

***City of Scappoose ordinance***

*Record pages 1 to 394*

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**City of Scappoose Urban Growth Boundary Amendment**

*City of Scappoose Docket*

*Comprehensive Plan Map Amendment # CPA1-10*

*Comprehensive Plan Text Amendment # CPTA1-10*

*Development Code Text Amendment # DCTA3-10*

*Columbia County Docket*

*Comprehensive Plan Map Amendment # PA11-01*

**ORDINANCE NO. 816**

**AN ORDINANCE RELATING TO LAND USE; AMENDING THE URBAN GROWTH BOUNDARY; AMENDING THE COMPREHENSIVE PLAN TEXT AND MAP; AND AMENDING THE SCAPPOOSE MUNICIPAL CODE TO ADD A NEW CHAPTER 17.74 (AIRPORT EMPLOYMENT OVERLAY ZONES) AND TO AMEND CHAPTER 17.136 (ANNEXATIONS)**

**WHEREAS**, the Scappoose City Council initiated a legislative land use application to perform an Economic Opportunities Analysis; and

**WHEREAS**, pursuant to this effort, the City has developed estimates of land need for employment; and

**WHEREAS**, the City has developed an adequate factual base pursuant to Statewide Planning Goal 2 and refined and improved it through a public involvement process pursuant to Statewide Planning Goal 1; and

**WHEREAS**, the Ad Hoc Economic Opportunity Analysis Advisory Committee and the Planning Commission recommended amending the Urban Growth Boundary and Comprehensive Plan to incorporate the findings of the Economic Opportunities Analysis; and

**WHEREAS**, the Planning Commission held hearings on the application on September 9, 2010, September 23, 2010, October 14, 2010 and October 28, 2010 and the City Council held hearings on the application on December 6, 2010, January 3, 2011, February 7, 2011, March 7, 2011, and April 4, 2011; now therefore,

**THE CITY OF SCAPPOOSE ORDAINS AS FOLLOWS:**

**Section 1.** The City Council adopts the Findings of Fact attached hereto and hereby incorporated by reference as Exhibit A in support of the amendments adopted herein.

**Section 2.** The February 2008 *Population Forecasts for Columbia County Oregon, its Cities & Unincorporated Area, 2010 to 2030* prepared by the Portland State University Population Research Center contained in Attachment E of Exhibit A is hereby adopted as Appendix I to the Scappoose Comprehensive Plan, and its Medium Growth Forecast is adopted for planning purposes.

**Section 3.** The *City of Scappoose Economic Opportunities Analysis* prepared by Johnson Reid contained in Attachment A of Exhibit A is hereby adopted as Appendix J to the Scappoose Comprehensive Plan.

**Section 4.** The Scappoose Urban Growth Boundary is hereby amended by the addition of the real property described on Exhibit B, attached hereto and hereby incorporated by reference.

**Section 5.** The Scappoose Comprehensive Plan map is hereby amended to reflect the expansion of the Scappoose Urban Growth Boundary, and the new plan designations, as detailed in Map A, Map B, and Map C of Exhibit A.

**Section 6.** The Economy section of the Scappoose Comprehensive Plan is hereby amended by deleting all existing text and replacing it with the text contained in Attachment B, Item 1 of Exhibit A.

**Section 7.** The Economic Goals and Policies section of the Scappoose Comprehensive Plan is hereby amended by deleting all existing text and replacing it with the text contained in Attachment B, Item 2 of Exhibit A.

**Section 8.** The Policies for Public Facilities and Services section of the Scappoose Comprehensive Plan is hereby amended by adding new policies contained in Attachment B, Item 3 of Exhibit A.

**Section 9.** The Urban Growth Boundary Goals and Policies section of the Scappoose Comprehensive Plan is hereby amended by deleting all existing text and replacing it with the text contained in Attachment B, Item 4 of Exhibit A.

**Section 10.** The listing of Land Use Goals and Policies within the Scappoose Comprehensive Plan is hereby amended to read as follows: *(Language to be omitted is ~~strikethrough~~, proposed language additions are double underlined)*

“LAND-USE GOALS AND POLICIES

- 1) GENERAL GOALS FOR LAND USES
- 2) URBAN GROWTH BOUNDARY
- 3) GENERAL RESIDENTIAL
- 4) SUBURBAN RESIDENTIAL
- 5) MANUFACTURED HOME RESIDENTIAL
- 6) COMMERCIAL
- 7) INDUSTRIAL
- 8) AIRPORT EMPLOYMENT
- 9) AIRPORT LAND USE GOALS AND POLICIES
- 910) PUBLIC AND SEMI-PUBLIC LANDS
- ~~10~~11) HAZARD AREAS

~~412~~) OPEN SPACE-DESIGN REVIEW LANDS”

**Section 11.** The Land Use Goals and Policies section of the Scappoose Comprehensive Plan is hereby amended by adding the AIRPORT EMPLOYMENT text contained in Attachment C of Exhibit A.

**Section 12.** The Scappoose Comprehensive Plan is hereby amended to reflect the re-designation from Industrial (I) to Airport Employment (AE) for the real property listed in Exhibit C and illustrated in Map C of Exhibit A.

**Section 13.** The Scappoose Municipal Code is hereby amended by adding a new chapter 17.74, AIRPORT EMPLOYMENT OVERLAY ZONES. The text of the new chapter is contained in Attachment D of Exhibit A. These overlay zones have not been applied to specific properties through these proceedings.

**Section 14.** The table within Section 17.136.070 (Zoning upon annexation) of the Scappoose Municipal Code is hereby amended to read as follows:

<u>Comprehensive Plan Designation</u>	<u>Zoning Classification</u>
SR, Suburban Residential	R-1, Low Density Residential
GR, General Residential	R-4, Moderate Density Residential
MH, Manufactured Home	MH, Manufactured Home Residential
C, Commercial	EC, Expanded Commercial
I, Industrial	LI, Light Industrial
AE, Airport Employment	PUA, Public Use Airport

**Section 15.** Prior to approval of annexation and zone change of any property included within the Urban Growth Boundary amendment as a result of this ordinance, the applicant shall prepare an Oregon Department of Transportation (ODOT) scoped and approved Traffic Impact Analysis and comply with provisions of the Transportation Planning Rule (OAR 660-012-0060). If analysis indicates significant effect per OAR 660-012-0060, the applicant shall mitigate associated traffic impacts, as permitted and approved by ODOT.

**Section 16.** Notwithstanding the effective date of ordinances as provided in Section 29 of the City of Scappoose Charter of 1992, this Ordinance shall become effective upon the date of its acknowledgment as provided by ORS 197.633(4) and (5) and 197.644(2) and the administrative rules adopted to implement them.

**Section 17.** If any section, subsection, sentence, clause, phrase or portion of this Ordinance is for any reason held invalid or unconstitutional by a court of competent jurisdiction, such portion


shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining portions hereof.

PASSED AND ADOPTED by the City Council this 18<sup>th</sup> day of April, 2011, and signed by the Mayor and City Recorder in authentication of its passage.

**CITY OF SCAPPOOSE, OREGON**

  
\_\_\_\_\_  
Scott Burge, Mayor

First Reading: April 4, 2011  
Second Reading: April 18, 2011

Attest:   
\_\_\_\_\_  
Susan M. Reeves, CMC  
City Recorder

# **City of Scappoose Council Findings – Ordinance No. 816**

## **Docket # CPA1-10/CPTA1-10/DCTA3-10**

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## Advisory Committee and Planning Commission Recommendations

In July 2008 the Scappoose City Council adopted Resolution 08-10 to establish the Ad Hoc Scappoose Economic Opportunities Analysis Advisory Committee (or more simply, the “Advisory Committee”) to provide information for the City to make policy choices on the types of employers to attract and to evaluate the land supply for commercial and industrial development. The Advisory Committee met seven times from December 2008 through May 2010. At its final meeting on May 18, 2010, the Advisory Committee unanimously adopted (with one abstention from an affected property owner) the following motions:

1. *To accept the February 2010 Economic Opportunity Analysis prepared by Johnson Reid.*
2. *To amend page 38 of the February 2010 Economic Opportunity Analysis<sup>1</sup> so the section entitled “Environmental Constraints” reads as follows:*

*In order to be suitable, the site should be flat or nearly flat, having a slope of less than 10%. The site must be able to provide appropriately-sized and configured developable areas free of wetlands, floodplains, riparian constraints, or other known environmental constraints which would significantly preclude, delay, or significantly increase the cost of development of all or a portion of the site.*

3. *To recommend expansion of the UGB into the northeast to include predominantly Class III soils and southwest to include the exception areas along Old Portland Road. Any unmet employment needs should be held in reserve and considered when the City performs a residential land needs analysis.*
4. *To recommend that the City Council recognize the transportation and employment advantages to the community of future expansion in the southeast quadrant south of Havlik Drive. The Committee recommends that this land be included within the UGB when this area can be justified under Goal 14 and statutory priorities.*

In making its recommendation, the Advisory Committee reviewed the Economic Opportunities Analysis and the documents in the Appendices (some of which have been revised to include additional information). Map A shows the proposed UGB expansion area.

The City submitted a Notice of Proposed Amendment to the Department of Land Conservation and Development on July 22, 2010.

The City of Scappoose Planning Commission met four times between September 9, 2010 and October 28, 2010. At the October 28, 2010 hearing, the Planning Commission adopted the following motion with a 6-1 vote:

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<sup>1</sup> This amendment has been incorporated into Attachment A, *Scappoose Economic Opportunities Analysis*

1. *Amend the Comprehensive Plan to incorporate 2010 Scappoose Economic Opportunities Analysis (EOA) and 2010-2030 Columbia County population forecast;*
2. *Remove outdated information from the Comprehensive Plan and add key findings and policies from the Economic Opportunities Analysis;*
3. *Add new airport employment Plan designation and overlay zones to implement the Economic Opportunities Analysis;*
4. *Amend the Scappoose Urban Growth Boundary to meet industrial and commercial needs identified in the Economic Opportunities Analysis and to include a regional park area;*
5. *Remove exception areas Southwest 2 and Southwest 3 from the UGB expansion area;*
6. *Adjust the EOA capture rate to reflect the proper amount of land to correspond just to Southwest 1;*
7. *Preserve Crown Zellerbach trail to the extent possible;*
8. *Amend Chapter 17.136 to add a line for the Airport Employment plan designation to automatically receive Public Use Airport zoning;*
9. *Utilize the October 21, 2010 draft of the Comprehensive Plan proposed amendments and the October 26, 2010 draft of the proposed overlay zones.*

## Scappoose City Council Decision

The City Council met five times between December 6, 2010 and April 4, 2011. At the March 7, 2011 hearing, the Council voted 5-2 in favor of the following motion:

*Council preliminarily approved Docket # CPA1-10/CPTA1-10/DCTA3-10 as recommended by the Planning Commission, with the following exceptions:*

- 1. Utilize the January 10, 2011 draft of the Economic Opportunities Analysis;*
- 2. Update the proposed edits to the existing sections of the Comprehensive Plan to incorporate the January 10, 2011 EOA; and*
- 3. Schedule a Land Use Hearing on April 4, 2011 at City Hall on the matter of amending the UGB to include three parcels north of Gilmore Road that are currently partially within the UGB.*

*Council also directed staff to draft an ordinance and supporting findings for adoption at a future meeting.*

On April 4, 2011, the City Council held a public hearing regarding incorporating the Gilmore Road parcels into the proposed urban growth boundary, considered proposed findings in support of its preliminary decisions, and voted 4 to 1 in favor of a motion to approve Docket # CPA1-10/CPTA1-10/DCTA3-10 and accept the proposed findings. At that time, Council also moved to approve Ordinance No. 816 and adopt the ordinance at its meeting on April 18, 2011.

## Comprehensive Plan and Development Code Amendments: Attachments and Maps

- Attachment A:** *Scappoose Economic Opportunities Analysis (January 10, 2011)*
- Attachment B:** *Comprehensive Plan Text Amendments*
- Attachment C:** *Airport Employment Plan Designation*
- Attachment D:** *Airport Employment Overlay Zones*
- Attachment E:** *Population Forecasts for Columbia County Oregon, its Cities & Unincorporated Area, 2010 to 2030 (February 2008)*
- Map A:** *Urban Growth Boundary Amendment*
- Map B:** *Urban Growth Boundary Amendment: Northeast Expansion Area*
- Map C:** *Urban Growth Boundary Amendment & Comprehensive Plan Amendment*

## Appendices and Maps

- Appendix 1: Employment Land Need and Supply**
  - A. *Vacant and Redevelopable Lands (Winterbrook, January 2010)*
  - B. *Employment Land Need and Supply Summary (Winterbrook, January 2010)*
  - Map 4: *Scappoose UGB – Suitable Employment Lands (Winterbrook, May 2010)*
- Appendix 2: Scappoose UGB Alternatives Analysis (Winterbrook Planning, May 2010)**
  - Map 1: *UGB Alternatives – Soil Types (Winterbrook, May 2010)*
  - Map 2: *UGB Alternatives – Slopes and Soils (Winterbrook, May 2010)*
  - Map 3: *UGB Alternatives – Floodplain, Slopes, Soils (Winterbrook, May 2010)*
  - Map 5: *UGB Alternatives – Exception Areas (Winterbrook, May 2010)*
  - Map 6: *UGB Expansion Alternatives (Winterbrook, May 2010)*
- Appendix 3: Scappoose UGB Amendment Infrastructure Report (Otak, November 17, 2010)**
- Appendix 4: Transportation Studies**
  - A. *Scappoose UGB Alternatives Transportation Analysis (DKS, March 11, 2010)*
  - B. *Scappoose UGB Expansion Transportation Impacts (DKS, March 23, 2010)*
- Appendix 5: Scappoose Airport Land Use Concept Plan (Otak, May 7, 2010)**
- Appendix 6: Agency Comments**
  - A. *Port of St. Helens letter of support dated May 18, 2010*
  - B. *Scappoose Drainage Improvement Company letter dated August 9, 2010*
  - C. *Oregon Department of Transportation letter dated September 9, 2010*
  - D. *Oregon Department of Transportation letter dated September 21, 2010*
  - E. *Oregon Department of Transportation e-mail message dated September 23, 2010*
  - F. *Columbia County Department of Land Development Services letter dated December 29, 2010*
- Appendix 7: Supporting materials from City Council Hearings**
  - A. *Background information on Crown Zellerbach Road (January 28, 2011)*
  - B. *Clarification on Elements of the City's EOA (Johnson Reid, March 1, 2011)*
  - C. *Airpark Employment Chart*

## Preliminary Statewide Planning Goal Findings

Statewide Planning Goals 1, 2, 5, 7, 8, 9, 11, 12, 13 and 14 are applicable to this request. Because the proposal is to amend the Scappoose Comprehensive Plan and Development Code to meet economic development objectives, findings demonstrating compliance with the Goal 9 (Economy) and Goal 14 (Urban growth boundaries) administrative rules are provided first, followed by findings for remaining applicable statewide planning goals and rules.

- **Goal 9 (Economy of the State)** applies to adoption of local economic studies such as the Scappoose EOA. The Land Conservation and Development Commission (LCDC) adopted the Economic Development administrative rule (OAR Chapter 660, Division 009) to interpret Goal 9 and ORS 197.712.
- **Goal 14 (Urbanization)** governs amendment to urban growth boundaries; the Urban Growth Boundaries administrative rule (OAR Chapter 660, Division 024) provides detailed guidance for making UGB amendments.
- **Goal 1 (Citizen Involvement)** and **Goal 2 (Land Use Planning)** are procedural goals that require citizen involvement in all phases of the planning process; an adequate factual base for considering alternatives courses of action; coordination among the city, county and state agencies; adoption of ultimate policy choices in the Comprehensive Plan; and consistency between the Comprehensive Plan and implementing land use regulations.
- **Goals 5 (Natural Resources), 7 (Natural Hazards) and 8 (Parks and Recreation)** require local governments to address wetland and riparian impacts and to limit development within the 100-year floodplain. Wetland and riparian corridors identified in the City's 1998 Local Wetland Inventory (LWI) are accounted for in the suitable employment lands inventory. A 15-acre regional park (a staging area for bicycle and non-motorized water sports) is proposed in the EOA to respond to the desire to promote tourism in connection with the Crown Zellerbach Trail between Scappoose and Vernonia.
- **Goal 11 (Public Facilities and Services), Goal 12 (Transportation) and Goal 13 (Energy Conservation)** also apply. Goal 12 is implemented by the Transportation Planning Rule (OAR Chapter 660, Division 012).

## Statewide Planning Goal 9 (Economy of the State)

The Goal 9 (Economy) rule sets forth standards for conducting an economic opportunities analysis (EOA) and determining the characteristics of employment sites that are required to carry out a community's economic development policies. Johnson Reid prepared the Scappoose EOA in compliance with the Goal 9 administrative rule (OAR Chapter 660, Division 009 – Economic Development).

The purpose of the Goal 9 rule (OAR 660-009-0000) is to:

*\* \* \* provide an adequate land supply for economic development and employment growth in Oregon \* \* \* [and] to link planning for an adequate land supply to infrastructure planning, community involvement and coordination among local governments and the state.*

After an exhaustive analysis, the Scappoose EOA identifies the number, acreage and characteristics of sites that will be needed during the 20-year planning period to attract targeted employment opportunities.

- Otak and DKS studies describe public infrastructure investments that will be needed to support development of existing and proposed employment sites.
- The Advisory Committee encouraged public comments and ensured coordination among local and state governments in the development of the Scappoose EOA.
- The Planning Commission clarified and strengthened the proposed overlay zones to delete certain uses that were deemed inconsistent with the economic development objectives identified in the EOA and to better protect lands for the intended character of the airport industrial areas and the uses defined in the EOA.
- The City Council approved updates to the EOA in response to testimony, creating a more internally-consistent document.

## Economic Opportunities Analysis [OAR 660-009-0015]

As required by the Goal 9 rule (OAR 660-009-0015), the Scappoose EOA and supporting technical studies include:

- (1) A review of national, state, regional, county and local trends (EOA, pp. 5-25);
- (2) The identification of required site types based on the site characteristics typical of expected uses (EOA, pp. 37-46);
- (3) An inventory of industrial and other employment lands (Appendix 1.A: *Vacant and Redevelopable Lands* – Winterbrook, January 2010);
- (4) An assessment of community economic development potential (EOA, pp. 23-30); and

- (5) A community economic vision – emphasizing the importance of the Scappoose Industrial Airpark as an economic driver – is discussed in the EOA and confirmed at the January 2010 Advisory Committee meeting. This vision is incorporated into the revised Comprehensive Plan policies in Attachment B.

### **Industrial and Other Employment Development Policies [OAR 660-009-0020]**

OAR 660-009-0020 requires that the EOA and Comprehensive Plan include economic development objectives and policies. The Scappoose EOA provides the basis for proposed policy amendments to the Scappoose Comprehensive Plan. (Attachment B) The Scappoose EOA identifies “aviation manufacturing and service” and “retail” as the two major urban “clusters” in Scappoose. This is consistent with the area’s more than 35-year commitment to attracting new industry with the Scappoose Airport. During that time new companies such as Oregon Aero and Sport Copter have established themselves as attractors of employment and growing businesses, even through a recessionary economy. (Appendix 7.C). The addition of “through the fence” options is known to provide regional airports with an access to global markets. With airports the size of Scappoose, this creates unique competitive advantages. The recent growth of the Aurora Airport exemplifies this type of growth opportunity. Since making substantial improvements in 2002, 12 new companies have located there with 400 new employees. Scappoose believes it can take similar strides here but an expansion of its UGB is necessary to do so.

The EOA identifies five types of targeted employment and corresponding site needs (pp. 26-46):

- Industrial (Airport Related and Airport Compatible)
- Office / Service Commercial
- Retail Commercial
- Overnight Lodging
- Institutional / Public (Airport)

Plan policies seek to redress the existing imbalance between employment (which is relatively low) and population (which is relatively high). Revised Comprehensive Plan policies encourage the provision and protection of an adequate supply of suitable and serviceable sites to accommodate targeted employment opportunities. Plan policies also encourage intensification and redevelopment of commercial land in the downtown core area and along Highway 30.

### **Designation of Lands for Industrial and Other Employment Uses [OAR 660-009-0025]**

**OAR 660-009-0025** requires designation of employment sites consistent with the policy direction found in the EOA and Comprehensive Plan:

- (1) The Scappoose EOA and revised Comprehensive Plan identify the approximate number, acreage and characteristics of sites needed to accommodate industrial, office and retail

commercial, overnight lodging and public / institutional uses. Updates to the EOA during the City Council process resulted in some minor modifications to development types and corresponding site and acreage requirements necessary to meet identified 20-year airport-related, industrial, commercial, lodging and institutional needs. These development types are described more fully in the Goal 14 findings:

**Commercial (Land Need = 104 Acres).** After accounting for existing vacant (24 acres) and redevelopable (7 acres) commercial land within the UGB, there is an unmet need for about 73 acres. This deficit can be met in the following ways:

- a. **Mixed Use Employment** (office, service, limited retail in a Business Park setting) – approximately 50 acres within the existing UGB, in the Airport Business Park (ABP) overlay zone as shown on Figure 17.74.1 within Attachment D.
- b. **Lodging (including lodging-related commercial)** – approximately 5 acres within the current PUA zone.
- c. **Intensification of Existing Commercial land uses** – approximately 5 acres of the need for commercial land will be met through further intensification of existing developed areas, generally in the downtown area.
- d. **Highway Commercial / Office** – approximately 13 acres for a retail auto-oriented commercial area outside the UGB **with direct access to US 30**. As part of this action, 5 net acres along Old Portland Road are proposed to be added to the UGB with a Commercial plan designation, leaving 8 net acres for future allocation.

**Airport Related Uses (Need = 144 Acres).** Additional land is needed and should be reserved specifically for airport-related employment and semi-public uses **adjacent to the airport**.

- a. **Airport Industrial Park** (business park employment uses that *require* access to airport runway via taxiways) – approximately 54 acres in the Airport Industrial Park (AIP) overlay, within the existing UGB, as shown on Figure 17.74.1 within Attachment D.
- b. **Runway Reserve** (south of existing runway) – approximately 50 contiguous acres outside the UGB.
- c. **Hangar Reserve** (requested by the Port of St. Helens east of runway) – approximately 40 contiguous acres outside the UGB.

**Industrial (Need = 215 Acres).** **Industrial Need is identified as 130 Acres for Medium and Large Sites (one 30 and two 50-acre sites), and 85 acres for Small Sites (typically ~7 acres) located on relatively poor quality agricultural soils.**

- a. **Small site industrial need:** the existing UGB has about 153 vacant suitable industrial acres. Some 104 acres are proposed for mixed and airport-related uses in the PUA zone (see above), leaving 49 vacant suitable industrial acres within the UGB for



small-site industrial uses. There is a deficit of about 36 acres (85 acre need less 49 acre supply) for small site industrial uses that can be met on approximately 5-6 small sites outside the UGB. Comprehensive plan policies call for **clustering of industrial employment opportunities adjacent to existing industrial areas.**

- b. **Regional Large-Site Industrial** (approximately 3 large sites are needed to accommodate uses that require sites of 30 to 50 acres) – approximately 130 acres (one 30-acre site and two 50-acre sites) outside the UGB.

**Institutional** (Need = 20 acres). Portland Community College – approximately 20 acres are needed.

In addition to meeting the specific locational requirements listed above, all employment uses require the following site characteristics:

- **Topography:** sites must be **flat** (< 10% slope) and **suitable** (free of wetlands, floodplains and riparian constraints).
- **Proximity:** employment sites must have direct access to an existing or planned collector<sup>2</sup> street without driving through established or planned residential areas.
- **Site Size and Configuration:** site must be large enough and appropriately shaped to accommodate efficiently planned large site users and development types.
- **Compatibility:** sites must not abut urban residential areas on more than one side and must include sufficient land, natural or artificial features to provide effective buffers.
- **Serviceability:** sites must be serviceable in the short- to intermediate-term (within 5-10 years) with transportation, sanitary sewer, water, and storm drainage facilities. Electric service is an important consideration for many targeted industrial firms.
- **Agricultural Land Impacts:** as required by ORS 197.298 Priorities for urban growth boundary expansion and Goal 14 (Urbanization) location criterion 4 (agricultural land compatibility) sites must have: (a) **relatively poor agricultural soils** (rural exception areas near Scappoose's UGB do not have required parcel size, topographical and proximity characteristics required to meet identified needs); and should have (b) **natural or artificial boundaries from adjacent agricultural land** (such as arterial roads, rural exception areas, or riparian corridors).

(2) Scappoose EOA Figure 3: Employment Land Demand by Site Size for Scappoose (2030) identifies employment site needs from 2010-2030. A total of 53 sites and 483 acres are needed to meet the site requirements of targeted employment, airport and institutional uses. Required site characteristics are described in the EOA (pp. 37-46).

(3) Employment land within the Scappoose City Limits (immediately west of the Scappoose Industrial Airpark) and within the City Limits along Highway 30 is considered immediately

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<sup>2</sup> Highway 30 is the only designated arterial street within the Scappoose UGB or proposed expansion areas.

serviceable and ready for development. Thus, more than half of Scappoose's existing employment sites are serviced and ready for development in the short-term.

- (4) Appendix 3 includes a review of the City's sanitary sewer, water and storm drainage master plans and identifies needed upgrades through the 20-year planning period. Appendix 4 identifies probable transportation improvements needed to accommodate planned employment growth. Scappoose is committed to continuing to provide at least 25% of its long-term employment land supply for short-term use.<sup>3</sup> This means that at any given period, at least 100 suitable acres must have urban services, or must be serviceable within a one-year period. Most of the vacant and redevelopable employment land within the existing limits meets this standard.
- (5) The Scappoose Airport Land Use Concept Plan (Appendix 5) identifies a potential 20-acre site for future community college use in a broader area with an AE plan designation. The exact location of this potential institutional use may change.
- (6) The Scappoose EOA (p. 40) and Appendix 1.B *Employment Land Need and Supply Summary* explicitly consider land use compatibility as a required site characteristic for employment land:
  - "Employment sites must have direct access to an existing or planned collector street without driving through established or planned residential areas."
  - "Sites must not abut urban residential areas on more than one side and must include sufficient land, natural or artificial features to provide effective buffers."

Moreover, Industrial Policy 3 of the Scappoose Comprehensive Plan requires clustering of industrial uses to minimize residential impacts.

- (7) The EOA did not specifically consider the short-term availability of suitable sites. However, the Port of St. Helens and private landowners are actively marketing several parcels inside the UGB.<sup>4</sup>
- (8) Proposed amendments to the Scappoose Comprehensive Plan and Development Code establish the Airport Employment (AE) plan designation, implemented by the Public Use Airport (PUA) and three implementing overlay zones. The overlay zones – Airport Business Park (ABP), Airport Industrial Park (AIP) and East Airport Employment (EAE):
  - (a) Identify sites suitable for proposed industrial uses in the UGB expansion area;
  - (b) Protect

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<sup>3</sup> 10) "Short-term Supply of Land" means suitable land that is ready for construction within one year of an application for a building permit or request for service extension. Engineering feasibility is sufficient to qualify land for the short-term supply of land. Funding availability is not required. "Competitive Short-term Supply" means the short-term supply of land provides a range of site sizes and locations to accommodate the market needs of a variety of industrial and other employment uses." (OAR 660-009-0005)

<sup>4</sup> Note: This is a suggestion in the Goal 9 rule, not a requirement.

sites suitable for the proposed industrial uses by limiting land divisions and permissible uses and activities that interfere with development of the site for the intended use; (c) protect sites for the proposed industrial uses by restricting incompatible uses on adjacent and nearby lands (the AE designation abuts the airport to the west and agricultural land or a gravel quarry to the north, east and south); and (d) provide applicable overlay zones to meet identified employment needs within the UGB.

### **Goal 9 Conclusion**

**For the reasons stated above and based on information found in the Scappoose EOA and accompanying Winterbrook and Johnson Reid memoranda, the proposed Comprehensive Plan amendments comply with Goal 9.**

## Statewide Planning Goal 14 Urbanization

The standards for amending an urban growth boundary (UGB) are found in Statewide Planning Goal 14 (Urbanization)<sup>5</sup> and in ORS 197.298 Priorities for urban growth boundary amendments. The Goal 14 rule (OAR Chapter 660, Division 024) interprets and clarifies the more general language of Goal 14 and explains the relationship between statutory “priorities” and Goal 14 “location factors.” In the Goal 14 rule findings below, *text shown in italic is quoted directly from the referenced goal, rule or statute.*

As noted in Goal 14:

*In determining need, local government may specify characteristics, such as parcel size, topography or proximity, necessary for land to be suitable for an identified need. Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary.*

As noted in the Goal 9 discussion above, the Scappoose EOA, the Scappoose Comprehensive Plan and Winterbrook memoranda (Appendix 1) identify specific parcel size, topographical and proximity requirements for targeted employment types.

### Land Need [OAR 660-024-0040]

#### Employment Land Need Only [OAR 660-024-0040(1)]

*(1) A local government may review and amend the UGB in consideration of one category of land need (for example, housing need) without a simultaneous review and amendment in consideration of other categories of land need (for example, employment need).*

**Council Findings:** This proposal is limited to employment land need.

#### Determination of 20-Year Employment Land Need [OAR 660-024-0040(5)]

*(5) The determination of 20-year employment land need for an urban area must comply with applicable requirements of Goal 9 and OAR chapter 660, division 9, and must include a*

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<sup>5</sup> **“Land Need** Establishment and change of urban growth boundaries shall be based on the following: (1) Demonstrated need to accommodate long range urban population, consistent with a 20-year affected local governments; and (2) Demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories in this subsection (2). In determining need, local government may specify characteristics, such as parcel size, topography or proximity, necessary for land to be suitable for an identified need. Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary.”

*determination of the need for a short-term supply of land for employment uses consistent with OAR 660-009-0025.*

**Council Findings:** The Scappoose EOA (Johnson Reid, January 2011) complies with the applicable requirements of Goal 9 and its administrative rule, as documented in the EOA itself and in the Goal 9 findings above. The determination of short-term need and long-term need are discussed in the OAR 660-009-0025 findings. As documented in Goal 9 findings, the Scappoose EOA identifies a long-term *employment* need of about 393 suitable acres; the EOA identifies an additional 90-acre need for airport related facilities such as a potential airport runway extension and hangars.

The employment projection in the Scappoose EOA serves *as part* of the justification for the City's determination of the number of sites and required characteristics needed to maintain and attract targeted employment opportunities. However, Scappoose used a "site needs approach," based on Johnson Reid's expertise, to determine the number of sites and their required characteristics – as called for in ORS 197.712(2)(c)<sup>6</sup> and the Goal 9 Rule.

The Scappoose EOA recommends capitalizing on the community's comparative advantages to provide the opportunity for employment growth:

The City has maintained exceptional growth during the last six years and although some of that growth has been eroded recently, the area has held up well. Despite a nationwide severe recession, Columbia County maintained a 1.6% growth rate between 2007 and 2008.

Scappoose's success is due in part to its distinct location, which offers both close proximity to Portland and Hillsboro as well as a convenient route to by-pass Portland in order to reach Interstate 5 to the north through Longview. In addition, Scappoose is uniquely connected to the Columbia River as well as a regional airport, which is expected to be the next expansionary airport as Portland International Airport (PDX) and the Hillsboro airport confront both congestion and residential encroachment.

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<sup>6</sup> "197.712 \* \* \* the Legislative Assembly finds and declares that, in carrying out statewide comprehensive land use planning, the provision of adequate opportunities for a variety of economic activities throughout the state is vital to the health, welfare and prosperity of all the people of the state. (2) By the adoption of new goals or rules, or the application, interpretation or amendment of existing goals or rules, the Land Conservation and Development Commission shall implement all of the following: (a) Comprehensive plans shall include an analysis of the community's economic patterns, potentialities, strengths and deficiencies as they relate to state and national trends. (b) Comprehensive plans shall contain policies concerning the economic development opportunities in the community. **(c) Comprehensive plans and land use regulations shall provide for at least an adequate supply of sites of suitable sizes, types, locations and service levels for industrial and commercial uses consistent with plan policies.** (d) Comprehensive plans and land use regulations shall provide for compatible uses on or near sites zoned for specific industrial and commercial uses. (e) A city or county shall develop and adopt a public facility plan for areas within an urban growth boundary containing a population greater than 2,500 persons. The public facility plan shall include rough cost estimates for public projects needed to provide sewer, water and transportation for the land uses contemplated in the Comprehensive Plan and land use regulations. Project timing and financing provisions of public facility plans shall not be considered land use decisions."  
[Emphasis added.]

Some firms will find the location unsuitable—particularly the high-tech firms that require seismically stable land. Scappoose lies on deep gravel beds, not bedrock. It will not attract those firms. But many other firm types will find Scappoose an attractive location. The ability of Scappoose to attract employers depends on its ability to provide basic urban infrastructure to sites meeting the following criteria:

- Large acreage, best if a mix of sizes is available, ranging from 30 to 50 acres
- Flat topography
- Regular shape, such as a square or rectangle
- No environmental contamination
- Relatively free of wetlands
- Industrially zoned
- Direct access to Highway 30, along an uncongested road with no tight turns
- Direct freight rail access
- Airport

Second, much of Scappoose’s potential is due to external factors related to its proximity to the Portland metro area and Hillsboro. Johnson Reid conducted interviews with representatives from the Oregon Business Development Department (OBDD) to identify the regional factors that affect economic development in Scappoose. OBDD staff reported the following factors that will affect Scappoose’s long-term potential:

- Oregon has a scarcity of large industrial sites, specifically sites 100 acres or greater.
- The great majority of firms seeking to locate in Oregon are searching for a site between 10 and 200 acres. About half the firms require a site between 10 and 50 acres and another third require a site between 50 and 200 acres.
- Industrial parcels of versatile size and reasonable development cost have grown scarce in the Willamette Valley near Interstate 5, particularly in the Portland metro area. The decision by Walmart to locate its distribution center in Hermiston, for example, was driven in part by the issue of industrial land availability with excellent transportation access and reasonable cost.
- OBDD has been turning away firms with interest in locating in Scappoose because the City lacks large, shovel-ready sites.
- Currently, much of Scappoose’s potential is connected to the aviation industries clustering at the Scappoose Industrial Airpark. These industries typically need large sites due to the large components with which they work as well as need for staging and future development. The Airpark benefits from both available Port locations and private lands with potential “through the fence” access to the airport.

Metro’s recently prepared Urban Growth Report and associated research reveal an undersupply of large industrial lots in the Metro region.<sup>7</sup> A review by Johnson Reid of all employment parcels included in the published inventory, regardless of parcel ratings as established by Metro, indicates the following:

Size	Gross Acreage	Net Buildable Acreage
Median	2.2	1.8
Mean	4.9	4.0
Modal 1/	1.05	0.9

1/ Modal size refers to the most common size available

In other words, the vast majority of the employment land inventory—regardless of quality rating—as published, is predominantly very small and unsuitable for the vast majority of industrial land development types regardless of potential FAR realized on site. In short, the Metro region lacks large industrial lots. Moreover, it seems that

<sup>7</sup> See Metro’s report at [http://library.oregonmetro.gov/files/3b-urban\\_growth\\_report.pdf](http://library.oregonmetro.gov/files/3b-urban_growth_report.pdf)

Metro has adopted policies which may exacerbate Portland's lack of industrial land. In the UGR report, Metro concluded the following:

“The current employment demand forecast and the analysis of employment capacity within the UGB do not indicate a need to add land to the boundary for industrial or non-industrial purposes at the regional level to meet statutory requirements to ensure sufficient capacity to support the region's forecasted employment at the low end of the demand range. However, the analysis does show a need for additional capacity through investments, policy changes, or expansions to support the high end of the demand range for non-industrial employment. Further analysis of preferences for large lots and the current inventory results in a small potential gap in the land needed to support current preferences for large lot formats for single and multi-tenant users.”

If the Metro area does not expand its UGB, the implication for Scappoose is that there will be some spillover demand for large industrial sites within the UGB, giving Scappoose an opportunity to capture considerable spillover growth from the Portland metro area. As Scappoose is not part of Metro's jurisdiction, but is part of the Portland regional economy, the City is well placed to provide the large land types that Metro has limited. Other cities similar to Scappoose such as Cornelius, Forest Grove, Wilsonville, and Gresham all have a limited ability to accommodate these large users because they lie within Metro's UGB.

The Council heard testimony questioning the EOA's projected employment growth, and asked for more clarification on this issue. As explained in the Johnson Reid memorandum titled “Clarification on Elements of the City's EOA” (March 1, 2011, Appendix 7.B):

An average annual employment growth rate of 7.6% was projected for the City of Scappoose. As a stand-alone estimate, ignoring the City's regional context, we would agree that this rate of growth would be implausible to assume. The projections are defensible though in light of the City's geographic position within the Portland-Vancouver Principal Metropolitan Statistical Area (PMSA).

- The broader regional economy is projected to add close to 500,000 jobs over the next twenty years, and the projected 8,069 jobs contained in the EOA would represent a 1.7% share of regional growth.
- Metro, the regional governmental agency that controls many of the jurisdictions within the Oregon portion of the Portland-Vancouver metro area, has modeling that anticipates a substantial share (25%) of projected new employment growth will locate outside of the UGB they control, primarily to satellite communities such as Scappoose, North Plains, Newberg. The model assumed 25% will locate outside of the Metro area boundaries. The employment forecast in the EOA reflects a 7.0% to 9.5% share of the growth assumed to be captured outside of the Metro UGB.
- The forecast was not “artificially created”, but derived through evaluation of the City's current and prospective role within the broader region and detailed evaluation of targeted industries. The numbers reflect the aspirational yet reasonable and defensible goals of the City as developed with the Technical Advisory Committee (TAC) over an extended period of outreach.

The Council finds the employment growth figures reasonable in light of local historical growth trends, the regional context of the employment projection, and increased employment opportunities near the airport as a result of the proposed UGB expansion.

## Inventory of Suitable and Vacant Employment Land [OAR 660-024-0050(1)]

(1) When evaluating or amending a UGB, a local government must inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. For employment land, the inventory must include suitable vacant and developed land designated for industrial or other employment use, and must be conducted in accordance with OAR 660-009-0015.<sup>8</sup>

**Council Findings:** Appendix 1.A *Vacant and Redevelopable Lands* presents the suitable lands data and map. The focus of this topographically suitable<sup>9</sup> lands analysis is vacant or redevelopable land planned for Commercial or Industrial use. This suitable lands analysis is a summary of “vacant” and “developed” commercial and industrial lands as defined in the Goal 9 administrative rule.<sup>10</sup>

The results are shown visually in Appendix 1, Map 4 *Suitable Employment Lands*. As shown on Tables 1 and 2, Winterbrook identified a total of 10 Industrial tax lots comprising 153 topographically-suitable vacant and developed (redevelopable) acres, and 18 Commercial tax lots comprising 31 topographically-suitable vacant and developed (redevelopable) acres.

**Table 1: Industrial Vacant and Developed (Redevelopable) Land Supply**

Size	Number of Tax Lots	Total Topo-Suitable Acres
1 to 5 Acres	3	9
5 to 20 Acres	5	54
20 to 40 Acres	1	30
40 Acres +	1	60
<b>Totals</b>	<b>10</b>	<b>153</b>

<sup>8</sup> (8) “Suitable vacant and developed land” describes land for employment opportunities, and has the same meaning as provided in OAR 660-009-0005(1) for “developed land,” section (12) for “suitable,” and section (14) for “vacant land.” [OAR 660-024-010(8)]

<sup>9</sup> OAR 660-009-005(12) defines “Suitable” as “serviceable land designated for industrial or other employment use that provides, or can be expected to provide the appropriate site characteristics for the proposed use.”

<sup>10</sup> OAR 660-009-005(14) defines Vacant Land as “a lot or parcel: a) Equal to or larger than one half-acre not currently containing permanent buildings or improvements; or b) Equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements.” OAR 660-009-005(1) defines Developed Land as “non-vacant land that is likely to be redeveloped during the planning period”.



**Table 2: Commercial and Developed (Redevelopable) Land Supply**

Size	Number of Lots	Total Topo-Suitable Acres
1 to 5 Acres	15	14
5 to 20 Acres	3	17
20 to 50 Acres	0	0
50 Acres +	0	0
<b>Totals</b>	<b>18</b>	<b>31</b>

## **Land Inventory and Response to Deficiency [OAR 660-024-0050]**

### **Capacity of the UGB to Meet Employment Land Needs [OAR 660-024-0050(4)]**

*If the inventory demonstrates that the development capacity of land inside the UGB is inadequate to accommodate the estimated 20-year needs determined under OAR 660-024-0040, the local government must amend the plan to satisfy the need deficiency, either by increasing the development capacity of land already inside the city or by expanding the UGB, or both, and in accordance with ORS 197.296 where applicable. Prior to expanding the UGB, a local government must demonstrate that the estimated needs cannot reasonably be accommodated on land already inside the UGB. If the local government determines there is a need to expand the UGB, changes to the UGB must be determined by evaluating alternative boundary locations consistent with Goal 14 and OAR 660-024-0060.*

**Council Findings:** The Goal 14 Rule requires that cities look first to employment land within the existing UGB to meet identified employment needs. As discussed in the January 26, 2010 Advisory Committee meeting, indicated in Appendix 1.A (*Vacant and Redevelopable Lands*, Winterbrook January 2010), and described by Appendix 1.B (*Employment Land Need and Supply Summary*, Winterbrook January 2010)<sup>11</sup> over half (189 suitable acres) of the City's long-term employment land needs can be met within the existing UGB. After accounting for suitable land within the existing UGB, there is an unmet need for:

- About 13 acres for highway commercial and office uses;
- Three large industrial sites (two 50+ acre sites and one 30+ acre site);
- About 41 acres for smaller industrial sites of 2-10 acres in size; and
- An airport runway extension and hangar facilities (about 90 acres).

<sup>11</sup> Appendix 1.B supply figures remain accurate. However, employment land demand decreased by about 16 acres in the January 2011 version of the EOA, due to internal inconsistency corrections requested by Council. The supply and demand figures in these findings have been updated to reflect the January 2011 EOA.

The following summary reflects the January 2011 updates to the EOA. This information explains how the gross suitable acreage need identified in the Scappoose EOA categories (commercial retail / office / lodging, industrial, public) will be accommodated on vacant and redevelopable employment lands within and immediately outside the Scappoose UGB.

**Commercial (Land Need = 104 Acres).** After accounting for existing vacant (24 acres) and redevelopable (7 acres) commercial land within the UGB, there is an unmet need for about 73 acres. This deficit can be met in the following ways:

- a. **Mixed Use Employment** (office, service, limited retail in a Business Park setting) – approximately 50 acres within the existing UGB, in the Airport Business Park (ABP) overlay zone as shown on Figure 17.74.1 within Attachment D.
- b. **Lodging (including lodging-related commercial)** – approximately 5 acres within the current PUA zone.
- c. **Intensification of Existing Commercial land uses** – approximately 5 acres of the need for commercial land will be met through further intensification of existing developed areas.
- d. **Highway Commercial / Office** – approximately 13 acres for a retail auto-oriented commercial area outside the UGB with direct access to US 30. As part of this action, 5 net acres along Old Portland Road are proposed to be added to the UGB with a Commercial plan designation, leaving 8 net acres for future allocation.

**Airport Related Uses (Need = 144 Acres).** Additional land is needed and should be reserved specifically for airport-related employment and semi-public uses **adjacent to the airport**.

- a. **Airport Industrial Park** (business park employment uses that *require* access to airport runway via taxiways) – approximately 54 acres in the Airport Industrial Park (AIP) overlay, within the existing UGB, as shown on Figure 17.74.1 within Attachment D.
- b. **Runway Reserve** (south of existing runway) – approximately 50 contiguous acres outside the UGB.
- c. **Hangar Reserve** (requested by the Port of St. Helens east of runway) – approximately 40 contiguous acres outside the UGB.

**Industrial (Need = 215 Acres).** Industrial Need is identified as **130 Acres for Medium and Large Sites (one 30 and two 50-acre sites), and 85 acres for Small Sites (typically ~7 acres) located on relatively poor quality agricultural soils.**

- a. **Small site industrial need:** the existing UGB has about 153 vacant suitable industrial acres. Some 104 acres are proposed for mixed and airport-related uses in the PUA

zone (see above), leaving 49 vacant suitable industrial acres within the UGB for small-site industrial uses. There is a deficit of about 36 acres (85 acre need less 49 acre supply) for small site industrial uses that can be met on approximately 5-6 small sites outside the UGB. Comprehensive plan policies call for **clustering of industrial employment opportunities adjacent to existing industrial areas.**

- b. **Regional Large-Site Industrial** (approximately 3 large sites are needed to accommodate uses that require sites of 30 to 50 acres) – approximately 130 acres (one 30-acre site and two 50-acre sites) outside the UGB.

**Institutional** (Need = 20 acres). Portland Community College – approximately 20 acres outside the UGB are needed.

Table 3 below compares employment site need and the supply of vacant and redevelopable employment land within the existing Scappoose UGB.

**Table 3: Total Unmet Employment Need = 294 Suitable Acres with Required Site Characteristics**

LAND USE	IDENTIFIED NEED	SUPPLY INSIDE UGB	REDESIGNATE TO MEET NEED INSIDE UGB	UNMET NEED
<b>Office / Retail / Lodging</b>	<b>104 Acres</b>	31 Acres Commercial 5 Acres PUA 5 Acres Commercial Intensification	50 Acres Airport Business Park (ABP)	<b>13 Acres Highway Commercial/Office</b>
<b>Airport Related</b>	<b>144 Acres</b>	0 Acres	54 Acres Airport Industrial Park (AIP)	<b>50 Acres Runway Extension 40 Acres Hangars</b>
<b>Industrial</b>	<b>215 Acres</b>	44 Acres <i>after</i> ABP (-50) and AIP (-54)	0 Acres	<b>171 Acres:</b> Large Sites = 130 Acres (two @ 50 + one @ 30) Small Sites = 41 Acres (~2-10 acres)
<b>Institutional</b>	<b>20 Acres</b>	0 Acres	0 Acres	<b>20 Acres (PCC Site)</b>
<b>Total</b>	<b>483 Acres</b>	<b>85 Acres</b>	<b>104 Acres</b>	<b>294 Acres</b>

Table 3 shows that Scappoose needs 483 suitable acres in a variety of site sizes over the next 20 years. Scappoose is using both options to meet identified employment land needs:

- The City is relying on land within the UGB to accommodate 189 acres of identified land need. Vacant and redevelopable land (as defined in the Goal 9 rule) within the UGB to

meet the need for 184 acres; in addition, the City is assuming that another 5 acres of need will be met through intensification of land uses in the downtown area.<sup>12</sup>

- After accounting for redevelopment and intensification of employment land within the UGB, it was determined that UGB expansion is required to meet the remaining employment-based need for 294 suitable acres.

The Council heard extensive testimony regarding unsuitability of retail commercial near the airport. This concern was based on the “Airport Business Park” (ABP) overlay zone, and allocation of some commercial employment to that overlay zone. However, retail commercial uses are highly limited in the ABP zone – only retail uses 5,000 square feet or smaller are permitted outright, with a maximum size of 20,000 square feet as a conditional use. The only retail commercial anticipated in this area would serve local employees (e.g., a snack shop). The commercial employment uses anticipated in this area are typical of business parks – primarily office and service uses compatible with and supportive of light industrial. These are uses that don’t require high visibility as they are not dependent on attracting drive-by customers. All of the retail commercial acreage determined to be needed by the EOA was allocated to existing commercial areas along Highway 30, or within the proposed commercial expansion area to the southwest (also along Highway 30).

The Council heard concerns that the proposed overlay zones would allow uses that would be detrimental to the airport. However, the Port of St. Helens and the Federal Aviation Administration have reviewed the overlay zones and informed the City through the UGB amendment process that they are comfortable with them (Appendix 6.A).

During the public hearings stage it was brought to the City’s attention that there are three parcels fronting Highway 30 near its intersection with Gilmore Road where a portion of each parcel lies within the Urban Growth Boundary and a portion of each parcel lies outside the UGB. Testimony was received at City Council hearings from the owner of one of these parcels (at the corner of Gilmore Road and Highway 30), who stated that the UGB ran through his parcel, with the eastern portion of the property inside the UGB and the western portion outside the UGB. The adjoining two parcels to the north are also divided by the UGB.

According to a letter from Columbia County (Appendix 6F), the County identified all three of the above parcels as exception lands (due to their previous commitment to commercial uses) when the County Comprehensive Plan was adopted in 1971.<sup>13</sup> Further research indicates that the County Assessor assigned two separate tax lot numbers to each of the three parcels due to their locations straddling adjoining tax maps. The entirety of these three parcels could have been

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<sup>12</sup> The Advisory Committee also recommended holding any excess employment need in reserve rather than expanding the UGB to include the northwest exception area.

<sup>13</sup> As a result, Council could add these parcels in full to the UGB without taking an exception to resource use.

included in the UGB when the City amended it in 1992 to include the eastern portion of these parcels. The City concludes that the assignment of multiple tax lot numbers and the division of these parcels onto two maps for assessment purposes led to an oversight when the City amended the UGB if it had been assumed that the parcel boundaries coincided with the tax map boundaries.

A current assessment of these three parcels for the purposes of an industrial and commercial lands inventory reveals that the portions both within and outside the UGB are already developed with commercial uses. They are served by urban levels of utilities and services. As a result, including the portions of these parcels presently outside the UGB within the UGB would have no net effect on the 20-year land supply. In other words, they would not satisfy an identified need for employment land. Although the western portions of the parcels are not capable of satisfying a portion of the 20-year land need, from a land development and efficient urbanization perspective it doesn't make sense to exclude the western portion of these parcels from the UGB.

The Council desires to rectify this irregularity by amending the UGB to include the entirety of these parcels within the UGB. This action would remedy prior oversights and would provide uniformity to allow for application of efficient and logical development standards as use of the parcels evolves in the future.

### **Application of Employment Designations [OAR 660-024-0050(6)]**

*When land is added to the UGB, the local government must assign appropriate urban plan designations to the added land, consistent with the need determination. The local government must also apply appropriate zoning to the added land consistent with the plan designation or may maintain the land as urbanizable land until the land is rezoned for the planned urban uses, either by retaining the zoning that was assigned prior to inclusion in the boundary or by applying other interim zoning that maintains the land's potential for planned urban development. The requirements of ORS 197.296 regarding planning and zoning also apply when local governments specified in that statute add land to the UGB.*

**Council Findings:** A new "Airport Employment" plan designation and implementing PUA base zone, with three overlay zones are proposed for land near the airport (Attachments C and D). This designation and zones reference the Scappoose EOA to determine permitted employment uses and to ensure retention of large lot sizes on land added to the UGB.

- These overlay zones will not be applied until ODOT has approved a transportation impact study to address TPR requirements (Appendix 6.C-6.E). In the meantime, the land will be held in the existing Exclusive Farm Use (EFU) zone which prohibits urban development and land divisions.

- The overlay zones require approval of a master development plan prior to development approval. The master plan must show a connecting north-south collector street, how road and taxiway access will be provided, and how large lots will be retained as called for in the EOA and by plan policies.
- Otak prepared a Land Use Concept Plan (Appendix 5) to show how large and smaller site industrial needs can be met on this site, where the airport runway could be extended as requested by the Port, the location of internal roads and taxiways, and where an institutional site (for Portland Community College) may be provided. Finally, the concept plan also shows a recreational staging area requested by the Advisory Committee.

ORS 197.296 does not apply to Scappoose because the City has a population below 25,000 and is outside the Portland UGB.

### **Boundary Location Alternatives Analysis [OAR 660-024-0060]**

Goal 14 includes requirements for conducting an alternatives analysis to determine where UGBs can be expanded. However, Goal 9 requires local governments to identify the site characteristics (size, topography and proximity) required by targeted employment types. Recognizing the importance of providing employment sites that meet identified site requirements, Goal 14 allows local governments to specify such needed site characteristics before examining alternatives:

*In determining need, local government may specify characteristics, such as parcel size, topography or proximity, necessary for land to be suitable for an identified need.*

The Goal 14 rule has a similar provision:

### **Required Site Suitability Characteristics [OAR 660-024-0060(5)]**

*If a local government has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, the local government may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.*

OAR 660-024-0060(5) allows “specified characteristics necessary for an identified need” to be used in evaluating alternative areas. *Accordingly, land that does not meet these siting characteristics does not need to be evaluated in the analysis.*

As described in the EOA and the Scappoose Comprehensive Plan, all targeted employment uses require the following site characteristics:

- (1) Topography: sites must be
  - a. Flat (< 10% slope)
  - b. Suitable (free of wetlands, floodplains and riparian constraints)

- (2) Proximity: employment sites must have direct access to an existing or planned collector street without driving through established or planned residential areas
- (3) Site Size and Configuration: site must be large enough and appropriately shaped to accommodate efficiently planned large site users and development types
- (4) Compatibility (industrial): sites must not abut urban residential areas on more than one side and must include sufficient land, natural or artificial features to provide effective buffers, and must be clustered with other industrial land uses.
- (5) Serviceability: sites must be serviceable in the short- to intermediate-term (within 5-10 years) with transportation, sanitary sewer, water, and storm drainage facilities. Electric service is an important consideration for many targeted industrial firms.

In addition to the general requirements:

- 1) Airport-related uses requiring runway access must be adjacent to the airport; and
- 2) Highway commercial areas must have access within ¼ mile of the Highway and be visible from the Highway.

In presenting alternatives to the Advisory Committee, Planning Commission, and City Council, Winterbrook Planning first identified required site characteristics of targeted employment types, and then applied these characteristics systematically to each priority category of land prescribed by ORS 197.298.

***Boundary Location***

*The location of the urban growth boundary and changes to the boundary shall be determined by evaluating alternative boundary locations consistent with ORS 197.298 and with consideration of the following factors: (1) Efficient accommodation of identified land needs; (2) Orderly and economic provision of public facilities and services; (3) Comparative environmental, energy, economic and social consequences; and (4) Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.*

Again, the Goal 14 rule makes it clear that ORS 197.298 Priorities for urban growth boundary expansion must be considered first in this process. To evaluate land for consistency with ORS 197.298 Priorities and Goal 14 location factors, Winterbrook Planning considered four study areas outside the existing Scappoose UGB. As shown in Appendix 2, on Maps 1-3 and 5-6, Winterbrook looked at lands within a mile of the existing UGB, in every direction.<sup>14</sup> These lands were broken into four study areas:

- **Study Area 1 – Northwest**
- **Study Area 2 – Northeast**

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<sup>14</sup> Land within and beyond the Multnomah Channel and Columbia River was not included in the study areas.

- **Study Area 3 – Southeast**
- **Study Area 4 – Southwest**

The following areas have been described and mapped as indicated below:

**Study Area 1 – Northwest** of the existing UGB, bounded on the southwest by Scappoose-Vernonia Highway, and on the east by Highway 30. Study Area 1 contains a small (11 acres) unconstrained (by slopes or floodplain) residential exception (non-farm and non-forest) area at the intersection of Wikstrom Road and Highway 30, as well as some large, flat, unconstrained resource (farm and forest) areas. As shown in Appendix 2, Map 5, the large, unconstrained resource areas are predominantly Class II farmland.

**Study Area 2 – Northeast** of the existing UGB, bounded on the west by Highway 30, and on the south by Crown Zellerbach Road. Study Area 2 contains some residential and industrial exception areas (77 acres) adjacent to the airport, and large, unconstrained (by slopes or floodplain) resource areas extending from the existing UGB approximately ½-¾ miles to the Jackson Creek floodplain. The resource areas have predominantly Class III soils adjacent to the existing UGB, with some areas of Class II near the Jackson Creek floodplain.

**Study Area 3 – Southeast** of the existing UGB, bounded on the north by Crown Zellerbach Road and the west by Highway 30. Study Area 3 contains large, flat, unconstrained (by slopes or floodplain) resource areas near Highway 30, extending approximately ¼ mile east of Highway 30 to the Jackson Creek floodplain. Beyond the floodplain are additional large, flat, unconstrained resource areas. Resource areas near Highway 30 and adjacent to the UGB are predominantly Class II soils. Resource areas east of the floodplain are a mix of Class II and III soils.

**Study Area 4 – Southwest** of the existing UGB, bounded on the east by Highway 30 and the north by Scappoose-Vernonia Highway. Study Area 4 consists of predominantly constrained (sloped) residential exception and resource areas. Unconstrained areas include a small residential exception area (18 suitable acres) south of the existing UGB.

Within each of these four study areas Winterbrook proceeded to classify land based on ORS 197.298 Priorities, as follows:

- Exception Areas
- Lower Value (Higher Priority) Agricultural Land – with predominantly Class III soils
- Higher Value (Lower Priority) Agricultural Land – with predominantly Class II soils

**[Priorities for UGB Expansion and Application of Goal 14 Location Factors \[OAR 660-024-0060\(1\) through \(4\)\]](#)**

*(1) When considering a UGB amendment, a local government must determine which land to add by evaluating alternative boundary locations. This determination must be consistent*



with the priority of land specified in ORS 197.298 and the boundary location factors of Goal 14, as follows:

(a) Beginning with the highest priority of land available, a local government must determine which land in that priority is suitable to accommodate the need deficiency determined under OAR 660-024-0050.

### **Highest Priority: Suitable Exception Areas**

**Council Findings:** In Scappoose’s situation, the first priority for meeting identified employment needs outside the UGB is land within “exception areas.”

As shown in Appendix 2, Map 5: *Exception Areas*, rural residential exception (non-farm and non-forest) land is found to the west, northeast, northwest, southwest of Scappoose.<sup>15</sup> **However, most of the exception areas do not have the site characteristics required by employment identified in the Scappoose EOA.**

Appendix 2, Map 6: *UGB Expansion Alternatives* shows exception areas that are potentially suitable for meeting identified highway commercial needs (in the case of Study Areas 1 – Northwest and 4 - Southwest) and industrial needs (in the case of Study Area 2 – Northeast).

The bullet points below includes a summary of exception area parcels that meet identified site suitability requirements for highway commercial (slopes of 10% or less within a quarter mile of Highway 30) and for industrial (slopes of 10% or less, with access to a collector street, that do not abut established residential neighborhoods, with parcels of 5 acres or greater, on relatively low value agricultural soils).

- **Study Area 1 – Northwest Commercial:** 11 Suitable Acres (3 parcels)
- **Study Area 2 – Northeast Industrial:** 56 Suitable Acres (5 parcels)
- **Study Area 3 – Southeast:** 0 Suitable Acres
- **Study Area 4 – Southwest Commercial:** 15 Suitable Acres (all or part of 12 parcels)

The Advisory Committee recommended including suitable parcels adjacent to the UGB in the Northeast (56 acres for industrial use) and Southwest (15 acres for highway commercial and office use) study areas. However, the Advisory Committee recommended against inclusion of otherwise suitable exception parcels in the Northwest Area (11 acres). Rather than including 11 acres in the Northwest Exception Area to meet identified highway commercial needs, the Advisory Committee recommended holding 12 needed commercial acres in reserve to justify re-

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<sup>15</sup> Of note, rural residential lands were originally zoned for rural residential use due to existing development patterns that made the land unsuitable for commercial agricultural or forestry use. They are generally characterized by small lots (relative to the resource-zoned lands), developed residential investment (houses, garages, driveways, roadways, etc), and multiple individual owners. Commercial land uses command higher land prices and therefore can afford to purchase and redevelop smaller, developed lots along Highway 30. However, industrial land uses require larger parcels (where the average parcel size is five acre or larger) to meet site suitability requirements.

designation of land within the existing UGB – in conjunction with a residential land needs assessment – in the future.

In recognition of the existing location of the Fairview Cemetery between Old Portland Road and Highway 30 in the Southwest area, staff proposed that this land receive the Public Lands designation on the Comprehensive Plan map (the site had already been deemed not suitable for commercial development).

The Planning Commission and City Council heard testimony from property owners west of Old Portland Road (Study Area 4) indicating they did not want to come into the UGB. The Planning Commission recommended reducing the UGB expansion in the Southwest area – proposing inclusion of only the Cemetery and 5 net commercial acres between Old Portland Road and Highway 30. All of the exception lands in Study Area 2 were proposed for inclusion to meet industrial needs. The City Council adopted the Planning Commission recommendation for UGB expansion areas and added the Gilmore Road area as discussed previously.<sup>16</sup>

*(b) If the amount of suitable land in the first priority category exceeds the amount necessary to satisfy the need deficiency, a local government must apply the location factors of Goal 14 to choose which land in that priority to include in the UGB.*

Consideration of Goal 14 location factors for deciding which highest priority exception areas to include within the UGB follows the discussion of ORS 197.298 Priorities.

*(c) If the amount of suitable land in the first priority category is not adequate to satisfy the identified need deficiency, a local government must determine which land in the next priority is suitable to accommodate the remaining need, and proceed using the same method specified in subsections (a) and (b) of this section until the land need is accommodated.*

### **Medium Priority: Lower Value Resource Land**

**Council Findings:** After accounting for the capacity of the existing UGB and nearby exception areas to accommodate identified commercial employment site needs, the Advisory Committee next considered the next ORS 197.298 priority – relatively low value agricultural land that meets identified industrial site requirements. **In the Scappoose area, the lowest value soils that also meet identified industrial site requirements, are Class III agricultural soils.** Class IV soils and worse are associated with steeper slopes or are located within the 100-year floodplain.<sup>17</sup>

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<sup>16</sup> Revisions to the EOA during the City Council hearings process resulted in a 16-acre reduction in commercial land need.

<sup>17</sup> As shown in Appendix 3, Map 1: *Soil Classes*, Scappoose is surrounded by soils of Classes I-IV, and VI (a lower soil class number indicates higher agricultural capability – and therefore a lower priority for inclusion within a UGB). The Class I-III soils are generally found to the northwest, east, and southeast of Scappoose, while the lower

Industrial land uses require large, flat, undeveloped parcels with access to a collector street; such sites are not available in highly-parcelized exception areas or the lowest capability Class IV-VI soils because these lands are too steep. Except for the Northeast Exception Area which has larger rural residential parcels, the highest priority for industrial uses is resource land with Class III soils. **The only area with predominantly Class III agricultural soils adjacent to the existing UGB is found in the Northeast study area – immediately east of the Scappoose Airport.** Industrial development in this area is advantageous from a transportation perspective, as documented in Appendix 4, *Transportation Studies*. The Advisory Committee and Planning Commission, therefore, recommended that industrial land needs should be met immediately east of the Airport. The Council concurred with the recommendations and included lands east of the airport to meet industrial land needs.

#### Lowest Priority – Higher Value Agricultural Land

The Advisory Committee and Planning Commission reluctantly recommended against inclusion of land in the Southeast study area, solely because this area has predominantly higher value (and lower priority) Class II agricultural soils adjacent to the existing UGB and Highway 30. The Advisory Committee’s recommendation recognized that inclusion of the western portion of the Southeast study area would have allowed a north-south collector to connect Havlik Road with Johnson’s Landing Road, thus relieving some traffic congestion on Highway 30. However, the priorities set forth in ORS 197.298 do not permit the City to take such needs into consideration, especially when other sites of a higher priority possess similar or better site characteristics. The City Council concurred with the Planning Commission recommendation.

#### UGB Adjustment to Minimize Impact on Higher Value Class II Agricultural Soils

The Advisory Committee had several lengthy discussions about the importance of ORS 197.298 Priorities, and the fact that some lower priority, Class II agricultural soils were included in Appendix 5, the *Scappoose Airport Land Use Concept Plan* (Concept Plan) prepared by Otak. As a result of this discussion, the proposed UGB was re-aligned to the west of where it had been shown on a previous draft Concept Plan to avoid about 29 acres of Class II soils east of the airport near the Jackson Creek floodplain.

The UGB in this location is determined by the collector connecting road, which now heads directly north – rather than, as originally planned, arcing to the northwest to maximize land use efficiency. This UGB adjustment reduced the proposed amount of higher value (but lower

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capability IV and VI soils are found to the west and southwest. However, the EOA determined that employment land should be relatively flat and outside the floodplain. As shown in Appendix 3, Map 2: *Slopes, and Soils*, Class IV and VI soils to the west and southwest of Scappoose are associated with sloped areas that are unsuitable for employment. As shown in Appendix 3, Map 3: *Floodplain, Slopes and Soils*, floodplain overlaps with some Class III soils to the northwest, west, and east of Scappoose and with the only relatively flat Class IV soils in the area – to the north of Scappoose.

priority) Class II soils from 70 to 41 acres. The Planning Commission continued to recommend the revised alignment, and the City Council adopted the Planning Commission recommendation.

The Council's Northeast UGB expansion area includes the following acreage by priority class:

- 77 gross acres in exception areas (highest priority)
- 236 gross resource acres with Class III soils (medium priority)
- 41 gross resource acres with Class II soils (lowest priority)

*(d) Notwithstanding subsection (a) to (c) of this section, a local government may consider land of lower priority as specified in ORS 197.298(3).*

*(e) For purposes of this rule, the determination of suitable land to accommodate land needs must include consideration of any suitability characteristics specified under section (5) of this rule, as well as other provisions of law applicable in determining whether land is buildable or suitable.*

**Council Findings:** This exception to ORS 197.298 Priorities mirrors the text of Goal 14 and OAR 660-009-0050(5):

*If a local government has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, the local government may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.*

Since the Scappoose EOA and these findings specify characteristics necessary for land to be suitable for employment, the proposal to include industrial land east of the Scappoose Airport that has lower-value, Class III soils, is also allowed by this exception.

