CITY OF GRESHAM
COMMERCIAL BUILDING/STRUCTURE DESIGN CRITERIA

CURRENT BUILDING CODES

- 2019 *Oregon Structural Specialty Code* (OSSC), based on 2018 *International Building Code* (IBC) and ASCE 7-16 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*
- 2019 *Oregon Zero Energy Ready Commercial Code*
  Construction provisions:
  Commercial: *ASHRAE Standard 90.1*
  Multi-family: 2018 *International Energy Conservation Code*
- 2019 *Oregon Mechanical Specialty Code* (OMSC), based on 2018 *International Mechanical Code and International Fuel Gas Code*
- 2017 *Oregon Plumbing Specialty Code* (OPSC), based on 2015 *Uniform Plumbing Code*
- 2017 *Oregon Electrical Specialty Code* (OESC), based on 2017 *NFPA 70, National Electrical Code*

Building codes may be viewed online free of charge at the Oregon Building Codes Division website at https://www.oregon.gov/bcd/codes-stand/Pages/adopted-codes.aspx.

SNOW LOADS

Design snow loads for commercial buildings/structures shall be determined in accordance with Chapter 7 of ASCE 7-16, as modified by OSSC Section 1608. Ground snow load p_g shall be determined using the Structural Engineers Association of Oregon (SEAO) online tool at http://snowload.seao.org/lookup.html. Note that where the site elevation is above the "modeled elevation" reported by the online tool, the ground snow load value from the tool shall be increased per Table 7.2 of OSSC 1608.

Regardless of the value of ground snow load, or the roof snow load calculated per ASCE 7, the minimum design uniform roof snow load for any type of roof shall be 20 psf per OSSC 1608. A 5 psf rain-on-snow surcharge may apply per OSSC 1608; conservatively, a minimum 25 psf uniform roof snow load may be used. Additional load shall be applied for snow drift, sliding snow, etc. as required per ASCE 7 Chapter 7 and OSSC 1608, or based on site elevation, as discussed above.

SEISMIC LOADS

Every commercial building/structure and portion thereof, including non-structural components permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with Chapters 11, 12, 13, 15, 17, and 18 of ASCE 7-16, as modified by OSSC Section 1613.

S_S and S_1, the short-period and 1-second period spectral response accelerations, illustrated in OSSC Figures 1613.2.1(1) and 1613.2.1(2), shall be determined using the Applied Technology Council (ATC) "Hazards by Location" online tool at https://hazards.atcouncil.org, with "ASCE 7-16" selected as the "reference document".

Based on soil properties, a site shall be classified as *Site Class* A, B, C, D, E, or F in accordance with Chapter 20 of ASCE 7. Site Class D shall be used when soil properties are not known in sufficient detail (unless geotechnical data indicates Site Class E or F). Note that where Site Class D is used as the default due to insufficient knowledge of soil properties, the value of site coefficient F_a shall not be less than 1.2, per OSSC 1613.2.3.

All commercial buildings/structures located in the City of Gresham or areas where it has jurisdiction shall be assigned *Seismic Design Category* D at a minimum unless a lower category is justified by a site-specific study.

