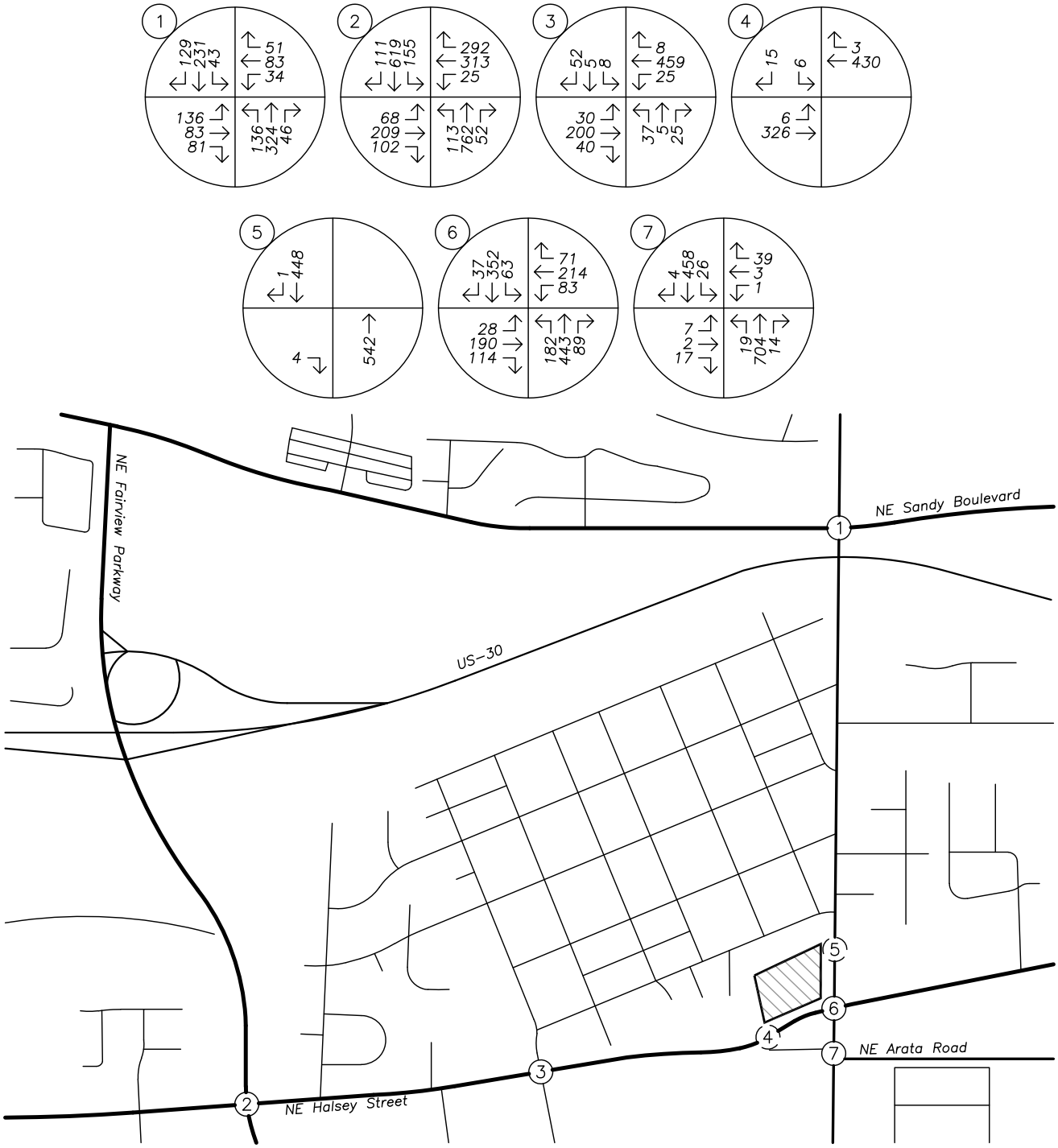
PM PEAK HOUR



TRAFFIC VOLUMES
Year 2020 Background Conditions
AM & PM Peak Hours

no scale

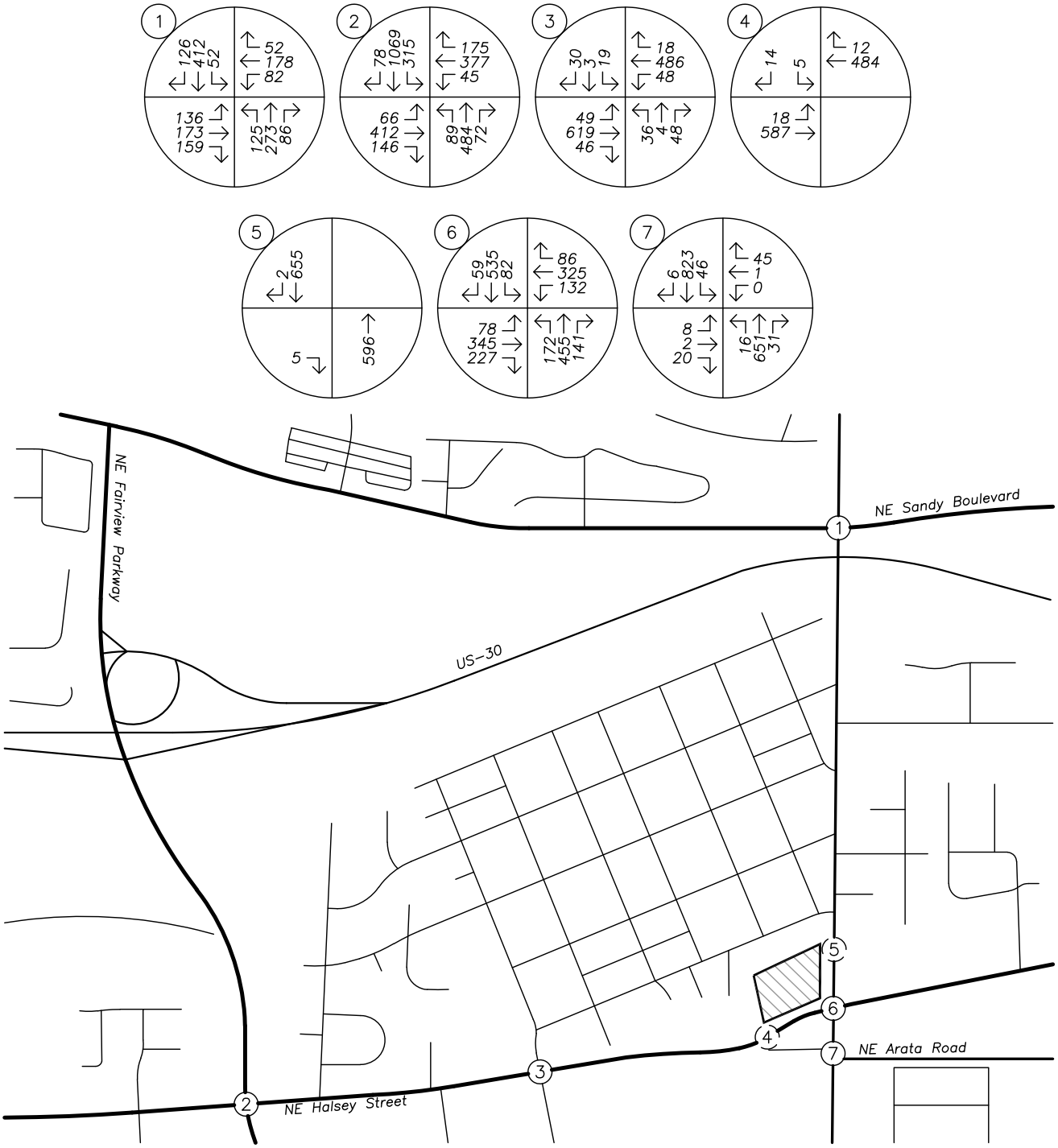
FIGURE 5



TRAFFIC VOLUMES
Year 2020 Background Condition plus Net Site Trips
AM Peak Hour

no scale

FIGURE 6



TRAFFIC VOLUMES
Year 2020 Background Condition plus Net Site Trips
PM Peak Hour

no scale

FIGURE 7

Capacity Analysis

A capacity and delay analysis were conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *HIGHWAY CAPACITY MANUAL*[3] (HCM). Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates very little or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Based on the Multnomah County Design Standards, all new and improved arterial and collector roadways in urban areas shall be designed to accommodate LOS D or better during the design hour. On neighborhood collectors in urban areas, the design LOS shall be C or better. In special circumstances, such as downtown central business districts or designated regional centers, LOS E might be acceptable if approved by the County Engineer. Local streets intersecting with arterials or collectors may be LOS F during the peak hour if approved by the County Engineer.

Based on the results of the operational analysis, all study intersections are currently operating acceptably per Multnomah County standards and are projected to continue operating acceptably upon build-out of the proposed development through year 2020. No operational mitigation is necessary or recommended.

The v/c, delay, and LOS results of the capacity analysis are shown in Table 4 on the following page for the morning and evening peak hours. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

[3] Transportation Research Board, *HIGHWAY CAPACITY MANUAL 2000* and *HIGHWAY CAPACITY MANUAL 2010*.

Table 4: Capacity Analysis Summary

	Morning Peak Hour			Evening Peak Hour		
	LOS	Delay	v/c	LOS	Delay	v/c
NE Sandy Boulevard at NE 223rd						
Year 2018 Existing Conditions	B	16	0.51	C	21	0.63
Year 2020 Background Conditions	B	17	0.57	C	24	0.70
Year 2020 Background plus Site	B	17	0.57	C	24	0.70
NE Halsey Street at Fairview Parkway						
Year 2018 Existing Conditions	C	23	0.64	C	32	0.77
Year 2020 Background Conditions	C	29	0.70	D	39	0.87
Year 2020 Background plus Site	C	29	0.71	D	40	0.87
NE Halsey Street at NE Village Street/7th Street						
Year 2018 Existing Conditions	B	13	0.34	B	14	0.39
Year 2020 Background Conditions	B	14	0.40	B	15	0.46
Year 2020 Background plus Site	B	14	0.41	B	15	0.47
Western Site Access at NE Halsey						
Year 2020 Background plus Site	B	13	0.05	C	15	0.06
Northern Site Access at NE 223rd						
Year 2020 Background plus Site	B	11	0.01	B	13	0.01
NE Halsey Street at NE 223rd Avenue						
Year 2018 Existing Conditions	C	28	0.67	D	37	0.80
Year 2020 Background Conditions	C	31	0.75	D	43	0.87
Year 2020 Background plus Site	C	31	0.75	D	43	0.88
NE 223rd Avenue at NE Arata Road/Barr Road						
Year 2018 Existing Conditions	C	17	0.14	C	20	0.11
Year 2020 Background Conditions	C	19	0.16	C	20	0.11
Year 2020 Background plus Site	C	19	0.16	C	20	0.11

Queuing Analysis

Queuing along NE Halsey Street and NE 223rd Avenue were examined for each site access. The queue lengths were projected based on the results of a Synchro/SimTraffic simulation, with the reported values based on the 95th percentile queue lengths. This means that 95 percent of the time the queue lengths will be less than or equal to the reported values. The analysis scenario with the highest traffic volumes, Year 2020 Background plus Site Trips evening peak hour, was evaluated.

The 95th percentile queue length for the eastbound left-turn lane at the intersection of NE Halsey Street at the western site access was projected to be 30 feet, or approximately two vehicles, during the peak analysis period. Queue lengths at the intersection of NE 223rd Avenue at the northern site access are not projected to occur along NE 223rd Avenue as northbound left-turns are not permitted, and the low volume of southbound right-turns will not hinder the flow of traffic. Detailed queuing analysis worksheets are included in the technical appendix to this report. No queuing related mitigation is necessary or recommended.

Safety Analysis

Crash Data Analysis

Using data obtained from the Oregon Department of Transportation's (ODOT) Crash Analysis and Reporting Unit, a review of the most recent available five years of crash history (from January 2013 to December 2017) at the study intersections was performed. The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for the intersection. Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak period represents 10 percent of average daily traffic (ADT) at the intersection. Crash rates in excess of one to two crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

The intersection of NE Sandy Boulevard at NE 223rd Avenue has a total of 18 crashes during the analysis period. The crashes consisted of 12 rear-end collisions, 4 turning movement collisions, 1 fixed object collision, and 1 angle-type collision. The crashes resulted in 12 possible injuries and 1 non-incapacitating injury. The crash rate for this intersection was calculated to be 0.59 CMEV.

The intersection of NE Halsey Street at NE Fairview Parkway had a total of 20 crashes during the analysis period. The crashes consisted of 8 rear-end collisions, 6 angle-type collisions, 5 turning movement collisions, and 1 fixed object collision. The crashes resulted in 13 possible injuries, 4 non-incapacitating injuries, and 1 incapacitating injury. The incapacitating injury occurred as a result of an angle-type collision caused by a reckless driver under the influence of alcohol. The crash rate for this intersection was calculated to be 0.37 CMEV.

The intersection of NE Halsey Street at NE Village Street/7th Street had a total of 9 crashes during the analysis period. The crashes consisted of 3 rear-end collisions, 1 backing movement collision, 1 angle-type collision, 1 fixed object collision, 1 turning movement collision, and 1 collision involving a pedestrian. The crashes resulted in 6 possible injuries and 3 non-incapacitating injuries. The pedestrian collision was caused by a left-turning vehicle not yielding to a crossing pedestrian. The pedestrian suffered a non-incapacitating injury. The crash rate for this intersection was calculated to be 0.42 CMEV.

The intersection of NE Halsey Street at NE Fairview Avenue/223rd Avenue had a total of 29 crashes during the analysis period. The crashes consisted of 15 rear-end collisions, 5 turning movement collisions, 4 angle-type collisions, 1 head-on collision, and 2 collisions involving bicycles. The crashes resulted in 16 possible injuries, 7 non-incapacitating injuries, and 1 incapacitating injuries. The incapacitating injuries occurred as a result of an angle type collision caused by a driver disregarding the traffic signal. A bicycle collision in which an undetermined user disregarded the traffic control device resulted in a possible injury. A collision caused by a bicyclist disregarding the traffic signal resulted in a non-incapacitating injury. The crash rate for this intersection was calculated to be 0.67 CMEV.

The intersection of NE Arata Road/Barr Road at NE 223rd Avenue had a total of 8 crashes during the analysis period. The crashes consisted of 3 rear-end collisions, 2 turning movement collisions, 1 fixed object collision, 1 angle-type collision, and 1 collision involving a bicycle. The crashes resulted in 1 possible injury and 1 non-incapacitating injury. A bicyclist traveling too fast struck a vehicle and resulted in one non-incapacitating injury. The crash rate for this intersection is calculated to be 0.27 CMEV.

No significant crash trends or patterns were identified. No mitigation is recommended or necessary.

Warrant Analysis

Traffic signal warrants were examined for unsignalized study intersections to determine whether the installation of any new traffic signal will be warranted at the intersections upon completion of the proposed development. Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met at the unsignalized intersections of NE Halsey Street at the western site access, NE 223rd Avenue at the northern site access, or NE 223rd Avenue at NE Arata/Barr Road under any of the analysis scenarios.

Conclusions

All study intersections are projected to operate with Multnomah County's performance standards through full build out of the proposed development. No operational mitigation is necessary or recommended in conjunction with the proposed development.

Queuing was examined for the site access intersections. For the highest volume scenario, Year 2020 Background plus Site Trips evening peak hour, 95th percentile queue lengths were calculated to be approximately two vehicles or less on the major road at each site access. No queuing related mitigation is recommended.

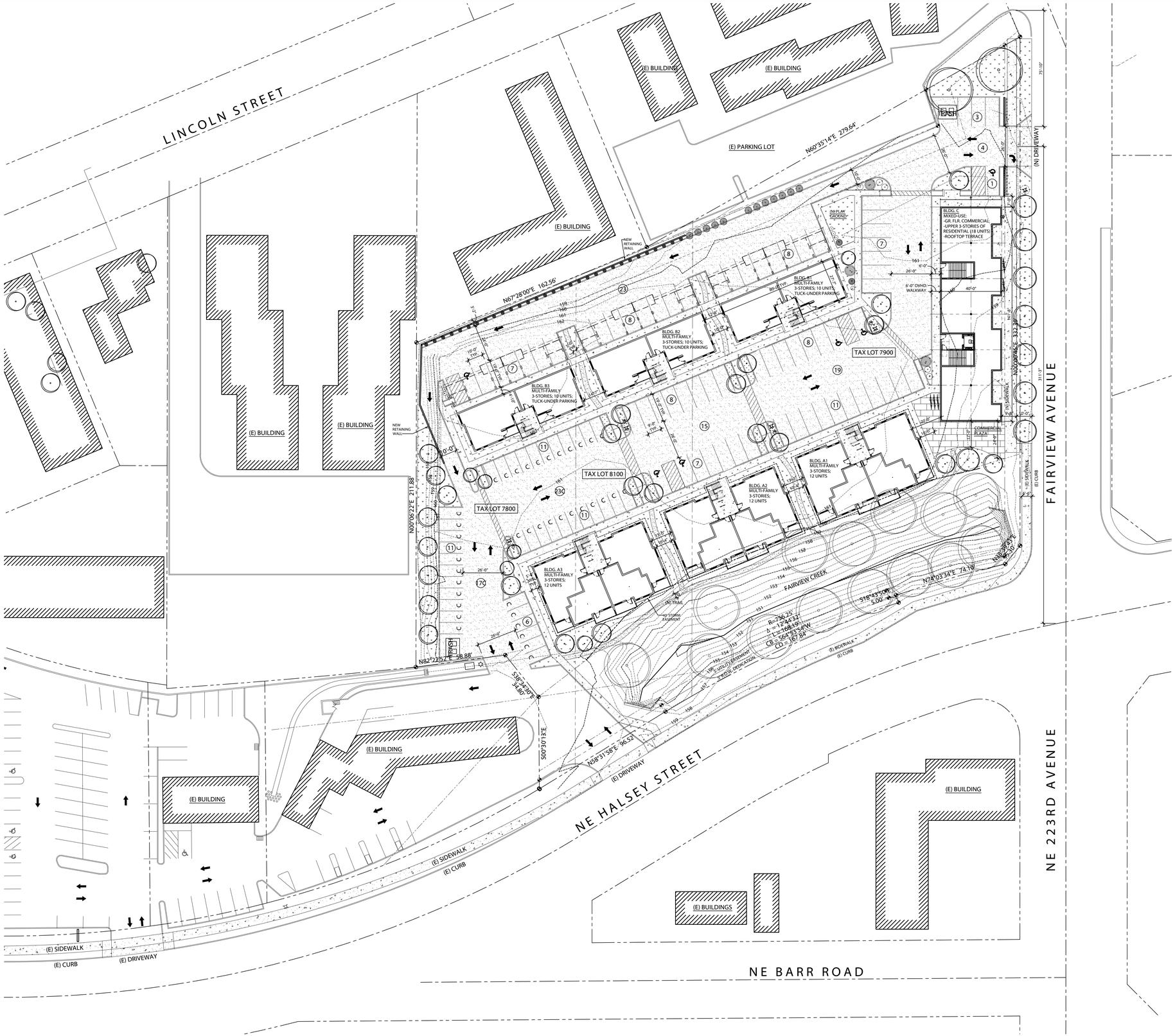
No significant trends or crash patterns were identified at the study intersections. No safety mitigation is recommended.

Traffic signal warrants were analyzed for all unsignalized intersections and were not projected to be met under any analysis scenario.

1e

Appendix

EXHIBIT C-12



1 SITE PLAN - PROPOSED
SCALE: 1" = 30'-0"

SITE PLAN GENERAL NOTES

1. SITE PLAN IS FOR GENERAL PURPOSES ONLY.
2. INFORMATION RELATING TO THE EXISTING SITE IS BASED ON THE CIVIL SURVEY AND FIELD MEASUREMENTS AND CASUAL OBSERVATIONS. ACTUAL CONDITIONS MAY VARY AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
3. GRAPHIC REPRESENTATION OF AFFECTED AREAS ON DRAWINGS MAY BE SMALLER OR LARGER THAN INDICATED.
4. ONLY MAJOR SITE ELEMENTS ARE SHOWN.

SITE PLAN LEGEND

- PROPERTY LINE
- FENCE
- CENTER LINE OF STREET
- LINE OF EASEMENT
- FIRE HYDRANT
- DIRECTIONAL ARROW - PAINTED
- DENOTES NUMBER OF PARKING SPACES
- POLE-MOUNTED LIGHT FIXTURE - SEE SITE LIGHTING PLAN
- WALL-MOUNTED LIGHT FIXTURE - SEE SITE LIGHTING PLAN
- CONCRETE PAVING - SEE CIVIL PLANS
- AC PAVING - SEE CIVIL PLANS
- LANDSCAPING - SEE LANDSCAPE PLAN
- TREE - SEE LANDSCAPE PLAN

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T: 503.284.0988 | F: 503.546.9276

HALSEY CROSSING NEW MULTIFAMILY / MIXED USE PROJECT

NE HALSEY & NE 223RD AVENUE
FAIRVIEW, OR 97024

REVISIONS

No.	Description	Date

DRAWN BY: ECU
CHECKED BY: TRB
JOB NO: 18-040
DATE: 09-20-18
ISSUED FOR: LAND USE 50%
SHEET TITLE
SITE PLAN
SHEET NO.

A-101

S:\Projects\2018 Projects\18-040_Halsey_Crossing\F_Drawings\F2_Current\CAD\18-040 A-101 - Site Plan.dwg © Plot Date: Sep 20 18 @ Time: 4:45 PM

EXHIBIT C-12

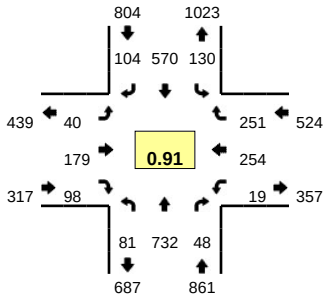
Type of peak hour being reported: Intersection Peak

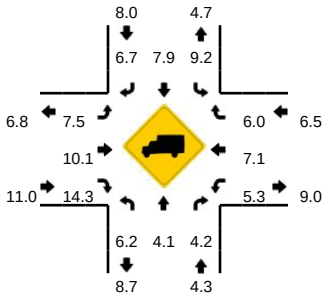
Method for determining peak hour: Total Entering Volume

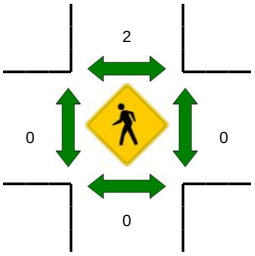
LOCATION: Fairview Pkwy -- NE Halsey St
CITY/STATE: Fairview, OR

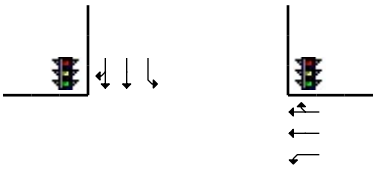
QC JOB #: 14835901
DATE: Thu, Nov 01 2018

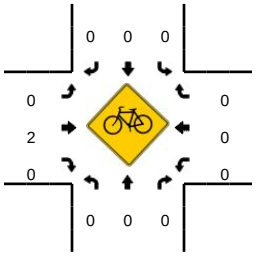
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

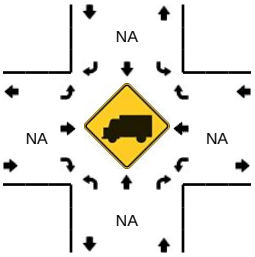


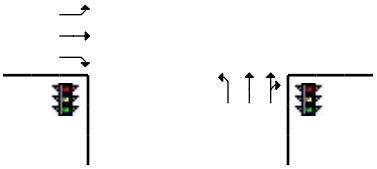


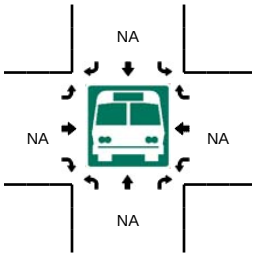












5-Min Count Period Beginning At	Fairview Pkwy (Northbound)				Fairview Pkwy (Southbound)				NE Halsey St (Eastbound)				NE Halsey St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	12	54	3	0	14	29	12	0	3	7	1	0	1	17	20	0	173	
7:05 AM	2	53	1	0	4	49	7	0	5	11	9	0	2	24	24	0	191	
7:10 AM	11	70	5	0	14	42	14	0	5	8	5	0	2	18	13	0	207	
7:15 AM	7	69	0	0	12	35	10	0	2	19	6	0	3	33	27	0	223	
7:20 AM	4	61	4	0	5	52	14	0	3	15	8	0	1	22	19	0	208	
7:25 AM	8	63	11	0	15	54	10	0	4	19	10	0	0	15	10	0	219	
7:30 AM	10	53	9	0	14	63	5	0	3	17	8	0	0	27	26	0	235	
7:35 AM	4	53	4	0	12	37	9	0	4	23	16	0	4	28	30	0	224	
7:40 AM	4	73	7	0	8	50	7	0	3	17	12	0	2	23	25	0	231	
7:45 AM	7	81	1	0	8	62	7	0	2	18	9	0	0	17	17	0	229	
7:50 AM	7	49	0	0	16	51	7	0	5	13	7	0	2	24	24	0	205	
7:55 AM	5	53	3	0	8	46	2	0	1	12	7	0	2	6	16	0	161	2506
8:00 AM	7	22	3	0	8	44	7	0	0	14	5	0	2	18	19	0	149	2482
8:05 AM	9	46	3	0	12	46	8	0	5	10	3	0	2	18	17	0	179	2470
8:10 AM	2	29	4	0	11	31	6	0	1	9	5	0	1	25	13	0	137	2400
8:15 AM	3	51	0	0	10	47	4	0	0	12	7	0	4	20	17	0	175	2352
8:20 AM	4	46	6	0	8	40	4	0	2	13	7	0	5	17	8	0	160	2304
8:25 AM	4	39	3	0	16	44	3	0	1	15	5	0	1	22	12	0	165	2250
8:30 AM	5	32	4	0	11	39	3	0	1	15	6	0	1	14	19	0	150	2165
8:35 AM	0	37	1	0	8	43	5	0	5	5	5	0	3	14	26	0	152	2093
8:40 AM	6	37	2	0	9	40	6	0	1	21	10	0	3	15	28	0	178	2040
8:45 AM	2	42	3	0	14	40	8	0	3	9	6	0	2	21	14	0	164	1975
8:50 AM	10	29	2	0	11	46	5	0	3	8	4	0	0	19	15	0	152	1922
8:55 AM	2	38	5	0	4	41	1	0	3	16	5	0	3	10	15	0	143	1904

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	72	716	80	0	136	600	84	0	40	228	144	0	24	312	324	0	2760
Heavy Trucks	12	28	4		4	60	0		0	8	20		0	32	28		196
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

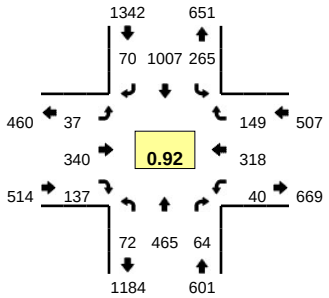
Type of peak hour being reported: Intersection Peak

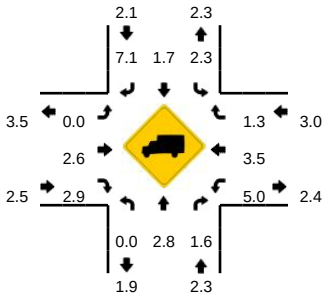
Method for determining peak hour: Total Entering Volume

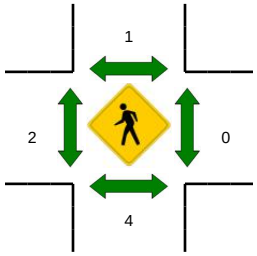
LOCATION: Fairview Pkwy -- NE Halsey St
CITY/STATE: Fairview, OR

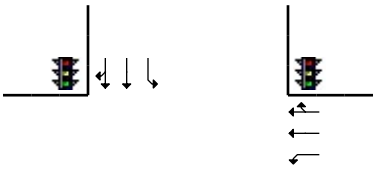
QC JOB #: 14835902
DATE: Thu, Nov 01 2018

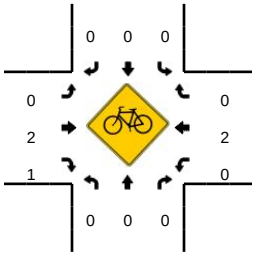
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:05 PM -- 5:20 PM

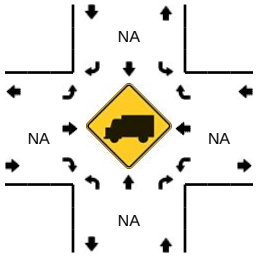


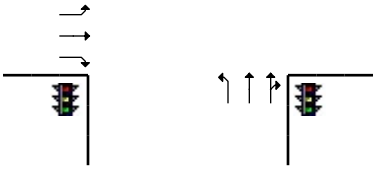


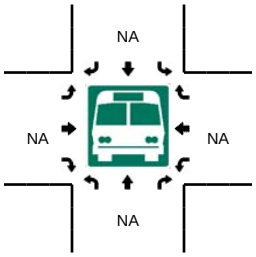












5-Min Count Period Beginning At	Fairview Pkwy (Northbound)				Fairview Pkwy (Southbound)				NE Halsey St (Eastbound)				NE Halsey St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	26	3	0	21	63	7	0	2	35	8	0	4	16	20	0	213	
4:05 PM	2	22	3	0	17	64	7	0	3	34	13	0	3	31	11	0	210	
4:10 PM	12	30	6	0	20	62	2	0	3	22	14	0	2	19	14	0	206	
4:15 PM	1	34	7	0	13	77	4	0	2	34	13	0	4	28	13	0	230	
4:20 PM	13	34	4	0	19	64	4	0	2	35	8	0	6	28	11	0	228	
4:25 PM	7	33	5	0	16	88	7	0	7	26	17	0	4	31	9	0	250	
4:30 PM	4	15	2	0	23	68	7	0	7	36	13	0	2	39	11	0	227	
4:35 PM	5	28	3	0	24	78	2	0	3	27	11	0	2	31	14	0	228	
4:40 PM	5	25	5	0	25	75	4	0	2	21	12	0	6	35	16	0	231	
4:45 PM	4	20	5	0	27	86	3	0	5	26	9	0	5	26	18	0	234	
4:50 PM	6	29	2	0	26	81	7	0	1	32	12	0	3	23	6	0	228	
4:55 PM	6	23	6	0	25	74	6	0	2	31	5	0	5	30	13	0	226	2711
5:00 PM	7	19	7	0	24	87	6	0	5	23	16	0	1	28	13	0	236	2734
5:05 PM	3	38	5	0	13	99	5	0	3	26	15	0	3	28	9	0	247	2771
5:10 PM	4	57	7	0	31	112	8	0	4	17	17	0	0	24	8	0	289	2854
5:15 PM	5	49	6	0	19	80	7	0	3	31	13	0	2	32	19	0	266	2890
5:20 PM	6	39	5	0	22	84	2	0	4	24	9	0	2	13	18	0	228	2890
5:25 PM	10	54	5	0	22	66	8	0	4	31	9	0	7	37	14	0	267	2907
5:30 PM	5	37	6	0	21	64	7	0	3	29	10	0	5	26	15	0	228	2908
5:35 PM	7	38	7	0	25	80	6	0	1	26	12	0	3	27	11	0	243	2923
5:40 PM	7	37	3	0	16	73	2	0	5	42	9	0	6	31	11	0	242	2934
5:45 PM	6	45	5	0	21	107	6	0	2	28	10	0	3	19	12	0	264	2964
5:50 PM	12	30	3	0	17	51	4	0	3	27	20	0	4	28	15	0	214	2950
5:55 PM	5	29	8	0	13	80	7	0	2	16	10	0	11	17	8	0	206	2930

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	48	576	72	0	252	1164	80	0	40	296	180	0	20	336	144	0	3208
Heavy Trucks	0	4	4		4	24	12		0	8	4		0	8	0		68
Pedestrians		4				0				8				0			12
Bicycles	0	0	0		0	0	0		0	1	0		0	1	0		2
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

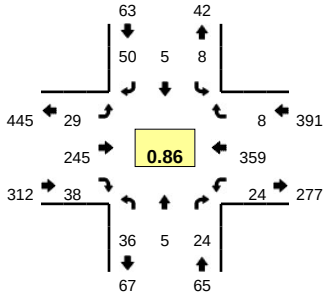
Type of peak hour being reported: Intersection Peak

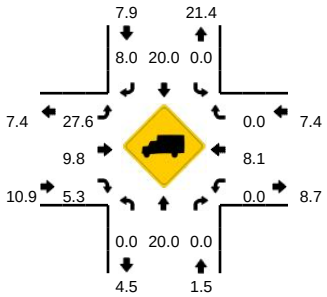
Method for determining peak hour: Total Entering Volume

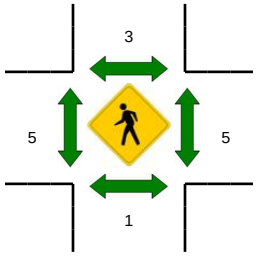
LOCATION: 7th St -- NE Halsey St
CITY/STATE: Fairview, OR

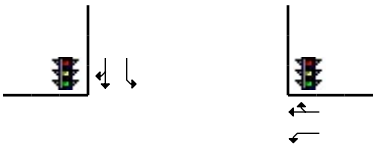
QC JOB #: 14835903
DATE: Thu, Nov 01 2018

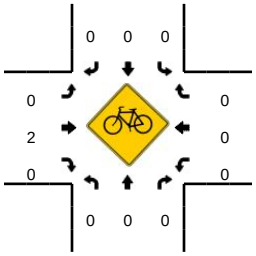
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:25 AM -- 7:40 AM

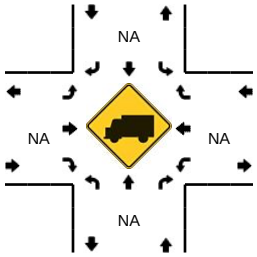


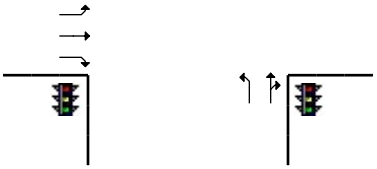


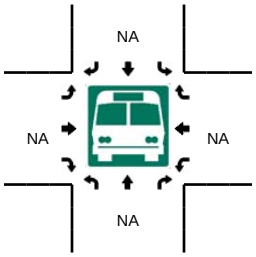












5-Min Count Period Beginning At	7th St (Northbound)				7th St (Southbound)				NE Halsey St (Eastbound)				NE Halsey St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	1	1	0	1	1	3	0	3	14	2	0	4	25	0	0	56	
7:05 AM	5	1	1	0	0	1	3	0	0	11	1	0	2	36	0	0	61	
7:10 AM	4	1	2	0	0	0	4	0	5	18	5	0	1	36	1	0	77	
7:15 AM	4	0	1	0	1	1	5	0	3	18	2	0	0	33	0	0	68	
7:20 AM	4	1	5	0	0	0	3	0	2	14	2	0	2	27	0	0	60	
7:25 AM	0	1	2	0	0	0	3	0	4	33	4	0	3	34	0	0	84	
7:30 AM	3	0	1	0	0	0	3	0	3	29	4	0	1	27	1	0	72	
7:35 AM	5	0	1	0	2	1	7	0	2	20	4	0	1	42	0	0	85	
7:40 AM	1	0	1	0	2	0	8	0	1	30	3	0	2	32	1	0	81	
7:45 AM	1	0	3	0	0	0	4	0	1	21	2	0	0	30	2	0	64	
7:50 AM	6	0	5	0	1	0	4	0	3	18	3	0	3	22	1	0	66	
7:55 AM	2	0	1	0	1	1	3	0	2	19	6	0	5	15	2	0	57	831
8:00 AM	0	0	1	0	1	0	0	0	1	10	3	0	3	34	0	0	53	828
8:05 AM	3	0	1	0	1	0	1	0	2	15	5	0	3	27	0	0	58	825
8:10 AM	2	0	2	0	0	0	2	0	2	15	4	0	2	27	0	0	56	804
8:15 AM	4	0	2	0	1	0	3	0	3	12	3	0	3	26	1	0	58	794
8:20 AM	5	0	3	0	2	0	4	0	0	19	7	0	7	22	0	0	69	803
8:25 AM	1	0	1	0	1	0	2	0	1	20	3	0	5	15	0	0	49	768
8:30 AM	2	0	7	0	1	0	0	0	0	20	1	0	4	32	0	0	67	763
8:35 AM	2	0	2	0	0	2	6	0	1	14	2	0	2	30	1	0	62	740
8:40 AM	2	0	0	0	0	1	1	0	2	14	2	0	5	27	3	0	57	716
8:45 AM	1	0	2	0	3	0	2	0	1	22	3	0	1	29	0	0	64	716
8:50 AM	0	0	3	0	0	0	2	0	1	13	0	0	2	26	0	0	47	697
8:55 AM	1	0	2	0	0	0	0	0	2	18	1	0	2	24	0	0	50	690

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	32	4	16	0	8	4	52	0	36	328	48	0	20	412	4	0	964
Heavy Trucks	0	0	0		0	0	8		8	32	4		0	36	0		88
Pedestrians		0				0				0				16			16
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

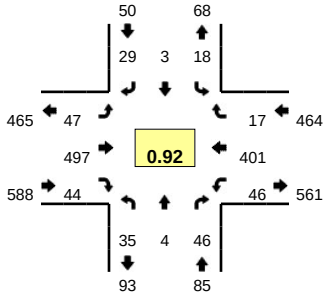
Type of peak hour being reported: Intersection Peak

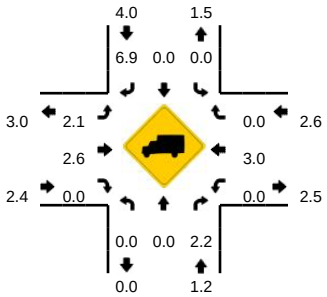
Method for determining peak hour: Total Entering Volume

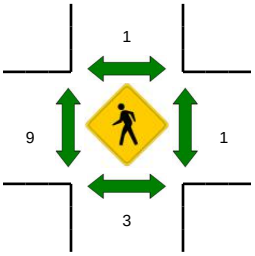
LOCATION: 7th St -- NE Halsey St
CITY/STATE: Fairview, OR

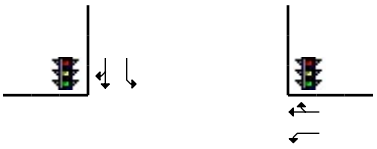
QC JOB #: 14835904
DATE: Thu, Nov 01 2018

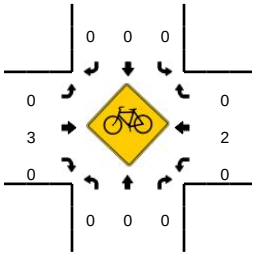
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:35 PM -- 5:50 PM

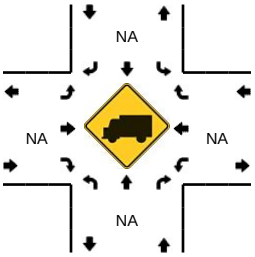


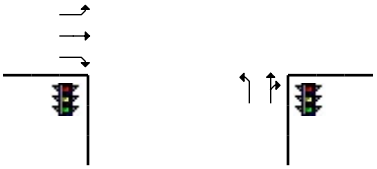


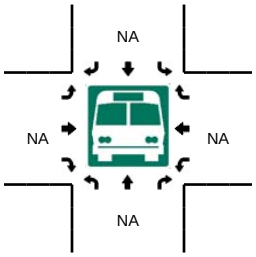












5-Min Count Period Beginning At	7th St (Northbound)				7th St (Southbound)				NE Halsey St (Eastbound)				NE Halsey St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	2	9	0	0	0	0	0	2	45	6	0	6	21	1	0	99	
4:05 PM	4	0	10	0	2	0	7	0	2	35	4	0	4	25	1	0	94	
4:10 PM	5	0	8	1	2	0	6	0	2	24	2	0	8	36	3	0	97	
4:15 PM	2	0	7	0	0	2	5	0	2	38	5	0	6	28	0	0	95	
4:20 PM	2	0	2	0	0	1	4	0	3	35	6	0	1	33	2	0	89	
4:25 PM	5	0	6	0	1	2	2	0	7	35	3	0	4	22	1	0	88	
4:30 PM	4	0	8	0	2	0	1	0	3	34	5	0	4	29	0	0	90	
4:35 PM	6	0	8	0	0	0	5	0	3	36	7	0	1	26	4	0	96	
4:40 PM	4	0	5	0	0	0	4	0	4	35	2	0	2	47	0	0	103	
4:45 PM	1	1	2	0	3	0	1	0	4	42	6	0	2	32	4	0	98	
4:50 PM	4	0	5	0	2	1	4	0	2	51	2	0	4	24	2	0	101	
4:55 PM	2	0	5	0	4	0	0	0	6	40	6	0	5	38	1	0	107	1157
5:00 PM	6	1	3	0	3	0	0	0	4	43	2	0	5	29	2	0	98	1156
5:05 PM	0	1	3	0	2	0	1	0	2	26	2	0	2	35	3	0	77	1139
5:10 PM	4	0	1	0	2	0	5	0	2	44	4	0	2	28	0	0	92	1134
5:15 PM	3	0	5	0	0	0	4	0	5	33	4	0	4	35	2	0	95	1134
5:20 PM	4	0	3	0	1	0	1	0	2	47	5	0	3	36	1	0	103	1148
5:25 PM	3	0	4	0	1	1	2	0	6	38	5	0	3	37	2	0	102	1162
5:30 PM	1	0	2	0	0	0	5	0	3	29	5	0	2	43	0	0	90	1162
5:35 PM	3	1	5	0	1	0	2	0	9	49	2	0	5	29	2	0	108	1174
5:40 PM	4	1	5	0	0	0	3	0	3	43	1	0	7	29	0	0	96	1167
5:45 PM	1	0	5	0	2	1	2	0	3	54	6	0	4	38	2	0	118	1187
5:50 PM	6	1	3	0	1	0	2	0	4	32	2	0	4	25	1	0	81	1167
5:55 PM	3	0	3	0	2	1	0	0	5	34	5	0	3	34	0	0	90	1150

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	32	8	60	0	12	4	28	0	60	584	36	0	64	384	16	0	1288
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	8	0		20
Pedestrians		0				4				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

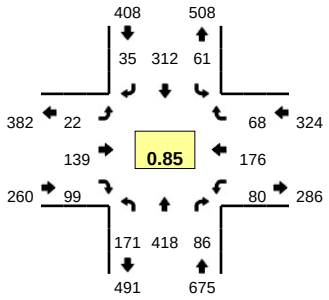
Type of peak hour being reported: Intersection Peak