*(4) In determining alternative land for evaluation under ORS 197.298, "land adjacent to the UGB" is not limited to those lots or parcels that abut the UGB, but also includes land in the vicinity of the UGB that has a reasonable potential to satisfy the identified need deficiency.*

**Council Findings:** This proposal considered all nearby (within a quarter mile of the UGB) exception areas that meet identified employment site requirements.

## Alternatives Analysis OAR 660-024-0060(3) and (6)

*(1) The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the UGB location, a local government must show that all the factors were considered and balanced.*

**Council Findings:** The findings below consider and balance each of the Goal 14 location criteria – first within exception areas and then within the only area with relatively high priority Class III agricultural soils.

*(6) The adopted findings for UGB adoption or amendment must describe or map all of the alternative areas evaluated in the boundary location alternatives analysis. If the analysis involves more than one parcel or area within a particular priority category in ORS 197.298 for which circumstances are the same, these parcels or areas may be considered and evaluated as a single group.*

**Council Findings:** These findings describe and map two sets of UGB expansion study areas:

- first, four general study areas within a mile of the existing UGB; and
- second, subareas based on ORS 197.298 priority categories (exception areas, resource areas with relatively poor soils, and resource areas with relatively good soils) that meet identified employment siting requirements.

### Goal 14 Locational Factors

*(1) Efficient accommodation of identified land needs; (2) Orderly and economic provision of public facilities and services; (3) Comparative environmental, energy, economic and social consequences; and (4) Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.”*

#### Goal 14 Location Factor 1: Efficient accommodation of identified land needs

**Exception Area Alternatives:** Appendix 2, Map 6: *UGB Expansion Alternatives* shows three suitable employment areas (areas that meet site suitability criteria) in rural exception areas:

- Study Area 1 – the Northwest Exception Area adjacent to Highway 30
- Study Area 2 – the Northeast Exception Areas (1-3) adjacent to the Airport
- Study Area 4 – the Southwest Exception Areas (1-3) adjacent to Highway 30 and Portland Road

Generally speaking, efficient urban growth extends from the center outwards in concentric circles. All three exception area sites are contiguous to the UGB. However, the Northwest and Southwest Exception Areas extend in a linear fashion along the west side of Highway 30. Both

the Northwest and Southwest Exception Areas, if included within the UGB, would have rural land across Highway 30 to the east.

This linear form is relatively inefficient when compared with the inclusion of the Northeast Exception areas, which generally extend eastward from the airport runway and northward from the existing UGB. To minimize this linear form, and recognizing that most commuter traffic will come from the Portland area to the south, the Advisory Committee recommended against inclusion of the Northwest Exception Area adjacent to Highway 30. The Planning Commission continued to recommend against expansion of commercial to the northwest, and the City Council concurred with the Planning Commission recommendation.

**Lower Value Resource Land Alternative:** Appendix 2, Map 6: *UGB Expansion Alternatives* shows the Northeast Resource Site. This is the only potential UGB expansion area with Class III soils adjacent to the UGB in a larger area with predominantly Class III soils.<sup>18</sup> When combined with the Class III resource land to the east (also in Study Area 2), the industrial land added to the UGB “fills in” the area north of the existing UGB north of Crown Zellerbach Road.

**Location Factor 1 Conclusion:** On a comparative basis, inclusion of a combination of exception and resource land in the Northeast Study Area is more efficient than inclusion of exception area land along Highway 30.

**Goal 14 Location Factor 2: Orderly and economic provision of public facilities and services; [OAR 660-024-0060(7) and (8)]**

*(7) For purposes of Goal 14 Boundary Location Factor 2, "public facilities and services" means water, sanitary sewer, storm water management, and transportation facilities.*

*(8) The Goal 14 boundary location determination requires evaluation and comparison of the relative costs, advantages and disadvantages of alternative UGB expansion areas with respect to the provision of public facilities and services needed to urbanize alternative boundary locations. This evaluation and comparison must be conducted in coordination with service providers, including the Oregon Department of Transportation with regard to impacts on the state transportation system. "Coordination" includes timely notice to service providers and the consideration of evaluation methodologies recommended by service providers. The evaluation and comparison must include: (a) The impacts to existing water, sanitary sewer, storm water and transportation facilities that serve nearby areas already inside the UGB; (b) The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the UGB; and (c) The need for new transportation facilities, such as highways and other*

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<sup>18</sup> Study Areas 1 and 3 and have suitable industrial sites; however, both of these areas have Class II soils abutting the UGB in a larger area of predominantly Class II soils. An irregularly-shaped Class III area of approximately 30 acres touches the UGB in two locations in Study Area 3; however, most of this area is indicated as wetlands in the Scappoose LWI. Study Area 4 has no suitable employment sites on resource land.

*roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and, for urban areas of 25,000 or more, the provision of public transit service.*

Appendices 3, *UGB Infrastructure Report* and 4, *Transportation Studies* examine the City's existing sanitary sewer, water, storm drainage and transportation master plans and systems and identify projects necessary to serve the existing UGB and potential expansion alternatives. Drafts of these documents were reviewed by the Advisory Committee, which included City,<sup>19</sup> County, Port District and ODOT representatives.

- Appendix 3 *UGB Infrastructure Report* summarizes public facilities information from existing master plans and identifies new projects that will be needed to serve land within the existing UGB. Appendix 3 also identifies new facilities projects in Study Areas 2 and 4 that will be required to serve proposed UGB expansion areas that meet site suitability requirements identified in the Scappoose EOA.
- Appendix 4.A *Scappoose UGB Alternatives Transportation Analysis* considers the relative transportation impacts of UGB expansion, based on four evaluation factors, for each of the four study areas. Study Area 2 (Northeast) received the highest transportation ranking, in large part because existing transportation infrastructure followed by Study Areas 3 (Southeast). Study Areas 1 and 4 ranked the lowest.
- Appendix 4.B *Scappoose UGB Expansion Transportation Impacts* describes new facilities projects that will be required to serve UGB expansion alternatives in Study Areas 2 and 4 that meet site suitability requirements identified in the Scappoose EOA.

**Exception Area Alternatives:** Appendices 3 and 4 identify projects necessary to serve suitable land in each of the exception areas in Study Areas 2 (Northeast adjacent to the airport) and 4 (Southwest along Highway 30). Appendix 3 concludes that it is feasible to serve these exception area sites, but infrastructure extensions not presently within the City's system development plan or capital improvements plan, including a sanitary sewer pump station, would be needed to serve the Southwest Exception Area. Public facilities will need to be provided to intervening lands before it becomes affordable to serve these relatively small exception areas.

**Lower Value Resource Land Alternative:** Providing sewer, water and storm drainage facilities *efficiently* to the Northeast Exception Area depends on the phased development of the Northeast Resource Area – including construction of a north-south connecting road and related sewer, water, storm drainage and airport facilities. Appendix 3 includes a public facilities phasing program. Appendix 4.A notes that construction of the north-south connection between Crown Zellerbach Road and Moore and North Honeyman Roads would reduce traffic congestion along Highway 30.

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<sup>19</sup> The City is responsible for the provision of sanitary sewer, water, storm drainage and local street facilities.

**Location Factor 2 Conclusion:** Based on public facilities and transportation studies included in Appendices 3 and 4, it is feasible to provide sanitary sewer, water, storm drainage and transportation facilities to suitable UGB expansion areas shown in Appendix 2, Map 6: *UGB Expansion Alternatives*. On a comparative per acre cost basis, it is less costly to extend public facilities and services to the Northeast Area Industrial Expansion Area than to the much smaller and more distant Southwest and Northwest Commercial Expansion Areas. In part because of the high cost of extending public facilities and services to the Northwest, the Advisory Committee recommended against inclusion of this area within the UGB.

**Goal 14 Location Factor 3: Comparative economic, social, environmental and energy consequences:**

**Exception Area Alternatives:** The findings immediately below are limited to the comparative ESEE consequences of including suitable (highest priority) exception areas in Study Areas 1, 2 and 4.

- **Economic Consequences:** The economic consequences of including all of these areas will be positive, because their inclusion will provide suitable employment land as called for in the Scappoose EOA. However, the cost of providing public facilities and services to the Northwest and Southwest areas will be relatively high (on a per acre basis), compared with the Northeast Area. However, it should be noted that some of the infrastructure upgrades that could serve the Southwest area would also serve properties currently within the UGB but beyond the City's current sanitary sewer collection system.
- **Social Consequences:** The social consequences of including developed residential areas in Study Areas 1 and 4 for commercial development will be greater than bringing in largely undeveloped land near the airport for industrial purposes. This adverse social consequence will be offset by increased service and retail jobs and improved access to local retail outlets and services.
- **Environmental Consequences:** There are no significant environmental consequences for bringing in any of the three exception areas because the UGB boundary has been drawn to avoid floodplains, most erodible sloped areas, and major wetlands. Considerable testimony was offered through the UGB amendment process to the effect that expansion of the UGB would perforce result in elimination of an important City resource; namely, the Crown Zellerbach Trail and that expansion of the UGB to the northeast would conflict with a Columbia County Plan to protect it. First, the County has not adopted its Crown Zellerbach Trail Development Concept Plan through any land use process. Rather, it is a plan which includes several general concepts for how the trail may be enhanced to encourage its primary recreational uses. The City's expansion of the UGB and the other land use actions that will occur in association with it contain no changes to the City's policies applicable to the Crown Zellerbach Trail (Appendix 7.A).



- **Energy Consequences:** The energy consequences of including all three exception areas will be positive, since local employment will improve the jobs-housing balance and reduce retail and service “leakage” – which will likely result in reduced energy consumption for (a) working commuters and (b) shoppers. On a comparative basis, inclusion of the Northeast Expansion Area results in a more compact urban growth form than the linear growth pattern that results from inclusion of more commercial land along Highway 30.

**Lower Value Resource Land Alternative:** Appendix 2, Map 6: *UGB Expansion Alternatives* shows the Northeast Resource Site as the only potential UGB expansion area that: (a) meets industrial site suitability requirements; and (b) has higher priority Class III soils adjacent to the UGB in an area with predominantly Class III (rather than lower priority Class II) soils.

- **Economic Consequences:** The economic consequences of including the Airport Employment Area within the UGB are extremely positive. Approximately 2,600 new jobs are planned for this area over the next 20 years. Including this area will allow construction of the north-south connector street which will reduce traffic congestion on Highway 30, which is a critical economic asset to Scappoose and the region. On the negative side, a portion of the Northeast Expansion area is currently farmed and therefore has agricultural value.
- **Social Consequences:** The Council heard testimony protesting against use of Crown Zellerbach for vehicular traffic. Increased traffic would increase noise levels and reduce the ability of local residents to enjoy recreational opportunities on the paved surface. However, providing local employment for existing and future Scappoose residents will have a variety of positive social consequences, including increased income (and a host of related social indicators) and reduced commuting time (and more time for family and recreational pursuits). Providing a local parking and staging area for bicycle and water recreation will also have a positive social impact.
- **Environmental Consequences:** The UGB in this area excludes the Jackson Creek floodplain and associated wetlands. The Scappoose Local Wetland Inventory (LWI) shows a wetland covering approximately 20 acres in and near the area proposed for airport runway expansion. On the one hand, developing this wetland area would have a potential adverse environmental impact; on the other hand, this impact can be mitigated on-site in the Jackson Creek wetland area. Wetlands in this area also pose a flight hazard; moving the wetland away from the runway would therefore have a positive social consequence.
- **Energy Consequences:** The energy consequences of including the Northeast Expansion Area for industrial purposes will be positive, since local employment will improve the jobs-housing balance – which will likely result in reduced energy consumption for working commuters.

**Location Factor 3 Conclusion:** Inclusion of all four areas will provide local jobs and reduce energy consumption resulting from commuting and shopping. Bringing in the Northwest and Southwest commercial areas could have significant adverse social consequences to those living in rural residences that will eventually be displaced by commercial development. There are no serious adverse environmental consequences resulting from inclusion of any of these areas within the Scappoose UGB; identified wetland impacts resulting from development will be offset by increased jobs, increased flight safety, and onsite mitigation.

**Goal 14 Location Factor 4: Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.**

**Exception Area Alternatives:** Inclusion of rural residential exception areas for employment use in Study Areas 1, 2 and 4 would minimally (if at all) increase existing incompatibilities; typically rural residential uses create more conflicts with agriculture than employment uses.

However, the Southwest would have less impact on agricultural land than the Northwest Exception Area, because the Northwest and Northeast Exception Areas abut agricultural land on two sides (whereas the Southwest Exception Area does not abut agricultural land at all). Comparatively speaking, there are marginal differences in agricultural land compatibility among the three exception areas under consideration for inclusion within the Scappoose UGB.

However, as noted below, any adverse impact on agricultural land resulting from inclusion of the Northeast Exception Area is mitigated by the fact that resource land adjacent to the Northeast Exception Area is also proposed for inclusion within the UGB.

**Lower Value Resource Land Alternative:** The inclusion of the Northeast Expansion Area for industrial use will not create substantial incompatibilities with nearby agricultural land for two reasons:

- First, industrial uses (when compared with residential uses) are reasonably compatible with adjacent farming operations in the area. Industrial uses are not as sensitive to dust, noise, and chemical impacts as are residential uses; moreover, industrial uses typically do not create conflicts with agriculture from roaming children or unleashed pets.
- Second, the proposed north-south collector connector will serve as an effective artificial buffer between agricultural uses outside the UGB and urban industrial and airport-related uses inside the UGB.

**Location Factor 4 Conclusion:** Converting rural residential areas to urban commercial areas will likely decrease existing conflicts with agricultural land – because commercial uses are more compatible with agricultural operations than residential uses. Potential adverse impacts from

expanding the UGB to allow relatively low-impact industrial uses will be buffered by the proposed north-south collector, which defines the UGB in this area.

### **Goal 14 Conclusion**

**For reasons stated above, and based on information found in the Scappoose EOA and accompanying Winterbrook, Otak and DKS memoranda, the proposed Comprehensive Plan amendments comply with Goal 14 as implemented by OAR Chapter 660, Division 024.**

## Statewide Planning Goals 1 and 2

The Advisory Committee meetings represented the first phase of Scappoose's citizen involvement process for the 2011 comprehensive plan amendment package. During this process, the Advisory Committee reviewed several drafts of the EOA before recommending the February 2010 final draft for review by the Scappoose and Columbia County Planning Commissions. The Advisory Committee also considered a suitable employment sites inventory, public facilities and transportation studies, and growth alternatives studies. A public open house was held on May 5, 2010 to allow members of the public to comment on the Advisory Committee's work.

### Phase 1 Public and Agency Involvement: Advisory Committee Deliberations

The Scappoose EOA Advisory Committee met seven times between December 8, 2008 and May 18, 2010. The Advisory Committee reviewed and discussed:

- The UGB process, tasks, and timeframes;
- Community input on target industries;
- Evaluation of existing employment land supply and revisions;
- The community economic vision;
- Employment land need and supply comparisons;
- Draft public facilities studies;
- Draft transportation studies;
- Statutory priorities for expansion direction;
- Potential distribution center concept southeast of Havlik-Highway 30 intersection;
- Highway commercial growth direction preference;
- Results of the May 5, 2010 open house; and
- The final recommendation outlined at the beginning of these findings.

### Phase 2 Public and Agency Involvement: Public Work Sessions and Hearings

Phase 2 of the public involvement process requires review by the Scappoose and Columbia Planning Commissions, the Scappoose City Council, and the Columbia Board of County Commissioners. Towards this end:

- A Joint Planning Commission Work Session was held on July 22, 2010 for the Scappoose Planning Commission and the Columbia County Planning Commission.
- The City mailed notice to property owners within the affected area on August 18, 2010 to inform them of the proposed land use actions. Notice of the Planning Commission hearings was published in the South County Spotlight on August 25, September 1, and

September 8, 2010, with additional notice in the St. Helens Chronicle on September 1 and September 8, 2010 and display advertisements appearing on September 1 and 8. Postcards were mailed to property owners, hearing participants, and interested parties on September 13 and 27, 2010.

- Four Planning Commission Hearings were held between September 9 and October 28, 2010: Public testimony resulted in Planning Commission-directed changes to the proposed southwest expansion area (removal of proposed lands west of Old Portland Road), public facilities analysis revisions to reflect service options to the area proposed for inclusion between Old Portland Road and Highway 30, and a significant re-working of the airport overlay zones to better allow for the intended character of uses near the airport, consistent with the EOA.
- Notice of the City Council hearings was published in the South County Spotlight on November 17, November 24, and December 1, 2010, with display advertisements appearing on November 24, December 1, December 22, and December 29. Postcards were mailed to property owners, hearing participants, and interested parties on December 16, 2010.
- Notice of the April 4 City Council hearing on the proposal to expand the UGB to include the western portion of three parcels near Gilmore Road was mailed to property owners on March 11, 2011. Notice of the hearing was published in the South County Spotlight on March 23 and 30, 2011.
- Five City Council Hearings were held between December 6, 2010 and April 4, 2011. Public testimony resulted in City Council-directed changes to the EOA in order to correct some table inconsistencies, along with corresponding modifications to the Comprehensive Plan and inclusion within the UGB of the developed back ends of three commercial parcels on Highway 30 near Gilmore Road.

## **Factual Base and Consideration of Alternatives**

The factual and analytical basis for the comprehensive plan amendment package includes the appendices and maps cited above, information provided at Advisory Committee work sessions, and information provided in these findings. As documented under the Goal 14 discussion above, the Advisory Committee considered four UGB expansion alternatives before recommending that employment growth be directed to the Northeast and Southwest areas. The transportation and public facilities studies also considered the impacts of growth alternatives. Finally, these findings include a comparative analysis of UGB expansion alternatives based on Goal 14 location factors. The Planning Commission and City Council concurred with the Advisory Committee recommendation.

## **Intergovernmental/Interagency Coordination**

The Advisory Committee included representatives from DLCD, ODOT, Business Oregon, the Port of St. Helens, and Columbia County. The Port of St. Helens confirmed its support for the

draft Scappoose EOA and the UGB expansion proposed by staff in a May 18, 2010 letter (Appendix 6.A). All state agency and local government participants voted to approve the recommendation to the Scappoose City Council regarding (a) the draft EOA, and (b) the direction of UGB expansion.

DLCD notice of the proposed legislative amendment package was provided at least 45 days in advance of the September 9, 2010 initial public hearing before the Scappoose Planning Commission (notice was mailed July 22, 2010). State and local units of government are encouraged to continue to participate in the process, both informally through communications with City staff and consultants, and formally through the public hearing process. City and County staff will be coordinating regarding the timing and location of the public hearing process.

The City provided the opportunity for the following organizations to review and comment on the proposed land use actions in summer 2010:

- Oregon Department of Land Conservation and Development
- Oregon Department of Transportation (Region 1)
- Oregon Business Development Department
- Oregon Department of Aviation
- Port of St. Helens
- Columbia County Road Department
- Columbia County Land Development Services
- Kennedy/Jenks Consultants (city engineer)
- Scappoose Rural Fire District
- Scappoose Police Department
- Scappoose Drainage Improvement Company
- Scappoose School District
- Columbia Soil & Water Conservation District
- Scappoose Bay Watershed Council
- CenturyLink
- Columbia River PUD
- NW Natural
- Comcast

No agencies objected to the proposal. ODOT Region 1 staff requested the transportation contingency language included in the Goal 12 discussion (Appendix 6.C-6.E). The Scappoose Drainage Improvement Company submitted a letter (Appendix 6.B) observing that some of the area proposed for expansion of the UGB may not be shown as protected from the base flood if the Federal Emergency Management Agency (FEMA) decertifies the dike; along with acknowledgement that stormwater quantity and quality would need to be addressed upon development.

## **Comprehensive Plan and Land Use and Development Code Consistency**

Goal 2 requires that local land use regulations be consistent with and adequate to carry out the policy choices set forth in the Comprehensive Plan. The Scappoose EOA serves as both the factual and policy base for proposed amendments to the text of the Comprehensive Plan, and for the new Airport Employment plan designation and implementing overlay zones.

### **Goals 1 & 2 Conclusion**

For reasons stated above, the proposal complies (or will comply following the public hearing process) with Goals 1 and 2.

## Statewide Planning Goals 5, 7, and 8

### Goal 5 Wetlands and Riparian Corridors

Pacific Habitat Services prepared the Scappoose Local Wetlands Inventory (LWI) in 1998. The LWI identifies locally significant wetlands and riparian corridors within and immediately to the northeast and south of the existing Scappoose UGB. Generally, wetlands on employment land within the UGB are within the 100-year floodplains of Scappoose and Jackson Creeks. However, outside the UGB (in the Southeast and Northeast UGB study areas) a few wetlands extend beyond the Jackson Creek floodplain. There are about 20 acres of mapped wetlands outside the 100-year floodplain in the Northeast UGB expansion area.

The EOA considers wetland areas to be unsuitable for employment purposes; moreover, wetlands in these areas are intended to be protected by the Sensitive Lands chapters of the Scappoose Development Code.<sup>20</sup> Therefore, to comply with Goal 5 and Goal 9, the suitable employment acreage within the Airport Employment (AE) designation in the Northeast UGB expansion area has been reduced by 20 acres.

### Goal 7 Flood Hazards

The Scappoose EOA considers land within the 100-year floodplain to be unsuitable for employment purposes. Therefore, to comply with Goal 7 and Goal 9, expansion in the Northeast and Southwest UGB expansion areas avoided floodplain areas. Since riparian corridors (and associated wetlands) are commonly found in the floodplain, avoidance of floodplain areas has the effect of avoiding most wetland and riparian corridor impacts.

### Goal 8 Park and Recreational Needs

The Advisory Committee recognized the importance that access to bicycle trails and the Multnomah Channel have to the quality of life in Scappoose and to the community's economic future. To address this issue, the Scappoose Airport Land Use Concept Plan (Appendix 5) and the proposed Plan Designations map (Map C) includes a 15-acre Public Lands site to accommodate a small parking lot and staging area to promote bicycle and boating recreational opportunities.

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<sup>20</sup> Chapters 17.85 and 17.89 (Sensitive Lands) of the Scappoose Development Code protect wetlands and riparian corridors identified in the LWI. These chapters appear to be based loosely on the "safe harbor" provisions of the Goal 5 administrative rule (OAR Chapter 660-023-090 through 100). For Jackson and Scappoose Creeks (and adjacent wetlands), these chapters require a 50-foot setback from the top of bank (or associated wetland edge). Isolated wetlands have a 25-foot buffer. However, streets and utilities may be permitted in protected wetlands and riparian corridors subject to administrative review and mitigation in consultation with the Oregon Department of Fish and Wildlife (ODFW) and the Department of State Lands (DSL).



### Goals 5, 7, and 8 Conclusion

The proposed comprehensive plan amendment package complies with Goals 5, 7, and 8.

### Statewide Planning Goals 11, 12, and 13

This section demonstrates compliance with Goals 11 (Public Facilities and Services), 12 (Transportation), and 13 (Energy Conservation).

#### Goal 11 Public Facilities and Services

Goal 11 requires local governments to plan and develop a “timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.”

**Appendix 3** includes a public facilities study that: (a) demonstrates how the City will provide an adequate level of sanitary sewer, water, storm drainage and transportation facilities to serve land within the existing UGB; and (b) describes how these key public facilities can be provided efficiently to employment land proposed for inclusion within the Scappoose UGB. The study identifies public facilities projects necessary to serve the existing UGB and recommended expansion areas efficiently over the 20-year planning period.

#### Goal 12 Transportation

Goal 12 requires local governments to provide and encourage a safe, convenient and economic transportation system.

**Appendix 4** includes a two-part transportation study that: (a) ranks alternative study areas in based on four transportation efficiency factors; and (b) examines potential transportation impacts and probable improvements necessary to mitigate impacts from planned development in each of the four study areas. Overall, the Northeast and Southeast quadrants ranked first and second, respectively, for inclusion within the UGB based on transportation considerations; the Southwest and Northwest quadrants tied for the lowest ranking. DKS considered the City’s existing Transportation System Plan in preparing these studies.

The Goal 14 administrative rule recognizes that:

*“The transportation planning rule requirements under OAR 660-012-0060 need not be applied to a UGB amendment if the land added to the UGB is zoned as urbanizable land, either by retaining the zoning that was assigned prior to inclusion in the boundary or by assigning interim zoning that does not allow development that would generate more vehicle trips than development allowed by the zoning assigned prior to inclusion in the boundary.”*

To satisfy TPR requirements, and consistent with written comments from ODOT staff (Appendix 6.C-6.E) the ordinance adopting the Comprehensive Plan amendment package includes the following condition:

“Prior to approval of annexation and zone change of any property included within the Urban Growth Boundary amendment as a result of this ordinance, the applicant shall prepare an Oregon Department of Transportation (ODOT) scoped and approved Traffic Impact Analysis and comply with provisions of the Transportation Planning Rule (OAR 660-012-0060). If analysis indicates significant effect per OAR 660-012-0060, the applicant shall mitigate associated traffic impacts, as permitted and approved by ODOT.”

The Council heard extensive testimony related to use of Crown Zellerbach Road for vehicular traffic. Opponents of the proposal claimed that vehicular use of the road would:

- 1) Be inconsistent with Columbia County’s Crown Zellerbach Trail Development Concept Plan; and
- 2) Be unallowable under the City’s Public Lands - Recreation zoning regulations.

As indicated in the January 28, 2011 Staff Report (Appendix 7.A), Crown Zellerbach Road is classified as a collector on the Scappoose Transportation System Plan (TSP) and is on the long range project list for improvement to minor collector standards. The County’s Concept Plan is not an adopted planning document, so use of Crown Zellerbach for vehicular traffic is consistent with all planning documents.<sup>21</sup>

The concern relating to Public Lands - Recreation zoning was a mis-reading of a zoning map. Crown Zellerbach in the area under discussion is outside of the city limits and not within City zoning.

### **Goal 13 Energy Conservation**

Goal 13 requires that land uses be managed and controlled to maximize the conservation of all forms of energy based on sound economic principles.

The Scappoose EOA is designed to provide local job, retail, service and educational opportunities in proximity to residential neighborhoods in Scappoose, and thus reduce vehicle miles travelled from home to work.

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<sup>21</sup> In addition, according to the Trail Development Concept Plan itself (p. 21), Crown Zellerbach Road through Scappoose is intended to have an urban character. The Trail Plan even includes a photograph of the trail in Scappoose improved to collector street standards. Even if the Trail Development Concept Plan were legally binding as a planning document, the proposed use of Crown Zellerbach would be consistent with the Concept Plan.

- By providing more local retail and office commercial opportunities, Scappoose residents will be less likely to drive into the Portland metropolitan area to meet these needs.
- By providing local educational opportunities, Scappoose residents will consume less energy seeking to improve educational attainment levels.
- By providing basic employment opportunities in Scappoose, residents will be more likely to bicycle or walk to work, thus reducing energy consumption.

#### Goals 11, 12, and 13 Conclusion

The proposed comprehensive plan amendment package complies with Goals 11, 12, and 13.

## Scappoose Comprehensive Plan Economic Policies

The following findings demonstrate that the proposed comprehensive plan amendment package complies with existing economic, industrial and commercial plan policies.

### Economy Policies

*It is the policy of the City of Scappoose to:*

- 1) *Make sufficient suitable land available for the anticipated expansion of commercial and industrial activities.*

**Council Findings:** The proposed UGB amendment directly responds to this policy, by identifying future employment needs in an EOA and providing employment sites suitable to meet the needs identified in the EOA. This policy is proposed to be revised to read “Make sufficient suitable land available for the anticipated expansion of commercial and industrial activities identified in the Scappoose EOA.”

- 2) *Encourage the preservation, improvement and renewal of the existing business district of the City so that it will be allowed to play a role as a center of economic and civic activity for the entire community.*
- 3) *Encourage the intensification of land use in the present commercial strips, together with design features that would reduce conflict with traffic flow, such as frontage roads and single access joint off of the street parking.*

**Council Findings:** The proposed UGB amendment encourages the preservation, improvement and renewal of existing businesses in the City by limiting the expansion of highway commercial uses to one site south of the City, while planning for most new employment to occur within the existing UGB.

- 4) *Encourage the expansion of employment opportunities within the urban area, so residents can work within their community as well as commute to jobs outside the County.*

**Council Findings:** The proposed UGB expansion provides for employment land within the urban area, consistent with the EOA. This will provide more opportunity for local jobs and a reduction in commute time for residents.

- 5) *Promote pollution free industrial development necessary to provide a balanced tax base for the operation of local government services.*

- 6) *Cooperate with other agencies, interest groups and businesses in efforts to develop program strategies for improving the local economy.*
- 7) *Assist in programs to attract desirable industries in terms of diversification, labor-intensiveness, and non-pollution rather than accept any industry which may wish to locate here; additionally, to prohibit industries with excessive levels or pollution or other undesirable effects which would cancel possible economic benefits or threaten the existing quality of living.*

**Council Findings:** The EOA was developed through an extensive public process, with the involvement of state, county, port, and local business owners, as described in Goal 1 findings. The proposed EOA and UGB expansion provide land for target industries within the urban area, providing for industries desired by the community, as well as a more balanced tax base.

- 8) *Work with local mining industries to rehabilitate the gravel pits so that there will be an efficient use of land and the pits will not be an eyesore.*

**Council Findings:** The proposed plan amendment does not affect lands with current mining activities.

- 9) *Work with Departments of Environmental Quality and Fish and Wildlife in enacting controls and performance standards for industrial operations to reduce the possibility of excessive impact upon the environment.*
- 10) *Work with Departments of Environmental Quality and Fish and Wildlife in enacting controls and performance standards for industrial operations to reduce the possibility of excessive impact upon the environment. [Policy 10 is a repeat of policy 9].*

**Council Findings:** The proposed plan amendment does not alter the City's natural resources protections or planning. Policy 10, a repeat of Policy 9, is proposed to be changed to read "*Capitalize on the comparative advantages offered by the Scappoose Industrial Airpark, proximity to the Portland region, a pro-business community attitude, and the availability of serviced employment land to create job opportunities for existing and future Scappoose residents.*" The new Policy 10 assists in implementing the objectives identified in the EOA.

- 11) *Identify special locations for industrial activities that will assist in energy conservation; specifically, industries should be clustered:*
  - a) *Close to existing rail lines,.*
  - b) *To allow for employees to use carpools.*

**Council Findings:** The EOA identifies Airport-related industries as an existing employment cluster in Scappoose, and airport-related industries are specifically targeted for future growth. Proposed modifications to this policy include the addition of “*Highway 30 and the airport*” as proximity objectives of Policy 11.a, and “*public transportation*” as an objective of Policy 11.b. The proposed plan amendment clusters employment near the Airport, as shown on Maps A, B, and C.

12) *Encourage mining activities when they are compatible with surrounding activities; such activities are compatible with an airport when:*

a) *There are no permanent or mobile obstructions affecting airspace.*

b) *Any man-made lakes that result from mining are so designed to limit bird hazards.*

c) *The operation does not produce dust that impairs visibility.*

d) *Man-made lakes that may result are so designed to limit glare which may impair visibility.*

e) *There are no electrical interferences with navigational signals or radio communications.*

**Council Findings:** The proposed plan amendment does not affect lands with current mining activities. This policy is proposed to be amended to read “Ensure that mining activities are compatible with surrounding activities including the airport by applying the Public Use Airport Safety and Compatibility Overlay Zone.”

13) *Coordinate its plans for public facilities to accommodate expected industrial and residential growth.*

**Council Findings:** Appendices 3 and 4 evaluate the City’s public facilities plans and evaluate the impact of forecast employment growth. This policy is proposed to be amended to read “Coordinate plans by the City, County and Port District to provide and pay for public facilities to accommodate expected industrial, commercial, institutional and residential growth.” The amended policy will better reflect coordination and planning requirements for employment growth identified in the EOA.

14) *Limit the amount of time the City has to review site design review proposals to prevent unreasonable delays for commercial and industrial enterprises.*

**Council Findings:** The proposed amendments do not alter the City’s current design review or approval process.

- 15) *Encourage design features on Highway 30 that reduce conflicts with traffic flow, as congestion and traffic hazards can only hinder local economic development.*

**Council Findings:** No design features for Highway 30 are proposed with this amendment. However, the proposed UGB amendment focuses the majority of employment growth near the Airport, with only minor expansions for highway commercial uses to the north and south along Highway 30.

- 16) *Protect industrial, airport-related and commercially designated areas for their intended uses as identified in the Scappoose Economic Opportunities Analysis.*

**Council Findings:** The proposed Airport Employment comprehensive plan designation and implementing overlay zones protect industrial lands proposed for inclusion, and ensure these lands be retained in site sizes and configurations commensurate with target industries identified in the EOA.

- 17) *Encourage energy saving building practices in future commercial and industrial buildings.*

**Council Findings:** The proposed UGB amendment does not negatively impact the opportunity for energy saving building practices in future commercial or industrial uses.

- 18) *Zone the aggregate lands northeast of the Highway 30-North Vernonia intersection as Surface Mining upon annexation to protect these resources for mining.*

**Council Findings:** This policy is inapplicable to the proposed UGB amendment, which does not affect land currently being used for mining operations. This policy is proposed for deletion from the Comprehensive Plan.

### ***Proposed New Policies***

- A) *Coordinate with the Port of St. Helens and individual property owners to protect land near the Scappoose Industrial Airpark for intended airport-related and airport-compatible employment uses as called for in the Scappoose EOA.*

**Council Findings:** Proposed new Policy A emphasizes the importance of protecting land near the airport for airport-related and airport-compatible uses. The proposed UGB amendment package includes a new comprehensive plan designation and implementing zoning for lands proposed to be added to the UGB. The new designation- Airport Employment (AE) - and overlay zone –East Airport Employment (EAE) - protect sites for intended uses by requiring maintenance of identified site sizes and master planning prior to development.

- B) *Take actions called for in the EOA to increase local employment and improve the population to employment balance.*

**Council Findings:** Proposed new Policy B reflects an objective of the City to attract local employment, and is consistent with the EOA.

## **Industrial Policies**

*It is the policy of the City of Scappoose to:*

- 1) *Provide suitable areas for industrial expansion, utilizing for such purposes relatively large, flat areas that are separated by buffers from the City's residential districts.*
- 2) *Prevent industrial development from disrupting homogeneous residential neighborhoods.*

**Council Findings:** The proposed UGB expansion adds large industrial parcels in a master-planned area to the east of the Airport, separated from all residential areas inside the Scappoose UGB by a potential airport runway extension as well as Crown Zellerbach Road.

- 3) *Locate industrial areas so they have a convenient relationship to the community's transportation system, without generating heavy traffic through residential districts; additionally, the clustering of industrial activities will allow carpooling by employees.*

**Council Findings:** Industrial areas added by the proposed UGB expansion will access Highway 30 directly from Crown Zellerbach Road or West Lane Road, without passing through residential areas. The proposed UGB expansion area is adjacent to existing areas planned for industrial and airport uses inside the current UGB, meeting the objective of this policy to cluster industrial activities.

- 4) *Screen, setback or buffer the boundaries of industry, particularly unsightly areas which can be viewed from arterials or from residential areas.*

**Council Findings:** Industrial lands added through the proposed UGB expansion will be buffered by a 54-acre potential airport runway extension area, Crown Zellerbach Road, and a planned 15-acre natural area.

- 5) *Apply this designation where industrial concerns have become established and where vacant industrial sites have been set aside for this purpose.*

**Council Findings:** Areas planned for industrial uses will be provided a plan designation reflecting those planned uses. The proposed UGB expansion area is proposed to be designated "Airport Employment", which is an industrial plan designation.

- 6) *Protect the stability and functional aspects of industrial areas by protecting them from incompatible uses.*



**Council Findings:** The proposed “Airport Employment” plan designation and implementing “Public Use Airport” zone, as well as the “East Airport Employment”, “Airport Business Park” and “Airport Industrial Park” overlay zones restrict site size and uses to be in accordance and compatible with industrial and employment site needs identified in the EOA.

## **Commercial Policies**

*Make sufficient land available for the anticipated expansion of commercial and industrial activities.*

**Council Findings:** The proposed UGB expansion, as well as increased land use efficiency within the current UGB, provides sufficient land to meet identified employment site needs.

- 2) *Encourage the preservation, improvement, expansion, and renewal of the City’s existing business district and implement the adopted Downtown Scappoose Plan supporting the existing business district in its role as a center of economic and civic activity for the entire community.*
- 3) *Encourage the filling-in of vacancies in present commercial strips, together with design features that would reduce conflict with traffic flow, such as frontage roads and single access joint off-street parking.*
- 4) *Locate business activities in clusters for the convenience of the public to be served rather than scattered or mixed with non-commercial land uses.*

**Council Findings:** The EOA assumes intensification of existing commercial uses, as well as efficient use of land by limiting strip commercial expansion. This will encourage focus on downtown and urban core areas for provision of commercial and service uses.

- 5) *Allow a wide variety of business, office, and service uses, including motels, hotels, and rooming houses; however, care must be taken to ensure that non-retail uses such as apartments do not prevent the establishment of compact, clustered business centers.*

**Council Findings:** The proposed UGB provides for clustered business centers in the northeast, separated from residential uses. Intensification of existing commercial uses in downtown, and provision of a 5-net acre (13-gross acre) commercial site in the southwest also cluster employment uses consistent with this policy.

- 6) *Encourage curbing along Highway 30 and limit the number of curb-cuts to minimize traffic hazards as a result of conflicts between through traffic and shopper traffic.*

**Council Findings:** New employment land identified in the EOA and provided for by the proposed UGB expansion will access Highway 30 through existing intersections at Crown Zellerbach Road, West Lane Road, and Old Portland Road.

- 7) *Improve the general appearance, safety and convenience of commercial areas by encouraging greater attention to the design of buildings, parking and circulation.*
- 8) *Encourage the design features that would reduce conflict with traffic flow, such as frontage roads and single access joint off-street parking.*

**Council Findings:** The proposed UGB expansion and amendment package includes code amendments that require master planning for development of business and industrial parks. The master planning requirement will provide attention to building, parking, and circulation design prior to development, meeting the objectives of this policy.

- 9) *Encourage the transition of W. 1st into a commercial area for offices and services.*
- 10) *Not expand the amount of commercially-zoned land until sufficient in-filling has occurred in vacant areas.*

**Council Findings:** The proposed UGB expansion is predicated on an assumption that all lands currently planned for commercial or industrial use inside the UGB will be developed during the 20-year UGB planning timeframe, consistent with this policy.

### Scappoose Comprehensive Plan Conclusion

The proposed plan amendment package is consistent with and implements the economic, industrial and commercial policies of the Scappoose Comprehensive Plan.

## Columbia County Comprehensive Plan Economic Policies

The following findings demonstrate that the proposed comprehensive plan amendment package complies with existing urbanization and employment plan policies.

### PART IX | Urbanization Policies

*It shall be a policy of the County to:*

1. *Provide an orderly and efficient transition from rural to urban land use.*

**Council Findings:** This policy is directly linked to the objectives of Statewide Planning Goal 14 (Urbanization). As indicated in Goal 14 findings in this application, the proposed comprehensive plan and urban growth boundary amendments provide for an efficient transition from rural to urban land use, consistent with this policy and Goal 14.

2. *Accommodate urban population and urban employment inside urban growth boundaries, ensure efficient use of land, and provide for livable communities.*

**Council Findings:** The proposed amendment to the Scappoose Urban Growth Boundary is designed to encourage commercial and industrial development in a defined area near the City of Scappoose, acknowledging the location of existing commercial, industrial, and residential development. Appendices 3 (Scappoose UGB Infrastructure Report) and 4 (Transportation Studies) analyze both the adequacy of existing facilities and the requirements for future facilities to service the existing and proposed UGB in an efficient manner.

4. *Accommodate the growth projected for urban areas to the year 2000.*

**Council Findings:** This policy is outdated. The proposed urban growth and facilities analysis address a timeframe consistent with the County's coordinated population projection – through the year 2030.

5. *Minimize the conflicts between urban and rural land uses.*

**Council Findings:** As indicated in Goal 14, Locational Factor 4 findings, the proposed UGB expansion minimizes conflicts between urban and rural uses by proposing industrial expansion on lower-value agricultural soils. The proposed UGB expansion adjacent to the existing airport will be buffered from farmland by a proposed collector street. The commercial expansion to the southwest is bordered by rural residential lands.

6. *Control development within the limitation of the public's ability to provide services.*

**Council Findings:** Appendices 3 and 4 analyze the impacts and limitations of Scappoose's public facilities and infrastructure. As shown in Appendices 3 and 4, the proposed UGB amendment is serviceable.

8. *Locate major public and private developments where they will not encourage residential growth outside the designated boundary.*

**Council Findings:** The proposed UGB amendment is primarily industrial, which should not encourage residential growth outside of the Scappoose UGB. Commercial expansion is limited to areas with existing rural residential land uses. No residential expansion is proposed or enabled through the proposed plan amendments.

10. *Review the supply of buildable lands within the urban growth boundaries in cooperation with the cities, during each major review of the County's plan. The process of expanding the urban growth areas may begin when there is less than a five (5) year supply of residential land. Cities also are required by Statewide Planning Goal 9 to maintain at least an eight (8) year supply of serviceable industrial or commercial land inside the Urban Growth Boundary. Serviceable land is that which can be provided with public water and sewer utilities within one year, if such services are requested.*

**Council Findings:** Scappoose's UGB was established in 1983 to provide a 20-year land supply. It was last reviewed in 1991 and amended in 1992. The proposed UGB and plan amendments do not address residential land needs. As indicated in Goal 9 findings and the Scappoose EOA (Attachment A), the proposal identifies land needed to meet applicable standards of Goal 9 and its implementing Administrative Rule (OAR 660-009).

12. *Have mutually agreed upon land use designations with each city.*

**Council Findings:** The City and County have coordinated land use designations since the initial adoption of the Comprehensive Plan in 1983. This policy continues to be met through County approval of this application.

16. *Coordinate the development of facilities by existing special districts to insure coordination with city plans.*

**Council Findings:** Public facilities requirements are addressed in Appendices 3 and 4.

17. *Adopt the urban growth boundaries, and those portions of the adopted comprehensive plans relating to the unincorporated urban growth areas, for the municipalities of Clatskanie, Columbia City, Rainier, Scappoose, St. Helens and Vernonia.*

**Council Findings:** This policy was met in 1983, and continues to be met through County approval of this application.

18. *Periodically update coordinated 20-year population forecasts for each city's urban growth boundary and for the unincorporated areas, based upon the projections of a regionally accepted population forecast, such as the studies prepared by the Portland State University and the BPA. The County's projection will be within 10% of the regionally accepted projection and the incorporated cities' projections will be allocated on a jurisdiction by jurisdiction basis.*

**Council Findings:** The County adopted a new coordinated population in 2009 (Ordinance No. 2009-7) that estimates the City of Scappoose's population to be 10,022 in 2030. As part of this project, Scappoose proposes to adopt the County's coordinated population projection into its Comprehensive Plan (Attachment A).

## **PART X | Economic Policies**

*It shall be a policy of the County to:*

1. *Encourage the creation of new and continuous employment opportunities.*
2. *Encourage a stable and diversified economy.*

**Council Findings:** This proposal directly implements these policies through adoption of an EOA and providing opportunity for economic development.

8. *Reserve valuable industrial sites for industrial uses.*

**Council Findings:** This proposal implements this policy by providing employment land to meet needs identified in the EOA. The proposed East Airport Employment (EAE) overlay zone, and the proposed Airport Employment (AE) comprehensive plan designation both require the preservation of large industrial sites for industrial uses identified in the EOA.

10. *Support improvements in local conditions in order to make the area attractive to private capital investment. Consideration of such factors as the following shall be undertaken:*
  - A. *Tax incentives*
  - B. *Land use controls and ordinances*
  - C. *Capital improvements programming*

**Council Findings:** This proposal directly implements this policy by providing employment land that can be zoned and serviced.

12. *Encourage new industrial growth within the urban areas so as to utilize existing public facilities.*

**Council Findings:** This proposal enables more efficient development within the existing UGB through planning for redevelopment and providing overlay zones that allow for development of targeted industries identified in the EOA.

13. *Encourage industry which needs or can benefit from the locational advantages of an airport and its facilities, to locate adjacent to one of the airports in the County. Create an Airport Industrial district to facilitate this policy.*

**Council Findings:** This proposal directly implements this policy by providing employment land adjacent to the Scappoose Airpark, and through establishment of the AE plan designation.

## **PART XII | Industrial Development Policies**

*It shall be policy of the County to establish, implement, and maintain an industrial development program that:*

1. *Encourages the creation of new and continuous employment opportunities.*
2. *Encourages a stable and diversified economy.*

**Council Findings:** This proposal directly implements these policies through adoption of an EOA and providing opportunity for economic development.

6. *Reserves valuable industrial sites for industrial use.*

**Council Findings:** This proposal implements this policy by providing employment land to meet needs identified in the EOA. The proposed East Airport Employment (EAE) overlay zone, and the proposed Airport Employment (AE) comprehensive plan designation both require the preservation of large industrial sites for industrial uses identified in the EOA.

7. *Support improvements in local conditions in order to make the area attractive to private capital investment.*

**Council Findings:** This proposal directly implements this policy by providing employment land that can be zoned and serviced.

9. *Assures land which is already used as industrial or irrevocably committed to industry shall be so designated.*

**Council Findings:** This proposal does not limit or impact existing industrial land uses.

## **PART XIII | Transportation Policies**

8. *The two existing airports, in Scappoose and Vernonia, will be zoned with a landing field overlay zone that incorporates the height restrictions set by the Federal Aviation Administration. It will allow the development of airport related industrial uses.*

**Council Findings:** The zone required by this policy – the Public Use Airport Safety and Compatibility Overlay – is already in place, and is proposed to continue to apply where applicable.

### ***Administrative Procedures Policies***

9. *Revisions or amendments proposed within an urban growth boundary shall be in accordance with the Urban Growth Area Management Agreement adoption for that area.*

**Council Findings:** Future uses or changes in zoning within proposed expansion areas must comply with the UGMA, consistent with this policy.

### **Columbia County Comprehensive Plan Conclusion**

The proposed plan amendment package is consistent with and implements the urbanization and employment policies of the Columbia County Comprehensive Plan.

**Ordinance No. 816 Exhibit B**

**Real property added to the Scappoose Urban Growth Boundary (UGB)**

*Note: See Maps A, B, and C for the specific location of the UGB and comprehensive plan boundaries (UGB and plan designations may not align with parcel boundaries)*

<b>Northeast Expansion Area</b>		
Columbia County Assessor Map and Tax Lot number	Area added to UGB (acres)	Comprehensive Plan Designation
3N1W 600 200	33.0	Airport Employment (AE)
3N1W 600 504	142.3	Airport Employment (AE)
3N1W 6B0 100	3.5	Airport Employment (AE)
3N1W 6B0 400	2.0	Airport Employment (AE)
3N1W 6B0 500	0.6	Airport Employment (AE)
3N1W 6B0 600	0.9	Airport Employment (AE)
3N1W 6B0 700	10.6	Airport Employment (AE)
3N1W 6B0 1300	2.0	Airport Employment (AE)
3N1W 6B0 1400	0.1	Airport Employment (AE)
3N1W 6B0 1500	3.2	Airport Employment (AE)
3N1W 6B0 1600	3.2	Airport Employment (AE)
3N1W 6B0 1700	3.2	Airport Employment (AE)
3N1W 6B0 1701	3.3	Airport Employment (AE)
3N1W 6B0 1800	8.1	Airport Employment (AE)
3N1W 6B0 1900	9.1	Airport Employment (AE)
3N1W 6B0 2000	1.0	Airport Employment (AE)
3N1W 6B0 ROAD	3.3	Airport Employment (AE)
3N1W 700 102	7.9	Airport Employment (AE)
3N1W 700 103	105.3	Airport Employment (AE)
<b><i>Airport Employment Subtotal</i></b>	<b><i>342.6</i></b>	
3N1W 700 103	14.5	Public Lands (PL)
<b><i>Public Lands Subtotal</i></b>	<b><i>14.5</i></b>	

<b>Southwest Expansion Area</b>		
Columbia County Assessor Map and Tax Lot number	Area added to UGB (acres)	Comprehensive Plan Designation
3N2W13C0 5900	0.3	Commercial (C)
3N2W13C0 ROAD	0.1	Commercial (C)
3N2W2400 300	0.1	Commercial (C)
3N2W2400 1404	2.6	Commercial (C)
3N2W2400 1407	2.5	Commercial (C)
3N2W2400 ROAD	1.4	Commercial (C)
3N2W2400 ROAD	4.0	Commercial (C)
3N2W24AC 600	0.3	Commercial (C)
3N2W24AC ROAD	1.3	Commercial (C)
<b><i>Commercial Subtotal</i></b>	<b><i>12.7</i></b>	
3N2W2400 300	2.0	Public Lands (PL)
3N2W2400 400	0.8	Public Lands (PL)
<b><i>Public Lands Subtotal</i></b>	<b><i>2.8</i></b>	

<b>Gilmore Road Expansion Area</b>		
Columbia County Assessor Map and Tax Lot number	Area added to UGB (acres)	Comprehensive Plan Designation
3N2W 100 300	2.6	Commercial (C)
3N2W 100 301	0.9	Commercial (C)
3N2W 100 302	1.2	Commercial (C)
3N2W 100 ROAD	0.1	Commercial (C)
3N2W 1C0 ROAD	0.1	Commercial (C)
<b><i>Commercial Subtotal</i></b>	<b><i>5.0</i></b>	

**Grand total: 378 acres**



**Ordinance No. 816 Exhibit C**

**Real property re-designated from Industrial (I) to Airport Employment (AE)**

*Note: See Map C for the specific location of the boundaries of the plan amendment  
(plan designations may not align with parcel boundaries)*

Columbia County Assessor Map and Tax Lot number	Existing Comprehensive Plan Designation	New Comprehensive Plan Designation	Area redesignated (acres)
3N1W 600 300	Industrial (I)	Airport Employment (AE)	101.9
3N1W 600 500	Industrial (I)	Airport Employment (AE)	29.7
3N1W 600 502	Industrial (I)	Airport Employment (AE)	4.0
3N1W 600 503	Industrial (I)	Airport Employment (AE)	6.0
3N1W 600 504	Industrial (I)	Airport Employment (AE)	12.2
3N1W 600 600	Industrial (I)	Airport Employment (AE)	5.4
3N1W 600 700	Industrial (I)	Airport Employment (AE)	10.4
3N1W 600 800	Industrial (I)	Airport Employment (AE)	17.2
3N1W 600 801	Industrial (I)	Airport Employment (AE)	7.8
3N1W 600 ROAD	Industrial (I)	Airport Employment (AE)	0.7
3N1W 6B0 800	Industrial (I)	Airport Employment (AE)	36.5
3N1W 6B0 1104	Industrial (I)	Airport Employment (AE)	0.1
3N1W 6B0 1106	Industrial (I)	Airport Employment (AE)	6.0
3N1W 6B0 1200	Industrial (I)	Airport Employment (AE)	13.1
3N1W 6B0 ROAD	Industrial (I)	Airport Employment (AE)	1.5
3N1W 6C0 400	Industrial (I)	Airport Employment (AE)	0.4
3N1W 6C0 500	Industrial (I)	Airport Employment (AE)	2.9
3N1W 6C0 600	Industrial (I)	Airport Employment (AE)	4.1
3N1W 6C0 700	Industrial (I)	Airport Employment (AE)	3.6
3N1W 6C0 800	Industrial (I)	Airport Employment (AE)	2.3
3N1W 6C0 ROAD	Industrial (I)	Airport Employment (AE)	1.2
3N1W 700 100	Industrial (I)	Airport Employment (AE)	56.5
3N1W 700 101	Industrial (I)	Airport Employment (AE)	14.7
3N1W 700 102	Industrial (I)	Airport Employment (AE)	4.5
3N1W 700 103	Industrial (I)	Airport Employment (AE)	4.7
3N2W 1A0 ROAD	Industrial (I)	Airport Employment (AE)	0.0
3N2W 1D0 1600	Industrial (I)	Airport Employment (AE)	1.7
3N2W 1D0 1700	Industrial (I)	Airport Employment (AE)	1.9
3N2W 1D0 ROAD	Industrial (I)	Airport Employment (AE)	0.9
3N2W12AA 100	Industrial (I)	Airport Employment (AE)	16.8
3N2W12AA 200	Industrial (I)	Airport Employment (AE)	0.5
3N2W12AA 300	Industrial (I)	Airport Employment (AE)	0.4
3N2W12AA 400	Industrial (I)	Airport Employment (AE)	2.1

**Grand total: 372 acres**

**CITY OF SCAPPOOSE  
ECONOMIC OPPORTUNITIES ANALYSIS**

**JANUARY 10, 2011**

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## I. EXECUTIVE SUMMARY

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The purpose of the “Economic Opportunity Analysis” (EOA) is to determine the City’s economic goals, policies and land needs concerning commercial and industrial development within City limits and the Urban Growth Boundary and ultimately inform the City’s Economic Element of the Comprehensive Plan.

The element is intended to satisfy the requirements of the Oregon Administrative Rules, Chapter 660, Division 9. The State Planning Goal 9 EOA methodology guidelines call for a four-step approach to economic development planning and resulting quantification of employment (industrial, retail, office, institutional, etc.) land need for urban growth boundary planning purposes. These four steps largely guide this resulting analysis of City of Scappoose’s need for urbanized land. The required Goal 9 analytical steps that roughly comprise the outline of this document are:

1. **Economic Trends Analysis:** Identification of national, state, regional and local economic trends that have shaped recent economic performance as well as likely 20-year economic activity that will determine employment land need over the duration of the study period.
2. **Industry & Job Growth Forecasts:** Detailed forecasts of job growth by industry within Scappoose over the planning period that will in turn drive demand, if any, for different employment land categories.
3. **Land Need Forecasts:** Job growth forecasts translated into land demand forecasts based on industry and space type usage and floor area ratio (FAR) patterns anticipated into the future.
4. **Land/Parcel Need Quality:** A detailed treatment of employment land need in terms of specific parcel types, sizes, quantities and other qualities appropriate to economic growth anticipated by the jurisdiction.

The first three sections provide an Economic Opportunities Analysis that includes: an analysis of significant national, state and local trends and an analysis of Scappoose’s competitive position and target industries. The fourth section provides a forecast of employment followed by the demand for employment lands in the fifth through seventh sections. Finally, the last section of the document outlines the City’s economic goals and policies that will guide the City through the twenty-year planning period (2010-2030).

### SUMMARY OF FINDINGS

This section presents an overview of key findings. The context and methodology for these finding is discussed in greater detail in the following sections of this report.

- This report has been completed in the climate of a severe national recession. The depth of the downturn relative to other modern downturns color recent trends and make it difficult to forecast the nature and timing of the eventual recovery.
- Beyond the near-term, the United States economy is expected to return to a more typical growth cycle, averaging 3.1% annual Gross Domestic Product growth from 2011 to 2019, as well as employment growth. In the coming growth cycle, the United States’ commitment to renewable energy transition is expected to play a major role.
- The most prominent industry clusters in Scappoose currently are the Aviation Manufacturing and Services, Retail and Nursery industries.
- Figure 1 outlines the City of Scappoose employment forecast through 2030. As shown, the employment forecast anticipates an increase of 8,068 jobs (7.6% AAGR). Professional & Business Services, Other Services, Manufacturing, and Retail Trade, are expected to account for approximately 67% of net new growth over the forecast period. Other promising sectors are Transportation,

Warehousing & Utilities, Education & Health and Leisure & Hospitality, accounting for an additional 25% of new net growth.

**FIGURE 1: 20-YEAR EMPLOYMENT FORECAST (2010-2030)<sup>1</sup>**

Employment Forecast NAICS	Base Year	Employment Forecast				2010-2030 Growth	
	2010	2015	2020	2025	2030	Jobs	AAGR
Natural Resources	0	0	0	0	0	0	0.0%
Construction	119	150	189	239	301	182	4.7%
Manufacturing	215	523	894	1,359	1,970	1,755	11.7%
Wholesale Trade	24	36	54	81	122	98	8.5%
Retail Trade	519	773	1,051	1,357	1,698	1,179	6.1%
T.W.U.	81	153	241	351	494	412	9.4%
Information	78	80	82	85	87	9	0.5%
Financial Activities	76	101	135	179	239	163	5.9%
Professional & Business	101	192	350	628	1,126	1,025	12.8%
Education & Health	652	815	1,014	1,258	1,557	905	4.4%
Leisure & Hospitality	281	389	538	745	1,030	749	6.7%
Other Services	225	374	620	1,028	1,707	1,481	10.7%
Public Administration	54	71	94	124	164	110	5.7%
<b>TOTAL</b>	<b>2,425</b>	<b>3,657</b>	<b>5,261</b>	<b>7,433</b>	<b>10,492</b>	<b>8,068</b>	<b>7.6%</b>

SOURCE: Oregon Employment Department and Johnson Reid LLC

- The potential for growth in Scappoose is based on several factors. First, the City has maintained exceptional growth during the last six years and although some of that growth has been eroded recently, the area has held up well. Despite a nationwide severe recession, Columbia County maintained a 1.6% growth rate between 2007 and 2008
- Figure 2 below projects both net and total land demand for the City of Scappoose. There will be a projected need for close to 400 net acres to accommodate projected employment growth. After accommodating infrastructure (streets, utilities, etc.) and other site improvements, this translates to a need for 483 gross acres.

**FIGURE 2: PROJECTED AGGREGATE LAND NEED IN THE SCAPPOOSE UGB, 2010-2030 (NET & GROSS ACRES)**

Need For Land		
Use Type	Net Acres	Gross Acres
INDUSTRIAL	217.9	269.0
OFFICE COMMERCIAL	54.7	64.4
RETAIL COMMERCIAL	33.6	39.6
CITY RESIDENTS	26.7	31.4
REGION/TOURISTS 1/	7.0	8.2
SPECIALIZED USES 2/	93.5	110.0
<b>TOTAL</b>	<b>399.8</b>	<b>483.0</b>

1/ Based on current ratios between locally supported and total sales, CE Survey from the BLS and Census of Retail Trade.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized.

SOURCE: JOHNSON REID

<sup>1</sup> It should be noted that employment forecasts are speculative over a twenty year horizon.

- Figure 3 provides a detailed assessment of Scappoose employment land need through 2030 in terms of land use categories, number of sites, and gross acres needed by site size.

**FIGURE 3: EMPLOYMENT LAND DEMAND BY SITE SIZE FOR SCAPPOOSE (2030)**

Land Demand by Site Size				
		Demand Projections		
		Typical Acreage	Sites	Gross Acres
<b>Office</b>	Large	25.0	0	11.6
	Medium	10.0	1	7.7
	Small	5.0	9	45.1
	<b>SubTotal</b>		<b>10</b>	<b>64.4</b>
<b>Commercial Retail</b>	Large	20.0	0	0.0
	Medium	7.0	4	25.8
	Small	1.0	6	6.3
	<b>SubTotal</b>		<b>10</b>	<b>32.1</b>
<b>Industrial</b>	Large	50.0	2	107.6
	Medium	30.0	1	35.0
	Small	7.0	7	51.1
	Tech/Flex	12.0	2	21.5
	Airpark Emp.	5.0	11	53.8
	<b>SubTotal</b>		<b>23</b>	<b>269.0</b>
<b>Lodging Related</b>	Lodging	1.5	2	3.0
	Lodging-supportive commercial	1.0	5	4.5
	<b>SubTotal</b>		<b>7</b>	<b>7.5</b>
<b>Employment Uses Totals:</b>			<b>50</b>	<b>373.0</b>
<b>Public Uses</b>	<u>Special Uses</u>			
	Hangar Reserve		1	40.0
	Runway Extension		1	50.0
	PCC Campus		1	20.0
	<b>SubTotal</b>		<b>3</b>	<b>110.0</b>
<b>GRAND TOTALS:</b>			<b>53</b>	<b>483.0</b>

SOURCE: JOHNSON REID

## II. TRENDS ANALYSIS

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The Trend Analysis section provides the foundation of economic information that will shape realizable economic opportunity potential for a jurisdiction, resulting potential job growth scenarios, and ultimately employment land need over the determined planning horizon.

In conducting the Trend Analysis, it is underscored that given the current economic climate, during the course of analysis, economic circumstances at the global, national, state and local levels significantly changed in response to economic and political events and objectives. Through September of 2009 some of the key factors affecting the economic environment include:

- New Presidential administration and significant changes in federal economic policies, including the response to economic distress of recent years;
- Numerous federal bail-out proposals and agreements for financial institutions and U.S. automakers;
- Credit crisis in the financial markets due to the uncertain future of “toxic” financial assets that include billions of dollars in “sub-prime” mortgages;
- A return of the Dow Jones Industrial Average to pre-1998 levels; and
- A fourth quarter 2008 drop in U.S. Gross Domestic Product (GDP) of 6.2%, the worst since the severe 1980-82 U.S. recession.<sup>2</sup>

Alternatively, in late 2008 the Federal government passed an unprecedented \$850 billion stimulus bill meant to help create jobs with targeted infrastructure investments, state and local government budget stop-gaps, and various tax credits and investment incentives for housing, alternative energy, and numerous other targeted industries and economic activities nationwide.

Ultimately, current economic times make it virtually impossible to produce a timely national trend analysis. JOHNSON REID, therefore, has continued to utilize the economic forecast “of record” by the federal government, the non-partisan Congressional Budget Office biannual economic forecast. As that official forecast makes clear, economic times are uncertain, but Trend Analysis consistency with its findings—even those that have changed in only a few months—is preferable to constantly shifting speculation.

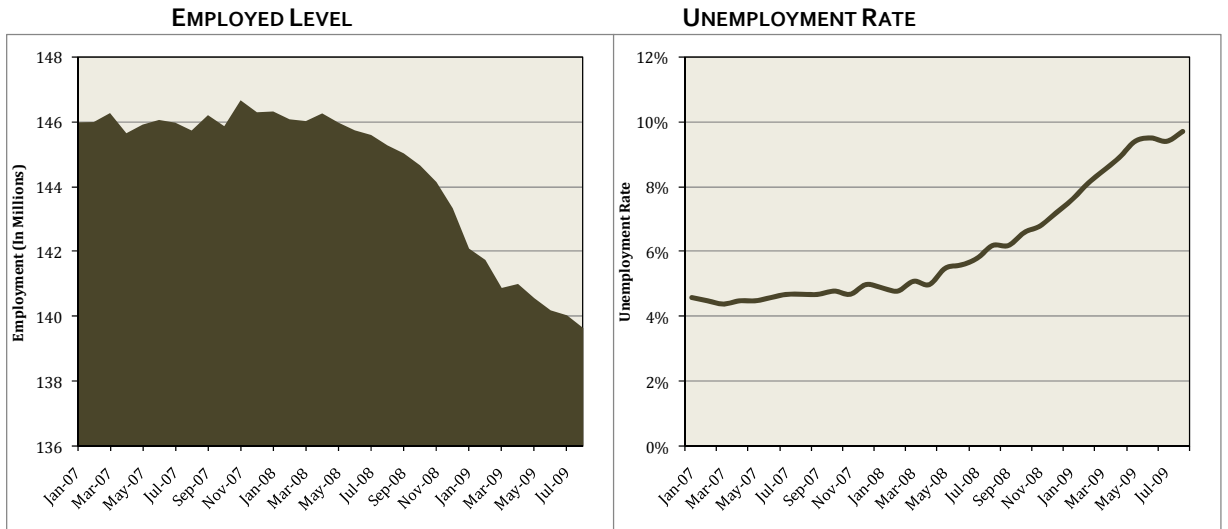
### SHORT-TERM OUTLOOK

In December of 2008, the National Bureau of Economic Research (NBER), an organization charged with officially dating economic cycles, announced that the country has been in a contraction period (recession) since December of 2007, ending a 73-month expansionary period dating to November of 2001. Since December of 2007, the national economy has shed over 6.9 million jobs with unemployment rising to 9.7%, its highest level since the recession of 1981-1982, as shown in Figure 1.

---

<sup>2</sup> Gross Domestic Product (GDP) is a widely-used measure of the total economic output of the economy. It is equal to the market value of all final goods and services produced within a country, usually measured annually, or by quarter.