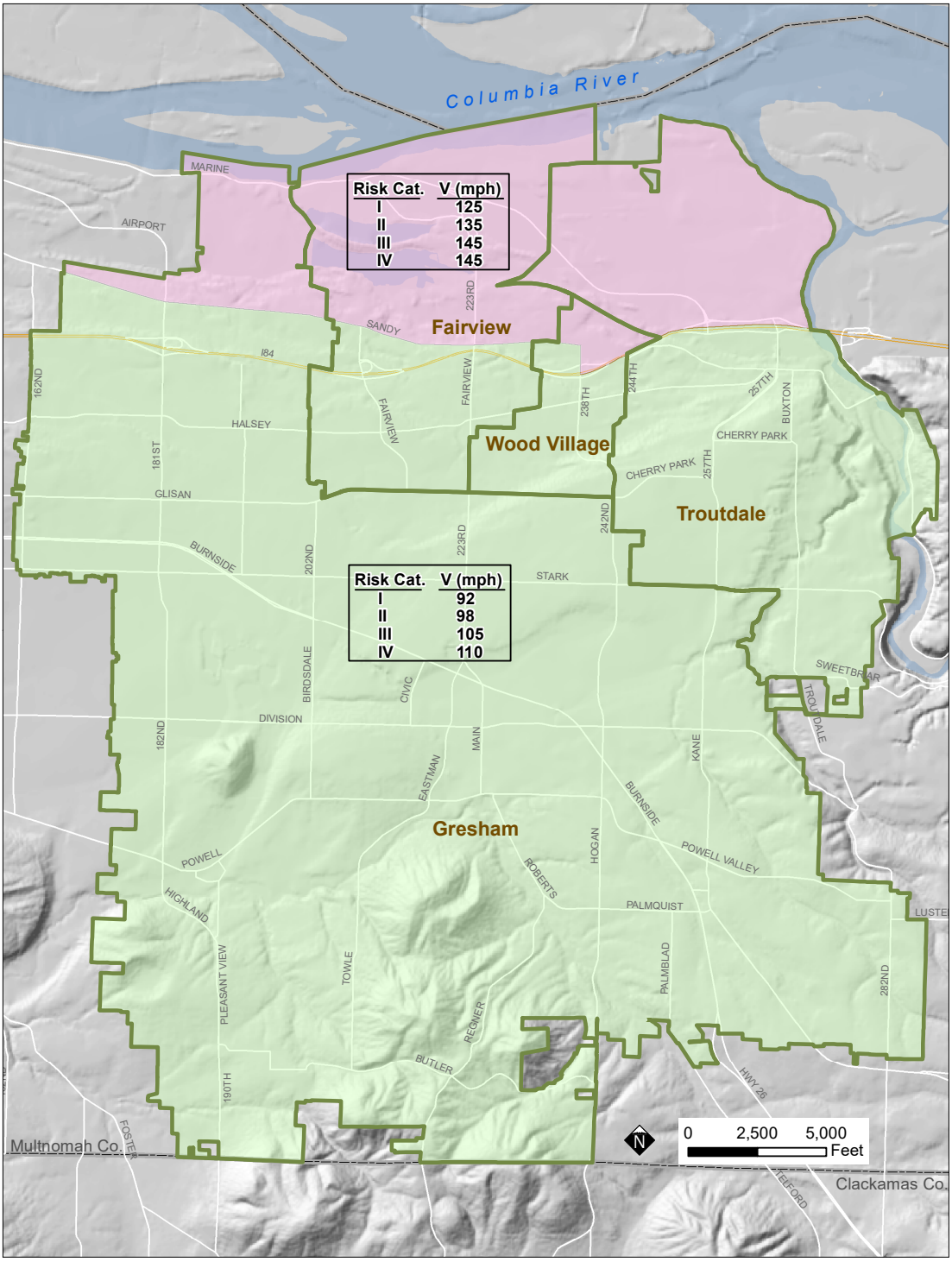
WIND LOADS

Design wind loads on every commercial building/structure or part thereof shall be determined in accordance with Chapters 26 to 30 of ASCE 7-16, as modified by OSSC Section 1609, and as modified by this document, including attached Figures 1 and 2.

For commercial buildings/structures located in the City of Gresham or areas where it has jurisdiction, the *basic design wind speed, V,* for each *risk category* shall be as shown in attached Figure 1, and the *exposure category* shall be as shown in attached Figure 2. (See OSSC Table 1604.5 for determination of risk category.)

(Effective October 1, 2019)