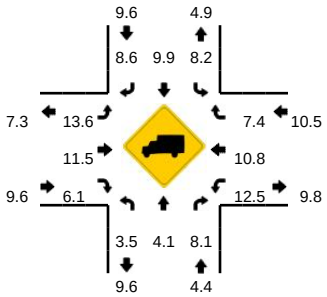
Method for determining peak hour: Total Entering Volume

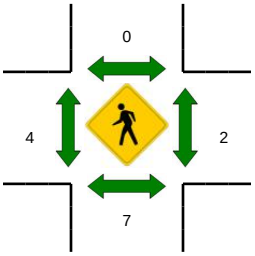
LOCATION: NE 223rd Ave -- NE Halsey St
CITY/STATE: Fairview, OR

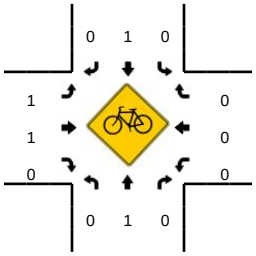
QC JOB #: 14835905
DATE: Thu, Nov 01 2018

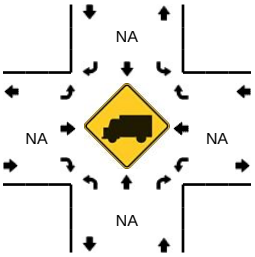
Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

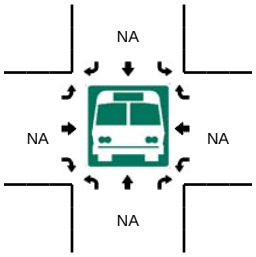












5-Min Count Period Beginning At	NE 223rd Ave (Northbound)				NE 223rd Ave (Southbound)				NE Halsey St (Eastbound)				NE Halsey St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	13	34	4	0	2	15	5	0	2	7	2	0	9	8	3	0	104	
7:05 AM	19	38	7	0	1	19	4	0	0	10	6	0	4	15	4	0	127	
7:10 AM	14	25	7	0	2	15	2	0	3	6	7	0	7	16	5	0	109	
7:15 AM	21	42	4	0	3	16	2	0	1	5	12	0	9	16	4	0	135	
7:20 AM	6	35	3	0	3	24	2	0	1	11	9	0	4	20	6	0	124	
7:25 AM	10	22	11	0	6	36	5	0	3	16	11	0	3	13	10	0	146	
7:30 AM	17	29	6	0	6	25	2	0	1	17	9	0	9	10	6	0	137	
7:35 AM	18	41	10	0	5	33	6	0	3	11	9	0	4	17	4	0	161	
7:40 AM	12	45	2	0	14	25	4	0	3	13	12	0	3	14	11	0	158	
7:45 AM	20	47	13	0	9	34	5	0	1	14	4	0	8	10	6	0	171	
7:50 AM	9	28	11	0	5	29	0	0	2	14	5	0	11	15	8	0	137	
7:55 AM	7	31	9	0	2	33	1	0	3	14	11	0	9	18	1	0	139	1648
8:00 AM	18	35	3	0	5	23	2	0	1	8	4	0	9	12	3	0	123	1667
8:05 AM	13	28	6	0	5	15	4	0	2	4	11	0	4	19	3	0	114	1654
8:10 AM	12	28	5	0	2	11	1	0	4	10	9	0	9	13	6	0	110	1655
8:15 AM	10	30	7	0	1	20	2	0	0	3	9	0	4	16	4	0	106	1626
8:20 AM	13	24	5	0	3	15	4	0	1	9	8	0	4	18	3	0	107	1609
8:25 AM	12	26	6	0	2	22	1	0	3	4	4	0	2	15	5	0	102	1565
8:30 AM	12	24	8	0	3	19	1	0	2	22	8	0	4	17	3	0	123	1551
8:35 AM	15	24	5	0	0	20	3	0	1	7	8	0	4	14	2	0	103	1493
8:40 AM	12	21	6	0	4	21	4	0	0	13	7	0	4	13	8	0	113	1448
8:45 AM	11	20	11	0	1	24	6	0	2	8	7	0	9	14	2	0	115	1392
8:50 AM	11	21	6	0	0	21	6	0	4	11	8	0	5	17	1	0	111	1366
8:55 AM	10	19	7	0	2	16	0	0	1	7	11	0	2	14	1	0	90	1317

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	200	532	100	0	112	368	60	0	28	152	100	0	60	164	84	0	1960
Heavy Trucks	4	20	4		16	24	4		0	12	8		4	16	0		112
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

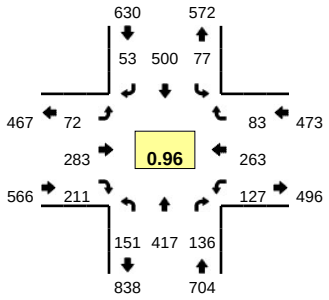
Type of peak hour being reported: Intersection Peak

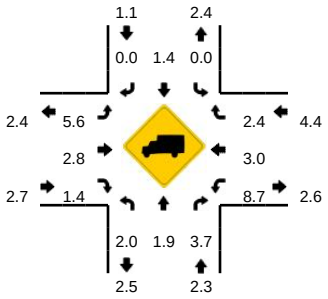
Method for determining peak hour: Total Entering Volume

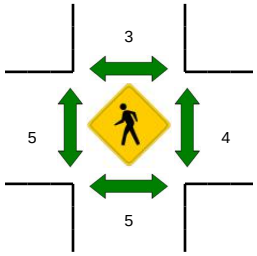
LOCATION: NE 223rd Ave -- NE Halsey St
CITY/STATE: Fairview, OR

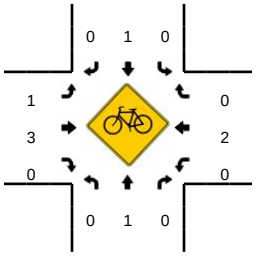
QC JOB #: 14835906
DATE: Thu, Nov 01 2018

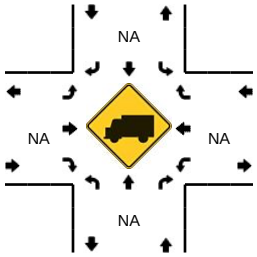
Peak-Hour: 4:55 PM -- 5:55 PM
Peak 15-Min: 5:35 PM -- 5:50 PM

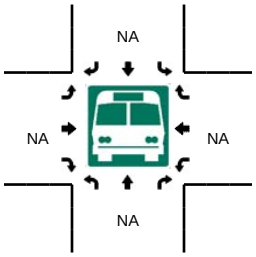












5-Min Count Period Beginning At	NE 223rd Ave (Northbound)				NE 223rd Ave (Southbound)				NE Halsey St (Eastbound)				NE Halsey St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	34	8	0	7	36	4	0	8	26	21	0	8	15	5	0	184	
4:05 PM	3	26	6	0	4	46	6	0	13	23	18	0	17	24	12	0	198	
4:10 PM	15	41	6	0	10	53	5	0	2	9	11	0	7	20	4	0	183	
4:15 PM	13	21	5	0	9	39	4	0	3	33	21	0	13	25	4	0	190	
4:20 PM	14	49	14	0	3	50	2	0	2	16	13	0	9	17	6	0	195	
4:25 PM	14	34	9	0	9	43	4	0	5	21	19	0	10	16	7	0	191	
4:30 PM	10	26	8	0	8	40	5	0	8	31	17	0	6	19	7	0	185	
4:35 PM	16	32	12	0	4	35	0	0	10	19	22	0	10	23	6	0	189	
4:40 PM	13	38	13	0	5	50	4	0	0	22	15	0	11	18	6	0	195	
4:45 PM	14	29	9	0	16	37	3	0	4	23	22	0	13	19	12	0	201	
4:50 PM	14	27	12	0	8	34	7	0	4	20	18	0	14	14	5	0	177	
4:55 PM	14	31	14	0	6	47	5	0	3	23	18	0	11	20	5	0	197	2285
5:00 PM	14	24	14	0	7	41	2	0	13	33	22	0	8	19	13	0	210	2311
5:05 PM	9	43	13	0	3	45	9	0	6	10	16	0	12	21	8	0	195	2308
5:10 PM	17	40	15	0	7	34	3	0	4	27	21	0	8	17	2	0	195	2320
5:15 PM	5	33	11	0	4	58	4	0	5	15	14	0	14	21	8	0	192	2322
5:20 PM	12	37	14	0	9	42	6	0	2	27	16	0	10	25	8	0	208	2335
5:25 PM	15	33	14	0	6	34	3	0	7	31	15	0	13	27	7	0	205	2349
5:30 PM	19	40	8	0	7	31	3	0	6	13	13	0	1	21	7	0	169	2333
5:35 PM	13	47	11	0	6	53	6	0	3	21	15	0	16	16	4	0	211	2355
5:40 PM	13	30	3	0	11	34	3	0	9	35	23	0	13	23	11	0	208	2368
5:45 PM	13	33	11	0	6	47	5	0	7	23	20	0	13	19	3	0	200	2367
5:50 PM	7	26	8	0	5	34	4	0	7	25	18	0	8	34	7	0	183	2373
5:55 PM	11	32	7	0	10	35	1	0	8	16	15	0	11	16	4	0	166	2342

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	156	440	100	0	92	536	56	0	76	316	232	0	168	232	72	0	2476
Heavy Trucks	4	16	8		0	0	0		0	8	0		20	4	0		60
Pedestrians		4				4				0				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

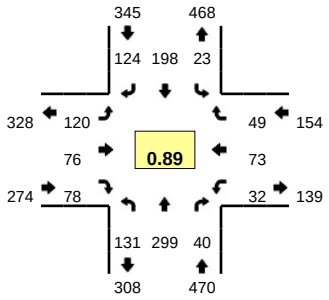
Type of peak hour being reported: Intersection Peak

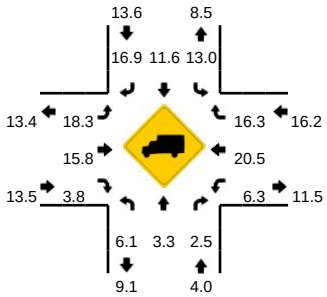
Method for determining peak hour: Total Entering Volume

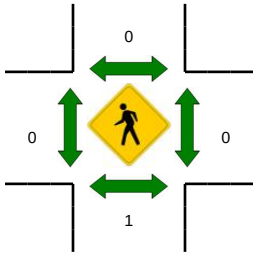
LOCATION: NE 223rd Ave -- NE Sandy Blvd
CITY/STATE: Fairview, OR

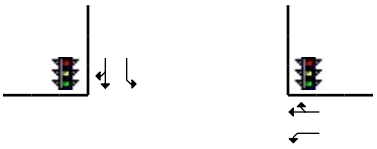
QC JOB #: 14835907
DATE: Thu, Nov 01 2018

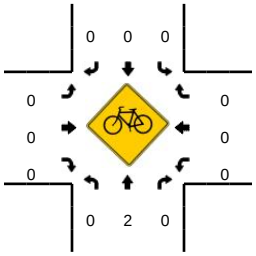
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

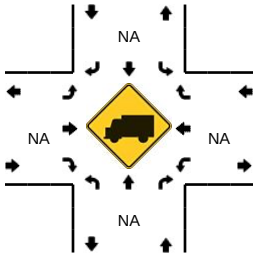


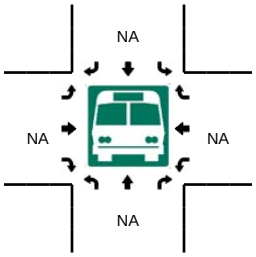












5-Min Count Period Beginning At	NE 223rd Ave (Northbound)				NE 223rd Ave (Southbound)				NE Sandy Blvd (Eastbound)				NE Sandy Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	27	2	0	0	15	10	0	17	8	1	0	1	5	5	0	96	
7:05 AM	16	32	2	0	0	8	15	0	9	4	4	0	1	10	3	0	104	
7:10 AM	4	13	1	0	2	7	12	0	10	8	6	0	6	3	2	0	74	
7:15 AM	8	22	3	0	2	22	13	0	11	3	8	0	1	3	4	0	100	
7:20 AM	10	23	3	0	2	16	5	0	10	4	7	0	3	6	6	0	95	
7:25 AM	10	21	1	0	1	14	18	0	7	12	7	0	4	5	5	0	105	
7:30 AM	6	29	3	0	5	20	13	0	6	8	12	0	2	4	1	0	109	
7:35 AM	11	19	3	0	1	24	6	0	6	6	7	0	4	13	2	0	102	
7:40 AM	20	37	2	0	2	18	13	0	12	9	8	0	4	3	4	0	132	
7:45 AM	13	34	5	0	2	21	7	0	8	3	5	0	3	9	4	0	114	
7:50 AM	15	19	3	0	3	10	6	0	15	6	8	0	3	5	7	0	100	
7:55 AM	13	23	12	0	3	23	6	0	9	5	5	0	0	7	6	0	112	1243
8:00 AM	10	12	2	0	0	8	5	0	6	5	7	0	2	9	8	0	74	1221
8:05 AM	11	23	5	0	3	14	7	0	3	5	5	0	2	5	3	0	86	1203
8:10 AM	5	20	4	0	1	11	7	0	7	5	3	0	1	3	5	0	72	1201
8:15 AM	13	12	2	0	2	9	9	0	9	4	4	0	2	5	4	0	75	1176
8:20 AM	10	15	3	0	2	11	3	0	4	6	7	0	1	5	0	0	67	1148
8:25 AM	11	18	6	0	1	10	13	0	9	5	9	0	2	8	3	0	95	1138
8:30 AM	6	17	2	0	4	14	4	0	3	5	3	0	1	6	0	0	65	1094
8:35 AM	10	13	6	0	3	17	8	0	7	6	5	0	4	3	2	0	84	1076
8:40 AM	10	13	4	0	1	23	2	0	4	6	7	0	4	4	3	0	81	1025
8:45 AM	11	11	3	0	4	12	4	0	6	7	6	0	2	6	3	0	75	986
8:50 AM	5	13	5	0	1	14	6	0	9	5	2	0	3	8	0	0	71	957
8:55 AM	3	10	3	0	2	5	6	0	8	7	7	0	3	2	1	0	57	902

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	176	360	40	0	20	252	104	0	104	72	80	0	44	100	40	0	1392
Heavy Trucks	8	8	4		0	20	12		16	12	4		0	8	8		100
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

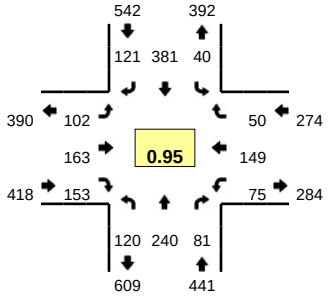
Type of peak hour being reported: Intersection Peak

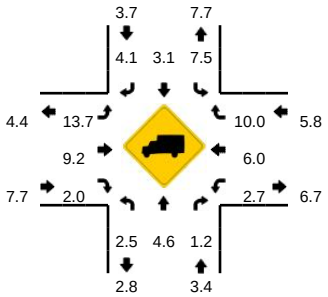
Method for determining peak hour: Total Entering Volume

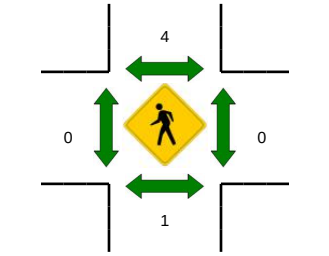
LOCATION: NE 223rd Ave -- NE Sandy Blvd
CITY/STATE: Fairview, OR

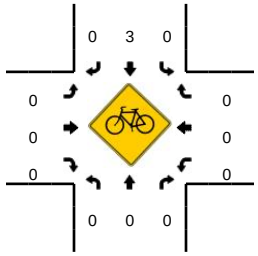
QC JOB #: 14835908
DATE: Thu, Nov 01 2018

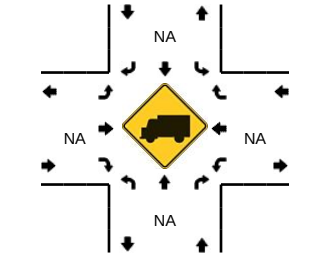
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

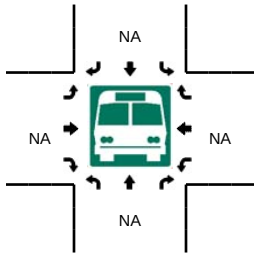












5-Min Count Period Beginning At	NE 223rd Ave (Northbound)				NE 223rd Ave (Southbound)				NE Sandy Blvd (Eastbound)				NE Sandy Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	17	11	0	4	35	10	0	5	17	15	0	5	16	5	0	144	
4:05 PM	13	19	10	0	3	42	13	0	4	10	7	0	5	13	4	0	143	
4:10 PM	14	20	5	0	0	41	4	0	12	16	23	0	7	9	5	0	156	
4:15 PM	12	18	5	0	1	26	16	0	8	12	12	0	8	16	5	0	139	
4:20 PM	8	24	4	0	6	27	13	0	8	13	11	0	3	18	7	0	142	
4:25 PM	8	30	7	0	3	35	14	0	10	16	11	0	11	8	3	0	156	
4:30 PM	8	20	3	0	5	22	11	0	4	8	10	0	6	17	3	0	117	
4:35 PM	12	24	10	0	2	21	8	0	11	15	15	0	6	8	3	0	135	
4:40 PM	9	17	4	0	2	32	10	0	13	20	19	0	7	13	4	0	150	
4:45 PM	14	24	7	0	6	35	7	0	7	14	13	0	3	10	3	0	143	
4:50 PM	9	13	7	0	3	31	6	0	14	11	12	0	9	10	4	0	129	
4:55 PM	9	14	8	0	5	34	9	0	6	11	5	0	5	11	4	0	121	1675
5:00 PM	7	13	10	0	3	26	6	0	6	16	18	0	8	16	1	0	130	1661
5:05 PM	17	17	7	0	7	31	9	0	7	5	10	0	11	9	2	0	132	1650
5:10 PM	14	21	10	0	5	33	7	0	5	13	17	0	8	11	6	0	150	1644
5:15 PM	15	27	8	0	3	29	3	0	5	11	14	0	13	10	6	0	144	1649
5:20 PM	7	26	4	0	0	25	7	0	12	17	15	0	8	11	3	0	135	1642
5:25 PM	10	24	6	0	3	31	9	0	6	14	12	0	4	15	1	0	135	1621
5:30 PM	16	18	9	0	3	23	6	0	6	17	14	0	4	9	3	0	128	1632
5:35 PM	12	20	7	0	6	29	11	0	12	8	11	0	13	8	4	0	141	1638
5:40 PM	13	28	6	0	2	35	9	0	8	9	15	0	6	11	5	0	147	1635
5:45 PM	7	20	8	0	2	27	8	0	11	8	9	0	4	13	5	0	122	1614
5:50 PM	15	17	4	0	1	23	14	0	9	7	13	0	2	15	4	0	124	1609
5:55 PM	6	15	7	0	4	31	4	0	5	17	4	0	7	7	4	0	111	1599

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	124	224	104	0	28	472	108	0	84	172	180	0	68	152	56	0	1772
Heavy Trucks	4	16	0		0	12	4		16	24	0		0	8	12		96
Pedestrians		4				8				0				0			12
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 11/6/2018 12:34 PM

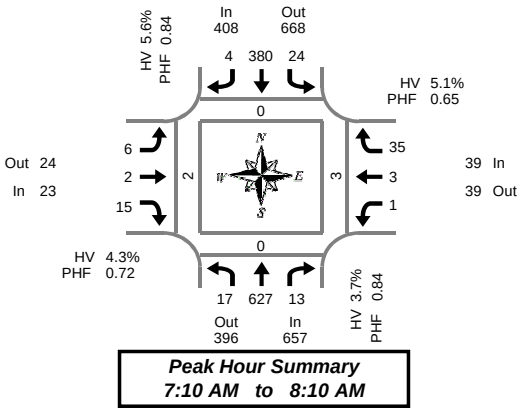
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

EXHIBIT C-12

Total Vehicle Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740



NE 223rd Ave & NE Arata Rd

Tuesday, March 10, 2015
7:00 AM to 9:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	1	38	2	0	4	26	0	0	0	0	0	0	0	0	5	0	76	0	0	0	0
7:05 AM	1	35	1	0	0	22	0	0	0	0	1	0	0	0	1	0	61	0	0	0	0
7:10 AM	0	60	0	0	2	21	0	0	0	0	2	0	0	1	0	0	86	0	0	0	0
7:15 AM	1	41	0	0	2	29	0	0	2	0	1	0	0	0	5	0	81	0	0	0	0
7:20 AM	1	56	0	0	1	25	1	0	0	2	1	0	0	0	1	0	88	0	0	0	0
7:25 AM	2	65	1	0	1	28	0	0	0	0	1	0	0	0	2	0	100	0	0	0	0
7:30 AM	2	67	2	0	0	34	1	0	0	0	1	0	0	1	5	0	113	0	0	0	0
7:35 AM	2	53	0	0	2	37	1	0	0	0	4	0	0	0	7	0	106	0	0	1	0
7:40 AM	4	51	0	0	2	37	0	0	0	0	1	0	0	0	0	0	95	0	0	0	0
7:45 AM	0	49	4	0	2	37	0	0	2	0	1	0	0	0	6	0	101	0	0	0	0
7:50 AM	1	51	2	0	3	41	0	0	1	0	0	0	0	0	3	0	102	0	0	0	0
7:55 AM	1	50	2	0	4	30	0	0	1	0	2	0	0	1	2	0	93	0	0	1	1
8:00 AM	0	40	1	0	3	34	0	0	0	0	0	0	0	0	0	0	78	0	0	1	1
8:05 AM	3	44	1	0	2	27	1	0	0	0	1	0	1	0	4	0	84	0	0	0	0
8:10 AM	0	45	3	0	1	32	0	0	2	0	1	0	0	1	1	0	86	0	0	0	0
8:15 AM	0	35	1	0	1	31	0	0	0	0	0	0	1	0	0	0	69	0	1	0	0
8:20 AM	1	25	1	0	3	29	0	0	0	0	0	0	0	0	2	0	61	0	0	0	0
8:25 AM	2	39	0	0	2	30	0	0	2	0	1	0	0	0	3	0	79	0	0	0	2
8:30 AM	0	33	3	0	1	29	0	0	1	0	0	0	0	0	5	0	72	0	0	1	0
8:35 AM	1	33	1	0	1	22	0	0	1	0	2	0	0	0	1	0	62	0	0	0	1
8:40 AM	0	35	1	0	0	40	0	0	1	0	1	0	0	1	3	0	82	0	1	1	0
8:45 AM	2	27	0	0	5	35	0	0	0	2	1	0	0	1	1	0	74	0	0	1	0
8:50 AM	0	21	0	0	3	30	0	0	0	0	0	0	0	0	1	0	55	0	0	0	0
8:55 AM	2	37	0	0	1	34	0	0	0	0	1	0	0	0	0	0	75	0	0	0	0
Total Survey	27	1,030	26	0	46	740	4	0	13	4	23	0	2	6	58	0	1,979	0	2	6	5

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	2	133	3	0	6	69	0	0	0	0	3	0	0	1	6	0	223	0	0	0	0
7:15 AM	4	162	1	0	4	82	1	0	2	2	3	0	0	0	8	0	269	0	0	0	0
7:30 AM	8	171	2	0	4	108	2	0	0	0	6	0	0	1	12	0	314	0	0	1	0
7:45 AM	2	150	8	0	9	108	0	0	4	0	3	0	0	1	11	0	296	0	0	1	1
8:00 AM	3	129	5	0	6	93	1	0	2	0	2	0	1	1	5	0	248	0	0	1	1
8:15 AM	3	99	2	0	6	90	0	0	2	0	1	0	1	0	5	0	209	0	1	0	2
8:30 AM	1	101	5	0	2	91	0	0	3	0	3	0	0	1	9	0	216	0	1	2	1
8:45 AM	4	85	0	0	9	99	0	0	0	2	2	0	0	1	2	0	204	0	0	1	0
Total Survey	27	1,030	26	0	46	740	4	0	13	4	23	0	2	6	58	0	1,979	0	2	6	5

Peak Hour Summary
7:10 AM to 8:10 AM

By Approach	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	657	396	1,053	0	408	668	1,076	0	23	24	47	0	39	39	78	0	1,127
%HV	3.7%				5.6%				4.3%				5.1%				4.4%
PHF	0.84				0.84				0.72				0.65				0.88

Pedestrians Crosswalk			
North	South	East	West
0	0	3	2

By Movement	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	17	627	13	657	24	380	4	408	6	2	15	23	1	3	35	39	1,127
%HV	5.9%	3.3%	15.4%	3.7%	0.0%	6.1%	0.0%	5.6%	0.0%	0.0%	6.7%	4.3%	0.0%	0.0%	5.7%	5.1%	4.4%
PHF	0.53	0.83	0.41	0.84	0.60	0.83	0.50	0.84	0.38	0.25	0.63	0.72	0.25	0.75	0.63	0.65	0.88

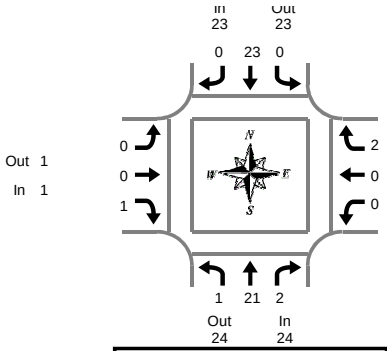
Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	16	616	14	0	23	367	3	0	6	2	15	0	0	3	37	0	1,102	0	0	2	1
7:15 AM	17	612	16	0	23	391	4	0	8	2	14	0	1	3	36	0	1,127	0	0	3	2
7:30 AM	16	549	17	0	25	399	3	0	8	0	12	0	2	3	33	0	1,067	0	1	3	4
7:45 AM	9	479	20	0	23	382	1	0	11	0	9	0	2	3	30	0	969	0	2	4	5
8:00 AM	11	414	12	0	23	373	1	0	7	2	8	0	2	3	21	0	877	0	2	4	4

EXHIBIT C-12

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
7:10 AM to 8:10 AM

NE 223rd Ave & NE Arata Rd

Tuesday, March 10, 2015
7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	1	1	2	0	1	0	1	0	0	0	0	0	0	0	0	3
7:05 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
7:10 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	1	3	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
7:20 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
7:25 AM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	1	1	6
7:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
7:35 AM	0	4	0	4	0	3	0	3	0	0	1	1	0	0	0	0	8
7:40 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
7:45 AM	0	2	1	3	0	3	0	3	0	0	0	0	0	0	1	1	7
7:50 AM	0	3	0	3	0	5	0	5	0	0	0	0	0	0	0	0	8
7:55 AM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
8:05 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
8:10 AM	0	4	1	5	0	3	0	3	0	0	0	0	0	0	0	0	8
8:15 AM	0	1	0	1	0	4	0	4	0	0	0	0	0	0	0	0	5
8:20 AM	0	2	1	3	1	2	0	3	0	0	0	0	0	0	0	0	6
8:25 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
8:35 AM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
8:40 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
8:45 AM	0	3	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
8:50 AM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
8:55 AM	0	2	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
Total Survey	1	43	5	49	1	44	0	45	0	0	1	1	0	0	2	2	97

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	2	1	3	0	2	0	2	0	0	0	0	0	0	0	0	5
7:15 AM	1	7	0	8	0	5	0	5	0	0	0	0	0	0	1	1	14
7:30 AM	0	6	0	6	0	5	0	5	0	0	1	1	0	0	0	0	12
7:45 AM	0	5	2	7	0	9	0	9	0	0	0	0	0	0	1	1	17
8:00 AM	0	6	1	7	0	7	0	7	0	0	0	0	0	0	0	0	14
8:15 AM	0	5	1	6	1	7	0	8	0	0	0	0	0	0	0	0	14
8:30 AM	0	6	0	6	0	2	0	2	0	0	0	0	0	0	0	0	8
8:45 AM	0	6	0	6	0	7	0	7	0	0	0	0	0	0	0	0	13
Total Survey	1	43	5	49	1	44	0	45	0	0	1	1	0	0	2	2	97

Heavy Vehicle Peak Hour Summary
7:10 AM to 8:10 AM

By Approach	Northbound NE 223rd Ave			Southbound NE 223rd Ave			Eastbound NE Arata Rd			Westbound NE Arata Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	24	24	48	23	23	46	1	1	2	2	2	4	50
PHF	0.67			0.64			0.25			0.50			0.69

By Movement	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	21	2	24	0	23	0	23	0	0	1	1	0	0	2	2	50
PHF	0.25	0.66	0.25	0.67	0.00	0.64	0.00	0.64	0.00	0.00	0.25	0.25	0.00	0.00	0.50	0.50	0.69

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

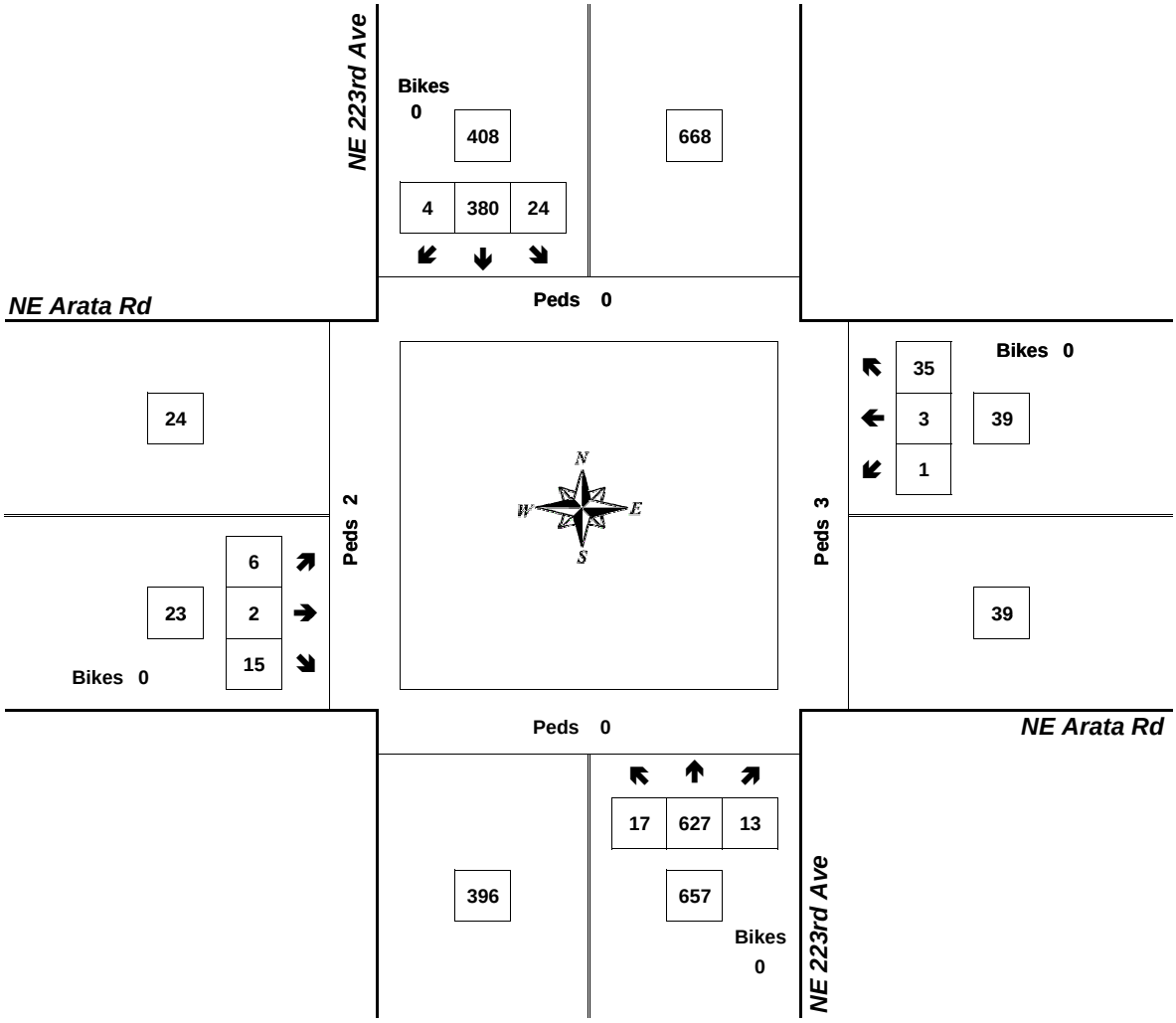
Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	1	20	3	24	0	21	0	21	0	0	1	1	0	0	2	2	48
7:15 AM	1	24	3	28	0	26	0	26	0	0	1	1	0	0	2	2	57
7:30 AM	0	22	4	26	1	28	0	29	0	0	1	1	0	0	1	1	57
7:45 AM	0	22	4	26	1	25	0	26	0	0	0	0	0	0	1	1	53
8:00 AM	0	23	2	25	1	23	0	24	0	0	0	0	0	0	0	0	49

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

NE 223rd Ave & NE Arata Rd

7:10 AM to 8:10 AM
Tuesday, March 10, 2015



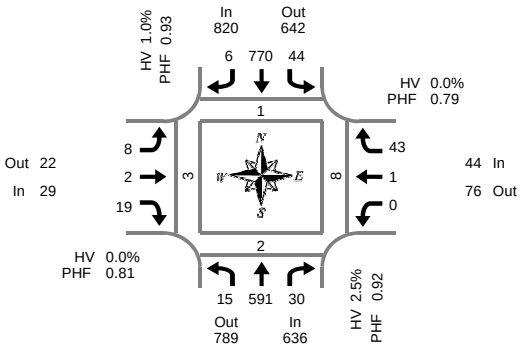
Approach	PHF	HV%	Volume
EB	0.72	4.3%	23
WB	0.65	5.1%	39
NB	0.84	3.7%	657
SB	0.84	5.6%	408
Intersection	0.88	4.4%	1,127

Count Period: 7:00 AM to 9:00 AM

EXHIBIT C-12

Total Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



Peak Hour Summary
4:30 PM to 5:30 PM

NE 223rd Ave & NE Arata Rd

Tuesday, March 10, 2015
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	42	3	0	4	48	0	0	0	0	0	0	0	0	6	0	103	0	0	0	0
4:05 PM	1	49	4	0	3	74	0	0	0	0	0	0	0	0	5	0	136	0	1	3	1
4:10 PM	1	54	2	0	8	69	0	0	0	0	3	0	1	1	2	0	141	0	0	1	0
4:15 PM	2	41	1	0	7	69	0	0	1	0	1	0	0	0	3	0	125	0	0	0	2
4:20 PM	2	40	3	0	3	64	3	0	2	0	2	0	0	1	2	0	122	0	0	6	1
4:25 PM	1	43	0	0	3	54	0	0	2	0	0	0	0	0	1	0	104	0	0	0	3
4:30 PM	1	57	0	0	3	65	0	0	1	0	1	0	0	0	5	0	133	0	0	1	0
4:35 PM	0	64	3	0	3	59	0	0	0	0	2	0	0	0	2	0	133	0	0	2	0
4:40 PM	2	42	4	0	3	55	1	0	1	0	3	0	0	0	5	0	116	0	0	0	2
4:45 PM	2	46	2	0	6	77	0	0	1	0	2	0	0	0	3	0	139	0	0	1	0
4:50 PM	1	53	0	0	3	64	1	0	0	0	1	0	0	0	4	0	127	1	0	1	1
4:55 PM	1	46	2	0	5	65	0	0	1	0	3	0	0	0	1	0	124	0	0	0	0
5:00 PM	1	44	4	0	5	66	0	0	2	0	1	0	0	0	3	0	126	0	0	0	0
5:05 PM	3	50	4	0	1	69	0	0	1	0	0	0	0	1	3	0	132	0	1	2	0
5:10 PM	1	37	2	2	3	74	2	0	0	1	1	0	0	0	4	0	125	0	0	1	0
5:15 PM	2	48	3	0	6	63	1	0	0	1	1	0	0	0	6	0	131	0	0	0	0
5:20 PM	1	44	2	0	5	56	1	0	1	0	2	0	0	0	4	0	116	0	0	0	0
5:25 PM	0	60	4	0	1	57	0	0	0	0	2	0	0	0	3	0	127	0	1	0	0
5:30 PM	0	37	2	0	4	50	1	0	0	0	1	0	0	0	1	0	96	0	0	2	0
5:35 PM	4	36	1	0	2	62	1	0	0	0	2	0	0	1	3	0	112	0	0	0	0
5:40 PM	0	37	1	0	7	75	0	0	0	0	2	0	0	1	4	0	127	0	0	2	0
5:45 PM	2	59	4	0	4	57	0	0	0	0	1	0	0	0	5	0	132	0	0	0	0
5:50 PM	2	41	2	2	2	49	0	0	0	0	1	0	0	1	5	0	103	0	0	0	0
5:55 PM	1	44	2	0	8	52	0	0	0	0	2	0	0	0	3	0	112	0	0	0	0
Total Survey	31	1,114	55	4	99	1,493	11	0	13	2	34	0	1	6	83	0	2,942	1	3	22	10

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	145	9	0	15	191	0	0	0	0	3	0	1	1	13	0	380	0	1	4	1
4:15 PM	5	124	4	0	13	187	3	0	5	0	3	0	0	1	6	0	351	0	0	6	6
4:30 PM	3	163	7	0	9	179	1	0	2	0	6	0	0	0	12	0	382	0	0	3	2
4:45 PM	4	145	4	0	14	206	1	0	2	0	6	0	0	0	8	0	390	1	0	2	1
5:00 PM	5	131	10	2	9	209	2	0	3	1	2	0	0	1	10	0	383	0	1	3	0
5:15 PM	3	152	9	0	12	176	2	0	1	1	5	0	0	0	13	0	374	0	1	0	0
5:30 PM	4	110	4	0	13	187	2	0	0	0	5	0	0	2	8	0	335	0	0	4	0
5:45 PM	5	144	8	2	14	158	0	0	0	0	4	0	0	1	13	0	347	0	0	0	0
Total Survey	31	1,114	55	4	99	1,493	11	0	13	2	34	0	1	6	83	0	2,942	1	3	22	10

Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	636	789	1,425	2	820	642	1,462	0	29	22	51	0	44	76	120	0	1,529
%HV	2.5%				1.0%				0.0%				0.0%				1.6%
PHF	0.92				0.93				0.81				0.79				0.98

Pedestrians Crosswalk			
North	South	East	West
1	2	8	3

By Movement	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	15	591	30	636	44	770	6	820	8	2	19	29	0	1	43	44	1,529
%HV	0.0%	2.5%	3.3%	2.5%	0.0%	1.0%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%
PHF	0.63	0.91	0.75	0.92	0.79	0.92	0.38	0.93	0.50	0.25	0.68	0.81	0.00	0.25	0.77	0.79	0.98

Rolling Hour Summary
4:00 PM to 6:00 PM

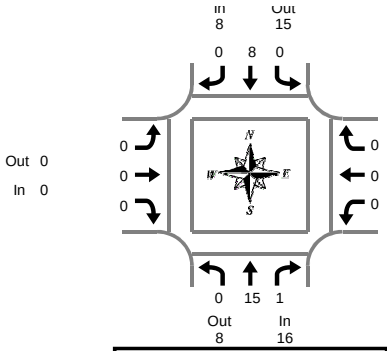
Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	14	577	24	0	51	763	5	0	9	0	18	0	1	2	39	0	1,503	1	1	15	10
4:15 PM	17	563	25	2	45	781	7	0	12	1	17	0	0	2	36	0	1,506	1	1	14	9
4:30 PM	15	591	30	2	44	770	6	0	8	2	19	0	0	1	43	0	1,529	1	2	8	3
4:45 PM	16	538	27	2	48	778	7	0	6	2	18	0	0	3	39	0	1,482	1	2	9	1
5:00 PM	17	537	31	4	48	730	6	0	4	2	16	0	0	4	44	0	1,439	0	2	7	0

EXHIBIT C-12

Heavy Vehicle Summary

All Traffic Data Services Inc.