**FIGURE 1: U.S. EMPLOYMENT**

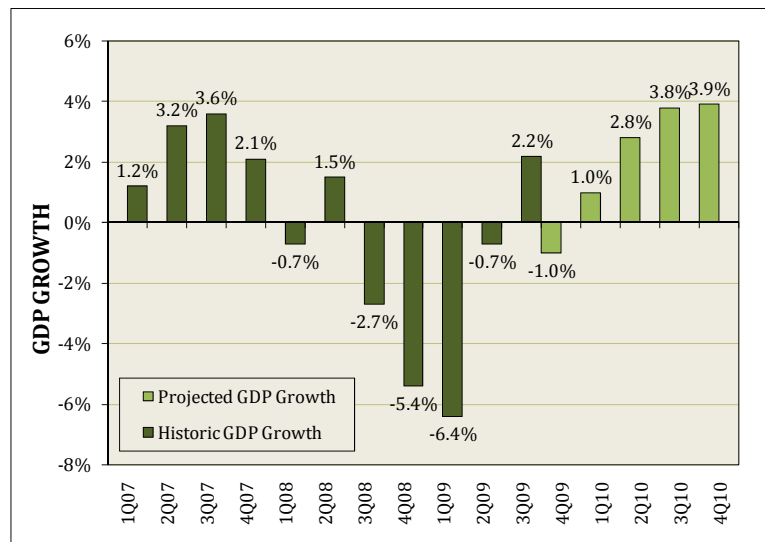


Source: U.S. Bureau of Labor Services

The current recession was catalyzed by a mix of economic conditions that drastically curtailed economic growth. Principally, a drop in housing prices and subsequently housing starts severely undermined the solvency of the nation's financial institutions, disrupting financial markets and exacerbating a tense period of uncertainty. In addition, a historic rise in the price oil and other commodity inputs markedly limited economic activity. For a time, contractionary pressure was partially offset by strong export growth driven by emerging markets and a favorable currency position. Aggressive monetary and fiscal policy also played a role, with the Federal Reserve slashing interest rates and the Bush Administration's \$100 billion tax rebate package in the first half of 2008.

However, as Figure 2 demonstrates, output growth began to weaken by mid-2008, with GDP posting negative growth (-2.7%) in the third quarter of 2008. The economic condition continued to deteriorate further into 2009 as the financial crisis intensified. GDP growth in the first quarter of 2009 contracted by 6.4%, the largest such decline since 1982.

**FIGURE 2: REAL GROSS DOMESTIC PRODUCT**



Source: U.S. Bureau of Labor Services, and Congressional Budget Office



Historically, sharp economic contractions are abruptly followed by a rapid return to growth. However, the near-term outlook is likely to be more abridged, as economic conditions in place may not facilitate a "typical" recovery, specifically:

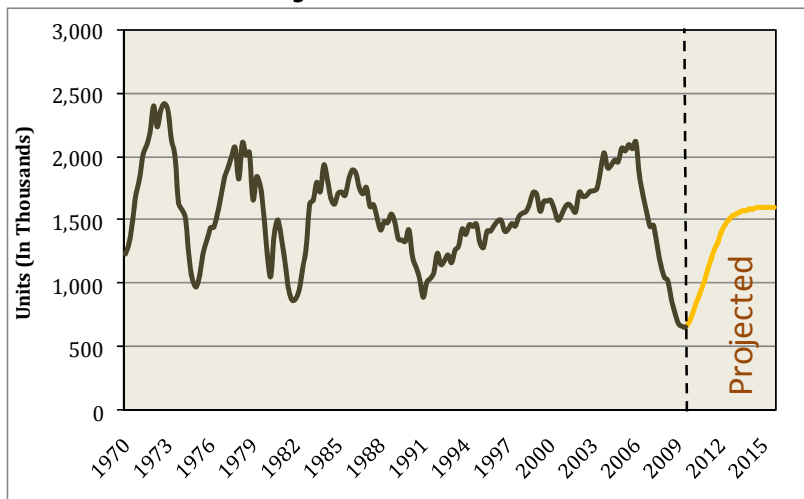
1. The pace of recovery will be restrained by the on-going uncertainty and functionality of financial markets and institution's ability to recovery from default losses. This will continue to limit the availability of credit and increase the cost of capital investment for several years;
2. Housing vacancy currently sits at 2.9%, its highest level on record, while housing starts are also at record lows. Excess supply of housing units is expected to postpone the typical rebound in construction;
3. High unemployment and declining household wealth are expected to curtail personal consumption spending in the near-term; and
4. For a time, it was theorized that economies in emerging markets would be less impacted by recessionary pressure, and would help moderate contraction domestically through strong exports. However, foreign economies are now weakening as well.

Real Gross Domestic Product fell in 2009. A soft recovery is projected into begin in 2010. While GDP is expected to recover by mid-2010, the employment situation characteristically lags recovery in output. Unemployment is likely to peak at a level between 10% and 11% by mid-2010.

### HOUSING MARKET OUTLOOK

As mentioned above, the inventory of unsold housing units remains historically high, and the correction in the U.S. housing market is expected to continue through the end of 2009. Housing vacancy sits at its highest level on record, and housing starts are near record lows. Housing starts are not expected to recover until 2010, stabilizing near 2000 levels by 2015. (See Figure 3)

FIGURE 3: NATIONAL HOUSING STARTS



Source: National Association of Home Builders

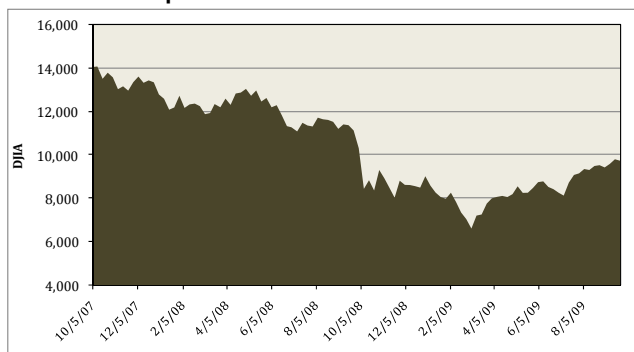
The next six months are expected to bring further declines in national housing prices. Home values are expected to trim an additional 10% - 15% nationally in 2010. Falling home values may continue to intensify losses to institutions holding mortgage-backed securities. However, various sources project that the housing market may begin to find a floor on pricing in the latter half of 2010.

The effectiveness of the Federal Government's efforts to stabilize the housing market remains to be seen. Taken together, President Obama's Homeowner Affordability and Stability Plan, coupled with the 2009 American Recovery and Reinvestment Act extended the Home-Buyer Tax Credit to \$8,000, removing the repayment criteria, and provide upwards of \$75 billion for the modification and refinancing of trouble mortgages owned by Fannie Mae and Freddie Mac. In addition, the program was expanded to extend a tax credit to current homeowners as well. While these efforts are likely to put downward pressure on escalating foreclosure rates, foreclosures are expected to remain well above historical norms in the near term.

## FINANCIAL MARKET OUTLOOK

Signs of the impending financial crisis emerged in summer 2007, coincident with the peak and subsequent turn in the national housing market. The crisis intensified over the following twelve months, as housing prices and a sputtering economy created significant losses of major financial institutions caused a near collapse of the nation's financial system. In September 2008, the interbank market for short-term loans seized significantly, compounding liquidity problems among wavering banks.

**FIGURE 4: DOW JONES INDUSTRIAL AVERAGE**



Source: Dow Jones & Company

The spread between the rate at which banks borrow from the Federal Reserve (Federal Funds Rate) and the rate at which banks borrow from each other skyrocketed to over 3.6%, reflecting the outstanding risk and uncertainty that financial institutions felt in dealing with each other. In response to the financial crisis, the Federal Reserve has pumped liquidity into the market, both through aggressive interest rate cuts and through extending its loan facilities by accepting as collateral assets that have been shunned by the open lending market. The Department of Treasury has also begun its effort to stabilize the U.S. financial system through its highly publicized Troubled Asset Relief Program (TARP). In fall of 2008 congress authorized \$700 billion across various facilities with the aim of re-establishing the flow of credit. The reception to Federal Government's aggressive intervention has been mixed. Faith in some credit markets has improved significantly, with inter-bank lending rates back down near the historical norm.

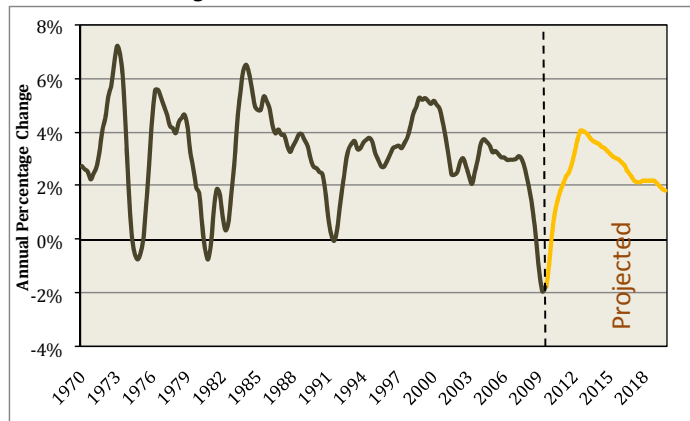
The stock market extended losses into 2009. By March, the Dow Jones Industrial Average had fallen roughly 47% off peak with the S&P 500 off 49% (see Figure 4). A new rally began in March and has lasted into 2010. Roughly half of losses to the indexes have been regained, but many investors removed their money at the end of 2008, and have not participated in the rebound.

The impact of stock market devaluation as it relates to economic recovery is the impact on household wealth. The decline of equity wealth—over \$6 trillion thus far—is a key factor affecting household spending on the horizon.

## PERSONAL CONSUMPTION OUTLOOK

As typical with most periods of contraction, personal consumption spending lagged in the second half of 2008 and in 2009 (see Figure 5). More specifically, three principal factors have contributed to waning spending: declining employment, significant deterioration of wealth, and tight consumer credit conditions. These effects are expected to continue to constrain spending over the short-term. These conditions however, have been partially offset by falling prices of petroleum imports, which have the effective impact of a consumer tax cut.

FIGURE 5: PERSONAL CONSUMPTION SPENDING



Source: Bureau of Labor Statistics

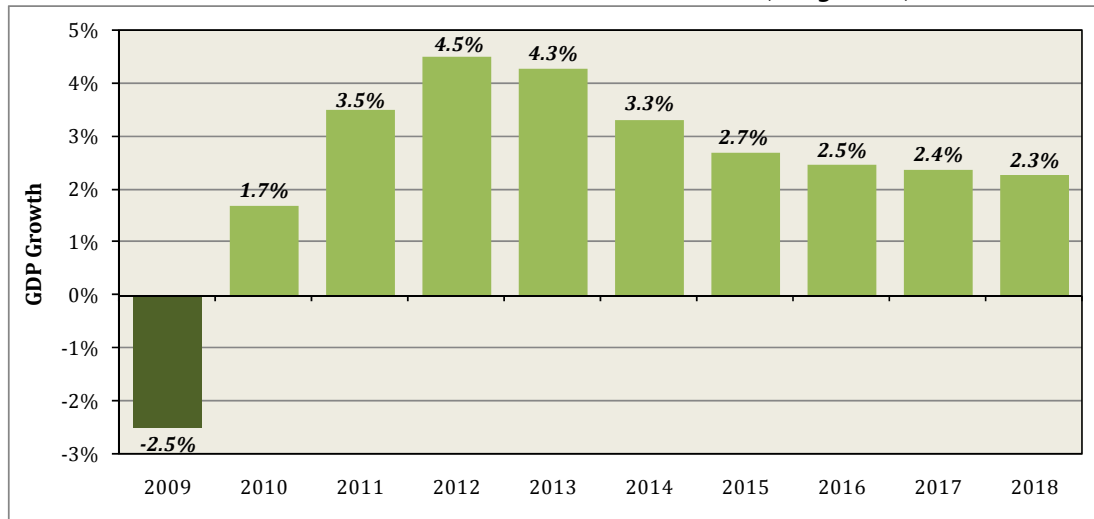
Evaluated individually, the aforementioned variables are expected to have the following impact on Personal Consumption Spending in the near-term:

- **Employment:** The employed level is projected to fall by 2% during 2009, with hours worked falling by 3%. While falling energy prices will partially off-set the impact, disposable income is expect to grow at a lackluster 0.5% annual pace in the near-term.
- **Wealth Deterioration:** The combination of falling housing and asset prices have reduced the net worth of U.S. households by over 25%, which in-turn places downward pressure on personal consumption. The Congressional Budget Office estimates the wealth effect will constrict personal consumption spending growth by roughly 1% in the near-term.
- **Credit Availability:** According to the Federal Reserve's survey of senior loan officers, banks' willingness to make consumer loans has dropped to its lowest level since 1980. The combination of limited borrowing opportunities and diminished collateral will continue to limit consumer credit availability, shaving roughly 1.5% off consumption growth in the near term.

#### LONG-TERM OUTLOOK

Beyond the near-term, the United States economy is expected to return to a more typical growth cycle, averaging 3.1% annual GDP growth from 2011 to 2019—slightly faster than potential GDP, narrowing the GDP gap by 2015. In other words, the widened gap between real GDP and its potential level created as a result of slow growth in 2008 and 2009 will be narrowed by accelerated growth from 2011 to 2014. Beyond 2014 real output is expected to grow at the same pace, on average, as potential GDP through 2019—keeping the output gap proximate to zero (see Figure 6).

**FIGURE 6: FORECASTED U.S. REAL GDP GROWTH (2009-2018)**



SOURCE: Congressional Budget Office (CBO)

Nationally, employment is expected to grow at an average annual rate of 0.7% from 2011 to 2019, indicating further increase in worker productivity on the horizon. Over the long-term, the inflation rate will largely be determined by monetary policy decisions, assuming that the Federal Reserve can, on average, maintain core inflation around 2.2% through 2019 (as measured by the Personal Consumption Expenditures price index from the Bureau of Economic Analysis).

In the coming growth cycle, the United States' commitment to renewable energy transition is expected to play a major role—a reality that is likely to garner greater political support following the outcome of the 2008 election cycle. Specifically, the passage of the 2009 American Recovery and Reinvestment Act will provide billions in federal dollars for the advancement of this sector. In addition to environmental concerns, growth in domestic energy production, through both renewable and non-renewable sources, is being increasingly discussed through the prism of energy independence and energy security—the foundation of which is sufficient, reliable, and affordable energy. The economic advantages of this transition encompass the macroeconomic benefits of investment in new technologies, greater economic productivity, and improvements in the U.S. balance of trade. At a microeconomic level, benefits include lower business costs and reduced household energy expenditures. Taken together, these advantages are manifested in job growth, income growth, and ancillary benefits to the environment.

Over the next ten years, green industries are expected to create over 2.5 million new jobs in the United States across a range of manufacturing and service industries. Over a longer 30-year horizon, forecasted job growth is expected to reach 4.2 million new jobs in the U.S. economy (see Figure 7).

**FIGURE 7: NEW GREEN JOBS (2008-2038)**

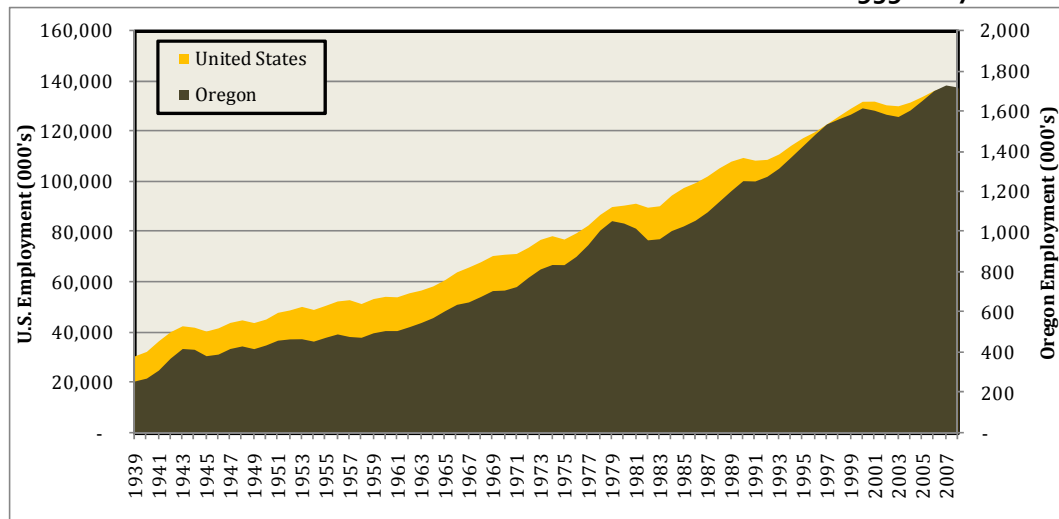
	2018	2028	2038
Renewable Power generation	407,200	802,000	1,236,800
Residential & Commercial Retrofitting	81,000	81,000	81,000
Renewable Transportation Fuels	1,205,700	1,437,700	1,492,000
Engineering, Legal, Research, & Consulting	846,900	1,160,300	1,404,900
<b>TOTAL</b>	<b>2,540,800</b>	<b>3,481,000</b>	<b>4,214,700</b>

SOURCE: Global Insight, "U.S. Metro Economies: Current and Potential Green Jobs," 2008

## STATE, REGIONAL AND LOCAL TRENDS

Oregon experienced exceptional employment growth between mid-2003 and 2007. Growth began slowing towards the end of 2006 and continued through 2007. Figure 8 demonstrates how closely tied the Oregon economy is to economic trends at the national level. Since 1939, Oregon has tracked the peaks and valleys of the U.S. economy. Also illustrated is improved diversity in Oregon's economy as evidenced by alleviation of the volatility that plagued Oregon during the 1980's recession.

**FIGURE 8: U.S. AND OREGON HISTORICAL EMPLOYMENT TREND: 1939-2007**



Source: U.S. Department of Labor

As of the second quarter of 2009, Oregon's recession had spread to all sectors of the economy. The hardest hit sectors include housing, manufacturing and construction but service sectors are also suffering substantial declines. Moreover, employment across all sectors is forecasted to decline through the end of 2009. The Oregon Office of Economic Analysis (OEA) now expects the State to see 5.1% employment decline in 2009 with a 0.5% job decline for the calendar year 2010 reflecting a recovery beginning in latter 2010.

The manufacturing sector declined by 15.3%, or 7,200 jobs during second quarter. OEA's 2009 annual forecast for the sector is expected to see an overall decline of 13.3% with a 5.3% decline in 2010. The sector is expected to rebound slightly with jobs gains by 2011. Retail trade declined by 3.3% while education and health services, on the other hand, gained jobs at a rate of 0.7% during second quarter.

Oregon's economic growth since 2005, but prior to the current precipitous slowdown, was due in large part to explosive growth in exports. For example, between first quarter 2007 and first quarter 2008, Oregon exports increased by 23.7%, more than six points higher than the U.S. growth during the same period. Oregon's export growth is primarily due to export growth in agricultural products which grew by 82.2% and computer and electronics products which grew by 24.8%. Computer and electronics account for nearly 40% of total Oregon exports. Several other industries experienced high growth in exports during the same period: Waste and Scrap (+71.6%), Nonmetallic Mineral Products (+54.0%), Chemicals (+47.6%), Primary Metal Manufacturing (+31.0%), Miscellaneous Manufactured Commodities (+26.0%) and Wood Products (+23.8%). The first half of 2009 saw exports decline by 22.6% relative to their levels in during the same period in 2008.

### GENERAL INDUSTRY OUTLOOK

Moving beyond 2011, the assumed year by which the economy pulls out of the current slowdown, Oregon's economic growth is expected to outpace growth at the National level. By 2016, the State's employment is expected to grow by 14%. Oregon's high growth prospects are due to a number of factors:

- Population growth, primarily due to net in-migration

- Relative location near Canada and Asian countries
- High commodity prices
- Export growth
- Affordable housing
- Quality of life
- State tax incentives, including the Single Sales Factor Tax

In addition to the factors listed above are several State initiatives which may continue to change Oregon's economic landscape and drive growth in key sectors. The Oregon Innovation Council designed these initiatives as part of the 2007 Innovation Plan. Listed below, these initiatives are aimed at addressing key issues which have limited Oregon's ability to capture early stage and emerging industries in the past. For example, Oregon has lacked both "angels", investors who provide funding at the earliest stages of development, and venture capital firms. While Oregon has been closing the gap, venture capital funding is available at substantially greater levels in California and Washington. Further, Oregon has not had a strong research university and more importantly has not had strong collaboration between universities and private companies. Lastly, in many emerging industries Oregon has not had a critical mass or cluster of firms by which to attract similar companies or the management and technical workforce with the necessary experience. As mentioned above, the State initiatives below hope to address these critical vulnerabilities.

- **Manufacturing Competitiveness** - In the 2007 Oregon Innovation Plan, the Oregon Innovation Council proposed a State investment of \$5.37 million between 2007-2009 to expand workforce training programs and the Oregon University System's ability to enhance manufacturing industry innovation through equipment, top-notch faculty and partnerships with Oregon companies. As of the 2008 Oregon Business Plan Annual report, \$2.872 million had been invested into this initiative.
- **Innovation Accelerator Fund** - This plan calls for \$5 million to be invested in the "cultivation" of innovative ideas which arise every year from established and emerging firms, entrepreneurs and academic institutions.
- **Oregon Nanoscience and Microtechnology Institute (ONAMI)** - This proposal recommends an additional \$10 million investment between 2007-2009 for the continued support of this public-private partnership between the State's top public universities and leading Oregon high-technology companies. In addition to creating jobs and allowing Oregon to recruit talented researchers, already the State is realizing sizeable returns from ONAMI as technologies are transferred to the marketplace. To date an additional \$9 million has been invested into ONAMI.
- **Oregon Translational Research and Drug Development Institute (OTRADI)** - This public-private partnership seeks to support health care and biomedical research in the State by focusing on drug research and development for the treatment of infectious diseases which will feed into a separate accelerator intended to support commercialization of products by Oregon companies. The State has invested \$5.25 million to date.
- **Bio-Economy and Sustainable Technologies (BEST) Center** - This public-private partnership intends to research and develop innovations related to bio-based technology, green buildings and clean energy. BEST is intended to enhance Oregon's competitive advantage in the growing "green" industry sector. To date, \$2.5 million has been invested.
- **Senate Bill 582** - The first of two Oregon Senate bills intended to promote innovation and emerging industry in the State, Senate Bill 582 increased the amount of allowable contributable funds University's may accept in order to establish the University Venture Development Fund. The Fund supports entrepreneurial training, education, research and startup companies.

- **Senate Bill 579** – Senate Bill 579 expanded the authority of the Oregon Growth Account allowing the Board to invest in emerging firms in early stages of development. In essence, the Senate Bill promotes growth in key target industries by providing early stage funding.
- **Transportation/Infrastructure** - Lastly are initiatives at the State and regional level to improve the State's transportation infrastructure including port districts, rail lines and airports. Included in this are highway expansion plans. Widening of Highway 217 has been approved by Metro and expansion plans are on-going for Highway 26.

### PORTLAND METROPOLITAN EMPLOYMENT TRENDS

The Metro area economy, which tends to trail national trends by 6 months to a year, began to experience a decreasing rate of employment growth in September of 2008 with year-over-year net employment decreasing by 700 jobs. This year-over-year employment decline was the first seen since January of 2004. By November, the year-over-year decline had risen sharply to 12,700 net jobs. The Portland metro's overall employment had been positive over the previous five years with no year-over-year decrease in employment since the region recovered from its tech bust. September 2008 marked the end of fifty five consecutive months of employment growth and the job loss appears to be accelerating.

Total employment in July of 2009 dropped to 976,000, a 5.82% decrease from the previous year's 1,036,400. Average annual employment in 2007 was roughly 1,056,100 jobs. While 2007 employment represented a 21,550 job increase over average annual employment in 2006 (2.1% growth rate) and an increase of over 93,490 jobs compared to 2003, that trend is now rapidly reversing. The Portland metro area averaged 1,433 fewer jobs in

**FIGURE 9: PORTLAND TOP TEN EMPLOYERS (2006)**

LARGEST EMPLOYERS					
Rank	Employer	Product/Service	Number of Employees	Average Wage	Job Losses 1/
1.	Intel Corporation	High Tech	15,000	\$92,235	<7%
2.	Providence Health Systems	Health Services/Insurance	13,500	\$55,478	<1%
3.	Safeway	Grocer	13,000	\$21,921	<1%
4.	Oregon Health & Science University	Health Services/Education	12,900	\$45,171	8%
5.	Fred Meyer Stores	Retailer	10,500	\$21,451	<1%
6.	Kaiser Foundation	Health Services/Insurance	8,747	\$55,478	<1%
7.	Legacy Health Systems	Health Services/Insurance	8,500	\$55,478	<1%
8.	State of Oregon	Government	6,700	\$49,035	<6%
9.	Nike	Athletic Apparel	6,800	\$46,440	7%
10.	City of Portland	Government	5,498	\$47,495	<1%

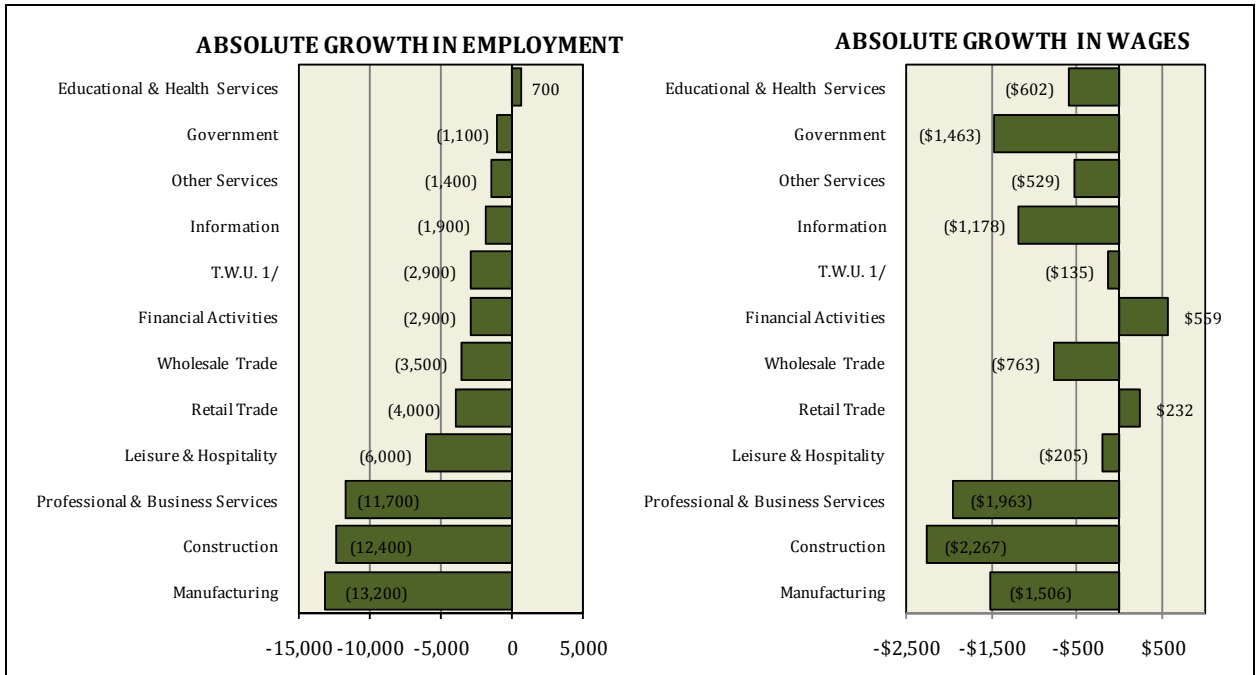
SOURCE: Portland Business Alliance, Oregon Employment Department, Oregonian, Johnson Reid  
1/ Percent of workforce reduction within the last year.

2008 than in 2007 (-0.1%) and the half of 2009 has averaged 44,700 fewer jobs than the same period in 2008 (-3.5%). The area's top ten employers as of 2006 are listed in Figure 9. Each of the employers listed has reduced its workforce numbers during the last year, although most cuts have been insignificant percentages of each respective company's total workforce. Portland has not experienced a large-scale business closure nor is one expected. On the other hand, the economy has experienced widespread small-scale reductions in nearly all sectors.

Year-over-year employment declines between July 2008 and July 2009 were widespread with Educational and Health Services being the only sector to experience an increase in employment (700 jobs) in the Portland Metro area. (See Figure 10.)

In terms of the magnitude of job losses, Manufacturing shed the most jobs (-13,200). Construction and Professional & Business Services also saw substantial declines in employment, losing 12,400 and 11,700 employees, respectively. In terms of rate of job losses, Construction (-19.4%) and Manufacturing (-10.6%) declined the sharpest. Average wages declined in most industries between 2008 and 2009. Only Financial Activities and Retail Trade experienced increases.

**FIGURE 10: EMPLOYMENT GROWTH & WAGES BY INDUSTRY**



Source: Oregon Employment Department (Employment growth: Jul08-Jul09, Averages wages: 2007-2008)  
 1/ Transportation, warehousing and utilities

Unemployment in the Portland metro area has risen steeply since a recent seasonally-adjusted low of 4.6% in December of 2006. As of November of 2009, the region’s seasonally-adjusted unemployment was 11.2%; 1.2 percentage points above the national rate of 10.0%. The unemployment rate in Columbia County was higher, at 12.7% in November 2008.

In this recession, Oregon has experienced high unemployment levels relative even to elevated national levels. In fact, in 2009, Oregon rivaled Michigan for the worst unemployment of all 50 states.

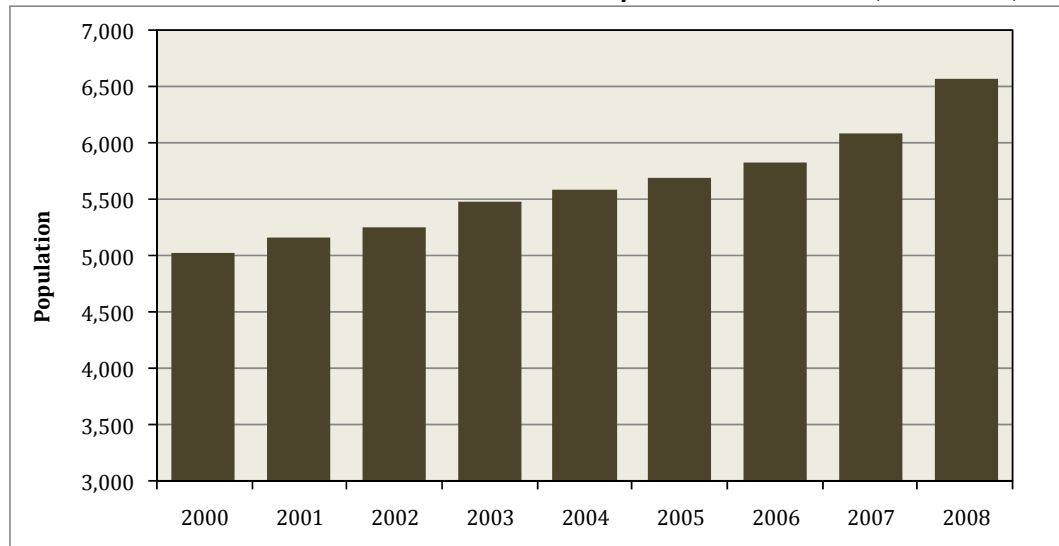
Nevertheless, Oregon’s unemployment rate has seen some improvement after peaking at 12.2% in May of 2009. The current rate is still well above the peak of 8.8% hit in June of 2003 following the previous tech-related recession.

**LOCAL AREA DEMOGRAPHICS**

Scappoose is a small city, with an estimated 6,580 residents in 2008. But it has steadily grown over the last decade, growing on average 3.4% a year since 2000, an increase of about one-third (see Figure 11).



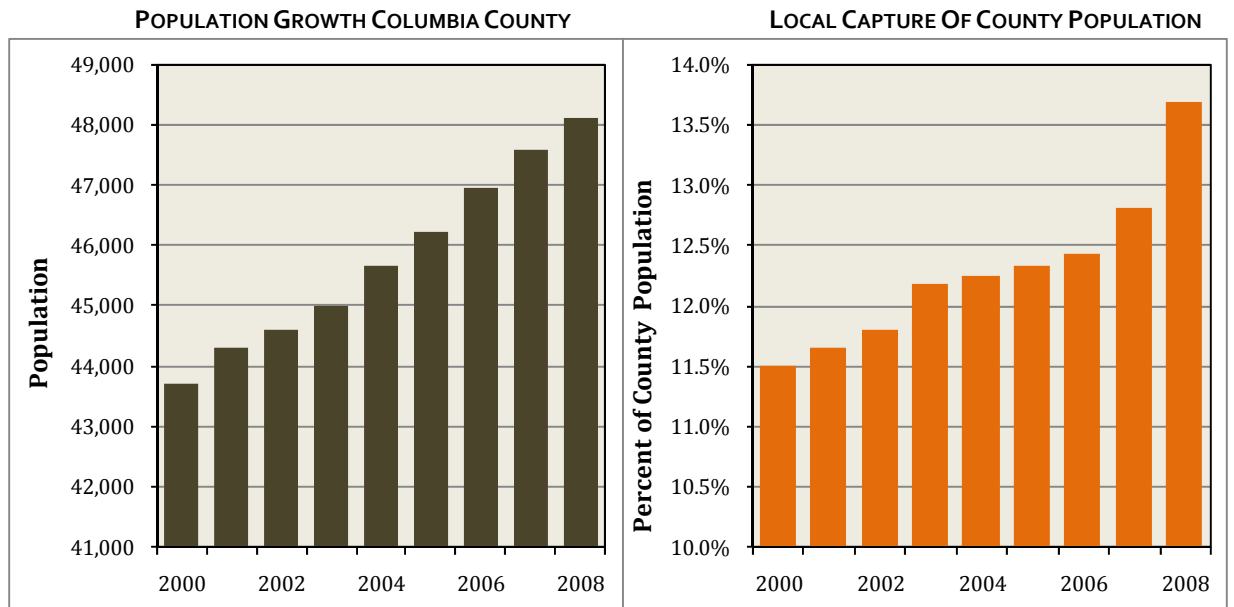
**FIGURE 11: LOCAL POPULATION GROWTH TRENDS, CITY OF SCAPPOOSE (2000-2008)**



SOURCE: Portland State University Population Research Center

Columbia County has grown at a slower rate—an average annual rate of 1.2% over the last decade. The majority of the growth has occurred in the County’s incorporated cities. Most new residents to the County are new residents to St. Helens or Scappoose while the unincorporated part of Columbia County has seen a decline in population. This trend has caused the City of Scappoose to make up a greater portion of the County’s population (see Figure 12).

**FIGURE 12: POPULATION GROWTH TRENDS (2000-2008)**

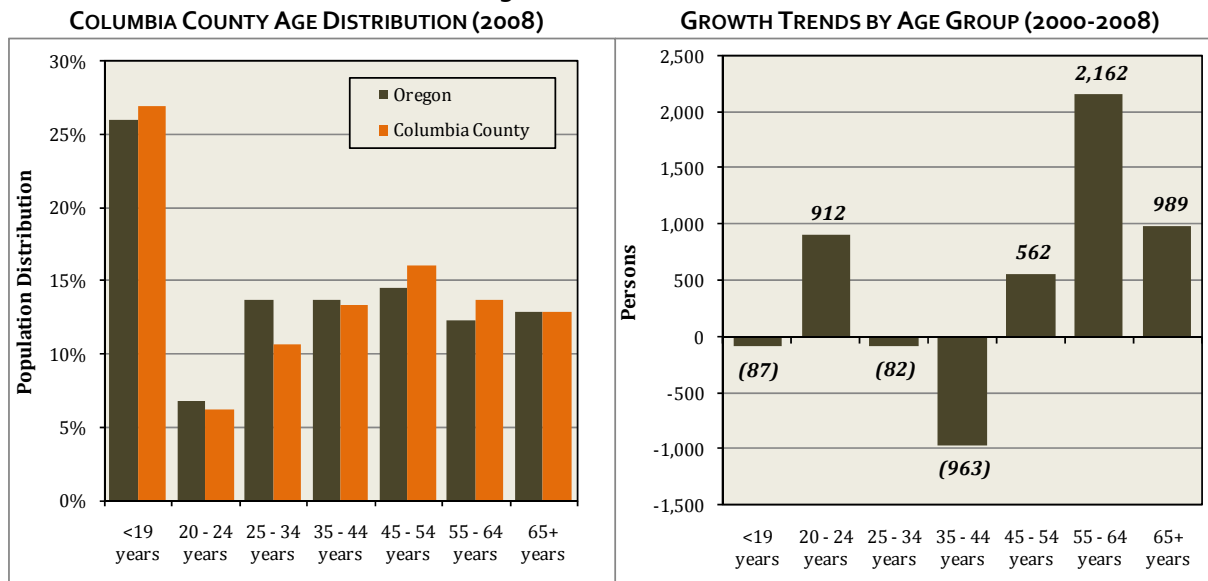


SOURCE: Portland State University Population Research Center

Population distribution by age in Columbia County closely resembles the statewide distribution pattern (Figure 13). The County has a smaller share of young, working-age adults (20 to 44 years) and a larger share of older, working-age adults (45 to 64 years). Columbia County’s population growth has been primarily caused by the in-migration of older, working-age and retirement-age residents. Over the last six years,

Columbia County has seen a very slight decline in the number of children and a larger decline in 35 to 44 year olds.

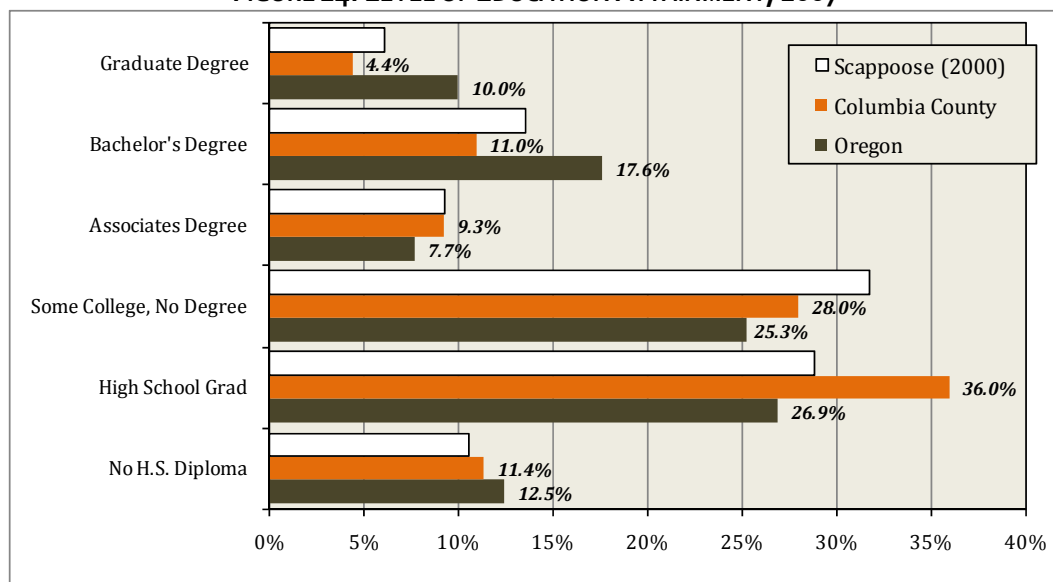
**FIGURE 13: POPULATION AGE TRENDS**



SOURCE: Portland State University Population Research Center

An area's level of educational attainment is often used as a proxy for the skill level of the population base. From an economic development perspective, Columbia County is at a slight competitive disadvantage regionally, with a lower distribution of higher educated persons—15.4% of local residents have a Bachelor's Degree or higher as compared to 27.6% at the statewide level. The City of Scappoose, however, has a higher portion of its population with a Bachelor's Degree or higher at 19.6% according to the 2000 Census. On average, the population of Scappoose is more educated than the population of Columbia County, but less educated than the statewide average, which is driven by the Portland metropolitan area. (See Figure 14.)

**FIGURE 14: LEVEL OF EDUCATION ATTAINMENT, 2007**



SOURCE: United States Census Bureau, American Community Survey. Data for Scappoose are from the 2000 Census, Oregon and Columbia County are from the 2005-2007 American Community Survey.

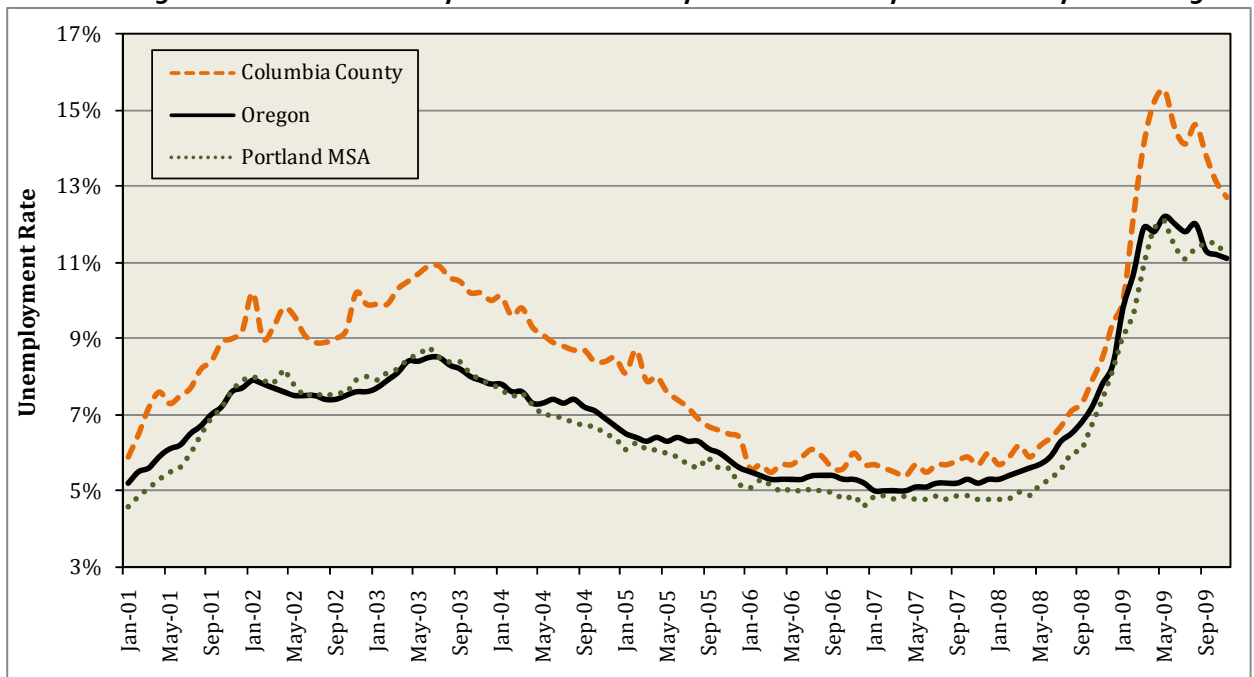
The demographic data show that Scappoose is growing rapidly and become both more integrated with and similar to the Portland metropolitan region and increasingly independent of as well as less like the rest of Columbia County.

**EMPLOYMENT**

Much economic data is reported at the county level. The discussion of economic trends in this report focuses on Columbia County, because the data are not available at a more precise geography. In this section, we also discuss trends in the Portland Metropolitan Statistical Area (MSA). The federal Office of Management and Budget defines MSAs, based on standards that area applied to Census Bureau data. The Portland MSA includes Columbia County.<sup>3</sup>

The unemployment rate in Columbia County closely tracks the statewide trend. Figure 15 shows the unemployment rate for Oregon, the Portland Metropolitan Statistical Area (MSA), and Columbia County. The data show that the Portland MSA dominates the statewide trend—the state’s population is concentrated in the Portland region, so statewide averages are heavily influenced by the urban area.

**FIGURE 15: UNEMPLOYMENT RATE, COLUMBIA COUNTY, PORTLAND MSA, AND OREGON, 2001-2009**



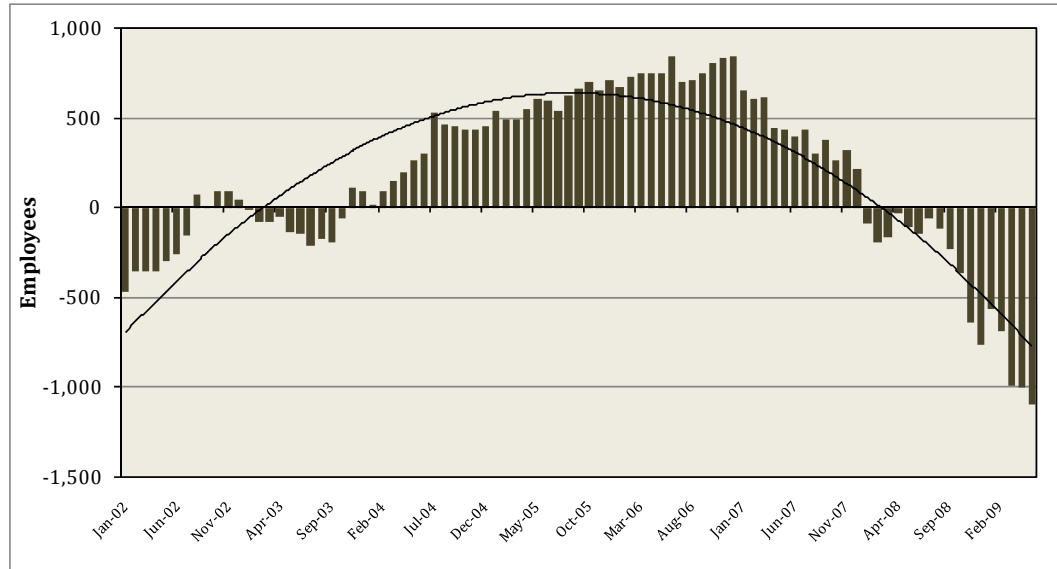
Note: The figure shows seasonally adjusted unemployment data.  
Source: Oregon Employment Department

After the high tech/stock market recession of 2001 to 2003, unemployment fell steadily until 2006. The unemployment rate was then steady at historically low levels until the second half of 2008, when it exploded upwards, following the national trend. In the year beginning May of 2008 the unemployment rate in Columbia County grew by over 9 percentage points, peaking at 15.5% in May of 2009. The rate has since begun to fall somewhat, though it remains highly elevated statewide.

<sup>3</sup> The Portland MSA includes all of Clackamas, Columbia, Multnomah, Washington and Yamhill Counties and Clark County, Washington.

Total employment in Columbia County grew about 1% a year in between 2001 and 2007 (See Figure 16). Regular year-over-year job losses began at the beginning of 2008, as the current global economic downturn took hold.

**FIGURE 16: YEAR-OVER-YEAR EMPLOYMENT GROWTH IN COLUMBIA COUNTY, 2002-2009**

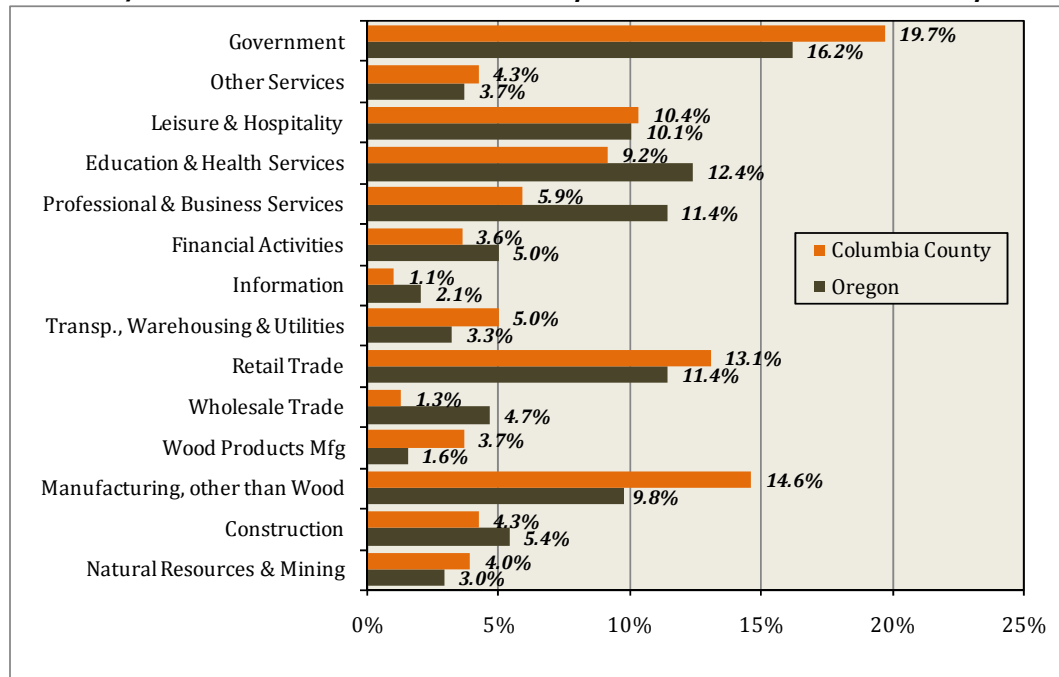


SOURCE: Oregon Employment Department

As shown in Figure 17, the industrial composition of Columbia County varies from the state:

- Columbia County has a higher portion of jobs in Manufacturing. Wood Products Manufacturing makes up 4.3% of nonfarm employment in Columbia County, a much higher portion than 1.6% in Oregon.
- Manufacturing other than Wood Products makes up 14.6% of nonfarm employment in Columbia County, higher than the statewide portion of 9.8%.
- Government makes up a higher portion of the Columbia County economy, making up 19.7% of jobs, higher than 16.2% in Oregon. The great majority of Government jobs in Columbia County are in Local Governments—half of all Government jobs are in the Education and Health Services sector, which includes K-12 Education.
- The County has a higher share of Retail Trade and Leisure and Hospitality jobs.
- The County has a lower share of Financial, Professional and Business, and Information jobs than the state as a whole.

**FIGURE 17: SHARE OF INDUSTRIAL COMPOSITION, COLUMBIA COUNTY AND OREGON, 2008**



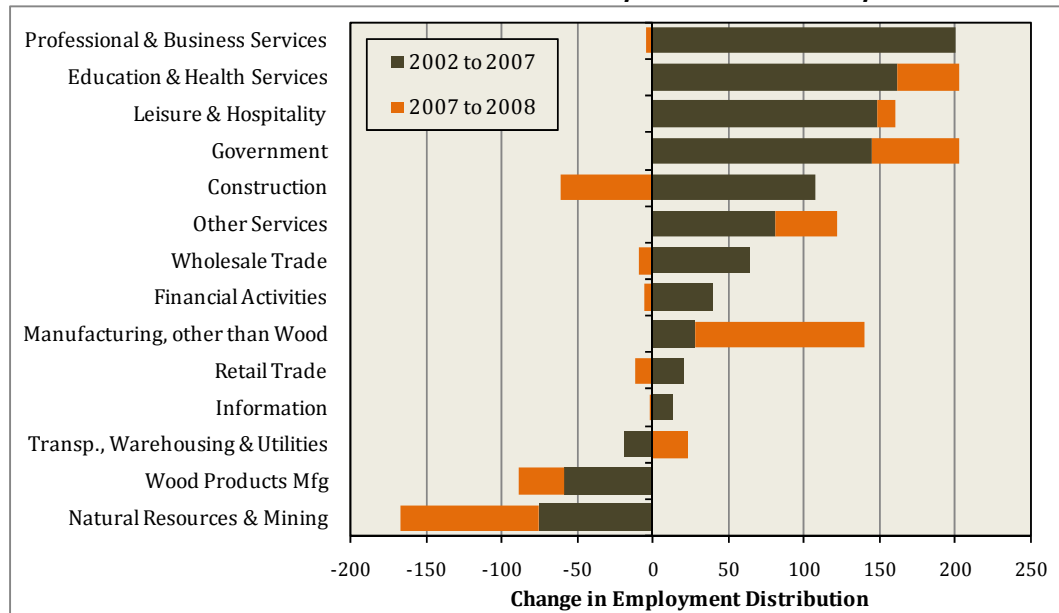
SOURCE: Oregon Employment Department

Figure 18 shows the change in employment by industrial sector during the five-year period between 2002 and 2007 and the drastic changes that occurred in 2008. The employment sectors that saw growth before 2008 include Professional and Business Services, Education and Health Services (non-government), and Leisure and Hospitality. The sectors that declined over the five-year period are Natural Resources and Mining and Wood Products Manufacturing. The shift in employment shows that the County's economy is becoming less dependent on natural resources and providing more services seen in urban areas.

The impacts of the global economic downturn can be seen in the employment changes in 2008. The Construction sector has been greatly affected across the United States, and also in Columbia County. The job losses in that sector in 2008 equal about 60% of the net gain in the previous five years. The negative growth in Wood Products Manufacturing and Natural Resources & Mining from 2002 to 2007 continued at a higher rate in 2008.

Columbia County bucked an international trend in 2008 by posting jobs gains in the Manufacturing (other than Wood) sector. The other sectors that grew in 2008—Education & Health Services, Leisure & Hospitality, and Government—are expected to continue expanding.

**FIGURE 18: EMPLOYMENT GROWTH BY INDUSTRY, COLUMBIA COUNTY, 2002-2008**

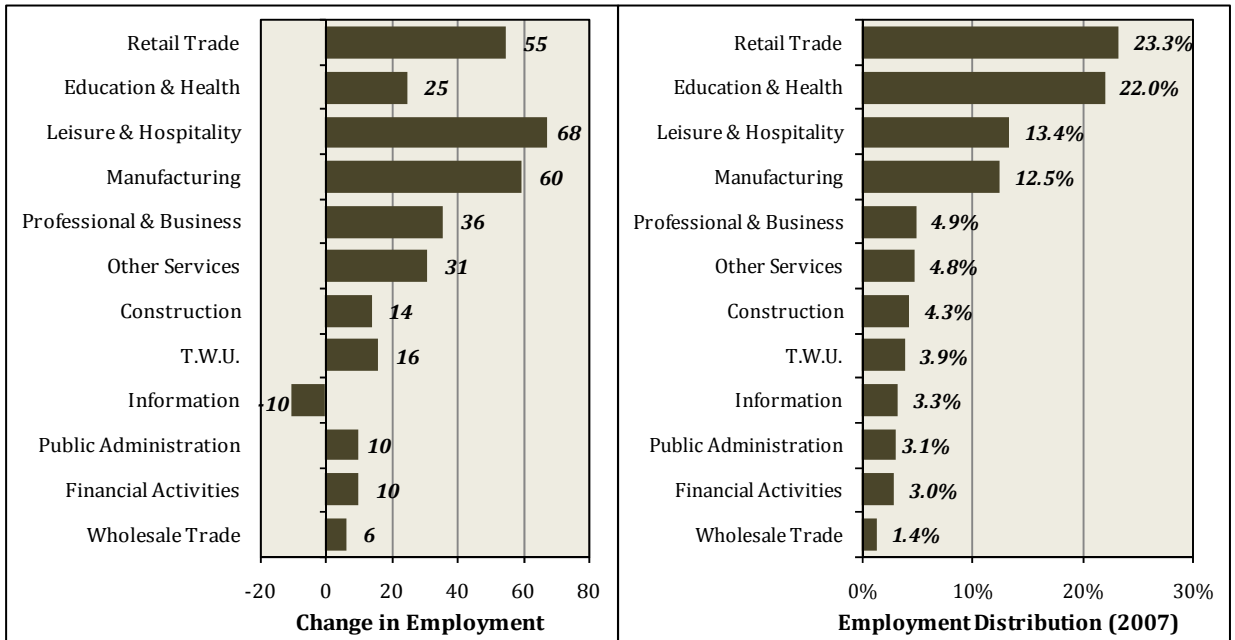


SOURCE: Oregon Employment Department

The largest employment sector in Scappoose is Retail Trade, comprising almost one-quarter of jobs in the City (see Figure 19). This sector accounts for twice the portion of jobs in Columbia County or Oregon. The high proportion of retail jobs is most likely due to the role Scappoose plays as the nearest retail center for the surrounding small towns and rural areas, and the convenience and visibility of the highway retail options.

Scappoose has a high portion of jobs in the Manufacturing sector, 12.5%. There are no jobs in the Wood Products Manufacturing sub-sector. Statewide, these jobs account for only 9.8% of all jobs. The Manufacturing sector saw significant growth since 2003, expanding by 41%. The Professional & Business sector saw strong growth since 2003 in Scappoose, but the sector makes up only 4.9% of local jobs. Statewide, the sector employs 11.4% of all jobs.

**FIGURE 19: EMPLOYMENT GROWTH AND COMPOSITION BY INDUSTRY, SCAPPOOSE, 2003-2007**

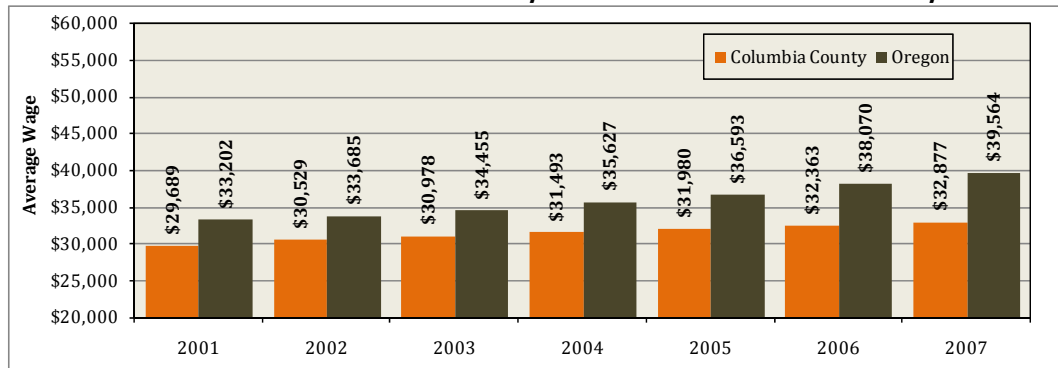


SOURCE: Oregon Employment Department

**WAGES**

Columbia County’s average wage levels by sector are significantly below wage levels statewide (see Figure 20). Across all industries, the Columbia County average wage was \$32,877, 17% below the Oregon average of \$39,564. Since 2002, wage levels in Columbia County have averaged 1.7% annual growth, below the 3.3% annual growth at the state level. In Scappoose, the average wage is lower than the countywide average. One reason is that the City’s economy is so dominated by the Retail sector, which pays low wages.

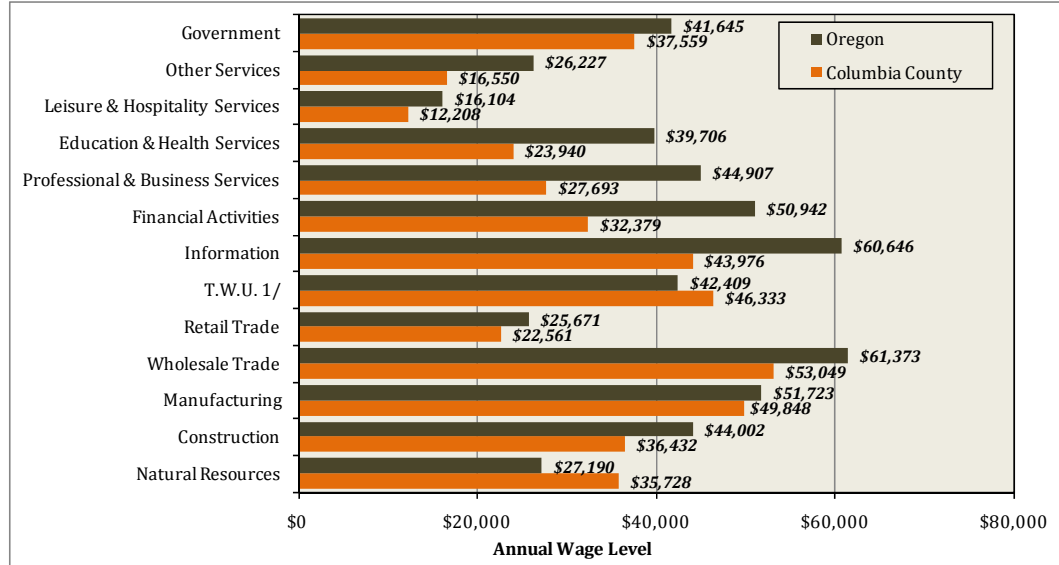
**FIGURE 20: AVERAGE ANNUAL WAGE GROWTH, COLUMBIA COUNTY AND OREGON, 2002-2007**



SOURCE: Oregon Employment Department Survey of Covered Employment & Wages

Wages by industrial sector in Columbia County (Figure 21) are lower than the statewide average, except for Natural Resources and Transportation, Warehousing and Utilities. The highest paid industries in Columbia County are Wholesale Trade (\$53,049) and Manufacturing (\$49,848). The lowest paid industries are Leisure & Hospitality (\$12,208) and Other Services (\$16,550).

**FIGURE 21: AVERAGE WAGE BY INDUSTRIAL SECTOR, COLUMBIA COUNTY AND OREGON, 2007**



SOURCE: Oregon Employment Department Survey of Covered Employment & Wages

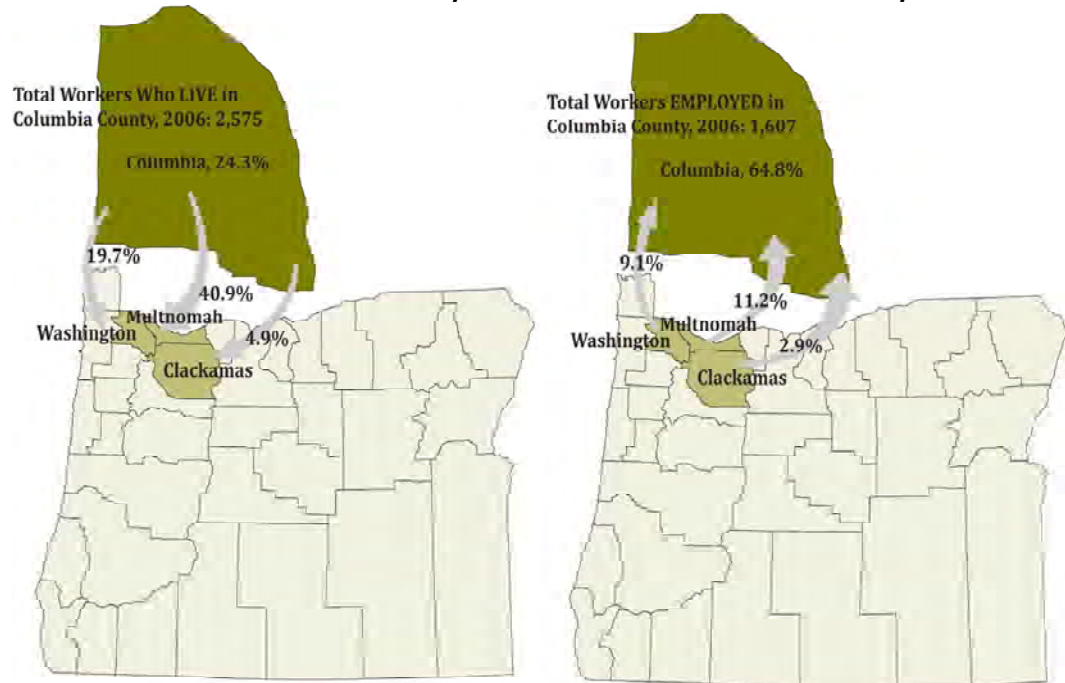
### COMMUTE PATTERNS

The commute patterns of workers in Scappoose and Columbia County show that the local area is integrated into the Portland economy. Figure 22 shows the portions of workers commuting into and out of Columbia County. The figure on the left shows that the portion of workers who live in Scappoose, and where they work. Only about one-quarter of working Scappoose residents work in Columbia County, while three-quarters commute to jobs outside the County. The largest portion—41%—commute to Multnomah County. About 20% commute to Washington County and 5% to Clackamas County. The remainder commutes to a wide assortment of destinations, including Clark County, Washington, Yamhill County, Marion County, and even more distant areas.

Workers from the region commute to Scappoose, but to a much lesser degree. There are fewer jobs in Scappoose than working individuals in Scappoose. The 2006 data show 1,607 jobs in Scappoose compared to 2,575 workers living in Scappoose. The great majority of individuals working in Scappoose live in Columbia County—65%. But significant portion of workers commute to Scappoose from Multnomah County (11%) and Washington County (9%). Scappoose jobs attract workers from Clackamas County, Clark and Cowlitz Counties in Washington, Marion County, and others.



**FIGURE 22: COMMUTE TRENDS, INTO AND OUT OF COLUMBIA COUNTY, 2006**



SOURCE: US Census Bureau, LED Origin-Destination Data Base

### EXISTING CLUSTERS

Sound economies are best organized around a healthy set of industry clusters—similar and related businesses and industries that are mutually supportive, regionally competitive, attract capital investment, and encourage entrepreneurship. In his pioneering book “The Competitive Advantage of Nations”, Harvard University Professor Michael Porter defines clusters as “geographic concentrations of inter-connected companies and institutions working in a common industry”. As an economic development strategy, specific clusters are targeted, and emerge, when a particular geography holds an innate competitive advantage in that industry—whether it is natural resources, human capital, political policies or geography. For example, Oregon’s oldest industries—namely forestry and agriculture, emerged from physical and environmental attributes such as its climate, trees, soils, and access to shipping and distribution networks. In turn, these industries spawned interrelated clusters that include Food Processing & Manufacturing, Wood Product Manufacturing, Wholesaling & Distribution, Machinery Manufacturing, and host of other industries.

With shared ideas, concepts, and competition, knowledge spillover within clusters encourages secondary effects—innovation, the creation of start-ups and spin-off industries, and opportunities for suppliers, manufacturers, and customers. In turn, effects from job creation wages support tertiary effects such as retail, services, construction, and institutional industries.

Johnson Reid analyzed the Quarterly Census of Employment and Wages<sup>4</sup> data for Scappoose to determine industries and industry clusters in which the local economy is both regionally competitive and/or has growth potential. The data show firm-level employment and wages in the City of Scappoose. Johnson Reid reviewed the data to determine industries that have clustered in the area. Johnson Reid also interviewed individuals at the Employment Department, the City, the Chamber of Commerce, and local business representatives.