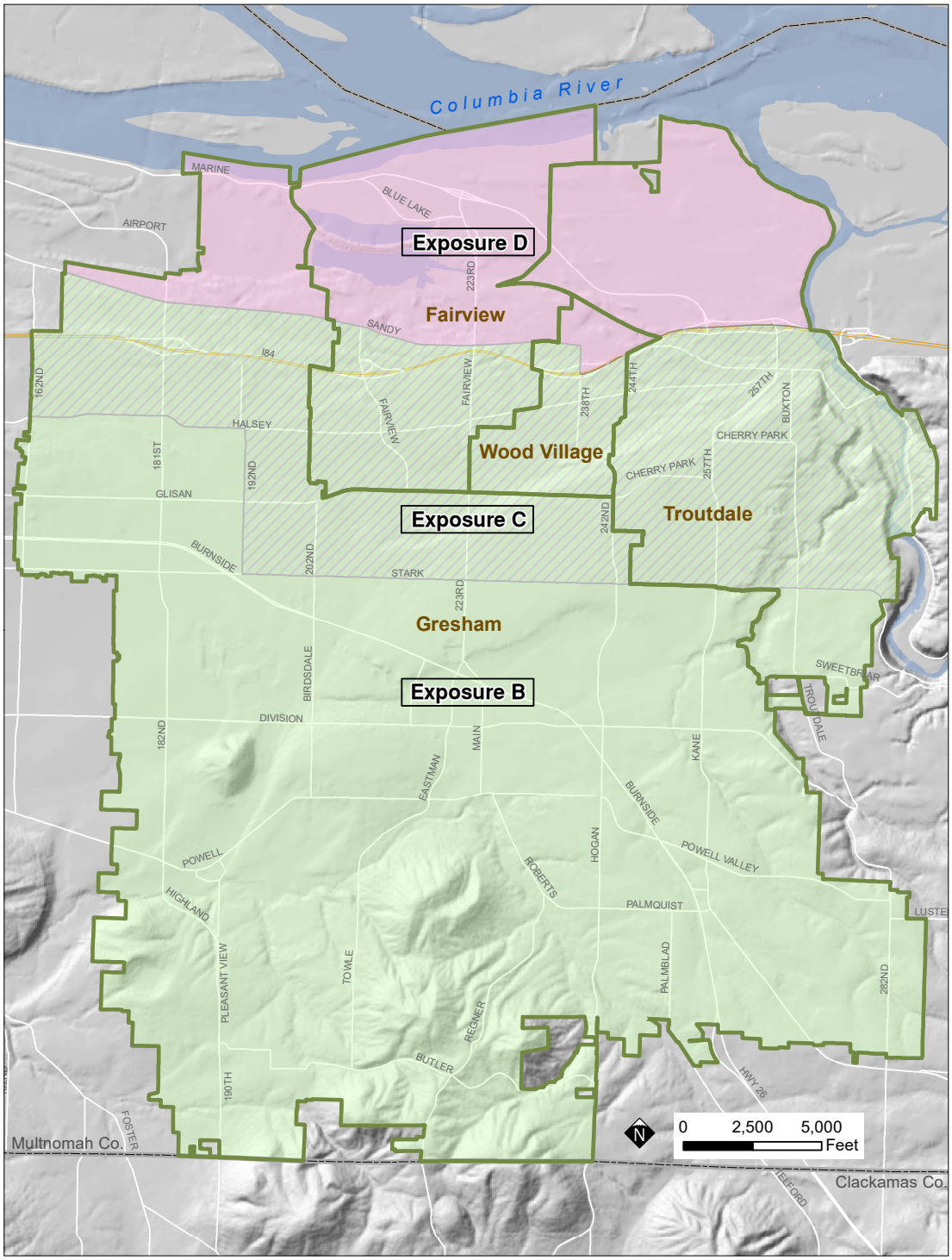
FIGURE 1 Commercial building/structure basic design wind speed (*V*) by risk category



NOTE:

In areas of Multnomah County under the jurisdiction of the City of Gresham without a value shown on this map, the basic design wind speed shall be determined per OSSC Table 1609.3, including footnotes a and c, and OSSC Figure 1609.3, including footnotes a and b, with particular attention to determination of whether the site is in a mapped special wind region (use of online tool per Figure 1609.3 footnote a is required) and whether the site has full exposure to Columbia River Gorge winds (i.e. exposure category D). See Figure 2 of this document for determination of exposure category.

FIGURE 2 Commercial building/structure exposure category



NOTE:

1. The exposure category shown on this map shall be used unless justified otherwise by a rational analysis of the prevailing ground surface roughness determined from natural topography, vegetation, and surrounding construction for each wind direction, per ASCE 7-16 Section 26.7. Analysis shall be submitted to the City of Gresham for review and approval *prior to* submittal for permit (*strongly recommended to be submitted prior to the start of any structural design work*).
2. Unless justified otherwise per Note #1, in areas of Multnomah County under the jurisdiction of the City of Gresham without an exposure category shown on this map, exposure category C shall be used, except in areas of full exposure to Columbia River Gorge winds (typically adjacent to I-84 and/or U.S. Route 30) where exposure category D shall be used.