Clay Carney
(503) 833-2740



Peak Hour Summary
4:30 PM to 5:30 PM

NE 223rd Ave & NE Arata Rd

Tuesday, March 10, 2015
4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:10 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:15 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
4:20 PM	0	0	1	1	0	0	1	1	1	0	0	1	0	0	1	1	4
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:40 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:45 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
4:50 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:05 PM	0	1	1	2	0	2	0	2	0	0	0	0	0	0	0	0	4
5:10 PM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
5:15 PM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:25 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Survey	0	26	2	28	0	14	1	15	1	0	0	1	0	0	1	1	45

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	5	0	5	0	1	0	1	0	0	0	0	0	0	0	0	6
4:15 PM	0	1	1	2	0	2	1	3	1	0	0	1	0	0	1	1	7
4:30 PM	0	3	0	3	0	2	0	2	0	0	0	0	0	0	0	0	5
4:45 PM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
5:00 PM	0	4	1	5	0	4	0	4	0	0	0	0	0	0	0	0	9
5:15 PM	0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
5:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	3	0	3	0	3	0	3	0	0	0	0	0	0	0	0	6
Total Survey	0	26	2	28	0	14	1	15	1	0	0	1	0	0	1	1	45

Heavy Vehicle Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound NE 223rd Ave			Southbound NE 223rd Ave			Eastbound NE Arata Rd			Westbound NE Arata Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	16	8	24	8	15	23	0	0	0	0	1	1	24
PHF	0.57			0.40			0.00			0.00			0.50

By Movement	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	15	1	16	0	8	0	8	0	0	0	0	0	0	0	0	24
PHF	0.00	0.63	0.25	0.57	0.00	0.40	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

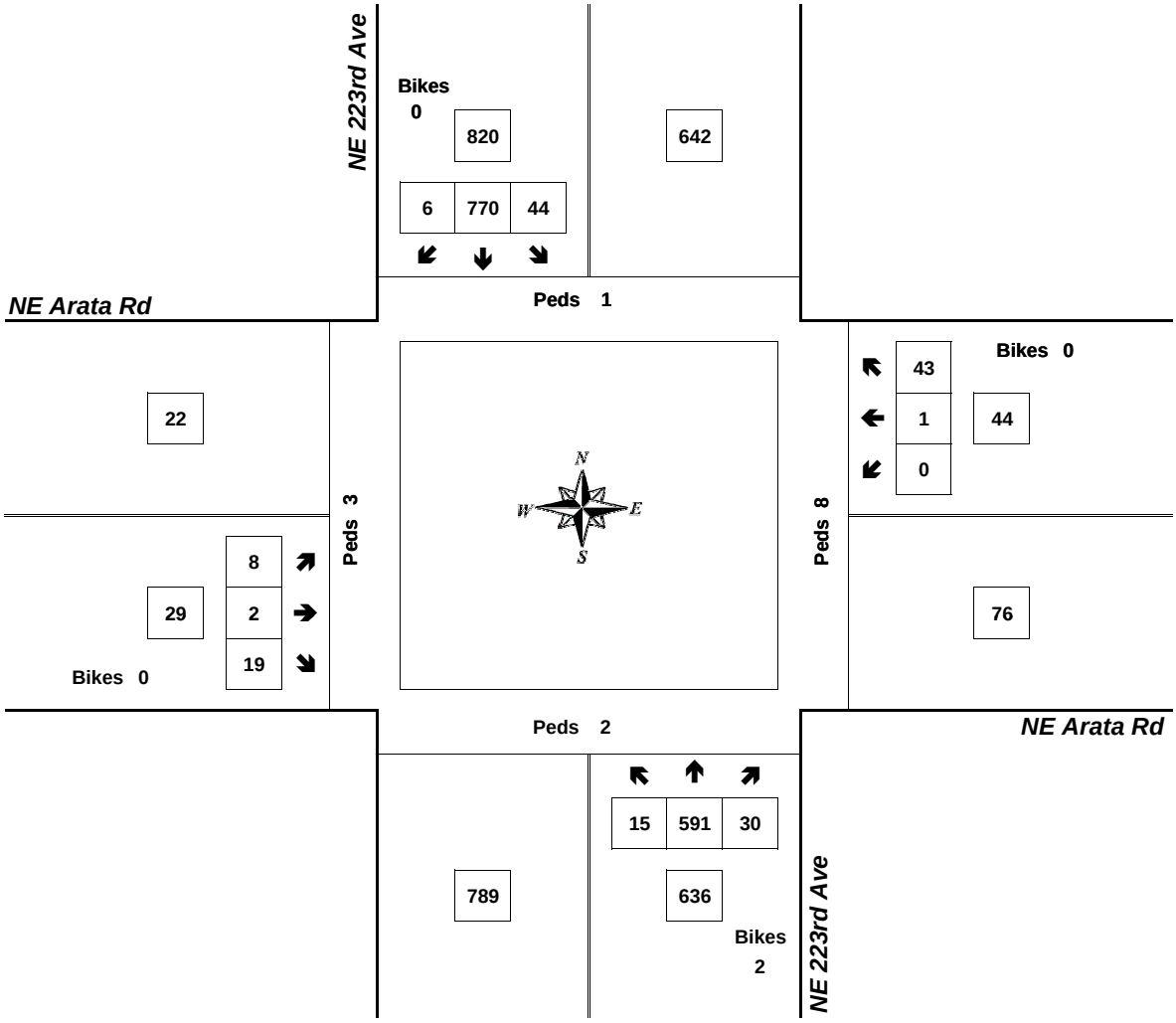
Interval Start Time	Northbound NE 223rd Ave				Southbound NE 223rd Ave				Eastbound NE Arata Rd				Westbound NE Arata Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	13	1	14	0	6	1	7	1	0	0	1	0	0	1	1	23
4:15 PM	0	12	2	14	0	9	1	10	1	0	0	1	0	0	1	1	26
4:30 PM	0	15	1	16	0	8	0	8	0	0	0	0	0	0	0	0	24
4:45 PM	0	14	1	15	0	6	0	6	0	0	0	0	0	0	0	0	21
5:00 PM	0	13	1	14	0	8	0	8	0	0	0	0	0	0	0	0	22

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

NE 223rd Ave & NE Arata Rd

4:30 PM to 5:30 PM
Tuesday, March 10, 2015



Approach	PHF	HV%	Volume
EB	0.81	0.0%	29
WB	0.79	0.0%	44
NB	0.92	2.5%	636
SB	0.93	1.0%	820
Intersection	0.98	1.6%	1,529

Count Period: 4:00 PM to 6:00 PM

EXHIBIT C-12

TRIP GENERATION CALCULATIONS

Land Use: Multifamily Housing (Mid-Rise)
Land Use Code: 221
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 85

AM PEAK HOUR

Trip Rate: 0.36

	Enter	Exit	Total
Directional Distribution	26%	74%	
Trip Ends	**8**	**23**	**31**

PM PEAK HOUR

Trip Rate: 0.44

	Enter	Exit	Total
Directional Distribution	61%	39%	
Trip Ends	**23**	**14**	**37**

WEEKDAY

Trip Rate: 5.44

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**231**	**231**	**462**

SATURDAY

Trip Rate: 4.91

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**209**	**209**	**418**

Source: TRIP GENERATION, Tenth Edition

EXHIBIT C-12

TRIP GENERATION CALCULATIONS

Land Use: Shopping Center
Land Use Code: 820
Setting/Location General Urban/Suburban
Variable: 1,000 Sq. Ft. GFA
Variable Value: 4.5

AM PEAK HOUR

Trip Rate: 0.94

	Enter	Exit	Total
Directional Distribution	62%	38%	
Trip Ends	**2**	**2**	**4**

PM PEAK HOUR

Trip Rate: 3.81

	Enter	Exit	Total
Directional Distribution	48%	52%	
Trip Ends	**8**	**9**	**17**

WEEKDAY

Trip Rate: 37.75

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**85**	**85**	**170**

SATURDAY

Trip Rate: 46.12

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**104**	**104**	**208**

Source: TRIP GENERATION, Tenth Edition

EXHIBIT C-12

Multnomah County

Joanna VALENCIA <joanna.valencia@multco.us>

22820 NE Sandy Blvd - Environmental Works

5 messages

mike ard <mike.ard@gmail.com> Thu, Jan 25, 2018 at 11:47 AM
To: Joanna VALENCIA <joanna.valencia@multco.us>

Click with Caution - Be Suspicious of Attachments, Links, and Requests for Payment or Login Information.

Hi Joanna,

I was asked to contact you regarding traffic analysis requirements for Environmental Works' proposed new 12,000 sf facility in Fairview, Oregon. At this point I'm not sure what you are looking for in an analysis, but wanted to provide some basic information related to the proposed use.

The business has equipment including excavators, directional drills, trailers and dump trucks. Most of the company vehicles are large passenger vehicles and passenger trucks, but they do have a few trailers for equipment and some larger vehicles up to dump truck size. They employ a staff of 25-35 people depending on the time of year, and many employees are dispatched directly from their homes rather than from the business site.

Based on the nature of the business, it seems to fall under the "Specialty Trade Contractor" land use in the ITE 10th Edition Trip Generation Manual. This land use includes businesses "primarily involved in providing contract repairs and services to meet industrial or residential needs." The category also includes plumbing, heating and cooling, industrial supply, roofing, and other similar industrial, service-oriented businesses.

Based on the size of the proposed facility (12,000 sf), we would project 20 trips during the morning peak hour, 24 during the evening peak hour, and 122 daily trips.

Hopefully this is enough information to use in discussion of what further analysis (if any) should be required for this project. Please let me know what you would like us to provide or give me a call at your convenience.

Thank you,

Michael Ard, PE
Ard Engineering, LLC
(503)537-8511

Joanna VALENCIA <joanna.valencia@multco.us> Thu, Jan 25, 2018 at 1:41 PM
To: mike ard <mike.ard@gmail.com>

Hi Mike,

This is exactly what I was looking for. One question, could you clarify the land use code from the ITE manual?

Thanks,
Joanna
[Quoted text hidden]
--

Joanna Valencia, AICP
Planning and Development Manager
Multnomah County Department of Community Services
Transportation Division | https://multco.us/transportation-planning
1620 SE 190th Avenue, Portland, OR 97233
[P] 503.988.0219 [F] 503.988.3389 [E] joanna.valencia@multco.us

EXHIBIT C-12

mike ard <mike.ard@gmail.com> Thu, Jan 25, 2018 at 1:50 PM
To: Joanna VALENCIA <joanna.valencia@multco.us>

Click with Caution - Be Suspicious of Attachments, Links, and Requests for Payment or Login Information.

Hi Joanna,

It is based on land use code 180, "Specialty Trade Contractor". Note that this land use is included only in the new 10th Edition of the Trip Generation Manual (published September 2017), so if you are looking at the older 9th edition data you will not find that land use category. I can provide scans of the relevant trip generation manual pages in addition to our calculation worksheet as part of my formal, stamped report if desired.

Thank you,

Michael Ard, PE
Ard Engineering, LLC
(503)537-8511
[Quoted text hidden]

Joanna VALENCIA <joanna.valencia@multco.us> Thu, Jan 25, 2018 at 3:33 PM
To: mike ard <mike.ard@gmail.com>

That would be great. Looking forward to your final memo.

Joanna
[Quoted text hidden]

Joanna VALENCIA <joanna.valencia@multco.us> Thu, Jan 25, 2018 at 4:24 PM
To: mike ard <mike.ard@gmail.com>

Mike,

Did you talk to Matt about where traffic is expected to flow from? Traffic flow will help me determine Sandy Blvd Corridor impacts. Is traffic generated from the site heading towards 238th or 223rd?

Thanks,
Joanna
[Quoted text hidden]

EXHIBIT C-12

1e

TRIP GENERATION CALCULATIONS

Land Use: Specialty Trade Contractor
Land Use Code: 180
Setting/Location General Urban/Suburban
Variable: 1,000 Sq. Ft. GFA
Variable Value: 12

AM PEAK HOUR

Trip Rate: 1.66

	Enter	Exit	Total
Directional Distribution	73%	27%	
Trip Ends	**15**	**5**	**20**

PM PEAK HOUR

Trip Rate: 1.97

	Enter	Exit	Total
Directional Distribution	32%	68%	
Trip Ends	**8**	**16**	**24**

WEEKDAY

Trip Rate: 10.22

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**61**	**61**	**122**

Source: TRIP GENERATION, Tenth Edition

EXHIBIT C-12

RESIDENTIAL TRAFFIC SUPERIMPOSED ON
RETAIL-COMMERCIAL TRAFFIC ASSIGNMENT- **AM PEAK**

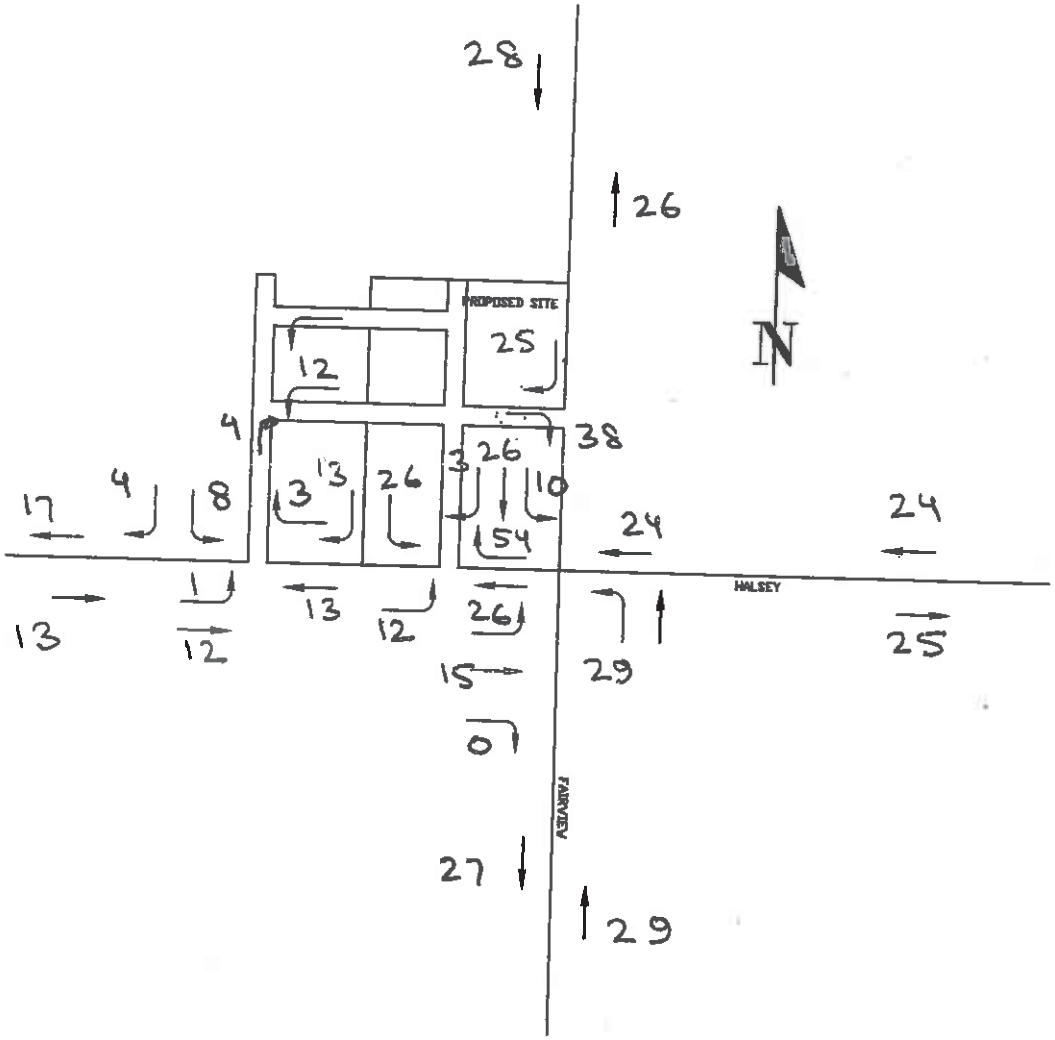
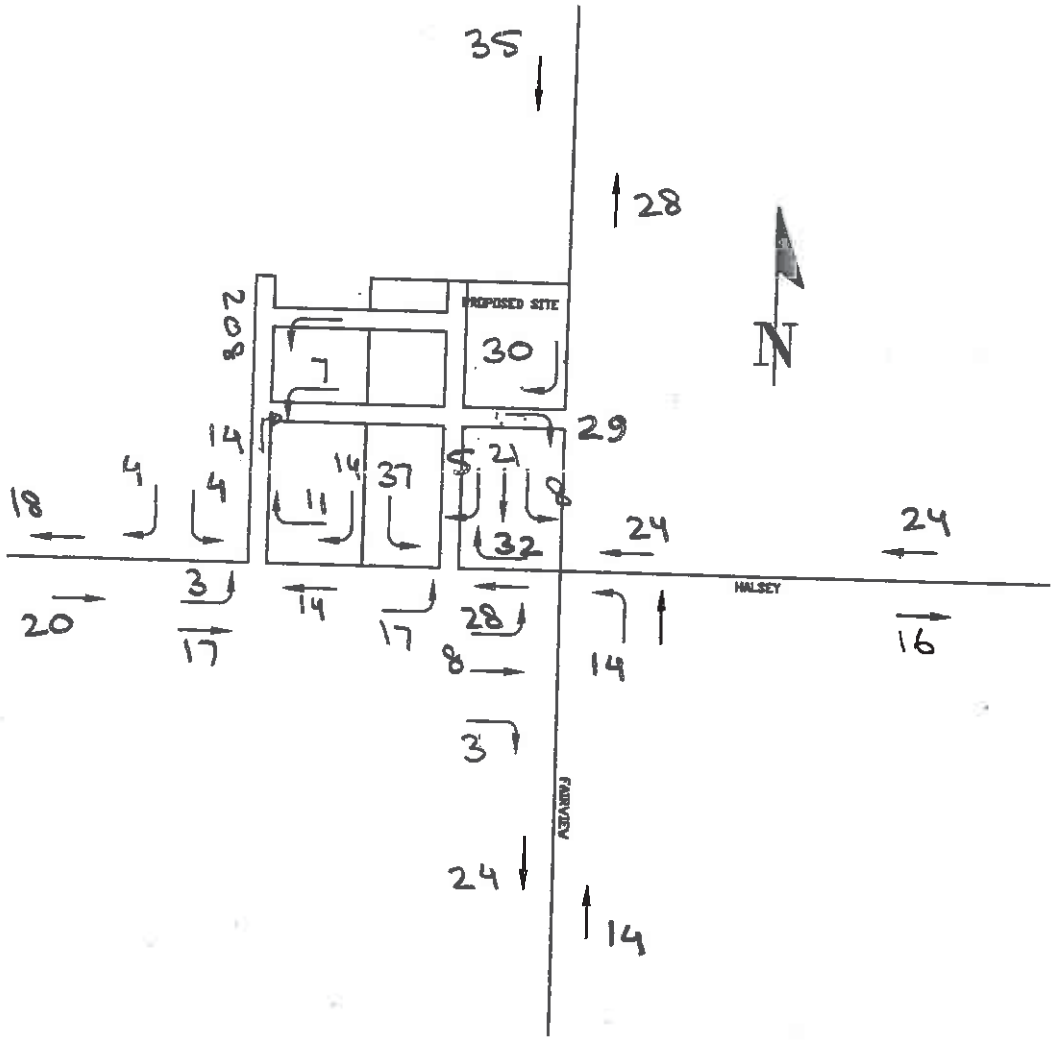
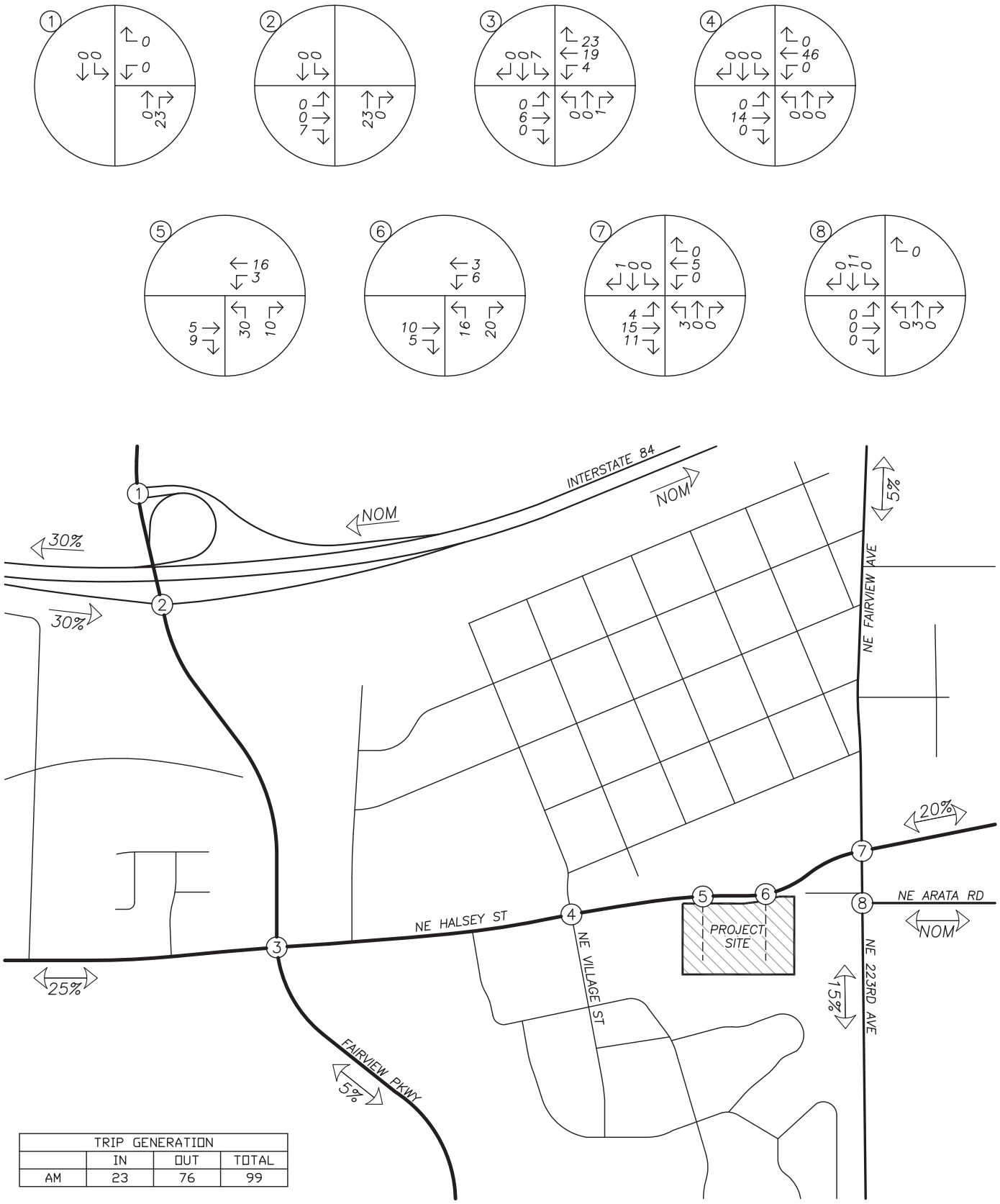


EXHIBIT C-12

RESIDENTIAL TRAFFIC SUPERIMPOSED ON
RETAIL-COMMERCIAL TRAFFIC ASSIGNMENT- **PM PEAK**



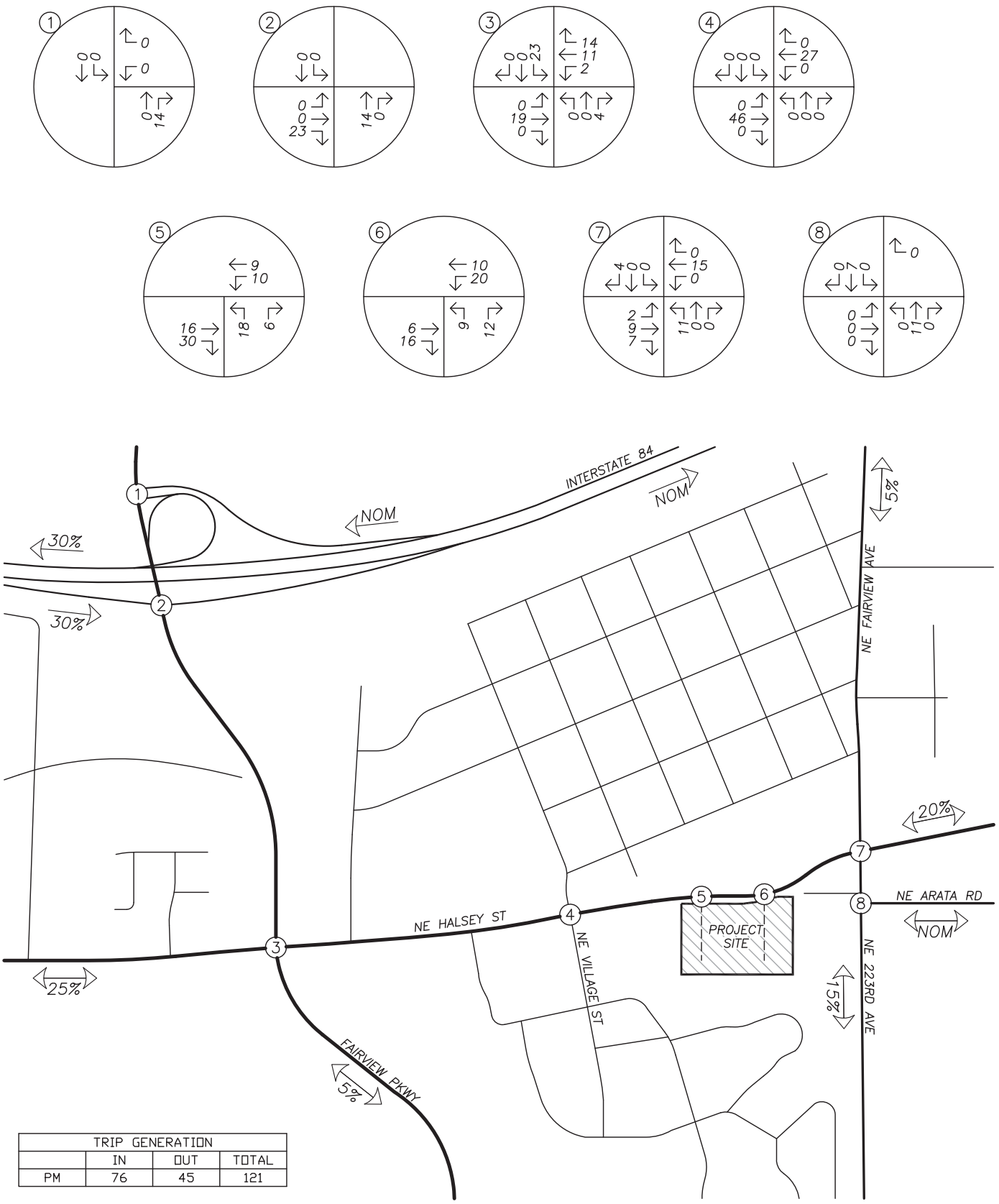


TRIP GENERATION			
	IN	OUT	TOTAL
AM	23	76	99

SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development Plan
AM Peak Hour

no scale

FIGURE 4



TRIP GENERATION			
	IN	OUT	TOTAL
PM	76	45	121

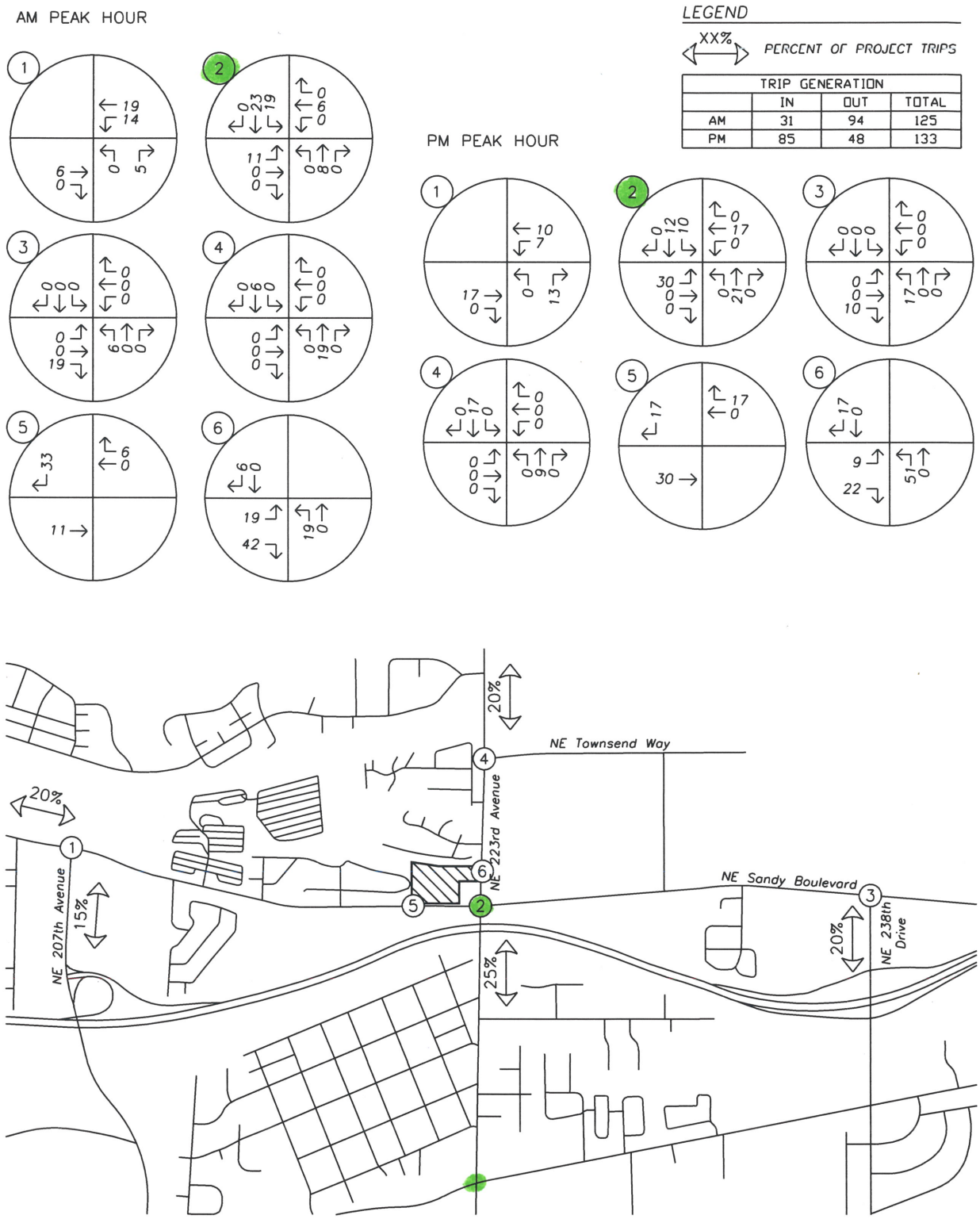
SITE TRIP DISTRIBUTION & ASSIGNMENT
Proposed Development Plan
PM Peak Hour

no scale

FIGURE 5

EXHIBIT C-12

Sandy & 223rd mixed-use



TRIP GENERATION			
	IN	OUT	TOTAL
AM	31	94	125
PM	85	48	133

TRIP ASSIGNMENT & DISTRIBUTION
Proposed Development Plan – Site Trips
AM & PM Peak Hours

no scale

FIGURE 4

PAGE 8

HCM Signalized Intersection Capacity Analysis
1: NE 223rd Avenue & NE Sandy Boulevard

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	76	78	32	73	49	131	299	40	23	198	124
Future Volume (vph)	120	76	78	32	73	49	131	299	40	23	198	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	1667	1386	1554	1539		1736	1827	1519	1583	1570	
Flt Permitted	0.45	1.00	1.00	0.70	1.00		0.37	1.00	1.00	0.56	1.00	
Satd. Flow (perm)	744	1667	1386	1148	1539		674	1827	1519	931	1570	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	135	85	88	36	82	55	147	336	45	26	222	139
RTOR Reduction (vph)	0	0	69	0	29	0	0	0	24	0	25	0
Lane Group Flow (vph)	135	85	19	36	108	0	147	336	21	26	336	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	14%	14%	14%	16%	16%	16%	4%	4%	4%	14%	14%	14%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	20.7	14.6	14.6	11.2	9.6		36.8	30.8	30.8	28.0	26.4	
Effective Green, g (s)	20.7	14.6	14.6	11.2	9.6		36.8	30.8	30.8	28.0	26.4	
Actuated g/C Ratio	0.31	0.22	0.22	0.17	0.14		0.55	0.46	0.46	0.42	0.40	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	314	365	303	202	221		468	844	702	407	622	
v/s Ratio Prot	c0.04	0.05		0.00	0.07		c0.03	0.18		0.00	c0.21	
v/s Ratio Perm	c0.09		0.01	0.03			0.15		0.01	0.03		
v/c Ratio	0.43	0.23	0.06	0.18	0.49		0.31	0.40	0.03	0.06	0.54	
Uniform Delay, d1	17.5	21.4	20.6	23.6	26.2		8.2	11.8	9.8	11.4	15.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.3	0.1	0.4	1.7		0.4	0.3	0.0	0.1	0.9	
Delay (s)	18.4	21.7	20.7	24.0	27.9		8.5	12.1	9.8	11.4	16.3	
Level of Service	B	C	C	C	C		A	B	A	B	B	
Approach Delay (s)		20.0			27.1			10.9			16.0	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Fairview Parkway & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	179	98	19	254	251	81	732	48	130	570	104
Future Volume (vph)	40	179	98	19	254	251	81	732	48	130	570	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1626	1712	1455	1687	3100		1736	3439		1671	3265	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1626	1712	1455	1687	3100		1736	3439		1671	3265	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	44	197	108	21	279	276	89	804	53	143	626	114
RTOR Reduction (vph)	0	0	82	0	201	0	0	5	0	0	17	0
Lane Group Flow (vph)	44	197	26	21	354	0	89	852	0	143	723	0
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	3.6	16.9	16.9	1.7	15.0		6.8	24.9		8.5	26.6	
Effective Green, g (s)	3.6	16.9	16.9	1.7	15.0		6.8	24.9		8.5	26.6	
Actuated g/C Ratio	0.05	0.24	0.24	0.02	0.21		0.10	0.36		0.12	0.38	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	83	413	351	40	664		168	1223		202	1240	
v/s Ratio Prot	c0.03	c0.12		0.01	0.11		0.05	c0.25		c0.09	0.22	
v/s Ratio Perm			0.02									
v/c Ratio	0.53	0.48	0.07	0.53	0.53		0.53	0.70		0.71	0.58	
Uniform Delay, d1	32.4	22.8	20.5	33.8	24.4		30.1	19.3		29.6	17.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.4	0.9	0.1	11.9	0.8		3.0	1.7		10.8	0.7	
Delay (s)	38.7	23.6	20.6	45.6	25.2		33.1	21.1		40.3	18.0	
Level of Service	D	C	C	D	C		C	C		D	B	
Approach Delay (s)		24.6			26.0			22.2			21.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: NE Village Street/NE 7th Street & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	245	38	24	359	8	36	5	24	8	5	50
Future Volume (vph)	29	245	38	24	359	8	36	5	24	8	5	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1623	1712	1421	1686	1769		1759	1597		1661	1484	
Flt Permitted	0.36	1.00	1.00	0.55	1.00		0.72	1.00		0.73	1.00	
Satd. Flow (perm)	621	1712	1421	967	1769		1325	1597		1285	1484	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	34	285	44	28	417	9	42	6	28	9	6	58
RTOR Reduction (vph)	0	0	29	0	2	0	0	15	0	0	32	0
Lane Group Flow (vph)	34	285	15	28	424	0	42	19	0	9	32	0
Confl. Peds. (#/hr)	3		1	1		3	5		5	5		5
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	2%	2%	2%	8%	8%	8%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	16.2	16.2	16.2	16.2	16.2		20.8	20.8		20.8	20.8	
Effective Green, g (s)	16.2	16.2	16.2	16.2	16.2		20.8	20.8		20.8	20.8	
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.35		0.45	0.45		0.45	0.45	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	218	602	500	340	622		599	722		581	671	
v/s Ratio Prot		0.17			c0.24			0.01			0.02	
v/s Ratio Perm	0.05		0.01	0.03			c0.03			0.01		
v/c Ratio	0.16	0.47	0.03	0.08	0.68		0.07	0.03		0.02	0.05	
Uniform Delay, d1	10.2	11.6	9.8	9.9	12.7		7.1	7.0		7.0	7.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6	0.0	0.1	3.1		0.2	0.1		0.0	0.1	
Delay (s)	10.5	12.2	9.8	10.0	15.8		7.4	7.1		7.0	7.2	
Level of Service	B	B	A	B	B		A	A		A	A	
Approach Delay (s)		11.7			15.4			7.2			7.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: NE 223rd Avenue/NE Fairview Avenue & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	139	99	80	176	68	171	418	86	61	312	35
Future Volume (vph)	22	139	99	80	176	68	171	418	86	61	312	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1641	1727	1418	1626	1712	1455	1736	1827	1515	1641	1696	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1641	1727	1418	1626	1712	1455	1736	1827	1515	1641	1696	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	26	164	116	94	207	80	201	492	101	72	367	41
RTOR Reduction (vph)	0	0	94	0	0	60	0	0	59	0	5	0
Lane Group Flow (vph)	26	164	22	94	207	20	201	492	42	72	403	0
Confl. Peds. (#/hr)			7						2			4
Heavy Vehicles (%)	10%	10%	10%	11%	11%	11%	4%	4%	4%	10%	10%	10%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	1.7	14.6	14.6	6.2	19.1	19.1	13.0	31.4	31.4	5.2	23.6	
Effective Green, g (s)	1.7	14.6	14.6	6.2	19.1	19.1	13.0	31.4	31.4	5.2	23.6	
Actuated g/C Ratio	0.02	0.19	0.19	0.08	0.25	0.25	0.17	0.42	0.42	0.07	0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	36	334	274	133	433	368	299	760	630	113	530	
v/s Ratio Prot	0.02	0.09		c0.06	c0.12		c0.12	0.27		0.04	c0.24	
v/s Ratio Perm			0.02			0.01			0.03			
v/c Ratio	0.72	0.49	0.08	0.71	0.48	0.06	0.67	0.65	0.07	0.64	0.76	
Uniform Delay, d1	36.6	27.1	24.9	33.7	23.9	21.3	29.2	17.6	13.2	34.2	23.4	
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	52.1	1.1	0.1	15.7	0.8	0.1	5.8	1.9	0.0	11.2	6.4	
Delay (s)	88.7	28.2	25.0	49.5	24.8	21.4	35.0	19.5	13.3	45.4	29.7	
Level of Service	F	C	C	D	C	C	D	B	B	D	C	
Approach Delay (s)		32.2			30.1			22.6			32.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	75.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	16	1	3	37	18	665	14	25	403	4
Future Vol, veh/h	6	2	16	1	3	37	18	665	14	25	403	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	32	-	-	32	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	4	4	5	5	5	4	4	4	6	6	6
Mvmt Flow	7	2	18	1	3	42	20	756	16	28	458	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1344	1330	460	1332	1324	764	463	0	0	772	0	0
Stage 1	517	517	-	805	805	-	-	-	-	-	-	-
Stage 2	827	813	-	527	519	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.15	6.55	6.25	4.14	-	-	4.16	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.545	4.045	3.345	2.236	-	-	2.254	-	-
Pot Cap-1 Maneuver	128	153	597	129	154	399	1088	-	-	825	-	-
Stage 1	538	530	-	372	391	-	-	-	-	-	-	-
Stage 2	363	389	-	529	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	108	145	597	119	146	399	1088	-	-	825	-	-
Mov Cap-2 Maneuver	214	254	-	119	146	-	-	-	-	-	-	-
Stage 1	528	512	-	365	384	-	-	-	-	-	-	-
Stage 2	316	382	-	493	510	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	17.4	0.2	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1088	-	-	383	337	825	-	-
HCM Lane V/C Ratio	0.019	-	-	0.071	0.138	0.034	-	-
HCM Control Delay (s)	8.4	-	-	15.1	17.4	9.5	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.5	0.1	-	-

HCM Signalized Intersection Capacity Analysis
1: NE 223rd Avenue & NE Sandy Boulevard

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	163	153	75	149	50	120	240	81	40	381	121
Future Volume (vph)	102	163	153	75	149	50	120	240	81	40	381	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1668	1759	1463	1701	1712		1752	1845	1568	1736	1751	
Flt Permitted	0.41	1.00	1.00	0.65	1.00		0.21	1.00	1.00	0.60	1.00	
Satd. Flow (perm)	716	1759	1463	1161	1712		381	1845	1568	1100	1751	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	107	172	161	79	157	53	126	253	85	42	401	127
RTOR Reduction (vph)	0	0	123	0	14	0	0	0	48	0	13	0
Lane Group Flow (vph)	107	172	38	79	196	0	126	253	37	42	515	0
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	23.1	16.8	16.8	17.7	14.1		37.2	31.2	31.2	30.2	27.7	
Effective Green, g (s)	23.1	16.8	16.8	17.7	14.1		37.2	31.2	31.2	30.2	27.7	
Actuated g/C Ratio	0.32	0.23	0.23	0.25	0.20		0.52	0.43	0.43	0.42	0.38	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	312	409	340	311	334		310	798	678	482	672	
v/s Ratio Prot	c0.03	0.10		0.01	c0.11		c0.03	0.14		0.00	c0.29	
v/s Ratio Perm	0.08		0.03	0.05			0.18		0.02	0.03		
v/c Ratio	0.34	0.42	0.11	0.25	0.59		0.41	0.32	0.05	0.09	0.77	
Uniform Delay, d1	18.1	23.5	21.8	21.5	26.4		11.6	13.4	11.9	12.5	19.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.7	0.1	0.4	2.6		0.9	0.2	0.0	0.1	5.2	
Delay (s)	18.7	24.2	21.9	22.0	29.0		12.4	13.7	11.9	12.6	24.6	
Level of Service	B	C	C	C	C		B	B	B	B	C	
Approach Delay (s)		22.0			27.1			13.0			23.7	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Fairview Parkway & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	340	137	40	318	149	72	465	64	265	1007	70
Future Volume (vph)	37	340	137	40	318	149	72	465	64	265	1007	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1539	1752	3323		1770	3475		1770	3501	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1539	1752	3323		1770	3475		1770	3501	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	370	149	43	346	162	78	505	70	288	1095	76
RTOR Reduction (vph)	0	0	109	0	47	0	0	8	0	0	4	0
Lane Group Flow (vph)	40	370	40	43	461	0	78	567	0	288	1167	0
Confl. Peds. (#/hr)			4			1						2
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	4.5	25.6	25.6	3.2	24.3		7.0	28.2		21.3	42.5	
Effective Green, g (s)	4.5	25.6	25.6	3.2	24.3		7.0	28.2		21.3	42.5	
Actuated g/C Ratio	0.05	0.27	0.27	0.03	0.25		0.07	0.29		0.22	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	81	490	409	58	838		128	1017		391	1545	
v/s Ratio Prot	0.02	c0.20		c0.02	0.14		0.04	0.16		c0.16	c0.33	
v/s Ratio Perm			0.03									
v/c Ratio	0.49	0.76	0.10	0.74	0.55		0.61	0.56		0.74	0.76	
Uniform Delay, d1	44.8	32.5	26.6	46.1	31.3		43.3	28.8		34.9	22.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.7	6.5	0.1	39.6	0.7		8.0	0.7		7.1	2.2	
Delay (s)	49.5	39.0	26.7	85.7	32.0		51.3	29.4		42.0	24.7	
Level of Service	D	D	C	F	C		D	C		D	C	
Approach Delay (s)		36.5			36.2			32.0			28.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: NE Village Street/NE 7th Street & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	497	44	46	401	17	35	4	46	18	3	29
Future Volume (vph)	47	497	44	46	401	17	35	4	46	18	3	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1541	1750	1832		1766	1588		1733	1530	
Flt Permitted	0.36	1.00	1.00	0.27	1.00		0.73	1.00		0.72	1.00	
Satd. Flow (perm)	670	1863	1541	494	1832		1365	1588		1317	1530	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	540	48	50	436	18	38	4	50	20	3	32
RTOR Reduction (vph)	0	0	29	0	3	0	0	29	0	0	19	0
Lane Group Flow (vph)	51	540	19	50	451	0	38	25	0	20	16	0
Confl. Peds. (#/hr)	1		3	3		1	9		1	1		9
Confl. Bikes (#/hr)			3			2						
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	4%	4%	4%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	19.8	19.8	19.8	19.8	19.8		20.9	20.9		20.9	20.9	
Effective Green, g (s)	19.8	19.8	19.8	19.8	19.8		20.9	20.9		20.9	20.9	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40		0.42	0.42		0.42	0.42	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	266	742	613	196	729		574	667		553	643	
v/s Ratio Prot		c0.29			0.25			0.02			0.01	
v/s Ratio Perm	0.08		0.01	0.10			c0.03			0.02		
v/c Ratio	0.19	0.73	0.03	0.26	0.62		0.07	0.04		0.04	0.03	
Uniform Delay, d1	9.7	12.7	9.1	10.0	11.9		8.6	8.5		8.5	8.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	3.6	0.0	0.7	1.6		0.2	0.1		0.1	0.1	
Delay (s)	10.1	16.2	9.1	10.7	13.5		8.8	8.6		8.6	8.5	
Level of Service	B	B	A	B	B		A	A		A	A	
Approach Delay (s)		15.2			13.2			8.7			8.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: NE 223rd Avenue/NE Fairview Avenue & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	283	211	127	263	83	151	417	136	77	500	53
Future Volume (vph)	72	283	211	127	263	83	151	417	136	77	500	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1845	1518	1736	1827	1511	1770	1863	1537	1787	1849	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1845	1518	1736	1827	1511	1770	1863	1537	1787	1849	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	75	295	220	132	274	86	157	434	142	80	521	55
RTOR Reduction (vph)	0	0	175	0	0	64	0	0	82	0	4	0
Lane Group Flow (vph)	75	295	45	132	274	22	157	434	60	80	572	0
Confl. Peds. (#/hr)			5			3			4			5
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	3.9	17.7	17.7	8.5	22.3	22.3	12.2	36.5	36.5	5.4	29.7	
Effective Green, g (s)	3.9	17.7	17.7	8.5	22.3	22.3	12.2	36.5	36.5	5.4	29.7	
Actuated g/C Ratio	0.05	0.21	0.21	0.10	0.26	0.26	0.14	0.42	0.42	0.06	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	79	379	312	171	473	391	250	789	651	112	637	
v/s Ratio Prot	0.04	c0.16		c0.08	0.15		c0.09	0.23		0.04	c0.31	
v/s Ratio Perm			0.03			0.01			0.04			
v/c Ratio	0.95	0.78	0.14	0.77	0.58	0.06	0.63	0.55	0.09	0.71	0.90	
Uniform Delay, d1	41.0	32.3	28.0	37.9	27.8	24.0	34.8	18.6	14.9	39.6	26.8	
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	83.1	9.7	0.2	19.2	1.7	0.1	4.9	0.8	0.1	19.3	15.4	
Delay (s)	124.1	42.0	28.2	57.0	29.5	24.1	39.7	19.5	14.9	58.9	42.1	
Level of Service	F	D	C	E	C	C	D	B	B	E	D	
Approach Delay (s)		47.3			35.9			22.9			44.2	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	2	20	0	1	46	16	627	32	47	817	6
Future Vol, veh/h	8	2	20	0	1	46	16	627	32	47	817	6
Conflicting Peds, #/hr	1	0	2	2	0	1	3	0	8	8	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	32	-	-	32	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	8	2	20	0	1	47	16	640	33	48	834	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1650	1649	842	1643	1636	665	843	0	0	680	0	0
Stage 1	936	936	-	697	697	-	-	-	-	-	-	-
Stage 2	714	713	-	946	939	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	80	100	367	81	102	464	789	-	-	917	-	-
Stage 1	321	346	-	435	446	-	-	-	-	-	-	-
Stage 2	425	438	-	317	345	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	67	92	365	71	94	460	787	-	-	916	-	-
Mov Cap-2 Maneuver	176	202	-	71	94	-	-	-	-	-	-	-
Stage 1	314	327	-	423	434	-	-	-	-	-	-	-
Stage 2	373	426	-	281	326	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.9	14.5	0.2	0.5
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	787	-	-	272	425	916	-	-
HCM Lane V/C Ratio	0.021	-	-	0.113	0.113	0.052	-	-
HCM Control Delay (s)	9.7	-	-	19.9	14.5	9.1	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.4	0.2	-	-