Based on the interviews and data analysis, we identified three industry clusters with an existing competitive presence in Scappoose, described below.

<sup>4</sup> The Quarterly Census of Employment and Wages (QCEW) is prepared by the U.S. Bureau of Labor Statistics

### **Aviation Manufacturing and Services**

Scappoose is the center of a cluster of aviation-related firms. The majority of firms in the cluster are classified in the Manufacturing industrial sector, but others are in the Transportation, Warehousing, and Utilities sector, and some are in the Professional and Business Services sector. The cluster provides jobs at a variety of skill and wage levels.

The cluster includes firms that provide basic airport services, such as airplane repairs and fuel. But most of the firms produce innovative aircraft-related equipment. The Scappoose Airport website shows the following firms are located at the Scappoose Industrial Airpark:

- Columbia Aviation Center – Aircraft maintenance and flight training
- Composites Universal – Manufacturer of composite aircraft components
- Evergreen Aviation Services and Restoration – Aircraft restoration and parts
- MetalCraft Machine Inc. – Aerospace and general CNC machining
- Oregon Aero Inc. – Manufacturer of aircraft seats, helmets, and accessories
- Overall Aircraft Services – Aeroplane and helicopters parts and maintenance
- Scappoose Jet Center – Hangar space and jet aircraft sales
- Sherpa Aircraft – Manufacturer of Sherpa airplanes
- Sport Copter – Gyroplane manufacturing and flight instruction
- TransWestern Aviation, Inc. – Fuel, parts, supplies, courtesy cars.

The Scappoose Airport has played an essential role in attracting these firms to the area. There are 16 public-use airports within a 30 nautical-mile (nm) radius of Scappoose Industrial Airpark. Only three of these airports have a runway 5,000 feet or greater, which is generally preferred by corporate aviation departments operating turbine aircraft. This makes this airport ideal for many turbine aircraft and enhances the airport's role as a major local airport in the Portland Metropolitan Area for general aviation. In addition, the airport is considering a runway extension, potentially amounting to an additional 20% to 30% increase in length. Portland International Airport, whose longest runway is 11,000 feet, is the only commercial service airport within 30 nautical miles.<sup>5</sup>

The Port of St. Helens owns and manages the Scappoose Industrial Airpark and the Airport. The firms are all renters—the Port does not sell the land, it only leases it. The City sees little gain from the industrial activity; the site does not generate property tax because it is publicly owned. At this time, the City does not directly benefit greatly from the cluster. It would gain more from new firms locating off Port property.

The aviation-related cluster has room to grow in Scappoose. Although much of the industry is struggling in the current economic downturn, the firms in Scappoose are well positioned to grow when the economy turns. Some of the firms specialize in lightweight aircraft and aircraft parts, which improves aircraft fuel efficiency. The products are expected to be in demand as fuel prices increase, a likely event when the worldwide economy enters an expansionary period.

The Scappoose Airport has the ability to provide aviation-related businesses access both from Port property, and “through the fence” operations from adjacent private property. The ability to provide “through the fence” options is attractive to many firms looking to invest in their own land and property value, rather than renting from the Port. This feature would be rare in Oregon and would likely offer a material competitive advantage to Scappoose in attracting aviation-related businesses.

Aviation firms have attempted to locate in Scappoose. Oregon Business Development Department (OBDD) staff report that firms have tried to find a site in Scappoose, but there is a lack of suitable land. OBDD has to turn away firms seeking to locate in Scappoose.

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<sup>5</sup> *Airpark Master Plan Update for Scappoose Industrial Airpark, Scappoose, Oregon.* Prepared for the Port of St. Helens by W&H Pacific. September 2004.

## **Retail**

The largest industrial sector in Scappoose, in terms of number of jobs, is Retail Trade. Almost one-quarter of all jobs within Scappoose are Retail jobs, a significantly higher portion than in Columbia County (13%) or Oregon (11%). One reason for the large number of Retail Trade jobs is simply the small number of jobs overall. As the discussion about commute trends in the previous section showed, many more workers live in Scappoose and commute elsewhere, than work in Scappoose. Retail makes up a large piece of the employment pie in Scappoose because the whole employment pie is smaller.

If one compares the ratio of population to Retail Trade jobs, there are relatively more Retail Trade jobs in Scappoose. In Scappoose, there are about 16 residents for every Retail Trade jobs. Across Oregon, there are about 19 residents for every Retail Trade job.

Columbia County captures some retail sales from Washington residents because of the lack of sales tax. Scappoose's advantage for retail stems mostly from its location as the first stop for Columbia County residents returning home from employment in the Portland area. The Fred Meyer store in Scappoose attracts shoppers from outside of Scappoose.

There is one large retail strip in Scappoose, located on Havlik Drive just south of the Fred Meyer. Built in 2001, the project is about 20,600 square feet. The property has experienced some vacancy.

In addition to auto-oriented retail centers near Highway 30, Downtown Scappoose offers pedestrian-scale retail and commercial service space, with access from civic and business users, and surrounding neighborhoods. The Downtown features its own retail profile which leverages its walkable scale and local offerings.

The retail sector has an opportunity to grow. At this time, Scappoose is under-retailed. Many goods and services are not available. Some of the interviewed individuals felt that there is an opportunity for new retail and service firms (accountants, attorneys, etc.) that would serve the local population. Scappoose is likely to become more service oriented in the future, as the number of residences grows. These firms will seek small to medium retail sites.

In the case of the Fred Meyer store, Scappoose has demonstrated that it is a successful central location for a larger-format store to serve the surrounding smaller communities and rural areas. While overall, an estimated 36% of local resident spending leaves the area, in the "general merchandise" category which includes Fred Meyer, the city attracts 75% more spending than is accounted for by local residents alone. Thus, Scappoose may be a good candidate for additional large-format retailers, representing regional or national chains, in categories which do not directly compete with the Fred Meyer store. Such retailers would seek larger sites, with access and visibility from the highway.

## **Nurseries**

Through our research on the Scappoose economy, a number of individuals familiar with the Scappoose economy reported that the area is home to a Nursery Products cluster. The Scappoose area traditionally included extensive farming. The farming industry has declined, but the nursery industry had gained a strong foothold.

The nurseries in the area, however, are located outside the UGB. None of the firms appeared in Johnson Reid's analysis of the QCEW employment data. The firms are an agricultural use and they require agricultural lands. It would be inappropriate to plan to accommodate the firms within the City's Urban Growth Boundary.

### III. TWENTY-YEAR EMPLOYMENT FORECAST

This analysis updates the employment forecasts within the city of Scappoose’s urban growth boundary. The employment forecasts were generated from 2010 through 2030. The primary source of data on current employment patterns was derived from the State of Oregon Employment Department’s ES-202 reports.

#### CREATING A BASE YEAR

For the year 2006, ES-202 reports estimate employment in Scappoose to total 1,641 employees. However, the source ES-202 data reports “covered employment” only—employer firms that are tracked through unemployment insurance. Because this data omits a significant portion of the workforce who are not covered (i.e. sole-proprietors, self-employed, commission workers), the estimates must be revised to reflect true employment. Estimates from the Bureau of Economic Analysis (BEA) indicate that in 2006 covered employment accounted for approximately 67.9% of total employment in Columbia County, with individual estimates reported by broad sector. Assuming that Scappoose roughly tracks the countywide trend, the total employed level in 2006 is estimated to be in the area of 2,418 employees, as depicted in Figure 23.

**FIGURE 23: CONVERSION OF COVERED EMPLOYMENT TO TOTAL EMPLOYMENT (2006)**

NAICS	Scappoose UGB Covered Employment 1/	Covered Share of Total Employment 2/	Estimated Scappoose UGB Total Employment
Natural Resources	-	87.5%	-
Construction	71	52.8%	135
Manufacturing	206	89.5%	230
Wholesale Trade	22	88.9%	25
Retail Trade	383	73.1%	523
Transportation, Warehousing and U	64	81.8%	78
Information	54	68.9%	79
Financial Activities	49	63.5%	77
Professional & Business Services	81	79.9%	101
Education & Health Services	362	57.9%	625
Leisure & Hospitality	221	77.4%	285
Other Services	79	37.8%	208
Public Administration	51	97.2%	52
<b>TOTAL</b>	<b>1,641</b>	<b>67.9%</b>	<b>2,418</b>

1/ From the Oregon Employment Department ES-202 data

2/ Data from the Bureau of Economic Analysis for 2007, the most recent year complete data is available. Assumptions displays the percent of total wage and salary (covered) employment to total nonfarm employment in Columbia County

SOURCE: Oregon State Employment Department, U.S. Bureau of Economic Analysis, and JOHNSON REID

The second step to creating the base year estimate is updating the 2006 total employment estimate to the current period. This process involves the evaluation of countywide economic trends between 2006 and 2010 in addition to current knowledge about local economic activity in Scappoose. Outlined in Figure 24, it is assumed that between 2006 and 2010 the Scappoose economy grew at a modest pace, averaging 0.1% annual growth to 2,425 total employees. This low level of growth reflects the period of job losses in 2008 and 2009.

This estimate of 2010 employment will be utilized as the basis of the long-term employment forecast.

**FIGURE 24: UPDATING 2007 TOTAL EMPLOYMENT TO THE CURRENT PERIOD (2010)**

NAICS	2006 Total Employment	Short Term Annual Growth Assumption 1/	2010 Total Employment Estimate
Natural Resources	-		-
Construction	135	-3.1%	119
Manufacturing	230	-1.7%	215
Wholesale Trade	25	-1.5%	24
Retail Trade	523	-0.2%	519
Transportation, Warehousing and Utilities	78	1.1%	81
Information	79	-0.2%	78
Financial Activities	77	-0.3%	76
Professional & Business	101	-0.2%	101
Education & Health	625	1.1%	652
Leisure & Hospitality	285	-0.3%	281
Other Services	208	2.0%	225
Public Administration	52	0.7%	54
<b>TOTAL</b>	<b>2,418</b>	<b>0.1%</b>	<b>2,425</b>

1/ Based on 2006 to 2009 realized growth trend. Oregon Employment Department.

Source: Oregon Employment Department and JOHNSON REID

Figure 25 outlines historical growth rates between 2003 to 2007 for Oregon, Region 1 (Clatsop, Tillamook and Columbia counties) and the City of Scappoose and as well as the State of Oregon's most recent employment growth forecast for Region 1. Further, Figure 25 indicates that the City of Scappoose has experienced a level of overall growth that has outpaced State and regional growth: 5.6% versus 2.6% and 2.8%, respectively.

Scappoose's expansion has been driven by exceptional growth in certain industries. Particularly notable are Manufacturing [9.0% Average Annual Growth Rate (AAGR)], Wholesale Trade (8.5% AAGR), Trade, Warehousing and Utilities (7.6% AAGR), Financial Activities (5.9% AAGR), Professional & Business Services (15.8% AAGR), Leisure & Hospitality (9.6% AAGR), Other Services (13.3% AAGR) and Public Administration (5.7% AAGR). Explained in further detail in the next section, the historical growth rates and the state's growth projections outlined in Figure 25 are used as baseline estimates to forecast the rate of employment growth by industry in this analysis.

**FIGURE 25: HISTORICAL GROWTH AND ANTICIPATED REGIONAL GROWTH**

NAICS	2003-2007 AAGR			Region 1 Forecast		Avg. Annual Growth Rate
	Oregon	Region 1	City of Scappoose	2006	2016	
Natural Resources	-	-	-	890	890	0.0%
Construction	7.7%	7.4%	5.6%	2,120	2,560	1.9%
Manufacturing	1.1%	0.3%	9.0%	5,490	5,570	0.1%
Wholesale Trade	2.1%	6.0%	8.5%	420	460	0.9%
Retail Trade	2.1%	2.1%	3.9%	4,900	5,740	1.6%
T.W.U.	1.3%	0.6%	7.6%	1,120	1,240	1.0%
Information	1.8%	-0.2%	-4.2%	370	390	0.5%
Financial Activities	0.6%	2.2%	5.9%	1,500	1,680	1.1%
Professional & Business	3.9%	7.0%	15.8%	1,690	2,020	1.8%
Education & Health	2.9%	2.7%	1.8%	3,630	4,660	2.5%
Leisure & Hospitality	3.3%	3.8%	9.6%	5,930	6,980	1.6%
Other Services	1.9%	4.0%	13.3%	1,300	1,470	1.2%
Public Administration	2.2%	2.4%	5.7%	6,790	7,250	0.7%
<b>TOTAL</b>	<b>2.6%</b>	<b>2.8%</b>	<b>5.6%</b>	<b>36,150</b>	<b>40,910</b>	<b>1.2%</b>

SOURCE: Oregon Employment Department

Over the forecast period (2006–2016), the region's employment growth is projected to average 1.2% across all industries. The Education & Health (2.5% AAGR) sector is expected to display accelerated growth at the regional level during the period with Construction (1.9% AAGR), Professional & Business (1.8% AAGR), Retail

Trade (1.6% AAGR) and Leisure & Hospitality (1.6% AAGR) also expecting solid growth rates. Modest rates of growth are expected in the Manufacturing (0.1% AAGR) and Information (0.5% AAGR).

## **EMPLOYMENT FORECAST BY INDUSTRY SECTOR**

This section presents the forecast of total employment in Scappoose between 2010 and 2030. The projections are based on the current estimated total employment in Figure 24. From this starting point, the forecast utilizes the City of Scappoose historical growth rates by industry (Figure 25), interviews with State and local officials as well as the State of Oregon Region 1 projected growth rates by sector (Figure 25) to project employment through 2030. In the case of Scappoose, an example of the impact the former sources have on employment projections will be noticed in the manufacturing sector. The 2006-2016 OED forecast projects manufacturing growth in Region 1 of only 80 jobs (0.1% AAGR) over the ten year period. The forecast below indicates a 9.0% AAGR reflecting a strong ES-202 trend, a positive outlook by area business and State representatives working in the area.

It could also be argued that it is inappropriate to apply Region 1 forecasts to the City of Scappoose. Apart from the Oregon Employment Department's regional classifications, Scappoose and Columbia County are generally considered part of the Portland Metropolitan Statistical Area (MSA). In other words, Scappoose is highly influenced by Portland economic trends and it is far more appropriate to consider Scappoose's future employment growth in terms of expected Portland area trends rather than those of the coastal counties of Clatsop and Tillamook, which are dependent on entirely different forces.

Metro's recent Urban Growth Report (UGR) forecasts employment for the Portland MSA through 2030. The purpose of Metro's employment forecasts are to eventually project employment within its urban growth boundary (UGB). While Scappoose is part of the Portland MSA and thereby included within the overall employment forecasts produced by Metro, it is not part of the Metro region UGB and therefore outside of Metro's forecast specific to the UGB. Metro's 2030 employment forecast for the Portland MSA ranges from a total employment of 1,252,200 under a low-growth scenario to 1,695,300 under a high growth scenario. Metro then assumes that 73% of the growth realized by 2030 will be captured within the Metro region UGB. That leaves 27% of growth through 2030 or total employment of 338,094 under a low-growth scenario to 457,731 under a high-growth scenario going to the MSA outside of Metro's UGB. A substantial portion of the expected remaining growth will go to Clark County with the smaller jurisdictions of Skamania, Multnomah, Clackamas, Yamhill, Washington and Columbia counties capturing the remainder. According to the forecast for the City of Scappoose in Figure 26, Scappoose would need to capture a conservative 1.9% of the remaining growth under the low-growth scenario or 1.4% under the high growth scenario. Assuming Scappoose continues its successful growth pattern, this will easily be achieved.

Figure 26 outlines the City of Scappoose employment forecast through 2030. As shown, the employment forecast anticipates an increase of 8,068 jobs (7.6% AAGR). Professional & Business Services, Other Services, Manufacturing, and Retail Trade, are expected to account for approximately 67% of net new growth over the forecast period. Other promising sectors are Transportation, Warehousing & Utilities, Education & Health and Leisure & Hospitality, accounting for an additional 25% of new net growth.

**FIGURE 26: 20-YEAR EMPLOYMENT FORECAST (2010-2030)<sup>6</sup>**

Employment Forecast NAICS	Base Year	Employment Forecast				2010-2030 Growth	
	2010	2015	2020	2025	2030	Jobs	AAGR
Natural Resources	0	0	0	0	0	0	0.0%
Construction	119	150	189	239	301	182	4.7%
Manufacturing	215	523	894	1,359	1,970	1,755	11.7%
Wholesale Trade	24	36	54	81	122	98	8.5%
Retail Trade	519	773	1,051	1,357	1,698	1,179	6.1%
T.W.U.	81	153	241	351	494	412	9.4%
Information	78	80	82	85	87	9	0.5%
Financial Activities	76	101	135	179	239	163	5.9%
Professional & Business	101	192	350	628	1,126	1,025	12.8%
Education & Health	652	815	1,014	1,258	1,557	905	4.4%
Leisure & Hospitality	281	389	538	745	1,030	749	6.7%
Other Services	225	374	620	1,028	1,707	1,481	10.7%
Public Administration	54	71	94	124	164	110	5.7%
<b>TOTAL</b>	<b>2,425</b>	<b>3,657</b>	<b>5,261</b>	<b>7,433</b>	<b>10,492</b>	<b>8,068</b>	<b>7.6%</b>

SOURCE: Oregon Employment Department and Johnson Reid LLC

The potential for growth in Scappoose is based on several factors. First, the City has maintained exceptional growth during the last six years and although some of that growth has been eroded recently, the area has held up well. Despite a nationwide severe recession, Columbia County maintained a 1.6% growth rate between 2007 and 2008.

Scappoose’s success is due in part to its distinct location, which offers both close proximity to Portland and Hillsboro as well as a convenient route to by-pass Portland in order to reach Interstate 5 to the north through Longview. In addition, Scappoose is uniquely connected to the Columbia River as well as a regional airport, which is expected to be the next expansionary airport as Portland International Airport (PDX) and the Hillsboro airport confront both congestion and residential encroachment.

Some firms will find the location unsuitable—particularly the high-tech firms that require seismically stable land. Scappoose lies on deep gravel beds, not bedrock. It is not considered likely to attract those firms. But many other firm types will find Scappoose an attractive location. The ability of Scappoose to attract employers depends on its ability to provide basic urban infrastructure to sites meeting the following criteria:

- Large acreage, best if a mix of sizes is available, ranging from 50 to 200 acres
- Flat topography
- Regular shape, such as a square or rectangle
- No environmental contamination
- Free of wetlands
- Industrially zoned
- Direct access to Highway 30, along an uncongested road with no tight turns
- Direct freight rail access
- Airport

Second, much of Scappoose’s potential is due to external factors related to its proximity to the Portland metro area and Hillsboro. Johnson Reid conducted interviews with representatives from the Oregon Business Development Department (OBDD) to identify the regional factors that affect economic development in Scappoose. OBDD staff reported the following factors that will affect Scappoose’s long-term potential:

- Oregon has a scarcity of large industrial sites, specifically sites 100 acres or greater.

<sup>6</sup> It should be noted that employment forecasts are speculative over a twenty year horizon.

- The great majority of firms seeking to locate in Oregon are searching for a site between 10 and 200 acres. About half the firms require a site between 10 and 50 acres and another third require a site between 50 and 200 acres.
- Industrial parcels of versatile size and reasonable development cost have grown scarce in the Willamette Valley near Interstate 5, particularly in the Portland metro area. The decision by Walmart to locate its distribution center in Hermiston, for example, was driven in part by the issue of industrial land availability with excellent transportation access and reasonable cost.
- OBDD has been turning away firms with interest in locating in Scappoose because the City lacks large, shovel-ready sites.
- Currently, much of Scappoose’s potential is connected to the aviation industries clustering at the Scappoose Industrial Airpark. These industries typically need large sites due to the large components with which they work as well as need for staging and future development. The Airpark benefits from both available Port locations and private lands with potential “through the fence” access to the airport.

Metro’s recently prepared Urban Growth Report and associated research reveal an undersupply of large industrial lots in the Metro region.<sup>7</sup> A review by Johnson Reid of all employment parcels included in the published inventory, regardless of parcel ratings as established by Metro, indicates the following:

Size	Gross Acreage	Net Buildable Acreage
Median	2.2	1.8
Mean	4.9	4.0
Modal 1/	1.05	0.9

1/ Modal size refers to the most common size available

In other words, the vast majority of the employment land inventory—regardless of quality rating—as published, is predominantly very small and unsuitable for the vast majority of industrial land development types regardless of potential FAR realized on site. In short, the Metro region lacks large industrial lots. Moreover, it seems that Metro has adopted policies which may exacerbate Portland’s lack of industrial land. In the UGR report, Metro concluded the following:

“The current employment demand forecast and the analysis of employment capacity within the UGB do not indicate a need to add land to the boundary for industrial or non-industrial purposes at the regional level to meet statutory requirements to ensure sufficient capacity to support the region’s forecasted employment at the low end of the demand range. However, the analysis does show a need for additional capacity through investments, policy changes, or expansions to support the high end of the demand range for non-industrial employment. Further analysis of preferences for large lots and the current inventory results in a small potential gap in the land needed to support current preferences for large lot formats for single and multi-tenant users.”

If the Metro area does not expand its UGB, the implication for Scappoose is that there will be some spillover demand for large industrial sites within the UGB, giving Scappoose an opportunity to capture considerable spillover growth from the Portland metro area. As Scappoose is not part of Metro’s jurisdiction, but is part of the Portland regional economy, the City is well placed to provide the large land types that Metro has limited.

<sup>7</sup> See Metro’s report at [http://library.oregonmetro.gov/files/3b-urban\\_growth\\_report.pdf](http://library.oregonmetro.gov/files/3b-urban_growth_report.pdf)



## IV. EMPLOYMENT LAND NEEDS ANALYSIS

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### INTRODUCTION

This section summarizes the projected demand for commercial and industrial land associated with the employment projections through 2030. Results are followed by a description of the methodology employed by JOHNSON REID to project the demand for commercial and industrial space, and subsequently, commercial and industrial land.

Determining the City's required site types for various, future employers and users involves qualitative and quantitative analysis. The qualitative analysis describes the site characteristics expected to be demanded by firms during the planning period. There are three components to the quantitative analysis. The first describes the types of firms likely to locate in the City of Scappoose during the planning period. This component was completed through the Target Industry Opportunities Analysis above. The second component involves projections of employment. These employment projections were summarized in the previous section. The third component combines these employment projections with the qualitative component of the Site Requirements analysis to project the commercial and industrial land demand and the demanded numbers of sites.

### SUMMARY OF EMPLOYMENT LAND DEMAND FINDINGS

The results summarized in Figure 27 highlight projections of net new demand within current and potentially future urbanized Scappoose for commercial and industrial land between 2010 and 2030. Detailed findings by use type and growth scenario are included in the technical appendix.

- Through 2030, net new demand for employment land is expected to reach 400 net buildable acres and 483 gross acres.
- Industrial land demand is expected to predominate net new land demand through 2030, accounting for approximately 56% of new land need.

Figure 27 projections reflect *net* suitable land, required only for building and impervious surface space requirements. Roads, right-of-ways, parks and public facilities, among other things necessary to serve projected land development, are not included. While the methodology is not based on a set density per acre assumption, the output reflects the following average jobs per net acre by broad employment land development categories across the planning period.

AVERAGE JOBS/NET ACRE	
INDUSTRIAL	14.3
OFFICE COMMERCIAL	37.9
RETAIL COMMERCIAL /LODGING	35.0
SPECIALIZED USES	11.4

In addition to the demand for actual sites, the need for public rights of way and infrastructure must be estimated in order to project the total amount of lands that would be required in the event the Urban Growth Boundary were expanded to provide land for needed employment sites.

It is estimated that in general, 15% of gross land area will be used for extending infrastructure into new areas to serve new development. Thus net buildable acreage equals 85% of the gross acreage. For industrial uses, a greater 19% of gross acreage was assumed to reflect the greater shared infrastructure necessary at airpark development to allow for the movement of aircraft.

Figure 27 below projects both net and total land demand for the City of Scappoose.

**FIGURE 27: PROJECTED AGGREGATE LAND NEED IN THE SCAPPOOSE UGB, 2010-2030 (NET & GROSS ACRES)**

<b>Need For Land</b>		
<b>Use Type</b>	<b>Net Acres</b>	<b>Gross Acres</b>
<b>INDUSTRIAL</b>	<b>217.9</b>	<b>269.0</b>
<b>OFFICE COMMERCIAL</b>	<b>54.7</b>	<b>64.4</b>
<b>RETAIL COMMERCIAL</b>	<b>33.6</b>	<b>39.6</b>
CITY RESIDENTS	26.7	31.4
REGION/TOURISTS 1/	7.0	8.2
<b>SPECIALIZED USES 2/</b>	<b>93.5</b>	<b>110.0</b>
<b>TOTAL</b>	<b>399.8</b>	<b>483.0</b>

1/ Based on current ratios between locally supported and total sales, CE Survey from the BLS and Census of Retail Trade.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized.

SOURCE: JOHNSON REID

### **INDUSTRIAL AND OFFICE LAND DEMAND METHODOLOGY**

Demand for industrial and office commercial land is a direct function of employment growth in industrial sectors that occupy this type of space. As a result, the projections of industrial and office demand are based on forecasted employment growth by industrial sector within the City of Scappoose. Methodology for forecasting demand for industrial and office commercial land follow a standard, multi-step process, summarized below. A number of exhibits are referenced, which are found in the technical appendix to this document.

### **DEMAND FOR OFFICE BUILDING SPACE AND LAND**

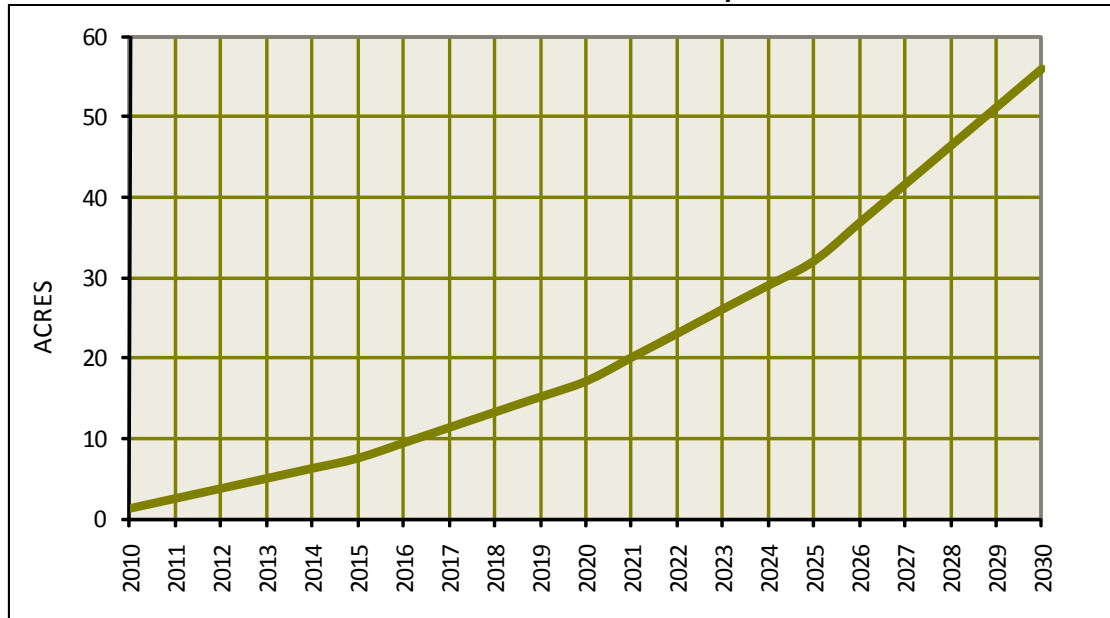
Sector employment growth is converted into growth in office employment based on typical percentages of jobs, or capture factors, by sector that will be located in office development rather than industrial development. Employment density ratios, the average space in square feet necessary per office job, were utilized to calculate total office space demand given projected employment growth. Ratios and densities utilized are from the Urban Land Institute.<sup>8</sup>

Demand for office land is a conversion of demand for space by an office floor area ratio (FAR). FAR is defined as the gross leasable building area divided by the buildable land area used. For example, a 5,000 square foot office building on a 10,000 square foot site would be an example of a 0.50 FAR. For Scappoose projections, JOHNSON REID assumed a relatively conservative 0.35 FAR.<sup>9</sup> (See Figure 28)

<sup>8</sup> See Technical Appendix: Exhibits 1.01 and 1.02

<sup>9</sup> See Technical Appendix: Exhibit 1.03

**FIGURE 28: CUMULATIVE OFFICE LAND DEMAND, SCAPPOOSE UGB**



SOURCE: Johnson Reid, LLC

#### **DEMAND FOR INDUSTRIAL BUILDING SPACE**

Scappoose’s projected industry employment growth is converted into growth in industrial employment based on typical percentages of employment by sector that will be located in industrial space. Employment is then further stratified by type of space, including warehouse/distribution, general industrial and high-tech/flex space. Finally, employment density ratios, calculated as average square feet of space necessary per industrial job, were utilized to calculate total space demand by industrial space type given projected employment growth. These ratios and densities are based on industry standards.<sup>10</sup>

#### **DEMAND FOR INDUSTRIAL LAND**

Demand for industrial land is a conversion of demand for space by floor area ratios (FARs) by industrial development type and the addition of non-industrial use demand for industrial land typical of business park space. Projections utilize the following FARs:

- Warehouse/Distribution: 0.31
- General Industrial: 0.30; and
- High-Tech/Flex: 0.26.

Second, a 20% non-industrial use demand for land was assumed for industrial land projections.<sup>11</sup>

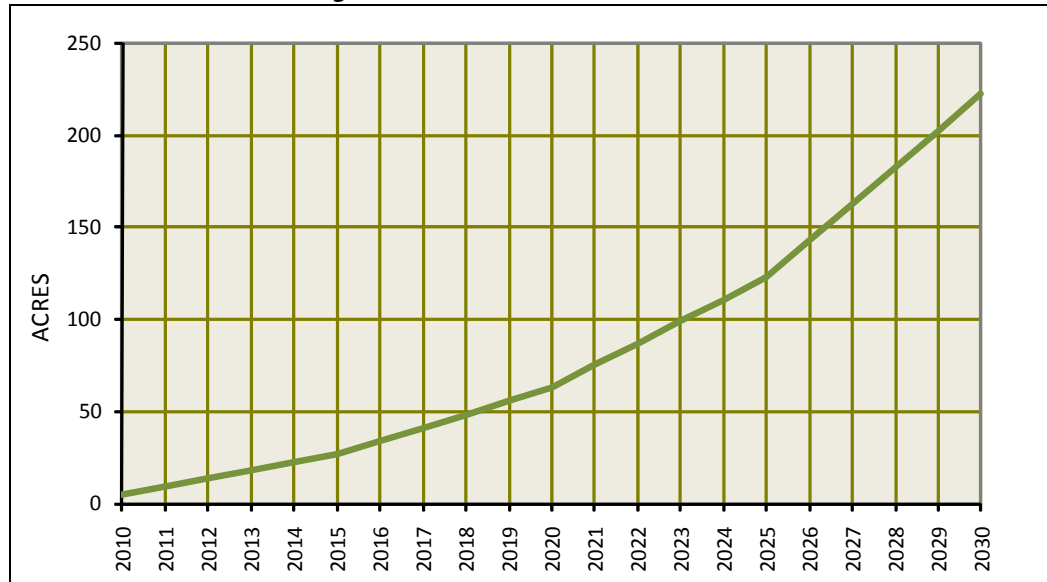
Finally, a stable market vacancy rate of 10% was assumed.<sup>12</sup> (See Figure 29)

<sup>10</sup> See Technical Appendix: Exhibits 1.06 through 1.07

<sup>11</sup> Non industrial uses include office space and/or retail which support the industrial uses. See Appendix: Exhibits 1.08 and 1.09

<sup>12</sup> See Technical Appendix: Exhibits 1.11 and 1.12

**FIGURE 29: CUMULATIVE INDUSTRIAL LAND DEMAND**



SOURCE: Johnson Reid LLC

### **RETAIL COMMERCIAL LAND METHODOLOGY**

Unlike industrial and office commercial land need, retail land need is a direct function of households moving into Scappoose, typical spending patterns by those households and visitor/tourist spending. Methodology for forecasting retail commercial land need is summarized below.

### **HOUSEHOLD GROWTH PROJECTIONS**

For modeling growth in retail commercial land need driven by residential growth, Johnson Reid utilized the population growth rates projected in Metro’s 20 and 50 year Regional Population and Employment Range Forecasts for the Portland metropolitan area through year 2025.<sup>13</sup> Medium, high and low growth scenarios, and resulting household growth projections through 2030, were estimated as follows:

- Medium Growth Scenario: Assumes population growth rate of 1.28% annually.
- High Growth Scenario: Assumes population growth rate of 1.43% annually.
- Low Growth Scenario: Assumes population growth rate of 1.12% annually.

### **ESTIMATE SCAPPOOSE’S PER-HOUSEHOLD RETAIL SPENDING**

Johnson Reid estimated per-household annual spending by retail category utilizing data derived from the US Bureau of Labor Statistics Consumer Expenditure Survey (see Figure 30). Categories are as detailed in the following table by the North American Industry Classification System (NAICS).

<sup>13</sup> Metro’s report can be found at this link: [http://www.oregonmetro.gov/files/planning/2030-2060\\_forecast\\_april\\_09.pdf](http://www.oregonmetro.gov/files/planning/2030-2060_forecast_april_09.pdf)

**FIGURE 30: AVERAGE HOUSEHOLD EXPENDITURES ON RETAIL GOODS, SCAPPOOSE UGB**

NAICS Category		Per Household Expenditures 1/
441	Motor Vehicles and Parts Dealers	\$8,493
442	Furniture and Home Furnishings Stores	\$1,017
443	Electronics and Appliance Stores	\$986
444	Building Materials and Garden Equipment	\$4,709
445	Food and Beverage Stores	\$5,058
446	Health and Personal Care Stores	\$1,828
448	Clothing and Clothing Accessories Stores	\$1,835
451	Sporting Goods, Hobby, Book and Music Stores	\$804
452	General Merchandise Stores	\$4,909
453	Miscellaneous Store Retailers	\$1,089
722	Foodservices and Drinking Places	\$3,874
<b>Totals/Weighted Averages</b>		<b>\$34,603</b>

SOURCE: Claritas Inc.

Future retail sales originating within Scappoose were simply calculated as the product of future household counts under the medium, high, and low growth scenarios through 2030 and annual average retail sales by category.<sup>14</sup>

**SPENDING LEAKAGE & VISITOR SPENDING PROJECTIONS**

Scappoose’s estimated resident expenditures exceed retail sales by a 37% margin, reflecting a widespread tendency for residents to purchase household goods outside of Scappoose. This retail “spending leakage” represents spending by local residents which could be captured by new retail in the area.

The only category in which the city does not exhibit that tendency is in General Merchandise Stores where retail sales exceed resident expenditures by about \$9 million. It was assumed within the analysis that this ratio would remain constant, and that regional/visitor spending would grow at an equivalent rate to locally originating retail sales. (See Figure 31)

**FIGURE 31: RETAIL OPPORTUNITY GAP FOR SCAPPOOSE**

	Resident Expenditures 1/	Retail Sales 2/	Retail Opportunity
<b>Total Retail Sales</b>	<b>\$104,879,096</b>	<b>\$66,669,630</b>	<b>\$38,209,466</b>
Motor Vehicle and Parts Dealers	\$21,330,624	\$5,766,506	15,564,118
Furniture and Home Furnishings Stores	\$2,554,863	\$80,540	2,474,323
Electronics and Appliance Stores	\$2,477,507	\$419,857	2,057,650
Building Material, Garden Equip Stores	\$11,825,738	\$3,056,409	8,769,329
Food and Beverage Stores	\$12,702,882	\$8,797,932	3,904,950
Health and Personal Care Stores	\$4,589,723	\$4,468,303	121,420
Gasoline Stations	\$11,556,069	\$11,488,801	67,268
Clothing and Clothing Accessories Stores	\$4,608,098	\$1,127,454	3,480,644
Sporting Goods, Hobby, Book, Music Stores	\$2,018,232	\$121,173	1,897,059
General Merchandise Stores	\$12,329,234	\$21,402,090	(9,072,856)
Miscellaneous Store Retailers	\$2,736,049	\$1,051,400	1,684,649
Non-Store Retailers	\$6,420,351	\$571,065	5,849,286
Foodservice and Drinking Places	\$9,729,726	\$8,318,100	1,411,626

Source: Claritas, Inc.

1/ Data from the Consumer Expenditure Survey which reflects expenditures made by Scappoose residents.

2/ Data from the Census of Retail Trade which reflects retail sales made within the City of Scappoose.

<sup>14</sup> See Technical Appendix: Exhibit 1.12

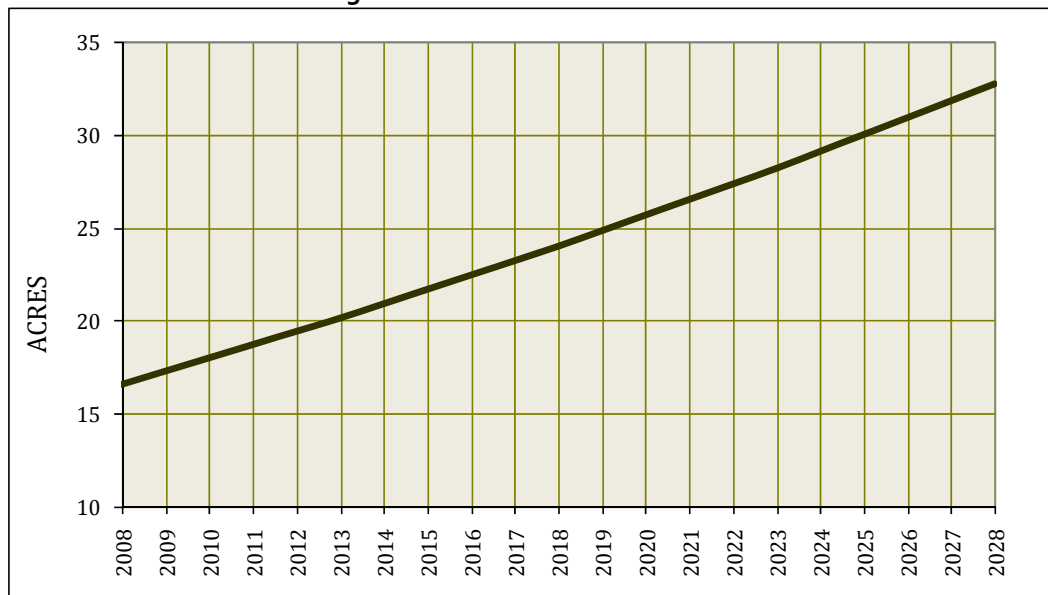
**DEMAND FOR RETAIL COMMERCIAL SPACE**

Future retail sales are converted into need for developed retail space by calculating the product of future Scappoose retail sales by category to a category-specific Sales Support Factor. The Sales Support Factor is the national average retail sales per square foot of space for each category of retail. Sales support factors are from the Urban Land Institute publication Dollars & Cents.<sup>15</sup>

**DEMAND FOR RETAIL COMMERCIAL LAND**

Demand estimates for developed retail space at different time points was then converted into demand for retail commercial land by applying an average retail Floor Area Ratio (FAR) of 0.30. The FAR is based on a survey of developed Scappoose properties, as well as the standard site needs of retail businesses, as presented in Section VI of this report. This FAR also reflects the city’s requirement of one parking space per 400 square feet of retail floor area.<sup>16</sup> (See Figure 32)

**FIGURE 32: CUMULATIVE RETAIL LAND DEMAND**



SOURCE: Johnson Reid LLC

<sup>15</sup> See Technical Appendix: Exhibit 1.13

<sup>16</sup> See Technical Appendix: Exhibit 1.14

## V. PROJECTED NUMBER OF SITES DEMANDED

### PROJECTED GROSS ACRES AND NUMBER OF SITES NEEDED BY SIZE

The final step in establishing the City's land demand projections is to arrive at the number of sites expected to be needed according to development pattern types during the planning horizon. Because there are subjective components to this analysis, it is important to understand basic assumptions utilized in the analysis. The principal assumptions relate to methodology for identifying and categorizing medium and large sites and these include the following:

The vast proportion of the employment land base, from the standpoint of total acreage, is consumed by sites larger than half an acre. Some of these are held for speculation and will be divided further, but the vast majority of these parcels are developed and used by going concerns.

It is much easier to divide employment land into small parcels to meet the needs of smaller users than it is to aggregate small parcels in fractured ownerships to meet the needs of a larger user. Figure 33 provides a detailed assessment of Scappoose employment land need through 2030 in terms of number of sites and gross acres needed by site size.

FIGURE 33: EMPLOYMENT LAND DEMAND BY SITE SIZE FOR SCAPPOOSE (2030)

Land Demand by Site Size				
		Demand Projections		
		Typical Acreage	Sites	Gross Acres
Office	Large	25.0	0	11.6
	Medium	10.0	1	7.7
	Small	5.0	9	45.1
	<b>SubTotal</b>		<b>10</b>	<b>64.4</b>
Commercial Retail	Large	20.0	0	0.0
	Medium	7.0	4	25.8
	Small	1.0	6	6.3
	<b>SubTotal</b>		<b>10</b>	<b>32.1</b>
Industrial	Large	50.0	2	107.6
	Medium	30.0	1	35.0
	Small	7.0	7	51.1
	Tech/Flex	12.0	2	21.5
	Airpark Emp.	5.0	11	53.8
	<b>SubTotal</b>		<b>23</b>	<b>269.0</b>
Lodging Related	Lodging	1.5	2	3.0
	Lodging-supportive commercial	1.0	5	4.5
	<b>SubTotal</b>		<b>7</b>	<b>7.5</b>
<b>Employment Uses Totals:</b>			<b>50</b>	<b>373.0</b>
Public Uses	<u>Special Uses</u>			
	Hangar Reserve		1	40.0
	Runway Extension		1	50.0
	PCC Campus		1	20.0
	<b>SubTotal</b>		<b>3</b>	<b>110.0</b>
<b>GRAND TOTALS:</b>			<b>53</b>	<b>483.0</b>

## OFFICE

**Site Need:** Scappoose's economic growth is estimated to drive the need for 13 office commercial sites by 2030. The majority of sites for office commercial can be expected in the "Small" category, with typical parcel size of 5.0 acres. **Land Need:** Scappoose economic growth can be expected to drive 64.4 acres of gross office land need by 2030.

## INDUSTRIAL

**Site Need:** Scappoose's economic growth is expected to generate need for a minimum of 23 industrial sites by 2030. **Land Need:** Scappoose economic growth is expected to generate need for a minimum of 269 gross acres by 2030. Although most individual sites needed will average seven acres, large site need (50+ acres) will account for the largest share of total land need through 2030.

Forecasted demand for airport-dependent industries leads to a demand projection of 53.8 acres of airport employment land, a subset of general industrial use which is dependent on a location adjacent to an airport.

Similarly, there is a forecasted need for 21.5 acres of industrial land for high-tech/flex manufacturing uses.

Industrial operations may include some supportive office uses on-site. This supportive office employment is included in the projected demand for industrial sites and is not double counted under projected office demand.

## RETAIL

**Site Need:** Scappoose population growth, resulting from economic growth opportunity, combined with a share of current retail expenditures leaking from the market is expected to create need for 10 commercial sites by 2030. The majority of sites needed will be one acre in size ("Small"). **Land Need:** Scappoose economic growth and resulting population growth is expected to create need for a minimum of 32.1 gross commercial retail acres by 2030.

## OVER-NIGHT LODGING

**Site Need:** Employment growth and recreational opportunities in the Scappoose area are expected to create need for two commercial lodging sites by 2030, and five sites of additional retail and commercial services supported by lodging customers. Prospective lodging sites will be located near future employment clusters and/or the highway. Lodging-supportive retail and commercial services would be located adjacent to or very near lodging. **Land Need:** The average lodging site needed will be 1.5 acres in size ("Small"), leading to a forecasted need of 3 gross acres for lodging by 2030. The average site for lodging-supported commercial space will be 1 acre in size ("Small"), with a total need of 4.5 acres by 2030.

## PUBLIC OR SEMI-PUBLIC NEEDS:

**Site Need:** Three planned future public or institutional uses were identified during this process. They are the identified need for an airport runway extension (50 acres), 40-acres reserved for new Port hangar space, and 20 acres for a future Portland Community College location. PCC has identified a need for a facility in Columbia County to serve growing demand from the area. The PCC facility would be a possible location for aviation-related programs which could leverage a location near the airport and/or safety and rescue training programs in conjunction with police and other emergency service agencies.

**Land Need:** The above needs account for 110 total gross special needs acres by 2030.



## VI. DESCRIPTIONS OF REQUIRED SITE TYPES

The qualitative component of the site requirements analysis identifies factors such as site sizes (acreage), loading, parking, storage, public facilities, utilities, ownership patterns, surrounding development patterns, proximity to labor, proximity to customers, access to transportation infrastructure, and other site amenities unique to the specific industry.

The subsequent table identifies archetypal site requirements according to three major land use categories: Office, Commercial Retail, and Industrial. A detailed matrix including more special uses is included later in this section.

	Building Size/SF	Typical Acreage Ranges
<b>OFFICE</b>		
Large	60,000-500,000+	3.5-20
Medium	12,000-70,000	0.5-3.0
Small	400-13,000	0.12-3.0
<b>INDUSTRIAL</b>		
Large	90,000-750,000+	20-200+
Medium	25,000-100,000	4.0-25
Small	500-30,000	0.5-5.0
<b>COMMERCIAL</b>		
Large	45,000-500,000+	7.0-100
Medium	12,000-50,000	3.5-15
Small	0.5	0.5-5

These general development pattern categories are not intended to be exhaustive, but rather are intended to capture the typical patterns observed in the market today and expected for the future. However, by identifying and planning for typical patterns, the widest range of development patterns have been considered in an effort to analyze demand from these many perspectives.

Other than the Downtown pattern and the Airpark Business pattern, none of the other patterns are intended to have a necessary geography or area associated with them—although some areas of the City will contain more of some archetypes and less of others—reflecting locational characteristics, historical development patterns, existing land use regulations, and market forces.

### GENERAL REQUIREMENTS OF SUITABLE COMMERCIAL SITES

All commercial sites share some general characteristics necessary for retail, office or industrial uses to operate. Developers will seek sites which meet these requirements and generally disregard sites which do not, as they will be undevelopable, or bear significant additional costs which render the real estate product unprofitable and uncompetitive. These general characteristics are discussed below, and apply to all development types presented in the tables on the following pages.

#### Environmental Constraints:

In order to be suitable, the site must be flat or nearly flat, having a slope of less than 10%. The site must be able to provide appropriately sized and configured developable areas free of wetlands, floodplains, riparian constraints, or other known environmental constraints which will significantly preclude, delay, or significantly increase the cost of the development of all or a portion of the site.

**Serviceability:**

In order to be suitable, the site must be currently served by transportation and utilities, or serviceable within the window of planned development. (The preferred level of service by user and development type is presented in the following tables.)

**Transportation and Access:**

The following table presents adequate transportation facilities by user and development type. Convenient access to the listed facility types ideally means direct access via frontage, but may also be satisfied by close access via a facility that is adequate to accommodate the commercial traffic of all commercial sites in the area, without conflicting with other types of traffic (see Compatibility below).

In general, retail sites will require direct access or direct visibility from the facility type listed. Office and industrial sites, on the other hand, are not as reliant on direct access and visibility. In the context of Scappoose, convenient access for office and industrial sites will generally mean they lie within .25 mile of a collector facility, and 2 miles of Highway 30. However, connectors between the site and these facilities must be adequate for the amount and weight of commercial traffic and should not conflict with other land uses.

The Downtown and Airpark Business Park design types are location-dependent. The airpark model requires a location directly adjacent to an airport as these businesses rely on ferrying aircraft to and from their facilities.

**Site Size and Configuration:**

Sites may be unsuitable if they have an unusual size or shape configuration, with a square or rectangular parcel representing the "norm." Such poorly configured parcels may have spurs or wedges which prevent efficient site planning and use of the full parcel. These unsuitable sites may also be situated in such a way that access and/or visibility are insufficient for commercial users (e.g. a "flag lot"). Through any combination of the above, these sites may have sufficient acreage on paper, while not presenting enough contiguous, unencumbered space to be efficiently planned and utilized.

**Compatibility:**

Suitable sites must be compatible with surrounding uses, and residential uses in particular. Heavily used commercial and industrial sites should have direct access from an arterial street, and not require driving through residential areas. Sites should generally not abut residential areas on more than one side, and the site size and configuration must allow for sufficient buffer depending on the intensity of the commercial activity.

## Commercial Office Development Pattern Types

	Common Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Site Sizes and Development Pattern Discussion	Required Site Size	FAR
Large Office Users (150-1200+ Employees; 60k-500+k sq. ft. built space)	Main Branch/Head-quarters Offices for Banking, Security and Commodity, Real Estate, and Insurance Carriers, Healthcare, Communications, Transportation Services, Back Office Processing	Transportation system that provides access to labor is essential and may require convenient connections to major arterial roadways and State Highways. Convenient airport access is almost always important.	Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecommunications. Multiple energy suppliers may be a consideration.	Business/Office Park- Usually two to three story buildings. Users are clustered within a larger park of 50 to 400 hundred acres. Large users may also prefer a campus sites and may land bank for potential future expansion.	3.5 to 15 acres	.25 to .75
				Under-performing Commercial Sites - Usually adaptive reuse of an under-performing commercial site arrayed within a larger commercial node of 20 to 500 acres.	2 to 20 acres	.25 to 1.50
Medium Office Users (35-175 employees; 12k-70k sq. ft.)	Community Branches for Banking, Security and Commodity, Real Estate, and Insurance Carriers, and Community Healthcare. Professional Business Services, Legal Services, Communications, Transportation Services	Transportation system that provides access to labor is important and will require convenient connections to at least a minor collector and may require convenient connections to major arterial roadways and State Highways. High visibility access to customers is essential for the consumer oriented users. Airport access is important.	Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecommunications.	Downtown- Medium users tend to utilize one or two floors of an existing building. Downtown can be cost-prohibitive for uses that require ground floor customer visibility.	n/a	.35 to 2.00
				Business/Office Park (Mixed Use) - Occupy buildings individually or with a group of tenants. Users often seek sites near campus development patterns with which they interact. Sites are typically within a larger park of 30 to 100 acres. Such parks often contain a small amount of consumer-oriented business service, retail or dining space.	0.5 to 3 acres	.25 to .75
				Commercial Centers-These are the preferred development patterns for consumer oriented medium sized office users such as branch banks and real estate offices. Sites are typically within a larger community commercial node of 10 to 200 acres.	0.5 to 3 acres	.25 to 1.50
Small (1-40 employees; 400 to 13k square feet)	Sole proprietor or small partnership of professional service offices for Banking, Security & Commodity, Real Estate, Insurance Agents and Brokers, Business Services and Legal Services	Access to customer base very important to consumer oriented users such as insurance agents/brokers and real estate agents/brokers. Transportation system that provides access to labor is important, but these users may have to compromise convenient access to labor as a cost saving measure. These office users can be served by all street functional classifications Airport access is important.	Water, sewer, and storm drainage must be adequate. Site should have, but may not always, require modern telecommunications.	Downtown- These small user companies absorb the smaller spaces downtown that are too small or have limitations for larger users. Site sizes downtown are predetermined by existing development patterns and to a lesser extent by redevelopment.	n/a	n/a
				Business/Office Park (Mixed Use) - These small user companies absorb the smaller spaces in larger projects that are too small or have limitations for larger users or occupy expansion areas for medium and large users. Sites are typically within a larger park of 30 to 100 acres. Such parks often contain a small amount of consumer-oriented business service, retail or dining space.	0.5 to 3 acres	.30 to .5
				Commercial Centers - These small user companies absorb the smaller spaces in larger projects that are too small or have limitations for larger users or occupy expansion areas for medium and large users. These sites are most important to consumer oriented users such as insurance agents.	0.5 to 3 acres	.25 to .50

## Commercial Retail Development Pattern Types

	Common Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Development Pattern Discussion	Required Site Size	FAR
Large Retail Users (45k-500+k sq. ft./; and/or 15+ acres of outdoor storage)	Retail Trade (Regional Retail)	Transportation system that provides convenient connections and very high visibility from major arterial roadways and state highways is essential. Pedestrian connections between buildings can be important as well.	Water, sewer and storm drainage must be adequate. Site must be able to be served by modern telecommunications. Multiple energy suppliers may be a consideration.	Large Format Retail – These are large auto oriented stores that house a collection of goods within a single store. A recent trend has seen smaller vendors co-locate within the larger store (Such as a McDonalds within a Wal-Mart). Large format retailers tend to seek sites that are clustered with other large format retailers in regional commercial centers that are 55 to 350+ acres.	6 to 14 acres	.25 to .75
Medium Retail Users (12k-50k sq. ft./; and/or 3 to 15 acres of outdoor inventory)	Retail Trade (Community Retail)	Transportation system that provides convenient connections and very high visibility from major arterial roadways and state highways is essential. Pedestrian connections between buildings can be important as well.	Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecom.	Community Shopping Centers- Typically use leasable area of 30,000 to 100,000. Centers are typically anchored by grocers or “big box” retailers. These centers serve localized populations, and typically locate near population concentrations. They seek frontage on a highway or major arterial.	3 to 10 acres	.30 to .75
Small Retail and Commercial Services (200 to 15k square feet and/or less than 5 acres outdoor storage)	Retail Trade (Downtown and Specialty)	Transportation system that provides convenient connections and visibility from higher order roadways and state highways is important and essential for some users. Convenient public transportation may be a consideration, especially for a downtown site. Pedestrian traffic on public sidewalks is very important to Downtown Sites.	Water, sewer, and storm drainage must be adequate. Site must be able to be served by modern telecom.	Downtown-Small retailers tend to seek ground floor downtown sites. Users tend to be specialty retail, restaurants, bars and similar uses. Site sizes are dictated by existing development patterns or as a result of a large user or speculative development project.	n/a	.75 to 2.00
				Free-Standing Shopping Center Pads- These uses are typically service commercial uses such as restaurants, bars and convenience retail such as convenience marts and fuel stations. Sites are very highest visibility within larger projects. Users are co-located within larger projects such as large format retailers and community shopping centers.	0.5 to 2 acres	.25 to .40
				Attached Boutique/Specialty- These retail sites are co-located within larger buildings that house anchor users in larger projects such as medium to large format retailers and community shopping centers.	0.5 to 1 acre	.40 to .75
				Neighborhood Commercial – These are small stand alone users that usually locate along higher order transportation facilities and sometimes cluster with a few other similar sized users. These users tend to be neighborhood service and convenience retail uses such as coffee shops and neighborhood markets. Sites are usually within a smaller cluster that is up to three acres.	0.5 to 1 acre	.25 to .40
				Business/Office Park (Mixed Use) - These small retail companies absorb the small retail spaces in larger office-oriented business parks. These spaces are too small or have limitations for larger users. These spaces offers support retail, dining or commercial spaces to the business park and the local neighborhood.	0.25 to 0.5 acre	.25 to .35
				Lodging Supportive Retail – These small businesses offer retail, dining and commercial services to over night lodgers. These spaces offers support retail, dining or commercial spaces to recreational and business travelers and the local neighborhood.	0.5 to 1.0 acre	.40 to .75

## Industrial Development Pattern Types

	<b>Common Industries</b>	<b>Transportation; Access to Labor and Customers</b>	<b>Public Facilities/ Utilities</b>	<b>Development Pattern Discussion</b>	<b>Required Site Size</b>	<b>FAR</b>
Large Industrial Users (90k-750+k sq. ft. built-space /; and/or 20+ acres of outdoor inventory/production areas)	Lumber & Wood, Stone, Glass & Concrete, Trucking & Warehousing, Electric, Gas & Sanitation, Food Products, Transportation Equipment, Wholesale Trade, Air Transportation	Transportation system that provides convenient connections to state highways is very important. Proximity to natural resources can be important for uses that utilize natural resource inputs. Rail access is important to many uses and can be essential for some uses. Convenient access to air freight is important to many uses and may be essential for some. Convenient access to well trained and qualified workforce is essential and industry clustering for access to skilled labor force is common. Convenient access to ocean ports is important to many users and essential for some.	Water, sewer, and storm drainage must be adequate; some of these uses can consume very large quantities of water and produce large quantities of sewage requiring special facilities' plans. Site must be able to be served by modern telecomm. Multiple energy suppliers are important to most users and the ability purchase wholesale energy can be essential for some.	Indoor/Outdoor Industrial Processes - Including Manufacturing, Repair, Remanufacturing, Salvage Yards, Micro-Energy, Agri-business, etc. These development patterns typically process raw materials into intermediate industrial input materials and include lumber mills, plywood plants, aggregate processing plants and co-gen power plants. These users typically have moderate to high levels of airborne emissions, noise production, and waste products. Access to rail can be essential. Users may cluster with similar uses in areas that are 1000+ acres.	40 to 200 or more acres	.30 to .50
				Logistics/Warehousing/Transportation Hubs- These development patterns are extremely transportation infrastructure sensitive and require sites with efficient and direct access to the transportation facilities they utilize. Some of these users may not require proximity to large labor forces. These users typically produce moderate to high levels of airborne emissions and noise associated with high volumes of truck traffic, rail yard activities, etc. Users may cluster with similar uses in freight centers that are 2,000+ acres.	50 to 400 or more acres	.30 to .75
				Transmission-Regional utility transmission facilities such as regional substations and 500kv lines. Noise, emissions and waste levels vary considerably from facility to facility.	20 or more acres	.30 to .75
				Enclosed Manufacturing - These development patterns contain a wide variety of uses from food production to microchip processors and typically process intermediate materials into finished goods and/or parts. Users are predominantly indoors within enclosed buildings. Convenient access to skilled labor force is essential. These uses typically have low to moderate levels of airborne emissions, noise production, and waste products. Users often require sufficient area to accommodate long-term expansion. Users may seek integration with office developments.	20 to 200 or more acres	.30 to .50
				Waste Handling - These development patterns include sanitary landfills, regional transfer stations, recycling plants, and sewage treatment plants and large salvage yards. Users typically have large amounts of outdoor storage/processing. These users typically have moderate to high levels of airborne emissions and noise production.	20 to 150 or more acres	.30 to .50
				Spec/Flex Space - Flex space development patterns are enclosed industrial uses where the buildings are developer/investor owned and space is rented to industrial tenants. Often multiple tenants occupy a single building. Low to very low levels of airborne emissions, noise production and waste products.	4 to 25 acres	.25 to .50
				Airpark Business Park - This is a specific type of business park which requires direct access to an airport facility. This access makes the airpark suitable for specialized businesses which require the ability to directly ferry aircraft and other products to and from the runway to their facilities. These businesses may range from manufacturing, to commercial services, to government/institutional users, and range in size from small to large firms.	10 to 40 acres	.15 to .40

Industrial Development Pattern Types (Continued)

	Common Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Development Pattern Discussion	Required Site Size	FAR
Medium Industrial Users (25k-100k sq. ft. built space/; and/or 4 to 25 acres of outdoor inventory/production areas	Instruments, Electronic Equipment, Printing & Publishing, Transit Transportation Services, Business Services Communications, Construction, Lumber & Wood, Stone, Glass & Concrete, Trucking & Warehousing, Electric, Gas & Sanitation, Food Products, Transportation Equipment, Wholesale Trade, Air Transportation	Transportation system that provides convenient connections to state highways is very important- and especially Interstate 5. Proximity to natural resources can be important for uses that utilize natural resource inputs. Rail access is important to many uses and can be essential for some uses. Convenient access to air freight is important to many uses and may be essential for some. Convenient access to well trained and qualified workforce is essential and industry clustering for access to skilled labor force is common. Convenient access to ocean ports is important to many users and essential for some.	Water, sewer, and storm drainage must be adequate; some of these uses can consume large quantities of water and produce large quantities of sewage requiring special facilities' plans. Site must be able to be served by modern telecommunications. Multiple energy suppliers are important to most users.	Indoor/Outdoor Industrial Processes - Including Manufacturing, Repair, Remanufacturing, Salvage Yards, Micro-Energy, Agri-business, etc. Uses typically contain indoor activities, but typically more than 25 percent of the site is devoted to outdoor inventory and processes on individual lots. Convenient access to skilled labor force is essential. These users often have very unique site requirements specific to each industrial processes. These users typically have moderate levels of airborne emissions, noise production, and waste products. Users often require sufficient area to accommodate medium-term expansion planning. Users often seek sites clustered in industrial areas of 100+ acres.	6 to 25 acres	.30 to .50
				Trucking/Warehousing/Distribution/Waste Transfer Substations/Staging- These development patterns are transportation infrastructure sensitive and require sites with efficient and direct access to the transportation facilities they utilize. Some of these users may not require proximity to large labor forces. These users typically produce moderate levels of airborne emissions and noise associated with high volumes of truck traffic and rail yard activities. Users may cluster with similar uses in freight centers that are 2,000+ acres.	4 to 20 acres	.30 to .75
				Transmission-These are local and small regional substations, natural gas pressure reduction stations for local distribution, and micro power generation uses. These users typically have low levels of airborne emissions, noise production, and waste products.	4 to 10 acres	.30 to .75
				Enclosed Industrial Processes – Including Manufacturing, Repair, Remanufacturing, etc. Uses are predominantly indoors within enclosed buildings on individual lots with typically less than 30 percent of the site devoted to outdoor storage. Convenient access to skilled labor force is essential. These users often have very unique site requirements specific to each industrial processes. These uses typically have low to moderate levels of airborne emissions, noise production, and waste products. Site Users often require sufficient area to accommodate medium-term expansion planning. Users often seek sites clustered in industrial/business parks of 100+ acres and some may seek integrated projects with commercial and office patterns.	4 to 20 acres	.30 to .50
				Spec/Flex Space – Flex space development patterns are enclosed industrial uses where the buildings are developer/investor owned and space is rented to industrial tenants within a complex and usually there are multiple tenants occupying a single building. Low to very low levels of airborne emissions, noise production and waste products.	4 to 25 acres	.30 to .50
				Airpark Business Park – This is a specific type of business park which requires direct access to an airport facility. This access makes the airpark suitable for specialized businesses which require the ability to directly ferry aircraft and other products to and from the runway to their facilities. These businesses may range from manufacturing, to commercial services, to government/institutional users, and range in size from small to large firms.	5 to 20 acres	.15 to .40

Industrial Development Pattern Types (Continued)

	Common Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Development Pattern Discussion	Required Site Size	FAR
Small (Less than 30k square ft built space and/or less than 5 acres outdoor inventory/production areas)	Instruments, Electronic Equipment, Printing & Publishing Transit and Transportation Services, Business Services Communications, Construction, Lumber & Wood, Stone, Glass & Concrete, Trucking & Warehousing, Electric, Gas & Sanitation, Food Products, Transportation Equipment, Wholesale Trade, Air Transportation	Transportation system that provides reasonably convenient connections to state highways is important. Rail access is important to some uses and is occasionally essential. Convenient access to air freight is important to many uses and may be essential for some. Convenient access to well trained and qualified workforce is essential and industry clustering for access to skilled labor force is common. Convenient access to ocean ports is important to some and can be essential.	Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecommunications. Multiple energy suppliers are important to some users.	Indoor/Outdoor Industrial Uses - Including Manufacturing, Repair, Remanufacturing, Salvage Yards, Micro-Energy, etc. Users typically contain indoor activities, but typically more than 25 percent of the site is devoted to outdoor inventory and processes on individual lots. These users typically have moderate levels of airborne emissions, noise production, and waste products.	1 to 5 acres	.30 to .50
				Enclosed Industrial Processes – Including Manufacturing, Repair, Remanufacturing, etc. Users are predominantly indoors within enclosed buildings on individual lots with typically less than 30 percent of the site devoted to outdoor storage. Convenient access to skilled labor force is essential. These users typically have low to moderate levels of airborne emissions, noise production, and waste products. Users often require sufficient area to accommodate limited expansion. Users often seek sites clustered in industrial/business parks of 100+ acres and some may seek integrated projects with commercial and office patterns.	0.5 to 5 acres	.30 to .50
				Flex Space – Flex space development patterns are enclosed industrial uses where the buildings are developer/investor owned and space is rented to industrial tenants. Often multiple tenants occupy a single building. Low to very low levels of airborne emissions, noise production and waste products.	0.5 to 5 acres	.30 to .50
				Airpark Business Park – This is a specific type of business park which requires direct access to an airport facility. This access makes the airpark suitable for specialized businesses which require the ability to directly ferry aircraft and other products to and from the runway to their facilities. These businesses may range from manufacturing, to commercial services, to government/institutional users, and range in size from small to large firms.	5 to 20 acres	.15 to .40

### Campus/Institutional Development Pattern Types

Campuses are large and medium sized developments usually with a single or very limited set of ownerships. While the many uses within a campus can vary considerably, all the uses within a campus/institutional development are usually aimed at a common purpose or goal. The nature of this common purpose or goal is what shapes the design, site requirements and other characteristics of each individual campus/institutional development. For this reason, the below table describes the site characteristics according to the principal goal of each campus/institution; some uses are merely identified because their requirements will vary too greatly for each particular use.