HCM Signalized Intersection Capacity Analysis
1: NE 223rd Avenue & NE Sandy Boulevard

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	83	81	34	83	51	136	323	46	43	230	129
Future Volume (vph)	136	83	81	34	83	51	136	323	46	43	230	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	1667	1386	1554	1545		1736	1827	1519	1583	1577	
Flt Permitted	0.42	1.00	1.00	0.70	1.00		0.35	1.00	1.00	0.52	1.00	
Satd. Flow (perm)	697	1667	1386	1140	1545		638	1827	1519	867	1577	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	153	93	91	38	93	57	153	363	52	48	258	145
RTOR Reduction (vph)	0	0	73	0	27	0	0	0	28	0	22	0
Lane Group Flow (vph)	153	93	18	38	123	0	153	363	24	48	381	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	14%	14%	14%	16%	16%	16%	4%	4%	4%	14%	14%	14%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	20.4	13.7	13.7	12.0	9.5		37.6	31.6	31.6	30.6	28.1	
Effective Green, g (s)	20.4	13.7	13.7	12.0	9.5		37.6	31.6	31.6	30.6	28.1	
Actuated g/C Ratio	0.30	0.20	0.20	0.18	0.14		0.55	0.46	0.46	0.45	0.41	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	295	334	278	215	214		447	845	702	414	648	
v/s Ratio Prot	c0.05	0.06		0.01	0.08		c0.03	0.20		0.00	c0.24	
v/s Ratio Perm	c0.10		0.01	0.02			0.16		0.02	0.05		
v/c Ratio	0.52	0.28	0.07	0.18	0.58		0.34	0.43	0.03	0.12	0.59	
Uniform Delay, d1	18.8	23.1	22.1	23.8	27.5		8.5	12.3	10.0	10.7	15.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.5	0.1	0.4	3.7		0.5	0.4	0.0	0.1	1.4	
Delay (s)	20.4	23.6	22.2	24.2	31.2		9.0	12.7	10.0	10.9	17.0	
Level of Service	C	C	C	C	C		A	B	B	B	B	
Approach Delay (s)		21.7			29.8			11.4			16.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Fairview Parkway & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	207	102	24	307	284	113	762	51	152	619	111
Future Volume (vph)	68	207	102	24	307	284	113	762	51	152	619	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1626	1712	1455	1687	3108		1736	3439		1671	3266	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1626	1712	1455	1687	3108		1736	3439		1671	3266	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	75	227	112	26	337	312	124	837	56	167	680	122
RTOR Reduction (vph)	0	0	83	0	186	0	0	5	0	0	16	0
Lane Group Flow (vph)	75	227	29	26	463	0	124	888	0	167	786	0
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	5.5	21.3	21.3	2.0	17.8		7.4	27.7		12.0	32.3	
Effective Green, g (s)	5.5	21.3	21.3	2.0	17.8		7.4	27.7		12.0	32.3	
Actuated g/C Ratio	0.07	0.26	0.26	0.02	0.22		0.09	0.34		0.15	0.40	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	450	382	41	682		158	1176		247	1302	
v/s Ratio Prot	c0.05	c0.13		0.02	c0.15		0.07	c0.26		c0.10	0.24	
v/s Ratio Perm			0.02									
v/c Ratio	0.68	0.50	0.08	0.63	0.68		0.78	0.75		0.68	0.60	
Uniform Delay, d1	36.9	25.4	22.5	39.1	29.0		36.0	23.6		32.7	19.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.0	0.9	0.1	27.9	2.7		22.1	2.8		7.1	0.8	
Delay (s)	52.9	26.3	22.5	67.0	31.7		58.1	26.4		39.8	20.1	
Level of Service	D	C	C	E	C		E	C		D	C	
Approach Delay (s)		30.1			33.0			30.3			23.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: NE Village Street/NE 7th Street & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	294	40	25	444	8	37	5	25	8	5	52
Future Volume (vph)	30	294	40	25	444	8	37	5	25	8	5	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1624	1712	1421	1686	1770		1758	1595		1660	1482	
Flt Permitted	0.29	1.00	1.00	0.49	1.00		0.71	1.00		0.73	1.00	
Satd. Flow (perm)	487	1712	1421	861	1770		1322	1595		1283	1482	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	342	47	29	516	9	43	6	29	9	6	60
RTOR Reduction (vph)	0	0	28	0	1	0	0	17	0	0	35	0
Lane Group Flow (vph)	35	342	19	29	524	0	43	18	0	9	31	0
Confl. Peds. (#/hr)	3		1	1		3	5		5	5		5
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	2%	2%	2%	8%	8%	8%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	19.8	19.8	19.8	19.8	19.8		20.8	20.8		20.8	20.8	
Effective Green, g (s)	19.8	19.8	19.8	19.8	19.8		20.8	20.8		20.8	20.8	
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40		0.42	0.42		0.42	0.42	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	194	683	567	343	706		554	668		538	621	
v/s Ratio Prot		0.20			c0.30			0.01			0.02	
v/s Ratio Perm	0.07		0.01	0.03			c0.03			0.01		
v/c Ratio	0.18	0.50	0.03	0.08	0.74		0.08	0.03		0.02	0.05	
Uniform Delay, d1	9.6	11.2	9.1	9.3	12.7		8.6	8.5		8.4	8.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6	0.0	0.1	4.2		0.3	0.1		0.1	0.2	
Delay (s)	10.1	11.8	9.1	9.4	16.9		8.9	8.5		8.5	8.7	
Level of Service	B	B	A	A	B		A	A		A	A	
Approach Delay (s)		11.3			16.5			8.7			8.7	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: NE 223rd Avenue/NE Fairview Avenue & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	185	114	83	212	71	181	443	89	63	348	37
Future Volume (vph)	27	185	114	83	212	71	181	443	89	63	348	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1641	1727	1416	1626	1712	1455	1736	1827	1515	1641	1697	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1641	1727	1416	1626	1712	1455	1736	1827	1515	1641	1697	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	32	218	134	98	249	84	213	521	105	74	409	44
RTOR Reduction (vph)	0	0	108	0	0	64	0	0	59	0	4	0
Lane Group Flow (vph)	32	218	26	98	249	20	213	521	46	74	449	0
Confl. Peds. (#/hr)			7						2			4
Heavy Vehicles (%)	10%	10%	10%	11%	11%	11%	4%	4%	4%	10%	10%	10%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.7	15.7	15.7	6.2	19.2	19.2	13.5	34.7	34.7	5.2	26.4	
Effective Green, g (s)	2.7	15.7	15.7	6.2	19.2	19.2	13.5	34.7	34.7	5.2	26.4	
Actuated g/C Ratio	0.03	0.20	0.20	0.08	0.24	0.24	0.17	0.43	0.43	0.07	0.33	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	339	278	126	411	350	293	794	658	106	561	
v/s Ratio Prot	0.02	0.13		c0.06	c0.15		c0.12	0.29		0.05	c0.26	
v/s Ratio Perm			0.02			0.01			0.03			
v/c Ratio	0.58	0.64	0.09	0.78	0.61	0.06	0.73	0.66	0.07	0.70	0.80	
Uniform Delay, d1	38.0	29.5	26.2	36.1	26.9	23.3	31.4	17.8	13.1	36.5	24.3	
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	14.7	4.1	0.1	25.4	2.5	0.1	8.7	2.0	0.0	18.2	8.0	
Delay (s)	52.7	33.6	26.4	61.6	29.5	23.4	40.1	19.8	13.2	54.7	32.3	
Level of Service	D	C	C	E	C	C	D	B	B	D	C	
Approach Delay (s)		32.7			35.6			24.1			35.5	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	2	17	1	3	39	19	703	14	26	454	4
Future Vol, veh/h	7	2	17	1	3	39	19	703	14	26	454	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	32	-	-	32	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	4	4	5	5	5	4	4	4	6	6	6
Mvmt Flow	8	2	19	1	3	44	22	799	16	30	516	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1451	1435	518	1438	1430	807	520	0	0	815	0	0
Stage 1	577	577	-	850	850	-	-	-	-	-	-	-
Stage 2	874	858	-	588	580	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.15	6.55	6.25	4.14	-	-	4.16	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.545	4.045	3.345	2.236	-	-	2.254	-	-
Pot Cap-1 Maneuver	107	132	554	109	133	377	1036	-	-	795	-	-
Stage 1	499	498	-	351	373	-	-	-	-	-	-	-
Stage 2	342	371	-	490	495	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	88	124	554	100	125	377	1036	-	-	795	-	-
Mov Cap-2 Maneuver	191	233	-	100	125	-	-	-	-	-	-	-
Stage 1	488	479	-	344	365	-	-	-	-	-	-	-
Stage 2	293	363	-	453	476	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.5	18.6	0.2	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1036	-	-	342	313	795	-	-
HCM Lane V/C Ratio	0.021	-	-	0.086	0.156	0.037	-	-
HCM Control Delay (s)	8.5	-	-	16.5	18.6	9.7	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.5	0.1	-	-

HCM Signalized Intersection Capacity Analysis
1: NE 223rd Avenue & NE Sandy Boulevard

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	172	159	82	177	52	125	273	86	52	412	126
Future Volume (vph)	136	172	159	82	177	52	125	273	86	52	412	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1669	1759	1462	1701	1720		1752	1845	1568	1736	1753	
Flt Permitted	0.32	1.00	1.00	0.64	1.00		0.16	1.00	1.00	0.57	1.00	
Satd. Flow (perm)	563	1759	1462	1152	1720		294	1845	1568	1040	1753	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	143	181	167	86	186	55	132	287	91	55	434	133
RTOR Reduction (vph)	0	0	121	0	12	0	0	0	53	0	12	0
Lane Group Flow (vph)	143	181	46	86	229	0	132	287	38	55	555	0
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	30.0	21.8	21.8	20.0	16.3		40.0	33.8	33.8	33.0	30.3	
Effective Green, g (s)	30.0	21.8	21.8	20.0	16.3		40.0	33.8	33.8	33.0	30.3	
Actuated g/C Ratio	0.38	0.27	0.27	0.25	0.20		0.50	0.42	0.42	0.41	0.38	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	338	479	398	313	350		259	779	662	452	663	
v/s Ratio Prot	c0.05	0.10		0.01	c0.13		c0.04	0.16		0.00	c0.32	
v/s Ratio Perm	0.11		0.03	0.06			0.21		0.02	0.05		
v/c Ratio	0.42	0.38	0.11	0.27	0.65		0.51	0.37	0.06	0.12	0.84	
Uniform Delay, d1	17.8	23.6	21.9	23.7	29.3		14.4	15.8	13.7	14.3	22.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.5	0.1	0.5	4.4		1.6	0.3	0.0	0.1	9.0	
Delay (s)	18.6	24.1	22.0	24.2	33.6		15.9	16.1	13.7	14.4	31.6	
Level of Service	B	C	C	C	C		B	B	B	B	C	
Approach Delay (s)		21.8			31.1			15.6			30.1	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Fairview Parkway & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	405	146	44	372	169	89	484	71	307	1069	78
Future Volume (vph)	66	405	146	44	372	169	89	484	71	307	1069	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1538	1752	3326		1770	3471		1770	3499	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1538	1752	3326		1770	3471		1770	3499	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	440	159	48	404	184	97	526	77	334	1162	85
RTOR Reduction (vph)	0	0	106	0	44	0	0	9	0	0	5	0
Lane Group Flow (vph)	72	440	53	48	544	0	97	594	0	334	1242	0
Confl. Peds. (#/hr)			4			1						2
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	7.2	30.1	30.1	4.8	27.7		9.6	29.0		24.5	43.9	
Effective Green, g (s)	7.2	30.1	30.1	4.8	27.7		9.6	29.0		24.5	43.9	
Actuated g/C Ratio	0.07	0.28	0.28	0.05	0.26		0.09	0.27		0.23	0.41	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	118	521	435	79	865		159	946		407	1443	
v/s Ratio Prot	c0.04	c0.24		0.03	0.16		0.05	0.17		c0.19	c0.36	
v/s Ratio Perm			0.03									
v/c Ratio	0.61	0.84	0.12	0.61	0.63		0.61	0.63		0.82	0.86	
Uniform Delay, d1	48.2	35.9	28.3	49.9	34.8		46.6	34.0		38.9	28.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.0	11.9	0.1	12.5	1.4		6.8	1.3		12.5	5.5	
Delay (s)	57.2	47.9	28.5	62.4	36.2		53.4	35.3		51.3	34.0	
Level of Service	E	D	C	E	D		D	D		D	C	
Approach Delay (s)		44.3			38.2			37.8			37.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	106.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: NE Village Street/NE 7th Street & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	603	46	48	474	18	36	4	48	19	3	30
Future Volume (vph)	49	603	46	48	474	18	36	4	48	19	3	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1541	1750	1833		1764	1587		1733	1528	
Flt Permitted	0.30	1.00	1.00	0.19	1.00		0.73	1.00		0.72	1.00	
Satd. Flow (perm)	567	1863	1541	357	1833		1363	1587		1314	1528	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	655	50	52	515	20	39	4	52	21	3	33
RTOR Reduction (vph)	0	0	28	0	3	0	0	32	0	0	20	0
Lane Group Flow (vph)	53	655	22	52	532	0	39	24	0	21	16	0
Confl. Peds. (#/hr)	1		3	3		1	9		1	1		9
Confl. Bikes (#/hr)			3			2						
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	4%	4%	4%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	23.5	23.5	23.5	23.5	23.5		20.8	20.8		20.8	20.8	
Effective Green, g (s)	23.5	23.5	23.5	23.5	23.5		20.8	20.8		20.8	20.8	
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.44		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	249	821	679	157	808		531	619		512	596	
v/s Ratio Prot		c0.35			0.29			0.02			0.01	
v/s Ratio Perm	0.09		0.01	0.15			c0.03			0.02		
v/c Ratio	0.21	0.80	0.03	0.33	0.66		0.07	0.04		0.04	0.03	
Uniform Delay, d1	9.2	12.9	8.5	9.8	11.7		10.2	10.1		10.1	10.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	5.4	0.0	1.2	2.0		0.3	0.1		0.2	0.1	
Delay (s)	9.6	18.3	8.5	11.0	13.7		10.5	10.2		10.2	10.1	
Level of Service	A	B	A	B	B		B	B		B	B	
Approach Delay (s)		17.0			13.5			10.3			10.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: NE 223rd Avenue/NE Fairview Avenue & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	343	227	132	319	86	168	455	141	80	532	59
Future Volume (vph)	77	343	227	132	319	86	168	455	141	80	532	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1845	1518	1736	1827	1511	1770	1863	1536	1787	1847	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1845	1518	1736	1827	1511	1770	1863	1536	1787	1847	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	80	357	236	138	332	90	175	474	147	83	554	61
RTOR Reduction (vph)	0	0	188	0	0	68	0	0	83	0	5	0
Lane Group Flow (vph)	80	357	48	138	332	22	175	474	64	83	610	0
Confl. Peds. (#/hr)			5			3			4			5
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.1	18.1	18.1	8.5	21.5	21.5	12.8	38.4	38.4	5.6	31.2	
Effective Green, g (s)	5.1	18.1	18.1	8.5	21.5	21.5	12.8	38.4	38.4	5.6	31.2	
Actuated g/C Ratio	0.06	0.20	0.20	0.10	0.24	0.24	0.14	0.43	0.43	0.06	0.35	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	100	376	310	166	443	366	255	807	665	112	650	
v/s Ratio Prot	0.05	c0.19		c0.08	c0.18		c0.10	0.25		0.05	c0.33	
v/s Ratio Perm			0.03			0.01			0.04			
v/c Ratio	0.80	0.95	0.16	0.83	0.75	0.06	0.69	0.59	0.10	0.74	0.94	
Uniform Delay, d1	41.2	34.8	29.0	39.3	31.1	25.8	36.0	19.1	14.8	40.8	27.8	
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	35.2	33.1	0.2	28.3	6.8	0.1	7.5	1.1	0.1	22.9	21.3	
Delay (s)	76.4	67.9	29.2	67.7	37.9	25.9	43.4	20.2	14.9	63.7	49.1	
Level of Service	E	E	C	E	D	C	D	C	B	E	D	
Approach Delay (s)		55.3			43.3			24.3			50.9	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	88.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	2	20	0	1	45	16	647	31	46	820	6
Future Vol, veh/h	8	2	20	0	1	45	16	647	31	46	820	6
Conflicting Peds, #/hr	1	0	2	2	0	1	3	0	8	8	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	32	-	-	32	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	8	2	20	0	1	46	16	660	32	47	837	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1670	1669	845	1664	1657	685	846	0	0	700	0	0
Stage 1	937	937	-	717	717	-	-	-	-	-	-	-
Stage 2	733	732	-	947	940	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	77	97	366	78	99	452	787	-	-	902	-	-
Stage 1	320	346	-	424	437	-	-	-	-	-	-	-
Stage 2	415	430	-	316	345	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	89	364	68	91	448	786	-	-	901	-	-
Mov Cap-2 Maneuver	173	199	-	68	91	-	-	-	-	-	-	-
Stage 1	313	327	-	412	425	-	-	-	-	-	-	-
Stage 2	364	418	-	280	326	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20	14.8	0.2	0.5
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	786	-	-	270	413	901	-	-
HCM Lane V/C Ratio	0.021	-	-	0.113	0.114	0.052	-	-
HCM Control Delay (s)	9.7	-	-	20	14.8	9.2	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.4	0.2	-	-

HCM Signalized Intersection Capacity Analysis
1: NE 223rd Avenue & NE Sandy Boulevard

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	83	81	34	83	51	136	324	46	43	231	129
Future Volume (vph)	136	83	81	34	83	51	136	324	46	43	231	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	1667	1386	1554	1545		1736	1827	1519	1583	1577	
Flt Permitted	0.42	1.00	1.00	0.70	1.00		0.35	1.00	1.00	0.52	1.00	
Satd. Flow (perm)	696	1667	1386	1140	1545		635	1827	1519	865	1577	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	153	93	91	38	93	57	153	364	52	48	260	145
RTOR Reduction (vph)	0	0	73	0	27	0	0	0	28	0	22	0
Lane Group Flow (vph)	153	93	18	38	123	0	153	364	24	48	383	0
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)									2			
Heavy Vehicles (%)	14%	14%	14%	16%	16%	16%	4%	4%	4%	14%	14%	14%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	20.4	13.7	13.7	12.0	9.5		37.7	31.7	31.7	30.7	28.2	
Effective Green, g (s)	20.4	13.7	13.7	12.0	9.5		37.7	31.7	31.7	30.7	28.2	
Actuated g/C Ratio	0.30	0.20	0.20	0.18	0.14		0.55	0.46	0.46	0.45	0.41	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	294	333	277	215	214		446	846	703	414	650	
v/s Ratio Prot	c0.05	0.06		0.01	0.08		c0.03	0.20		0.00	c0.24	
v/s Ratio Perm	c0.10		0.01	0.02			0.16		0.02	0.05		
v/c Ratio	0.52	0.28	0.07	0.18	0.58		0.34	0.43	0.03	0.12	0.59	
Uniform Delay, d1	18.9	23.2	22.2	23.8	27.6		8.5	12.3	10.0	10.7	15.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.5	0.1	0.4	3.7		0.5	0.4	0.0	0.1	1.4	
Delay (s)	20.5	23.6	22.3	24.2	31.3		9.0	12.7	10.0	10.9	17.0	
Level of Service	C	C	C	C	C		A	B	B	B	B	
Approach Delay (s)		21.8			29.9			11.4			16.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Fairview Parkway & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	209	102	25	313	292	113	762	52	155	619	111
Future Volume (vph)	68	209	102	25	313	292	113	762	52	155	619	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1626	1712	1455	1687	3107		1736	3438		1671	3266	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1626	1712	1455	1687	3107		1736	3438		1671	3266	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	75	230	112	27	344	321	124	837	57	170	680	122
RTOR Reduction (vph)	0	0	82	0	187	0	0	5	0	0	16	0
Lane Group Flow (vph)	75	230	30	27	478	0	124	889	0	170	786	0
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	5.5	21.6	21.6	2.0	18.1		7.4	27.8		12.1	32.5	
Effective Green, g (s)	5.5	21.6	21.6	2.0	18.1		7.4	27.8		12.1	32.5	
Actuated g/C Ratio	0.07	0.27	0.27	0.02	0.22		0.09	0.34		0.15	0.40	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	109	453	385	41	690		157	1172		248	1302	
v/s Ratio Prot	c0.05	c0.13		0.02	c0.15		0.07	c0.26		c0.10	0.24	
v/s Ratio Perm			0.02									
v/c Ratio	0.69	0.51	0.08	0.66	0.69		0.79	0.76		0.69	0.60	
Uniform Delay, d1	37.2	25.4	22.5	39.4	29.1		36.3	23.9		32.9	19.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.6	0.9	0.1	32.2	3.0		22.7	2.9		7.6	0.8	
Delay (s)	53.7	26.3	22.6	71.6	32.1		58.9	26.7		40.5	20.2	
Level of Service	D	C	C	E	C		E	C		D	C	
Approach Delay (s)		30.2			33.7			30.7			23.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: NE Village Street/NE 7th Street & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	200	40	25	459	8	37	5	25	8	5	52
Future Volume (vph)	30	200	40	25	459	8	37	5	25	8	5	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1624	1712	1421	1685	1771		1758	1595		1660	1482	
Flt Permitted	0.27	1.00	1.00	0.61	1.00		0.71	1.00		0.73	1.00	
Satd. Flow (perm)	467	1712	1421	1088	1771		1322	1595		1283	1482	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	233	47	29	534	9	43	6	29	9	6	60
RTOR Reduction (vph)	0	0	28	0	1	0	0	17	0	0	35	0
Lane Group Flow (vph)	35	233	19	29	542	0	43	18	0	9	31	0
Confl. Peds. (#/hr)	3		1	1		3	5		5	5		5
Confl. Bikes (#/hr)			2									
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	2%	2%	2%	8%	8%	8%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	20.5	20.5	20.5	20.5	20.5		20.8	20.8		20.8	20.8	
Effective Green, g (s)	20.5	20.5	20.5	20.5	20.5		20.8	20.8		20.8	20.8	
Actuated g/C Ratio	0.41	0.41	0.41	0.41	0.41		0.41	0.41		0.41	0.41	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	190	697	579	443	721		546	659		530	612	
v/s Ratio Prot		0.14			c0.31			0.01			0.02	
v/s Ratio Perm	0.08		0.01	0.03			c0.03			0.01		
v/c Ratio	0.18	0.33	0.03	0.07	0.75		0.08	0.03		0.02	0.05	
Uniform Delay, d1	9.5	10.2	8.9	9.1	12.7		8.9	8.7		8.7	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3	0.0	0.1	4.4		0.3	0.1		0.1	0.2	
Delay (s)	10.0	10.5	9.0	9.1	17.2		9.2	8.8		8.8	9.0	
Level of Service	B	B	A	A	B		A	A		A	A	
Approach Delay (s)		10.2			16.7			9.0			9.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	50.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	326	430	3	6	15
Future Vol, veh/h	6	326	430	3	6	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	354	467	3	7	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	471	0	-	0	836	469
Stage 1	-	-	-	-	469	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1091	-	-	-	337	594
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	701	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1091	-	-	-	335	594
Mov Cap-2 Maneuver	-	-	-	-	335	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	697	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1091	-	-	-	487
HCM Lane V/C Ratio	0.006	-	-	-	0.047
HCM Control Delay (s)	8.3	-	-	-	12.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	0	542	448	1
Future Vol, veh/h	0	4	0	542	448	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	0	589	487	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	488	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	580	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	580	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	580	-	-
HCM Lane V/C Ratio	-	0.007	-	-
HCM Control Delay (s)	-	11.3	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

HCM Signalized Intersection Capacity Analysis
6: NE 223rd Avenue/NE Fairview Avenue & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	190	114	83	214	71	182	443	89	63	352	37
Future Volume (vph)	28	190	114	83	214	71	182	443	89	63	352	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1641	1727	1416	1626	1712	1455	1736	1827	1515	1641	1698	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1641	1727	1416	1626	1712	1455	1736	1827	1515	1641	1698	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	33	224	134	98	252	84	214	521	105	74	414	44
RTOR Reduction (vph)	0	0	108	0	0	64	0	0	59	0	4	0
Lane Group Flow (vph)	33	224	26	98	252	20	214	521	46	74	454	0
Confl. Peds. (#/hr)			7						2			4
Heavy Vehicles (%)	10%	10%	10%	11%	11%	11%	4%	4%	4%	10%	10%	10%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	2.7	15.8	15.8	6.2	19.3	19.3	13.6	35.0	35.0	5.2	26.6	
Effective Green, g (s)	2.7	15.8	15.8	6.2	19.3	19.3	13.6	35.0	35.0	5.2	26.6	
Actuated g/C Ratio	0.03	0.20	0.20	0.08	0.24	0.24	0.17	0.44	0.44	0.06	0.33	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	340	278	125	411	350	294	797	661	106	563	
v/s Ratio Prot	0.02	0.13		c0.06	c0.15		c0.12	0.29		0.05	c0.27	
v/s Ratio Perm			0.02			0.01			0.03			
v/c Ratio	0.60	0.66	0.09	0.78	0.61	0.06	0.73	0.65	0.07	0.70	0.81	
Uniform Delay, d1	38.2	29.7	26.3	36.3	27.1	23.4	31.5	17.8	13.1	36.7	24.5	
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	16.4	4.6	0.1	26.7	2.7	0.1	8.7	1.9	0.0	18.2	8.3	
Delay (s)	54.6	34.3	26.5	63.1	29.8	23.5	40.2	19.8	13.2	54.9	32.7	
Level of Service	D	C	C	E	C	C	D	B	B	D	C	
Approach Delay (s)		33.3			36.1			24.2			35.8	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	80.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	2	17	1	3	39	19	704	14	26	458	4
Future Vol, veh/h	7	2	17	1	3	39	19	704	14	26	458	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	32	-	-	32	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	4	4	5	5	5	4	4	4	6	6	6
Mvmt Flow	8	2	19	1	3	44	22	800	16	30	520	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1457	1441	523	1444	1435	808	525	0	0	816	0	0
Stage 1	582	582	-	851	851	-	-	-	-	-	-	-
Stage 2	875	859	-	593	584	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.15	6.55	6.25	4.14	-	-	4.16	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.545	4.045	3.345	2.236	-	-	2.254	-	-
Pot Cap-1 Maneuver	106	131	550	108	132	376	1032	-	-	794	-	-
Stage 1	495	496	-	350	372	-	-	-	-	-	-	-
Stage 2	341	370	-	487	493	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	87	123	550	99	124	376	1032	-	-	794	-	-
Mov Cap-2 Maneuver	190	232	-	99	124	-	-	-	-	-	-	-
Stage 1	484	477	-	343	364	-	-	-	-	-	-	-
Stage 2	292	362	-	450	474	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.6	18.7	0.2	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1032	-	-	340	312	794	-	-
HCM Lane V/C Ratio	0.021	-	-	0.087	0.157	0.037	-	-
HCM Control Delay (s)	8.6	-	-	16.6	18.7	9.7	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.5	0.1	-	-

HCM Signalized Intersection Capacity Analysis
1: NE 223rd Avenue & NE Sandy Boulevard

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	173	159	82	178	52	125	273	86	52	412	126
Future Volume (vph)	136	173	159	82	178	52	125	273	86	52	412	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1669	1759	1462	1701	1720		1752	1845	1568	1736	1753	
Flt Permitted	0.32	1.00	1.00	0.64	1.00		0.16	1.00	1.00	0.57	1.00	
Satd. Flow (perm)	560	1759	1462	1151	1720		294	1845	1568	1040	1753	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	143	182	167	86	187	55	132	287	91	55	434	133
RTOR Reduction (vph)	0	0	121	0	12	0	0	0	53	0	12	0
Lane Group Flow (vph)	143	182	46	86	230	0	132	287	38	55	555	0
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	8%	8%	8%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	30.0	21.8	21.8	20.0	16.3		40.0	33.8	33.8	33.0	30.3	
Effective Green, g (s)	30.0	21.8	21.8	20.0	16.3		40.0	33.8	33.8	33.0	30.3	
Actuated g/C Ratio	0.38	0.27	0.27	0.25	0.20		0.50	0.42	0.42	0.41	0.38	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	337	479	398	313	350		259	779	662	452	663	
v/s Ratio Prot	c0.05	0.10		0.01	c0.13		c0.04	0.16		0.00	c0.32	
v/s Ratio Perm	0.11		0.03	0.06			0.21		0.02	0.05		
v/c Ratio	0.42	0.38	0.11	0.27	0.66		0.51	0.37	0.06	0.12	0.84	
Uniform Delay, d1	17.8	23.6	21.9	23.7	29.3		14.4	15.8	13.7	14.3	22.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.5	0.1	0.5	4.4		1.6	0.3	0.0	0.1	9.0	
Delay (s)	18.7	24.1	22.0	24.2	33.7		15.9	16.1	13.7	14.4	31.6	
Level of Service	B	C	C	C	C		B	B	B	B	C	
Approach Delay (s)		21.8			31.2			15.6			30.1	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Fairview Parkway & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	412	146	45	377	175	89	484	72	315	1069	78
Future Volume (vph)	66	412	146	45	377	175	89	484	72	315	1069	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1845	1538	1752	3324		1770	3471		1770	3499	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1845	1538	1752	3324		1770	3471		1770	3499	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	448	159	49	410	190	97	526	78	342	1162	85
RTOR Reduction (vph)	0	0	103	0	45	0	0	10	0	0	5	0
Lane Group Flow (vph)	72	448	56	49	555	0	97	594	0	342	1242	0
Confl. Peds. (#/hr)			4			1						2
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	7.2	30.7	30.7	4.8	28.3		9.5	28.5		25.2	44.2	
Effective Green, g (s)	7.2	30.7	30.7	4.8	28.3		9.5	28.5		25.2	44.2	
Actuated g/C Ratio	0.07	0.29	0.29	0.04	0.26		0.09	0.27		0.24	0.41	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	528	440	78	877		156	922		416	1442	
v/s Ratio Prot	c0.04	c0.24		0.03	0.17		0.05	0.17		c0.19	c0.36	
v/s Ratio Perm			0.04									
v/c Ratio	0.62	0.85	0.13	0.63	0.63		0.62	0.64		0.82	0.86	
Uniform Delay, d1	48.7	36.1	28.3	50.3	34.9		47.1	34.9		38.9	28.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.3	12.1	0.1	14.8	1.5		7.5	1.6		12.3	5.5	
Delay (s)	57.9	48.1	28.4	65.1	36.4		54.6	36.4		51.2	34.2	
Level of Service	E	D	C	E	D		D	D		D	C	
Approach Delay (s)		44.6			38.5			38.9			37.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	107.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: NE Village Street/NE 7th Street & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	619	46	48	486	18	36	4	48	19	3	30
Future Volume (vph)	49	619	46	48	486	18	36	4	48	19	3	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1541	1750	1833		1764	1587		1733	1528	
Flt Permitted	0.30	1.00	1.00	0.18	1.00		0.73	1.00		0.72	1.00	
Satd. Flow (perm)	549	1863	1541	334	1833		1362	1587		1314	1528	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	673	50	52	528	20	39	4	52	21	3	33
RTOR Reduction (vph)	0	0	28	0	3	0	0	32	0	0	20	0
Lane Group Flow (vph)	53	673	22	52	545	0	39	24	0	21	16	0
Confl. Peds. (#/hr)	1		3	3		1	9		1	1		9
Confl. Bikes (#/hr)			3			2						
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	4%	4%	4%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	23.9	23.9	23.9	23.9	23.9		20.8	20.8		20.8	20.8	
Effective Green, g (s)	23.9	23.9	23.9	23.9	23.9		20.8	20.8		20.8	20.8	
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	829	685	148	815		527	614		508	591	
v/s Ratio Prot		c0.36			0.30			0.02			0.01	
v/s Ratio Perm	0.10		0.01	0.16			c0.03			0.02		
v/c Ratio	0.22	0.81	0.03	0.35	0.67		0.07	0.04		0.04	0.03	
Uniform Delay, d1	9.2	12.9	8.4	9.8	11.8		10.4	10.2		10.2	10.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	6.1	0.0	1.4	2.1		0.3	0.1		0.2	0.1	
Delay (s)	9.6	19.0	8.4	11.2	13.9		10.6	10.4		10.4	10.3	
Level of Service	A	B	A	B	B		B	B		B	B	
Approach Delay (s)		17.7			13.6			10.5			10.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	587	484	12	5	14
Future Vol, veh/h	18	587	484	12	5	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	60	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	638	526	13	5	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	539	0	-	0	1210	533
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	677	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1029	-	-	-	202	547
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1029	-	-	-	198	547
Mov Cap-2 Maneuver	-	-	-	-	198	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	495	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1029	-	-	-	374
HCM Lane V/C Ratio	0.019	-	-	-	0.055
HCM Control Delay (s)	8.6	-	-	-	15.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	0	596	655	2
Future Vol, veh/h	0	5	0	596	655	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	0	648	712	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	713	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Pot Cap-1 Maneuver	0	432	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	432	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	432	-	-
HCM Lane V/C Ratio	-	0.013	-	-
HCM Control Delay (s)	-	13.4	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

HCM Signalized Intersection Capacity Analysis
6: NE 223rd Avenue/NE Fairview Avenue & NE Halsey Street

11/07/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	345	227	132	325	86	172	455	141	82	535	59
Future Volume (vph)	78	345	227	132	325	86	172	455	141	82	535	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	1845	1518	1736	1827	1511	1770	1863	1536	1787	1847	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	1845	1518	1736	1827	1511	1770	1863	1536	1787	1847	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	81	359	236	138	339	90	179	474	147	85	557	61
RTOR Reduction (vph)	0	0	188	0	0	68	0	0	83	0	5	0
Lane Group Flow (vph)	81	359	48	138	339	22	179	474	64	85	613	0
Confl. Peds. (#/hr)			5			3			4			5
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	5.1	18.1	18.1	8.5	21.5	21.5	12.9	38.6	38.6	5.6	31.3	
Effective Green, g (s)	5.1	18.1	18.1	8.5	21.5	21.5	12.9	38.6	38.6	5.6	31.3	
Actuated g/C Ratio	0.06	0.20	0.20	0.10	0.24	0.24	0.15	0.43	0.43	0.06	0.35	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	100	376	309	166	442	365	257	809	667	112	651	
v/s Ratio Prot	0.05	c0.19		c0.08	c0.19		c0.10	0.25		0.05	c0.33	
v/s Ratio Perm			0.03			0.01			0.04			
v/c Ratio	0.81	0.95	0.16	0.83	0.77	0.06	0.70	0.59	0.10	0.76	0.94	
Uniform Delay, d1	41.4	34.9	29.1	39.4	31.3	25.9	36.1	19.0	14.8	40.9	27.9	
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	37.2	34.5	0.2	28.3	7.8	0.1	8.0	1.1	0.1	25.1	22.1	
Delay (s)	78.6	69.4	29.3	67.8	39.1	25.9	44.0	20.1	14.9	66.0	49.9	
Level of Service	E	E	C	E	D	C	D	C	B	E	D	
Approach Delay (s)		56.5			44.0			24.5			51.9	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	2	20	0	1	45	16	651	31	46	823	6
Future Vol, veh/h	8	2	20	0	1	45	16	651	31	46	823	6
Conflicting Peds, #/hr	1	0	2	2	0	1	3	0	8	8	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	32	-	-	32	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	8	2	20	0	1	46	16	664	32	47	840	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1677	1677	848	1671	1664	689	849	0	0	704	0	0
Stage 1	940	940	-	721	721	-	-	-	-	-	-	-
Stage 2	737	737	-	950	943	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	76	96	364	77	98	449	785	-	-	898	-	-
Stage 1	319	345	-	422	435	-	-	-	-	-	-	-
Stage 2	413	428	-	315	344	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	64	88	362	67	90	445	784	-	-	897	-	-
Mov Cap-2 Maneuver	172	198	-	67	90	-	-	-	-	-	-	-
Stage 1	312	326	-	410	423	-	-	-	-	-	-	-
Stage 2	362	416	-	279	325	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.2	14.9	0.2	0.5
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	784	-	-	268	410	897	-	-
HCM Lane V/C Ratio	0.021	-	-	0.114	0.114	0.052	-	-
HCM Control Delay (s)	9.7	-	-	20.2	14.9	9.2	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.4	0.2	-	-

Intersection: 4: NE Halsey Street & Western Site Access

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	34	46
Average Queue (ft)	8	15
95th Queue (ft)	30	41
Link Distance (ft)		172
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	60	
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 5: NE 223rd Avenue & Northern Access

Movement	EB
Directions Served	R
Maximum Queue (ft)	39
Average Queue (ft)	6
95th Queue (ft)	26
Link Distance (ft)	193
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: NE 223rd Avenue/NE Fairview Avenue & NE Halsey Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	TR
Maximum Queue (ft)	320	349	220	302	355	209	180	389	225	225	358
Average Queue (ft)	117	260	169	113	174	44	113	182	62	108	312
95th Queue (ft)	291	407	280	236	308	137	190	332	172	249	420
Link Distance (ft)		321			378			374			332
Upstream Blk Time (%)	0	20		0	1			1			37
Queuing Penalty (veh)	0	0		0	0			0			0
Storage Bay Dist (ft)	315		195	335		185	155		200	200	
Storage Blk Time (%)	0	31	1		8	0	4	9	0	0	45
Queuing Penalty (veh)	1	93	6		18	0	21	28	0	1	37

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

EXHIBIT C-12

CITY OF FAIRVIEW, MULTNOMAH COUNTY

ARATA RD at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

1 - 5 of 5 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
10772	N	N	N			10/03/2015	17	NE ARATA RD	INTER	3-LEG	N	Y	CLR	FIX OBJ	01	NONE 0	TURN-L										050	08,40
NONE						SA	0	FAIRVIEW/223RD AVE	E		STOP SIGN	N	DRY	FIX		PRVTE	N -E									000	050	00
N						10A			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	55	M	OR-Y		002	026		02,40
N						45 32 3.38	-122 26 1.14																OR<25					
10310	N	N	N		Y	10/03/2014	17	NE ARATA RD	INTER	4-LEG	N	N	UNK	S-STRGHT	01	NONE 0	STRGHT											07
NO RPT						FR	0	FAIRVIEW/223RD AVE	S		UNKNOWN	N	UNK	REAR		PRVTE	S -N									000		00
N						3P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	29	M	OR-Y		042	000		07
N						45 32 3.38	-122 26 1.14																OR<25					
															02	NONE 0	STRGHT											
																PRVTE	S -N									000		00
																PSNGR CAR		01	DRVR	NONE	42	F	OR-Y		000	000		00
																							OR<25					
13143	N	N	N			11/22/2015	17	NE ARATA RD	INTER	4-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						SU	0	FAIRVIEW/223RD AVE	S		STOP SIGN	N	DRY	REAR		PRVTE	S -N									000		00
N						6P			06	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	F	OTH-Y		026	000		29
N						45 32 3.38	-122 26 1.14																N-RES					
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		01	DRVR	NONE	53	M	OR-Y		000	000		00
																							OR<25					
07659	N	N	N			07/01/2016	17	NE ARATA RD	INTER	4-LEG	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE						FR	0	FAIRVIEW/223RD AVE	S		STOP SIGN	N	DRY	REAR		N/A	S -N									000		00
N						8A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 32 3.38	-122 26 1.14																UNK					
															02	NONE 9	STOP											
																N/A	S -N									011		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					
01278	N	N	N			02/06/2015	17	NE ARATA RD	INTER	4-LEG	N	N	RAIN	BIKE													110	01,02,19
CITY						FR	0	FAIRVIEW/223RD AVE	CN		STOP SIGN	N	WET	TURN			-											
N						6P			04	0		N	DLIT	INJ			STRGHT	01	BIKE	INJB	19	M		I XWLK	047,028	034		01,02,19
N						45 32 3.38	-122 26 1.14										S N											
															01	NONE 0	TURN-L											
																PRVTE	N -E									000		00
																PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		000	000		00
																							OR<25					

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

EXHIBIT C-12

CITY OF FAIRVIEW, MULTNOMAH COUNTY

BARR RD at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

1 - 3 of 3 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	R U G	S C S	W O H L	C R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
07233	N	N	N				06/22/2016	17	NE BARR RD	INTER	3-LEG	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											02
NONE							WE	0	NE FAIRVIEW/223RD AVE	N		STOP SIGN	N	DRY	TURN		N/A	S -N								000		00
N							7P			05	0		Y	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 32 3.95	-122 26 1.14																UNK					
																02	NONE 9	TURN-L											
																	N/A	E -S								018			00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
06113	N	N	N				06/19/2013	17	NE BARR RD	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
NONE							WE	0	NE FAIRVIEW/223RD AVE	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	E -W								000		00
N							7A			02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	UNK		097	000		02
N							45 32 3.949584	-122 26 1.1382																OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	N -S								000			00
																	PSNGR CAR		01	DRVR	NONE	71	F	OTH-Y		000	000		00
																								N-RES					
10468	N	N	N	N	N		09/25/2015	17	NE BARR RD	INTER	3-LEG	N	N	CLD	S-1TURN	01	NONE 0	TURN-L											02,32
CITY							FR	0	NE FAIRVIEW/223RD AVE	CN		STOP SIGN	N	DRY	TURN		PRVTE	S -W								000		00
N							7A			01	0		N	DAWN	INJ		PSNGR CAR		01	DRVR	INJC	76	M	OR-Y		028,052	000		02,32
N							45 32 3.95	-122 26 1.14																OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	S -N								000			00
																	PSNGR CAR		01	DRVR	NONE	44	F	OR-Y		000	000		00
																								OR<25					

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

EXHIBIT C-12

CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at 7TH ST, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

1 - 3 of 3 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
04722	N	N	N	N	N	05/14/2013	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-OTHER	01	NONE 0	BACK											10
CITY						TU	0	NE 7TH ST	N		TRF SIGNAL	N	DRY	BACK		PRVTE	S -N								000			00
N						10A			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	25	F	NONE		011	000		10
N						45 32 2.7239999	-122 26 23.908272																OR<25					
															02	NONE 0	STOP											
																PRVTE	N -S									011		00
																PSNGR CAR		01	DRVR	INJC	43	M	OR-Y		000	000		00
																							OR<25					
04994	N	N	N	N	N	05/14/2014	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	PED	01	NONE 0	TURN-L											02
CITY						WE	0	NE 7TH ST	NE		TRF SIGNAL	N	DRY	PED		PUBLC	NW-NE									000		00
N						11A			05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	22	M	OR-Y		029	000		02
N						45 32 2.72	-122 26 23.91																OR<25					
																	- STRGHT	01	PED	INJB	19	F		I XWLK	000	035		00
																	SE NW											
06330	N	N	N			06/01/2016	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											04
NO RPT						WE	0	NE 7TH ST	CN		TRF SIGNAL	N	DRY	ANGL		N/A	SW-NE									000		00
N						4P			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 32 2.72	-122 26 23.91																UNK					
															02	NONE 9	STRGHT											
																N/A	NW-SE									000		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at 207TH AV/FAIRVW PKWY, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

1 - 5 of 20 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A E L / R G / S H / C L / W K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / INJ / TYPE / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02582	N N N	03/12/2015	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	32
COUNTY		TH	0	NE 207TH AV/FAIRVW PKWY	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N -S								000		00
N		6P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR NONE	19	F	OR-Y		026,052	000		32
N		45 32 .98	-122 26 47.21															OR<25					
											02	NONE 0	STOP										
												PRVTE	N -S								011	013	00
												PSNGR CAR		01	DRVR INJC	37	F	OR-Y		000	000		00
																		OR<25					
											03	NONE 0	STOP										
												PRVTE	N -S								022		00
												PSNGR CAR		01	DRVR NONE	58	F	OR-Y		000	000		00
																		OR<25					
02662	N N N	03/13/2015	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		FR	0	NE 207TH AV/FAIRVW PKWY	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N -S								000		00
N		6P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	50	M	OR-Y		026	000		29
N		45 32 .99	-122 26 46.71															OR<25					
											02	NONE 0	STOP										
												PRVTE	N -S								011		00
												PSNGR CAR		01	DRVR NONE	60	M	OTH-Y		000	000		00
																		N-RES					
00452	N N N	01/14/2017	14	NE HALSEY ST	INTER	CROSS	N	N	SNOW	ANGL-STP	01	NONE 9	TURN-R											08
NONE		SA	0	NE 207TH AV/FAIRVW PKWY	E		TRF SIGNAL	N	ICE	TURN		N/A	S -E								000		00
N		UNK			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	00	Unk	UNK		000	000		00
N		45 32 .99	-122 26 46.71															UNK					
											02	NONE 9	STOP										
												N/A	E -W								012		00
												PSNGR CAR		01	DRVR NONE	00	Unk	UNK		000	000		00
																		UNK					
09481	N N N	09/11/2013	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE		WE	0	NE 207TH AV/FAIRVW PKWY	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N								000		00
N		7A			06	0		N	DAWN	PDO		PSNGR CAR		01	DRVR NONE	34	F	OR-Y		026	000		07
N		45 32 .9765959	-122 26 47.212656															OR<25					
											02	NONE 0	STOP										
												PRVTE	S -N								011		00
												PSNGR CAR		01	DRVR NONE	36	M	OTH-Y		000	000		00
																		OR<25					
10190	N Y N N N	09/19/2015	16	NE HALSEY ST	INTER	CROSS	N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT									040,079,062	33
CITY		SA	0	NE 207TH AV/FAIRVW PKWY	S		TRF SIGNAL	N	DRY	FIX		PRVTE	N -S								000	040,079,062	00
N		7P			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	25	M	OR-Y		051	017		33
N		45 32 .98	-122 26 47.21															OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at 207TH AV/FAIRVW PKWY, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

6 - 9 of 20 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A E L / R C / S G / L / W C H / O R / K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / INJ / TYPE / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00597	Y N N	01/15/2017	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT									124	01
NONE		SU	0	NE 207TH AV/FAIRVW PKWY	S		TRF SIGNAL	N	ICE	REAR		PRVTE	S -N								000	124	00
N		1P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR NONE	68	M	OR-Y		026,047	000		01
N		45 32 .99	-122 26 46.71															OR<25					
											01	NONE 0	STRGHT										
												PRVTE	S -N								000	124	00
												PSNGR CAR		02	PSNG NO<5	04	F			000	000		00
											02	NONE 0	STOP										
												PRVTE	S -N								011		00
												PSNGR CAR		01	DRVR INJC	30	F	OR-Y		000	000		00
																		OR<25					
03384	N N N	04/03/2017	14	NE HALSEY ST	INTER	CROSS	N	N	FOG	S-1STOP	01	NONE 0	STRGHT										29
NONE		MO	0	NE 207TH AV/FAIRVW PKWY	S		TRF SIGNAL	N	WET	REAR		PRVTE	S -N								000		00
N		6A			06	0		N	DAWN	INJ		PSNGR CAR		01	DRVR NONE	28	F	OR-Y		026	000		29
N		45 32 1	-122 26 46.74															OR<25					
											02	NONE 0	STOP										
												PRVTE	S -N								011		00
												PSNGR CAR		01	DRVR INJC	46	F	OR-Y		000	000		00
																		OR<25					
03395	N N N N N	04/03/2017	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										13
CITY		MO	0	NE 207TH AV/FAIRVW PKWY	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N								000		00
N		5P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR NONE	29	M	OR-Y		000	000		00
N		45 32 .99	-122 26 46.71															OR<25					
											01	NONE 0	STRGHT										
												PRVTE	S -N								000		00
												PSNGR CAR		02	PSNG INJC	31	F			000	000		00
											02	NONE 0	STRGHT										
												PRVTE	S -N								000		00
												PSNGR CAR		01	DRVR NONE	45	F	OR-Y		045	000		13
																		OR<25					
02631	N N N N N	01/17/2017	14	NE HALSEY ST	INTER	CROSS	N	N	SNOW	ANGL-STP	01	NONE 9	TURN-L										08
CITY		TU	0	NE 207TH AV/FAIRVW PKWY	S		TRF SIGNAL	N	SNO	TURN		N/A	E -S								000		00
N		12P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	00	Unk	UNK		000	000		00
N		45 32 .99	-122 26 46.71															UNK					
											02	NONE 9	STOP										
												N/A	S -N								012		00
												PSNGR CAR		01	DRVR NONE	00	Unk	UNK		000	000		00
																		UNK					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at 207TH AV/FAIRVW PKWY, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

10 - 13 of 20 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00544	Y	N	N			01/16/2017	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										124	01
NONE						MO	0	NE 207TH AV/FAIRVW PKWY	S		TRF SIGNAL	N	ICE	REAR		N/A	S -N									000		00
N						11A			06	0		N	DAY	PDO		OTH BUS		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 32 .99	-122 26 46.71																UNK					
															02	NONE 9	STOP											
																N/A	S -N									012		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					
03693	N	N	N	N	N	03/30/2016	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07,32,29
CITY						WE	0	NE 207TH AV/FAIRVW PKWY	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
N						7A			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	22	F	OR-Y		043,052,026	026		07,32,29
N						45 32 .98	-122 26 47.21																OR<25					
															02	NONE 0	STOP											
																PRVTE	W -E									011		00
																PSNGR CAR		01	DRVR	INJC	25	F	OR-Y		000	000		00
																							OR<25					
09769	N	N	N			09/18/2013	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										013	04
CITY						WE	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	DRY	ANGL		UNKN	E -W									000		00
N						2P			02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	F	OR-Y		000	000		00
N						45 32 .9914279	-122 26 46.705056																OR<25					
															01	NONE 0	STRGHT											
																UNKN	E -W									000		00
																PSNGR CAR		02	PSNG	NO<5	02	M			000	000		00
															02	NONE 0	STRGHT											
																PRVTE	S -N									022	013	00
																PSNGR CAR		01	DRVR	NONE	19	F	OR-Y		020	000		04
																							OR<25					
															03	NONE 0	STOP											
																PRVTE	N -S									011		00
																PSNGR CAR		01	DRVR	INJC	53	F	OR-Y		000	000		00
																							OR<25					
10139	N	N	N	N	N	09/25/2013	14	NE HALSEY ST	INTER	CROSS	N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT											02
CITY						WE	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	N -S									000		00
N						4P			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	57	M	OR-Y		024	000		02
N						45 32 .9914279	-122 26 46.705056																OR<25					
															02	AMBLN 0	STRGHT											
																PRVTE	E -W									000		00
																TRUCK		01	DRVR	NONE	57	M	OR-Y		000	000		00
																							OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at 207TH AV/FAIRVW PKWY, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

14 - 17 of 20 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	R U G	S C S	W O H L	C R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
11862	N	N	N	N	N		11/05/2014	16	NE HALSEY ST	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											04
CITY							WE	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	WET	ANGL		PRVTE	N -S									000		00
N							5A			03	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	22	F	OR-Y		020	000		04
N							45 32 .99	-122 26 46.71																OR>25					
																02	NONE 0	STRGHT											
																	PRVTE	W -E									000		00
																	PSNGR CAR		01	DRVR	INJC	46	M	OR-Y		000	000		00
																								OR<25					
12810	N	N	N				10/25/2016	16	NE HALSEY ST	INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE 9	STRGHT											04
CITY							TU	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	DRY	TURN		N/A	N -S									000		00
N							9P			01	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 32 .98	-122 26 47.21																UNK					
																02	NONE 9	TURN-L											
																	N/A	S -W									000		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
14767	N	N	N				12/06/2016	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											04
CITY							TU	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	WET	ANGL		N/A	N -S									000		00
N							12A			03	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 32 .98	-122 26 47.21																UNK					
																02	NONE 9	STRGHT											
																	N/A	W -E									000		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
07110	N	Y	N	N	N		07/04/2017	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											04,33
CITY							TU	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	E -W									000		00
N							7P			02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		020,051	000		04,33
N							45 32 .99	-122 26 46.71																OR<25					
																01	NONE 0	STRGHT											
																	PRVTE	E -W									000		00
																	PSNGR CAR		02	PSNG	NONE	19	F			000	000		00
																02	NONE 0	STRGHT											
																	PRVTE	S -N									000		00
																	PSNGR CAR		01	DRVR	INJA	74	M	OR-Y		000	000		00
																								OR<25					
07597	N	N	N	N	N		07/16/2017	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L											02
CITY							SU	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	S -W									000		00
N							10P			01	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	22	F	OTH-Y		004,028	000		02
N							45 32 .99	-122 26 46.71																OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at 207TH AV/FAIRVW PKWY, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

18 - 20 of 20 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A E / R L / S G / C H / S L / W O R / K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
											02	NONE 0	STRGHT											
												PRVTE	N -S								000		00
												PSNGR CAR		01	DRVR	INJC	21	F	OR-Y	000	000		00
																			OR<25				
											02	NONE 0	STRGHT											
												PRVTE	N -S								000		00
												PSNGR CAR		02	PSNG	INJB	24	F		000	000		00
10215	N N N N N	09/18/2017	14	NE HALSEY ST	INTER	CROSS	N	N	RAIN	O-1 L-TURN	01	NONE 0	TURN-L									087	04
COUNTY		MO	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	WET	TURN		PRVTE	N -E								000	087	00
N		7P			04	0		N	DUSK	INJ		PSNGR CAR		01	DRVR	INJC	59	F	OR-Y	097	000		00
N		45 32 1.02	-122 26 46.63																OR<25				
											02	NONE 0	STRGHT											
												PRVTE	S -N								000	087	00
												PSNGR CAR		01	DRVR	INJB	30	F	OR-Y	097	000		00
																			OR<25				
14684	N N N N N	12/31/2017	14	NE HALSEY ST	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										17,04
COUNTY		SU	0	NE 207TH AV/FAIRVW PKWY	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	W -E								000		00
N		2P			04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	34	F	OR-Y	020	028		17,04
N		45 32 .99	-122 26 46.71																OR<25				
											02	NONE 0	STRGHT											
												PRVTE	S -N								000		00
												PSNGR CAR		01	DRVR	INJC	44	M	OR-Y	000	000		00
																			OR<25				
											02	NONE 0	STRGHT											
												PRVTE	S -N								000		00
												PSNGR CAR		02	PSNG	INJC	19	F		000	000		00
											02	NONE 0	STRGHT											
												PRVTE	S -N								000		00
												PSNGR CAR		03	PSNG	INJC	13	M		000	000		00

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

EXHIBIT C-12

CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

1 - 3 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A / L / C	R / G / S	S / H / L	W / C / K	O / R	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER TYPE	MOVE / FROM / TO	P#	PRTC / INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
10989	Y	N	Y	N	N	10/19/2014	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	ANGL-STP	01	NONE 0	TURN-R									013	33,01,08
CITY						SU	0	NE HALSEY ST	N		TRF SIGNAL	N	DRY	TURN		STOLN	NE-N								000		00
N						2P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR NONE	30	M	SUSP		051,047,001	000		33,01,08
N						45 32 6.26	-122 26 1.13															OR<25					
															02	NONE 0	STOP										
																PRVTE	N -S								011	013	00
																PSNGR CAR		01	DRVR INJB	49	F	OTH-Y		000	000		00
																						OR<25					
															02	NONE 0	STOP										
																PRVTE	N -S								011	013	00
																PSNGR CAR		02	PSNG INJB	22	F			000	000		00
															03	NONE 0	STOP										
																PRVTE	N -S								022		00
																TRUCK		01	DRVR NONE	62	M	OR-Y		000	000		00
																						OR>25					
13907	N	N	N			12/23/2014	17	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT									013	07
NONE						TU	0	NE HALSEY ST	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N -S								000		00
N						2P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	00	F	UNK		026	000		07
N						45 32 6.26	-122 26 1.13															UNK					
															02	NONE 0	STOP										
																PRVTE	N -S								011	013	00
																PSNGR CAR		01	DRVR NONE	62	F	OR-Y		000	000		00
																						OR<25					
															03	NONE 0	STOP										
																PRVTE	N -S								022		00
																PSNGR CAR		01	DRVR NONE	00	F	UNK		000	000		00
																						UNK					
15605	N	N	N			12/23/2016	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										29
NONE						FR	0	NE HALSEY ST	N		TRF SIGNAL	N	DRY	REAR		N/A	N -S								000		00
N						5P			06	0		N	DUSK	PDO		PSNGR CAR		01	DRVR NONE	00	Unk	UNK		000	000		00
N						45 32 6.26	-122 26 1.13															UNK					
															02	NONE 9	STOP										
																N/A	N -S								011		00
																PSNGR CAR		01	DRVR NONE	00	Unk	UNK		000	000		00
																						UNK					
14604	N	N	N	N	N	12/18/2017	14	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLD	BIKE	01	NONE 0	TURN-R									110	02
COUNTY						MO	0	NE HALSEY ST	N		TRF SIGNAL	N	DRY	TURN		PRVTE	NE-N								000		00
N						5A			05	0		N	DLIT	INJ		PSNGR CAR		01	DRVR NONE	52	F	OR-Y		097	000		00
N						45 32 .99	-122 26 46.71															OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

4 - 8 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																	- TURN-L SW N	01	BIKE	INJC	32	M		ROAD	097	035		00
07712	N	N	N			07/20/2015	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	BIKE	01	NONE 0	TURN-R											04
CITY						MO	0	NE HALSEY ST	NE		TRF SIGNAL	N	DRY	TURN		PRVTE	NE-N									000		00
N N						2P 45 32 6.26	-122 26 1.13		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	65	M	OR-Y OR<25		000	000		00
																	- STRGHT N S	01	BIKE	INJB	55	M		I XWLK	020	035		04
09128	N	N	N			08/24/2015	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NO RPT						MO	0	NE HALSEY ST	NE		TRF SIGNAL	N	UNK	REAR		PRVTE	NE-SW									000		00
N N						5P 45 32 .98	-122 26 47.21		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	18	F	UNK OR<25		026	000		29
															02	NONE 0 PRVTE PSNGR CAR	STOP NE-SW	01	DRVR	NONE	34	M	OR-Y OR<25	000	011 000		00 00
08503	N	N	N			08/18/2014	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						MO	0	NE HALSEY ST	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W									000		00
N N						6P 45 32 6.26	-122 26 1.13		06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	60	M	UNK OR<25		026	000		07
															02	NONE 0 PRVTE PSNGR CAR	STOP E -W	01	DRVR	NONE	36	M	OR-Y OR<25	000	011 000		00 00
08991	N	N	N			08/04/2015	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						TU	0	NE HALSEY ST	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W									000		00
N N						7P 45 32 .99	-122 26 46.71		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	17	F	OR-Y OR<25		026	000		07
															02	NONE 0 PRVTE PSNGR CAR	STOP E -W	01	DRVR	INJC	19	F	OR-Y OR<25	000	011 000		00 00

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

9 - 11 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
13739	N	N	N			12/18/2013	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											07
NONE						WE	0	NE HALSEY ST	S		TRF SIGNAL	N	WET	REAR		PRVTE	S -N									000		00
N						8P			06	0		N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	00	F	UNK		026	000		07
N						45 32 6.25866	-122 26 1.1271479																UNK					
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		01	DRVR	NONE	22	M	OR-Y		000	000		00
																							OR<25					
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		02	PSNG	INJC	20	F			000	000		00
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		03	PSNG	NO<5	02	M			000	000		00
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		04	PSNG	NO<5	01	M			000	000		00
03718	N	N	N			03/31/2014	14	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						MO	0	NE HALSEY ST	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N									000		00
N						4P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	29	F	OTH-Y		026	000		07
N						45 32 .9914639	-122 26 46.705056																N-RES					
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		01	DRVR	NONE	65	F	OR-Y		000	000		00
																							OR<25					
12573	N	N	N	N	N	11/11/2015	17	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	RAIN	S-OTHER	01	NONE 0	TURN-L											08
COUNTY						WE	0	NE HALSEY ST	S		TRF SIGNAL	N	WET	TURN		PRVTE	S -W									000		00
N						8A			06	0		N	DAWN	PDO		PSNGR CAR		01	DRVR	NONE	37	M	SUSP		006	000		08
N						45 32 6.26	-122 26 1.13																OR<25					
															02	NONE 0	STOP											
																PRVTE	S -N									012		00
																PSNGR CAR		01	DRVR	NONE	27	F	OR-Y		000	000		00
																							OR<25					
04855	N	N	N			04/28/2016	17	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	07
CITY						TH	0	NE HALSEY ST	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N									000		00
N						2P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	41	F	OR-Y		026	000		07
N						45 32 6.26	-122 26 1.13																OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

12 - 15 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	R U G	S C S	W H L	C O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 0	STOP											
																	PRVTE	S -N								011	013		00
																	PSNGR CAR		01	DRVR	NONE	54	F	OR-Y		000			00
																								OR<25					
																02	NONE 0	STOP											
																	PRVTE	S -N								011	013		00
																	PSNGR CAR		02	PSNG	INJB	20	F			000			00
																03	NONE 0	STOP											
																	PRVTE	S -N								022			00
																	PSNGR CAR		01	DRVR	INJC	36	F	NONE		000			00
																								OR<25					
15893	N	N	N				09/30/2016	17	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 9	STRGHT											29
CITY							FR	0	NE HALSEY ST	S		TRF SIGNAL	N	DRY	REAR		N/A	S -N								000			00
N							8A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000			00
N							45 32 6.26	-122 26 1.13																UNK					
																02	NONE 9	STOP											
																	N/A	S -N								011			00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000			00
																								UNK					
10746	N	N	N	N	N		10/01/2017	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
COUNTY							SU	0	NE HALSEY ST	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N								000			00
N							3P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	53	F	OTH-Y		026			29
N							45 32 6.26	-122 26 1.14																UNK					
																02	NONE 0	STOP											
																	PRVTE	S -N								011			00
																	PSNGR CAR		01	DRVR	INJC	42	F	OR-Y		000			00
																								OR<25					
02753	N	N	N				03/17/2017	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT									013		29
CITY							FR	0	NE HALSEY ST	S		TRF SIGNAL	N	WET	REAR		PRVTE	S -N								000			00
N							4P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	53	M	OR-Y		026			29
N							45 32 6.26	-122 26 1.13																OR<25					
																02	NONE 0	STOP											
																	PRVTE	S -N								011	013		00
																	PSNGR CAR		01	DRVR	INJC	63	F	OR-Y		000			00
																								OR<25					
																03	NONE 0	STOP											
																	PRVTE	S -N								011			00
																	PSNGR CAR		01	DRVR	NONE	62	F	OR-Y		000			00
																								OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

16 - 19 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	R U G	S C S	W O H L	C R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
09819	N	N	N				09/19/2013	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE							TH	0	NE HALSEY ST	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N							9A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		07
N							45 32 .9914279	-122 26 46.705056																OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	NONE	30	F	OR-Y		000	000		00
																								OR<25					
01024	N	N	N				01/30/2014	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	RAIN	S-OTHER	01	NONE 0	TURN-L											08
NONE							TH	0	NE HALSEY ST	SW		TRF SIGNAL	N	WET	TURN		PRVTE	SW-N									000		00
N							3P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	UNK		006	000		08
N							45 32 .9914639	-122 26 46.705056																UNK					
																02	NONE 0	TURN-L											
																	PRVTE	SW-N									000		00
																	PSNGR CAR		01	DRVR	NONE	83	M	OR-Y		000	000		00
																								OR<25					
00505	N	N	N				01/16/2015	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NO RPT							FR	0	NE HALSEY ST	SW		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N							5P			06	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	52	M	OR-Y		026	000		07
N							45 32 6.26	-122 26 1.13																UNK					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	25	M	OR-Y		000	000		00
																								OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		02	PSNG	INJC	00	M			000	000		00
08371	N	N	N				07/19/2016	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NO RPT							TU	0	NE HALSEY ST	SW		TRF SIGNAL	N	DRY	REAR		N/A	SW-NE									000		00
N							2P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 32 6.26	-122 26 1.13																UNK					
																02	NONE 9	STOP											
																	N/A	SW-NE									011		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
11099	N	N	N				10/10/2015	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										013	29
NONE							SA	0	NE HALSEY ST	W		TRF SIGNAL	N	WET	REAR		PRVTE	W -E									000		00
N							3P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		026	000		29
N							45 32 .98	-122 26 47.21																OR-?					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

20 - 24 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
															02	NONE 0	STOP											
																PRVTE	W -E									011	013	00
																PSNGR CAR		01	DRVR	NONE	37	F	OR-Y		000	000		00
																							OR<25					
															03	UNKN 9	STOP											
																UNKN	W -E									022		00
																UNKNOWN		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					
08887	N	N	N			07/31/2016	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						SU	0	NE HALSEY ST	W		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W									000		00
N						12P			05	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	39	M	OR-Y		026	000		29
N						45 32 6.26	-122 26 1.13																OR<25					
															02	NONE 0	STOP											
																PRVTE	E -W									011		00
																PSNGR CAR		01	DRVR	INJC	54	M	OR-Y		000	000		00
																							OR<25					
02719	N	N	N			03/21/2013	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						TH	0	NE HALSEY ST	CN		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N						8A			03	0		N	DAWN	PDO		PSNGR CAR		01	DRVR	NONE	48	M	OR-Y		026	000		07
N						45 32 6.25866	-122 26 1.1271479																OR<25					
															02	NONE 0	STOP											
																PRVTE	SW-NE									013		00
																TRUCK		01	DRVR	NONE	51	M	OR-Y		000	000		00
																							OR<25					
00159	N	N	N	N	N	01/06/2014	17	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE 0	STRGHT											32
CITY						MO	0	NE HALSEY ST	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	N -S									000		00
N						6P			01	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	53	M	OR-Y		000	000		00
N						45 32 6.258696	-122 26 1.1271479																OR<25					
															02	NONE 0	TURN-L											
																PRVTE	S -W									000		00
																PSNGR CAR		01	DRVR	NONE	32	M	OR-Y		052	000		32
																							OR>25					
05659	N	N	N	N	N	06/05/2014	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L											04
CITY						TH	0	NE HALSEY ST	CN		TRF SIGNAL	N	DRY	TURN		UNKN	S -W									000		00
N						6A			02	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		020	000		04
N						45 32 6.26	-122 26 1.13																UNK					
															02	NONE 0	STRGHT											
																PRVTE	E -W									000		00
																PSNGR CAR		01	DRVR	NONE	22	M	OR-Y		000	000		00
																							OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

25 - 27 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A E / L E / C D / S L / G H / S L / W O R / K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
08854	N N N N N	07/30/2016	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										013	04
CITY		SA	0	NE HALSEY ST	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	N -S									000	013	00
N		6P			01	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	18	F	OR-Y		000	000		00
N		45 32 6.26	-122 26 1.13																OR<25					
											02	NONE 0	STRGHT											
												PRVTE	E -W									000		00
												PSNGR CAR		01	DRVR	INJC	33	F	OR-Y		020	000		04
																			OR<25					
											03	NONE 0	STOP											
												PRVTE	W -E									022		00
												PSNGR CAR		01	DRVR	NONE	79	M	OTH-Y		000	000		00
																			N-RES					
04574	Y N N N N	05/03/2017	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										013	04,30
CITY		WE	0	NE HALSEY ST	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	S -N									000		00
N		12P			02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	71	F	OR-Y		000	000		00
N		45 32 6.26	-122 26 1.13																OR<25					
											02	NONE 0	STRGHT											
												STOLN	E -W									000	013	00
												PSNGR CAR		01	DRVR	INJB	21	F	OR-Y		020,050,073	000		04,30
																			UNK					
											02	NONE 0	STRGHT											
												STOLN	E -W									000	013	00
												PSNGR CAR		02	PSNG	INJC	21	F			000	000		00
											03	NONE 0	STOP											
												PRVTE	N -S									022		00
												PSNGR CAR		01	DRVR	NONE	24	F	OR-Y		000	000		00
																			OR<25					
											03	NONE 0	STOP											
												PRVTE	N -S									022		00
												PSNGR CAR		02	PSNG	INJC	20	F			000	000		00
07912	N N N N N	07/23/2017	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	O-STRGHT	01	NONE 0	STRGHT											05
CITY		SU	0	NE HALSEY ST	CN		TRF SIGNAL	N	DRY	HEAD		PRVTE	S -N									000		00
N		9P			01	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJB	33	M	OTH-Y		044	000		05
N		45 32 6.26	-122 26 1.13																N-RES					
											02	NONE 0	STRGHT											
												PRVTE	N -S									000		00
												PSNGR CAR		01	DRVR	NONE	42	M	OR-Y		000	000		00
																			OR<25					
											02	NONE 0	STRGHT											
												PRVTE	N -S									000		00
												PSNGR CAR		02	PSNG	NONE	40	F			000	000		00

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

28 - 29 of 29 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A E L D / R G C / S H S / W C L / O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
12572	N N N N N	11/12/2017	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT											04,33
COUNTY		SU	0	NE HALSEY ST	CN		TRF SIGNAL	N	DRY	ANGL		STOLN	W -E									000		00
N		3A			04	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	32	M	NONE		020,051	000		04,33
N		45 32 6.26	-122 26 1.13																UNK					
											02	NONE 0	STRGHT											
												PRVTE	S -N									000		00
												PSNGR CAR		01	DRVR	INJC	18	F	OR-Y		000	000		00
																			OR<25					
											02	NONE 0	STRGHT											
												PRVTE	S -N									000		00
												PSNGR CAR		02	PSNG	INJC	43	M			000	000		00
12586	N N N	11/12/2017	16	FAIRVIEW/223RD AVE	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											04
NONE		SU	0	NE HALSEY ST	CN		TRF SIGNAL	N	WET	ANGL		UNKN	E -W									000		00
N		12A			02	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		020	000		04
N		45 32 6.26	-122 26 1.13																UNK					
											02	NONE 0	STRGHT											
												PRVTE	S -N									000		00
												PSNGR CAR		01	DRVR	INJA	43	M	OR-Y		000	000		00
																			OR<25					
											02	NONE 0	STRGHT											
												PRVTE	S -N									000		00
												PSNGR CAR		02	PSNG	INJA	00	F			000	000		00

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

EXHIBIT C-12

CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at VILLAGE ST, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

1 - 5 of 6 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A L / R U G / S H / C L / W O R / N K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
12957	N N N N N	11/29/2013	16	NE HALSEY ST	INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT										013	32,07
CITY		FR	0	VILLAGE ST	E		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E								000		00
N		12P			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	76	M	OR-Y		052	000		32,07
N		45 32 2.7239999	-122 26 23.908272															OR<25					
											02	NONE 0	STOP										
												PRVTE	W -E								011	013	00
												PSNGR CAR		01	DRVR NONE	53	F	OR-Y		000	000		00
																		OR<25					
											03	NONE 0	STOP										
												PRVTE	W -E								011		00
												PSNGR CAR		01	DRVR NONE	53	F	OR-Y		000	000		00
																		OR<25					
08669	N N N N N	08/22/2014	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											32,07
CITY		FR	0	VILLAGE ST	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N		10A			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR INJC	50	M	OR-Y		052,026	000		32,07
N		45 32 2.72	-122 26 23.91															OR<25					
											02	NONE 0	STOP										
												PRVTE	E -W								011		00
												PSNGR CAR		01	DRVR INJC	44	F	OR-Y		000	000		00
																		OR<25					
06865	N N N	06/28/2015	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											27
NONE		SU	0	VILLAGE ST	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N		5P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR NONE	19	F	OR-Y		026,016	038		27
N		45 32 2.72	-122 26 23.91															OR<25					
											02	NONE 0	STOP										
												PRVTE	E -W								011		00
												PSNGR CAR		01	DRVR INJC	27	F	OR-Y		000	000		00
																		OR<25					
01232	N N N N N	02/03/2017	16	NE HALSEY ST	INTER	CROSS	N	Y	SLT	FIX OBJ	01	NONE 9	TURN-R									055,062	08
CITY		FR	0	VILLAGE ST	W		TRF SIGNAL	N	ICE	FIX		N/A	W -S								000		00
N		11A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	00	Unk	UNK		000	000		00
N		45 32 2.72	-122 26 23.91															UNK					
10573	N N N N N	10/03/2013	16	NE HALSEY ST	INTER	CROSS	N	N	CLD	O-1 L-TURN	01	NONE 0	STRGHT										02
CITY		TH	0	VILLAGE ST	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	W -E								000		00
N		2P			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR NONE	52	M	OR-Y		000	000		00
N		45 32 2.7239999	-122 26 23.908272															OR<25					
											02	NONE 0	TURN-L										
												PRVTE	E -S								000		00
												PSNGR CAR		01	DRVR NONE	19	F	OR-Y		028	000		02
																		OR<25					

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EXHIBIT C-12

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF FAIRVIEW, MULTNOMAH COUNTY

HALSEY ST at VILLAGE ST, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

6 - 6 of 6 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A L C / R U G S / S C H L / W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
13636	N N N N N	12/16/2014	16	NE HALSEY ST	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L											02
CITY		TU	0	VILLAGE ST	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	E -S								000			00
N		4P			03	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	49	M	OR-Y		028,004	000		02
N		45 32 2.72	-122 26 23.91																OR<25					
											02	NONE 0	STRGHT											
												PRVTE	W -E								000			00
												PSNGR CAR		01	DRVR	INJC	67	F	OR-Y		000	000		00
																			OR<25					
											02	NONE 0	STRGHT											
												PRVTE	W -E								000			00
												PSNGR CAR		02	PSNG	INJB	72	F			000	000		00
											02	NONE 0	STRGHT											
												PRVTE	W -E								000			00
												PSNGR CAR		03	PSNG	INJB	71	F			000	000		00

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

EXHIBIT C-12

CITY OF FAIRVIEW, MULTNOMAH COUNTY

SANDY BLVD at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

1 - 3 of 18 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D / A / L / C	R / G / S	S / U / L	W / C / H	O / R / K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
14253	Y	N	Y	N	N	11/11/2013	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	Y	CLD	PRKD MV	01	NONE 0	TURN-L										013,005	30,08
CITY						MO	0	NE SANDY BLVD	N		TRF SIGNAL	N	DRY	TURN		RENTL	W -N									000		00
N						12A			05	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	30	M	SUSP		073,050,001	000		30,08
N						45 32 32.928216	-122 26 .2088599																OR<25					
															01	NONE 0	TURN-L											
																RENTL	W -N									000		00
																PSNGR CAR		02	PSNG	INJB	42	F			000	000		00
																	- UNK	01	PED	INJC	31	M		SHLDR	000	045	005	00
															02	UNKN 0	UN UN PRKD-P											
																PUBLC	S -N									008	013	00
																PSNGR CAR												
12196	N	N	N			11/12/2013	17	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										013	07
NONE						TU	0	NE SANDY BLVD	N		TRF SIGNAL	N	WET	REAR		PRVTE	N -S									000		00
N						7P			06	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	38	M	OR-Y		026	000		07
N						45 32 32.928216	-122 26 .2088599																OR<25					
															02	NONE 0	STOP											
																PRVTE	N -S									011	013	00
																PSNGR CAR		01	DRVR	INJC	62	F	OR-Y		000	000		00
																							OR<25					
															03	NONE 0	STOP											
																PRVTE	N -S									022		00
																PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		000	000		00
																							OR<25					
08228	N	N	N			08/02/2015	17	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						SU	0	NE SANDY BLVD	N		TRF SIGNAL	N	DRY	REAR		PRVTE	N -S									000		00
N						1P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		29
N						45 32 32.93	-122 26 .21																OR<25					
															02	NONE 0	STOP											
																PRVTE	N -S									011		00
																PSNGR CAR		01	DRVR	NONE	67	F	OR-Y		000	000		00
																							OR<25					
01637	N	N	N			02/14/2017	17	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE						TU	0	NE SANDY BLVD	N		TRF SIGNAL	N	DRY	REAR		N/A	N -S									000		00
N						5P			06	0		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 32 32.93	-122 26 .21																UNK					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

SANDY BLVD at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

4 - 8 of 18 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
															02	NONE 9	STOP											
																N/A	N -S									011		00
																PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																							UNK					
07455	N	N	Y	N	N	02/03/2013	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											33,07
CITY						SU	0	NE SANDY BLVD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W									000		00
N						12P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	30	F	OR-Y		051	000		33,07
N						45 32	-122 26																OR<25					
						32.928216	.2088599																					
															02	NONE 0	STOP											
																PRVTE	E -W									011		00
																PSNGR CAR		01	DRVR	NONE	27	M	OR-Y		000	000		00
																							OR<25					
11343	N	N	N			10/23/2013	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						WE	0	NE SANDY BLVD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W									000		00
N						3P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	42	M	OTH-Y		026	000		07
N						45 32	-122 26																N-RES					
						32.928216	.2088599																					
															02	NONE 0	STOP											
																PRVTE	E -W									011		00
																PSNGR CAR		01	DRVR	INJC	25	F	OR-Y		000	000		00
																							OR<25					
14732	N	N	N			12/26/2017	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										124	29
NONE						TU	0	NE SANDY BLVD	E		L-GRN-SIG	N	ICE	REAR		PRVTE	E -W									000	124	00
N						2P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	31	M	OR-Y		026	000		29
N						45 32 32.87	-122 26																OR<25					
							.19																					
															02	NONE 0	STOP											
																PRVTE	E -W									012		00
																PSNGR CAR		01	DRVR	INJC	74	M	OR-Y		000	000		00
																							OR<25					
07492	N	N	N	N	N	07/23/2013	17	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
CITY						TU	0	NE SANDY BLVD	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N									000		00
N						5P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	30	F	OR-Y		026	000		07
N						45 32	-122 26																OR<25					
						32.928216	.2088599																					
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		01	DRVR	INJC	38	M	OR-Y		000	000		00
																							OR<25					
08526	N	N	N			08/18/2013	17	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						SU	0	NE SANDY BLVD	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N									000		00
N						11A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		026	000		07
N						45 32	-122 26																OR>25					
						32.928216	.2088599																					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

SANDY BLVD at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

9 - 12 of 18 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
															02	NONE 0	STOP											
																PRVTE	S -N									011		00
																PSNGR CAR		01	DRVR	NONE	00	M	UNK		000	000		00
																							OR<25					
02616	N	N	N			03/06/2016	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NO RPT						SU	0	NE SANDY BLVD	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S -N									000		00
N						5P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	32	F	OR-Y		026	000		29
N						45 32 32.93	-122 26 .21																UNK					
															02	NONE 0	STOP											
																PRVTE	S -W									012		00
																PSNGR CAR		01	DRVR	INJC	31	M	OR-Y		000	000		00
																							OR<25					
															02	NONE 0	STOP											
																PRVTE	S -W									012		00
																PSNGR CAR		02	PSNG	INJC	29	F			000	000		00
															02	NONE 0	STOP											
																PRVTE	S -W									012		00
																PSNGR CAR		03	PSNG	NO<5	01	M			000	000		00
															02	NONE 0	STOP											
																PRVTE	S -W									012		00
																PSNGR CAR		04	PSNG	INJC	05	M			000	000		00
12426	N	N	N			11/17/2014	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						MO	0	NE SANDY BLVD	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
N						2P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		026	000		07
N						45 32 32.93	-122 26 .21																OR<25					
															02	NONE 0	STOP											
																PRVTE	W -E									011		00
																PSNGR CAR		01	DRVR	NONE	44	M	OR-Y		000	000		00
																							OR<25					
12606	N	Y	N			11/23/2014	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1TURN	01	NONE 0	STRGHT											07
CITY						SU	0	NE SANDY BLVD	W		TRF SIGNAL	N	WET	TURN		PRVTE	W -E									000		00
N						5P			06	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		026	000		07
N						45 32 32.93	-122 26 .21																OR<25					
															02	NONE 0	TURN-L											
																PRVTE	W -N									000		00
																PSNGR CAR		01	DRVR	INJC	46	M	OR-Y		000	000		00
																							OR<25					

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CITY OF FAIRVIEW, MULTNOMAH COUNTY

SANDY BLVD at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

13 - 17 of 18 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	R U G S	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
07783	N	N	N			07/21/2015	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						TU	0	NE SANDY BLVD	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
N						5P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	58	F	OTH-Y		026	000		29
N						45 32 32.93	-122 26 .21																N-RES					
															02	NONE 0	STOP											
																PRVTE	W -E									011		00
																PSNGR CAR		01	DRVR	NONE	54	M	OR-Y		000	000		00
																							OR<25					
08679	N	N	N			07/22/2016	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											27,29
NONE						FR	0	NE SANDY BLVD	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
N						3P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	49	F	OR-Y		016,026	038		27,29
N						45 32 32.93	-122 26 .21																OR<25					
															02	NONE 0	STOP											
																PRVTE	W -E									011		00
																PSNGR CAR		01	DRVR	INJC	16	M	OR-Y		000	000		00
																							OR<25					
00363	Y	N	N	N	N	01/11/2017	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	Y	SNOW	FIX OBJ	01	NONE 9	TURN-L										055	01,08
CITY						WE	0	NE SANDY BLVD	W		TRF SIGNAL	N	SNO	FIX		N/A	S -W									000		00
N						4A			05	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N						45 32 32.93	-122 26 .21																UNK					
01407	N	N	N			02/02/2013	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT											04
NO RPT						SA	0	NE SANDY BLVD	CN		L-GRN-SIG	N	DRY	TURN		UNKN	W -E									000		00
N						3P			03	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	OR-Y		020	000		04
N						45 32 32.928216	-122 26 .2088599																UNK					
															02	NONE 0	TURN-L											
																PRVTE	E -S									000		00
																PSNGR CAR		01	DRVR	NONE	61	M	OR-Y		000	000		00
																							OR<25					
14295	N	N	N			12/16/2015	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											04
CITY						WE	0	NE SANDY BLVD	CN		TRF SIGNAL	N	WET	ANGL		PRVTE	W -E									000		00
N						11P			03	0		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	31	M	OR-Y		097	000		00
N						45 32 32.93	-122 26 .21																OR<25					
															02	NONE 0	STRGHT											
																PRVTE	N -S									000		00
																PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		097	000		00
																							OR<25					

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EXHIBIT C-12

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF FAIRVIEW, MULTNOMAH COUNTY

SANDY BLVD at FAIRVIEW/223RD AVE, City of Fairview, Multnomah County, 01/01/2013 to 12/31/2017

18 - 18 of 18 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A	L	G	S	H	L	W C O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
03336	N	N	N						04/01/2017	16	NE FAIRVIEW/223RD AVE	INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT											04
NO RPT									SA	0	NE SANDY BLVD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	W -E								000		00
N									11P			03	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	52	M	OR-Y		097	000		00
N									45 32 32.93	-122 26 .21																OR<25					
																		02	NONE 0	TURN-L											
																			PRVTE	E -S									000		00
																			PSNGR CAR		01	DRVR	NONE	18	M	OR-Y		097	000		00
																										OR<25					

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

Traffic Signal Warrant Analysis

Project: 18170 - Halsey Crossing
Date: 11/7/2018
Scenario: Year 2020 Background plus Site Conditions

Major Street:	NE Halsey Street	Minor Street:	Western Site Access
Number of Lanes:	2	Number of Lanes:	1
PM Peak Hour Volumes:	1101	PM Peak Hour Volumes:	19

Warrant Used:

X 100 percent of standard warrants used

_____ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	11,010	10,600	
Minor Street*	190	2,650	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	11,010	15,900	
Minor Street*	190	1,350	**No**
Combination Warrant			
Major Street	11,010	12,720	
Minor Street*	190	2,120	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 18170 - Halsey Crossing
Date: 11/7/2018
Scenario: Year 2020 Background plus Site Conditions

Major Street:	NE 223rd Avenue	Minor Street:	Northern Site Access
Number of Lanes:	2	Number of Lanes:	1
PM Peak Hour Volumes:	1253	PM Peak Hour Volumes:	5

Warrant Used:

X 100 percent of standard warrants used

_____ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	12,530	10,600	
Minor Street*	50	2,650	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	12,530	15,900	
Minor Street*	50	1,350	**No**
Combination Warrant			
Major Street	12,530	12,720	
Minor Street*	50	2,120	**No**

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis

Project: 18170 - Halsey Crossing
Date: 11/7/2018
Scenario: Year 2020 Background plus Site Conditions

Major Street:	NE 223rd Avenue	Minor Street:	Arata/Barr Road
Number of Lanes:	2	Number of Lanes:	1
PM Peak Hour Volumes:	1573	PM Peak Hour Volumes:	86

Warrant Used:

X 100 percent of standard warrants used

_____ 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
WARRANT 1, CONDITION A		100%	70%	100%	70%
Major St.	Minor St.	Warrants	Warrants	Warrants	Warrants
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
Warrant 1			
Condition A: Minimum Vehicular Volume			
Major Street	15,730	10,600	
Minor Street*	860	2,650	**No**
Condition B: Interruption of Continuous Traffic			
Major Street	15,730	15,900	
Minor Street*	860	1,350	**No**
Combination Warrant			
Major Street	15,730	12,720	
Minor Street*	860	2,120	**No**

* Minor street right-turning traffic volumes reduced by 25%

EXHIBIT C-13

JACKSON
CIVIL ENGINEERING

P.O. BOX 1748
BATTLE GROUND, WA
98604-4687
(360) 901-6031

HALSEY CROSSINGS SITE PLAN

PRELIMINARY STORMWATER REPORT

CASE NUMBER: 2018-38

PROPERTY OWNER: Dean Hurford
22001 NE Halsey
Fairview, OR 97024

ENGINEER: Devin E Jackson, P.E.
Jackson Civil Engineering, LLC
PO Box 1748
Battle Ground, WA 98604-4687

DATE: October 2018

Designer's Certification Statement

I hereby certify that this Stormwater Management Report for the Halsey Crossings Site Plan has been prepared by me or under my supervision and meets minimum standards of the City of Fairview 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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Methodology 4

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Table 2 – Threshold Discharge Area 1 (South to Fairview Creek) 5

Table 3 –Perkfilter Treatment Sizing 6

Engineering Conclusions 6

Stormwater Facility Details/Exhibits 6

Appendices

Appendix A Site Maps
Appendix B Stormwater Site Plan
Appendix C Stormwater Flow Control Analysis
Appendix D Stormwater Treatment Analysis
Appendix E Geotechnical Report

Project Overview and Description

The Halsey Lofts Site Plan proposes to develop a 2.65-acre (115,434 SF) site consisting of three [3] parcels in the Town Center Commercial (TCC) zone. The project is located at the NW corner of NE 223rd and Halsey Street in Fairview, Oregon and includes parcel numbers 1N3E2DD-07800, 1N3E2DD-08001 and 1N3E2DD-07900. The location of the site is shown on the vicinity map in Appendix A.