Type	Common Industries	Transportation; Access to Labor and Customers	Public Facilities/ Utilities	Development Pattern Discussion	Required Site Size
Intellectual/Academic	Intellectual and Academic Campuses support the development of intellectual labor capital. Over time, the organic process that is intellectual development tends to intertwine with and support the target industry opportunities in the communities where they exist.	The transportation needs for each campus depends on the type of campus and purpose of the campus. In general, intellectual campuses should have reasonably convenient highway connections and have direct connections to two or more arterials. These uses are often served by public transit and can have high alternative transportation use if facilities are well planned. Good air transportation is essential for some.	Water, sewer, and storm drainage must be adequate; some of these uses can consume large quantities of water and produce large quantities of sewage requiring special facilities' plans. Site must be able to be served by modern telecomm and demands on telecomm facilities can be immense. Multiple energy suppliers can be important as can the ability to purchase wholesale energy which can be essential for some.	Major University/National Laboratory- These campuses serve statewide, national and international populations. University campuses usually have on-site dormitories. A wide variety of accessory commercial uses is often necessary to serve the campus population. These uses need excellent connections to regional transportation systems and need convenient air service for passengers and freight.	50 to 1,000 or more acres
				Post-Grad Technology – These can be private and/or public and usually involve research and development. These campuses serve statewide, national and international populations. These users need excellent connections to regional transportation systems and need convenient air service for passengers and freight.	20 to 200 or more acres
				Small College/Community College – These campuses serve regional populations primarily. These may or may not have on-site dormitories. These campuses are sometimes arrayed like a large office user when they are located in a downtown area.	20 to 40 acres
Medical	Healthcare	Transportation system that provides reasonably convenient connections to state highways is important. Heliport access is important for many and essential for some. Convenient access to well trained and qualified workforce is essential	Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecomm and demands on telecomm facilities can be immense. Multiple energy suppliers can be important.	Regional Hospital – These campuses serve regional populations. Regional hospitals can cause large-scale clustering effects with high degrees of interaction with office users (doctor's offices, surgery centers, clinics, etc) on surrounding lands. Regional hospital sites typically result in clustered office areas around or near its perimeter.	10 to 30 or more acres
Religious	N/A	Use Dependent	Use Dependent	These campus uses are not local places of worship. These are regional and national headquarters, seminaries, and similar uses. The nature and configuration of these uses vary by its purpose, but land use demands can be significant. Under RLUIPA, City's may occasionally need to plan for these uses.	15 or more acres
Military	N/A	Use Dependent	Use Dependent	These are federally owned and operated, so they are exempt from Oregon Land Use Laws. However, they can have far reaching implications for land use planning and a City may need to revise its land use plan significantly if a new military institution or installation use is established.	Varies
Continuing Care Retirement Communities	Residential Healthcare Services	These uses need reasonably convenient access to the regional transportation system and air services. Access to labor is important.	Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecomm.	These uses serve local, statewide and national populations. CCRC's are large retirement destinations. These uses have extensive residential components, but also require on-site healthcare, recreation facilities, and many accessory commercial uses.	Varies
Correctional	N/A	These uses are often not well served by transportation systems by intention.	Water, sewer, and storm drainage must be adequate; Site must be able to be served by modern telecomm	These users serve regional, statewide or national populations. These may be super-sited, so they are exempt from Oregon Land Use Laws. Large correctional institutions can have far reaching implications for land use planning and a City may need to revise its land use plan significantly if a new correctional institution or installation use is established.	Varies



## VII. TECHNICAL APPENDIX

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## FACTORS THAT AFFECT SITE SELECTION

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### FIRM REQUIREMENTS

The Oregon Business Development Department (OBDD) provided Johnson Reid with a small sample of “lead sheets” for firms seeking to locate a new or expanded industrial facility. The firms represent a wide range of industries, from distribution centers to solar panel manufacturers to wool products manufacturers. They are typically fairly large employers, large enough to work with the OBDD to find a suitable site. The lead sheets are from the last half of 2008 and the first quarter of 2009. The sheets often report the expected number of jobs at the proposed facility; they range from fewer than 10 to 3,500 new jobs.

The lead sheets and data provided to Johnson Reid by OBDD staff to represent a cross-section of businesses interested in locating facilities in Oregon. While they are representative of the firms looking at locating in Oregon, they do not represent a comprehensive review of all recruitments staffed by OBDD.

The lead sheets summarize the firms’ locational needs—they itemize the site, utility, and labor requirements for each firm. OBDD staff works with the firms and connects them to local communities that may have a suitable site. Many of the firms are looking for a site across a wide geography, including Washington, Idaho, and California. Oregon is competing with those states to attract the firms.

This section describes the key factors that affect these firms’ locational decisions. The data in this section is useful to understand what actual firms need now in order to develop an operating industrial facility.

### Site Size

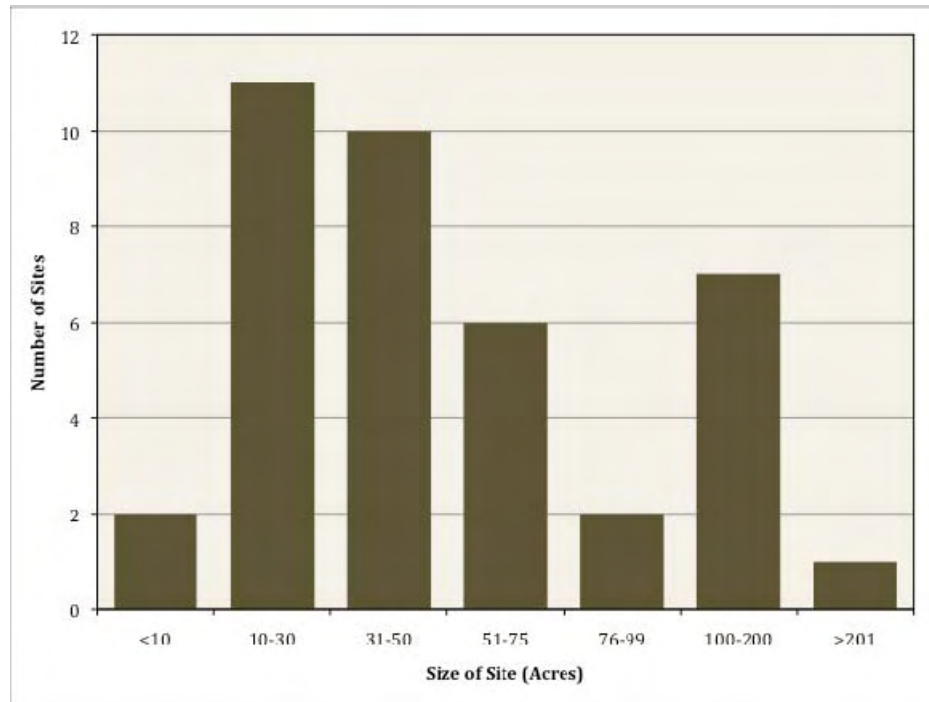
All the lead sheets showed specific requirements for the size of the site. Many of the firms intend to build large manufacturing facilities, and they have inflexible requirements about site size.

In addition to the sample of lead sheets, OBDD provided a larger list that identified the number of acres the firm desired. In total, Johnson Reid had access to data for 36 firms. The figure below shows the distribution of desired site size for those firms. It is important to note that the figure does not show site requirements for all firms, but only a subset of firms that contacted OBDD.

Only 6% of the sample is seeking a site smaller than 10 acres. Almost all the firms (92%) require a site between 10 and 200 acres. Only one of the 39 firms required a very large site—1,000 acres. A little over half of the firms require a site between 10 and 50 acres, and about 40% require a site between 51 and 99 acres.

The data clearly show that firms seeking to locate or expand in the region require large sites. A site smaller than 10 acres is highly unlikely to attract one of these growing employers—there is little demand for small sites. There is great demand for lots larger than 10 acres. This sample of firms is from late 2008 and early 2009, during the greatest economic downturn the U.S. has seen since the 1930s. Demand for sites will very likely increase when the economy improves.

### DISTRIBUTION OF SITE SIZE



Source: OBDD and Johnson Reid

#### Transportation

The lead sheets included information about transportation requirements.

- Highway. Most of the firms want a good connection to major highways. Some had explicit needs regarding Interstates, such as “within 30 miles of I-5” or “5 miles to Interstate.” Some require access to the Interstate, but the description of the need is not explicit, simply that freeway access is very important. Many of the firms require access to a major highway or a 4-lane highway. The key factor is direct access to that highway.
- Rail. A few of the firms required rail access, either direct or close by. A few firms required that no rail be near the site. Those firms have specific requirements about seismic stability, and they can tolerate no vibrations on the site.
- Air. Many of the firms want good access to a commercial airport, and some require an international airport. One firms identified “good access” as within 25 miles, another as within 1.5 hours of the site.

#### Utilities

Many of the firms have explicit and substantial requirements for utilities. The key utilities are electricity, water, and telecommunications.

- Electricity. Many of the firms have large electricity demands. The information was presented in both kilowatt-hours (kwh) and megawatts (MW). Demand ranged from 300,000 kwh per month to 68,700,000 kwh per month. Electricity capacity ranged from 15 MW to 200 MW, with most firms requiring fewer than 20 MW.
- Water. Some of the manufacturing firms have large demands for water—the largest user requires 1.8 million gallons per day. The water requirements for the remaining firms range from 2,000 gallons per day to 621,000 gallons per day.
- Telecommunications. Most of the firms require high quality and capacity telecommunications systems.

**Physical Features**

The most common physical feature required by the firms was a flat site. A few of the manufacturing firms in the solar industry have explicit requirements regarding the stability of the site—they need seismically stable site, with no vibrations caused by nearby rail line or rock crushing operations. Those firms also require stable soils that are not liquefiable. One firm will not consider any site within the 500-year floodplain. Another explicitly excluded brownfield sites.

**Zoning and Permits**

Many of the lead sheets note that the firm requires land that is zoned for industrial uses. Some of the firms have fast-paced schedules, seeking to become operational within less than one year. Therefore, the site must be truly shovel-ready and permits must be quickly processed. Any site that has legal hurdles before it can be used in an industrial capacity is not competitive.

**Operating Costs**

The firms that discuss operating costs focused on tax and utility rates. Wages did not appear to be a factor.

**Ownership**

The firms had mixed preferences regarding ownership. Some preferred a lease; others preferred to own the property. The lead sheets did not show a clear trend.

**EXHIBIT 1.01  
PROJECTIONS OF OFFICE SPACE-UTILIZING EMPLOYMENT BY INDUSTRY SECTOR  
SCAPPOOSE, OREGON  
2010-2030**

<b>Medium Growth Scenario</b>	<b>Total Employment 1/</b>					<b>Office</b>	<b>Office Space-Utilizing Employment</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>Share 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	119	150	189	239	301	2%	2	3	4	5	6	4
Manufacturing	215	374	650	1,132	1,970	5%	11	19	33	57	98	88
Wholesale Trade	24	36	54	81	122	5%	1	2	3	4	6	5
Retail Trade	519	698	939	1,263	1,698	5%	26	35	47	63	85	59
Transportation, Warehousing & Utilities	81	128	201	315	494	30%	24	38	60	94	148	124
Information	78	80	82	85	87	90%	70	72	74	76	78	8
Financial Activities	76	101	135	179	239	90%	68	91	121	161	215	147
Professional & Business Services	101	184	337	616	1,126	90%	91	166	303	554	1,013	922
Education & Health Services	652	810	1,007	1,252	1,557	40%	261	324	403	501	623	362
Leisure & Hospitality	281	389	538	745	1,030	25%	70	97	135	186	258	187
Other Services	225	374	620	1,028	1,707	40%	90	149	248	411	683	593
Government	54	71	94	124	164	85%	46	61	80	106	139	94
<b>Total</b>	<b>2,425</b>	<b>3,395</b>	<b>4,846</b>	<b>7,057</b>	<b>10,492</b>	<b>31%</b>	<b>761</b>	<b>1,057</b>	<b>1,510</b>	<b>2,218</b>	<b>3,352</b>	<b>2,591</b>
<b>High Growth Scenario</b>	<b>Total Employment 1/</b>					<b>Office</b>	<b>Office Space-Utilizing Employment</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>Share 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	119	159	212	283	377	2%	2	3	4	6	8	5
Manufacturing	215	425	842	1,669	3,306	5%	11	21	42	83	165	155
Wholesale Trade	24	39	65	108	179	5%	1	2	3	5	9	8
Retail Trade	519	750	1,083	1,564	2,259	5%	26	37	54	78	113	87
Transportation, Warehousing & Utilities	81	142	248	433	756	30%	24	43	74	130	227	202
Information	78	81	83	86	89	90%	70	73	75	78	80	10
Financial Activities	76	108	155	221	315	90%	68	97	139	199	284	215
Professional & Business Services	101	212	445	937	1,972	90%	91	191	401	844	1,775	1,684
Education & Health Services	652	854	1,120	1,468	1,924	40%	261	342	448	587	770	509
Leisure & Hospitality	281	421	629	941	1,407	25%	70	105	157	235	352	281
Other Services	225	421	786	1,470	2,747	40%	90	168	315	588	1,099	1,009
Government	54	76	108	152	214	85%	46	65	91	129	182	136
<b>Total</b>	<b>2,425</b>	<b>3,688</b>	<b>5,777</b>	<b>9,331</b>	<b>15,546</b>	<b>31%</b>	<b>761</b>	<b>1,147</b>	<b>1,804</b>	<b>2,962</b>	<b>5,062</b>	<b>4,301</b>
<b>Low Growth Scenario</b>	<b>Total Employment 1/</b>					<b>Office</b>	<b>Office Space-Utilizing Employment</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>Share 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	119	142	169	201	240	2%	2	3	3	4	5	2
Manufacturing	215	327	498	760	1,158	5%	11	16	25	38	58	47
Wholesale Trade	24	32	44	60	82	5%	1	2	2	3	4	3
Retail Trade	519	650	812	1,016	1,271	5%	26	32	41	51	64	38
Transportation, Warehousing & Utilities	81	115	161	227	319	30%	24	34	48	68	96	71
Information	78	80	81	83	85	90%	70	72	73	75	76	6
Financial Activities	76	94	117	145	180	90%	68	85	105	131	162	94
Professional & Business Services	101	159	252	399	632	90%	91	143	227	359	569	478
Education & Health Services	652	768	905	1,066	1,257	40%	261	307	362	427	503	242
Leisure & Hospitality	281	359	459	587	750	25%	70	90	115	147	188	117
Other Services	225	331	486	713	1,048	40%	90	132	194	285	419	329
Government	54	67	82	101	125	85%	46	57	70	86	106	60
<b>Total</b>	<b>2,425</b>	<b>3,123</b>	<b>4,068</b>	<b>5,360</b>	<b>7,147</b>	<b>31%</b>	<b>761</b>	<b>973</b>	<b>1,266</b>	<b>1,673</b>	<b>2,249</b>	<b>1,488</b>

1/ JOHNSON REID

2/ Share of industry employment that utilizes office space. From the Urban Land Institute converted to NAICS by JOHNSON REID.

\* Estimate

**EXHIBIT 1.02  
DEMAND PROJECTIONS FOR COMMERCIAL OFFICE SPACE BY INDUSTRY SECTOR  
SCAPPOOSE, OREGON  
2010-2030**

<b>Medium Growth Scenario</b>		<b>Local Area Jobs in Office Space 1/</b>					<b>Avg. Space</b>	<b>Projected Office Space Need 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	<b>Per Job 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	2	3	4	5	6	4	366	959	1,209	1,525	1,922	2,424	1,465
Manufacturing	11	19	33	57	98	88	366	4,320	7,520	13,089	22,782	39,653	35,333
Wholesale Trade	1	2	3	4	6	5	366	477	718	1,081	1,626	2,447	1,969
Retail Trade	26	35	47	63	85	59	366	10,453	14,057	18,903	25,420	34,184	23,732
Transportation, Warehousing & Utilities	24	38	60	94	148	124	366	9,837	15,434	24,216	37,996	59,616	49,779
Information	70	72	74	76	78	8	366	28,297	29,052	29,827	30,622	31,439	3,142
Financial Activities	68	91	121	161	215	147	366	27,466	36,595	48,759	64,966	86,559	59,093
Professional & Business Services	91	166	303	554	1,013	922	366	36,468	66,690	121,957	223,025	407,850	371,382
Education & Health Services	261	324	403	501	623	362	366	104,976	130,494	162,216	201,649	250,668	145,692
Leisure & Hospitality	70	97	135	186	258	187	366	28,300	39,152	54,165	74,936	103,672	75,372
Other Services	90	149	248	411	683	593	366	36,252	60,153	99,813	165,620	274,815	238,563
Government	46	61	80	106	139	94	366	18,461	24,376	32,185	42,496	56,110	37,648
<b>Total</b>	<b>761</b>	<b>1,057</b>	<b>1,510</b>	<b>2,218</b>	<b>3,352</b>	<b>2,591</b>	<b>366</b>	<b>306,267</b>	<b>425,450</b>	<b>607,735</b>	<b>893,060</b>	<b>1,349,436</b>	<b>1,043,169</b>
<b>High Growth Scenario</b>		<b>Local Area Jobs in Office Space 1/</b>					<b>Avg. Space</b>	<b>Projected Office Space Need 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	<b>Per Job 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	2	3	4	6	8	5	366	959	1,279	1,706	2,276	3,036	2,077
Manufacturing	11	21	42	83	165	155	366	4,320	8,559	16,957	33,594	66,553	62,232
Wholesale Trade	1	2	3	5	9	8	366	477	791	1,312	2,176	3,608	3,131
Retail Trade	26	37	54	78	113	87	366	10,453	15,097	21,804	31,492	45,483	35,030
Transportation, Warehousing & Utilities	24	43	74	130	227	202	366	9,837	17,169	29,968	52,306	91,295	81,458
Information	70	73	75	78	80	10	366	28,297	29,243	30,220	31,231	32,275	3,978
Financial Activities	68	97	139	199	284	215	366	27,466	39,219	56,001	79,964	114,182	86,715
Professional & Business Services	91	191	401	844	1,775	1,684	366	36,468	76,725	161,419	339,606	714,490	678,022
Education & Health Services	261	342	448	587	770	509	366	104,976	137,590	180,338	236,366	309,803	204,827
Leisure & Hospitality	70	105	157	235	352	281	366	28,300	42,326	63,305	94,681	141,609	113,309
Other Services	90	168	315	588	1,099	1,009	366	36,252	67,753	126,627	236,658	442,301	406,049
Government	46	65	91	129	182	136	366	18,461	26,068	36,809	51,976	73,393	54,932
<b>Total</b>	<b>761</b>	<b>1,147</b>	<b>1,804</b>	<b>2,962</b>	<b>5,062</b>	<b>4,301</b>	<b>366</b>	<b>306,267</b>	<b>461,821</b>	<b>726,467</b>	<b>1,192,327</b>	<b>2,038,028</b>	<b>1,731,761</b>
<b>Low Growth Scenario</b>		<b>Local Area Jobs in Office Space 1/</b>					<b>Avg. Space</b>	<b>Projected Office Space Need 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	<b>Per Job 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	2	3	3	4	5	2	366	959	1,142	1,360	1,620	1,930	971
Manufacturing	11	16	25	38	58	47	366	4,320	6,584	10,034	15,291	23,303	18,982
Wholesale Trade	1	2	2	3	4	3	366	477	650	886	1,208	1,646	1,169
Retail Trade	26	32	41	51	64	38	366	10,453	13,075	16,354	20,456	25,586	15,134
Transportation, Warehousing & Utilities	24	34	48	68	96	71	366	9,837	13,842	19,478	27,409	38,570	28,733
Information	70	72	73	75	76	6	366	28,297	28,862	29,437	30,025	30,624	2,327
Financial Activities	68	85	105	131	162	94	366	27,466	34,114	42,371	52,627	65,364	37,898
Professional & Business Services	91	143	227	359	569	478	366	36,468	57,734	91,400	144,699	229,077	192,609
Education & Health Services	261	307	362	427	503	242	366	104,976	123,694	145,750	171,738	202,361	97,385
Leisure & Hospitality	70	90	115	147	188	117	366	28,300	36,171	46,231	59,089	75,524	47,224
Other Services	90	132	194	285	419	329	366	36,252	53,251	78,222	114,902	168,781	132,529
Government	46	57	70	86	106	60	366	18,461	22,772	28,090	34,649	42,740	24,279
<b>Total</b>	<b>761</b>	<b>973</b>	<b>1,266</b>	<b>1,673</b>	<b>2,249</b>	<b>1,488</b>	<b>366</b>	<b>306,267</b>	<b>391,892</b>	<b>509,615</b>	<b>673,713</b>	<b>905,507</b>	<b>599,240</b>

1/ From Exhibit 1.01

2/ Average office employment density by industry sector based on Urban Land Institute guidelines.

3/ Assumes a market-clearing 10% office space vacancy rate.

\*Estimate

**EXHIBIT 1.03  
DEMAND PROJECTIONS FOR COMMERCIAL OFFICE LAND BY INDUSTRY SECTOR  
SCAPPOOSE, OREGON  
2010-2030**

<b>Medium Growth Scenario</b>													
<b>Employment Sector</b>	<b>Projected Office Space Need 1/</b>					<b>'10-30</b>	<b>Floor to Area Ratio</b>	<b>Predicted Land Need (Acres)</b>					
	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>			<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	959	1,209	1,525	1,922	2,424	1,465	0.35	0.1	0.1	0.1	0.1	0.2	0.1
Manufacturing	4,320	7,520	13,089	22,782	39,653	35,333	0.35	0.3	0.5	0.9	1.5	2.6	2.3
Wholesale Trade	477	718	1,081	1,626	2,447	1,969	0.35	0.0	0.0	0.1	0.1	0.2	0.1
Retail Trade	10,453	14,057	18,903	25,420	34,184	23,732	0.35	0.7	0.9	1.2	1.7	2.2	1.6
Transportation, Warehousing & Utilities	9,837	15,434	24,216	37,996	59,616	49,779	0.35	0.6	1.0	1.6	2.5	3.9	3.3
Information	28,297	29,052	29,827	30,622	31,439	3,142	0.35	1.9	1.9	2.0	2.0	2.1	0.2
Financial Activities	27,466	36,595	48,759	64,966	86,559	59,093	0.35	1.8	2.4	3.2	4.3	5.7	3.9
Professional & Business Services	36,468	66,690	121,957	223,025	407,850	371,382	0.35	2.4	4.4	8.0	14.6	26.8	24.4
Education & Health Services	104,976	130,494	162,216	201,649	250,668	145,692	0.35	6.9	8.6	10.6	13.2	16.4	9.6
Leisure & Hospitality	28,300	39,152	54,165	74,936	103,672	75,372	0.35	1.9	2.6	3.6	4.9	6.8	4.9
Other Services	36,252	60,153	99,813	165,620	274,815	238,563	0.35	2.4	3.9	6.5	10.9	18.0	15.6
Government	18,461	24,376	32,185	42,496	56,110	37,648	0.35	1.2	1.6	2.1	2.8	3.7	2.5
Allocated to Industrial Space 2/	61,253	85,090	121,547	178,612	269,887	208,634	0.35	4.0	5.6	8.0	11.7	17.7	13.7
<b>Total Net</b>	<b>245,013</b>	<b>340,360</b>	<b>486,188</b>	<b>714,448</b>	<b>1,079,549</b>	<b>834,535</b>	<b>0.35</b>	<b>16.1</b>	<b>22.3</b>	<b>31.9</b>	<b>46.9</b>	<b>70.8</b>	<b>54.7</b>
<b>High Growth Scenario</b>													
<b>Employment Sector</b>	<b>Projected Office Space Need 1/</b>					<b>'10-30</b>	<b>Floor to Area Ratio</b>	<b>Predicted Land Need (Acres)</b>					
	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>			<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	959	1,279	1,706	2,276	3,036	2,077	0.35	0.1	0.1	0.1	0.1	0.2	0.1
Manufacturing	4,320	8,559	16,957	33,594	66,553	62,232	0.35	0.3	0.6	1.1	2.2	4.4	4.1
Wholesale Trade	477	791	1,312	2,176	3,608	3,131	0.35	0.0	0.1	0.1	0.1	0.2	0.2
Retail Trade	10,453	15,097	21,804	31,492	45,483	35,030	0.35	0.7	1.0	1.4	2.1	3.0	2.3
Transportation, Warehousing & Utilities	9,837	17,169	29,968	52,306	91,295	81,458	0.35	0.6	1.1	2.0	3.4	6.0	5.3
Information	28,297	29,243	30,220	31,231	32,275	3,978	0.35	1.9	1.9	2.0	2.0	2.1	0.3
Financial Activities	27,466	39,219	56,001	79,964	114,182	86,715	0.35	1.8	2.6	3.7	5.2	7.5	5.7
Professional & Business Services	36,468	76,725	161,419	339,606	714,490	678,022	0.35	2.4	5.0	10.6	22.3	46.9	44.5
Education & Health Services	104,976	137,590	180,338	236,366	309,803	204,827	0.35	6.9	9.0	11.8	15.5	20.3	13.4
Leisure & Hospitality	28,300	42,326	63,305	94,681	141,609	113,309	0.35	1.9	2.8	4.2	6.2	9.3	7.4
Other Services	36,252	67,753	126,627	236,658	442,301	406,049	0.35	2.4	4.4	8.3	15.5	29.0	26.6
Government	18,461	26,068	36,809	51,976	73,393	54,932	0.35	1.2	1.7	2.4	3.4	4.8	3.6
Allocated to Industrial Space 2/	61,253	92,364	145,293	238,465	407,606	346,352	0.35	4.0	6.1	9.5	15.6	26.7	22.7
<b>Total Net</b>	<b>245,013</b>	<b>369,457</b>	<b>581,174</b>	<b>953,862</b>	<b>1,630,422</b>	<b>1,385,409</b>	<b>0.35</b>	<b>16.1</b>	<b>24.2</b>	<b>38.1</b>	<b>62.6</b>	<b>106.9</b>	<b>90.9</b>
<b>Low Growth Scenario</b>													
<b>Employment Sector</b>	<b>Projected Office Space Need 1/</b>					<b>'10-30</b>	<b>Floor to Area Ratio</b>	<b>Predicted Land Need (Acres)</b>					
	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>			<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	959	1,142	1,360	1,620	1,930	971	0.35	0.1	0.1	0.1	0.1	0.1	0.1
Manufacturing	4,320	6,584	10,034	15,291	23,303	18,982	0.35	0.3	0.4	0.7	1.0	1.5	1.2
Wholesale Trade	477	650	886	1,208	1,646	1,169	0.35	0.0	0.0	0.1	0.1	0.1	0.1
Retail Trade	10,453	13,075	16,354	20,456	25,586	15,134	0.35	0.7	0.9	1.1	1.3	1.7	1.0
Transportation, Warehousing & Utilities	9,837	13,842	19,478	27,409	38,570	28,733	0.35	0.6	0.9	1.3	1.8	2.5	1.9
Information	28,297	28,862	29,437	30,025	30,624	2,327	0.35	1.9	1.9	1.9	2.0	2.0	0.2
Financial Activities	27,466	34,114	42,371	52,627	65,364	37,898	0.35	1.8	2.2	2.8	3.5	4.3	2.5
Professional & Business Services	36,468	57,734	91,400	144,699	229,077	192,609	0.35	2.4	3.8	6.0	9.5	15.0	12.6
Education & Health Services	104,976	123,694	145,750	171,738	202,361	97,385	0.35	6.9	8.1	9.6	11.3	13.3	6.4
Leisure & Hospitality	28,300	36,171	46,231	59,089	75,524	47,224	0.35	1.9	2.4	3.0	3.9	5.0	3.1
Other Services	36,252	53,251	78,222	114,902	168,781	132,529	0.35	2.4	3.5	5.1	7.5	11.1	8.7
Government	18,461	22,772	28,090	34,649	42,740	24,279	0.35	1.2	1.5	1.8	2.3	2.8	1.6
Allocated to Industrial Space 2/	61,253	78,378	101,923	134,743	181,101	119,848	0.35	4.0	5.1	6.7	8.8	11.9	7.9
<b>Total Net</b>	<b>245,013</b>	<b>313,513</b>	<b>407,692</b>	<b>538,971</b>	<b>724,405</b>	<b>479,392</b>	<b>0.35</b>	<b>16.1</b>	<b>20.6</b>	<b>26.7</b>	<b>35.4</b>	<b>47.5</b>	<b>31.4</b>

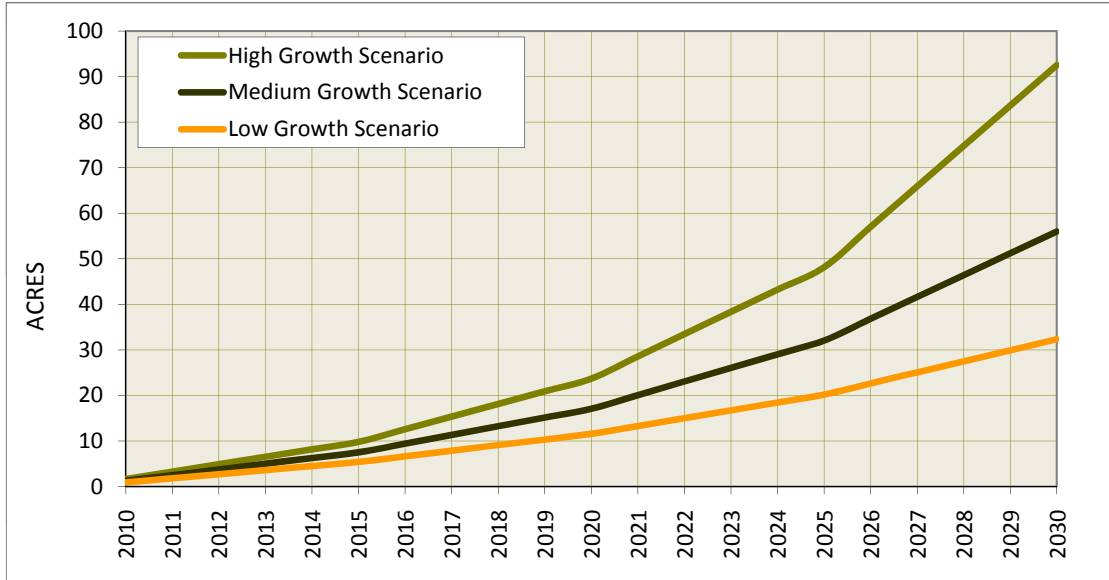
1/ From Exhibit 1.02

2/ A portion of office demand is allocated to industrial space in Exhibit 1.09. We are assuming this is largely office space and have shifted the indicated industrial need to office.

\*Estimate

**EXHIBIT 1.04**

**COMPARISON OF CUMULATIVE DEMAND FOR OFFICE LAND  
MEDIUM, HIGH AND LOW EMPLOYMENT GROWTH SCENARIOS  
2010-2030**



SOURCE: Johnson Reid, LLC



**EXHIBIT 1.05**  
**PROJECTIONS OF INDUSTRIAL SPACE-UTILIZING EMPLOYMENT BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

<b>Medium Growth Scenario</b>		<b>Total Employment 1/</b>					<b>Industrial</b>	<b>Industrial Space-Utilizing Employment</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>Share 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	
Construction	119	150	189	239	301	30%	36	45	57	72	90	55	
Manufacturing	215	374	650	1,132	1,970	95%	204	355	618	1,075	1,871	1,667	
Wholesale Trade	24	36	54	81	122	95%	23	34	51	77	115	93	
Retail Trade	519	698	939	1,263	1,698	0%	0	0	0	0	0	0	
Transportation, Warehousing & Utilities	81	128	201	315	494	70%	57	89	140	220	346	289	
Information	78	80	82	85	87	10%	8	8	8	8	9	1	
Financial Activities	76	101	135	179	239	0%	0	0	0	0	0	0	
Professional & Business Services	101	184	337	616	1,126	10%	10	18	34	62	113	102	
Education & Health Services	652	810	1,007	1,252	1,557	0%	0	0	0	0	0	0	
Leisure & Hospitality	281	389	538	745	1,030	0%	0	0	0	0	0	0	
Other Services	225	374	620	1,028	1,707	60%	135	224	372	617	1,024	889	
Government	54	71	94	124	164	15%	8	11	14	19	25	17	
<b>Total</b>	<b>2,425</b>	<b>3,395</b>	<b>4,846</b>	<b>7,057</b>	<b>10,492</b>	<b>27%</b>	<b>480</b>	<b>785</b>	<b>1,294</b>	<b>2,149</b>	<b>3,592</b>	<b>3,112</b>	
<b>High Growth Scenario</b>		<b>Total Employment 1/</b>					<b>Industrial</b>	<b>Industrial Space-Utilizing Employment</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>Share 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	
Construction	119	159	212	283	377	30%	36	48	64	85	113	77	
Manufacturing	215	425	842	1,669	3,306	95%	204	404	800	1,585	3,141	2,937	
Wholesale Trade	24	39	65	108	179	95%	23	37	62	103	170	148	
Retail Trade	519	750	1,083	1,564	2,259	0%	0	0	0	0	0	0	
Transportation, Warehousing & Utilities	81	142	248	433	756	70%	57	100	174	303	529	472	
Information	78	81	83	86	89	10%	8	8	8	9	9	1	
Financial Activities	76	108	155	221	315	0%	0	0	0	0	0	0	
Professional & Business Services	101	212	445	937	1,972	10%	10	21	45	94	197	187	
Education & Health Services	652	854	1,120	1,468	1,924	0%	0	0	0	0	0	0	
Leisure & Hospitality	281	421	629	941	1,407	0%	0	0	0	0	0	0	
Other Services	225	421	786	1,470	2,747	60%	135	252	472	882	1,648	1,513	
Government	54	76	108	152	214	15%	8	11	16	23	32	24	
<b>Total</b>	<b>2,425</b>	<b>3,688</b>	<b>5,777</b>	<b>9,331</b>	<b>15,546</b>	<b>28%</b>	<b>480</b>	<b>882</b>	<b>1,640</b>	<b>3,083</b>	<b>5,840</b>	<b>5,359</b>	
<b>Low Growth Scenario</b>		<b>Total Employment 1/</b>					<b>Industrial</b>	<b>Industrial Space-Utilizing Employment</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>Share 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	
Construction	119	142	169	201	240	30%	36	43	51	60	72	36	
Manufacturing	215	327	498	760	1,158	95%	204	311	474	722	1,100	896	
Wholesale Trade	24	32	44	60	82	95%	23	31	42	57	78	55	
Retail Trade	519	650	812	1,016	1,271	0%	0	0	0	0	0	0	
Transportation, Warehousing & Utilities	81	115	161	227	319	70%	57	80	113	159	224	167	
Information	78	80	81	83	85	10%	8	8	8	8	8	1	
Financial Activities	76	94	117	145	180	0%	0	0	0	0	0	0	
Professional & Business Services	101	159	252	399	632	10%	10	16	25	40	63	53	
Education & Health Services	652	768	905	1,066	1,257	0%	0	0	0	0	0	0	
Leisure & Hospitality	281	359	459	587	750	0%	0	0	0	0	0	0	
Other Services	225	331	486	713	1,048	60%	135	198	291	428	629	494	
Government	54	67	82	101	125	15%	8	10	12	15	19	11	
<b>Total</b>	<b>2,425</b>	<b>3,123</b>	<b>4,068</b>	<b>5,360</b>	<b>7,147</b>	<b>25%</b>	<b>480</b>	<b>696</b>	<b>1,016</b>	<b>1,489</b>	<b>2,192</b>	<b>1,712</b>	

1/ From Exhibit 1.01

2/ Share of industry employment that utilizes industrial space. Regional Industrial Land Study Phase III (EcoNorthwest and Otak, Inc., 2001) converted to NAICS by JOHNSON REID.

\* Estimate

**EXHIBIT 1.06**  
**INDUSTRIAL EMPLOYMENT DENSITY WORKSHEET BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

Industrial Space Density Employment Sector	Distribution by Building Type 1/			Square Feet per Job 2/			Average Space per Job			Weighted Average
	Warehouse/ Distrib.	General Industrial	Tech/ Flex	Warehouse/ Distrib.	General Industrial	Tech/ Flex	Warehouse/ Distrib.	General Industrial	Tech/ Flex	
Construction	0%	75%	25%	1,350	533	467	0	400	117	<b>517</b>
Manufacturing	0%	75%	25%	1,350	533	467	0	400	117	<b>517</b>
Wholesale Trade	90%	0%	10%	2,746	533	467	2,471	0	47	<b>2,518</b>
Retail Trade	0%	0%	0%	1,350	533	467	0	0	0	<b>0</b>
Transportation, Warehousing & Utilities	100%	0%	0%	1,707	533	467	1,707	0	0	<b>1,707</b>
Information	0%	0%	100%	1,350	533	467	0	0	467	<b>467</b>
Financial Activities	0%	0%	0%	1,350	533	467	0	0	0	<b>0</b>
Professional & Business Services	0%	0%	100%	1,350	533	467	0	0	467	<b>467</b>
Education & Health Services	0%	0%	0%	1,350	533	467	0	0	0	<b>0</b>
Leisure & Hospitality	0%	0%	0%	1,350	533	467	0	0	0	<b>0</b>
Other Services	0%	75%	25%	1,350	533	467	0	400	117	<b>517</b>
Government	50%	0%	50%	1,350	533	467	675	0	234	<b>909</b>

1/ Regional Industrial Land Study Phase II (Otak, Inc. et al, 1999) converted to NAICS by JOHNSON REID.

2/ Regional Industrial Land Study Phase III (EcoNorthwest and Otak, Inc., 2001) converted to NAICS by JOHNSON REID.

**EXHIBIT 1.07  
DEMAND PROJECTIONS FOR COMMERCIAL INDUSTRIAL SPACE BY INDUSTRY SECTOR  
SCAPPOOSE, OREGON  
2010-2030**

Medium Growth Scenario Employment Sector	Local Area Jobs in Industrial Space 1/					'10-30	Avg. Space Per Job 2/	Projected Industrial Space Need 3/					
	2010	2015	2020	2025	2030			2010	2015	2020	2025	2030	'10-30
Construction	36	45	57	72	90	55	517	20,300	25,596	32,273	40,694	51,310	31,011
Manufacturing	204	355	618	1,075	1,871	1,667	517	115,845	201,633	350,952	610,849	1,063,213	947,368
Wholesale Trade	23	34	51	77	115	93	2,518	62,398	93,888	141,269	212,561	319,833	257,435
Transportation, Warehousing & Utilities	57	89	140	220	346	289	1,707	107,051	167,963	263,536	413,489	648,768	541,717
Information	8	8	8	8	9	1	467	4,012	4,119	4,229	4,341	4,457	445
Professional & Business Services	10	18	34	62	113	102	467	5,170	9,455	17,290	31,619	57,822	52,652
Other Services	135	224	372	617	1,024	889	517	76,738	127,333	211,284	350,585	581,729	504,991
Government	8	11	14	19	25	17	909	8,087	10,678	14,098	18,615	24,578	16,492
<b>Total</b>	<b>480</b>	<b>785</b>	<b>1,294</b>	<b>2,149</b>	<b>3,592</b>	<b>3,112</b>	<b>757</b>	<b>399,600</b>	<b>640,664</b>	<b>1,034,932</b>	<b>1,682,755</b>	<b>2,751,711</b>	<b>2,352,110</b>
<b>High Growth Scenario</b>	<b>Local Area Jobs in Industrial Space 1/</b>					<b>'10-30</b>	<b>Avg. Space Per Job 2/</b>	<b>Projected Industrial Space Need 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>			<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	36	48	64	85	113	77	517	20,300	27,078	36,121	48,183	64,274	43,974
Manufacturing	204	404	800	1,585	3,141	2,937	517	115,845	229,501	454,667	900,745	1,784,474	1,668,629
Wholesale Trade	23	37	62	103	170	148	2,518	62,398	103,464	171,559	284,468	471,688	409,291
Transportation, Warehousing & Utilities	57	100	174	303	529	472	1,707	107,051	186,847	326,124	569,218	993,517	886,466
Information	8	8	8	9	9	1	467	4,012	4,146	4,284	4,428	4,576	564
Professional & Business Services	10	21	45	94	197	187	467	5,170	10,877	22,885	48,147	101,295	96,125
Other Services	135	252	472	882	1,648	1,513	517	76,738	143,420	268,044	500,959	936,265	859,527
Government	8	11	16	23	32	24	909	8,087	11,419	16,124	22,768	32,149	24,062
<b>Total</b>	<b>480</b>	<b>882</b>	<b>1,640</b>	<b>3,083</b>	<b>5,840</b>	<b>5,359</b>	<b>757</b>	<b>399,600</b>	<b>716,753</b>	<b>1,299,807</b>	<b>2,378,916</b>	<b>4,388,238</b>	<b>3,988,638</b>
<b>Low Growth Scenario</b>	<b>Local Area Jobs in Industrial Space 1/</b>					<b>'10-30</b>	<b>Avg. Space Per Job 2/</b>	<b>Projected Industrial Space Need 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>			<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>
Construction	36	43	51	60	72	36	517	20,300	24,179	28,799	34,302	40,857	20,557
Manufacturing	204	311	474	722	1,100	896	517	115,845	176,541	269,038	409,999	624,816	508,972
Wholesale Trade	23	31	42	57	78	55	2,518	62,398	85,033	115,880	157,917	215,202	152,805
Transportation, Warehousing & Utilities	57	80	113	159	224	167	1,707	107,051	150,638	211,974	298,282	419,733	312,683
Information	8	8	8	8	8	1	467	4,012	4,092	4,173	4,257	4,342	330
Professional & Business Services	10	16	25	40	63	53	467	5,170	8,185	12,958	20,514	32,477	27,307
Other Services	135	198	291	428	629	494	517	76,738	112,723	165,580	243,224	357,277	280,538
Government	8	10	12	15	19	11	909	8,087	9,975	12,305	15,178	18,722	10,635
<b>Total</b>	<b>480</b>	<b>696</b>	<b>1,016</b>	<b>1,489</b>	<b>2,192</b>	<b>1,712</b>	<b>757</b>	<b>399,600</b>	<b>571,366</b>	<b>820,707</b>	<b>1,183,674</b>	<b>1,713,426</b>	<b>1,313,826</b>

1/ From EXHIBIT 1.05

2/ From EXHIBIT 1.06

3/ Assumes a market-clearing 10% industrial space vacancy rate.

\*Estimate

**EXHIBIT 1.08**  
**INDUSTRIAL FLOOR-TO-AREA RATIO (FAR) WORKSHEET BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

Medium Growth Scenario Employment Sector	Distribution by Building Type 1/			FAR by industry sector 2/			Average Space per Job			Weighted Average
	Warehouse/ Distrib.	General Industrial	Tech/ Flex	Warehouse/ Distrib.	General Industrial	Tech/ Flex	Warehouse/ Distrib.	General Industrial	Tech/ Flex	
Construction	0%	75%	25%	0.31	0.30	0.26	0.00	0.23	0.07	<b>0.29</b>
Manufacturing	0%	75%	25%	0.31	0.30	0.26	0.00	0.23	0.07	<b>0.29</b>
Wholesale Trade	90%	0%	10%	0.31	0.30	0.26	0.28	0.00	0.03	<b>0.31</b>
Retail Trade	0%	0%	0%	0.31	0.30	0.26	0.00	0.00	0.00	<b>0.00</b>
Transportation, Warehousing & Util	100%	0%	0%	0.31	0.30	0.26	0.31	0.00	0.00	<b>0.31</b>
Information	0%	0%	100%	0.31	0.30	0.26	0.00	0.00	0.26	<b>0.26</b>
Financial Activities	0%	0%	0%	0.31	0.30	0.26	0.00	0.00	0.00	<b>0.00</b>
Professional & Business Services	0%	0%	100%	0.31	0.30	0.26	0.00	0.00	0.26	<b>0.26</b>
Education & Health Services	0%	0%	0%	0.31	0.30	0.26	0.00	0.00	0.00	<b>0.00</b>
Leisure & Hospitality	0%	0%	0%	0.31	0.30	0.26	0.00	0.00	0.00	<b>0.00</b>
Other Services	0%	75%	25%	0.31	0.30	0.26	0.00	0.23	0.07	<b>0.29</b>
Government	0%	0%	0%	0.31	0.30	0.26	0.00	0.00	0.00	<b>0.00</b>

1/ Regional Industrial Land Study Phase II (Otak, Inc. et al, 1999) converted to NAICS by JOHNSON REID.

2/ Regional Industrial Land Study Phase III (EcoNorthwest and Otak, Inc., 2001) converted to NAICS by Johnson REID.

**EXHIBIT 1.09**  
**DEMAND PROJECTIONS FOR COMMERCIAL INDUSTRIAL LAND BY INDUSTRY SECTOR**  
**SCAPPOOSE, OREGON**  
**2010-2030**

<b>Medium Growth Scenario</b>	<b>Projected Industrial Space Need 1/</b>						<b>Floor to Area</b>		<b>Predicted Land Need (Acres) 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	<b>Ratio 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	
Construction	20,300	25,596	32,273	40,694	51,310	31,011	0.29	1.9	2.4	3.1	3.9	4.9	2.9	
Manufacturing	115,845	201,633	350,952	610,849	1,063,213	947,368	0.29	11.0	19.2	33.3	58.0	101.0	90.0	
Wholesale Trade	62,398	93,888	141,269	212,561	319,833	257,435	0.31	5.6	8.5	12.8	19.2	28.9	23.3	
Transportation, Warehousing & Utilities	107,051	167,963	263,536	413,489	648,768	541,717	0.31	9.5	14.9	23.4	36.7	57.7	48.1	
Information	4,012	4,119	4,229	4,341	4,457	445	0.26	0.4	0.4	0.4	0.5	0.5	0.0	
Professional & Business Services	5,170	9,455	17,290	31,619	57,822	52,652	0.26	0.5	1.0	1.8	3.4	6.1	5.6	
Other Services	76,738	127,333	211,284	350,585	581,729	504,991	0.29	7.3	12.1	20.1	33.3	55.3	48.0	
<b>Total</b>	<b>399,600</b>	<b>640,664</b>	<b>1,034,932</b>	<b>1,682,755</b>	<b>2,751,711</b>	<b>2,352,110</b>		<b>36.3</b>	<b>58.5</b>	<b>94.9</b>	<b>154.9</b>	<b>254.3</b>	<b>217.9</b>	
<b>High Growth Scenario</b>	<b>Projected Industrial Space Need 1/</b>						<b>Floor to Area</b>		<b>Predicted Land Need (Acres) 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	<b>Ratio 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	
Construction	20,300	27,078	36,121	48,183	64,274	43,974	0.29	1.9	2.6	3.4	4.6	6.1	4.2	
Manufacturing	115,845	229,501	454,667	900,745	1,784,474	1,668,629	0.29	11.0	21.8	43.2	85.6	169.5	158.5	
Wholesale Trade	62,398	103,464	171,559	284,468	471,688	409,291	0.31	5.6	9.3	15.5	25.7	42.6	37.0	
Transportation, Warehousing & Utilities	107,051	186,847	326,124	569,218	993,517	886,466	0.31	9.5	16.6	29.0	50.6	88.3	78.8	
Information	4,012	4,146	4,284	4,428	4,576	564	0.26	0.4	0.4	0.5	0.5	0.5	0.1	
Professional & Business Services	5,170	10,877	22,885	48,147	101,295	96,125	0.26	0.5	1.2	2.4	5.1	10.7	10.2	
Other Services	76,738	143,420	268,044	500,959	936,265	859,527	0.29	7.3	13.6	25.5	47.6	88.9	81.6	
<b>Total</b>	<b>399,600</b>	<b>716,753</b>	<b>1,299,807</b>	<b>2,378,916</b>	<b>4,388,238</b>	<b>3,988,638</b>		<b>36.3</b>	<b>65.5</b>	<b>119.4</b>	<b>219.6</b>	<b>406.7</b>	<b>370.3</b>	
<b>Low Growth Scenario</b>	<b>Projected Industrial Space Need 1/</b>						<b>Floor to Area</b>		<b>Predicted Land Need (Acres) 3/</b>					
<b>Employment Sector</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	<b>Ratio 2/</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>'10-30</b>	
Construction	20,300	24,179	28,799	34,302	40,857	20,557	0.29	1.9	2.3	2.7	3.3	3.9	2.0	
Manufacturing	115,845	176,541	269,038	409,999	624,816	508,972	0.29	11.0	16.8	25.6	38.9	59.4	48.3	
Wholesale Trade	62,398	85,033	115,880	157,917	215,202	152,805	0.31	5.6	7.7	10.5	14.3	19.4	13.8	
Transportation, Warehousing & Utilities	107,051	150,638	211,974	298,282	419,733	312,683	0.31	9.5	13.4	18.8	26.5	37.3	27.8	
Information	4,012	4,092	4,173	4,257	4,342	330	0.26	0.4	0.4	0.4	0.5	0.5	0.0	
Professional & Business Services	5,170	8,185	12,958	20,514	32,477	27,307	0.26	0.5	0.9	1.4	2.2	3.4	2.9	
Other Services	76,738	112,723	165,580	243,224	357,277	280,538	0.29	7.3	10.7	15.7	23.1	33.9	26.6	
<b>Total</b>	<b>399,600</b>	<b>571,366</b>	<b>820,707</b>	<b>1,183,674</b>	<b>1,713,426</b>	<b>1,313,826</b>		<b>36.3</b>	<b>52.1</b>	<b>75.1</b>	<b>108.7</b>	<b>157.8</b>	<b>121.5</b>	

1/ From Exhibit 1.07

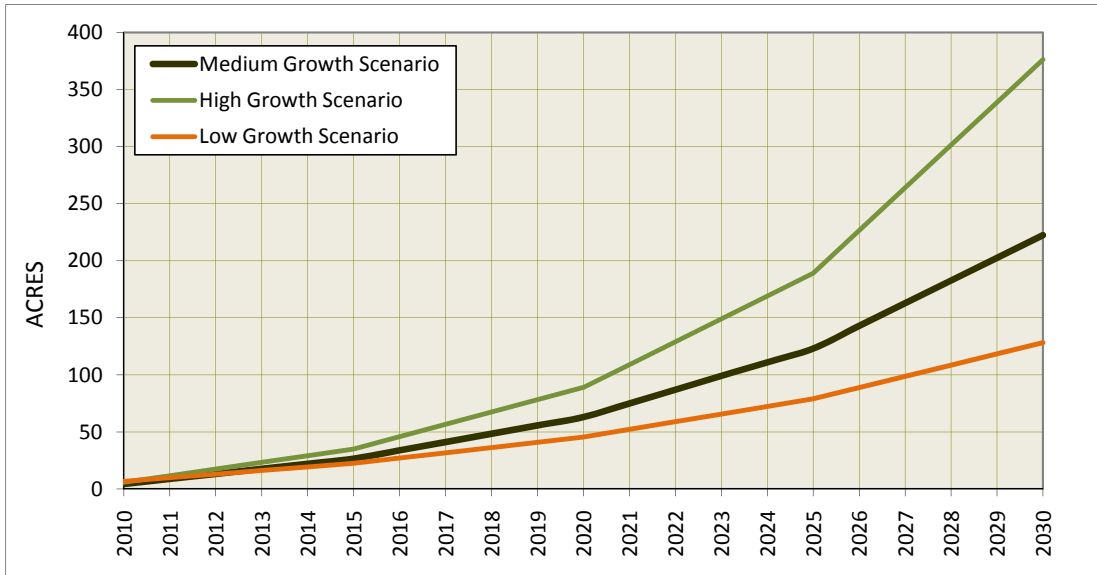
2/ From Exhibit 1.08

3/ Assumes a non-traditional industrial land use factor of 20% from Regional Industrial Land Study Phase II (Otak, Inc., et al, 1999).

\*Estimate

EXHIBIT 1.10

COMPARISON OF CUMULATIVE DEMAND FOR INDUSTRIAL LAND  
MEDIUM, HIGH AND LOW EMPLOYMENT GROWTH SCENARIOS  
2010-2030



SOURCE: Johnson Reid, LLC

**EXHIBIT 1.11**  
**PROJECTIONS OF HOUSEHOLD RETAIL SALES**  
**SCAPPOOSE, OREGON**  
**2010-2030**

Medium Growth Scenario		Per Household Expenditures 1/	Household Retail Spending in Millions (Households)					'10-30	Current Sales Leakage	New Spending + Leakage
NAICS	Category		2010	2015	2020	2025	2030			
441	Motor Vehicles and Parts Dealers	\$8,493	\$21.3	\$23.1	\$25.1	\$27.2	\$29.5	\$8.2	\$15.6	\$23.8
442	Furniture and Home Furnishings Stores	\$1,017	\$2.6	\$2.8	\$3.0	\$3.3	\$3.5	\$1.0	\$2.5	\$3.5
443	Electronics and Appliance Stores	\$986	\$2.5	\$2.7	\$2.9	\$3.2	\$3.4	\$1.0	\$2.1	\$3.0
444	Building Materials and Garden Equipment	\$4,709	\$11.8	\$12.8	\$13.9	\$15.1	\$16.4	\$4.6	\$8.8	\$13.3
445	Food and Beverage Stores	\$5,058	\$12.7	\$13.8	\$14.9	\$16.2	\$17.6	\$4.9	\$3.9	\$8.8
446	Health and Personal Care Stores	\$1,828	\$4.6	\$5.0	\$5.4	\$5.9	\$6.4	\$1.8	\$0.1	\$1.9
448	Clothing and Clothing Accessories Stores	\$1,835	\$4.6	\$5.0	\$5.4	\$5.9	\$6.4	\$1.8	\$3.5	\$5.3
451	Sporting Goods, Hobby, Book and Music Stores	\$804	\$2.0	\$2.2	\$2.4	\$2.6	\$2.8	\$0.8	\$1.9	\$2.7
452	General Merchandise Stores	\$4,909	\$12.3	\$13.4	\$14.5	\$15.7	\$17.1	\$4.7	-\$9.1	-\$4.3
453	Miscellaneous Store Retailers	\$1,089	\$2.7	\$3.0	\$3.2	\$3.5	\$3.8	\$1.1	\$1.7	\$2.7
722	Foodservices and Drinking Places	\$3,874	\$9.7	\$10.6	\$11.4	\$12.4	\$13.5	\$3.7	\$1.4	\$5.2
<b>Totals/Weighted Averages</b>		<b>\$34,603</b>	<b>\$86.9</b>	<b>\$94.3</b>	<b>\$102.3</b>	<b>\$110.9</b>	<b>\$120.3</b>	<b>\$33.4</b>	<b>\$32.3</b>	<b>\$65.7</b>

High Growth Scenario		Per Household Expenditures 1/	Household Retail Spending in Millions (Households)					'10-30	Current Sales Leakage	New Spending + Leakage
NAICS	Category		2010	2015	2020	2025	2030			
441	Motor Vehicles and Parts Dealers	\$8,493	\$21.3	\$23.3	\$25.5	\$27.8	\$30.4	\$9.1	\$15.6	\$24.7
442	Furniture and Home Furnishings Stores	\$1,017	\$2.6	\$2.8	\$3.1	\$3.3	\$3.6	\$1.1	\$2.5	\$3.6
443	Electronics and Appliance Stores	\$986	\$2.5	\$2.7	\$3.0	\$3.2	\$3.5	\$1.1	\$2.1	\$3.1
444	Building Materials and Garden Equipment	\$4,709	\$11.8	\$12.9	\$14.1	\$15.4	\$16.9	\$5.0	\$8.8	\$13.8
445	Food and Beverage Stores	\$5,058	\$12.7	\$13.9	\$15.2	\$16.6	\$18.1	\$5.4	\$3.9	\$9.3
446	Health and Personal Care Stores	\$1,828	\$4.6	\$5.0	\$5.5	\$6.0	\$6.5	\$2.0	\$0.1	\$2.1
448	Clothing and Clothing Accessories Stores	\$1,835	\$4.6	\$5.0	\$5.5	\$6.0	\$6.6	\$2.0	\$3.5	\$5.4
451	Sporting Goods, Hobby, Book and Music Stores	\$804	\$2.0	\$2.2	\$2.4	\$2.6	\$2.9	\$0.9	\$1.9	\$2.8
452	General Merchandise Stores	\$4,909	\$12.3	\$13.5	\$14.7	\$16.1	\$17.6	\$5.3	-\$9.1	-\$3.8
453	Miscellaneous Store Retailers	\$1,089	\$2.7	\$3.0	\$3.3	\$3.6	\$3.9	\$1.2	\$1.7	\$2.9
722	Foodservices and Drinking Places	\$3,874	\$9.7	\$10.6	\$11.6	\$12.7	\$13.9	\$4.1	\$1.4	\$5.6
<b>Totals/Weighted Averages</b>		<b>\$34,603</b>	<b>\$86.9</b>	<b>\$95.0</b>	<b>\$103.8</b>	<b>\$113.4</b>	<b>\$124.0</b>	<b>\$37.1</b>	<b>\$32.3</b>	<b>\$69.3</b>

Low Growth Scenario		Per Household Expenditures 1/	Household Retail Spending in Millions (Households)					'10-30	Current Sales Leakage	New Spending + Leakage
NAICS	Category		2010	2015	2020	2025	2030			
441	Motor Vehicles and Parts Dealers	\$8,493	\$21.3	\$23.0	\$24.7	\$26.6	\$28.6	\$7.3	\$15.6	\$22.9
442	Furniture and Home Furnishings Stores	\$1,017	\$2.6	\$2.7	\$3.0	\$3.2	\$3.4	\$0.9	\$2.5	\$3.3
443	Electronics and Appliance Stores	\$986	\$2.5	\$2.7	\$2.9	\$3.1	\$3.3	\$0.8	\$2.1	\$2.9
444	Building Materials and Garden Equipment	\$4,709	\$11.8	\$12.7	\$13.7	\$14.7	\$15.9	\$4.0	\$8.8	\$12.8
445	Food and Beverage Stores	\$5,058	\$12.7	\$13.7	\$14.7	\$15.8	\$17.0	\$4.3	\$3.9	\$8.2
446	Health and Personal Care Stores	\$1,828	\$4.6	\$4.9	\$5.3	\$5.7	\$6.2	\$1.6	\$0.1	\$1.7
448	Clothing and Clothing Accessories Stores	\$1,835	\$4.6	\$5.0	\$5.3	\$5.7	\$6.2	\$1.6	\$3.5	\$5.1
451	Sporting Goods, Hobby, Book and Music Stores	\$804	\$2.0	\$2.2	\$2.3	\$2.5	\$2.7	\$0.7	\$1.9	\$2.6
452	General Merchandise Stores	\$4,909	\$12.3	\$13.3	\$14.3	\$15.4	\$16.5	\$4.2	-\$9.1	-\$4.9
453	Miscellaneous Store Retailers	\$1,089	\$2.7	\$2.9	\$3.2	\$3.4	\$3.7	\$0.9	\$1.7	\$2.6
722	Foodservices and Drinking Places	\$3,874	\$9.7	\$10.5	\$11.3	\$12.1	\$13.1	\$3.3	\$1.4	\$4.7
<b>Totals/Weighted Averages</b>		<b>\$34,603</b>	<b>\$86.9</b>	<b>\$93.5</b>	<b>\$100.7</b>	<b>\$108.3</b>	<b>\$116.6</b>	<b>\$29.7</b>	<b>\$32.3</b>	<b>\$62.0</b>

1/ Claritas, Inc. average retail sales figures for Scappoose, Oregon in 2008 dollars.

**EXHIBIT 1.12  
PROJECTIONS OF COMMERCIAL RETAIL SPACE NEED  
SCAPOOSE, OREGON  
2010-2030**

Medium Growth Scenario		Household Retail Spending (millions) 1/					Sales Support	Spending-Supported Retail Demand (SF) 3/					New Spending		
NAICS	Category	2010	2015	2020	2025	2030	'10-30	Factor 2/	2010	2015	2020	2025	2030	'10-30	+ Leakage
441	Automotive Parts, Accessories and Tire Stores	\$21.3	\$23.1	\$25.1	\$27.2	\$29.5	\$8.2	\$171	137,253	148,891	161,515	175,210	190,067	52,814	152,962
442	Furniture and Home Furnishings Stores	\$2.6	\$2.8	\$3.0	\$3.3	\$3.5	\$1.0	\$213	13,209	14,328	15,543	16,861	18,291	5,083	17,875
443	Electronics and Appliance Stores	\$2.5	\$2.7	\$2.9	\$3.2	\$3.4	\$1.0	\$246	11,079	12,019	13,038	14,143	15,343	4,263	13,465
444	Building Materials and Garden Equipment	\$11.8	\$12.8	\$13.9	\$15.1	\$16.4	\$4.6	\$157	82,632	89,639	97,240	105,485	114,429	31,796	93,072
445	Food and Beverage Stores	\$12.7	\$13.8	\$14.9	\$16.2	\$17.6	\$4.9	\$384	36,415	39,503	42,852	46,486	50,427	14,012	25,206
446	Health and Personal Care Stores	\$4.6	\$5.0	\$5.4	\$5.9	\$6.4	\$1.8	\$283	17,848	19,361	21,003	22,784	24,716	6,868	7,340
448	Clothing and Clothing Accessories Stores	\$4.6	\$5.0	\$5.4	\$5.9	\$6.4	\$1.8	\$267	18,993	20,603	22,350	24,246	26,301	7,308	21,654
451	Sporting Goods, Hobby, Book and Music Stores	\$2.0	\$2.2	\$2.4	\$2.6	\$2.8	\$0.8	\$240	9,257	10,042	10,893	11,817	12,819	3,562	12,263
452	General Merchandise Stores	\$12.3	\$13.4	\$14.5	\$15.7	\$17.1	\$4.7	\$171	79,333	86,060	93,357	101,273	109,860	30,527	-27,853
453	Miscellaneous Store Retailers	\$2.7	\$3.0	\$3.2	\$3.5	\$3.8	\$1.1	\$236	12,745	13,826	14,998	16,270	17,650	4,904	12,752
722	Foodservices and Drinking Places	\$9.7	\$10.6	\$11.4	\$12.4	\$13.5	\$3.7	\$290	36,874	40,001	43,392	47,072	51,063	14,189	19,539
<b>Totals/Weighted Averages</b>		<b>\$86.9</b>	<b>\$94.3</b>	<b>\$102.3</b>	<b>\$110.9</b>	<b>\$120.3</b>	<b>\$33.4</b>		<b>455,638</b>	<b>494,273</b>	<b>536,183</b>	<b>581,647</b>	<b>630,966</b>	<b>175,327</b>	<b>348,276</b>
High Growth Scenario		Household Retail Spending (millions) 1/					Sales Support	Spending-Supported Retail Demand (SF) 3/					New Spending		
NAICS	Category	2010	2015	2020	2025	2030	'10-30	Factor 2/	2010	2015	2020	2025	2030	'10-30	+ Leakage
441	Automotive Parts, Accessories and Tire Stores	\$21.3	\$23.3	\$25.5	\$27.8	\$30.4	\$9.1	\$139	168,803	184,477	201,605	220,324	240,781	71,977	195,146
442	Furniture and Home Furnishings Stores	\$2.6	\$2.8	\$3.1	\$3.3	\$3.6	\$1.1	\$213	13,209	14,435	15,775	17,240	18,841	5,632	18,424
443	Electronics and Appliance Stores	\$2.5	\$2.7	\$3.0	\$3.2	\$3.5	\$1.1	\$246	11,079	12,108	13,232	14,461	15,804	4,724	13,926
444	Building Materials and Garden Equipment	\$11.8	\$12.9	\$14.1	\$15.4	\$16.9	\$5.0	\$157	82,632	90,305	98,689	107,853	117,866	35,234	96,510
445	Food and Beverage Stores	\$12.7	\$13.9	\$15.2	\$16.6	\$18.1	\$5.4	\$384	36,415	39,796	43,491	47,529	51,942	15,527	26,721
446	Health and Personal Care Stores	\$4.6	\$5.0	\$5.5	\$6.0	\$6.5	\$2.0	\$283	17,848	19,505	21,316	23,295	25,458	7,610	8,082
448	Clothing and Clothing Accessories Stores	\$4.6	\$5.0	\$5.5	\$6.0	\$6.6	\$2.0	\$267	18,993	20,756	22,684	24,790	27,092	8,099	22,445
451	Sporting Goods, Hobby, Book and Music Stores	\$2.0	\$2.2	\$2.4	\$2.6	\$2.9	\$0.9	\$240	9,257	10,116	11,056	12,082	13,204	3,947	12,648
452	General Merchandise Stores	\$12.3	\$13.5	\$14.7	\$16.1	\$17.6	\$5.3	\$171	79,333	86,699	94,749	103,546	113,160	33,827	-24,552
453	Miscellaneous Store Retailers	\$2.7	\$3.0	\$3.3	\$3.6	\$3.9	\$1.2	\$236	12,745	13,929	15,222	16,635	18,180	5,435	13,282
722	Foodservices and Drinking Places	\$9.7	\$10.6	\$11.6	\$12.7	\$13.9	\$4.1	\$290	36,874	40,298	44,039	48,128	52,597	15,723	21,073
<b>Totals/Weighted Averages</b>		<b>\$86.9</b>	<b>\$95.0</b>	<b>\$103.8</b>	<b>\$113.4</b>	<b>\$124.0</b>	<b>\$37.1</b>		<b>487,189</b>	<b>532,424</b>	<b>581,859</b>	<b>635,884</b>	<b>694,925</b>	<b>207,735</b>	<b>403,706</b>
Low Growth Scenario		Household Retail Spending (millions) 1/					Sales Support	Spending-Supported Retail Demand (SF) 3/					New Spending		
NAICS	Category	2010	2015	2020	2025	2030	'10-30	Factor 2/	2010	2015	2020	2025	2030	'10-30	+ Leakage
441	Automotive Parts, Accessories and Tire Stores	\$21.3	\$23.0	\$24.7	\$26.6	\$28.6	\$7.3	\$139	168,803	181,675	195,527	210,436	226,482	57,679	180,848
442	Furniture and Home Furnishings Stores	\$2.6	\$2.7	\$3.0	\$3.2	\$3.4	\$0.9	\$213	13,209	14,216	15,300	16,466	17,722	4,513	17,305
443	Electronics and Appliance Stores	\$2.5	\$2.7	\$2.9	\$3.1	\$3.3	\$0.8	\$246	11,079	11,924	12,833	13,812	14,865	3,786	12,988
444	Building Materials and Garden Equipment	\$11.8	\$12.7	\$13.7	\$14.7	\$15.9	\$4.0	\$157	82,632	88,933	95,714	103,012	110,867	28,235	89,511
445	Food and Beverage Stores	\$12.7	\$13.7	\$14.7	\$15.8	\$17.0	\$4.3	\$384	36,415	39,192	42,180	45,396	48,858	12,443	23,637
446	Health and Personal Care Stores	\$4.6	\$4.9	\$5.3	\$5.7	\$6.2	\$1.6	\$283	17,848	19,209	20,674	22,250	23,947	6,099	6,571
448	Clothing and Clothing Accessories Stores	\$4.6	\$5.0	\$5.3	\$5.7	\$6.2	\$1.6	\$267	18,993	20,441	22,000	23,677	25,483	6,490	20,836
451	Sporting Goods, Hobby, Book and Music Stores	\$2.0	\$2.2	\$2.3	\$2.5	\$2.7	\$0.7	\$240	9,257	9,963	10,722	11,540	12,420	3,163	11,864
452	General Merchandise Stores	\$12.3	\$13.3	\$14.3	\$15.4	\$16.5	\$4.2	\$171	79,333	85,382	91,892	98,899	106,440	27,107	-31,272
453	Miscellaneous Store Retailers	\$2.7	\$2.9	\$3.2	\$3.4	\$3.7	\$0.9	\$236	12,745	13,717	14,763	15,889	17,100	4,355	12,203
722	Foodservices and Drinking Places	\$9.7	\$10.5	\$11.3	\$12.1	\$13.1	\$3.3	\$290	36,874	39,686	42,712	45,968	49,474	12,600	17,949
<b>Totals/Weighted Averages</b>		<b>\$86.9</b>	<b>\$93.5</b>	<b>\$100.7</b>	<b>\$108.3</b>	<b>\$116.6</b>	<b>\$29.7</b>		<b>487,189</b>	<b>524,337</b>	<b>564,318</b>	<b>607,347</b>	<b>653,658</b>	<b>166,468</b>	<b>362,439</b>

1/ From Exhibit 1.11

2/ Based on national averages derived from "Dollars & Cents of Shopping Centers," Urban Land Institute, 2000, and have been escalated to 2010 dollars.