The existing site consists of imported fill and sparse grassy vegetation. The site is relatively flat gradually sloping to the south towards Fairview creek. There are no known hazardous areas on the site. The site is bounded on the south end by Fairview creek as it meanders east to west adjacent to Halsey street. Adjacent properties do not appear to contribute drainage to the site. The site is shown as being in the special flood hazard area (SFHA) per the current flood insurance rate map (FIRM). The site was filled under a prior grading permit elevating the majority of the site above the base flood elevation (BFE) identified as 159.00' on the FIRM. There are no known issues with flooding.

Methodology

The site soils are mapped as Wollent silt loam and Latourell-Urban Land complex as shown on the soil map in Appendix A, which are hydrologic soil group B soils. Groundwater maps of the area show high groundwater. Geotechnical investigation was performed on the site and found the soils to be non-native fill. See the geotechnical report in Appendix E for additional information.

The development proposes to detain stormwater runoff and discharge to Fairview creek. Stormwater treatment shall be provided for all runoff from the parking lot with a mechanical filter system prior to entering an underground detention chamber facility as shown on the stormwater site plan in Appendix B. Runoff from the roof, which is not a pollution generating surface, will bypass mechanical treatment and discharge directly to the chamber detention system. Landscaping and trail on the south side of the property will sheet flow through natural vegetation prior to discharging to Fairview creek.

Subsurface drainage facilities are proposed for treatment and flow control on this site because the limited landscaped area, poor infiltration rates, and high ground water potential make the use of vegetated surface facilities infeasible.

The StormTech chamber detention facility is sized to fully detain the 25-year 24-hour storm event as required by the 2016 City of Portland Stormwater Manual. The mechanical filter system is sized based on the 2016 City of Portland Stormwater Management Manual and the City of Portland Bureau of Environmental Services (BES) approval letter for Perkfilter stormwater treatment systems in Appendix D.

Table 1 -On-site Disposal Hierarchy

CATEGORY I	CATEGORY II	CATEGORY III	CATEGORY IV
Total on-site infiltration with vegetated infiltration facility.	Total on-site infiltration with vegetated infiltration facility that overflows to a subsurface infiltration facility.	On-site detention with vegetated facility that overflows to a drainageway, river or storm only pipe.	On-site detention with vegetated facility that flows to a combined sewer system.
No on-site infiltration is proposed due to high groundwater.	*No on-site infiltration is proposed due to high groundwater.*	*This category applies, the project proposes to treat, detain, and discharge to Fairview creek.*	*No combined sewer system.*

Analysis

The site consists of two Threshold Discharge Areas (TDA). TDA 1 makes up the majority of the site and will be collected by an enclosed conveyance system, treated by mechanical filters, detained in an underground detention facility, and ultimately discharged to Fairview creek which is the pre-existing discharge point. TDA 2 consists of the frontage along 223rd which consists of an existing sidewalk area that drains to 223rd. The proposed project maintains existing impervious area and adds a planter strip that will utilize street trees to further reduce runoff. Neither treatment nor detention facilities will be constructed for TDA 2 since it consists solely of sidewalk and a driveway drop. This exemption is allowed under the 2016 Portland Stormwater Manual section 1.2.4 Exemptions.

The proposed detention system was analyzed with HydroCAD using the Santa Barbara Unit Hydrograph (SBUH) method for the half of the 2 year, and the full 5, 10, and 25-year 24-hour storm events with a Type 1-A distribution as required by the 2016 City of Portland Stormwater Manual. The emergency riser passes the 100-year storm event. A minimum time of concentration of 5 minutes is assumed for each catchment since they are mostly impervious area. The land use inputs are shown below in Table 1.

Table 2 – Threshold Discharge Area 1 (South to Fairview Creek)

Impervious Area Type	Existing Area (SF)	Proposed Area (SF)	Proposed Facility Type	CN
Paved parking	0	42,503	Filter Catch Basins & Vault/Underground Storage	98
Sidewalk	0	14,326	Filter Catch Basins &Vault/Underground Storage	98
Roof	0	29,347	Underground Storage	98
Landscape	0	6,970	Filter Catch Basins & Vault/Underground Storage	70

Note: Roof area will bypass PerkFilter system and directly discharge to underground storage.

The proposed mechanical filter system (Oldcastle Perkfilter) is sized based on the BES approval letter included in Appendix D. The approval letter provides sizing criteria in Table 1 of the letter. Based on the sizing criteria for 18" high cartridges and a design flow rate of 1.5 gpm/sf (10.2 gpm for a single cartridge), each cartridge is able to treat 5,793 sf of impervious area. Individual catch basins and/or vaults shall be independently sized based on sub-catchments to further ensure proper treatment.

Table 3 –Perkfilter Treatment Sizing

Impervious Drainage Area (sf)	Treatment Area Per Cartridge (sf)	Cartridges Required
63,799	5,793	12

Note: Roof area will bypass filter catch basin and directly discharge to underground storage.

The proposed underground detention facility was sized to accommodate half the 2 year, and the full 5, 10, and 25-year storm events as well as pass the 100-year storm event without flooding. The facility consists of StormTech SC-740 chambers inside a rock gallery. There will be 150 chambers at a length of 7.12’ each, arranged in 6 rows. The outlet structure shall be a manhole with a 12” pipe that utilizes a rectangular notched weir. Details of the facility are provided as part of the HydroCAD analysis contained in Appendix C as well as the stormwater and grading plans provided in Appendix B.

Engineering Conclusions

The analysis above demonstrates that the proposed stormwater facilities are able to meet the flow control and treatment requirements of the 2016 City of Portland Stormwater Manual. The detention facilities are sized to provide flow control for design storms up to and including the 25-year 24-hour event as well as pass the 100-year storm. The treatment facility is able to treat 90% of the annual average rainfall as required by the 2016 City of Portland Stormwater Management Manual.

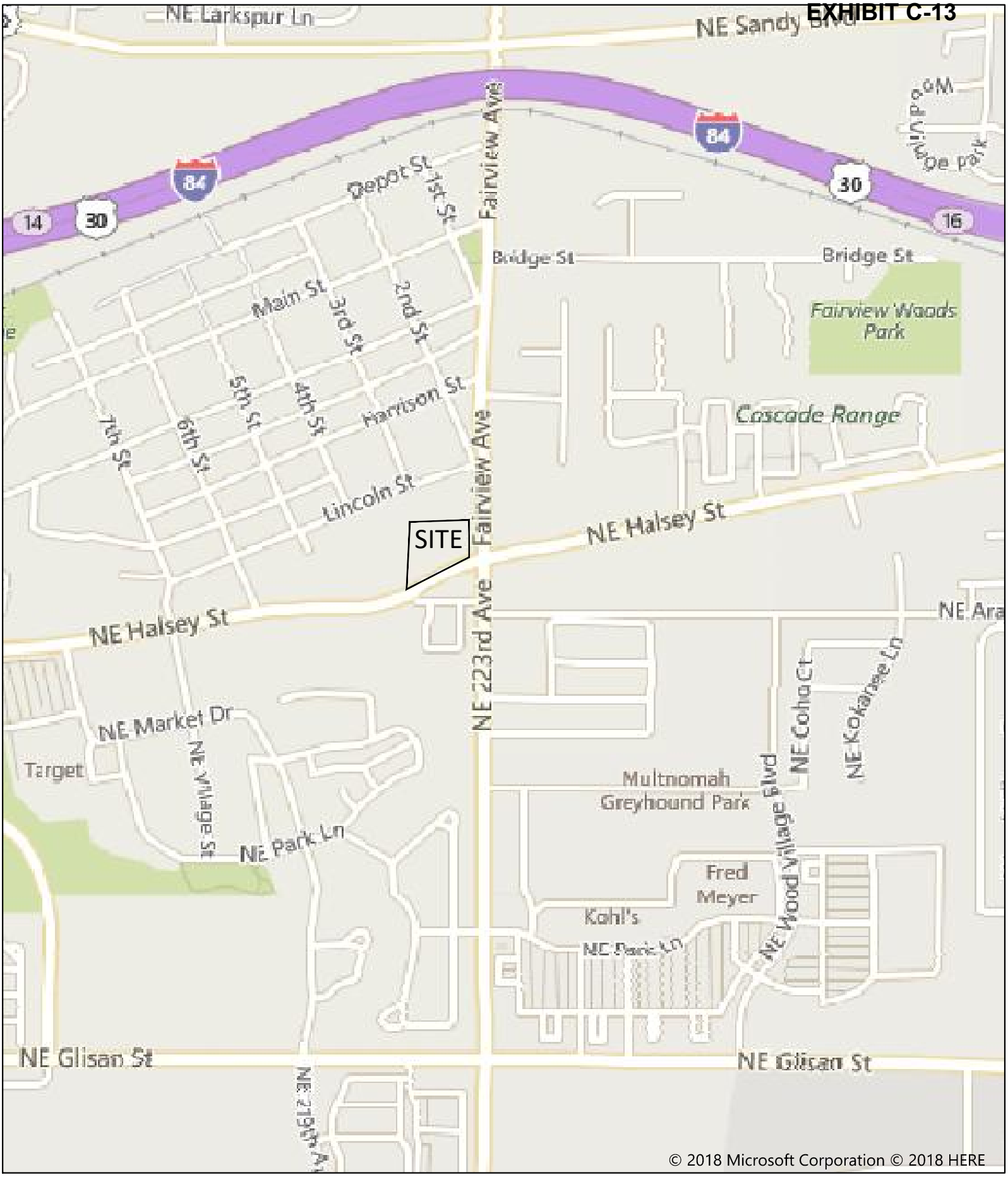
Stormwater Facility Details/Exhibits

The stormwater facilities are illustrated on the stormwater basin plan in Appendix B, and details of the PerkFilter mechanical filter system and StormTech chamber system are included in Appendix D.

APPENDIX A

SITE MAPS

EXHIBIT C-13

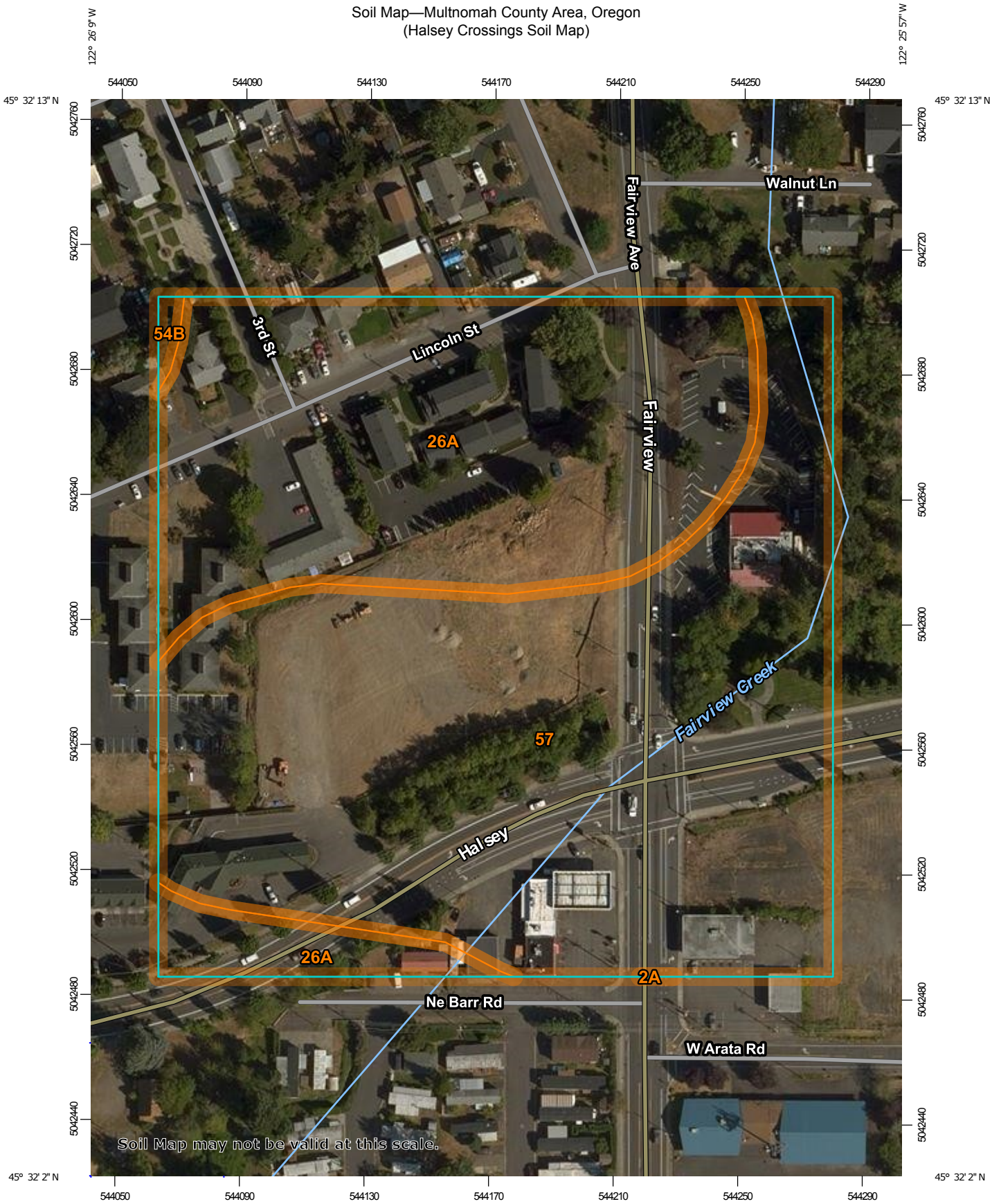


VICINITY MAP

NTS

EXHIBIT C-13

Soil Map—Multnomah County Area, Oregon
(Halsey Crossings Soil Map)



Map Scale: 1:1,680 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Soil Map—Multnomah County Area, Oregon
(Halsey Crossings Soil Map)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

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: Multnomah County Area, Oregon
Survey Area Data: Version 15, Sep 19, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2014—Sep 5, 2014

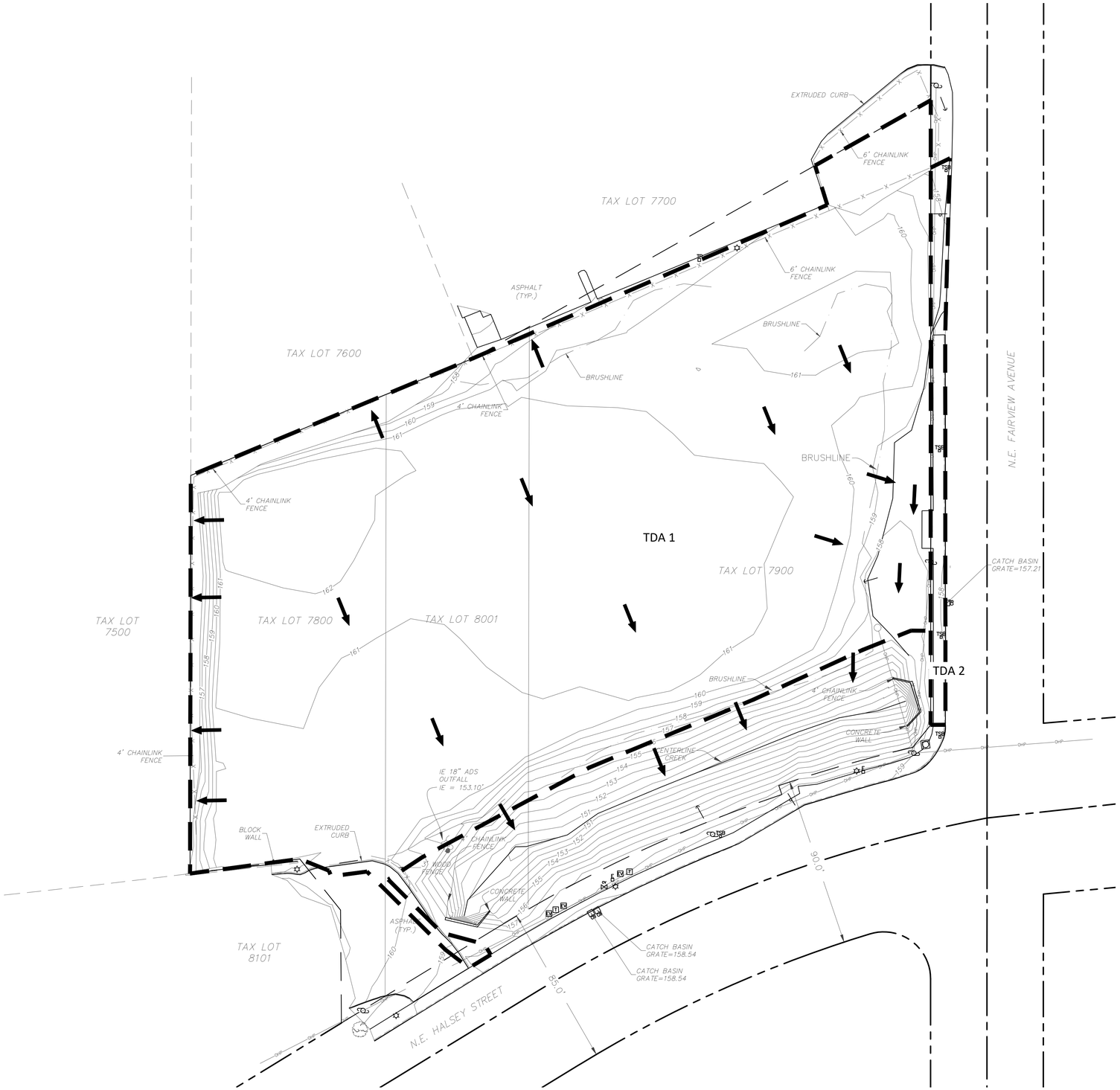
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2A	Aloha-Urban land complex, 0 to 3 percent slopes	0.0	0.0%
26A	Latourell-Urban land complex, 0 to 3 percent slopes	4.7	40.4%
54B	Urban land-Quatama complex, 3 to 8 percent slopes	0.0	0.4%
57	Wollent silt loam	6.9	59.2%
Totals for Area of Interest		**11.7**	**100.0%**

APPENDIX B

STORMWATER SITE PLAN



THRESHOLD DISCHARGE AREA

IMPERVIOUS AREA: 0 ACRE

PERVIOUS AREA: 2.14 ACRE (93,218 SF)

GROUNDCOVER : POOR QUALITY GRASS AND SHRUBS

FLOW/DISCHARGE: SITE GENERALLY FLOWS TO THE SOUTH AND DISCHARGES RUNOFF TO FAIRVIEW CREEK

CIVIL LEGEND

DRAINAGE FLOW ARROW

TDA BOUNDARY

N

0 30 60 Feet

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

PRELIMINARY - NOT FOR CONSTRUCTION

EXISTING BASIN PLAN

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

DATE: OCT 3, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2018 DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER
0022

SHEET
C100

GENERAL NOTES

1. ALL PROPOSED STORMWATER FACILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED.
2. WATER QUALITY TREATMENT SHALL BE PROVIDED FOR IMPERVIOUS ROADWAY AND DRIVEWAY SURFACES BY MECHANICAL FILTERS.
3. THERE ARE NO KNOWN WETLANDS ON SITE.
4. STORMWATER RUNOFF FROM ROOF AREAS SHALL BYPASS TREATMENT.

THRESHOLD DISCHARGE AREA

PAVEMENT: 0.98 ACRE (42,689 SF)

SIDEWALK: 0.33 ACRE (14,375 SF)

ROOF: 0.67 ACRE (29,185 SF)

LANDSCAPE: 0.16 ACRE (6,970 SF)

FLOW/DISCHARGE: SITE PROPOSES TO TREAT, DETAIN, AND DISCHARGE RUNOFF TO FAIRVIEW CREEK

PROPOSED FACILITIES

(#)

1. DETENTION: 150 STORMTECH SC740 CHAMBERS INSIDE A ROCK GALLERY
2. TREATMENT: PERKFILTER CATCH BASINS FOR A TOTAL OF 12 FILTERS

CIVIL LEGEND

PROPOSED STORM SEWER MANHOLE

PROPOSED PERKFILTER CATCH BASIN

DRAINAGE FLOW ARROW

PROPOSED STORMWATER UNDERGROUND DETENTION

TDA BOUNDARY

PROPOSED STORM PIPE

N

0 30 60 Feet

Know what's **below.** **811** before you dig.

NOT FOR CONSTRUCTION

PROPOSED STORMWATER AND GRADING PLAN

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212
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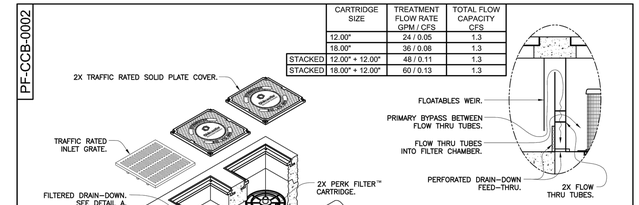
JOB NUMBER
0022

SHEET
C101

PRELIMINARY - NOT FOR CONSTRUCTION

PF-CCB-0002

	CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
	12.00"	24 / 0.05	1.3
	18.00"	36 / 0.08	1.3
STACKED	12.00" + 12.00"	48 / 0.11	1.3
STACKED	18.00" + 12.00"	60 / 0.13	1.3

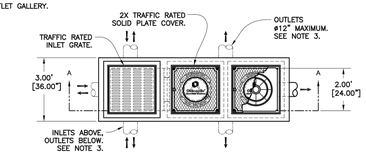


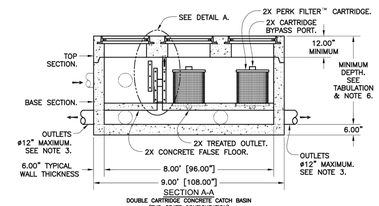
MINIMUM DEPTHS (SEE NOTE 6)

	CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
	12.00"	39	41	43	45
	18.00"	46	48	50	52
STACKED	12.00" + 12.00"	56	58	60	62
STACKED	18.00" + 12.00"	63	65	67	69

Notes:

1. Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
2. Perk Filter™ Catch basin shall be supplied with traffic rated (H20) bicycle-proof grates and solid plate cover.
3. Inlet pipe(s) may enter device on three sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum.
4. Inlet chamber shall be supplied with a drain-down device designed to remove standing water between storm events.
5. Perk Filter™ cartridge shall be maintained in accordance with manufacturer recommendations.
6. For depths less than the specified minimum contact Oldcastle® Stormwater Solutions for engineering assistance.





Media Filtration

***Perk Filter*™**
Concrete Catch Basin
Double Cartridge
(End Grate Configuration)

Oldcastle®
Stormwater Solutions
7302 I Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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DRAWING NO.	REV.	ECO	DRN.	CHK.	DATE	SHEET
PF-CCB-0002	J	ECO--0144	ZHD	8/26/16	JPR 6/4/08	SHEET 1 OF 1

NOT FOR CONSTRUCTION

STORMWATER DETAILS

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212
SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

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DATE: OCT 3, 2018

REGISTERED PROFESSIONAL ENGINEER 90913PE OREGON JANUARY 12, 2016 DEVIN EARL JACKSON

EXPIRES: 06/30/19

JOB NUMBER
0022

SHEET
C150

PRELIMINARY - NOT FOR CONSTRUCTION

EXHIBIT C-13

ADVANCED DRAINAGE SYSTEMS, INC.

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH DC-780.
2. CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. 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.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES 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 AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE DC-780 CHAMBER SYSTEM

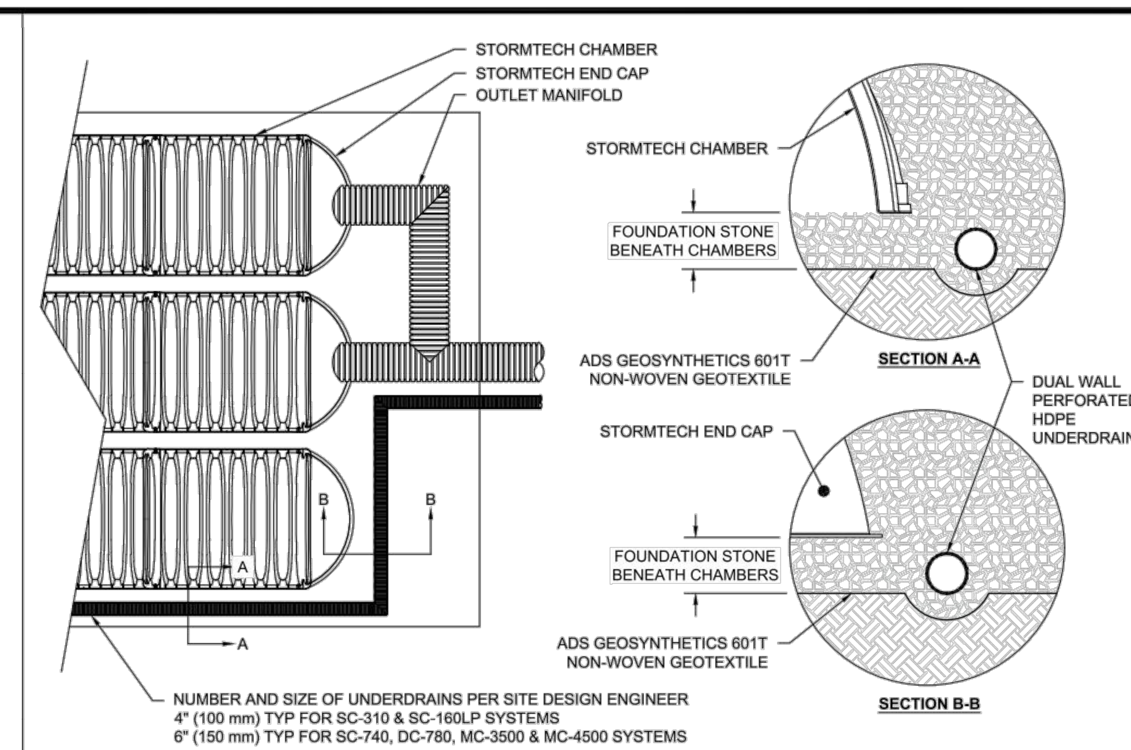
1. STORMTECH DC-780 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH DC-780 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN 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.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. 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

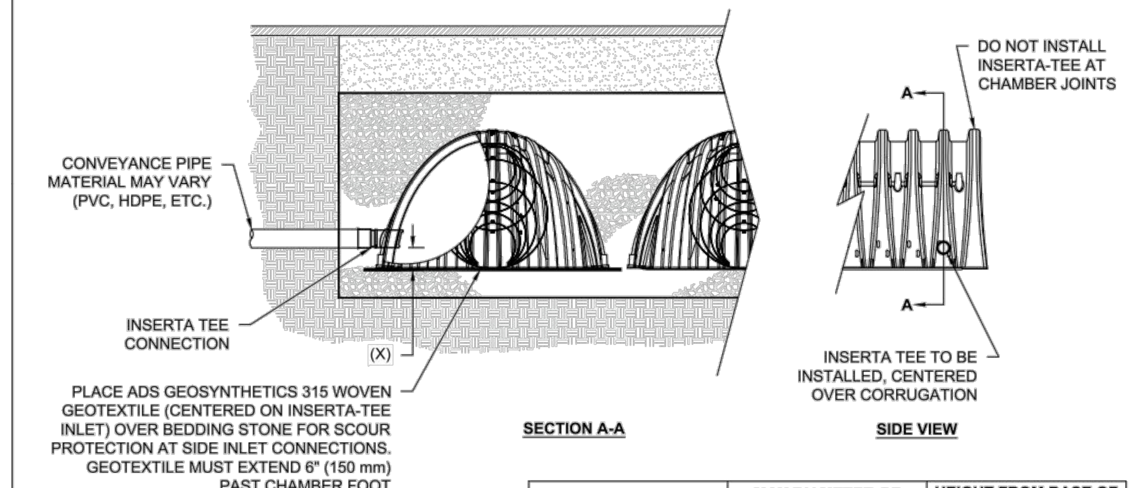
1. STORMTECH DC-780 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER DC-780 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. 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 THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY 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.



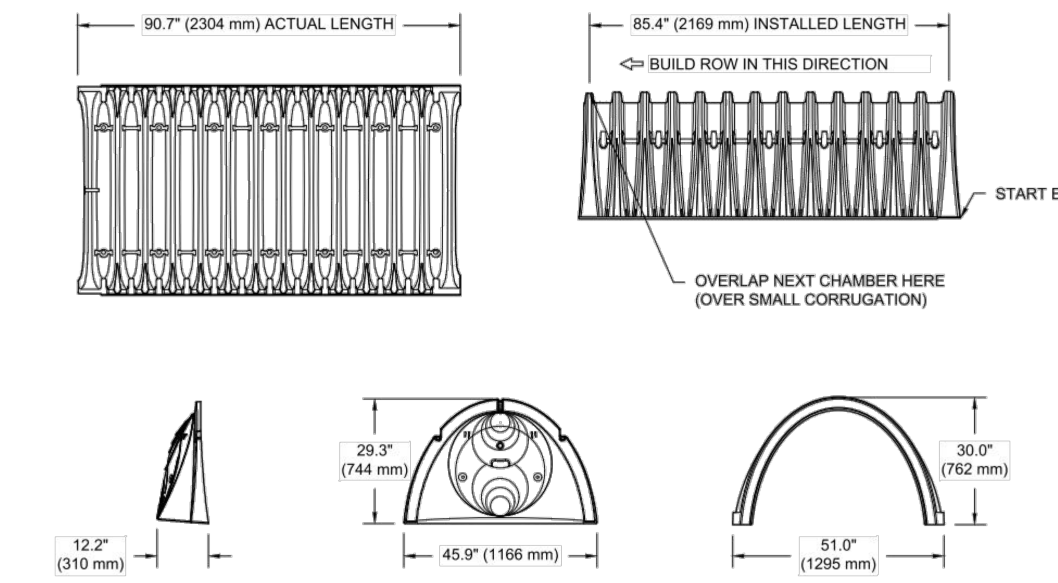
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

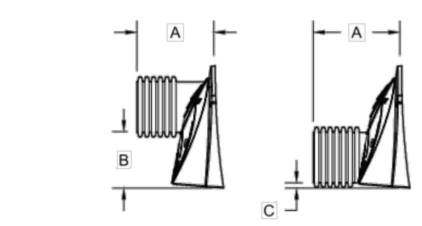
6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	46.2 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.20 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, 9" (229 mm) BELOW, AND 6" (152 mm) BETWEEN CHAMBERS



STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

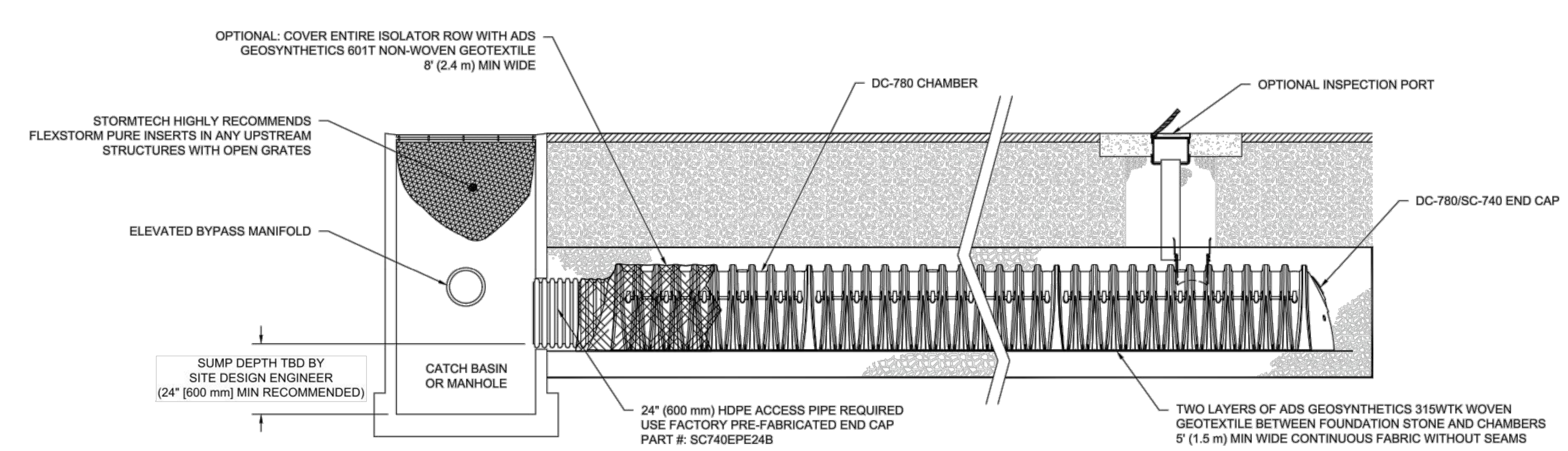
PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T / SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T/ SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

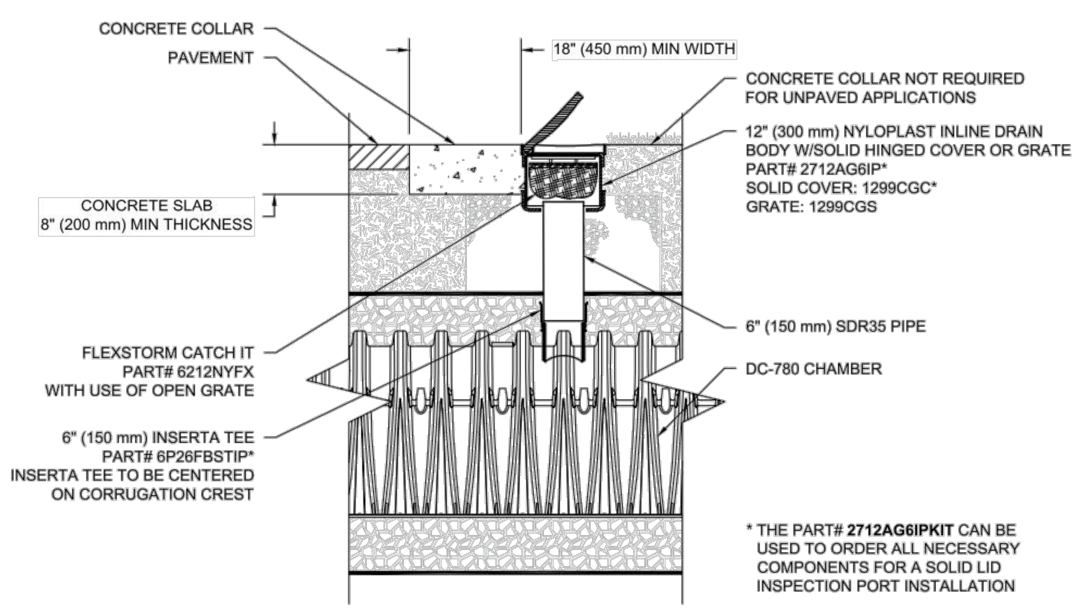
* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2 DC-780 TECHNICAL SPECIFICATIONS



3 DC-780 ISOLATOR ROW DETAIL



* THE PART# **2712AG6IPKIT** CAN BE USED TO ORDER ALL NECESSARY COMPONENTS FOR A SOLID LID INSPECTION PORT INSTALLATION

4 DC-780 6" (150 mm) INSPECTION PORT DETAIL

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW 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 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 ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW 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 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.

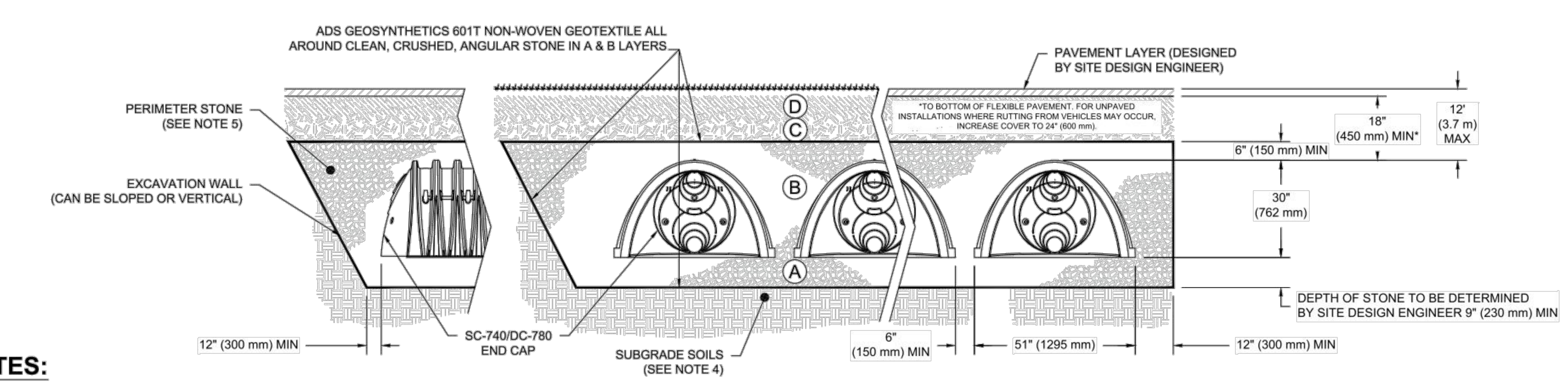
NOTES

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.

ACCEPTABLE FILL MATERIALS: STORMTECH DC-780 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 18" (450 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 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
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, 357, 4, 467, 5, 56, 57	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, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. 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".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. 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.



NOTES:

1. DC-780 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. DC-780 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. 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.
5. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
6. 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.