3/ Assumes a market-clearing retail space vacancy rate of 10%.

\* Estimate



**EXHIBIT 1.13**  
**PROJECTIONS OF COMMERCIAL RETAIL SPACE NEED**  
**SCAPPOOSE, OREGON**  
**2010-2030**

Medium Growth Scenario		Spending-Supported Retail Demand (SF) 1/					Retail	Commercial Retail Land Need (Acres)					New Spending		
NAICS	Category	2010	2015	2020	2025	2030	'10-30	F.A.R 2/	2010	2015	2020	2025	2030	'10-30	+ Leakage
441	Automotive Parts, Accessories and Tire Stores	137,253	148,891	161,515	175,210	190,067	52,814	0.30	10.5	11.4	12.4	13.4	14.5	4.0	11.7
442	Furniture and Home Furnishings Stores	13,209	14,328	15,543	16,861	18,291	5,083	0.30	1.0	1.1	1.2	1.3	1.4	0.4	1.4
443	Electronics and Appliance Stores	11,079	12,019	13,038	14,143	15,343	4,263	0.30	0.8	0.9	1.0	1.1	1.2	0.3	1.0
444	Building Materials and Garden Equipment	82,632	89,639	97,240	105,485	114,429	31,796	0.30	6.3	6.9	7.4	8.1	8.8	2.4	7.1
445	Food and Beverage Stores	36,415	39,503	42,852	46,486	50,427	14,012	0.30	2.8	3.0	3.3	3.6	3.9	1.1	1.9
446	Health and Personal Care Stores	17,848	19,361	21,003	22,784	24,716	6,868	0.30	1.4	1.5	1.6	1.7	1.9	0.5	0.6
448	Clothing and Clothing Accessories Stores	18,993	20,603	22,350	24,246	26,301	7,308	0.30	1.5	1.6	1.7	1.9	2.0	0.6	1.7
451	Sporting Goods, Hobby, Book and Music Stores	9,257	10,042	10,893	11,817	12,819	3,562	0.30	0.7	0.8	0.8	0.9	1.0	0.3	0.9
452	General Merchandise Stores	79,333	86,060	93,357	101,273	109,860	30,527	0.30	6.1	6.6	7.1	7.7	8.4	2.3	-2.1
453	Miscellaneous Store Retailers	12,745	13,826	14,998	16,270	17,650	4,904	0.30	1.0	1.1	1.1	1.2	1.4	0.4	1.0
722	Foodservices and Drinking Places	36,874	40,001	43,392	47,072	51,063	14,189	0.30	2.8	3.1	3.3	3.6	3.9	1.1	1.5
<b>Totals/Weighted Averages</b>		<b>455,638</b>	<b>494,273</b>	<b>536,183</b>	<b>581,647</b>	<b>630,966</b>	<b>175,327</b>	<b>0.30</b>	<b>34.9</b>	<b>37.8</b>	<b>41.0</b>	<b>44.5</b>	<b>48.3</b>	<b>13.4</b>	<b>26.7</b>
High Growth Scenario		Spending-Supported Retail Demand (SF) 1/					Retail	Commercial Retail Land Need (Acres)					New Spending		
NAICS	Category	2010	2015	2020	2025	2030	'10-30	F.A.R 2/	2010	2015	2020	2025	2030	'10-30	+ Leakage
441	Automotive Parts, Accessories and Tire Stores	168,803	184,477	201,605	220,324	240,781	71,977	0.30	12.9	14.1	15.4	16.9	18.4	5.5	14.9
442	Furniture and Home Furnishings Stores	13,209	14,435	15,775	17,240	18,841	5,632	0.30	1.0	1.1	1.2	1.3	1.4	0.4	1.4
443	Electronics and Appliance Stores	11,079	12,108	13,232	14,461	15,804	4,724	0.30	0.8	0.9	1.0	1.1	1.2	0.4	1.1
444	Building Materials and Garden Equipment	82,632	90,305	98,689	107,853	117,866	35,234	0.30	6.3	6.9	7.6	8.3	9.0	2.7	7.4
445	Food and Beverage Stores	36,415	39,796	43,491	47,529	51,942	15,527	0.30	2.8	3.0	3.3	3.6	4.0	1.2	2.0
446	Health and Personal Care Stores	17,848	19,505	21,316	23,295	25,458	7,610	0.30	1.4	1.5	1.6	1.8	1.9	0.6	0.6
448	Clothing and Clothing Accessories Stores	18,993	20,756	22,684	24,790	27,092	8,099	0.30	1.5	1.6	1.7	1.9	2.1	0.6	1.7
451	Sporting Goods, Hobby, Book and Music Stores	9,257	10,116	11,056	12,082	13,204	3,947	0.30	0.7	0.8	0.8	0.9	1.0	0.3	1.0
452	General Merchandise Stores	79,333	86,699	94,749	103,546	113,160	33,827	0.30	6.1	6.6	7.3	7.9	8.7	2.6	-1.9
453	Miscellaneous Store Retailers	12,745	13,929	15,222	16,635	18,180	5,435	0.30	1.0	1.1	1.2	1.3	1.4	0.4	1.0
722	Foodservices and Drinking Places	36,874	40,298	44,039	48,128	52,597	15,723	0.30	2.8	3.1	3.4	3.7	4.0	1.2	1.6
<b>Totals/Weighted Averages</b>		<b>487,189</b>	<b>532,424</b>	<b>581,859</b>	<b>635,884</b>	<b>694,925</b>	<b>207,735</b>	<b>0.30</b>	<b>37.3</b>	<b>40.7</b>	<b>44.5</b>	<b>48.7</b>	<b>53.2</b>	<b>15.9</b>	<b>30.9</b>
Low Growth Scenario		Spending-Supported Retail Demand (SF) 1/					Retail	Commercial Retail Land Need (Acres)					New Spending		
NAICS	Category	2010	2015	2020	2025	2030	'10-30	F.A.R 2/	2010	2015	2020	2025	2030	'10-30	+ Leakage
441	Automotive Parts, Accessories and Tire Stores	168,803	181,675	195,527	210,436	226,482	57,679	0.30	12.9	13.9	15.0	16.1	17.3	4.4	13.8
442	Furniture and Home Furnishings Stores	13,209	14,216	15,300	16,466	17,722	4,513	0.30	1.0	1.1	1.2	1.3	1.4	0.3	1.3
443	Electronics and Appliance Stores	11,079	11,924	12,833	13,812	14,865	3,786	0.30	0.8	0.9	1.0	1.1	1.1	0.3	1.0
444	Building Materials and Garden Equipment	82,632	88,933	95,714	103,012	110,867	28,235	0.30	6.3	6.8	7.3	7.9	8.5	2.2	6.8
445	Food and Beverage Stores	36,415	39,192	42,180	45,396	48,858	12,443	0.30	2.8	3.0	3.2	3.5	3.7	1.0	1.8
446	Health and Personal Care Stores	17,848	19,209	20,674	22,250	23,947	6,099	0.30	1.4	1.5	1.6	1.7	1.8	0.5	0.5
448	Clothing and Clothing Accessories Stores	18,993	20,441	22,000	23,677	25,483	6,490	0.30	1.5	1.6	1.7	1.8	2.0	0.5	1.6
451	Sporting Goods, Hobby, Book and Music Stores	9,257	9,963	10,722	11,540	12,420	3,163	0.30	0.7	0.8	0.8	0.9	1.0	0.2	0.9
452	General Merchandise Stores	79,333	85,382	91,892	98,899	106,440	27,107	0.30	6.1	6.5	7.0	7.6	8.1	2.1	-2.4
453	Miscellaneous Store Retailers	12,745	13,717	14,763	15,889	17,100	4,355	0.30	1.0	1.0	1.1	1.2	1.3	0.3	0.9
722	Foodservices and Drinking Places	36,874	39,686	42,712	45,968	49,474	12,600	0.30	2.8	3.0	3.3	3.5	3.8	1.0	1.4
<b>Totals/Weighted Averages</b>		<b>487,189</b>	<b>524,337</b>	<b>564,318</b>	<b>607,347</b>	<b>653,658</b>	<b>166,468</b>	<b>0.30</b>	<b>37.3</b>	<b>40.1</b>	<b>43.2</b>	<b>46.5</b>	<b>50.0</b>	<b>12.7</b>	<b>27.7</b>

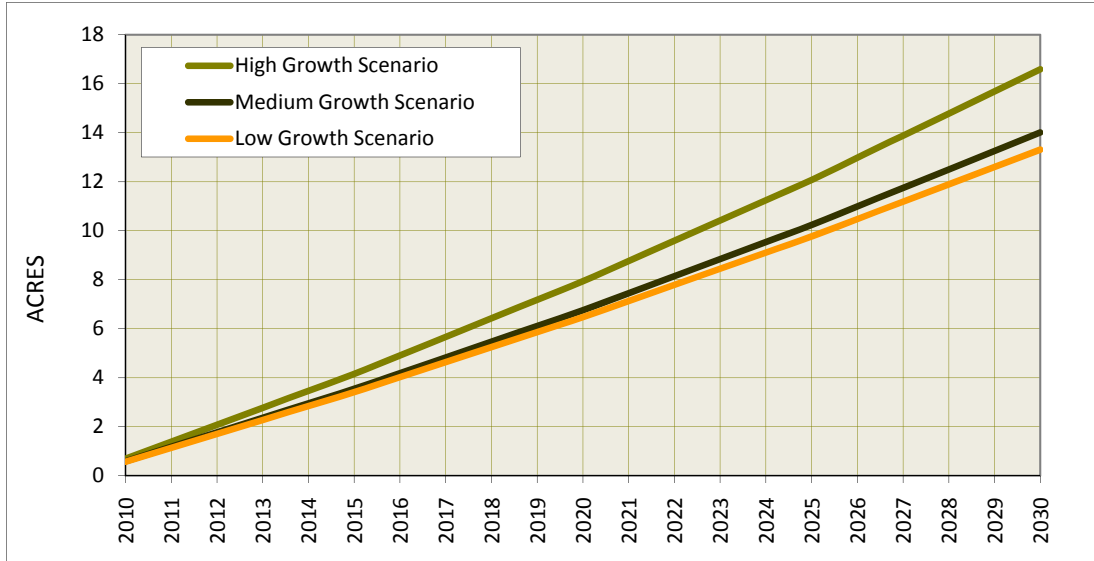
1/ From Exhibit 1.12

2/ Assumes typical suburban retail profile: single-story with one parking spaces per 400 square feet of developed space, as per city code.

\*Estimate

EXHIBIT 1.14

COMPARISON OF CUMULATIVE DEMAND FOR COMMERCIAL RETAIL LAND  
MEDIUM, HIGH AND LOW GROWTH SCENARIOS  
2010-2030



SOURCE: Johnson Reid, LLC

**EXHIBIT 1.15**  
**GROSS NEED FOR COMMERCIAL AND INDUSTRIAL LAND**  
**SCAPPOOSE, OREGON**  
**2010-2030**

<b>Need For Land</b>		
<b>Use Type</b>	<b>Net Acres</b>	<b>Gross Acres</b>
<b>INDUSTRIAL</b>	<b>217.9</b>	<b>269.0</b>
<b>OFFICE COMMERCIAL</b>	<b>54.7</b>	<b>64.4</b>
<b>RETAIL COMMERCIAL</b>	<b>33.6</b>	<b>39.6</b>
CITY RESIDENTS	26.7	31.4
REGION/TOURISTS 1/	7.0	8.2
<b>SPECIALIZED USES 2/</b>	<b>93.5</b>	<b>110.0</b>
<b>TOTAL</b>	<b>399.8</b>	<b>483.0</b>

1/ Based on current ratios between locally supported and total sales, CE Survey from the BLS and Census of Retail Trade.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized.

SOURCE: JOHNSON REID

## Amendments to existing sections of the Scappoose Comprehensive Plan

*Item 1. Delete the existing “Economy” section of the Scappoose Comprehensive Plan and replace it with the following:*

### ECONOMY

This Plan’s economic element possesses two sections. The first section, the inventory, describes the various aspects that make up the local economy, such as the demographic data, employment forecasts, employment land needs, and local industry clusters. From these findings evolve project recommendations. These recommendations, which take into account Scappoose’s overall growth goals, state what is needed to improve the economy, as well as present guidelines for future economic development. These economic policies are located in this Plan’s general policy section.

#### Local Area Demographics

Scappoose is a small city, with an estimated 6,680 residents in 2010.<sup>1</sup> But it has steadily grown over the last decade, growing on average 3.4% a year since 2000, an increase of about one-third.

Columbia County has grown at a slower rate—an average annual rate of 1.2% over the last decade. The majority of the growth has occurred in the County’s incorporated cities. Most new residents to the County are new residents to St. Helens or Scappoose while the unincorporated part of Columbia County has seen a decline in population. This trend has caused the City of Scappoose to make up a greater portion of the County’s population.

Population distribution by age in Columbia County closely resembles the statewide distribution pattern. The County has a smaller share of young, working-age adults (20 to 44 years) and a larger share of older, working-age adults (45 to 64 years). Columbia County’s population growth has been primarily caused by the in-migration of older, working-age and retirement-age residents. Over the last six years, Columbia County has seen a very slight decline in the number of children and a larger decline in 35 to 44 year olds.

An area’s level of educational attainment is often used as a proxy for the skill level of the population base. From an economic development perspective, Columbia County is at a slight competitive disadvantage regionally, with a lower distribution of higher educated persons—15.4% of local residents have a Bachelor’s Degree or higher as compared to 27.6% at the statewide level. The City of Scappoose, however, has a higher portion of its population with a Bachelor’s Degree or higher at 19.6% according to the 2000 Census. On average, the population of Scappoose is more educated than the population of Columbia County, but less educated than the statewide average, which is driven by the Portland metropolitan area.

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<sup>1</sup> Oregon Population Estimates by Portland State University Population Research Center. The July 1, 2010 population estimate is certified as of December 15, 2010.

The demographic data show that Scappoose is growing rapidly and become both more integrated with and similar to the Portland metropolitan region and increasingly independent of as well as less like the rest of Columbia County.

### 2011 Scappoose Economic Opportunities Analysis

The City of Scappoose adopted the Scappoose Economic Opportunities Analysis (Johnson-Reid, 2011) as an appendix to the Comprehensive Plan in 2011. The purpose of the “Economic Opportunity Analysis” (EOA) is to determine the City’s economic goals, policies and land needs concerning commercial and industrial development within City limits and the Urban Growth Boundary and ultimately inform the City’s Economic Element of the Comprehensive Plan.

The element is intended to satisfy the requirements of the Oregon Administrative Rules, Chapter 660, Division 9. The State Planning Goal 9 EOA methodology guidelines call for a four-step approach to economic development planning and resulting quantification of employment (industrial, retail, office, institutional, etc.) land need for urban growth boundary planning purposes. These four steps largely guide this resulting analysis of City of Scappoose’s need for urbanized land. The required Goal 9 analytical steps that roughly comprise the outline of the EOA are:

1. Economic Trends Analysis: Identification of national, state, regional and local economic trends that have shaped recent economic performance as well as likely 20-year economic activity that will determine employment land need over the duration of the study period.
2. Industry & Job Growth Forecasts: Detailed forecasts of job growth by industry within Scappoose over the planning period that will in turn drive demand, if any, for different employment land categories.
3. Land Need Forecasts: Job growth forecasts translated into land demand forecasts based on industry and space type usage and floor area ratio (FAR) patterns anticipated into the future.
4. Land/Parcel Need Quality: A detailed treatment of employment land need in terms of specific parcel types, sizes, quantities and other qualities appropriate to economic growth anticipated by the jurisdiction.

The Economic Opportunities Analysis includes an analysis of significant national, state and local trends and an analysis of Scappoose’s competitive position and target industries, together with a forecast of employment and demand for employment lands through the twenty-year planning period (2010-2030).

### Summary of EOA Findings

This section presents an overview of key findings. The context and methodology for these findings is discussed in greater detail in the EOA.

- The EOA was completed in the climate of a severe national recession. The depth of the downturn relative to other modern downturns color recent trends and make it difficult to forecast the nature and timing of the eventual recovery.

- Beyond the near-term, the United States economy is expected to return to a more typical growth cycle, averaging 3.1% annual Gross Domestic Product growth from 2011 to 2019, as well as employment growth. In the coming growth cycle, the United States' commitment to renewable energy transition is expected to play a major role.
- The most prominent industry clusters in Scappoose currently are the Aviation Manufacturing and Services, Retail and Nursery industries.
- Figure 1 outlines the City of Scappoose employment forecast through 2030. As shown, the employment forecast anticipates an increase of 8,068 jobs (7.6% annual average growth rate, or AAGR). Professional & Business Services, Other Services, Manufacturing, and Retail Trade, are expected to account for approximately 67% of net new growth over the forecast period. Other promising sectors are Transportation, Warehousing & Utilities, Education & Health and Leisure & Hospitality, accounting for an additional 25% of new net growth.

FIGURE 1: 20-YEAR EMPLOYMENT FORECAST (2010-2030)<sup>2</sup>

Employment Forecast NAICS	Base Year 2010	Employment Forecast				2010-2030 Growth	
		2015	2020	2025	2030	Jobs	AAGR
Natural Resources	0	0	0	0	0	0	0.0%
Construction	119	150	189	239	301	182	4.7%
Manufacturing	215	523	894	1,359	1,970	1,755	11.7%
Wholesale Trade	24	36	54	81	122	98	8.5%
Retail Trade	519	773	1,051	1,357	1,698	1,179	6.1%
T.W.U.	81	153	241	351	494	412	9.4%
Information	78	80	82	85	87	9	0.5%
Financial Activities	76	101	135	179	239	163	5.9%
Professional & Business	101	192	350	628	1,126	1,025	12.8%
Education & Health	652	815	1,014	1,258	1,557	905	4.4%
Leisure & Hospitality	281	389	538	745	1,030	749	6.7%
Other Services	225	374	620	1,028	1,707	1,481	10.7%
Public Administration	54	71	94	124	164	110	5.7%
<b>TOTAL</b>	<b>2,425</b>	<b>3,657</b>	<b>5,261</b>	<b>7,433</b>	<b>10,492</b>	<b>8,068</b>	<b>7.6%</b>

- The potential for growth in Scappoose is based on several factors. First, the City has maintained exceptional growth during the last six years and although some of that growth has been eroded recently, the area has held up well. Despite a nationwide severe recession, Columbia County maintained a 1.6% growth rate between 2007 and 2008.
- Figure 2 below projects both net and total land demand for the City of Scappoose. There will be a projected need for close to 400 net acres to accommodate projected employment growth. After accommodating infrastructure (streets, utilities, etc.) and other site improvements, this translates to a need for 483 gross acres.

<sup>2</sup> It should be noted that employment forecasts are speculative over a twenty year horizon.

FIGURE 2: PROJECTED AGGREGATE LAND NEED IN THE SCAPPOOSE UGB,  
2010-2030 (NET & GROSS ACRES)

Need For Land		
Use Type	Net Acres	Gross Acres
INDUSTRIAL	217.9	269.0
OFFICE COMMERCIAL	54.7	64.4
RETAIL COMMERCIAL	33.6	39.6
CITY RESIDENTS	26.7	31.4
REGION/TOURISTS 1/	7.0	8.2
SPECIALIZED USES 2/	93.5	110.0
<b>TOTAL</b>	<b>399.8</b>	<b>483.0</b>

1/ Based on current ratios between locally supported and total sales, CE Survey from the BLS and Census of Retail Trade.

2/ Hospitals, Clinics, etc. for employment not otherwise categorized.

SOURCE: JOHNSON REID

- Figure 3 provides a detailed assessment of Scappoose employment land need through 2030 in terms of land use categories, number of sites, and gross acres needed by site size.

FIGURE 3: EMPLOYMENT LAND DEMAND BY SITE SIZE FOR SCAPPOOSE (2030)

Land Demand by Site Size				
		Demand Projections		
		Typical Acreage	Sites	Gross Acres
Office	Large	25.0	0	11.6
	Medium	10.0	1	7.7
	Small	5.0	9	45.1
	<b>SubTotal</b>		<b>10</b>	<b>64.4</b>
Commercial Retail	Large	20.0	0	0.0
	Medium	7.0	4	25.8
	Small	1.0	6	6.3
	<b>SubTotal</b>		<b>10</b>	<b>32.1</b>
Industrial	Large	50.0	2	107.6
	Medium	30.0	1	35.0
	Small	7.0	7	51.1
	Tech/Flex	12.0	2	21.5
	Airpark Emp.	5.0	11	53.8
	<b>SubTotal</b>		<b>23</b>	<b>269.0</b>
Lodging Related	Lodging	1.5	2	3.0
	Lodging-supportive commercial	1.0	5	4.5
	<b>SubTotal</b>		<b>7</b>	<b>7.5</b>
<b>Employment Uses Totals:</b>			<b>50</b>	<b>373.0</b>
Public Uses	<u>Special Uses</u>			
	Hangar Reserve		1	40.0
	Runway Extension		1	50.0
	PCC Campus		1	20.0
<b>SubTotal</b>		<b>3</b>	<b>110.0</b>	
<b>GRAND TOTALS:</b>			<b>53</b>	<b>483.0</b>

SOURCE: JOHNSON REID

Existing Economic Clusters

Sound economies are best organized around a healthy set of industry clusters—similar and related businesses and industries that are mutually supportive, regionally competitive, attract capital investment, and encourage entrepreneurship. In his pioneering book “The Competitive Advantage of Nations”, Harvard University Professor Michael Porter defines clusters as “geographic concentrations of inter-connected companies and institutions working in a common industry”. As an economic development strategy,



specific clusters are targeted, and emerge, when a particular geography holds an innate competitive advantage in that industry—whether it is natural resources, human capital, political policies or geography. For example, Oregon’s oldest industries—namely forestry and agriculture, emerged from physical and environmental attributes such as its climate, trees, soils, and access to shipping and distribution networks. In turn, these industries spawned interrelated clusters that include Food Processing & Manufacturing, Wood Product Manufacturing, Wholesaling & Distribution, Machinery Manufacturing, and host of other industries.

With shared ideas, concepts, and competition, knowledge spillover within clusters encourages secondary effects—innovation, the creation of start-ups and spin-off industries, and opportunities for suppliers, manufacturers, and customers. In turn, effects from job creation wages support tertiary effects such as retail, services, construction, and institutional industries.

The EOA analyzed the Quarterly Census of Employment and Wages data for Scappoose to determine industries and industry clusters in which the local economy is both regionally competitive and/or has growth potential. The data show firm-level employment and wages in the City of Scappoose. The EOA’s authors reviewed the data to determine industries that have clustered in the area and interviewed individuals at the Employment Department, the City, the Chamber of Commerce, and local business representatives.

Based on the interviews and data analysis, the EOA identified three industry clusters with an existing competitive presence in Scappoose, described below.

#### *Aviation Manufacturing and Services*

Scappoose is the center of a cluster of aviation-related firms. The majority of firms in the cluster are classified in the Manufacturing industrial sector, but others are in the Transportation, Warehousing, and Utilities sector, and some are in the Professional and Business Services sector. The cluster provides jobs at a variety of skill and wage levels.

The cluster includes firms that provide basic airport services, such as airplane repairs and fuel. But most of the firms produce innovative aircraft-related equipment. The Scappoose Airport website<sup>3</sup> shows the following firms are located at the Scappoose Industrial Airpark:

- Columbia Aviation Center – Aircraft maintenance and flight training
- Composites Universal – Manufacturer of composite aircraft components
- Evergreen Aviation Services and Restoration – Aircraft restoration and parts
- MetalCraft Machine Inc. – Aerospace and general CNC machining
- Oregon Aero Inc. – Manufacturer of aircraft seats, helmets, and accessories
- Overall Aircraft Services – Aeroplane and helicopters parts and maintenance
- Scappoose Jet Center – Hangar space and jet aircraft sales

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<sup>3</sup> <http://www.scappooseairport.com/>

- Sherpa Aircraft – Manufacturer of Sherpa airplanes
- Sport Copter – Gyroplane manufacturing and flight instruction
- TransWestern Aviation, Inc. – Fuel, parts, supplies, courtesy cars.

The Scappoose Airport has played an essential role in attracting these firms to the area. There are 16 public-use airports within a 30 nautical-mile (nm) radius of Scappoose Industrial Airpark. Only three of these airports have a runway 5,000 feet or greater, which is generally preferred by corporate aviation departments operating turbine aircraft. This makes this airport ideal for many turbine aircraft and enhances the airport's role as a major local airport in the Portland Metropolitan Area for general aviation. In addition, the airport is considering a runway extension, potentially amounting to an additional 20% to 30% increase in length. Portland International Airport, whose longest runway is 11,000 feet, is the only commercial service airport within 30 nautical miles.<sup>4</sup>

The Port of St. Helens owns and manages the Scappoose Industrial Airpark and the Airport. The firms are all renters—the Port does not sell the land, it only leases it. The City sees little gain from the industrial activity; the site does not generate property tax because it is publicly owned. At this time, the City does not directly benefit greatly from the cluster. It would gain more from new firms locating off Port property.

The aviation-related cluster has room to grow in Scappoose. Although much of the industry is struggling in the current economic downturn, the firms in Scappoose are well positioned to grow when the economy turns. Some of the firms specialize in lightweight aircraft and aircraft parts, which improves aircraft fuel efficiency. The products are expected to be in demand as fuel prices increase, a likely event when the worldwide economy enters an expansionary period.

The Scappoose Airport has the ability to provide aviation-related businesses access both from Port property, and “through the fence” operations from adjacent private property. The ability to provide “through the fence” options is attractive to many firms looking to invest in their own land and property value, rather than renting from the Port. This feature would be rare in Oregon and would likely offer a material competitive advantage to Scappoose in attracting aviation-related businesses.

Aviation firms have attempted to locate in Scappoose. Oregon Business Development Department (OBDD) staff report that firms have tried to find a site in Scappoose, but there is a lack of suitable land. OBDD has to turn away firms seeking to locate in Scappoose.

### *Retail*

The largest industrial sector in Scappoose, in terms of number of jobs, is Retail Trade. Almost one-quarter of all jobs within Scappoose are Retail jobs, a significantly higher portion than in Columbia County (13%) or Oregon (11%). One reason for the large number of Retail Trade jobs is simply the small number of jobs overall. As the discussion

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<sup>4</sup> Airpark Master Plan Update for Scappoose Industrial Airpark, Scappoose, Oregon. Prepared for the Port of St. Helens by W&H Pacific, September 2004

about commute trends in the EOA showed, many more workers live in Scappoose and commute elsewhere, than work in Scappoose. Retail makes up a large piece of the employment pie in Scappoose because the whole employment pie is smaller.

If one compares the ratio of population to Retail Trade jobs, there are relatively more Retail Trade jobs in Scappoose. In Scappoose, there are about 16 residents for every Retail Trade job. Across Oregon, there are about 19 residents for every Retail Trade job.

Columbia County captures some retail sales from Washington residents because of the lack of sales tax. Scappoose's advantage for retail stems mostly from its location as the first stop for Columbia County residents returning home from employment in the Portland area. The Fred Meyer store in Scappoose attracts shoppers from outside of Scappoose.

There is one large retail strip in Scappoose located on Havlik Drive just south of the Fred Meyer. Built in 2001, the project is about 20,600 square feet. The property has experienced some vacancy.

In addition to auto-oriented retail centers near Highway 30, Downtown Scappoose offers pedestrian-scale retail and commercial service space, with access from civic and business users, and surrounding neighborhoods. The Downtown features its own retail profile which leverages its walkable scale and local offerings.

The retail sector has an opportunity to grow. At this time, Scappoose is under-retailed. Many goods and services are not available. Some of the interviewed individuals felt that there is an opportunity for new retail and service firms (accountants, attorneys, etc.) that would serve the local population. Scappoose is likely to become more service oriented in the future, as the number of residences grows. These firms will seek small to medium retail sites.

In the case of the Fred Meyer store, Scappoose has demonstrated that it is a successful central location for a larger-format store to serve the surrounding smaller communities and rural areas. While overall, an estimated 36% of local resident spending leaves the area, in the "general merchandise" category which includes Fred Meyer, the city attracts 75% more spending than is accounted for by local residents alone. Thus, Scappoose may be a good candidate for additional large-format retailers, representing regional or national chains, in categories which do not directly compete with the Fred Meyer store. Such retailers would seek larger sites, with access and visibility from the highway.

#### *Nurseries*

A number of individuals familiar with the Scappoose economy reported that the area is home to a Nursery Products cluster. The Scappoose area traditionally included extensive farming. The farming industry has declined, but the nursery industry had gained a strong foothold.

The nurseries in the area, however, are located outside the UGB. None of the firms appeared in the EOA's analysis of the Quarterly Census of Employment and Wages (QCEW) employment data. The firms are an agricultural use and they require agricultural lands. It would be inappropriate to plan to accommodate the firms within the City's Urban Growth Boundary.

***Item 2. Delete the existing “Economic Goals and Policies” section of the Scappoose Comprehensive Plan and replace it with the following:***

## **ECONOMIC GOALS AND POLICIES**

### **SIGNIFICANT FINDINGS OF THE PLAN WITH REGARDS TO ECONOMICS**

- 1) Including the commercial lands added to the UGB in 2011, Scappoose has a commercial land base of approximately 231 gross acres. Most of this land has been developed or is constrained by natural features such as floodplain and wetlands. Scappoose has a developable commercial land supply of 36 gross suitable acres.
- 2) Including Airport Employment lands added to the UGB in 2011, the City of Scappoose currently has approximately 1,000 gross acres of land planned for industrial uses. Much of this land is developed or significantly constrained by floodplain, wetlands or slopes. The Scappoose UGB currently contains a developable industrial land supply of 378 gross suitable acres.
- 3) The population in Scappoose is expected to reach 10,022 by 2030.

### **GOAL FOR ECONOMICS**

It is the goal of the City of Scappoose to:

- 1) Maintain conditions favorable for a growing, healthy, stable, and diversified business and industrial climate.
- 2) Establish greater local control over local economic development policy through the adoption of the Scappoose Economic Opportunities Analysis.
- 3) Provide the land and public facilities necessary to support economic development while allowing the free market economy to operate with an absolute minimum of restrictions.
- 4) Take advantage of economic opportunities identified in the Scappoose Economic Opportunities Analysis (EOA) to increase local employment and community prosperity.
- 5) Capitalize on the comparative advantages identified in the Scappoose EOA to maintain and attract industrial and commercial employment opportunities.

### **POLICIES FOR ECONOMICS**

It is the policy of the City of Scappoose to:

- 1) Make sufficient suitable land available for the anticipated expansion of commercial and industrial activities identified in the Scappoose EOA.
- 2) Encourage the preservation, improvement and renewal of the existing business district of the City so that it will be allowed to play a role as a center of economic and civic activity for the entire community.
- 3) Encourage the intensification of land use in the present commercial strips, together with design features that would reduce conflict with traffic flow, such as frontage roads and single access joint off of the street parking.
- 4) Encourage the expansion of employment opportunities within the urban area, so residents can work within their community.
- 5) Promote pollution free industrial development necessary to provide a balanced tax base for the operation of local government services.
- 6) Cooperate with other agencies, interest groups and businesses in efforts to develop strategies for improving the local economy.
- 7) Assist in programs to attract desirable industries in terms of diversification, labor-intensiveness, and non-pollution rather than accept any industry which may wish to locate here; additionally, to prohibit industries with excessive levels or pollution or other undesirable effects which would cancel possible economic benefits or threaten the existing quality of living.
- 8) Work with local mining industries to rehabilitate the gravel pits so that there will be an efficient use of land and the pits will not be an eyesore.
- 9) Work with Departments of Environmental Quality and Fish and Wildlife in enacting controls and performance standards for industrial operations to reduce the possibility of excessive impact upon the environment.
- 10) Capitalize on the comparative advantages offered by the Scappoose Industrial Airpark, proximity to the Portland region, a pro-business community attitude, and the availability of serviced employment land to create job opportunities for existing and future Scappoose residents.
- 11) Identify special locations for industrial activities that will assist in energy conservation; specifically, industries should be clustered:
  - a) Close to existing rail lines, Highway 30, and the airport.
  - b) To allow for employees to use carpools and public transportation.
- 12) Ensure that mining activities are compatible with surrounding activities including the airport by applying the Public Use Airport Safety and Compatibility Overlay Zone.

- 13) Coordinate plans by the City, County and Port District to provide and pay for public facilities to accommodate expected industrial, commercial, institutional, and residential growth.
- 14) Encourage design features on Highway 30 that reduce conflicts with traffic flow, as congestion and traffic hazards can only hinder local economic development.
- 15) Encourage energy saving building practices in future commercial and industrial buildings.
- 16) Protect industrial, airport-related and commercially designated areas for their intended uses as identified in the Scappoose Economic Opportunities Analysis.
- 17) Coordinate with the Port of St. Helens and individual property owners to protect land near the Scappoose Industrial Airpark for intended airport-related and airport-compatible employment uses as called for in the Scappoose EOA.
- 18) Take actions called for in the EOA to increase local employment and improve the population to employment balance.

***Item 3. Amend the POLICIES FOR PUBLIC FACILITIES AND SERVICES section of the Scappoose Comprehensive Plan by adding new policies as follows:***

- 28) Work cooperatively with property owners and potential employers to fund and extend key public facilities and services to industrial lands, and thereby maintain at least a 100-acre supply of development-ready sites within the Scappoose UGB.
  
- 29) Require master plans for business and industrial parks to ensure efficient provision of streets, sewer, water, and storm drainage facilities to large, undeveloped sites.



*Item 4. Delete the existing “Urban Growth Boundary Goals and Policies” section of the Scappoose Comprehensive Plan and replace it with the following:*

## **URBAN GROWTH BOUNDARY GOALS AND POLICIES**

### PREFACE

The purpose of an Urban Growth Boundary (UGB) is to identify on a map those areas slated for future annexation and development, while protecting lands outside the UGB for farm and forest use. Oregon’s Statewide Planning Goals (particularly Goal 14, Urbanization) and associated rules and statutes govern the way in which an Urban Growth Boundary may be established and amended.

The UGB is intended to provide for an economic and efficient transition from rural to urban land use, to guide development to fit the natural resources, and to preserve quality of life.

A major threat to the present quality of life in this area is urban sprawl, the scattering of bits and pieces of urban development throughout the countryside. Introducing subdivisions into non-urban areas tends to conflict with local agriculture. For every farm acre developed, several more are disposed towards eventual urbanization because of increased speculative land values and property taxes, and a decrease in farm efficiency and profit.

At the same time, sprawl tends to injure older developed areas in and near the City. The more urban development is permitted to spill out into the areas outside the Urban Growth Boundary, the weaker the economic pressures for renewal or revitalization of older areas, with the resulting weakening of the tax base, thus aggravating the problems further. Additionally, the leap-frogging of development into the countryside results in increased costs for providing public services to those areas.

Finally, development outside the growth area requires a large commitment of resources to transportation as home-to-work distances are greater than they would be if the development pattern were compact.

Though all may recognize the problems with sprawl, implementing effective control mechanisms is another matter. All plans require choices between conservation and development, and the art of planning comes in recognizing the inter-relationships between the various factors, plus identifying all the ramifications of alternative land use policies. The creation and maintenance of an Urban Growth Boundary can be an effective tool against sprawl, while at the same time making the ramifications of certain actions somewhat more visible.

The City’s Comprehensive Plan and its associated UGB were first adopted in 1983, and received updates in 1991 as part of periodic review. In 1992 the UGB was expanded to include the 80-acre public land owned by the City at the west side of the City; the commercial area west of Highway 30 and north of Gilmore Road; land in the east including the wastewater treatment plant; and land in the northeast including the Scappoose Industrial Airpark. Following the 1992 UGB expansion, the UGB contained an “urban growth area” (the area between the City Limits and the UGB) of approximately 1,161 acres.

The major considerations in establishing the original UGB in 1983 and enlarging it to include the airport in 1992 were:

- 1) The desires of the affected property owners;
- 2) The presence of existing urban-type developments that will need urban services;
- 3) The location of forest and agricultural land;
- 4) The provision of sufficient land for housing, commerce, and employment opportunities for an anticipated population of 10,000 people in the year 2010, taking into account efficiency of land uses;
- 5) The orderly and efficient provision of public services;
- 6) Environmental, energy, economic and social consequences;
- 7) The compatibility of proposed uses with agricultural activities;
- 8) The natural limitations of certain geographic areas for development;
- 9) The airport section of the Urban Growth Boundary exists to serve the present and future industrial needs of the City of Scappoose.

Conflicts between the various considerations quickly came to the surface during deliberations of the City's establishment of the UGB, e.g. conflicts between neighbors on what they eventually hope to do with their land; conflicts between which areas outside the City are best suited for future residential development.

Four considerations, however, did take precedence when establishing the original UGB:

- 1) The potential for a health hazard in the area known as Dutch Canyon and Raymond Creek. The local DEQ office had noted that tests of the Creek pointed to failing septic tanks, and the ultimate need for sewer. This community sort of forms a thumb to the southwest of the City and its inclusion is in some conflict with the economic provision for services; still, the health hazard potential took precedence.
- 2) Lands already committed to urban activities were also included. Most of these lands were residential lands to the east of the City, only two parcels being larger than five acres. Not only were these lands already committed by their size and location to urbanization, the City's main sewer line to its treatment plant follows \ Columbia Avenue past several of these lots on the fringe of the City.

The City also included 100' of the unincorporated lands that were across the street from the existing city limits. It was felt that if sewer and/or water were to be provided on a street, both sides of the street should be served. In a sense these sections of larger parcels are also already urbanized by their location across the street from incorporated lands.

- 3) In some areas of the City, in an attempt to attain an efficient provision of water, sewer, road and drainage services, the City included some land that "rounded out" the UGB and made service provision more effective. In the eastern lands, through which the sewer line already runs, there were 61 parcels less than 5 acres and already committed to urbanization. In the midst of these parcels were 2 larger parcels--one 10, another 15 acres. Their exclusion would have formed an irregular peninsula that would have made service provision much more costly and difficult.

That, plus the fact that they are next to these lands that are already committed, persuaded the City to include them in the UGB.

- 4) The final consideration was the inclusion of the industrial-mining land to the northeast. Most of this land is already utilized for industry or mining and right on the fringe of the City limits. Its employment, transportation, and pollution affects on the City were already significant, and were anticipated to increase due to planned expansion of these lands and other industrial-mining lands further north.

In 2011, the City amended the Urban Growth Boundary to include lands southwest of the City on Old Portland Road, northeast of the City to include lands east of the Scappoose Industrial Airpark, and northwest of the City to include portions of three parcels near Gilmore Road that were already partly in the UGB. This expansion of the UGB was rooted in the 2011 Economic Opportunities Analysis (EOA), which identified a need for additional employment land to serve the City over a 20-year period. The 2011 expansion was limited to the EOA and did not assess the adequacy of the residential land supply. Following the expansion, the urban growth area was approximately 1,133 acres.

During the EOA process, the City recognized the transportation and employment advantages to the community of future expansion in the southeast quadrant south of Havlik Drive. This land should be included within the UGB when this area can be justified under Goal 14 and statutory priorities.

#### FINDINGS ON URBAN GROWTH BOUNDARY

- 1) The 1983 Urban Growth Boundary and 1992 expansion of the UGB included sufficient land to accommodate a 20-year supply of residential and employment growth. Annexation and development in the subsequent years reduced the available supply of suitable sites.
- 2) The 2011 UGB amendment expanded the Boundary to provide a 20-year supply of employment lands. This amendment followed the 2011 Economic Opportunities Analysis & Long-Term Urban Land Needs Assessment (EOA), which identified the City's economic goals, policies and land needs concerning commercial and industrial development within City Limits and the Urban Growth Boundary.

#### GOAL OF THE URBAN GROWTH BOUNDARY

It is the goal of the City of Scappoose to:

- 1) Create optimal conditions of livability within the City and its urban growth area.
- 2) Locate all major public and private developments such as schools, roads, shopping centers, and places of employment, so that they do not tend to attract residential development to locations outside the designated Urban Growth Boundary.
- 3) Include within the Urban Growth Boundary sufficient land for future development.

- 4) Promote employment generating uses within the airport section of the Urban Growth Boundary.
- 5) Develop the airport area in a manner to create an industrial and business park with airport related and airport compatible uses.
- 6) Include land in the southeast quadrant south of Havlik Drive within the UGB when this area can be justified under Goal 14 and statutory priorities.

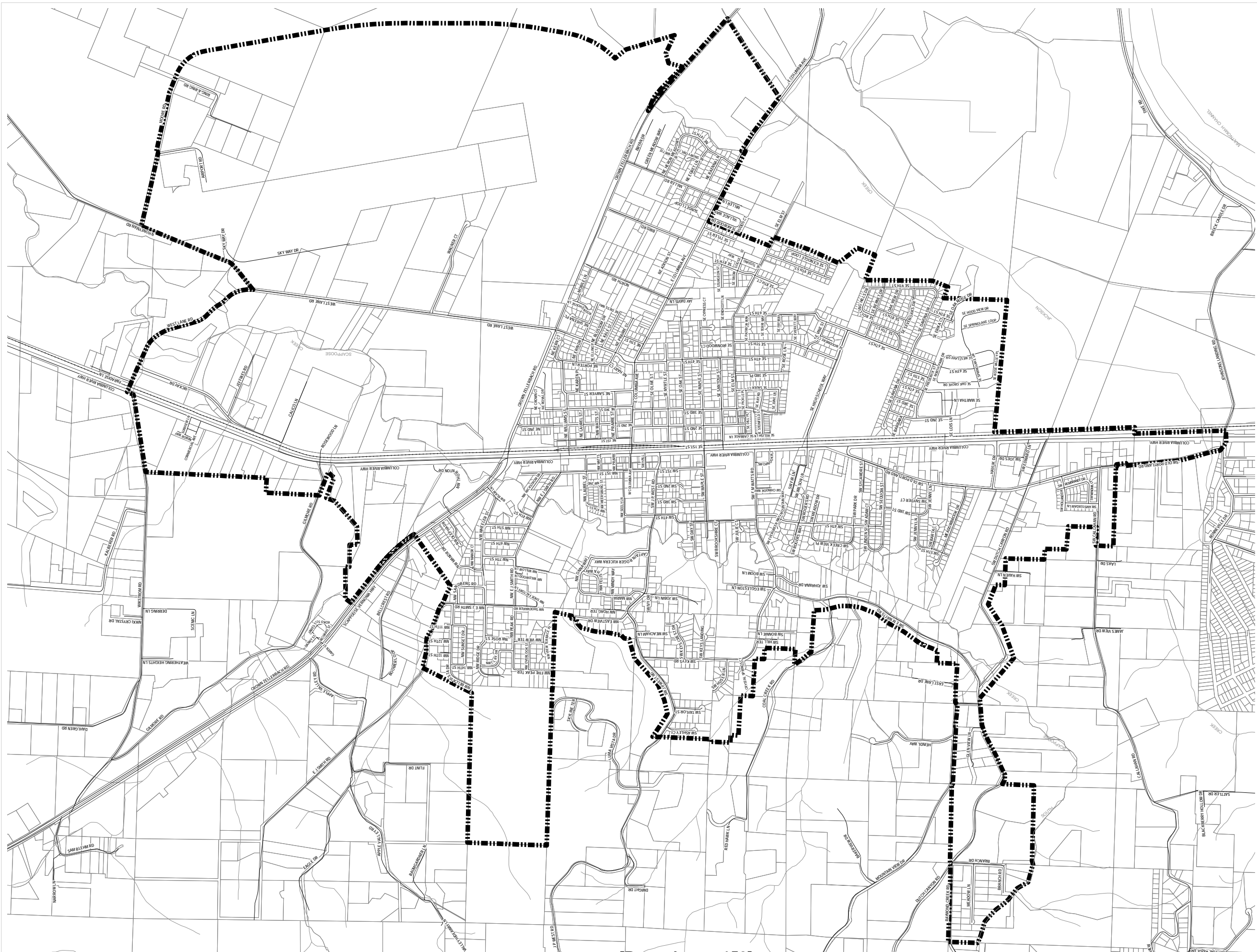
#### POLICIES FOR THE URBAN GROWTH BOUNDARY

It is the policy of the City of Scappoose to:

- 1) Work with Columbia County in establishing, maintaining, and managing an Urban Growth Boundary, and in amending the UGB as the need arises.
- 2) Review the supply of buildable lands within the Urban Growth Boundary during each major review of the City's plan. Amend the UGB periodically to maintain a 20-year supply of buildable residential land and suitable employment land.
- 3) Coordinate the development of facilities by existing special districts to insure coordination with City plans. Discourage the formation of new special districts within the Urban Growth Boundary unless the services are compatible with the plans for the provision of service within the Urban Growth Boundary.
- 4) Cooperate with Columbia County in managing the urban growth area by establishing joint review procedures to ensure the proper siting of buildings on developable parcels and the orderly and economic provision of public services and facilities.
- 5) Observe the following guidelines in expanding the Urban Growth Boundary:
  - A) Urban Growth Boundary amendments shall comply with Goal 14 (Urbanization), the Urban Growth Boundaries administrative rule (OAR Chapter 660, Division 024), and ORS 197.298 Priorities for urban growth boundary expansion.
  - B) Amendments shall be based on demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, together with demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination thereof.

- C) Sites should be economically feasible to service with public facilities such as sewer, water and police.
- 6) Approve annexations of residential lands, except in the cases of health hazards, when:
    - A) There is sufficient capacity in the sewer, water, street, school, police and fire systems to service the potential additional populace.
    - B) Sufficient in-filling of vacant land has occurred to warrant an expansion.
  - 7) Consider annexation of industrial lands when sufficient capacity exists for the delivery of sewer, water, street, police and fire services.
  - 8) Establish an area of influence for those properties contiguous with the Urban Growth Boundary. All land use actions are to be sent to the City for comment.
  - 9) Limit new subdivisions within the Scappoose Urban Growth Boundary by generally requiring annexation prior to connection to City utilities.
  - 10) Meet the following conditions prior to development of the land within the Airport Employment (AE) area:
    - A) A master plan shall be approved showing the general locations of major streets, taxiways, building areas, and sanitary sewer, water and storm drainage facilities.
    - B) The master plan shall identify large parcels to be retained consistent with the Scappoose Economic Opportunities Analysis.
    - C) No urban zone change or development shall be permitted until the Oregon Department of Transportation has approved a transportation impact analysis and consequent mitigation measures.
    - D) The land shall be held in an agricultural holding zone until Conditions A-C have been met.

**Map of lands within Scappoose's Urban Growth Boundary is on the next page**



[Record page 150]

**City of Scappoose**

**Urban Growth Boundary**



Scappoose GIS

**Legend**

- Streets
- ~ Rivers
- +— Railroads
- Taxlots
- ▬ Urban Growth Boundary



1" = 1500'



2011 UGB amendment  
 Compilation Date: 3/30/2011

AIRPORT EMPLOYMENT (AE) DESIGNATION  
FINDINGS, GOALS, POLICIES AND IMPLEMENTATION

## ***Preface***

The **Airport Employment (AE)** plan designation encourages airport related and compatible employment near the Scappoose Industrial Airpark. The AE plan designation is implemented by the **Public Use Airport** zone and three overlay zones that implement specific provisions of the **Scappoose Comprehensive Plan** and **2011 Economic Opportunities Analysis (EOA)**. Prior to development within any overlay district, a conceptual master land use, street, taxiway and utility concept plan shall be approved by the City to guide future development within the district. The concept plan shall indicate where and how large parcels will be retained for targeted employment uses over time.

The AE plan designation identifies locations for future employment types targeted in the Scappoose EOA that complement or capitalize on airport accessibility or operations. The AE designation protects sites for their intended employment activities while encouraging and supporting the Scappoose Industrial Airpark's continued operation and vitality.

Airport-related and -compatible employment uses are permitted outright by zoning within the AE designation – thus encouraging targeted employment types to locate near the airport where they can be served by planned taxiways where feasible. The AE designation specifically encourages educational facilities, such as Portland Community College, that offer airport-related coursework and training. The AE designation also encourages mixed use employment opportunities in a business park setting in specified locations.

## ***Significant Findings Regarding the Airport Employment (AE) Land Use Designation***

- 1) The Scappoose Industrial Airpark is located within the city limits of Scappoose, northeast of downtown. The AE designation is applied to lands within the urban growth boundary located on the east, south, and west sides of the existing airport runway. This chapter addresses only the Airport Employment designation that applies to land adjacent to the airport.
  
- 2) As noted in the Scappoose EOA, the Scappoose Industrial Airpark and suitable nearby employment sites provide substantial economic benefits to the City. The City and County support the continued operation and vitality of the airport and adjacent employment lands.

- 3) Access to the AE designation is provided by Crown Zellerbach Road to the south, West Lane Road to the west, a planned north-south connector to the east, and Moore and Honeyman Roads to the north. The north-south connector road separates land within the urban growth boundary from adjacent rural areas. This ring road provides a critical north-south alternative and is essential to the functionality of development within the AE designation for land east of the runway.
- 4) The Scappoose Industrial Airpark is owned, operated, and maintained by the Port of St. Helens, the airport sponsor. Although the Port owns some land within the AE, most of the property is privately owned.
- 5) Per the State Aviation System Plan, the Scappoose Industrial Airpark is a Category 2 airport and is the second busiest airport without an air traffic control tower in the State of Oregon. A Category 2 airport is defined as a business or high activity general aviation airport with over 30,000 operations per year and at least 500 turbine aircraft operations. In 2007, the Scappoose Industrial Airpark had over 80,000 operations.
- 6) The airport is one of three airports with a runway over 5,000 feet in length within a 30 nautical mile radius of the Portland International Airport. The airport currently has one runway, 5,100 feet by 100 feet, and one main parallel taxiway on each side of the runway. Future plans call for extension of the airport runway to the south to accommodate future operations more efficiently.
- 7) The airport is considered a major airport in the Portland metropolitan area and offers a distinct regional economic development advantage. The AE designation capitalizes on this comparative advantage and provides the opportunity for Scappoose to substantially increase job opportunities and improve the jobs-to-housing balance.
- 8) The primary fixed base operator (FBO) at the airport is Transwestern Aviation. Other airport businesses located in the AE designation include Sherpa Aircraft Manufacturing, Sport Copter, Inc., Oregon Aero, Composites Universal Group, Evergreen Aviation Services and Restorations, Overall Aviation Services and the Northwest Antique Airplane Club.
- 9) Utilities serving the airport area include Columbia River PUD (electricity), City of Scappoose (water, west side of the airport), and Century Tel (telephone). With the exception of new construction on the west side of the airport, which is served by public sewer, buildings have on-site septic systems.
- 10) The Scappoose Rural Fire Protection District provides rescue and fire fighting services for the airport.



## ***Goals for the Airport Employment (AE) Land Use Designation***

It is the goal of the City of Scappoose to:

- 1) Support and promote the continued safe operation of the Scappoose Industrial Airpark and the economic vitality of the AE designation by providing suitable sites for targeted employment opportunities identified in the Scappoose EOA.
- 2) Provide a location for airport-related and -compatible employment activities in a master-planned setting with good highway, arterial road and airport access – in an area where their environmental effects will have a minimal impact upon the community.
- 3) Utilize the AE as an attractor for employment opportunities identified in the Scappoose EOA that are dependent upon, compatible with, or benefit from aircraft access, air transportation, and the existing cluster of aviation-related businesses located near the airport.
- 4) Take advantage of the transportation options provided by the Scappoose Industrial Airpark by allowing airport-related and compatible employment uses called for in the Scappoose EOA, including industrial, office and service commercial, and supportive lodging and restaurant employment.

## ***Policies for the Airport Employment (AE) Land Use Designation***

It is the policy of the City of Scappoose to:

- 1) Locate light industrial, office and service commercial, and airport-related employment areas that have a convenient relationship to the community's vehicular and aircraft transportation systems.
- 2) Screen or set back the boundaries of airport related development areas from abutting existing residential uses.
- 3) Apply the AE designation to areas east, south, and west of the airport runway.
- 4) Protect the stability and functional aspects of airport-related uses by prohibiting incompatible uses that create safety hazards or otherwise interfere with customary and usual aviation-related activities as defined by the Development Code.
- 5) Encourage airport-related educational opportunities.
- 6) Work with the Port of St. Helens and private property owners to maintain the continuing viability of the Scappoose Industrial Airpark and the AE.

- 7) Encourage mixed office and service commercial uses, and supporting lodging and restaurant opportunities in a master planned setting in designated Business Park areas.
- 8) Protect large industrial sites for their intended use as called for in the Scappoose EOA.
- 9) Provide taxiway access to employment sites wherever feasible – especially in designated Industrial Airpark areas.

### ***Implementation of the Airport Employment (AE) Plan Designation***

- 1) The AE plan designation within the UGB is implemented by the **Public Use Airport (PUA)** zone, in conjunction with three overlay zones codified in the Development Code. The PUA zone restricts employment uses to ensure operational compatibility with the airport. The PUA zone allows airport-related and industrial uses outright and supporting commercial uses through the conditional use process.
- 2) Uses and activities allowed within the AE designation must comply with the Public Use Airport Safety and Compatibility Overlay (Chapter 17.88 of the Scappoose Development Code).
- 3) Outside City Limits, County rural residential and farm zones will apply on an interim basis to retain land in large parcels until the land is (a) annexed and (b) rezoned in accordance with these polices.
- 4) More specific zones are needed to implement the policy direction resulting from the Scappoose EOA. Rezoning to more intensive employment uses must be preceded by a transportation impact analysis, coordinated and approved by the Oregon Department of Transportation (ODOT), to demonstrate compliance with the Transportation Planning Rule.
- 5) The **East Airport Employment (EAE) overlay** zone will be applied to large parcels east of the airport runway to ensure airport operational compatibility and to retain large industrial and institutional sites identified in the Scappoose EOA. Master planning requirements ensure that that land is developed efficiently and that the provision of transportation and utility facilities occurs consistent with adopted plans.
- 6) The **Airport Business Park (ABP) overlay** zone will be applied to selected parcels west of the runway and served by West Lane Road. The Business Park overlay zone allows a mix of targeted light industrial, commercial service and office, and supporting lodging and restaurant uses targeted in the Scappoose EOA. Master planning requirements ensure that that land is developed efficiently and that the provision of transportation and utility facilities occurs consistent with adopted plans.

7) The **Airport Industrial Park (AIP)** overlay zone allows industrial uses targeted in the Scappoose EOA. However, taxiway access to individual parcels is required for development in this zone to occur.

8) The **Airport Employment Potential Future Zoning Map** in the Development Code shows the general location of each of these specific zones or overlay zones. However, minor changes in the proposed conceptual boundaries of these overlay zones may occur at the time of rezoning, provided that the minimum number of suitable acres identified in the EOA is retained for each general employment category.

## Chapter 17.74

AIRPORT EMPLOYMENT OVERLAY ZONESSections:

- 17.74.010 Purpose.
- 17.74.020 Definitions.
- 17.74.030 Overlay zones and applicability.
- 17.74.040 Conformance with Public Use Airport Safety and Compatibility Overlay Zone.
- 17.74.050 Permitted uses.
- 17.74.060 Uses permitted subject to the acceptance of the airport sponsor.
- 17.74.070 Conditional uses.
- 17.74.080 Conceptual master plan requirements for large sites.
- 17.74.090 Dimensional requirements and development standards.
- 17.74.100 Environmental performance standards.

17.74.010 Purpose. The purpose of the Airport Employment Overlay Zones is to encourage employment opportunities called for in the 2011 Scappoose Economic Opportunities Analysis (EOA) while supporting the continued operation and vitality of the Scappoose Industrial Airpark. Master planning requirements ensure that land is developed efficiently, that large employment sites are retained, and that the provision of transportation and utility facilities occurs consistent with adopted plans.

17.74.020 Definitions. Unless the context specifically indicates otherwise, the meaning of terms used in this chapter shall be as follows:

- A. "Airport Employment Overlay Zones" include the Airport Industrial Park (AIP) overlay zone, the Airport Business Park (ABP) overlay zone, and the East Airport Employment (EAE) overlay zone.
- B. "Airport sponsor" is the owner, manager, person or entity designated to represent the interests of an airport. For the Scappoose Industrial Airpark, the airport sponsor is the Port of St. Helens.

17.74.030 Overlay zones and applicability. The three Airport Employment Overlay Zones shall apply to selected parcels in the vicinity of the Scappoose Industrial Airpark generally as illustrated on the Airport Employment Potential Future Zoning map (Figure 17.74.1). The precise location of overlay district boundaries will be determined through the zoning map amendment process pursuant to Chapters 17.160 or 17.162 as appropriate.

- A. The Airport Employment Overlay Zones supplement the Public Use Airport (PUA) base zone that applies to land within the Airport Employment (AE) plan designation. In the event of a conflict between the requirements of the PUA zone and those of the Airport Employment Overlay Zones, the requirements of the overlay shall control.
- B. The Airport Industrial Park (AIP) overlay zone allows industrial uses targeted in the Scappoose EOA.

- C. The Airport Business Park (ABP) overlay zone allows a mix of targeted light industrial, commercial service and office, and supporting lodging and restaurant uses targeted in the Scappoose EOA.
- D. The East Airport Employment (EAE) overlay zone protects large industrial and institutional sites identified in the Scappoose EOA.

17.74.040 Conformance with Public Use Airport Safety and Compatibility Overlay Zone.

All uses, activities, facilities and structures allowed in the Airport Employment Overlay Zones shall comply with the requirements of the Public Use Airport Safety and Compatibility Overlay (AO) Zone, Chapter 17.88. In the event of a conflict between the requirements of Airport Employment Overlay Zones and those of the Public Use Airport Safety and Compatibility Overlay (AO) Zone, the requirements of the AO overlay shall control.

17.74.050 Permitted uses. All uses and activities permitted outright in the PUA zone as specified in Section 17.69.040 shall be permitted outright in the Airport Employment Overlay Zones. Table 17.74.1 describes additional use categories that are permitted or subject to specific standards in each of the following overlay zones:

- A. Airport Industrial Park (AIP) overlay zone;
- B. Airport Business Park (ABP) overlay zone;
- C. East Airport Employment (EAE) overlay zone.

17.74.060 Uses permitted subject to the acceptance of the airport sponsor. All uses and activities permitted subject to the acceptance of the Airport Sponsor in the PUA zone as specified in Section 17.69.050 shall be permitted subject to the acceptance of the Airport Sponsor in the Airport Employment Overlay Zones.

17.74.070 Conditional uses. All uses and activities permitted conditionally in the PUA zone as specified in Section 17.69.060 shall be permitted conditionally in the Airport Employment Overlay Zones. Table 17.74.1 describes additional use categories that are permitted through the conditional use process (Chapter 17.130) in each of the following overlay zones:

- A. Airport Industrial Park (AIP) overlay zone.
- B. Airport Business Park (ABP) overlay zone.
- C. East Airport Employment (EAE) overlay zone.

17.74.080 Conceptual Master Plan requirements for large sites. Sites with a combined area of more than four acres under common ownership shall receive Planning Commission approval of a conceptual master plan (CMP) prior to annexation (Chapter 17.136) or zone change (Chapter 17.22) approval within any of the Airport Employment Overlay Zones. The CMP is not intended to serve as binding site plan, but rather provides overall guidance regarding future configurations of open space, public facilities, streets, taxiways and lots within the overlay district.

- A. Conceptual Master Plan approval criteria. The applicant for CMP approval must demonstrate that the proposed CMP is consistent with the following criteria:
  - 1. The CMP shall address the requirements of Section 17.74.080(C) and (D) and shall demonstrate how the proposed site and other sites within the same Airport

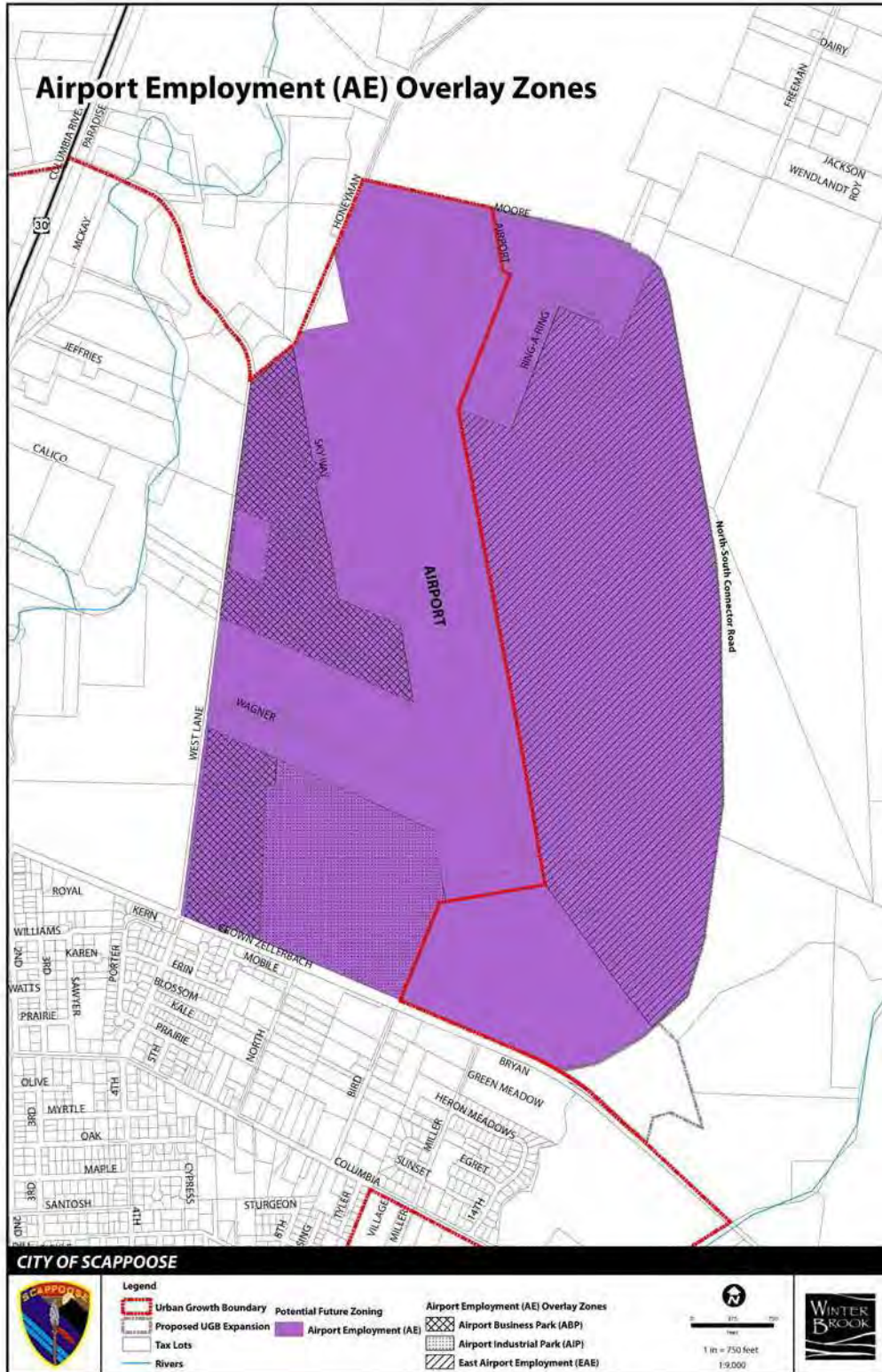
Employment Overlay District can be efficiently developed for the intended uses consistent with the Scappoose EOA.

2. The CMP shall encourage the safe and efficient operation of the Scappoose Airpark consistent with the Scappoose Airpark Master Plan and the AO Public Use Airport Safety and Compatibility Overlay Zone, Chapter 17.88.
  3. The CMP shall facilitate safe and efficient access to Public Land shown on the Scappoose Comprehensive Plan map or on any adopted park and recreational plan.
  4. The CMP shall provide for an efficient, multi-modal transportation system consistent with the Scappoose Transportation System Plan, any applicable transportation impact studies, and any applicable circulation plans approved with previous land divisions.
  5. Taxi-way access shall be provided to the majority of sites within each of the Airport Overlay Zones.
  6. The CMP shall shown how sanitary sewer, water and storm drainage facilities can be provided efficiently to the area proposed for annexation or zone change and remaining land within the same Employment Overlay District.
- B. Site size for AIP and ABP overlay zones. The minimum site size for an industrial park development in the AIP overlay zone or for a business park in the ABP overlay zone is 10 acres.
- C. Site size for EAE overlay zone. The conceptual master plan must show how two large (approximately 50-acre) and two medium (approximately 20- to 30-acre) developable sites will be retained in conformance with industrial and campus site needs stated in Figure 33 of the Scappoose EOA: Employment Land Demand by Site Size for Scappoose (2030).
- D. An approved CMP may be modified through any of the following processes so long as the criteria in Section 17.74.080(A) through (C) continue to be met:
1. the Land Division process set forth in Chapters 17.150 and 17.152;
  2. the Zone Change process set forth in Chapter 17.22;
  3. the Annexation process set forth in Chapter 17.136;
  4. the Site Development Review process set forth in Chapter 17.120; or
  5. the Conditional Use process set forth in Chapter 17.130.

17.74.090 Dimensional requirements and development standards. The dimensional requirements and development standards within the Airport Employment Overlay Zones shall be in accordance with the standards for the PUA zone as specified in Section 17.69.070.

17.74.100 Environmental performance standards. The Environmental Performance Standards of Chapter 17.90 shall apply to all development in the Airport Employment Overlay Zones.

**Figure 17.74.1: Airport Employment Potential Future Zoning Map**  
*Conceptual location of Airport Employment Overlay Zones: Per Section 17.74.030, the precise location of zoning district boundaries will be determined at the time of the zone change request.*



**Table 17.74.1: Airport Industrial Park (AIP), Airport Business Park (ABP) and East Airport Employment (EAE) Use Categories**

*P = Permitted (subject to Chapter 17.130)*

*A = Accessory to primary permitted use*

*L = Limited (special restrictions apply, see footnotes)*

*C = Conditional Use (subject to Chapter 17.130)*

*X = Prohibited*

<b>Use Category</b>	<b>Operating Characteristics</b>	<b>AIP</b>	<b>ABP</b>	<b>EAE</b>
Educational Services – Commercial and Public	Commercial educational service uses are characterized by activities conducted in an office setting and generally focusing on serving students with supplemental education, enrichment, and/or tutoring. Public education service includes colleges and other institutions of higher learning that offer courses of general or specialized study leading to a degree. Colleges tend to be in campus-like settings or on multiple blocks, though they may be contained in a single building.	X	P	P
Community Services	Community Services are uses of a public, nonprofit, or charitable nature generally providing a local service to people of the community. Generally, they provide the service on the site or have employees at the site on a regular basis, or provide a central location for service delivery. The service is ongoing, not just for special events. The use may also provide special counseling, education, or training of a public, nonprofit or charitable nature.	C	P	C
Office	Office uses are characterized by activities conducted in an office setting and generally focusing on business, government, professional, medical, or financial services.	A	P	A
Commercial Retail	Sales-oriented: Stores selling, leasing, or renting the following items, provided that yards shall not be used for the storage or display of used building materials or any scrap or salvage; consumer, home, and business goods including art, art supplies, bicycles, clothing, dry goods, electronic equipment, fabric, furniture, garden supplies, gifts, groceries, hardware, home improvements, household products, jewelry, pets, pet food, pharmaceuticals, plants, printed material, stationery, and videos; and food sales.	A	L <sup>1</sup>	A

<sup>1</sup>Note: In the ABP overlay zone, commercial retail uses of 5,000 square feet or less of floor area are permitted; commercial retail uses between 5,000 and 20,000 square of floor area may be permitted through the conditional use process; and commercial retail uses of greater than 20,000 square feet of floor area are prohibited.



<b>Use Category</b>	<b>Operating Characteristics</b>	<b>AIP</b>	<b>ABP</b>	<b>EAE</b>
Commercial Personal Service	Branch banks; laundromats; photographic studios; photocopy and blueprint services; hair, tanning, and personal care services; tax preparers, accountants, real estate, legal, financial services; business, martial arts, and other trade schools; dance or music classes; taxidermists; mortuaries; veterinarians; kennels limited to boarding, with no breeding; and animal grooming.	X	P	X
Medical & Dental Services	Medical offices; dental offices; urgent medical care; and medical centers including facilities providing medical or surgical care to patients and offering overnight care. Medical centers tend to be on multiple blocks or in campus settings.	C	P	C
Commercial Entertainment	Indoor or outdoor continuous entertainment activities such as bowling alleys, ice rinks, and game arcades; pool halls; theaters, health clubs, gyms, membership clubs, and lodges; hotels, and motels.	C	P	C
Commercial Food Services	Restaurants, cafes, cafeterias, delicatessens, taverns, and bars.	C	C	C
Commercial Repair & Service	Repair of TVs, bicycles, clocks, watches, shoes, guns, appliances and office equipment; photo or laundry drop off; quick printing; tailor; locksmith; and upholsterer.	P	P	P
Self Service Storage	Self-Service Storage uses provide separate storage areas for individual or business uses. The storage areas are designed to allow private access by the tenant for storing personal property.	X	C	X
Vehicle Repair	Firms servicing passenger vehicles, light and medium trucks and other consumer motor vehicles such as motorcycles, boats and recreational vehicles.	P	C	P
Automobile Rental	Automobile rental agencies.	C	P	C
Light Industrial Service	Light Industrial Service firms are engaged in the repair or servicing of light industrial, business or consumer machinery, equipment, products or by-products. Firms that service consumer goods do so by mainly providing centralized services for separate retail outlets. Contractors and building maintenance services and similar uses perform services off-site. Few customers, especially the general public, come to the site.	P	P	P
Medium Industrial Service	Industrial Service firms are engaged in the repair or servicing of medium industrial, business or consumer machinery, equipment, products or by-products. Few customers, especially the general public, come to the site.	P	C	P

Use Category	Operating Characteristics	AIP	ABP	EAE
Light Manufacturing and Production	Manufacturing and Production firms are involved in the manufacturing, processing, fabrication, packaging, or assembly of goods. Natural, man-made, raw, secondary, or partially completed materials may be used. Products may be finished or semi-finished and are generally made for the wholesale market, for transfer to other plants, or to order for firms or consumers. Goods are generally not displayed or sold on site, but if so, they are a subordinate part of sales. Relatively few customers come to the manufacturing site.	P	P	P
Medium Manufacturing and Production	Manufacturing and Production firms are involved in the medium manufacturing, processing, or fabrication of goods. Natural, man-made, raw, secondary, or partially completed materials may be used. Products may be finished or semi-finished and are generally made for the wholesale market, for transfer to other plants, or to order for firms or consumers. Goods are generally not displayed or sold on site, but if so, they are a subordinate part of sales. Relatively few customers come to the manufacturing site.	P	C	P
Warehouse & Distribution	Warehouse and Distribution involves the storage, or movement of goods for themselves or other firms. Goods are generally delivered to other firms or the final consumer, except for some will-call pickups. There is little on-site sales activity with the customer present.	P	C	P
Wholesale Sales	Wholesale Sales firms are involved in the sale, lease, or rent of products primarily intended for industrial, institutional, or commercial businesses. The uses emphasize on-site sales or order taking and often include display areas. Businesses may or may not be open to the general public, but sales to the general public are limited as a result of the way in which the firm operates. Products may be picked up on site or delivered to the customer.	P	P	P

**Population Forecasts  
for  
Columbia County Oregon,  
its Cities & Unincorporated Area  
2010 to 2030**

**PORTLAND STATE UNIVERSITY  
Population Research Center**

**February 2008**

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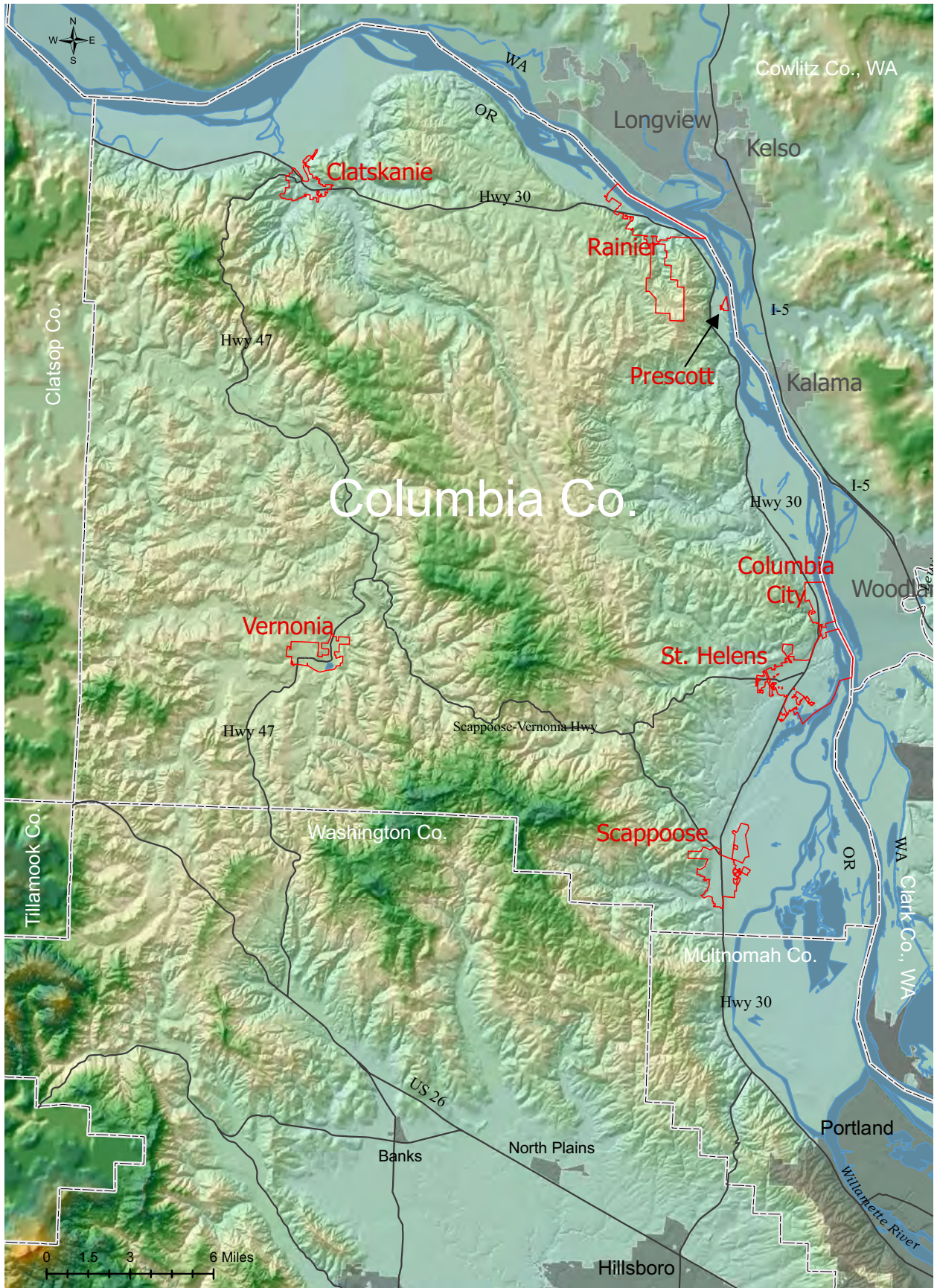
*This study was prepared by Population Research Center faculty and staff in the Nohad A. Toulan School of Urban Studies & Planning, College of Urban & Public Affairs at Portland State University. Charles Rynerson primarily developed the county-wide forecasts and managed the project. Ken Radin primarily developed the data and city forecasts. Risa Proehl, Population Estimates Program Manager, with assistance from PRC staff, is responsible for producing the certified annual population estimates for Oregon cities and counties; PRC's 2007 and 2008 estimates for cities and the county provided benchmarks. Mr. Rynerson, Mr. Radin, and PRC would like to thank Columbia County for the opportunity to help it plan for the residents it serves. Mr. Rynerson & Mr. Radin would also like to thank stakeholders who contributed to the project, including:*

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Leahnette Rivers, Columbia City  
Jim Johnson, City of Vernonia*

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## **INTRODUCTION**

Columbia County (County) asked Portland State University Population Research Center (PRC) to prepare integrated long term population forecasts (years 2010, 2020, and 2030) for the county and its six largest cities: Scappoose, St. Helens, Clatskanie, Columbia City, Rainier, and Vernonia. As integrated forecasts, results for the county's sub-areas (cities and unincorporated area) logically sum to the county total. Since forecasts for larger populations are more stable and reliable, the county-wide forecasts generally serve as a control on sub-area forecasts ('top-down'). However, both top-down and 'bottom-up' approaches are undertaken, where sub-area forecasts influence the county-wide forecast. For example, projections based on housing unit growth in the cities and unincorporated area (bottom-up) help determine how much growth is likely in the near-term county-wide. The integration of top-down and bottom-up approaches is explained in greater detail further on. As separate tasks, forecasts for the county on the one hand, and its sub-areas on the other, are briefly described below.

**Forecasts for the county** rely on the Cohort-Component Method, which predicts future populations as outcomes of life events: births, deaths, and in- and out-migration. The method is a commonly used demographic forecasting technique. It involves estimating key vital rates: fertility, mortality, and net migration. Regional and local plans for transportation, housing, and land use also are considered. County-wide forecasts are prepared under three scenarios, which account for different demographic assumptions: a most-likely, or medium, growth scenario, and low and high growth scenarios.

**Forecasts for the cities** and unincorporated area primarily rely on a housing unit method, which forecasts future populations based on recent and expected housing trends. The method involves estimating changes in the housing stock, housing occupancy rates, and average household sizes for a given area. A given stock multiplied by the occupancy rate multiplied by household size produces an estimate (or projection) of household population. Group quarters populations are forecasted separately and added to the household population to produce total population figures.

Census summary tabulations, residential building permits, and other sources identify the housing stock and changes over time. Occupancy rates and average household sizes are based on Census summary tabulations, changes over time, and trends in household formation. Once the sub-area forecasts and the county-wide cohort-component forecasts are consistent in the near- and medium-terms, forecasts for sub-areas become an allocation exercise in which the county-wide forecasts are allocated to the sub-areas. The sub-area forecasts are thus reconciled with the county-wide forecasts, where housing and household demographics and the population totals they produce add up to county-wide results.

The remainder of this report is organized in the following manner:

### **Columbia County-wide Forecasts**

Discussion of results for the county-wide forecasts, including medium, low, and high growth scenarios.

### **City and Unincorporated Area Forecasts**

Discussion of results for the city and unincorporated area forecasts. These have been prepared according to medium and high growth scenarios.

### **Methods**

Discussion of methodology for the county-wide and city and unincorporated area forecasts.

### **Appendices – Supporting Material**

Appendices that include additional tables, graphics and related short discussions supporting various sub-analyses undertaken to produce the forecasts. An additional housing capacity constrained forecast model is also presented as an illustration.

## COLUMBIA COUNTY-WIDE FORECASTS

We modeled three different scenarios of population growth for the County. Because we are nearing the end of the first decade of the forecast, 2000 to 2010, there is very little difference in total population among the three scenarios in 2010. All three forecasts use the same historical data that cover much of the decade, including birth data through 2006, PRC annual estimates through 2008, and permitted housing units through mid-2008.

The cohort-component model, described in the *Methods* section later in this report, relies on fertility, mortality, and migration rates to produce county-wide forecasts. While mortality rates are the same in each forecast, the fertility and migration rates differ between the low, middle, and high scenarios, resulting in population totals that differ slightly in 2010, and more significantly in 2020 and 2030. Columbia County's forecasted population in 2030 is 53,501 in the low series, 58,505 in the medium series, and 63,675 in the high series.

Results are presented in Table 1 below, followed by a brief discussion of each scenario including the components of population change and associated fertility and migration rates.

**Table 1. Columbia County Forecast Scenarios**

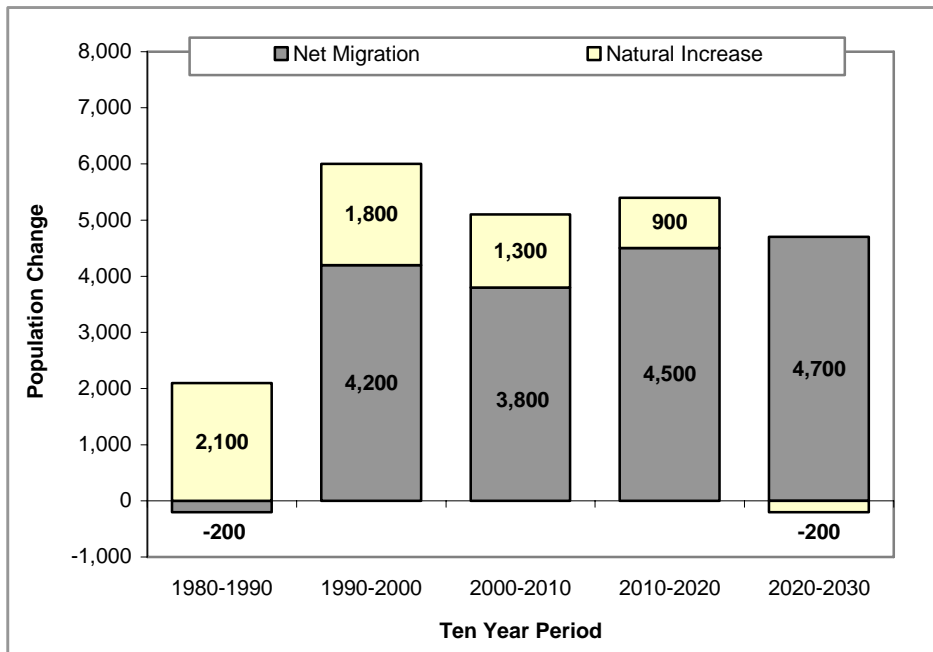
	1990	2000	2010	2020	2030
Middle Series Population	37,557	43,560	48,695	54,025	58,505
<i>Numeric Change</i>	6,003	5,135	5,330	4,480	
<i>Average Annual Growth</i>	1.5%	1.1%	1.0%	0.8%	
High Series Population	37,557	43,560	49,234	56,792	63,675
<i>Numeric Change</i>	6,003	5,674	7,558	6,883	
<i>Average Annual Growth</i>	1.5%	1.2%	1.4%	1.2%	
Low Series Population	37,557	43,560	48,285	51,433	53,501
<i>Numeric Change</i>	6,003	4,725	3,148	2,068	
<i>Average Annual Growth</i>	1.5%	1.0%	0.6%	0.4%	

### *Columbia County Middle Series Forecast*

The middle series (see Figure 1) depicts a continuation of recent historical and current trends. It is consistent with expected levels of regional employment and population growth. Fertility rates remain near or slightly below statewide rates. The total fertility rate (TFR), an estimate of the number of children that would be born to the average woman during her child-bearing years based on age-specific fertility rates observed at a given time, has been falling since 1990. Forecasted TFR reaches 1.90 in 2010 and remains stable for the rest of the forecast, to 2030. Net migration (in-migration minus out-migration) contributes about 4,000 or more new residents to the County each decade, a level similar to the 1990s and early to mid 2000s. Near the end of the forecast period, growth begins to slow due to an aging population.

Natural increase (births minus deaths) contributes to population growth each decade until 2020. Between 2020 and 2030, the forecast includes about 200 more deaths than births, resulting in negative natural increase. During this period, most persons born in the large baby boom generation will be in their 70s and 80s.

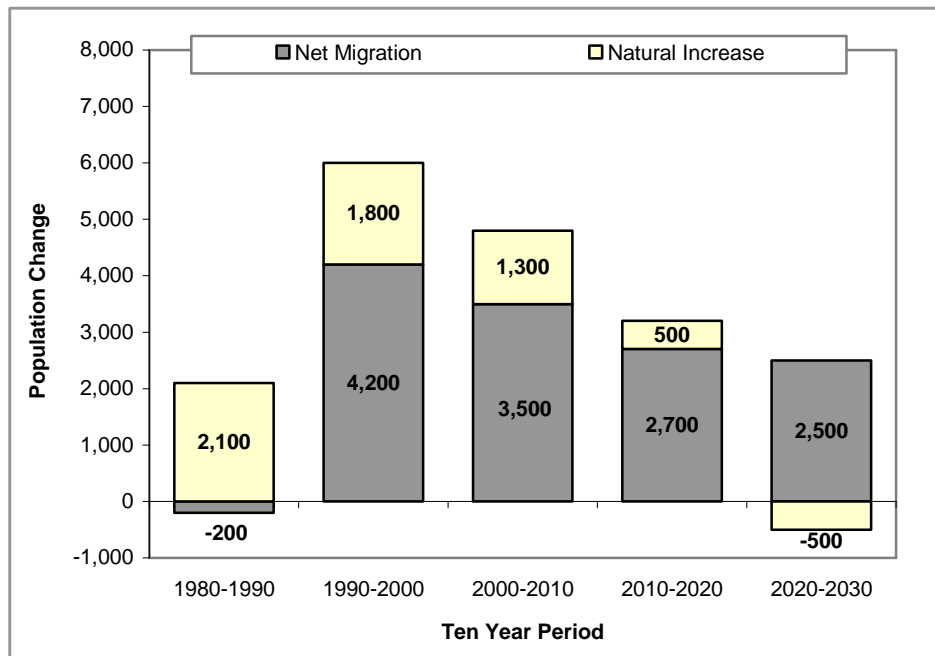
**Figure 1. Columbia County Components of Population Change:  
Historical and MIDDLE SERIES Forecast**



### *Columbia County Low Series Forecast*

The low series (see Figure 2) includes less growth due to lower net migration and slightly lower fertility rates than in the middle series forecast. Forecasted TFR falls to 1.85 in 2010 and 1.75 by 2020. Net migration contributes about 4,300 fewer residents than in the middle series forecast. Conditions that may contribute to the lower migration rates include one or more prolonged recessions, weak employment growth within the County, and high transportation costs that discourage Multnomah and Washington County workers from settling in Columbia County.

**Figure 2. Columbia County Components of Population Change:  
Historical and LOW SERIES Forecast**

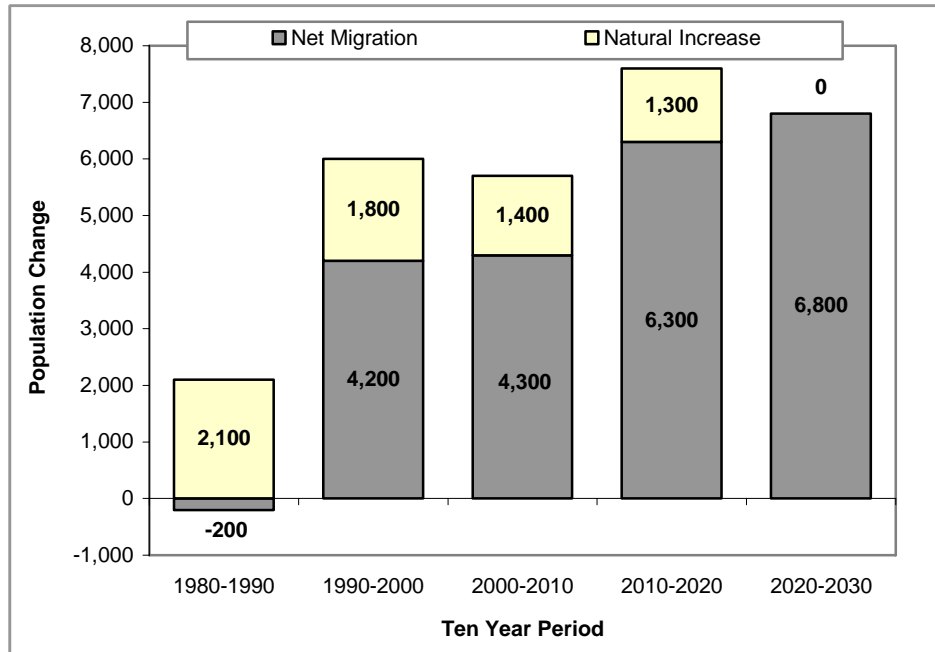


### *Columbia County High Series Forecast*

The high series (see Figure 3) includes more growth due to higher net migration and slightly higher fertility rates than in the middle series forecast. Forecasted TFR is 1.95 in 2010 and increases to 2.05 by 2020. Net migration contributes about 4,400 more residents than in the middle series forecast. Large scale economic development within Columbia County or in nearby Cowlitz or Clatsop Counties could contribute to higher migration rates. As the Portland metropolitan area continues to grow, demand for

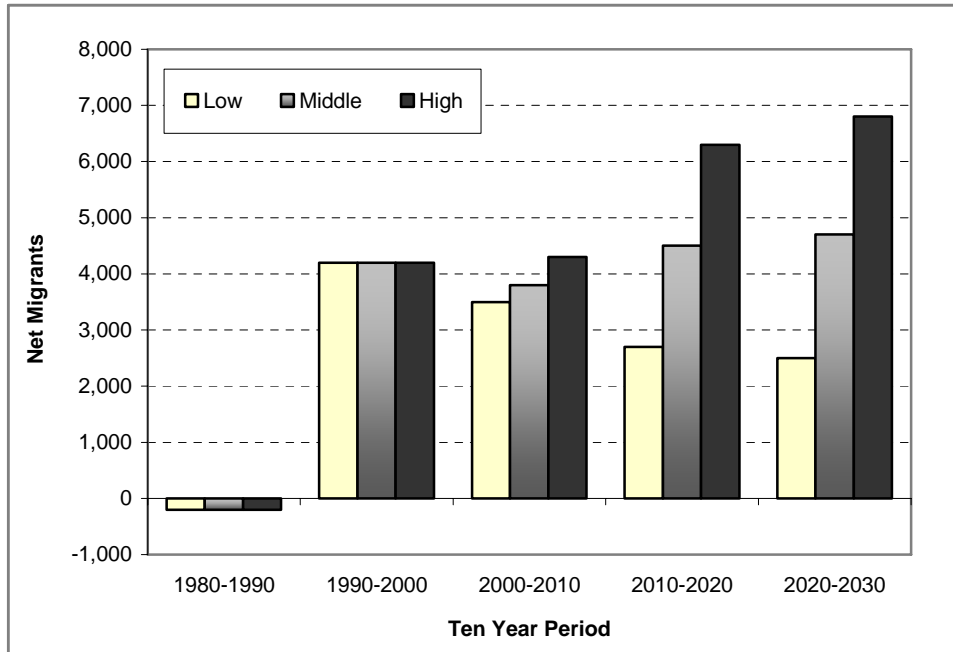
housing in Columbia County may exceed recent levels. Factors that will play a role in determining how much of the regional population growth occurs in Columbia County include improved transportation access as well as residential land prices and land availability.

**Figure 3. Columbia County Components of Population Change: Historical and HIGH SERIES Forecast**

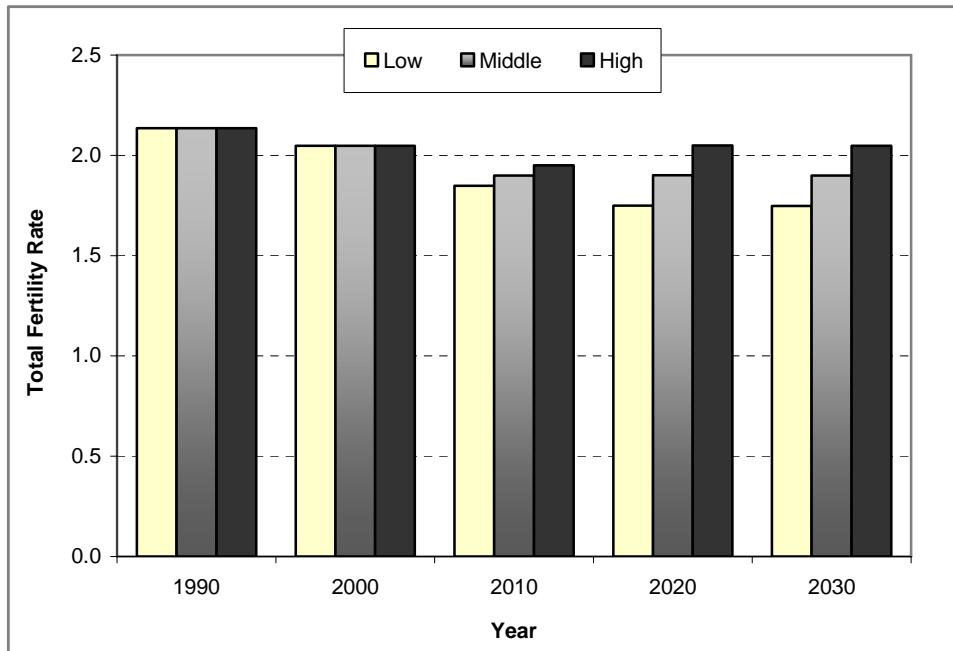


Figures 4 through 7 on the following pages illustrate net migration and total fertility rate assumptions, as well as the natural increase and total population results they produce, for each of the forecast scenarios.

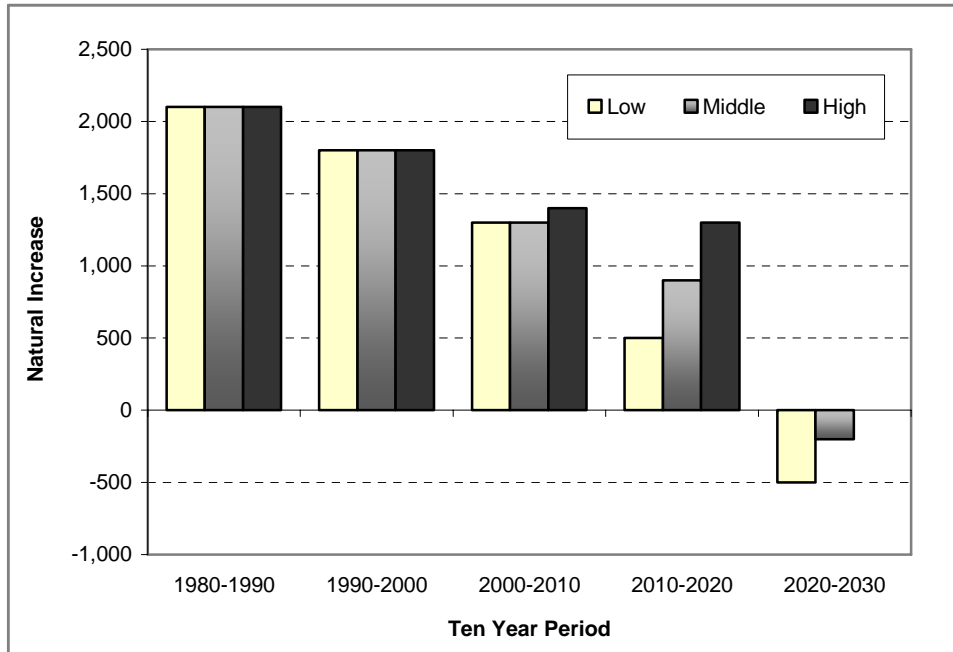
**Figure 4. Columbia County Net Migration:  
Historical 1980-2000 and Forecasts 2000-2030**



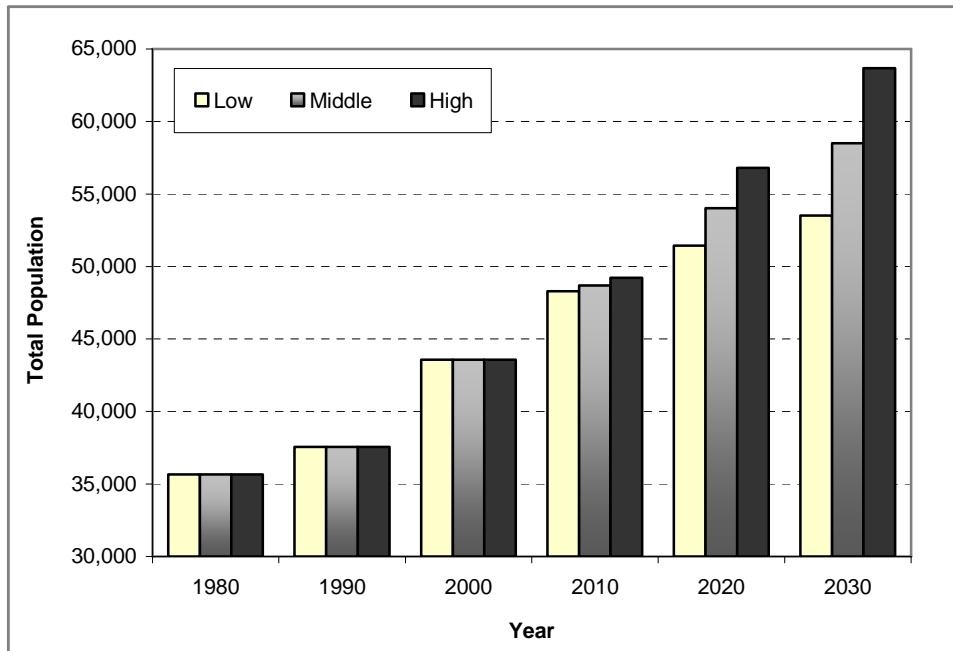
**Figure 5. Columbia County Total Fertility Rate:  
Historical 1990-2000 and Forecasts 2010-2030**



**Figure 6. Columbia County Natural Increase (births minus deaths):  
Historical 1980-2000 and Forecasts 2000-2030**



**Figure 7. Columbia County Total Population:  
Historical 1980-2000 and Forecasts 2010-2030**





## **FORECASTS FOR CITIES & UNINCORPORATED COLUMBIA COUNTY**

This section discusses results for the city and unincorporated area forecasts (often referred to as “sub-areas”). Originally, sub-area forecasts were to be prepared under only the medium growth series. As the project developed, however, the County asked for a high series forecast, and PRC added a ‘housing unit capacity constrained’ forecast based on medium growth – for illustrative purposes (see Appendix C).

This section includes brief discussions of trends in population and housing growth, occupancy and household size, and forecasted populations under medium and high growth. The *Methods* section provides more information about methods and data sources, focused on the medium growth forecasts. Additional information, such as tables that include the full complement of housing and population data, is included in the appendices.

Forecasts for cities and unincorporated Columbia County rely on a housing unit method, which forecasts future populations based on recent and expected housing trends. The method involves estimating changes in the housing stock, housing occupancy rates, and average household sizes for a given area. A given stock multiplied by the occupancy rate multiplied by household size produces a past or current estimate, or future projection, of household population. Group quarters populations are forecasted separately and added to the household population to produce total population figures. Once the sub-area forecasts and the county-wide cohort forecasts are consistent in the near- and medium-terms, forecasts for sub-areas become an allocation exercise in which the county-wide forecast is allocated to the sub-areas, where housing and household demographics and the population totals they produce add up to county-wide results.

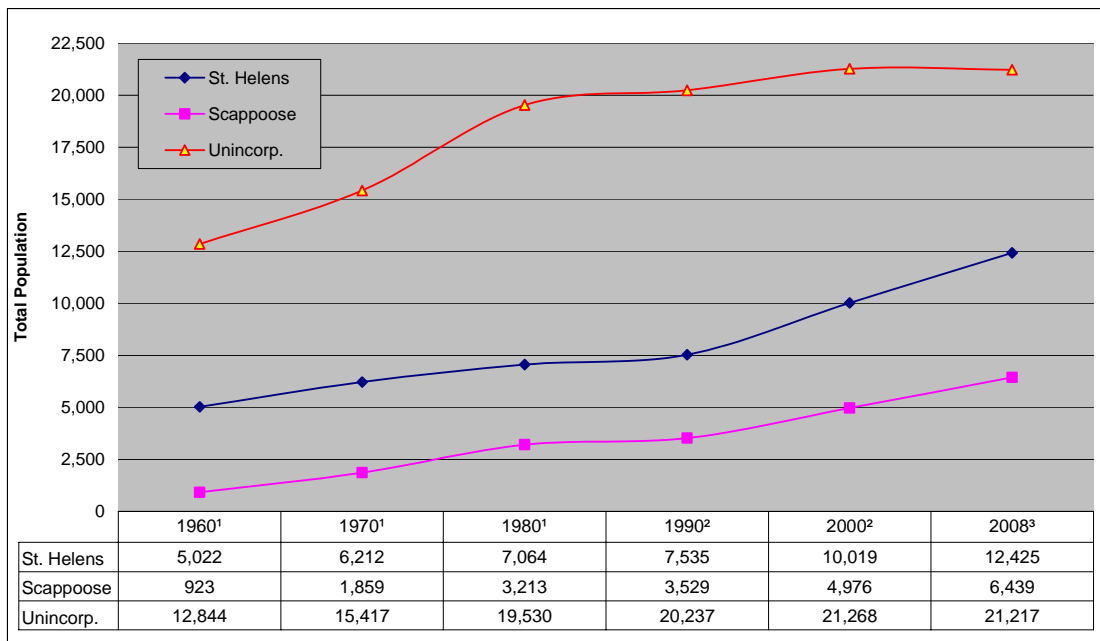
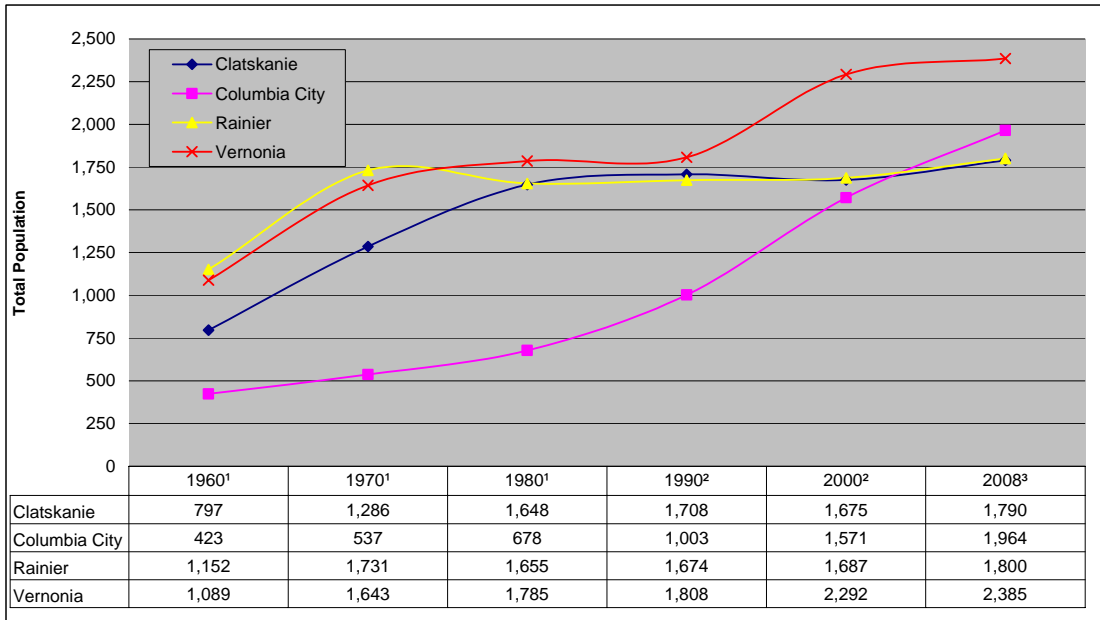
Under medium and high growth, the bulk of county growth is attributed to growth in the two largest cities, St. Helens and Scappoose (ranging from about 74 percent to 90 percent of county net growth, depending on period and scenario). These cities, along with Columbia City, have had the fastest, most consistent growth trends. Having the largest

population bases, relatively faster growth adds more to populations of St. Helens and Scappoose than it would to populations of the other cities. Closer proximity to the Portland area labor market and a high degree of commuting are primarily responsible for the size and growth characteristics of these two cities relative to the others. Although most County residents live in the unincorporated area, growth there is slow and is expected to remain so. Additionally, as cities annex portions of unincorporated territory and population, unincorporated population becomes a smaller share of the county total.

### ***Population & Housing Growth Trends***

Figure 8, *Historical population growth 1960-2008*, shows population growth by decade up to mid-2008 for each sub-area. Differences and similarities reflect a few key circumstances. Most sub-areas grew relatively quickly during the 1960s and 1970s, when broader demographic factors resulted in widespread population growth. During the 1970s, growth exploded in the unincorporated area and remained strong in Scappoose, St. Helens, and Clatskanie. Growth increased in Columbia City, yet slowed in Vernonia and declined in Rainier. Faced with one of the worst recessions since the Great Depression, growth in all sub-areas was virtually flat during the 1980s – except in Columbia City: with the highest median household income – about \$51,000 in 1990 and \$60,000 in 2000 (in 1999\$) – Columbia City likely attracted a demographic not so hard hit during these slow-growth years. It continued to grow rapidly during the 1990s and did not begin to slow until the 2000s. Vernonia grew similarly during the 1990s, primarily due to proximity to Washington County technology employers, which saw a boom during this period. But then growth in Vernonia slowed significantly, likely a reflection of the technology ‘bust’ in 2001. Solid growth resumed in St. Helens and Scappoose during the 1990s and into the 2000s, paralleling trends in the more urban parts of the Portland metropolitan area. But growth in Clatskanie and Rainier, lacking proximity to the major employment centers that benefited Vernonia, St. Helens, and Scappoose, remained flat through the 1990s. In these places, growth begins to resume during the 2000s. Growth occurs in unincorporated Columbia County during the 1990s, but far from the level seen during the 1960s and 1970s – when there were fewer restrictions on rural development. By the 2000s, growth in unincorporated Columbia County has leveled off.

**Figure 8. Historical Population Growth 1960-2008, Columbia County's Four Smaller Cities (TOP), Two Larger Cities & Unincorporated Area (BOTTOM)**



(1) Decennial Census 100% count (2) Decennial Census 100% count; adjusted figures for Clatskanie (1990 & 2000), Vernonia (2000), & unincorporated area (1990 & 2000), see Appendix F. (3) Estimates prepared for this study are similar, but not identical, to PRC's certified July 1 2008 estimates. See endnote 1.

In addition to examination of longer term population growth trends, annual housing data between 1990 and mid-2008 are analyzed (see Appendix D). Medium growth trends are then input into the housing unit model. Although more complicated procedures are

followed (discussed in the *Methods* section and in the appendix), the basic starting point for all sub-areas is *housing unit growth rates*.

Under medium growth, housing growth rates calculated and projected for the 2000 to 2010 period generally serve as baseline rates for the 2010 to 2020 period. Due to land constraints, Columbia City’s rate has been adjusted down to 82 percent of the original value. Scappoose has been adjusted down to 92 percent of the original value, as extraordinarily high permitted development in 2007 is treated as an outlier. Vernonia’s rate has been adjusted up to account for approved development and an extraordinarily low 2000-2010 rate. If county-wide cohort model results were very different from housing model results, final sub-area growth rates would be different from the input rates, a result of being controlled to the county results. As it stands, both models produce about the same 2020 results and the input rates do not change. Table 2 shows housing unit growth rates for the 1990-2000, 2000-2010, 1990-2010 periods, and forecasted rates for the 2010-2020 and 2020-2030 periods.

**Table 2. Historical & Forecasted: Average Annual Housing Unit Growth Rates  
Columbia County Cities & Unincorporated Area**

Period	Clatskanie	Columbia City	Prescott*	Rainier	St. Helens	Scappoose	Vernonia	Unincorp.	County-wide
1990-2000	0.2%	5.9%	1.0%	0.9%	2.7%	4.3%	2.4%	1.0%	1.9%
2000-2010	0.9%	2.4%	0.0%	1.0%	2.1%	2.9%	0.3%	0.4%	1.2%
1990-2010	0.5%	4.1%	0.5%	0.9%	2.4%	3.6%	1.3%	0.7%	1.5%
<b>Forecast, Medium Growth:</b>									
2010-2020	0.9%	2.0%	0.0%	1.0%	2.1%	2.7%	0.9%	0.4%	1.3%
2020-2030	0.6%	1.1%	0.0%	0.8%	1.7%	2.2%	0.7%	0.1%	1.0%

\* Not forecast. See Appendix F for special information about Clatskanie, Vernonia, and unincorporated area data.

Housing unit growth rates forecasted for the 2020-2030 period initially rely on rates forecasted for the 2010-2020 period, but these are influenced by the effect of being controlled to the 2030 county-wide forecast. Forecasted county-wide demographics in 2030 curtail housing unit growth in sub-areas, primarily in response to an older population structure and expected decline in the demand for new housing. As a result, final 2030 sub-area housing growth rates are lower than the input rates.

### *Occupancy and Household Size*

In addition to housing unit growth rates, forecasted *household size change* is the other major factor affecting forecasted sub-area populations. Although *occupancy* rates are inputs as well, not as much effort is expended on predicting changes: by 2010, rates range from 92.5 percent in Vernonia to 95.1 percent in Scappoose, but by 2020 all sub-areas are projected to ‘converge’ to the same rate forecasted for the county – 94.0 percent (see also *Methods*). Trends in household size are initially based on 1990, 2000, and post-2000 data. Average household sizes are forecasted for 2010 and then 2010 numbers become inputs for the 2020 model. Additional changes result from controls by forecasted household demographics at the county level and minor adjustments that consider population sizes, input average household sizes, and household demographics of each sub-area (see also *Methods*).

The county as a whole is forecasted to see household size decline by about 7 percent, from an average of 2.65 persons per household in 2000 (the last year hard data are available) to 2.46 in 2030 (see Table 3). This continues a long term trend influenced by an aging population, a declining share of married-couple households, and lower fertility rates. Although all sub-areas are forecasted to see declines, the amount varies from place to place. Average household size in unincorporated Columbia County is expected to decline the most, about 9.9 percent between 2000 and 2030, from 2.66 persons per household to 2.40. Declines in cities range from 7.7 percent in Columbia City (2.63 in 2000 to 2.43 in 2030) to 3.7 percent in St. Helens (2.65 in 2000 to 2.55 in 2030). The decline in the unincorporated area is akin to turning a large ship: it has the largest population, the greatest demographic momentum, and thus it will take the largest demographic events to turn current trends in another direction. A similar, though opposite, logic applies to the other sub-areas: smaller demographic events can produce larger changes in average household size if a given area’s population is small (see also *Methods*).

Table 3 includes historic and forecasted occupancy rates and average household sizes. Forecasted occupancy rates in the table are relevant to both the medium and high growth

models; forecasted average household sizes are relevant only to the medium growth model (see Appendix B for high growth numbers).

**Table 3. Historical & Forecasted: Occupancy Rates & Average Household Sizes  
Columbia County Cities & Unincorporated Area**

	Clatskanie	Columbia City	Prescott*	Rainier	St. Helens	Scappoose	Vernonia	Unincorp.	County-wide
<b>Occupancy Rates, Historic &amp; Forecast (medium or high growth):</b>									
1990	92.7%	96.7%	86.7%	95.5%	96.8%	97.3%	91.4%	95.2%	95.4%
2000	91.5%	93.0%	84.8%	91.0%	92.3%	94.3%	89.7%	94.1%	93.2%
2010	94.0%	94.6%	87.9%	92.5%	93.7%	95.1%	92.5%	94.1%	94.0%
2020 & 2030	94.0%	94.0%	87.9%	94.0%	94.0%	94.0%	94.0%	94.0%	94.0%
<b>Average Household Size, Historic &amp; Medium Growth Forecast:</b>									
1990	2.49	2.87	2.42	2.60	2.48	2.73	2.77	2.77	2.68
2000	2.42	2.63	2.57	2.53	2.65	2.62	2.83	2.66	2.65
2010	2.30	2.55	2.59	2.46	2.70	2.57	2.79	2.53	2.58
2020	2.29	2.45	2.59	2.44	2.65	2.49	2.72	2.44	2.51
2030	2.28	2.43	2.59	2.43	2.55	2.45	2.62	2.40	2.46
<i>Percentage change 2000-2030</i>	-5.7%	-7.7%	NA	-4.1%	-3.7%	-6.4%	-7.3%	-9.9%	-7.0%

\* Not forecast. See Appendix F for special information about Clatskanie, Vernonia, and unincorporated area data.

Text below summarizes results presented in Table 4.

### ***Medium Growth Forecasts***

Under the medium growth forecast, the county adds 5,135 residents between Census 2000 and 2010, growing from 43,560 residents to 48,695, an 11.8 percent increase and an average annual growth rate of 1.1 percent. Eighty-seven percent of the growth is attributed to growth in St. Helens and Scappoose: St. Helens grows from 10,019 residents in 2000 to 12,847 residents in 2010 (+2,828) and Scappoose grows from 4,976 residents in 2000 to 6,601 residents in 2010 (+1,625). The remaining (net) growth of 682 residents is attributed to growth in Columbia City (+408), Rainier (+157), Clatskanie (+120), Vernonia (+113), and decline in the unincorporated area (-119) (with +3 in Prescott).<sup>2</sup>

Between 2010 and 2020, the county adds 5,330 residents, growing from 48,695 residents to 54,025, a 10.9 percent increase and an average annual growth rate of 1.0 percent. Eighty-two percent of the growth is attributed to growth in St. Helens and Scappoose: St. Helens grows from 12,847 residents in 2010 to 15,591 residents in 2020 (+2,744) and Scappoose grows from 6,601 residents in 2010 to 8,234 residents in 2020 (+1,633). The remaining growth of 953 residents is attributed to growth in Columbia City (+313),

Rainier (+216), Clatskanie (+153), Vernonia (+200), and unincorporated Columbia County (+71).

Between 2020 and 2030, the county adds 4,480 residents, growing from 54,025 residents to 58,505, an 8.3 percent increase and an average annual growth rate of 0.8 percent. Ninety percent of the growth is attributed to growth in St. Helens and Scappoose: St. Helens grows from 15,591 residents in 2020 to 17,842 residents in 2030 (+2,251) and Scappoose grows from 8,234 residents in 2020 to 10,022 residents in 2030 (+1,788). The remaining (net) growth of 441 residents is attributed to growth in Columbia City (+240), Rainier (+150), Clatskanie (+110), and Vernonia (+95), and population decline in unincorporated Columbia County (-154).

**Table 4. Historical & Medium Growth Forecast: Total Population  
Columbia County Cities & Unincorporated Area**

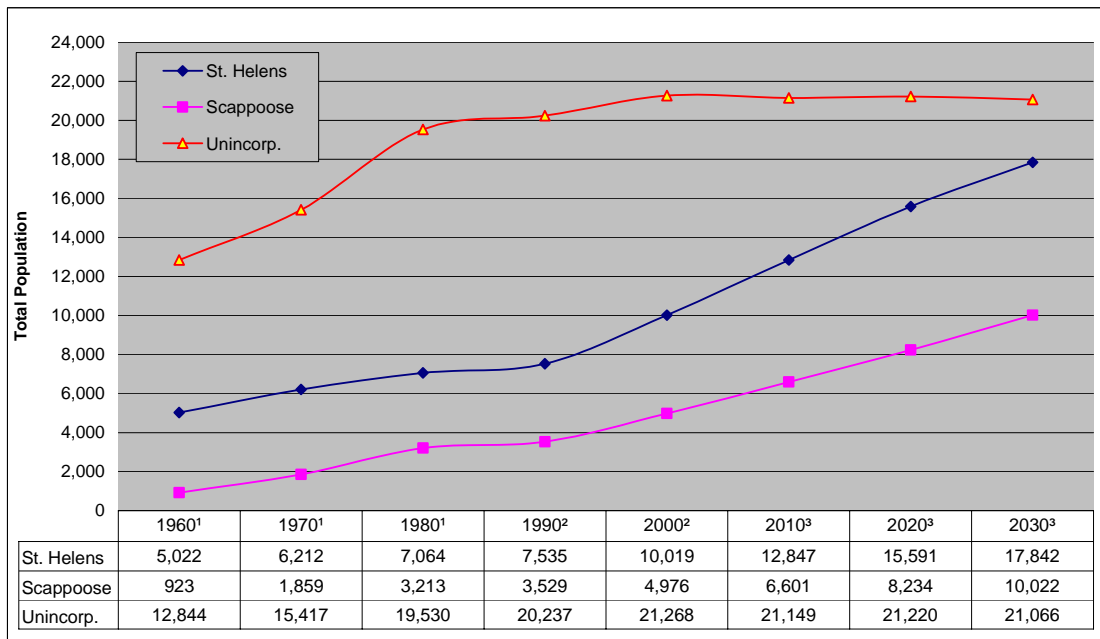
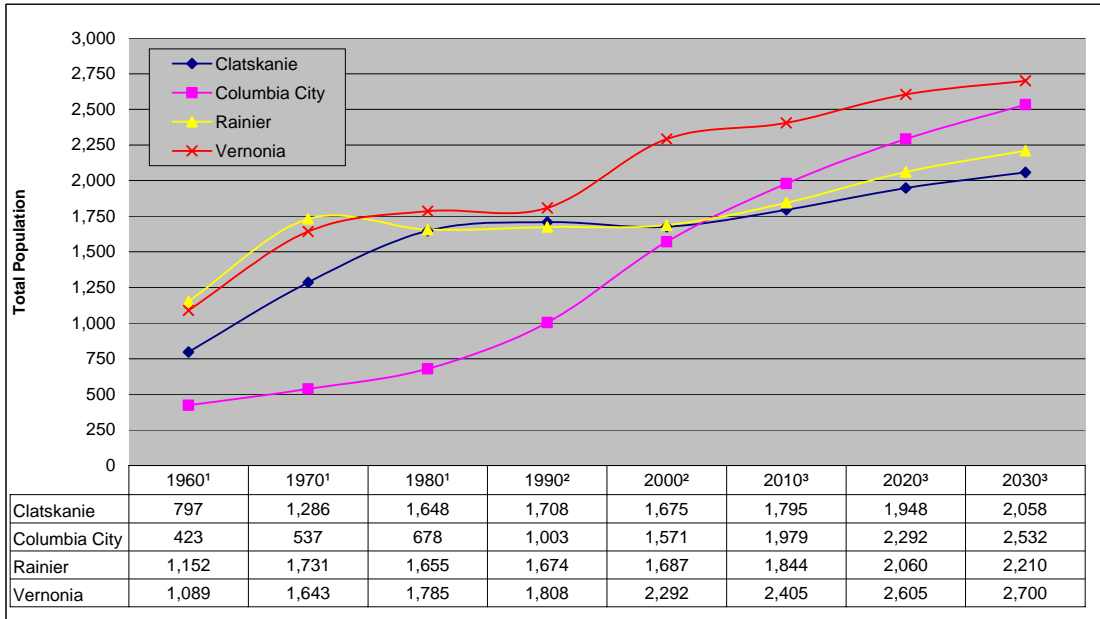
	Clatskanie	Columbia City	Prescott*	Rainier	St. Helens	Scappoose	Vernonia	Unincorp.	County-wide
<b>1990: Total Population</b>	1,708	1,003	63	1,674	7,535	3,529	1,808	20,237	37,557
<b>2000:</b>									
<b>Total Population</b>	1,675	1,571	72	1,687	10,019	4,976	2,292	21,268	43,560
<i>Numeric change</i>	-33	568	9	13	2,484	1,447	484	1,031	6,003
<i>Average Annual Growth Rate</i>	-0.2%	4.6%	1.3%	0.1%	2.9%	3.5%	2.4%	0.5%	1.5%
<b>2010:</b>									
<b>Total Population</b>	1,795	1,979	75	1,844	12,847	6,601	2,405	21,149	48,695
<i>Numeric change</i>	120	408	3	157	2,828	1,625	113	-119	5,135
<i>Average Annual Growth Rate</i>	0.7%	2.3%	0.4%	0.9%	2.5%	2.8%	0.5%	-0.1%	1.1%
<b>2020:</b>									
<b>Total Population</b>	1,948	2,292	75	2,060	15,591	8,234	2,605	21,220	54,025
<i>Numeric change</i>	153	313	0	216	2,744	1,633	200	71	5,330
<i>Average Annual Growth Rate</i>	0.8%	1.4%	0.0%	1.1%	1.9%	2.2%	0.8%	0.0%	1.0%
<b>2030:</b>									
<b>Total Population</b>	2,058	2,532	75	2,210	17,842	10,022	2,700	21,066	58,505
<i>Numeric change</i>	110	240	0	150	2,251	1,788	95	-154	4,480
<i>Average Annual Growth Rate</i>	0.5%	1.0%	0.0%	0.7%	1.3%	1.9%	0.4%	-0.1%	0.8%

\* Not forecast. See Appendix F for special information about Clatskanie, Vernonia, and unincorporated area 1990 & 2000 figures.

By 2030, population aging has substantially reduced overall growth. In general, this is a nation-wide phenomenon — due to the relatively large birth cohorts of the post-war era: large households and families can be largely attributed to the larger size of these cohorts, with many more people ‘at risk’ of household formation, fertility, etc. But there also are many more people at risk of mortality once these cohorts enter the older-old ages, or simply the attendant decline in household size as these cohorts enter the upper-middle

and younger-old ages. Meanwhile, younger cohorts are smaller, with fewer people at risk of household formation, fertility, etc., that is, fewer people to replace the aging.

**Figure 9. Historical Population Growth & Medium Growth Forecast, Columbia Co. Four Smaller Cities (TOP), Two Larger Cities & Unincorporated Area (BOTTOM)**



(1) Decennial Census 100% count (2) Decennial Census 100% count; adjusted figures for Clatskanie (1990 & 2000), Vernonia (2000), & unincorporated area (1990 & 2000), see Appendix F. (3) Forecast, medium growth.



### ***High Growth Forecasts***

City and unincorporated area high growth forecasts primarily reflect allocations of the high growth, rather than the medium growth, county-wide forecast to cities and the unincorporated area. The high growth forecast includes more growth due to higher net migration and slightly higher fertility rates than under medium growth. Large scale economic development within Columbia County or in nearby Cowlitz or Clatsop Counties could contribute to higher migration rates. As the Portland metropolitan area continues to grow, demand for housing in Columbia County may exceed recent levels. Factors that will play a role in determining how much of the regional population growth is captured by Columbia County include improved transportation access as well as residential land prices and land availability.

Differences between methods and assumptions implemented for the high growth sub-area forecasts on the one hand, and the medium growth sub-area forecasts on the other, include:

- more housing development between mid-2009 and mid-2010 than projected under medium growth,
- higher initial housing unit growth rates implemented for the 2010 to 2020 and 2020 to 2030 periods,
- the same or slightly larger average household sizes.

*Medium* growth assumes housing development between mid-2009 and mid-2010 remains at about the 2008 level, which is about half as much as what took place during the 2004 to mid-2008 period, on average county-wide. *High* growth assumes development bounces back to pre-2008 levels, or about the level of growth during the 2003 to 2007 period.<sup>3</sup> These assumptions may slightly raise growth rates during the entire 2000 to 2010 period, which rates may also serve as baseline rates for the following decade, depending on trends in each sub-area (i.e. rates that produce uncontrolled projections; after controlling by the county-wide forecast, growth rates may be somewhat different).

With exceptions noted earlier, the medium growth model relies on 2000-2010 housing growth rates as baseline rates. *High* growth assumes the same or higher rates, either

selected among rates for 1990-2000, 2000-2010, and 1990-2010 or based on the range of rates reflected by these periods. The input rate for Clatskanie is 0.1 percentage point higher than the highest rate among those which occurred during these earlier periods.

The high growth county-wide model forecasts a slightly larger average household size at each of the decennials: 2.59 instead of 2.58 in 2010, 2.54 instead of 2.51 in 2020, and 2.50 instead of 2.46 in 2030. Sub-area average household sizes either stay the same as under medium growth or are adjusted slightly higher to compensate.

In general, the high growth model is biased toward producing a wider range of results for the cities rather than the unincorporated area. Consequently, the difference between city forecasts under medium and high growth is greater than the difference between unincorporated forecasts under medium and high growth. By 2030, for example, high growth forecasts for cities deviate from the medium growth forecasts by 9.7 to 13.6 percent. In contrast, the 2030 high growth forecast for the unincorporated area deviates from the medium growth forecast by only 5.4 percent. Within the context of planning for urban development, the wider range for cities should prove more useful. Text below summarizes results presented in Table 5.

**Table 5. Historical & High Growth Forecast: Total Population  
Columbia County Cities & Unincorporated Area**

	Clatskanie	Columbia City	Prescott*	Rainier	St. Helens	Scappoose	Vernonia	Unincorp.	County-wide
<b>1990: Total Population</b>	1,708	1,003	63	1,674	7,535	3,529	1,808	20,237	37,557
<b>2000:</b>									
<b>Total Population</b>	1,675	1,571	72	1,687	10,019	4,976	2,292	21,268	43,560
<i>Numeric change</i>	-33	568	9	13	2,484	1,447	484	1,031	6,003
<i>Average Annual Growth Rate</i>	-0.2%	4.6%	1.3%	0.1%	2.9%	3.5%	2.4%	0.5%	1.5%
<b>2010:</b>									
<b>Total Population</b>	1,810	1,979	75	1,871	13,073	6,698	2,418	21,310	49,234
<i>Numeric change</i>	135	408	3	184	3,054	1,722	126	42	5,674
<i>Average Annual Growth Rate</i>	0.8%	2.3%	0.4%	1.0%	2.6%	2.9%	0.5%	0.0%	1.2%
<b>2020:</b>									
<b>Total Population</b>	2,034	2,398	75	2,180	16,457	8,934	2,787	21,942	56,807
<i>Numeric change</i>	224	419	0	309	3,384	2,236	369	632	7,573
<i>Average Annual Growth Rate</i>	1.1%	1.9%	0.0%	1.5%	2.3%	2.9%	1.4%	0.3%	1.4%
<b>2030:</b>									
<b>Total Population</b>	2,257	2,787	75	2,451	19,661	11,193	3,068	22,212	63,704
<i>Numeric change</i>	223	389	0	271	3,204	2,259	281	270	6,897
<i>Average Annual Growth Rate</i>	1.0%	1.5%	0.0%	1.1%	1.8%	2.2%	0.9%	0.1%	1.1%

\* Not forecast. See Appendix F for special information about Clatskanie, Vernonia, and unincorporated area 1990 & 2000 figures.