NOT FOR CONSTRUCTION

1 DC-780 CROSS SECTION DETAIL

DATE: 08/28/18
PROJECT NO:
NOT TO SCALE
DRAWN: JLM
REVIEWED: JLM
REV:

DC-780
STANDARD DETAILS

StormTech
Detention • Retention • Water Quality
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

ADVANCED DRAINAGE SYSTEMS, INC.

SHEET
1 OF 1

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON REFERENCED STANDARDS. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT, UNLESS THE PLANS ARE SIGNED AND SEALED BY THE SITE DESIGN ENGINEER. THE SITE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION AND SEALING THE DOCUMENT. IT IS THE SITE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

PRELIMINARY - NOT FOR CONSTRUCTION

STORMWATER DETAILS

HALSEY CROSSING
PRELIMINARY STORMWATER AND GRADING PLANS
FAIRVIEW OREGON
TAX LOT: R-321104 & R-321212 SE 1/4, SE 1/4, SEC. 28, T1N, R3E, W.M.

JACKSON
CIVIL ENGINEERING
PO BOX 1748
BATTLE GROUND, WA
98604-4687
P: (360) 901 - 6031
WWW.JACKSONCIVIL.COM

DATE: OCT 3, 2018

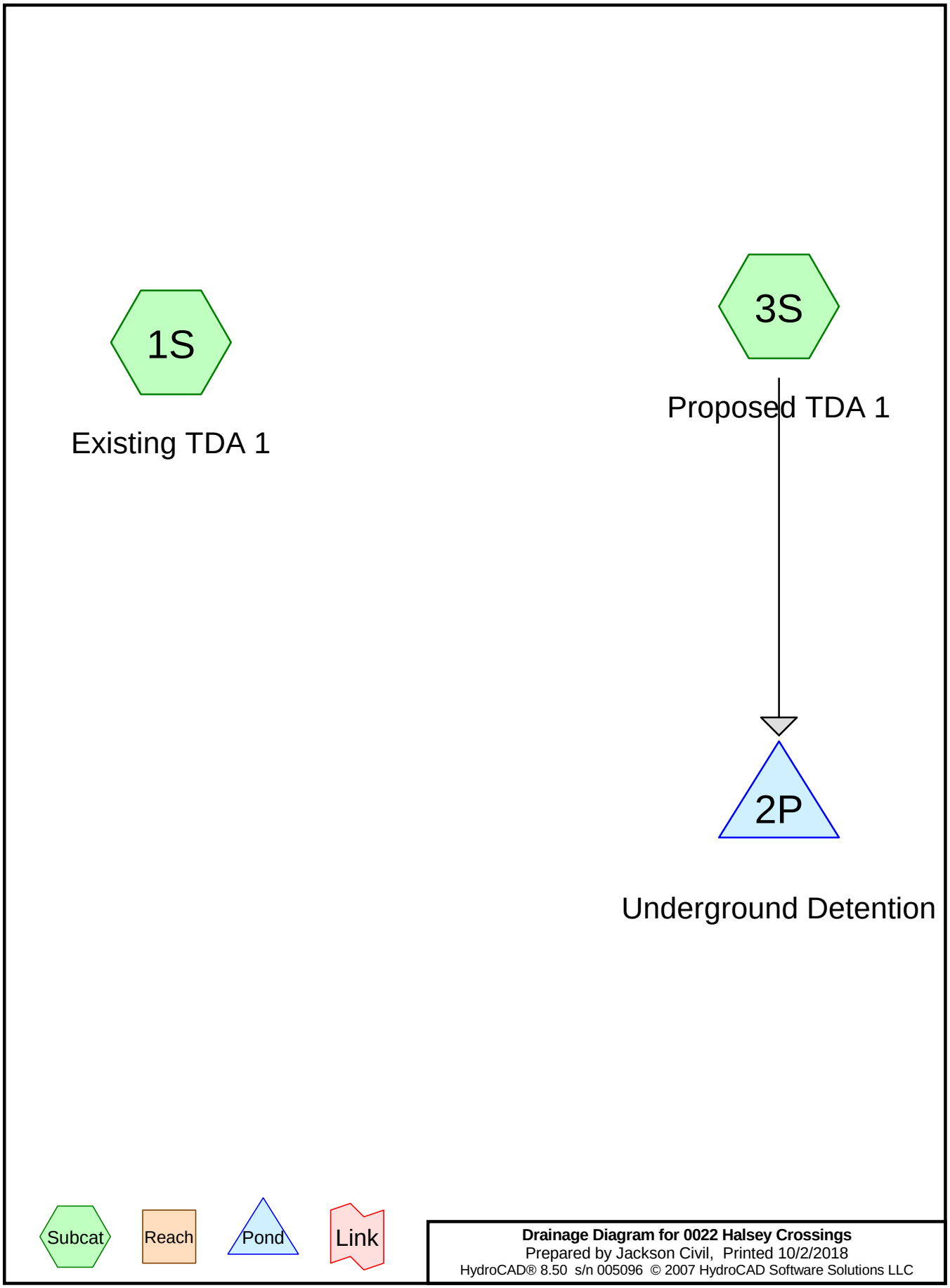
EXPIRES: 06/30/19

JOB NUMBER
0022

SHEET
C151

APPENDIX C

STORMWATER FLOW CONTROL
ANALYSIS



Drainage Diagram for 0022 Halsey Crossings
Prepared by Jackson Civil, Printed 10/2/2018
HydroCAD® 8.50 s/n 005096 © 2007 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.160	69	Landscape (3S)
2.140	79	Open space (1S)
0.980	98	Asphalt Parking (3S)
0.670	98	Roof (3S)
0.330	98	Sidewalk (3S)
4.280		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing TDA 1 Runoff Area=2.140 ac 0.00% Impervious Runoff Depth>1.04"
Tc=5.0 min CN=79/0 Runoff=0.46 cfs 0.186 af

Subcatchment 3S: Proposed TDA 1 Runoff Area=2.140 ac 92.52% Impervious Runoff Depth>2.42"
Tc=5.0 min CN=69/98 Runoff=1.29 cfs 0.431 af

Pond 2P: Underground Detention Peak Elev=155.66' Storage=8,230 cf Inflow=1.29 cfs 0.431 af
Outflow=0.27 cfs 0.269 af

Total Runoff Area = 4.280 ac Runoff Volume = 0.616 af Average Runoff Depth = 1.73"
53.74% Pervious = 2.300 ac 46.26% Impervious = 1.980 ac

Summary for Subcatchment 1S: Existing TDA 1

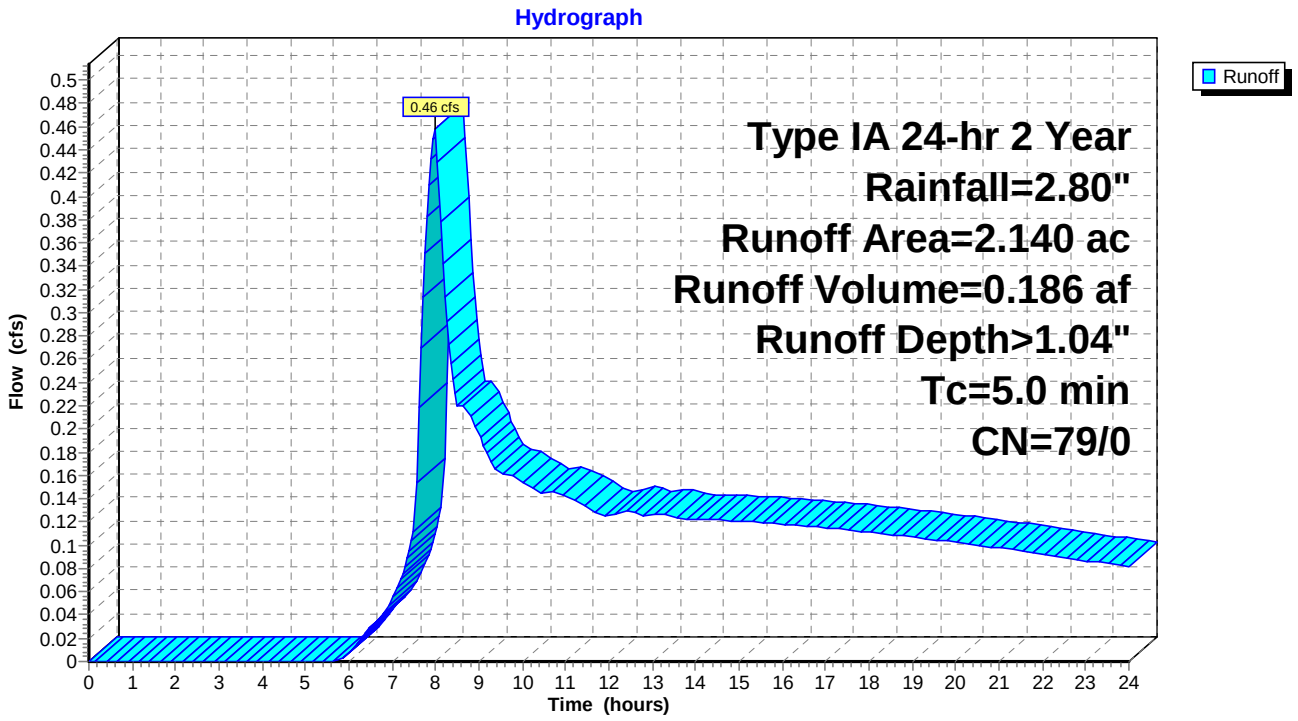
Runoff = 0.46 cfs @ 7.99 hrs, Volume= 0.186 af, Depth> 1.04"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 Year Rainfall=2.80"

	Area (ac)	CN	Description
*	2.140	79	Open space
	2.140	79	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Existing TDA 1



Summary for Subcatchment 3S: Proposed TDA 1

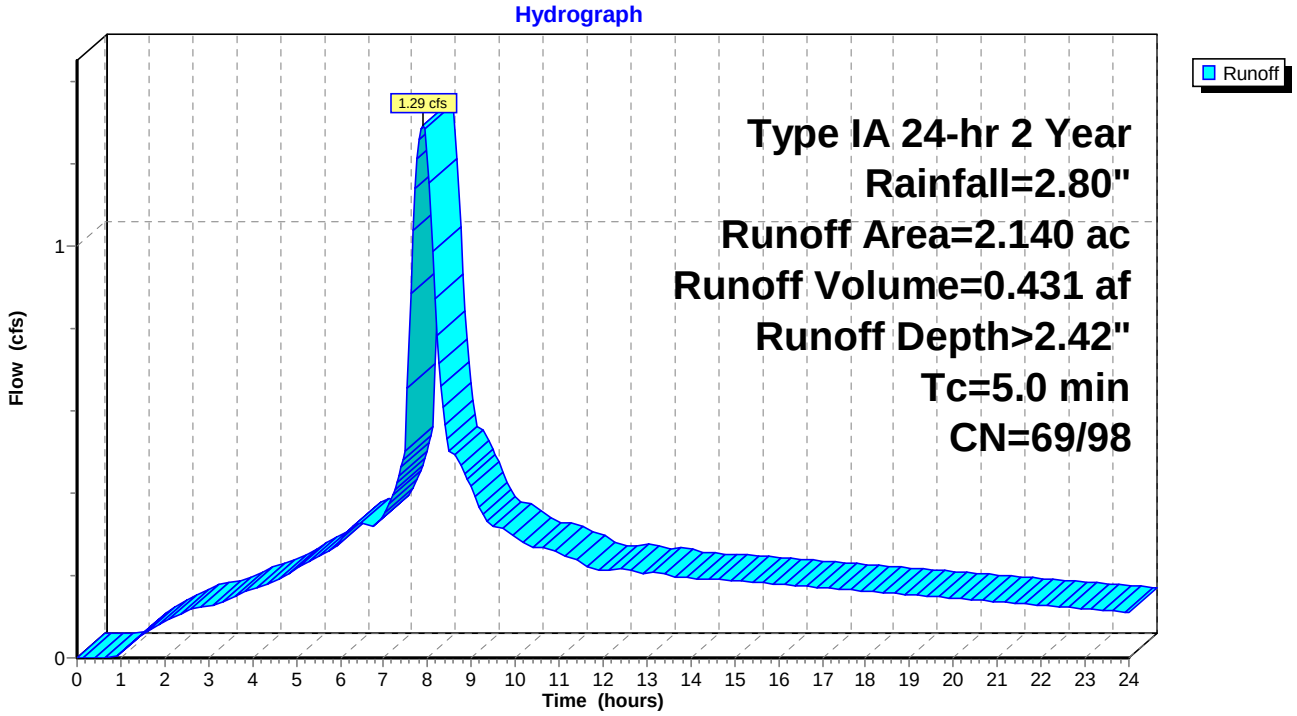
Runoff = 1.29 cfs @ 7.90 hrs, Volume= 0.431 af, Depth> 2.42"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 Year Rainfall=2.80"

	Area (ac)	CN	Description
*	0.980	98	Asphalt Parking
*	0.670	98	Roof
*	0.330	98	Sidewalk
*	0.160	69	Landscape
	2.140	96	Weighted Average
	0.160	69	Pervious Area
	1.980	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Proposed TDA 1



Summary for Pond 2P: Underground Detention

Inflow Area = 2.140 ac, 92.52% Impervious, Inflow Depth > 2.42" for 2 Year event
Inflow = 1.29 cfs @ 7.90 hrs, Volume= 0.431 af
Outflow = 0.27 cfs @ 10.36 hrs, Volume= 0.269 af, Atten= 79%, Lag= 147.2 min
Primary = 0.27 cfs @ 10.36 hrs, Volume= 0.269 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 155.66' @ 10.36 hrs Surf.Area= 4,235 sf Storage= 8,230 cf

Plug-Flow detention time= 457.1 min calculated for 0.269 af (62% of inflow)
Center-of-Mass det. time= 237.8 min (911.2 - 673.4)

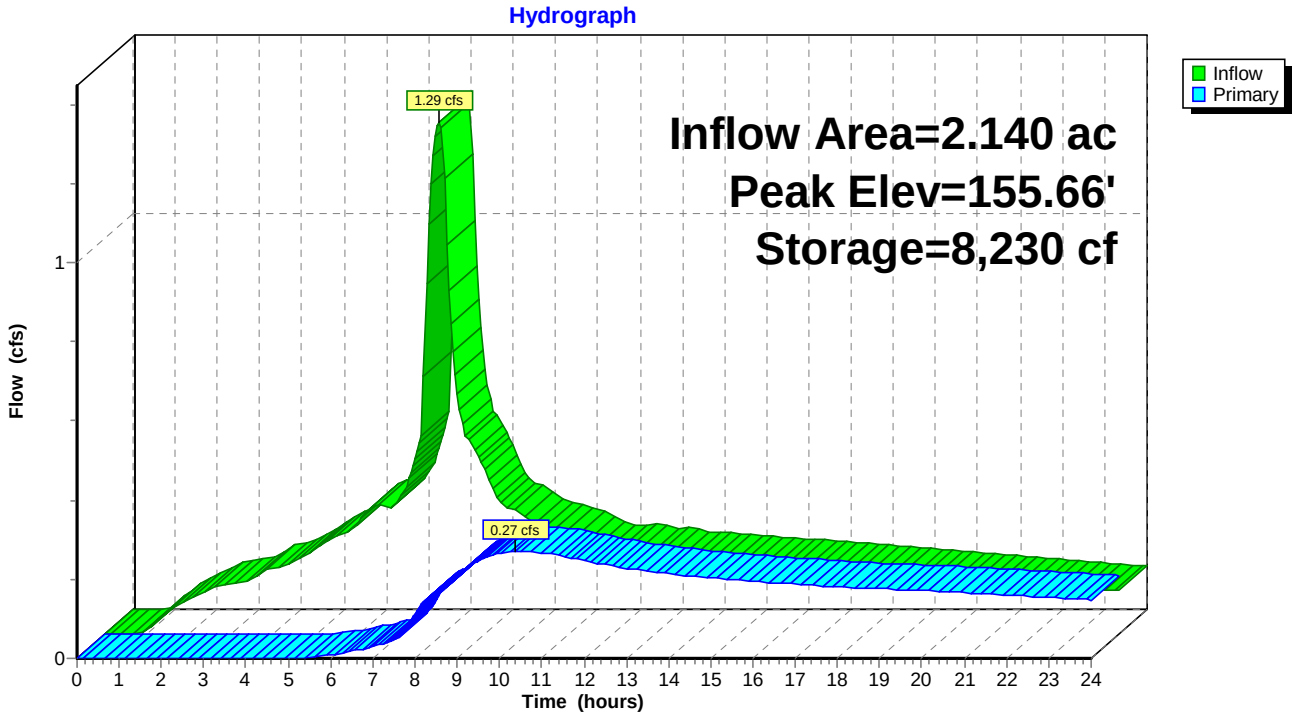
Volume	Invert	Avail.Storage	Storage Description
#1	153.00'	4,230 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			17,466 cf Overall - 6,891 cf Embedded = 10,575 cf x 40.0% Voids
#2	154.00'	6,891 cf	**44.6"W x 30.0"H x 7.12'L StormTech SC-740** x 150 Inside #1
		11,121 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
153.00	4,763	0	0
157.00	3,970	17,466	17,466

Device	Routing	Invert	Outlet Devices
#1	Primary	154.00'	**Custom Weir/Orifice, C= 2.62**
			Elev. (feet) 154.00 155.50 155.50 156.50
			Width (feet) 0.03 0.03 0.30 0.30
#2	Primary	156.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.27 cfs @ 10.36 hrs HW=155.66' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.27 cfs @ 2.86 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing TDA 1 Runoff Area=2.140 ac 0.00% Impervious Runoff Depth>1.33"
Tc=5.0 min CN=79/0 Runoff=0.62 cfs 0.238 af

Subcatchment 3S: Proposed TDA 1 Runoff Area=2.140 ac 92.52% Impervious Runoff Depth>2.80"
Tc=5.0 min CN=69/98 Runoff=1.49 cfs 0.499 af

Pond 2P: Underground Detention Peak Elev=155.83' Storage=8,746 cf Inflow=1.49 cfs 0.499 af
Outflow=0.41 cfs 0.331 af

Total Runoff Area = 4.280 ac Runoff Volume = 0.737 af Average Runoff Depth = 2.07"
53.74% Pervious = 2.300 ac 46.26% Impervious = 1.980 ac

Summary for Subcatchment 1S: Existing TDA 1

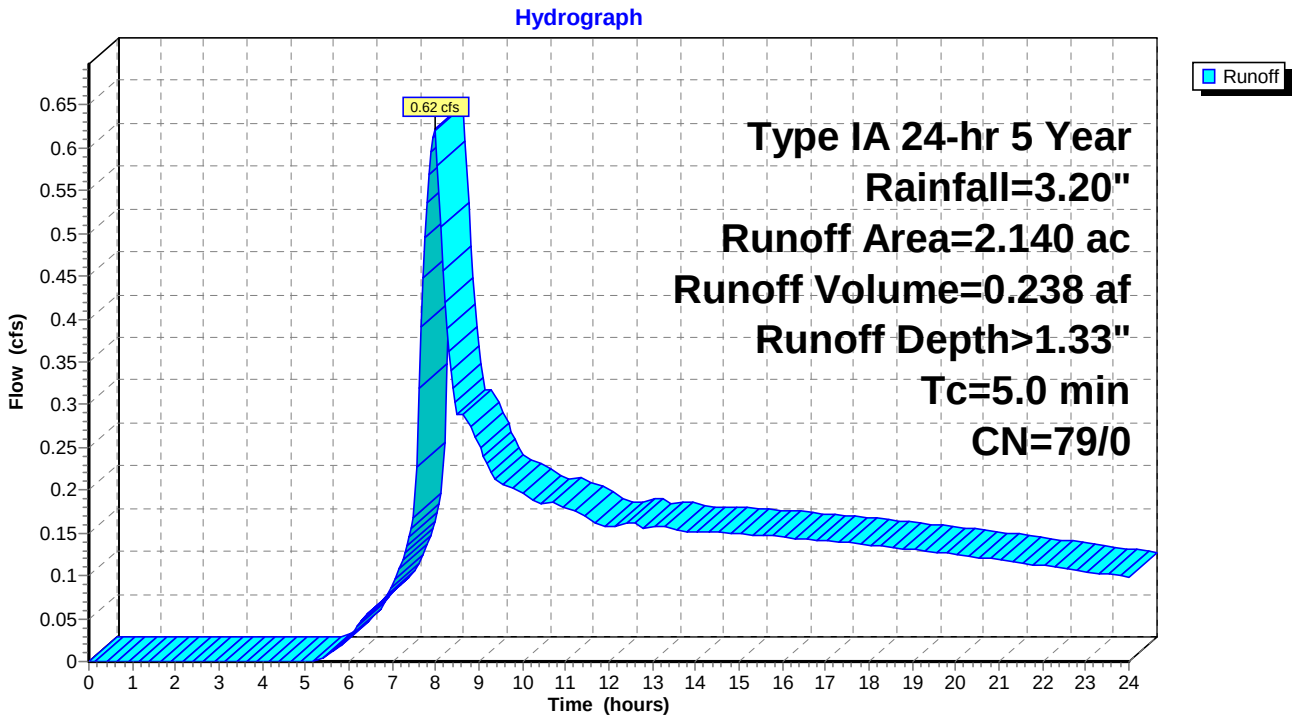
Runoff = 0.62 cfs @ 7.98 hrs, Volume= 0.238 af, Depth> 1.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5 Year Rainfall=3.20"

	Area (ac)	CN	Description
*	2.140	79	Open space
	2.140	79	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Existing TDA 1



Summary for Subcatchment 3S: Proposed TDA 1

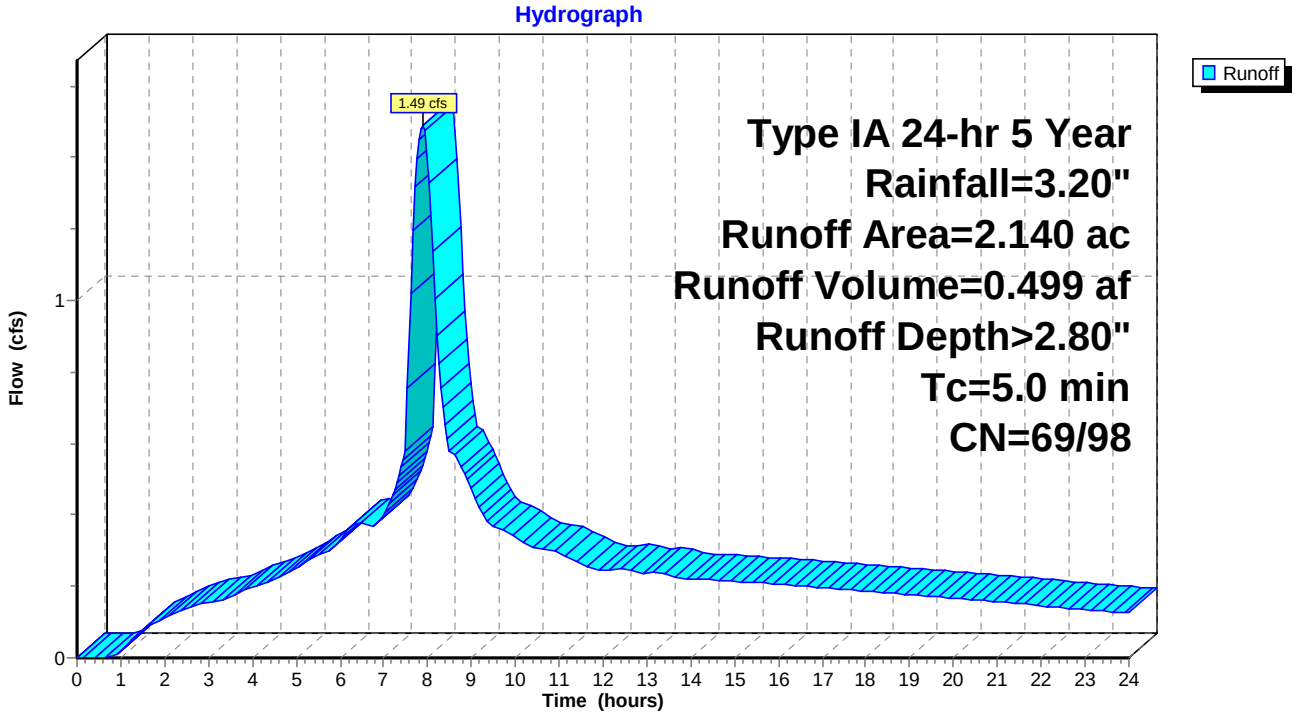
Runoff = 1.49 cfs @ 7.90 hrs, Volume= 0.499 af, Depth> 2.80"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5 Year Rainfall=3.20"

	Area (ac)	CN	Description
*	0.980	98	Asphalt Parking
*	0.670	98	Roof
*	0.330	98	Sidewalk
*	0.160	69	Landscape
	2.140	96	Weighted Average
	0.160	69	Pervious Area
	1.980	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Proposed TDA 1



Summary for Pond 2P: Underground Detention

Inflow Area =	2.140 ac, 92.52% Impervious, Inflow Depth > 2.80" for 5 Year event				
Inflow =	1.49 cfs @	7.90 hrs,	Volume=	0.499 af	
Outflow =	0.41 cfs @	9.22 hrs,	Volume=	0.331 af,	Atten= 72%, Lag= 79.2 min
Primary =	0.41 cfs @	9.22 hrs,	Volume=	0.331 af	

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 155.83' @ 9.22 hrs Surf.Area= 4,202 sf Storage= 8,746 cf

Plug-Flow detention time= 408.8 min calculated for 0.330 af (66% of inflow)
Center-of-Mass det. time= 205.7 min (875.6 - 670.0)

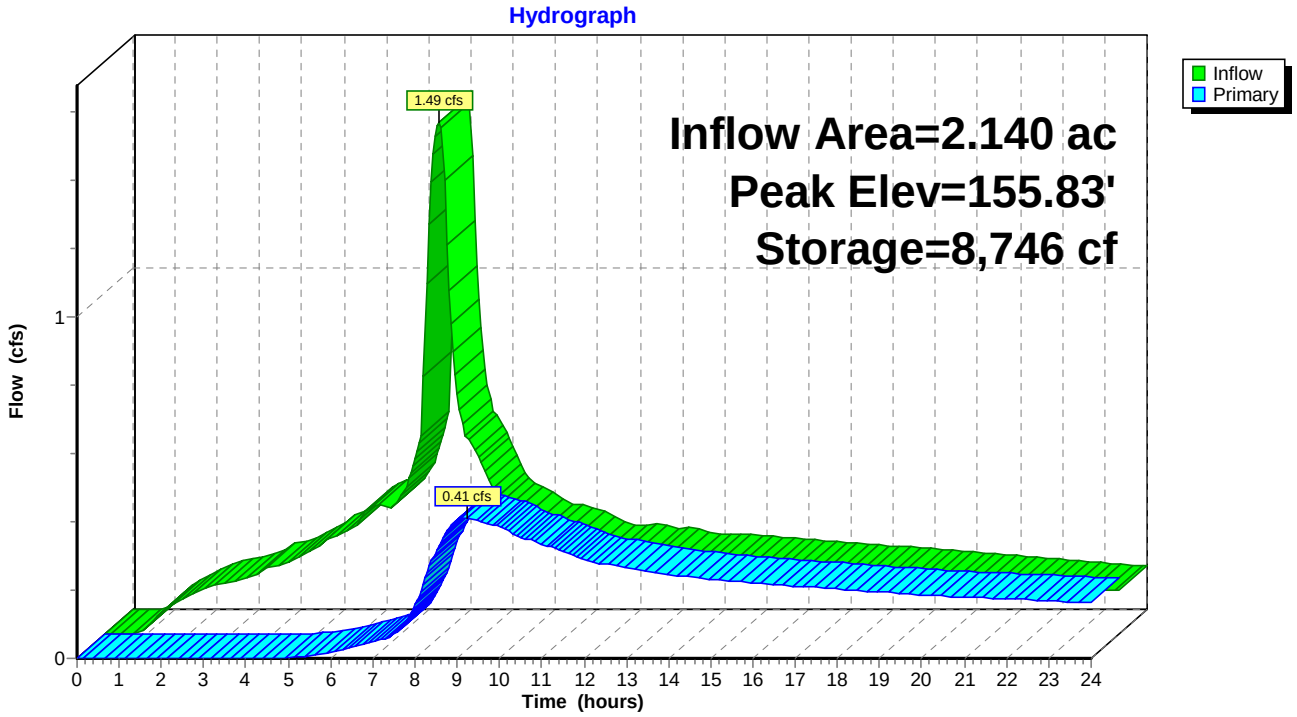
Volume	Invert	Avail.Storage	Storage Description
#1	153.00'	4,230 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			17,466 cf Overall - 6,891 cf Embedded = 10,575 cf x 40.0% Voids
#2	154.00'	6,891 cf	**44.6"W x 30.0"H x 7.12'L StormTech SC-740** x 150 Inside #1
		11,121 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
153.00	4,763	0	0
157.00	3,970	17,466	17,466

Device	Routing	Invert	Outlet Devices
#1	Primary	154.00'	**Custom Weir/Orifice, C= 2.62**
			Elev. (feet) 154.00 155.50 155.50 156.50
			Width (feet) 0.03 0.03 0.30 0.30
#2	Primary	156.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.41 cfs @ 9.22 hrs HW=155.83' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.41 cfs @ 2.85 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing TDA 1 Runoff Area=2.140 ac 0.00% Impervious Runoff Depth>1.64"
Tc=5.0 min CN=79/0 Runoff=0.80 cfs 0.292 af

Subcatchment 3S: Proposed TDA 1 Runoff Area=2.140 ac 92.52% Impervious Runoff Depth>3.18"
Tc=5.0 min CN=69/98 Runoff=1.69 cfs 0.568 af

Pond 2P: Underground Detention Peak Elev=156.00' Storage=9,234 cf Inflow=1.69 cfs 0.568 af
Outflow=0.59 cfs 0.394 af

Total Runoff Area = 4.280 ac Runoff Volume = 0.860 af Average Runoff Depth = 2.41"
53.74% Pervious = 2.300 ac 46.26% Impervious = 1.980 ac

Summary for Subcatchment 1S: Existing TDA 1

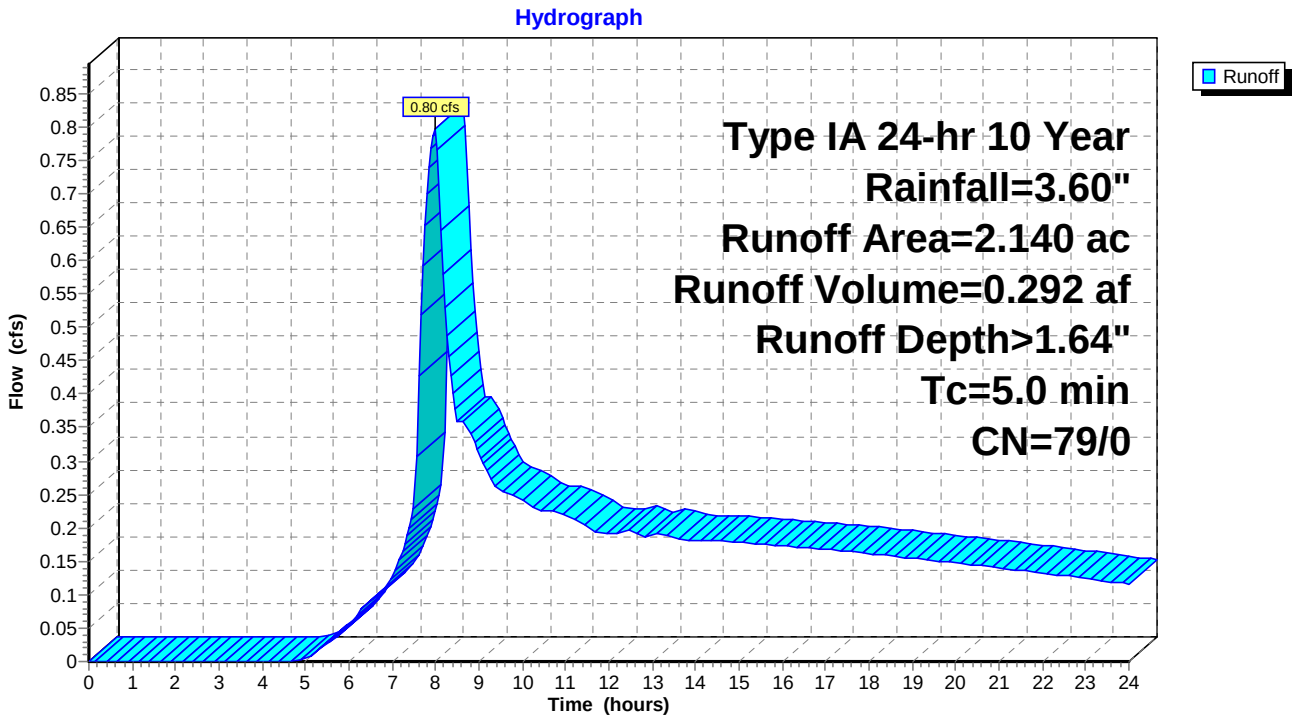
Runoff = 0.80 cfs @ 7.98 hrs, Volume= 0.292 af, Depth> 1.64"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 Year Rainfall=3.60"

	Area (ac)	CN	Description
*	2.140	79	Open space
	2.140	79	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Existing TDA 1



Summary for Subcatchment 3S: Proposed TDA 1

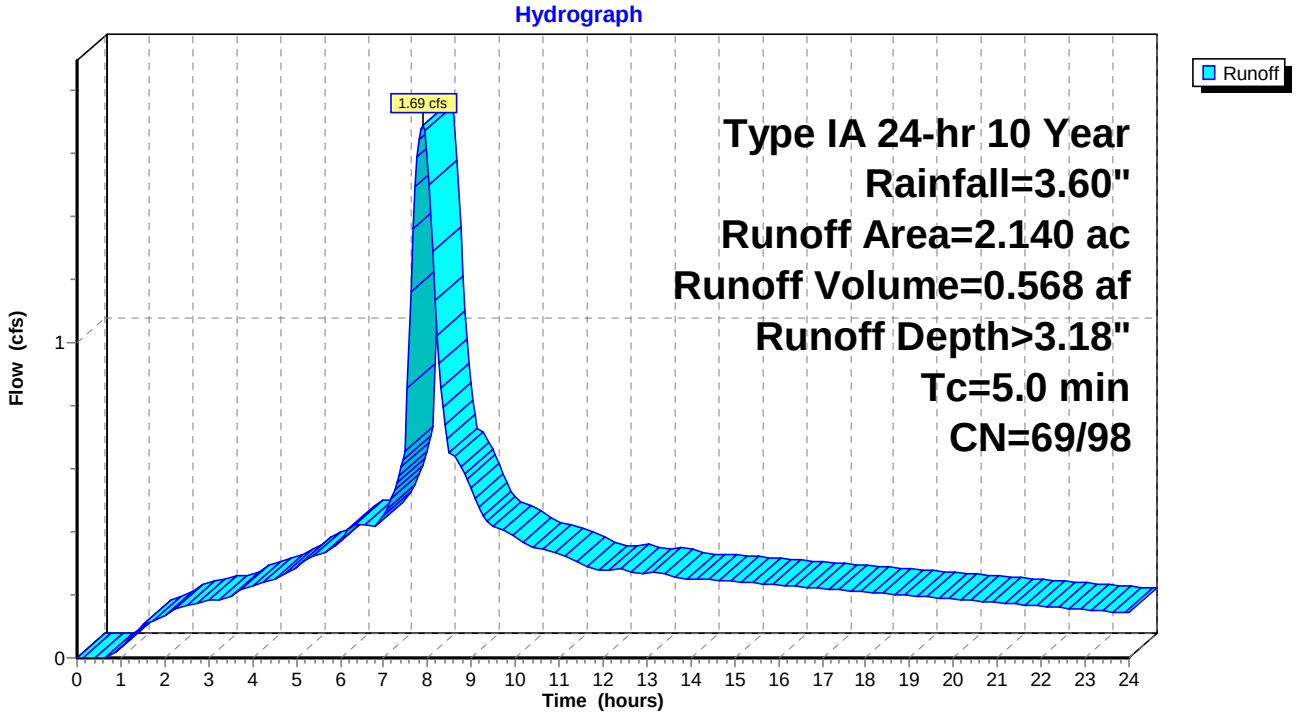
Runoff = 1.69 cfs @ 7.90 hrs, Volume= 0.568 af, Depth> 3.18"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 Year Rainfall=3.60"

	Area (ac)	CN	Description
*	0.980	98	Asphalt Parking
*	0.670	98	Roof
*	0.330	98	Sidewalk
*	0.160	69	Landscape
	2.140	96	Weighted Average
	0.160	69	Pervious Area
	1.980	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Proposed TDA 1



Summary for Pond 2P: Underground Detention

Inflow Area = 2.140 ac, 92.52% Impervious, Inflow Depth > 3.18" for 10 Year event
Inflow = 1.69 cfs @ 7.90 hrs, Volume= 0.568 af
Outflow = 0.59 cfs @ 8.83 hrs, Volume= 0.394 af, Atten= 65%, Lag= 55.7 min
Primary = 0.59 cfs @ 8.83 hrs, Volume= 0.394 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 156.00' @ 8.83 hrs Surf.Area= 4,168 sf Storage= 9,234 cf

Plug-Flow detention time= 370.5 min calculated for 0.394 af (69% of inflow)
Center-of-Mass det. time= 181.3 min (848.5 - 667.2)

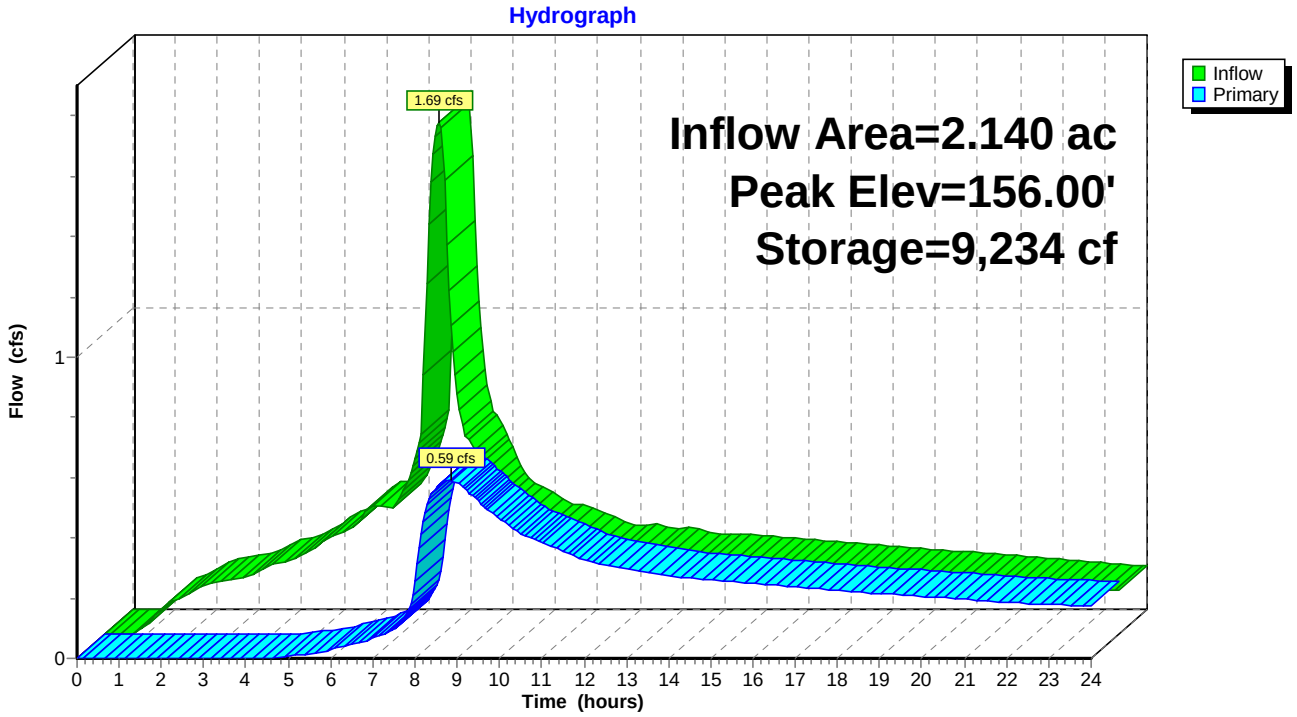
Volume	Invert	Avail.Storage	Storage Description
#1	153.00'	4,230 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			17,466 cf Overall - 6,891 cf Embedded = 10,575 cf x 40.0% Voids
#2	154.00'	6,891 cf	**44.6"W x 30.0"H x 7.12'L StormTech SC-740** x 150 Inside #1
		11,121 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
153.00	4,763	0	0
157.00	3,970	17,466	17,466

Device	Routing	Invert	Outlet Devices
#1	Primary	154.00'	**Custom Weir/Orifice, C= 2.62**
			Elev. (feet) 154.00 155.50 155.50 156.50
			Width (feet) 0.03 0.03 0.30 0.30
#2	Primary	156.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.59 cfs @ 8.83 hrs HW=156.00' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.59 cfs @ 3.03 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing TDA 1 Runoff Area=2.140 ac 0.00% Impervious Runoff Depth>1.96"
Tc=5.0 min CN=79/0 Runoff=0.98 cfs 0.349 af

Subcatchment 3S: Proposed TDA 1 Runoff Area=2.140 ac 92.52% Impervious Runoff Depth>3.57"
Tc=5.0 min CN=69/98 Runoff=1.90 cfs 0.637 af

Pond 2P: Underground Detention Peak Elev=156.19' Storage=9,730 cf Inflow=1.90 cfs 0.637 af
Outflow=0.83 cfs 0.460 af

Total Runoff Area = 4.280 ac Runoff Volume = 0.986 af Average Runoff Depth = 2.77"
53.74% Pervious = 2.300 ac 46.26% Impervious = 1.980 ac

Summary for Subcatchment 1S: Existing TDA 1

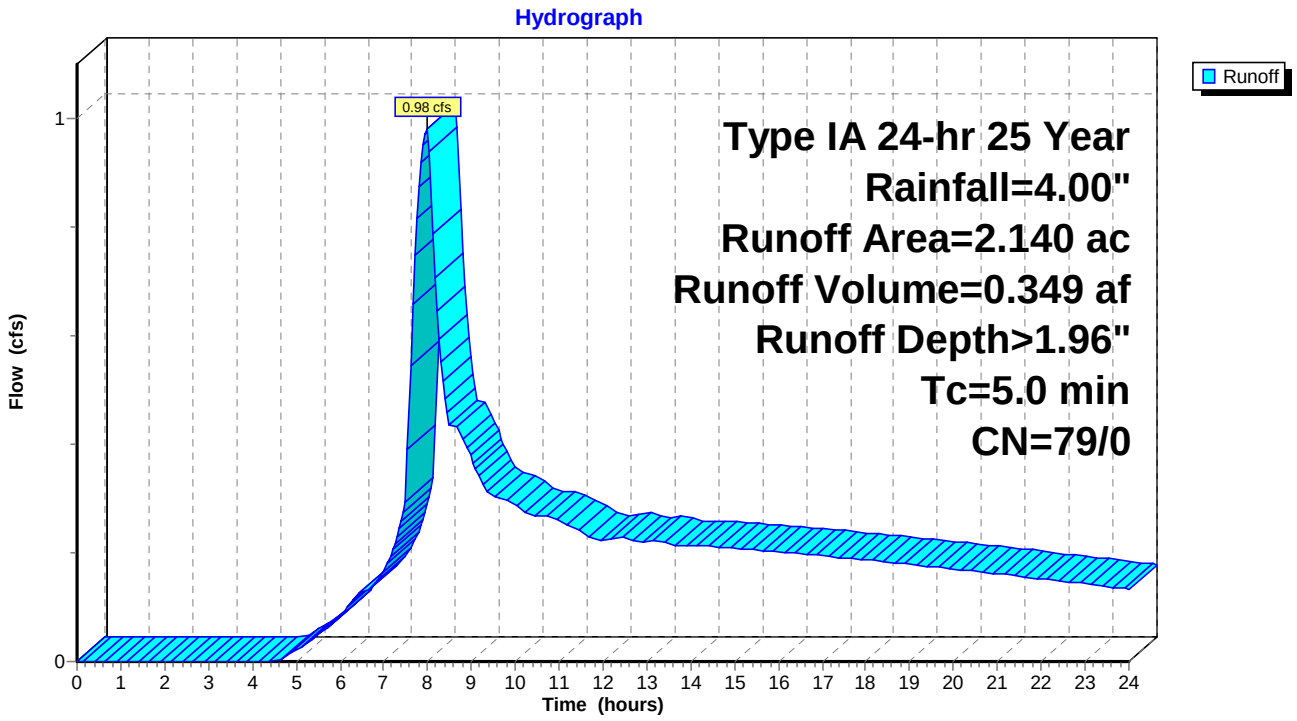
Runoff = 0.98 cfs @ 7.98 hrs, Volume= 0.349 af, Depth> 1.96"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 Year Rainfall=4.00"

	Area (ac)	CN	Description
*	2.140	79	Open space
	2.140	79	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Existing TDA 1



Summary for Subcatchment 3S: Proposed TDA 1

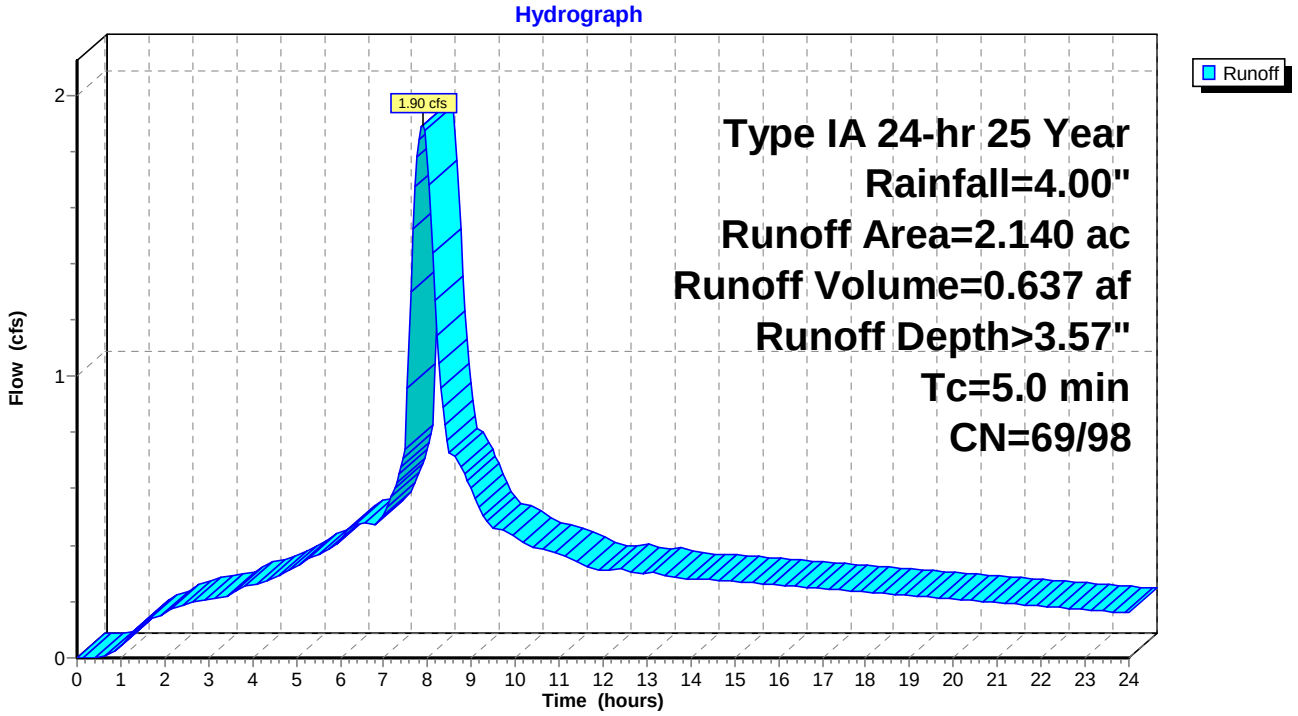
Runoff = 1.90 cfs @ 7.90 hrs, Volume= 0.637 af, Depth> 3.57"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 Year Rainfall=4.00"

	Area (ac)	CN	Description
*	0.980	98	Asphalt Parking
*	0.670	98	Roof
*	0.330	98	Sidewalk
*	0.160	69	Landscape
	2.140	96	Weighted Average
	0.160	69	Pervious Area
	1.980	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Proposed TDA 1



Summary for Pond 2P: Underground Detention

Inflow Area = 2.140 ac, 92.52% Impervious, Inflow Depth > 3.57" for 25 Year event
Inflow = 1.90 cfs @ 7.90 hrs, Volume= 0.637 af
Outflow = 0.83 cfs @ 8.40 hrs, Volume= 0.460 af, Atten= 56%, Lag= 30.1 min
Primary = 0.83 cfs @ 8.40 hrs, Volume= 0.460 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 156.19' @ 8.40 hrs Surf.Area= 4,130 sf Storage= 9,730 cf

Plug-Flow detention time= 339.0 min calculated for 0.459 af (72% of inflow)
Center-of-Mass det. time= 163.6 min (828.5 - 664.9)

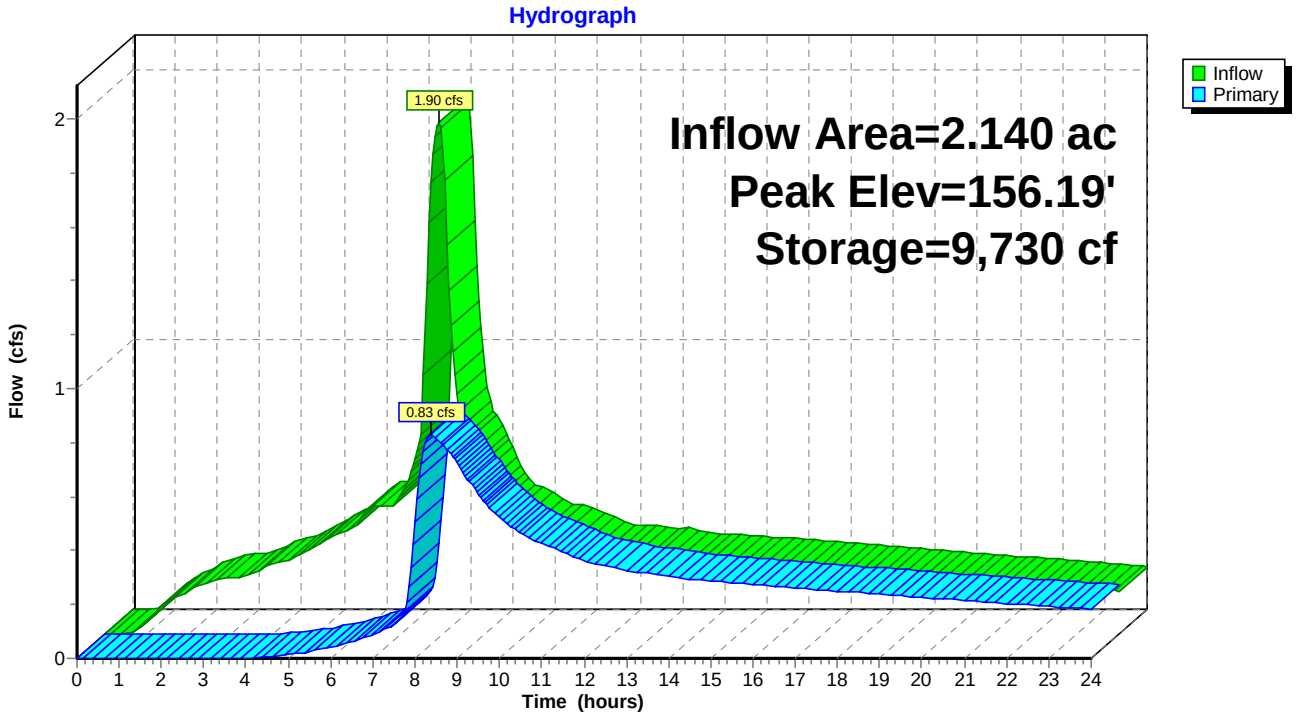
Volume	Invert	Avail.Storage	Storage Description
#1	153.00'	4,230 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			17,466 cf Overall - 6,891 cf Embedded = 10,575 cf x 40.0% Voids
#2	154.00'	6,891 cf	**44.6"W x 30.0"H x 7.12'L StormTech SC-740** x 150 Inside #1
		11,121 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
153.00	4,763	0	0
157.00	3,970	17,466	17,466

Device	Routing	Invert	Outlet Devices
#1	Primary	154.00'	**Custom Weir/Orifice, C= 2.62**
			Elev. (feet) 154.00 155.50 155.50 156.50
			Width (feet) 0.03 0.03 0.30 0.30
#2	Primary	156.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=0.83 cfs @ 8.40 hrs HW=156.19' (Free Discharge)
└─**1=Custom Weir/Orifice** (Weir Controls 0.83 cfs @ 3.28 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Underground Detention



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing TDA 1 Runoff Area=2.140 ac 0.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=79/0 Runoff=1.42 cfs 0.483 af

Subcatchment 3S: Proposed TDA 1 Runoff Area=2.140 ac 92.52% Impervious Runoff Depth>4.45"
Tc=5.0 min CN=69/98 Runoff=2.35 cfs 0.793 af

Pond 2P: Underground Detention Peak Elev=156.63' Storage=10,524 cf Inflow=2.35 cfs 0.793 af
Outflow=1.90 cfs 0.610 af

Total Runoff Area = 4.280 ac Runoff Volume = 1.276 af Average Runoff Depth = 3.58"
53.74% Pervious = 2.300 ac 46.26% Impervious = 1.980 ac

Summary for Subcatchment 1S: Existing TDA 1

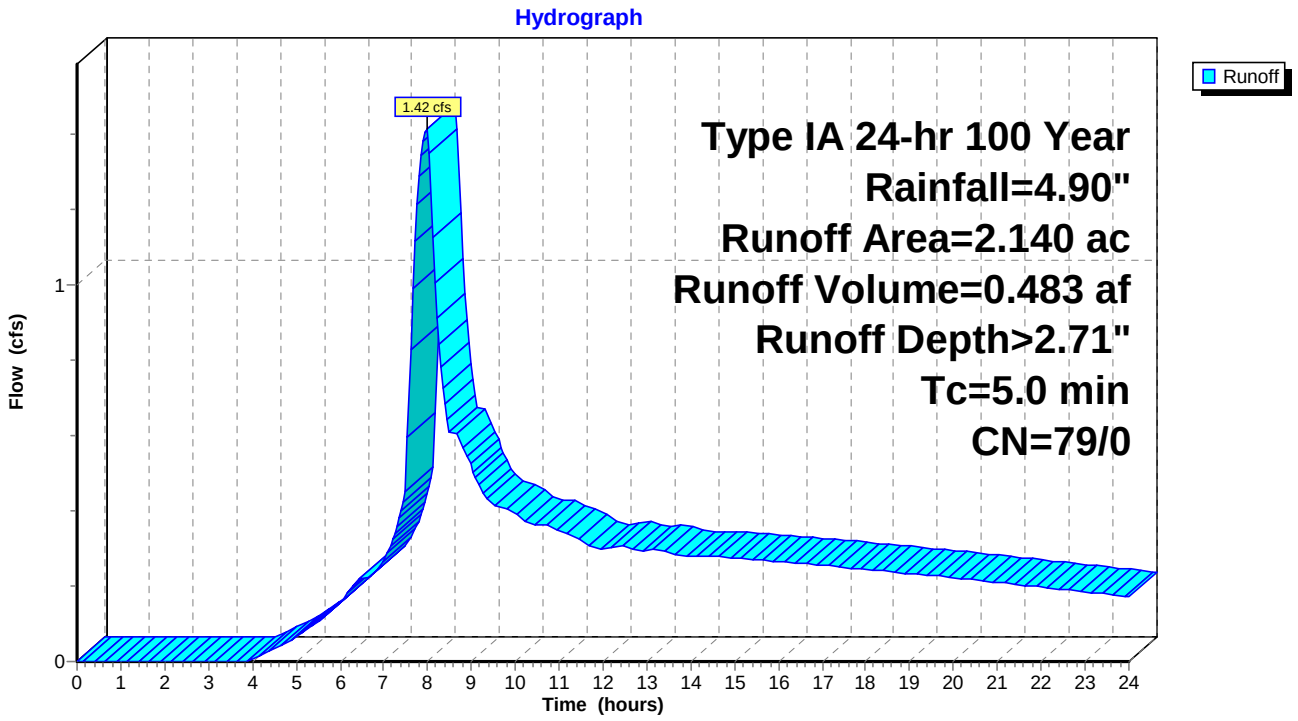
Runoff = 1.42 cfs @ 7.98 hrs, Volume= 0.483 af, Depth> 2.71"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 Year Rainfall=4.90"

	Area (ac)	CN	Description
*	2.140	79	Open space
	2.140	79	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Existing TDA 1



Summary for Subcatchment 3S: Proposed TDA 1

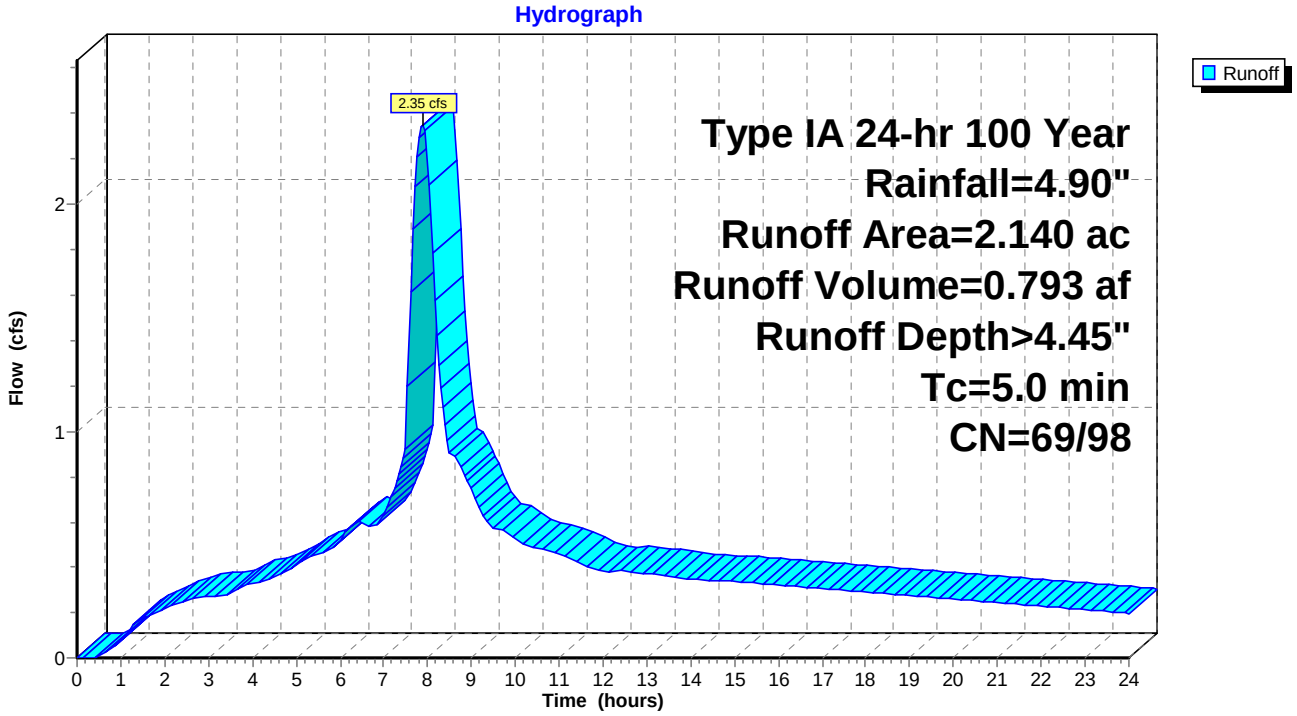
Runoff = 2.35 cfs @ 7.90 hrs, Volume= 0.793 af, Depth> 4.45"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 Year Rainfall=4.90"

	Area (ac)	CN	Description
*	0.980	98	Asphalt Parking
*	0.670	98	Roof
*	0.330	98	Sidewalk
*	0.160	69	Landscape
	2.140	96	Weighted Average
	0.160	69	Pervious Area
	1.980	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Proposed TDA 1



Summary for Pond 2P: Underground Detention

Inflow Area = 2.140 ac, 92.52% Impervious, Inflow Depth > 4.45" for 100 Year event
Inflow = 2.35 cfs @ 7.90 hrs, Volume= 0.793 af
Outflow = 1.90 cfs @ 8.09 hrs, Volume= 0.610 af, Atten= 19%, Lag= 11.3 min
Primary = 1.90 cfs @ 8.09 hrs, Volume= 0.610 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 156.63' @ 8.09 hrs Surf.Area= 4,044 sf Storage= 10,524 cf

Plug-Flow detention time= 287.5 min calculated for 0.609 af (77% of inflow)
Center-of-Mass det. time= 136.7 min (797.5 - 660.8)

Volume	Invert	Avail.Storage	Storage Description
#1	153.00'	4,230 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
			17,466 cf Overall - 6,891 cf Embedded = 10,575 cf x 40.0% Voids
#2	154.00'	6,891 cf	**44.6"W x 30.0"H x 7.12'L StormTech SC-740** x 150 Inside #1
		11,121 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
153.00	4,763	0	0
157.00	3,970	17,466	17,466

Device	Routing	Invert	Outlet Devices
#1	Primary	154.00'	**Custom Weir/Orifice, C= 2.62**
			Elev. (feet) 154.00 155.50 155.50 156.50
			Width (feet) 0.03 0.03 0.30 0.30
#2	Primary	156.50'	**12.0" Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=1.88 cfs @ 8.09 hrs HW=156.63' (Free Discharge)
└─**1=Custom Weir/Orifice** (Orifice Controls 1.43 cfs @ 4.14 fps)
└─**2=Orifice/Grate** (Weir Controls 0.45 cfs @ 1.16 fps)

Pond 2P: Underground Detention

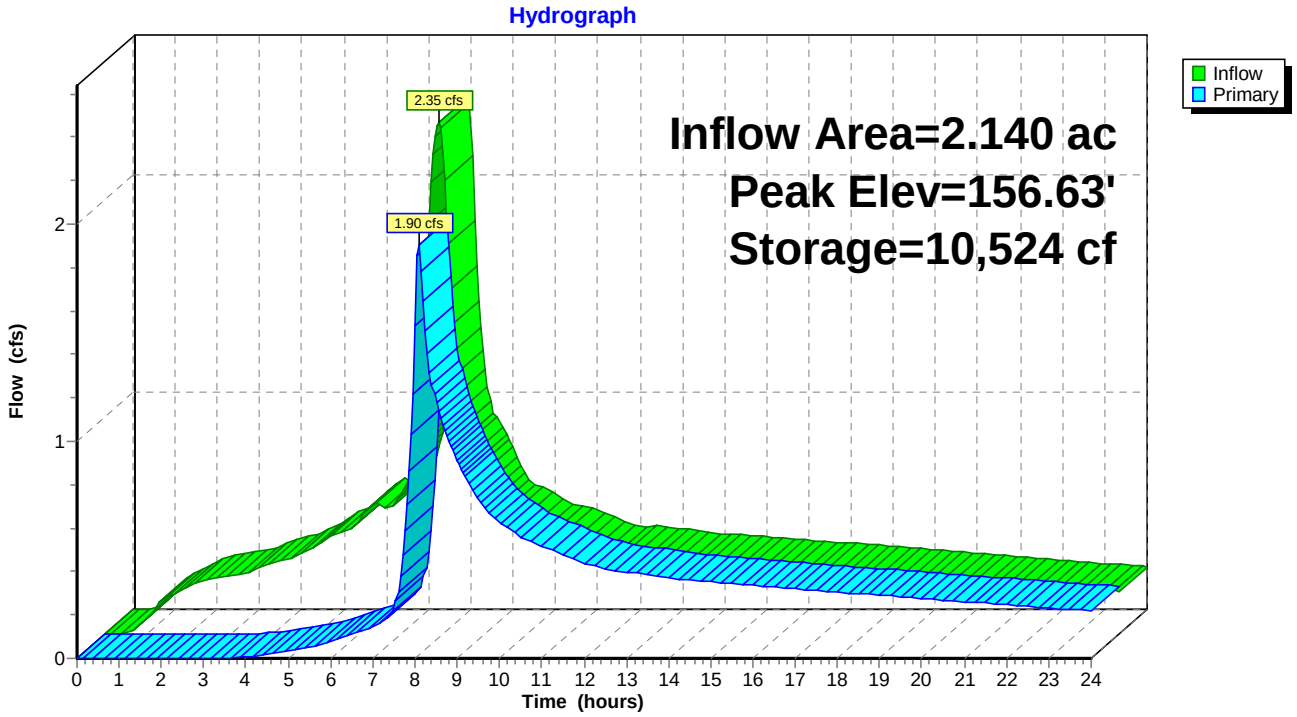


Table A-2. Curve Numbers for Urban Areas

Cover type and hydrological condition	Average percent impervious area	Curve Numbers by Hydrologic Soil Group			
		A	B	C	D
Open Space (lawns, parks, golf courses, cemeteries, etc.):					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50-75%)		49	69	79	84
Good condition (grass cover >75%)		39	61	74	80
Impervious Area:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	93
Urban Districts:					
Commercial and business	85	85	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	82
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82

Soil Conservation Service, Urban Hydrology for Small Watersheds, Technical Release 55, pp. 2.5-2.8, June 1986.

Table A-3. Runoff Curve Numbers for Other Agricultural Lands

Cover type and hydrological condition	Hydrologic Condition	Curve Numbers by Hydrologic Soil Group			
		A	B	C	D
Pasture, grassland, or range-continuous forage for grazing:					
<50% ground cover or heavily grazed with no mulch	Poor	68	79	86	89
50 to 75% ground cover and not heavily grazed	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed	Good	39	61	74	80
Meadow-continuous grass, protected from grazing and generally mowed for hay		30	58	71	78
Brush-weed-grass mixture with brush as the major element:					
<50% ground cover	Poor	48	67	77	83
50-75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30	48	65	73
Woods-grass combination (orchard or tree farm)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning	Poor	45	66	77	83
Woods are grazed by not burned, and some forest litter covers the soil	Fair	36	60	73	79
Woods are protected from grazing and litter and brush adequately cover the soil	Good	30	55	70	77

Soil Conservation Service, Urban Hydrology for Small Watersheds, Technical Release 55, pp. 2.5-2.8, June 1986.

APPENDIX D

STORMWATER TREATMENT ANALYSIS

CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ▪ Nick Fish, Commissioner ▪ Michael Jordan, Director

November 28, 2016

Stormwater Management Manual Approved
Manufactured Stormwater Treatment Technology

Oldcastle PerkFilter™ Media Filtration Device (using ZPC Filter Media)

Approval: November 28, 2016 through November 28, 2019

City of Portland Decision:
The **Oldcastle PerkFilter™ Media Filtration Device (using ZPC Filter Media)** meets the City of Portland pollution reduction requirements as per the 2014 Stormwater Management Manual (SWMM) under the criteria laid out in Appendix B: Submission Guidelines for Manufactured Stormwater Treatment Technologies.

Background:
As part of the application process, Oldcastle Stormwater Solutions (Oldcastle) submitted the Washington State Department of Ecology (DOE) Technology Assessment Protocol (TAPE) Technology Evaluation Report, including all appendices and performance monitoring data, to demonstrate that the PerkFilter Media Filtration Device (using ZPC Filter Media) meets the City of Portland's pollution reduction requirements.

Oldcastle gave a technical presentation to City staff, Portland State University students and faculty, and the public on July 20, 2016. The presentation was followed by a technical interview with the City of Portland review committee to discuss water quality performance, maintenance and overall use in the public right-of-way.

The City of Portland contracted with Portland State University's Department of Civil and Environmental Engineering (PSU) to provide third-party review of the submitted water quality performance data. PSU analyzed the provided data and found that the PerkFilter Media Filtration Device (using ZPC Filter Media) meets the pollution reduction requirements of the 2014 SWMM.

Additional information is available online for this system, including:

- Oldcastle PerkFilter product website
- DOE General Use Level Designation (GULD) for Basic (TSS) and Phosphorous Treatment for the PerkFilter Media Filtration Device (using ZPC Filter Media).

The City of Portland complies with all non-discrimination laws including Title VI (Civil Rights) and Title II (ADA).
To request a translation, accommodation or additional information, please call 503-823-7740, or use City TTY 503-823-6868, or Oregon Relay Service: 711.

Conditions of Use:

1. All configuration options for the PerkFilter Media Filtration Device (using ZPC Filter Media) are approved for pollution reduction. Selection of a specific configuration is the responsibility of the project designer.

2. Use of a PerkFilter Media Filtration Device (using ZPC Filter Media) does not exempt a project or site from required flow control requirements, operations and maintenance requirements, or other applicable requirements of the SWMM.

3. For use in the public right-of-way, the following conditions must be met:
   - Units must meet City of Portland street design requirements, including but not limited to H-20 vehicle load rating, non-slip surface, and American with Disabilities Act tolerances specific to surface grates or vault lids.

   - The Operations and Maintenance Plan for the two-year warranty period must address inspection frequencies.

4. Oldcastle-certified providers should be utilized for activation, inspection and maintenance of the system, unless otherwise trained and certified by the manufacturer.

Project Designer Responsibilities:

1. Ensuring that the conditions of use are met.

2. Ensuring that the project meets all applicable requirements of the Stormwater Management Manual, such as the Stormwater Infiltration and Discharge Hierarchy, in order to use PerkFilter Media Filtration Device (using ZPC Filter Media).

3. Ensuring that the design and installation of the units are appropriate for the project goals, site conditions, long-term maintenance requirements, and any other site-specific design requirements on private property or for use in the public right-of-way.

4. Sizing units to meet the current Stormwater Management Manual presumptive design approach and pollution reduction requirements. The pollution reduction capacity is flow-based and assumes a treatment flow intensity of 0.19 inches per hour, 5 minute time of concentration, and a 0.90 runoff coefficient using the Rational Method with treatment rates <u>based upon WA GULD approved flow rates</u>, in lieu of the manufacturer's standard flow rate. The treatment capacities for PerkFilter Media Filtration Device (using ZPC Filter Media) units, based on those assumptions, are provided in Table 1. For sites with different times of concentration, different rainfall intensities may be appropriate. See SWMM Chapter 1.3.4, page 1-40 for additional information.

Table 1. PerkFilter (using ZPC Filter Media) Sizing to Meet City of Portland Pollution Reduction Requirements

Cartridge Size/Stack Configuration	Cartridge Design Flow Rate (gpm/cartridge stack)	Maximum Drainage Area (acres/cartridge stack)	Cartridge Stacks Per Impervious Acre
12"	6.8	0.089	11.2
18"	10.2	0.133	7.5
12" + 12"	13.6	0.177	5.6
12" + 18"	17	0.221	4.5

5. Each site plan must undergo Oldcastle review before the City of Portland can approve the unit(s) for site installation. A letter that certifies that the project has been designed to manufacturer's specification must be submitted to BES prior to the appropriate design milestone. For public improvements, including public works permits, the letter must be submitted to BES prior to 60% plan review. For installation on private property, the letter must be submitted prior to building permit plan approval. The project designer is highly encouraged to work with Oldcastle prior to the appropriate review milestone in order to maximize placement and performance of the unit(s).

6. If the project designer wishes to vary from these conditions of approval, the project designer must use the Performance Design Approach.

Approval Conditions:

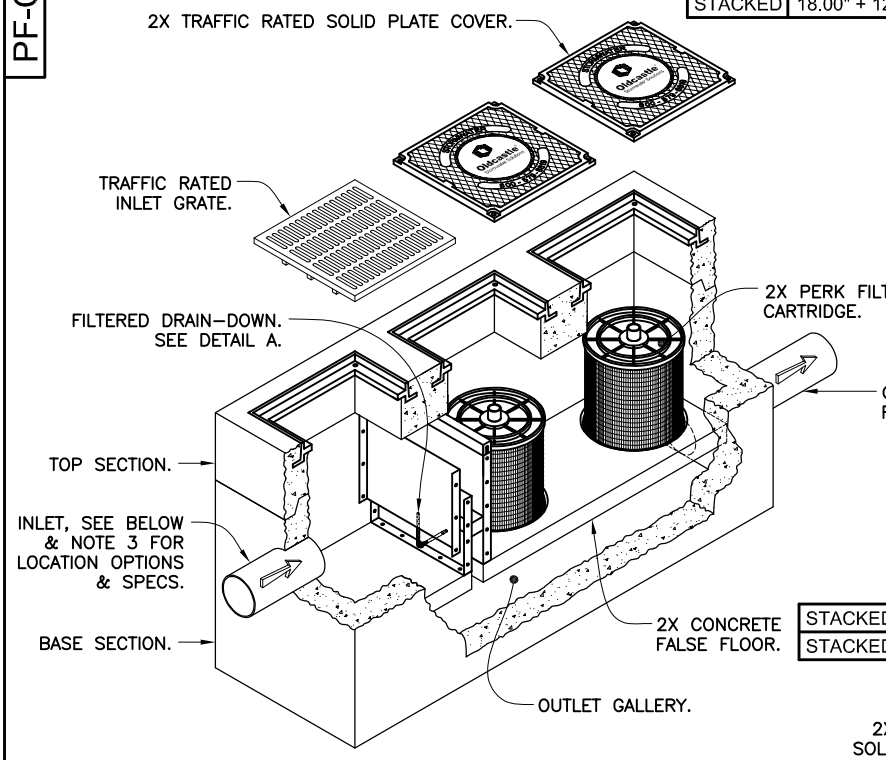
1. BES may at any time suspend or revoke approval if the performance of the technology does not meet performance criteria, or if the performance criteria change due to the local, state, or federal pollution reduction standards.

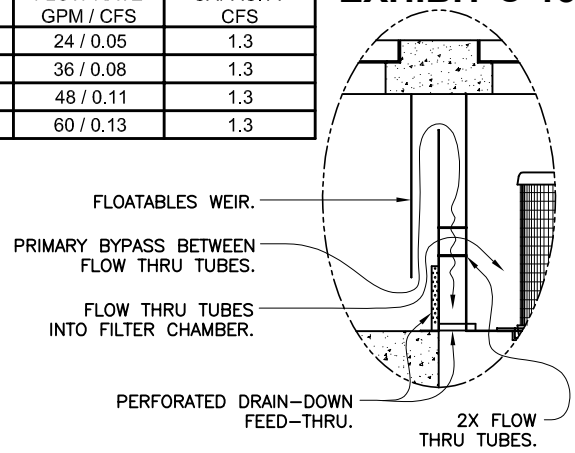
2. This approval expires on November 28, 2019, three years from the approval date. If no changes to the PerkFilter (using ZPC Filter Media) have occurred (such as, but not limited to, dimensional changes to the physical device, changes to the filtration media, changes to maintenance requirements, or changes in expected performance or device design criteria), the approval can be renewed as per the guidelines in effect at the time of renewal. If any changes, updates, or revisions have occurred to the PerkFilter (using ZPC Filter Media), the applicant must obtain DOE TAPE GULD certification and re-apply following submission guidelines in effect at the time of application.

PF-CCB-0002

EXHIBIT C-13

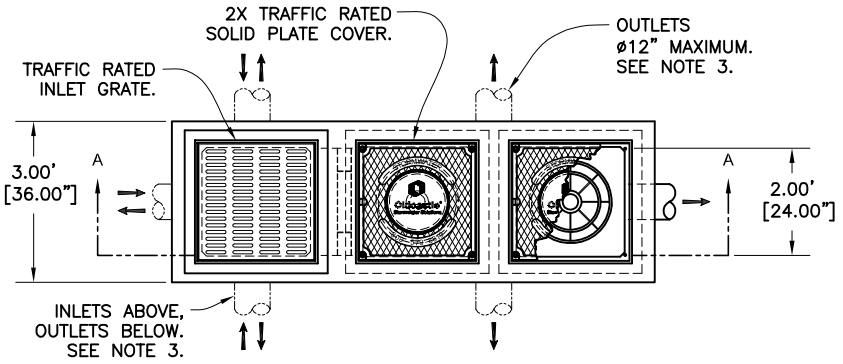
	CARTRIDGE SIZE	TREATMENT FLOW RATE GPM / CFS	TOTAL FLOW CAPACITY CFS
	12.00"	24 / 0.05	1.3
	18.00"	36 / 0.08	1.3
STACKED	12.00" + 12.00"	48 / 0.11	1.3
STACKED	18.00" + 12.00"	60 / 0.13	1.3





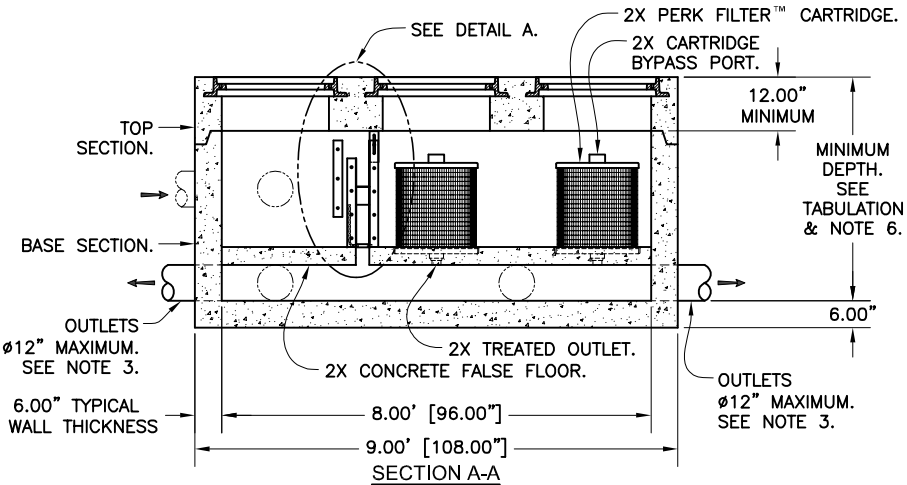
DETAIL A
INLET / BYPASS ASSEMBLY & DRAIN–DOWN SCALE: 2X

MINIMUM DEPTHS (SEE NOTE 6)					
	CARTRIDGE SIZE	Ø 6.0" OUTLET PIPE (IN INCHES)	Ø 8.0" OUTLET PIPE (IN INCHES)	Ø 10.0" OUTLET PIPE (IN INCHES)	Ø 12.0" OUTLET PIPE (IN INCHES)
	12.00"	39	41	43	45
	18.00"	46	48	50	52
STACKED	12.00" + 12.00"	56	58	60	62
STACKED	18.00" + 12.00"	63	65	67	69



Notes:

1. Precast concrete structure shall be manufactured in accordance with ASTM Designation C857 and C858.
2. Perk Filter™ Catch basin shall be supplied with traffic rated (H20) bicycle-proof grates and solid plate cover.
3. Inlet pipe(s) may enter device on three sides of the inlet chamber. Outlet pipe(s) may exit on all four sides. All pipe is Ø 12" maximum.
4. Inlet chamber shall be supplied with a drain-down device designed to remove standing water between storm events.
5. Perk Filter™ cartridge shall be maintained in accordance with manufacturer recommendations.
6. For depths less than the specified minimum contact Oldcastle® Stormwater Solutions for engineering assistance.



SECTION A-A
DOUBLE CARTRIDGE CONCRETE CATCH BASIN
(END GRATE CONFIGURATION)

Media Filtration

Perk Filter™

Concrete Catch Basin

Double Cartridge

(End Grate Configuration)

Oldcastle® Stormwater Solutions

7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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DRAWING NO.	REV	ECO	DATE	
PF-CCB-0002	J	ECO–0144 ZHD 8/26/16	JPR 6/4/08	SHEET 1 OF 1

APPENDIX E

GEOTECHNICAL REPORT

EXHIBIT C-14

PLEASE SIGN IN

NEIGHBORHOOD NOTIFICATION MEETING

FOR A PROPOSED TYPE III PROPOSAL OF NEW MIXED-USE DEVELOPMENT AT NE 223RD AVE. & NE HALSEY

NOVEMBER 15, 2018, 6 PM BUMPERS GRILL & BAR

NAME	ADDRESS
Bob & Lynne Wade	1816 NE 213th Ave
[illegible] Slack	3008 NE Tangleberry Pl.
Vivian Vonderharr	180 2nd St.
Deborah Aronson	954 NE Clear Creek Way
Chase Engelm	1919 Fairview Ave
Dean Hurford	
Tim Brunner	
Devin Jackson	
Erin Upham	

AXIS DESIGNGROUP
ARCHITECTURE & ENGINEERING, INC.

PROJECT: HALSEY CROSSING
SUBJECT: Neighborhood Notification Mtg.
NOTES BY: 6PM; BUMPERS GRILL & BAR

PROJECT NO. EXHIBIT C-14
DATE: 11.15.18
PAGE: 1 OF 4

ATTENDEES: See list.

☒ MEETING ☐ NOTE TO FILE ☐ PHONE MEMO ☐ OTHER:

Tim: introductions
Axis Design
Jackson Engineering

Existing Site Conditions/Locations

Proposed Development
- Site circulation
  (S) Driveway off Halsey
  (N) Access off 223rd - fire truck
  one way loop on North.
- Building types - 3 different (A, B, C)
  A: fronting creek - 3 story res.
  B: tuck under parking - 3 story res
  C: 4 story, mixed use, elevator
  all wood frame const.
- Landscaping: plaza, intermittant, frontage improvements
- Utilities: probably underground powerlines still in discussion.
- Building elevations
  A.
  B.
  C. - storefronts, roof deck

Dean: Pods vs. Big barns
↳ preferred to give neighborhood feel.
Tuck-under parking provided for addit parking

Erin: 84 total units, distribution ~ 45/55 1BDRM/2BDRM
ADA accessible

Dean: market-rate, quality housing, no section 8.

ATTENDEES:

☐ MEETING ☐ NOTE TO FILE ☐ PHONE MEMO ☐ OTHER:

Dean: ~$1100-1200 expected for 1-bdrm apts.
$1300-1450 " " 2-bdrm "
Urban renewal being pursued to revise/reduce floodplain elevation so neighbors won't need to purchase floodplain insurance

Q: thinking ahead 20-yrs, how do you see the organic growth of this area working with this site & project?

Dean: many people here are against apt. projects.
have had a commercial vacancy for 14 yrs.
need dense enough housing to drive commercial component
when density comes to our corridor, commercial will follow.
Also hard to finance commercial project in this area
mixed use better avenue at this time.

Q: 600 sf apt. is for 1 person
How do we see increased traffic as we transition to people on foot? Don't understand how it works.

Dean: need population before Tri-Met routes
customer Dean is looking for millenial & high end.
recognizes nearby competition nearby

Q: will 4-lane road go in (223rd)?

Dean: not in near future. but will add sidewalk in near term.

AXIS DESIGNGROUP
ARCHITECTURE & ENGINEERING, INC.

PROJECT:
SUBJECT:
NOTES BY:

PROJECT NO.:
EXHIBIT C-14
DATE:
PAGE: 3 OF 4

ATTENDEES:

☐ MEETING ☐ NOTE TO FILE ☐ PHONE MEMO ☐ OTHER:

Dean: not building a barn
when Carwash was built, community pushed back

Q: If we were Lake Oswego or Irvington...
people have multiple cars
I'm on Parks committee & think people will hate this place in 20 yrs.
Places w/ $ are interested in quality of life
Worried millenials won't like not having parking for 2 cars.
But feel comfortable that Dean is doing. best design he can given constraints

Q: may need a new school with all the new units. meaning ↑ taxes. Came to Fairview for small town, and are concerned about densification & loss of small town feel.

Q: Fairview Village commercial is struggling b/c lack of parking - same concern here.

Q: Biggest concern = traffic & congestion, in Fairview, in general

Dean: There is impact all around & development
Drawbacks to development, but it's the reality of a city growing up.

Devin: Past project, safety issue & traffic. B/c. no fatality, government wouldn't help; until documented problem, government won't react.

AXIS DESIGNGROUP
ARCHITECTURE & ENGINEERING, INC.

PROJECT:

SUBJECT:

NOTES BY:

PROJECT NO.:

EXHIBIT C-14

DATE:

ATTENDEES:

☐ MEETING ☐ NOTE TO FILE ☐ PHONE MEMO ☐ OTHER:

Q: what is Threshold for fixing traffic congestion?

Q: flood issue. I have 2 lots down Fairview Ave. will this development make flooding worse.

Devin: FEMA's FIRM maps.
On-site detention to keep flood rates close to existing conditions.

Q: When will (a) sidewalk go in on 223rd?

Dean: has heard something, but thinks community needs to be involved in plan.

Q: Time line?

Dean: Powerline negotiations w/ PGE - 1 yr?
Floodplain Elev. w/ FEMA & City - 1 yr?

Dean Summary: As land owner, trying to bring the best possible project vs. keeping vacant land.

Q: On-site property manager?

Dean: Will be Professionally managed.