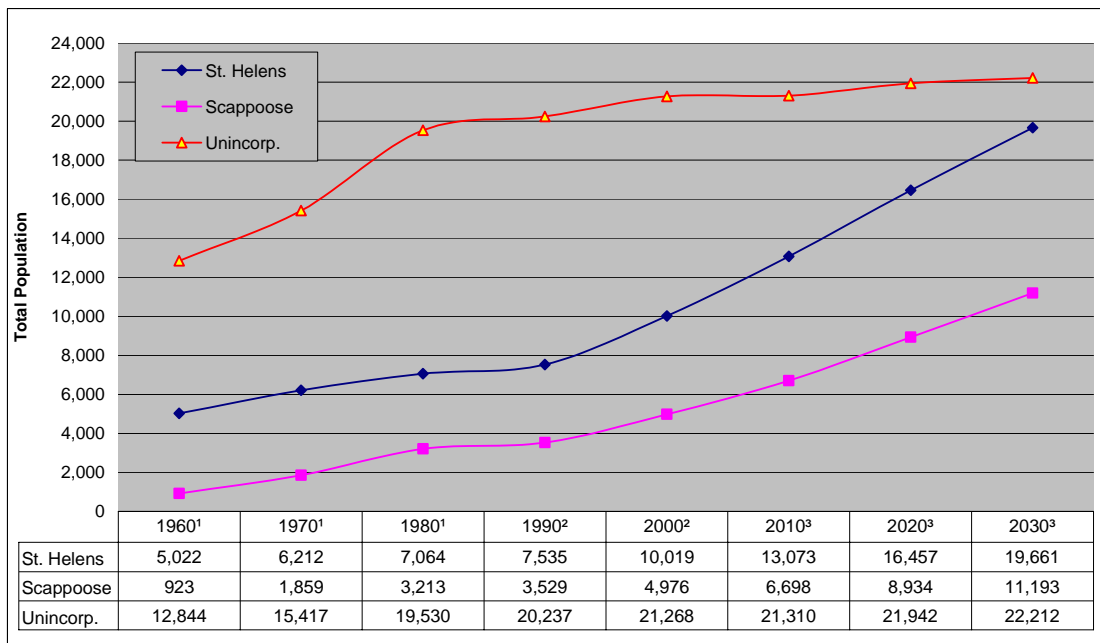
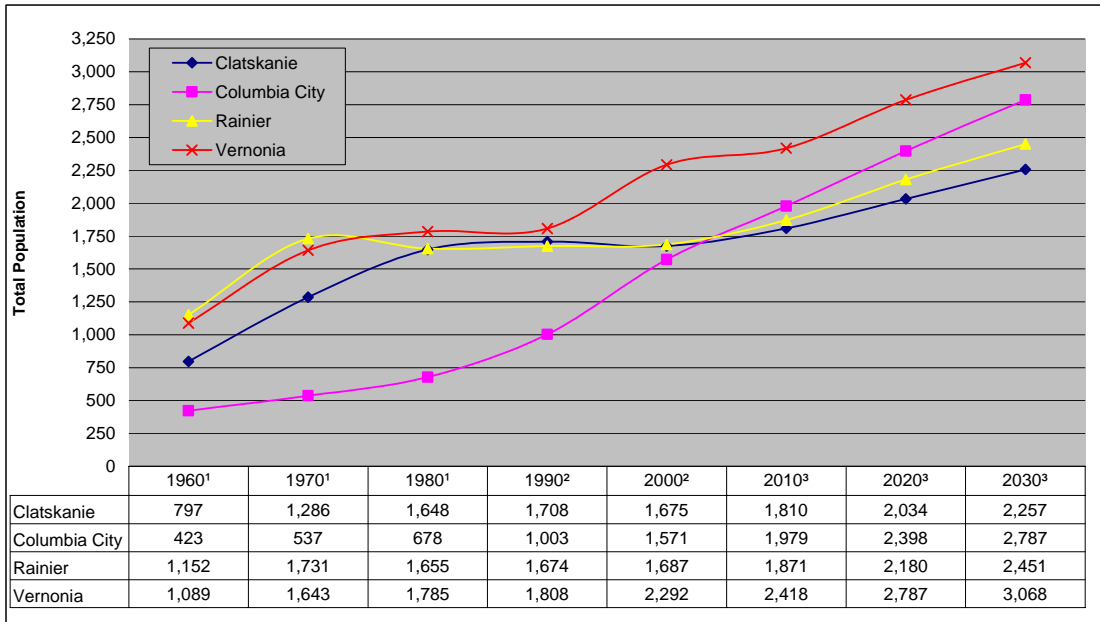
Under the high growth forecast, the county adds 5,674 residents between Census 2000 and 2010, growing from 43,560 residents to 49,234, a 13.0 percent increase and an average annual growth rate of 1.2 percent. Eighty-four percent of the growth is attributed to growth in St. Helens and Scappoose: St. Helens grows from 10,019 residents in 2000 to 13,073 residents in 2010 (+3,054) and Scappoose grows from 4,976 residents in 2000 to 6,698 residents in 2010 (+1,722). The remaining growth of 898 residents is attributed to growth in Columbia City (+408), Rainier (+184), Clatskanie (+135), Vernonia (+126), and unincorporated Columbia County (+42) (+3 in Prescott).

Between 2010 and 2020, the county adds 7,573 residents, growing from 49,234 residents to 56,807, a 15.4 percent increase and an average annual growth rate of 1.4 percent. Seventy-four percent of the growth is attributed to growth in St. Helens and Scappoose: St. Helens grows from 13,073 residents in 2010 to 16,457 residents in 2020 (+3,384) and Scappoose grows from 6,698 residents in 2010 to 8,934 residents in 2020 (+2,236). The remaining growth of 1,953 residents is attributed to growth in Columbia City (+419), Rainier (+309), Clatskanie (+224), Vernonia (+369), and unincorporated Columbia County (+632).

Between 2020 and 2030, the county adds 6,897 residents, growing from 56,807 residents to 63,704, a 12.1 percent increase and an average annual growth rate of 1.2 percent. Seventy-nine percent of the growth is attributed to growth in St. Helens and Scappoose: St. Helens grows from 16,457 residents in 2020 to 19,661 residents in 2030 (+3,204) and Scappoose grows from 8,934 residents in 2020 to 11,193 residents in 2030 (+2,259). The remaining growth of 1,434 residents is attributed to growth in Columbia City (+389), Rainier (+271), Clatskanie (+223), Vernonia (+281), and unincorporated Columbia County (+270).

Given the precipitous decline in the national and local economy since the recession began in mid-2007, 2010 high growth numbers are unlikely. However, growth scenarios account for the likelihood of cycles of faster and slower growth, if not the precise timing of those cycles. Having a slower growth-period occur between 2008 and 2010 does not necessarily mean subsequent 2020 and 2030 figures are too high.

**Figure 10. Historical Population Growth & High Growth Forecast, Columbia Co. Four Smaller Cities (TOP), Two Larger Cities & Unincorporated Area (BOTTOM)**



(1) Decennial Census 100% count (2) Decennial Census 100% count; adjusted figures for Clatskanie (1990 & 2000), Vernonia (2000), & unincorporated area (1990 & 2000), see Appendix F. (3) Forecast, high growth.

**Table 6. Historical and Forecasted Medium & High Growth: City and Unincorporated Area Populations as Shares of County Total**

	<b>COUNTY, Total Population</b>	<b>Clatskanie</b>	<b>Columbia City</b>	<b>Prescott</b>	<b>Rainier</b>	<b>St. Helens</b>	<b>Scappoose</b>	<b>Vernonia</b>	<b>Unincorp.</b>
<b>HISTORIC:</b>									
<b>1960<sup>1</sup></b>	22,379	3.56%	1.89%	0.58%	5.15%	22.44%	4.12%	4.87%	57.39%
<b>1970<sup>1</sup></b>	28,790	4.47%	1.87%	0.36%	6.01%	21.58%	6.46%	5.71%	53.55%
<b>1980<sup>1</sup></b>	35,646	4.62%	1.90%	0.20%	4.64%	19.82%	9.01%	5.01%	54.79%
<b>1990<sup>2</sup></b>	37,557	4.55%	2.67%	0.17%	4.46%	20.06%	9.40%	4.81%	53.88%
<b>2000<sup>2</sup></b>	43,560	3.85%	3.61%	0.17%	3.87%	23.00%	11.42%	5.26%	48.82%
<b>MEDIUM GROWTH:</b>									
<b>2010</b>	48,695	3.69%	4.06%	0.15%	3.79%	26.38%	13.56%	4.94%	43.43%
<b>2020</b>	54,025	3.61%	4.24%	0.14%	3.81%	28.86%	15.24%	4.82%	39.28%
<b>2030</b>	58,505	3.52%	4.33%	0.13%	3.78%	30.50%	17.13%	4.61%	36.01%
<b>HIGH GROWTH:</b>									
<b>2010</b>	49,234	3.68%	4.02%	0.15%	3.80%	26.55%	13.60%	4.91%	43.28%
<b>2020</b>	56,807	3.58%	4.22%	0.13%	3.84%	28.97%	15.73%	4.91%	38.63%
<b>2030</b>	63,704	3.54%	4.37%	0.12%	3.85%	30.86%	17.57%	4.82%	34.87%

(1) Based on Decennial Census 100% count (2) Based on Decennial Census 100% count and adjusted figures for Clatskanie (1990 & 2000), Vernonia (2000), & unincorporated area (1990 & 2000), see Appendix F.

Forecasts for cities and unincorporated Columbia County do not attempt to predict the timing of economic cycles. Looking at historical data, the recession of the early 1980s slowed growth across most of the County, while areas most accessible to the Portland metropolitan labor market gained a larger share of rapid growth during the 1990s. Overall, periods of faster and slower growth can be expected in each sub-area over the entire forecast period; sub-area forecasts reflect long term trends that are a mix of slower and faster growth.

Medium growth trends are neither overly optimistic nor pessimistic. Most of the cities being forecasted, however, are so small that various single small events could produce population numbers that deviate significantly from those forecasted. For example, a single moderately sized subdivision – which could be built and occupied in a matter of months, given the right conditions – could push population totals beyond those forecasted for the smaller cities, such as Rainier, Vernonia, or Clatskanie. On the other hand, if little of that kind of development is observed over the past 30 years, there is little basis to predict it to happen over the next 22. In short, there are few ways to predict a host of

events and conditions that could impact population growth in the smaller cities, pushing numbers beyond, or holding them below, the numbers forecasted. Despite these caveats, forecasts of populations, housing stocks, and related household demographics are consistent with county-wide results. They provide a reasonable basis for county-city coordinated land use planning. As with any forecast, assumptions and results should be monitored as new information, such as Census 2010 data, becomes available.

## **METHODS**

This section discusses, in more detail, methodologies for the county-wide forecast and the city and unincorporated area (“sub-area”) forecasts. Forecasts for the county rely on the Cohort-Component Method, which predicts future populations as outcomes of life events, such as births, deaths, and in- and out-migration. Forecasts for sub-areas rely on a housing unit method, which predicts future populations based on housing growth and household trends. Sub-area forecasts are reconciled with the county-wide forecasts, where housing and household demographics and the population totals they produce add up to county-wide results. Text below begins with methods for the county-wide forecast, followed by methods for the sub-area forecasts.

### **Columbia County-wide Forecast Methodology**

A demographic cohort-component model was used to forecast population for Columbia County by age and sex. The **components** of population change are births, deaths, and migration (residential relocation). An area’s population grows when births outnumber deaths and when more people move into an area than out of it. These events occur at different rates for persons of different age groups, or **cohorts**. For example, a rural or suburban area may experience net out-migration as residents age from their teens to early 20s and net in-migration as residents age from their late 20s to early 30s. Using age-specific *fertility rates*, age-sex specific *mortality rates*, age-sex specific *migration rates*, estimates of recent net migration levels, and forecasts of future migration levels, each component is applied to the base year population in a manner that simulates actual dynamics of population change.

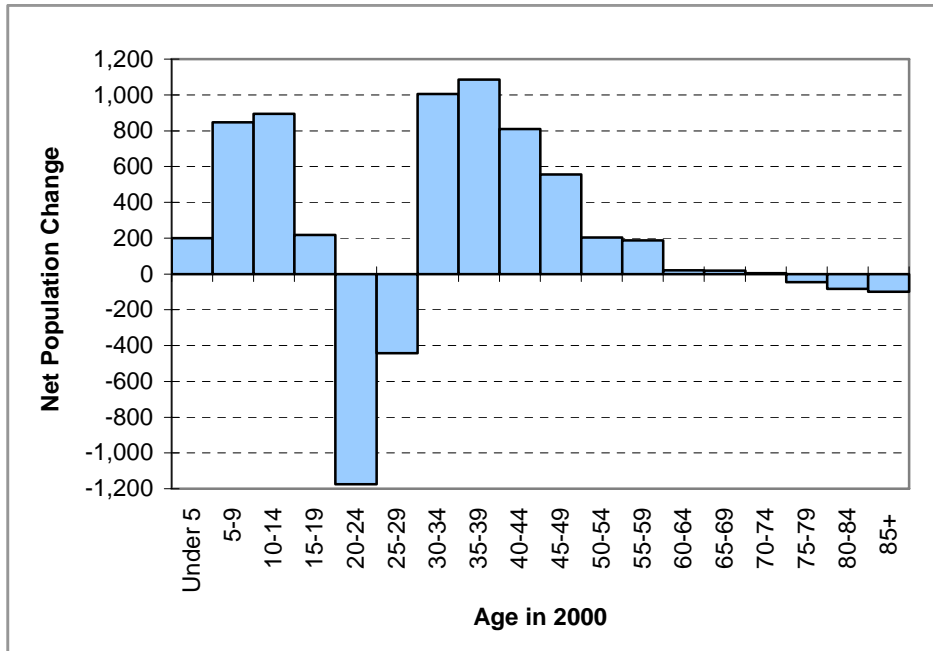
Because the most accurate information about population by age and sex comes from the decennial U.S. Censuses, the cohort-component model incorporates 1990 and 2000 Census data. The model is calibrated to simulate known population change between 1990 and 2000. State of Oregon Center for Health Statistics data on births by age of mother for Columbia County residents are used to calculate fertility rates for 1990 and

2000, and post-2000 adjustments to the rates are based on national and state trends as well as observed Columbia County births through 2006.

**Migration**

In the 1990s, about 70 percent of the County’s population growth was directly attributable to net migration (people moving in minus people moving out). By “surviving” the 1990 population and 1990s births (estimating the population in each age group that would survive to the year 2000) and comparing the “survived” population to the actual 2000 population by age group, we are able to estimate net migration by age cohort. Figure 11 shows the estimated population change that each age group contributed due to migration between 1990 and 2000. For example, from the cohort age 20 to 24 years in 1990 and 30 to 34 years in 2000, about 1,000 more people moved into the County than out of it during the 1990s. Net migration contributed to the child population and adults age 30 to 59 years, while the chart shows a large net outflow of young adults age 20 to 29 years and a small net outflow of persons age 75 and older.

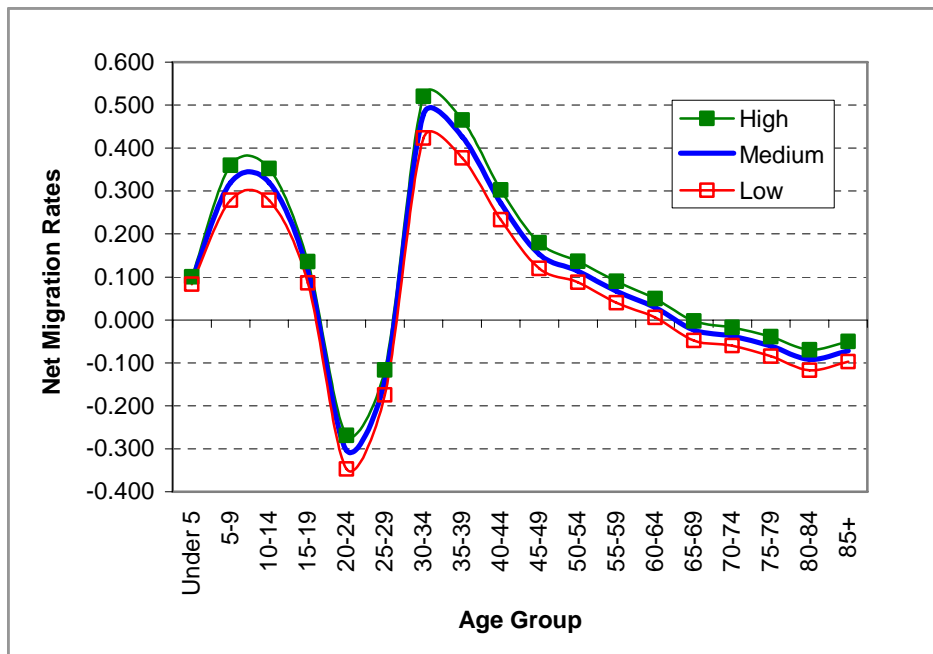
**Figure 11. Population Change Due to Migration, 1990 to 2000  
Columbia County by Age Group**





Baseline net migration rates for the county-wide forecasts are developed by dividing estimated 1990 to 2000 net migration by 1990 population for each five year age group by gender. Forecasted rates have similar age distributions to the baseline rates, but they are adjusted up or down based on expectations of future migration under each scenario. Figure 12 illustrates the relative differences among migration rates under the high, medium, and low series forecasts for the 2020 to 2030 period (while the study model relies on rates for males and females, Figure 12 combines the two genders for illustrative purposes).

**Figure 12. Net Migration Rates (Males and Females Combined)  
Columbia County 2020 to 2030 by Forecast Series**



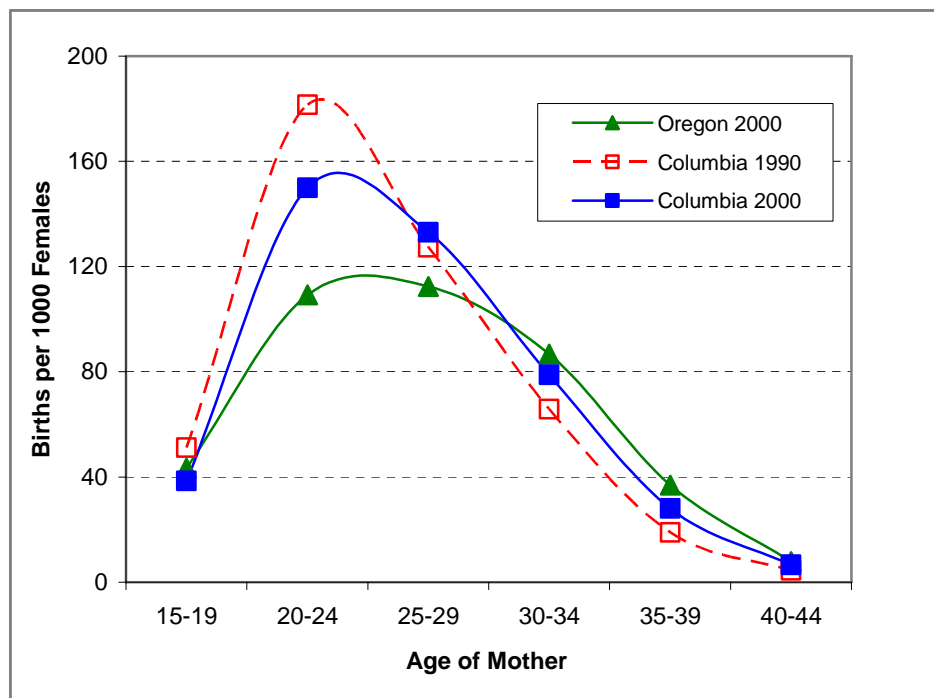
***Fertility***

The cohort-component forecast also requires age-specific fertility rates to forecast births. Historic fertility rates for the County in 1990 and 2000 were calculated for each age group by dividing the average annual number of births over the three year period around each census (1989 to 1991 and 1999 to 2001) by the female population counted in the census. For example, there was an average of 152 births per year to mothers age 30 to 34 between 1999 and 2001 and a population of 1,140 females age 30 to 34 in 2000.

Therefore, the fertility rate in 2000 for females age 30 to 34 was  $152 \div 1140 = 0.133$  births per female, or 133 per thousand.

For Columbia County women under age 25, fertility rates fell between 1990 and 2000. For women age 25 to 29, fertility rates increased slightly. For women age 30 and over, fertility rates increased. Compared to State of Oregon rates, Columbia County rates are higher for women in their 20s and lower for women age 30 and older. Figure 13 shows age-specific fertility rates for Columbia County in 1990 and 2000, as well as State of Oregon rates in 2000.

**Figure 13. Age Specific Fertility Rates  
Columbia County 1990 and 2000 and Oregon 2000**

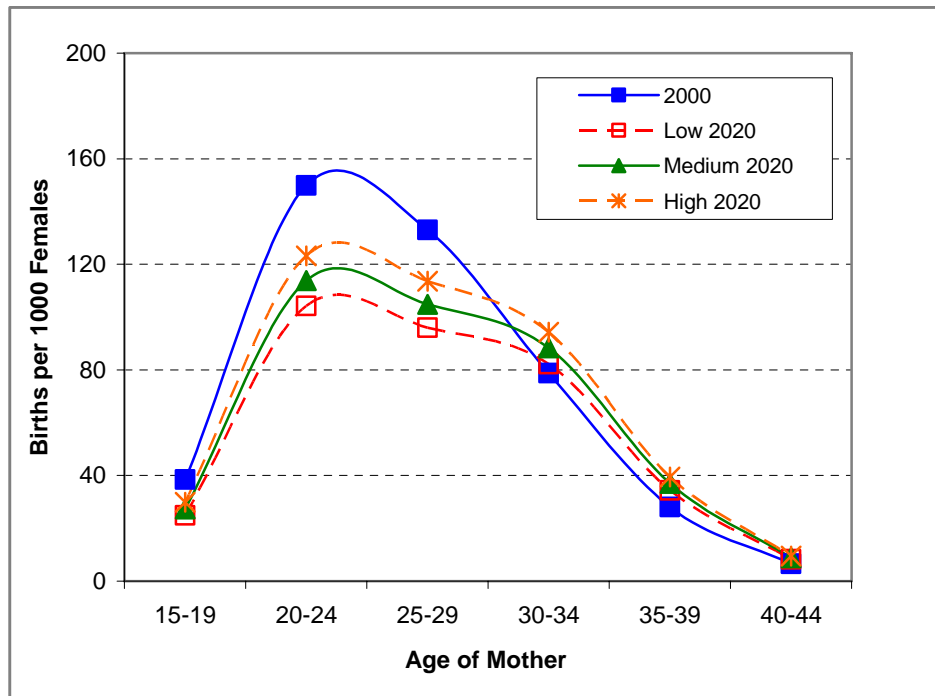


Based on the number of births to Columbia County mothers by age group reported by the Oregon Center for Health Statistics for the 2001 to 2006 period, estimated fertility rates have fallen since 2000 for women under age 30 and increased for women age 30 and older. These changes are similar to national trends.<sup>4</sup> The higher fertility rates of older women, however, have not increased enough to compensate for the lower fertility rates of

younger women; thus, the Total Fertility Rate (TFR) is estimated to be lower now than in 2000.

Differences among fertility rates for the three forecast scenarios are not extreme. For younger women, all three scenarios include fertility rates that are lower than the 2000 rates for younger women. For older women, all three scenarios use fertility rates that are higher than the 2000 rates for older women. Figure 14 compares age-specific fertility rates for the three forecast scenarios in 2020 and those estimated for 2000. Despite the appearance of subtlety, the different fertility assumptions, when combined with the different net migration assumptions for women of child-bearing ages in each of the three scenarios, produce significant differences in the number of births to Columbia County women. Over the 23 years from 2008 to 2030, inclusive, 11,618 births are forecasted under the low series; 13,019 births are forecasted under the middle series; and 14,534 births are forecasted under the high series.

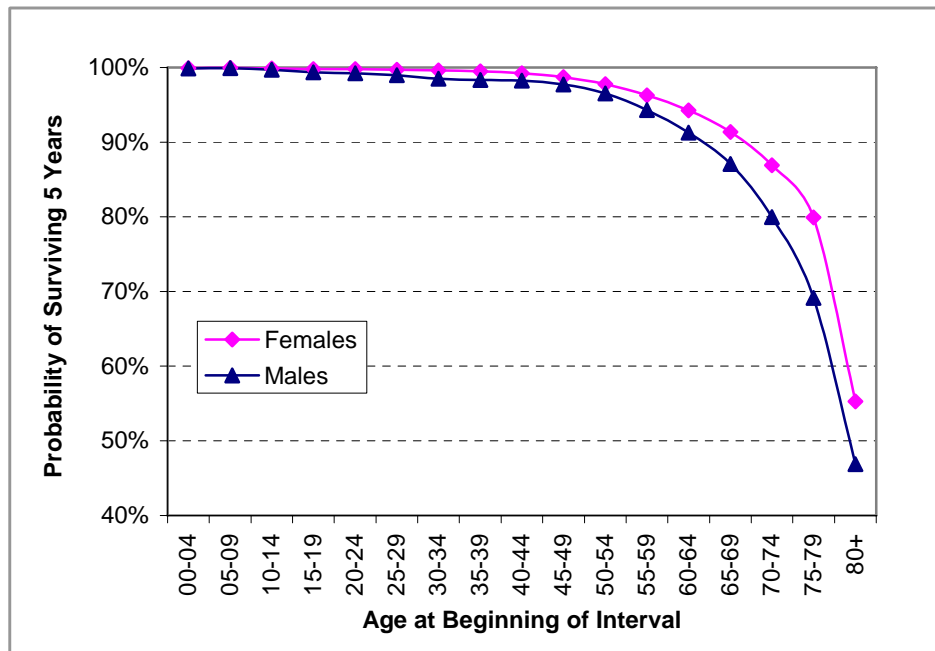
**Figure 14. Age Specific Fertility Rates  
Columbia County, 2000 and Forecasted 2020**



### *Mortality/Survival*

Finally, mortality rates are essential to the cohort-component model. In the Columbia County model, these are expressed as “survival” rates, which represent the proportion of residents in each age group by gender who will survive to the next age group. Since the County’s population is not large enough to develop reliable survival rates based on observed data, national rates for whites published by the National Center for Health Statistics are used instead.<sup>5</sup> Figure 15 shows rates for males and females implemented over the 2010 to 2030 period. For males age 45 and under and females age 50 and under, over 98 percent of the population in each cohort is expected to survive into the next cohort, such as from the age 30-34 cohort to the age 35-40 cohort. Not surprisingly, survival rates decrease in subsequent age groups. Rates for the final group, age 80 and over, for example, reflect a less than 60 percent chance of survival to the next age group. For females the rate is about 55 percent; for males it is about 47 percent.

**Figure 15. Age Specific Survival Rates  
Columbia County Forecasts 2010 to 2030**



## **City and Unincorporated Area Forecast Methodology**

The housing unit model developed for this study can be broken down into two large subject areas. The first pertains to procedures for the 2010 forecasts, while the second pertains to procedures for the 2020 and 2030 forecasts. This breakdown, in part, mirrors the nature of the larger forecasting project – a project with a 22-year forecast horizon, reported at decennials, integrating sub-area results with county results. In essence, the sub-area forecasting starts with detailed data and analyses that produce current population estimates and related housing and household demographics. Then, with few additional assumptions and data it is only a small step to turn the estimates into forecasts for the year 2010. Next, the forecasting ‘zooms out’ to the broader time horizon, using historical data by decade along with the forecasted 2010 figures to forecast populations in 2020 and 2030. It is here that the sub-area forecasts become a part of the larger county-wide forecast.

### ***2010 Forecasts***

Sub-area forecasts to 2010 rely on a combination of residential building permits and Census housing unit counts to identify the **housing stock**, and primarily Census 1990 and 2000 housing and household data to estimate/project occupancy rates and household sizes.

Although Census decennial and permit data serve as primary sources identifying the housing unit stock, various other sources help develop and/or corroborate housing stock estimates (by broad types): PRC Estimates Program permit data, permit data collected directly from Columbia County cities for this project, past PRC special reports (such as a 1991 enumeration for Clatskanie and a 2006 Vernonia survey, see Appendix F), U.S. Postal Service residential addresses compiled for the U.S. Department of Housing and Urban Development (through June 2008); and a State of Oregon mobile home database.

Typically, estimate procedures assume permitted residential units are constructed within an average of six months. Thus, added to a Census 2000 housing unit base, permitted

units through June 2008, the actual date of this study's inventory, produces a housing stock estimate six months after June, that is, through the end of 2008.<sup>6</sup>

To project this estimate to mid-2009, the number of permitted residential units for the second half of 2008 is assumed to be the same as it was for the first half, with housing growth staying at the early 2008 level. And finally, to get to year-2010 (units added between July 1, 2009 and July 1, 2010) housing unit growth in each city is projected to be half of what it was over the previous five years, on average. Growth at the 50 percent level is based on the county-wide decline; in the county, the number of permitted residential units in 2008 was 47.2 percent of what it was during the previous 5 years, on average.<sup>7</sup> Table 7 summarizes the housing stocks estimated/projected for the sub-areas and the county as a whole, in 2010.

**Table 7. 2000-2010: Housing Stock Summary, Columbia County & Sub-Areas**

	Clatskanie	Columbia City	Prescott	Rainier	St. Helens	Scappoose	Vernonia	Unincorp.	County-wide
Census 2000 Housing Stock*	747	639	33	733	4,032	2,001	904	8,481	17,570
Net additions Census 2000 to July 1 2008	63	163	0	65	879	624	24	321	2,139
Net additions estimated/projected July 1 2008 to July 1 2010	6	15	0	14	90	60	5	59	249
<b>Projected Stock Mid-2010</b>	816	817	33	812	5,001	2,685	933	8,861	19,958
Number of Units Added per Year, on Average	6.7	17.4	0.0	7.7	94.5	66.7	2.8	37.1	233
Average Annual Growth Rate, 2000-2010	0.9%	2.4%	0.0%	1.0%	2.1%	2.9%	0.3%	0.4%	1.3%
<b>Projected Mix Mid-2010</b>									
Single-family	58%	90%	76%	74%	74%	78%	82%	69%	73%
Multi-family	25%	4%	0%	20%	24%	16%	6%	2%	12%
Mobile/Other	17%	6%	24%	6%	2%	6%	12%	29%	16%

SOURCE: Population Research Center; U.S. Census Bureau Decennial Census 2000, Summary File 1.

\* A 1991 PRC enumeration for Clatskanie, a 2006 PRC survey in Vernonia, and examination of various housing data sources described in the text, resulted in adjustments, for purposes of this project, to Census housing unit counts in Clatskanie and Vernonia: Clatskanie +88 HU in 2000, Vernonia +24 HU in 2000. See Appendix F for more information.

With the housing stock known, an estimated occupancy rate can be multiplied by the stock to produce the number of households. Then, average household size can be multiplied by the number of households to produce total household population. More precisely, these are first estimated by housing structure type by sub-area and models are developed for 2007 and 2008, incrementally working up to 2010. This incremental approach allows the current study's estimates to be compared to other existing estimates, primarily the PRC annual estimates.<sup>8</sup>

Little to no prediction goes into estimates of **occupancy rates**. In most cases, baseline occupancy rates are simply a weighted average of occupancy rates in 1990 and 2000. Various checks are implemented, such as calculations limited to only those sub-areas and housing types with a sufficient number of units and households to produce a reliable estimate. In cases where the latter is found to be untrue, substitutions are made, such as substituting a given city's mobile home occupancy rate with that of the county as a whole.

In general, the rest of the model tries to conserve these base occupancy rates, with changes made only when inconsistencies arise. Judgment calls are made in some instances when a particular rate is obviously too low, when it is likely that data do not accurately reflect current conditions. For example, in Vernonia, based on a 2006 PRC survey, the occupancy rate developed from the weighted average of 1990 and 2000 data is too low, and Vernonia's occupancy rate was slightly increased.

In this incremental approach, efforts are made to implement occupancy rates that reflect the current housing market. For example, in the Portland metropolitan area the occupancy rate for single-family housing declined between 2007 and 2008, while the occupancy rate for multi-family housing increased.<sup>9</sup> However, no positive evidence was found to support the same condition in Columbia County.

Estimating/projecting **household sizes** follows similar conventions yet involves more detailed work. Similar to estimating occupancy rates, estimating household sizes begins with Census 1990 and 2000 housing and household data. Baseline sizes reflect the linear change between 1990 and 2000 trended to the estimate year, in the first instance, to 2007. The difference between estimating household sizes versus occupancy rates, however, lies in the fact that size is closely tied to the age structure of populations.

A given area's population age structure, that is, population divided into age groups and the size of those groups, carries momentum. Events such as household formation, fertility, and mortality are tied to age, and these events affect household size. For example, an area with a relatively young population age structure typically has a large average household size – because more children occupy its households. Examining city

population age structures, with respect to household size, can provide evidence for existing and to some extent future trends. Note however that most Columbia County cities have very small populations, where relatively small numerical changes can cause seemingly large demographic shifts: interpretations of trends must be made with caution.

Figures 16 and 17 provide illustrations, using data for Columbia City (Appendix E presents data for the other cities). Figure 16 shows the average number of persons per 1,000 households, by age groups, in 1990 and 2000. Figure 17 shows change during the 90s. Comparing the blue, dark curve (1990 data) to the pink, light curve (2000 data), we can begin to understand what affect an aging population might have on household size. For example, in 1990 adults age 30 to 44 years likely shared their households with their children (roughly age 0 to 19 years). But by 2000, many of these children entered the high out-migration ages (roughly the 20s) while not enough young parents with children entered the area to offset the impact. In the absence of offsetting in-migration, as a population ages it will include fewer young families with children and more elderly one and two person households. As a result, average household size declines.

**Figure 16. Average Number of Persons per 1,000 Households, Columbia City**

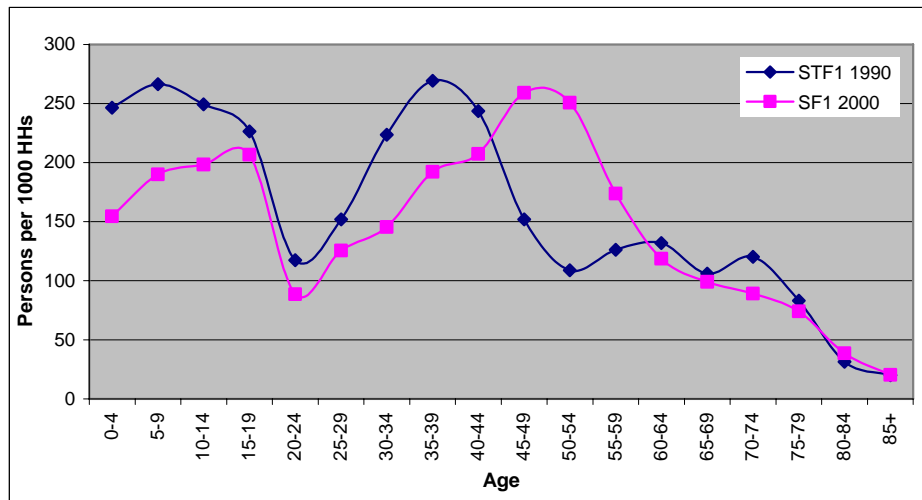
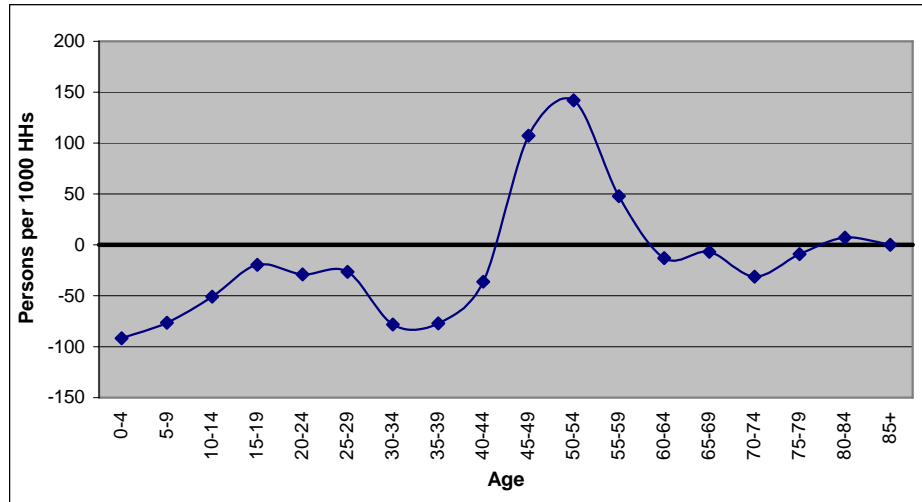


Figure 17 more clearly illustrates the change in Columbia City. The average number of persons per household remained about the same or declined during the 1990s in every age group except those between ages 45 to 59 years. Overall, Columbia City saw a net loss



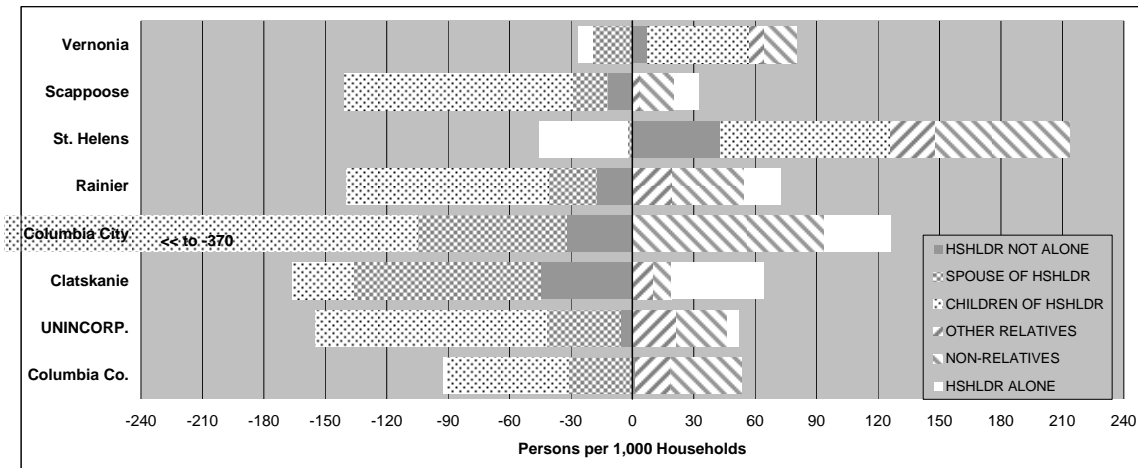
of 242 persons per 1,000 households on average during the 1990s, where average household size shrank from 2.87 to 2.63 persons – still a relatively large size.

**Figure 17. Change 1990-2000: Average Number of Persons per 1,000 Households, Columbia City**



Decomposing average household size by the relationships of persons in households, such as “householder,” “spouse of householder,” or “children of householder,” and comparing data from an earlier period to a later one, also can reveal evidence of the types of change that may continue to affect household size into the future. Figure 18 shows change between 1990 and 2000 in the average number of persons per 1,000 households – by relationship to the householder. Bars to the left of the y-axis show declines; bars to the right show increases. Cities with longer bars to the left saw average household size decline during the 90s. Most declines reflect losses in children of householders (stippled bars); most increases reflect gains in other-relatives and non-relatives (upward and downward diagonal bars). During the 1990s, Columbia City saw a net loss of about 260 children per 1,000 households, or about 1 per 4 households.

**Figure 18. Change 1990-2000: Average Number of Persons per 1,000 Households by Relationship to Householder, Columbia County & Sub-Areas**



Time series birth data can reveal whether births in a given area are trending up or down. Along with other data, more births can indicate a trend toward larger households, while fewer births can indicate a trend toward smaller ones. Although birth data were not used systematically in estimates and projections of household sizes, as available data were incomplete for Cities, they were considered in cases where major changes in household size were questionable.

Finally, housing construction by type of structure can change average household size. For example, multi-family structures typically have smaller units and hold fewer persons. If such is the case, and multi-family housing is becoming an increasingly larger share of the total housing stock, a given area has seen or will likely see a decrease in average household size. Housing data by type were assessed in the context of changes in average household size during the 1990s and subsequent changes up to year 2010.

In sum, calculations of the average change per year between 1990 and 2000 in household sizes and projections to the estimate year serve as the base sizes implemented in the 2007 calibration model. Other data described above are examined and inform decisions about household size trends. Additionally, at the county level, headship rates by age group are applied to the 2010 (and later to the 2020 and 2030) cohort-component forecasted population by age groups, which produces a forecast of households and average

household size for the county. This provides a rough target to which aggregated city and unincorporated area housing and household data should match (see Appendix E, *County Headship Rates*). Appropriate adjustments are made to the 2007 base sizes, and the 2007 adjusted base sizes are implemented in a 2008 calibration model, incrementally working up to projections for 2010.

Table 8 summarizes occupancy rates and average household sizes in 1990, 2000, and 2010 for cities, the unincorporated area, and the county as a whole.

**Table 8. 1990-2010: Occupancy Rate & Average Household Size Summary  
Columbia County & Sub-Areas**

	Clatskanie	Columbia City	Prescott	Rainier	St. Helens	Scappoose	Vernonia	UNINCORP	County-wide
<b>Occupancy Rates:</b>									
1990	92.7%	96.7%	86.7%	95.5%	96.8%	97.3%	91.4%	95.2%	95.4%
2000	91.5%	93.0%	84.8%	91.0%	92.3%	94.3%	89.7%	94.1%	93.2%
Weighted Average of 1990 & 2000	92.0%	94.3%	85.7%	93.2%	94.2%	95.5%	90.5%	94.6%	94.2%
<b>Implemented in 2010</b>	<b>94.0%</b>	<b>94.6%</b>	<b>87.9%</b>	<b>92.5%</b>	<b>93.7%</b>	<b>95.1%</b>	<b>92.5%</b>	<b>94.1%</b>	<b>94.0%</b>
<b>Average Household Size:</b>									
1990	2.49	2.87	2.42	2.60	2.48	2.73	2.77	2.77	2.68
2000	2.42	2.63	2.57	2.53	2.65	2.62	2.83	2.66	2.65
1990 to 2000 linear trend	2.34	2.38	2.72	2.46	2.82	2.51	2.88	2.55	2.61
<b>Implemented in 2010</b>	<b>2.30</b>	<b>2.55</b>	<b>2.59</b>	<b>2.46</b>	<b>2.70</b>	<b>2.57</b>	<b>2.79</b>	<b>2.53</b>	<b>2.58</b>
<i>Percentage change 2000-2010</i>	-4.6%	-3.0%	0.6%	-2.9%	2.0%	-1.9%	-1.4%	-4.8%	-2.4%

SOURCE: Population Research Center; U.S. Census Bureau Decennial Census STF1 1990, SF1 2000. See Appendix F for special information about Clatskanie, Vernonia, and unincorporated area 1990 & 2000 data.

With projections of housing stocks, occupancy rates, and household sizes in 2010, the three variables are multiplied to produce the 2010 household population forecasts for sub-areas. Adding forecasts of group quarters populations produces total populations.<sup>10</sup> Up to this point, the housing unit model remains largely independent of the county-wide cohort-component model. If results of the two models vary widely, the models are reviewed, with assumptions and data checked. This was not the case, however; only marginal adjustments were needed to reconcile the 2010 housing unit and cohort-component models.<sup>11</sup>

### ***2020 and 2030 Forecasts***

Sub-area forecasts start with detailed data and analysis, producing current population estimates and related housing and household demographics. With few additional assumptions the estimates are turned into forecasts for the year 2010. Next, forecasting ‘zooms out’ to the broader time horizon, using historical data by decade along with the forecasted 2010 data, to produce uncontrolled city population forecasts for 2020 and 2030. It is here that the sub-area forecasts and county-wide cohort-component forecast need to interact more directly.

The sum of forecasted city and unincorporated area populations need to equal the county-wide forecast (and, for planning purposes, housing and household demographics need to be forecasted and reconciled). Since the county has a larger population than individual cities, forecasts based on data for the entire county are likely to be more reliable. This is primarily why the sum of sub-area forecasts is controlled to the county forecast in the long-term, and not the other way around.

The uncontrolled 2020 and 2030 sub-area forecasts are based on analysis of historical housing unit and population growth rates, occupancy rates that are assumed to stay at a certain level, and the forecasted 2010 average household sizes. The uncontrolled sub-area forecasts are then subjected to county-wide control totals; they are scaled proportionally such that the sum of their housing unit model results equals county totals for 2020 and 2030.

For example, assume a county has only two cities, no unincorporated area – City A forecasted to have 3000 residents and City B forecasted to have 4200 residents, both forecasts based on the housing unit model. The housing unit model thus projects 7200 residents in the county. On the other hand, assume the cohort model forecasts a total of 7500 residents. To match the more reliable county figure, the city totals need to be scaled-up, which is done according to equations similar to the following:

- $3000 / (3000 + 4200) \times 7500 = \text{City A's new total, } 3,125.$

City B would undergo the same adjustment, or would simply be the residual:

- 7500 - 3125 (City A's controlled total), or 4,375.

In reality, procedures are a little more complicated – because not only do sub-area total populations need to sum to the county total, but sub-area household populations, groups quarters populations, households, and housing units need to match county totals as well. Text below expands as much as possible to elucidate the procedures. Additional information in the appendix helps to complete the picture.

First, multiplying each sub-area's housing stock forecasted in 2010 by **housing unit growth rates** produces the raw **housing stocks** in 2020. Population growth trends for each city were examined back to 1960 by decade, while housing unit growth trends, including permitted residential units by type, were examined back to 1990 in annual increments (see also Appendix D). In most cities and the unincorporated area, the 2000 to 2010 housing unit growth trend represented the most likely, 'medium' growth trend – not too fast, not too slow – in terms of historical and current trends.<sup>12</sup> In terms of a 20-year forecast horizon, the default assumption might take the average annual growth rate between 1990 and 2010 (i.e. also a 20-year period). However, in some cities, growth was either very slow or very fast during the 1990s: relying on the 1990s rate – when current and recent-historical trends are clearly different – would not likely accurately predict future growth. After 2020 totals are calculated and reconciled with county totals, the 2020 results are subjected to growth rates based on the 2010 to 2020 period, i.e. final 2010-2020 housing unit growth rates become input rates for the next period.

Housing stock totals at the county level are derived from the cohort-component household forecasts for 2020 and 2030: county-wide household forecasts are divided by the expected 94.0 percent occupancy rate, which produces total housing units.<sup>13</sup> In 2020, the raw housing unit model's results differ from the cohort-based results by only +17 units. By 2030 the difference is +973. By 2030, population aging captured by the county-wide cohort model goes unnoticed by the raw housing unit model; as a result, the difference between the two models widens and the county results control the sub-area results downward. As the population ages and mortality increases, existing units are expected to transfer ownership and cut into the market for new housing.

Next, multiplying the housing stocks forecasted in 2020 and 2030 by occupancy rates produces forecasts for **households** in 2020 and 2030. The 2020 and 2030 sub-area forecasts (raw or controlled) assume each area's **occupancy rate** will be the same as the projected 2010 county-wide occupancy rate, at 94.0 percent. Forecasting occupancy rates is difficult if not impossible for small populations. Including rates at all, regardless of whether they are the county-wide rate or a given city's rate in 2010, is mainly a practical matter of producing reasonable forecasts for households and household size – which variables will help the Cities and County plan for urban growth. In terms of historical sub-area rates, 94.0 percent is a good medium value.

Next, multiplying households forecasted in 2020 and 2030 by average household sizes produces raw **household populations** in 2020 and 2030. The input **average household sizes** are those forecasted for 2010. Forecasting average household sizes is difficult for small populations over anything other than the short to medium terms. Predictions are made for household sizes in 2010, but after that, changes are largely a result of the effects of sub-area data being controlled to county-wide household population forecasts. Some judgment is exercised over the amount of change each sub-area experiences. The overall trend at the county level is a decline in average household size, mainly due to aging of the population – under medium growth, from 2.58 persons per household in 2010, to 2.51 in 2020, and 2.46 in 2030 (high growth household sizes remain the same or are slightly larger). However, in general, places with the smallest populations and/or the smallest current average household sizes see less of a decline in average household size over the 2010 to 2030 period than places with larger populations and/or larger household sizes.

Finally, **group quarters populations**, which are forecasted separately for cities and the unincorporated area in 2020 and 2030, are added to the household population forecasts, which produce forecasts of **total population** for cities and the unincorporated area in 2020 and 2030. Appendix E discusses forecasts of group quarters populations in a little more detail; with group quarters populations being a relatively small share of sub-area populations, their treatment is rather mechanical, straight-forward, with little discretionary judgment.

## ENDNOTES

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<sup>1</sup> 2008 populations as estimated by this study, approximating PRC 2008 annual estimates. Figures from the PRC Estimates Program, which produces estimates certified by the State, were not yet completed as this study developed. As of this writing, 2008 Estimates Program figures have been released. Numbers reported in figure 8 are within a range of +2.9% (Clatskanie) and -2.1% (Scappoose) of Estimates Program numbers. County totals are the same. Differences result from different methodologies suited to the particular purposes of the Estimates Program versus the forecasts. Analyzing long term trends requires matching Census definitions and typologies as much as possible. The difference in Scappoose, for example, is probably the result of a different accounting of group quarters populations, where the Estimates Program number is higher than the number developed for this study.

<sup>2</sup> Prescott is estimated to have a population of about 75 residents (+3 since Census 2000), which is held constant throughout the 2010-2030 forecast period.

<sup>3</sup> The “2008 level” is primarily based on residential units permitted during the first half of 2008, county-wide (x2). Medium growth assumes subsequent growth through mid-2010 will remain at about that 2008 level. High growth assumes development will be more like it was before 2008 – a little above annual average growth based on units permitted between 2004-2008. Scappoose projection excludes units permitted in 2007, relying on the 2003-2006 period plus 2008; 2007 permits were 3.1 times the annual average since 2000 and treated as an outlier; projected 2009 permitted units total 77; 2000-2006 plus 2008 average is 56.

<sup>4</sup> Preliminary 2006 data for the U.S. indicates that birth rates for women in their 30s were higher than at any time since 1964. Rates for women under age 25 reached the lowest levels ever reported in 2004 (for women age 20 to 24) and 2005 (for women age 15 to 19), but increased slightly in 2006. *Births: Preliminary data for 2006*. Source: National vital statistics reports; vol. 56 no 7. National Center for Health Statistics. 2007 and *Births: Final data for 2005*. National vital statistics reports; vol. 56 no 6. National Center for Health Statistics. 2007

<sup>5</sup> *Method for Constructing Complete Annual U.S. Life Tables*. National Center for Health Statistics, Series 2, No. 129, December 1999.

<sup>6</sup> In addition to permitted residential construction, permitted demolition and replacements are considered as well. Complete demolition and replacement data were not available for this project; instead, demolition/replacement rates were calculated from 1990 and 2000 Census housing data and post-2000 PRC Estimates Program permit data, which includes subtracted units.

<sup>7</sup> Using the county-wide decline and the 5-year averages reduces the potential skewing affects of single-year outliers or inaccurate reporting of permit data for individual cities.

<sup>8</sup> The estimated housing stocks when multiplied by occupancy rates and average household sizes for sub-areas should sum to produce the PRC Estimates Program 2007 and 2008 *county-wide* estimates, which rely on well-developed methods and are considered reliable. *City* population estimates in these project-specific models are similar to, though not exactly the same as, those produced by the Estimates Program (see also endnote 1 above).

<sup>9</sup> John Bell, “Housing’s slide allows for apartment market’s rise.” *Portland Business Journal*, February 8, 2008.

<sup>10</sup> Forecasts of group quarters populations were developed at the county-wide level for 2010, 2020, and 2030, then allocated to cities assuming group quarters populations by cities as shares of the county totals would remain the same as at Census 2000. See also Appendix E.

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<sup>11</sup> The main ‘adjustment’ was to lower the middle series cohort-component forecast in 2010 from 49,011 to 48,695, a difference of -316 persons, or minus six-tenths of one percent. With more detailed, year-by-year housing data, the housing model tends to produce more accurate results in the near term; given the housing market down turn over the past 2-3 years, the cohort-component model ‘misses’ that information.

<sup>12</sup> Appendix D expands more on housing growth trends, including graphs. The high and constrained medium scenarios use alternative rates. Under medium growth, the housing unit growth rate selected for Vernonia, 0.9%, marks a special case. It is based on its 2000-2010 rate of 0.3 percent – very slow compared to its 1990 rate – *plus* planned development over the 2010-2020 period of a 67-lot subdivision approved by the Vernonia Planning Commission on 9/4/2008.

<sup>13</sup> Headship rates by age are used at the county level to forecast households, while 2020 and 2030 occupancy rates are assumed to be the same as 2010, at 94.0 percent: dividing households by the occupancy rate produces a forecast of housing units. See appendix E for more details.



## **Appendix A**

### ***County-wide Forecasts by Age Groups***

### **County-wide Forecasts by Age Group**

Tables showing historic (1990 and 2000) and forecast (2010, 2020, and 2030) populations by age group for Columbia County corresponding to each of the three forecast scenarios are included in this appendix.

Under all three scenarios, the highest growth rates are forecast for age groups 55 and older. In the low series, the age 65 and over population nearly doubles between 2000 and 2030. In the middle and high series forecasts, the 65 and over population more than doubles.

In the low series forecast, the number of children under age 18 falls in each 10 year forecast increment, due to the lower fertility assumptions as well as lower net migration of young adults in childbearing ages. The middle and high series predict that the child population will increase, but at a lower rate than total population.

**Population by Age Group, Low Series Forecast  
Columbia County, 1990 to 2030**

	1990 Census	2000 Census	2010 Forecast	2020 Forecast	2030 Forecast	2000 - 2030 Change	
						Number	Percent
Under Age 5	2,793	2,785	2,731	2,661	2,670	-115	-4%
Age 5 to 9	2,988	3,267	3,324	3,162	3,154	-113	-3%
Age 10 to 14	3,226	3,681	3,587	3,541	3,397	-284	-8%
Age 15 to 17	1,789	2,169	2,138	2,211	2,136	-33	-2%
Age 18 to 19	930	1,027	1,271	1,323	1,289	262	26%
Age 20 to 24	1,837	2,029	2,243	2,280	2,288	259	13%
Age 25 to 29	2,379	2,250	2,589	2,680	2,884	634	28%
Age 30 to 34	2,980	2,821	2,970	3,099	3,219	398	14%
Age 35 to 39	3,226	3,427	3,260	3,524	3,648	221	6%
Age 40 to 44	3,160	3,731	3,593	3,755	3,761	30	1%
Age 45 to 49	2,476	3,707	3,843	3,884	3,865	158	4%
Age 50 to 54	1,909	3,267	3,947	3,875	3,972	705	22%
Age 55 to 59	1,601	2,549	3,723	3,823	3,862	1,313	52%
Age 60 to 64	1,543	1,787	3,039	3,542	3,611	1,824	102%
Age 65 to 69	1,486	1,434	2,191	3,019	3,200	1,766	123%
Age 70 to 74	1,318	1,283	1,473	2,320	2,725	1,442	112%
Age 75 to 79	966	1,065	1,016	1,460	1,996	931	87%
Age 80 to 84	553	746	717	744	1,179	433	58%
Age 85 and over	397	535	630	530	645	110	21%
<b>Total Population</b>	<b>37,557</b>	<b>43,560</b>	<b>48,285</b>	<b>51,433</b>	<b>53,501</b>	<b>9,941</b>	<b>23%</b>
Total under 18	10,796	11,902	11,780	11,575	11,357	-545	-5%
<i>share under 18</i>	28.7%	27.3%	24.4%	22.5%	21.2%		
Total 65 plus	4,720	5,063	6,027	8,073	9,745	4,682	92%
<i>share 65 plus</i>	12.6%	11.6%	12.5%	15.7%	18.2%		

	'90-'00	'00-'10	'10-'20	'20-'30
<b>Population Change</b>	<b>6,003</b>	<b>4,725</b>	<b>3,148</b>	<b>2,068</b>
<i>Percent</i>	16%	11%	7%	4%
<i>Average Annual</i>	1.5%	1.0%	0.6%	0.4%

Source: U.S. Census Bureau, 1990 and 2000 Censuses; Portland State University Population Research Center forecasts, 2010, 2020, and 2030.

**Population by Age Group, Middle Series Forecast  
Columbia County, 1990 to 2030**

	1990 Census	2000 Census	2010 Forecast	2020 Forecast	2030 Forecast	2000 - 2030 Change	
						Number	Percent
Under Age 5	2,793	2,785	2,782	2,996	3,058	273	10%
Age 5 to 9	2,988	3,267	3,352	3,473	3,532	265	8%
Age 10 to 14	3,226	3,681	3,615	3,722	3,949	268	7%
Age 15 to 17	1,789	2,169	2,149	2,281	2,410	241	11%
Age 18 to 19	930	1,027	1,280	1,371	1,444	417	41%
Age 20 to 24	1,837	2,029	2,281	2,455	2,567	538	27%
Age 25 to 29	2,379	2,250	2,613	2,804	3,096	846	38%
Age 30 to 34	2,980	2,821	2,997	3,278	3,602	781	28%
Age 35 to 39	3,226	3,427	3,287	3,686	3,956	529	15%
Age 40 to 44	3,160	3,731	3,618	3,903	4,103	372	10%
Age 45 to 49	2,476	3,707	3,869	4,022	4,161	454	12%
Age 50 to 54	1,909	3,267	3,970	3,996	4,230	963	29%
Age 55 to 59	1,601	2,549	3,746	3,951	4,106	1,557	61%
Age 60 to 64	1,543	1,787	3,057	3,655	3,817	2,030	114%
Age 65 to 69	1,486	1,434	2,205	3,128	3,403	1,969	137%
Age 70 to 74	1,318	1,283	1,482	2,401	2,893	1,610	125%
Age 75 to 79	966	1,065	1,023	1,522	2,142	1,077	101%
Age 80 to 84	553	746	725	786	1,282	536	72%
Age 85 and over	397	535	644	595	754	219	41%
<b>Total Population</b>	<b>37,557</b>	<b>43,560</b>	<b>48,695</b>	<b>54,025</b>	<b>58,505</b>	<b>14,945</b>	<b>34%</b>
Total under 18	10,796	11,902	11,898	12,472	12,949	1,047	9%
<i>share under 18</i>	28.7%	27.3%	24.4%	23.1%	22.1%		
Total 65 plus	4,720	5,063	6,079	8,432	10,474	5,411	107%
<i>share 65 plus</i>	12.6%	11.6%	12.5%	15.6%	17.9%		

	'90-'00	'00-'10	'10-'20	'20-'30
<b>Population Change</b>	<b>6,003</b>	<b>5,135</b>	<b>5,330</b>	<b>4,480</b>
<i>Percent</i>	16%	12%	11%	8%
<i>Average Annual</i>	1.5%	1.1%	1.0%	0.8%

Source: U.S. Census Bureau, 1990 and 2000 Censuses; Portland State University Population Research Center forecasts, 2010, 2020, and 2030.

**Population by Age Group, High Series Forecast  
Columbia County, 1990 to 2030**

	1990 Census	2000 Census	2010 Forecast	2020 Forecast	2030 Forecast	2000 - 2030 Change	
						Number	Percent
Under Age 5	2,793	2,785	2,847	3,361	3,478	693	25%
Age 5 to 9	2,988	3,267	3,400	3,819	3,951	684	21%
Age 10 to 14	3,226	3,681	3,659	3,921	4,540	859	23%
Age 15 to 17	1,789	2,169	2,158	2,362	2,712	543	25%
Age 18 to 19	930	1,027	1,290	1,426	1,613	586	57%
Age 20 to 24	1,837	2,029	2,346	2,639	2,840	811	40%
Age 25 to 29	2,379	2,250	2,643	2,923	3,311	1,061	47%
Age 30 to 34	2,980	2,821	3,047	3,495	3,981	1,160	41%
Age 35 to 39	3,226	3,427	3,335	3,854	4,235	808	24%
Age 40 to 44	3,160	3,731	3,658	4,080	4,483	752	20%
Age 45 to 49	2,476	3,707	3,903	4,181	4,455	748	20%
Age 50 to 54	1,909	3,267	3,990	4,126	4,513	1,246	38%
Age 55 to 59	1,601	2,549	3,768	4,082	4,366	1,817	71%
Age 60 to 64	1,543	1,787	3,070	3,760	4,028	2,241	125%
Age 65 to 69	1,486	1,434	2,216	3,230	3,602	2,168	151%
Age 70 to 74	1,318	1,283	1,487	2,474	3,051	1,768	138%
Age 75 to 79	966	1,065	1,029	1,578	2,280	1,215	114%
Age 80 to 84	553	746	732	824	1,377	631	85%
Age 85 and over	397	535	656	657	859	324	61%
<b>Total Population</b>	<b>37,557</b>	<b>43,560</b>	<b>49,234</b>	<b>56,792</b>	<b>63,675</b>	<b>20,115</b>	<b>46%</b>
Total under 18	10,796	11,902	12,064	13,463	14,681	2,779	23%
<i>share under 18</i>	28.7%	27.3%	24.5%	23.7%	23.1%		
Total 65 plus	4,720	5,063	6,120	8,763	11,169	6,106	121%
<i>share 65 plus</i>	12.6%	11.6%	12.4%	15.4%	17.5%		

	'90-'00	'00-'10	'10-'20	'20-'30
<b>Population Change</b>	<b>6,003</b>	<b>5,674</b>	<b>7,558</b>	<b>6,883</b>
<i>Percent</i>	16%	13%	15%	12%
<i>Average Annual</i>	1.5%	1.2%	1.4%	1.2%

Source: U.S. Census Bureau, 1990 and 2000 Censuses; Portland State University Population Research Center forecasts, 2010, 2020, and 2030.

## **Appendix B**

### ***City and Unincorporated Area Medium and High Growth Forecasts, Detailed Tables***

## City and Unincorporated Area Medium and High Growth Forecasts, Detailed Data

City and unincorporated area medium and high growth forecasts are discussed in the main body of this report. Tables below provide more complete datasets.

### Medium Growth Forecast 2010-2030: Columbia County, OR Cities & Unincorporated Area

	Columbia Co.	Clatskanie	Columbia City	Prescott*	Rainier	St. Helens	Scappoose	Vernonia	UNINCORP
<b>2010 MEDIUM GROWTH</b>									
<b>Population Total</b>	<b>48,695</b>	<b>1,795</b>	<b>1,979</b>	<b>75</b>	<b>1,844</b>	<b>12,847</b>	<b>6,601</b>	<b>2,405</b>	<b>21,149</b>
<i>AAGR 2000-2010</i>	<i>1.1%</i>	<i>0.7%</i>	<i>2.3%</i>	<i>0.4%</i>	<i>0.9%</i>	<i>2.5%</i>	<i>2.8%</i>	<i>0.5%</i>	<i>-0.1%</i>
Pop. in Group Quarters	290	28	6	0	0	195	39	0	22
Pop. in Households	48,405	1,767	1,973	75	1,844	12,652	6,562	2,405	21,127
Housing Units	19,958	816	817	33	812	5,001	2,685	933	8,861
<i>AAGR 2000-2010</i>	<i>1.2%</i>	<i>0.9%</i>	<i>2.4%</i>	<i>0.0%</i>	<i>1.0%</i>	<i>2.1%</i>	<i>2.9%</i>	<i>0.3%</i>	<i>0.4%</i>
Households	18,760	767	773	29	751	4,687	2,554	863	8,336
Occupancy Rate	94.0%	94.0%	94.6%	87.9%	92.5%	93.7%	95.1%	92.5%	94.1%
Average Household Size	2.58	2.30	2.55	2.59	2.46	2.70	2.57	2.79	2.53
<b>2020 MEDIUM GROWTH</b>									
<b>Population Total</b>	<b>54,025</b>	<b>1,948</b>	<b>2,292</b>	<b>75</b>	<b>2,060</b>	<b>15,591</b>	<b>8,234</b>	<b>2,605</b>	<b>21,220</b>
<i>AAGR 2010-2020</i>	<i>1.0%</i>	<i>0.8%</i>	<i>1.5%</i>	<i>0.0%</i>	<i>1.1%</i>	<i>2.0%</i>	<i>2.2%</i>	<i>0.8%</i>	<i>0.0%</i>
Pop. in Group Quarters	350	34	7	0	0	236	47	0	26
Pop. in Households	53,675	1,914	2,285	75	2,060	15,355	8,187	2,605	21,194
Housing Units	22,744	889	994	33	897	6,170	3,493	1,020	9,248
<i>AAGR 2010-2020</i>	<i>1.3%</i>	<i>0.9%</i>	<i>2.0%</i>	<i>0.0%</i>	<i>1.0%</i>	<i>2.1%</i>	<i>2.7%</i>	<i>0.9%</i>	<i>0.4%</i>
Households	21,379	836	934	29	843	5,800	3,283	959	8,695
Occupancy Rate	94.0%	94.0%	94.0%	87.9%	94.0%	94.0%	94.0%	94.0%	94.0%
Average Household Size	2.51	2.29	2.45	2.59	2.44	2.65	2.49	2.72	2.44
<b>2030 MEDIUM GROWTH</b>									
<b>Population Total</b>	<b>58,505</b>	<b>2,058</b>	<b>2,532</b>	<b>75</b>	<b>2,210</b>	<b>17,842</b>	<b>10,022</b>	<b>2,700</b>	<b>21,066</b>
<i>AAGR 2020-2030</i>	<i>0.8%</i>	<i>0.6%</i>	<i>1.0%</i>	<i>0.0%</i>	<i>0.7%</i>	<i>1.4%</i>	<i>2.0%</i>	<i>0.4%</i>	<i>-0.1%</i>
Pop. in Group Quarters	403	39	8	0	0	271	54	0	31
Pop. in Households	58,102	2,019	2,524	75	2,210	17,571	9,968	2,700	21,035
Housing Units	25,134	943	1,105	33	969	7,332	4,327	1,096	9,329
<i>AAGR 2020-2030</i>	<i>1.0%</i>	<i>0.6%</i>	<i>1.1%</i>	<i>0.0%</i>	<i>0.8%</i>	<i>1.7%</i>	<i>2.2%</i>	<i>0.7%</i>	<i>0.1%</i>
Households	23,626	886	1,039	29	911	6,892	4,067	1,030	8,772
Occupancy Rate	94.0%	94.0%	94.0%	87.9%	94.0%	94.0%	94.0%	94.0%	94.0%
Average Household Size	2.46	2.28	2.43	2.59	2.43	2.55	2.45	2.62	2.40
<b>SHARES OF COUNTY TOTAL (Population)</b>									
<b>2010</b>	100%	3.69%	4.06%	0.15%	3.79%	26.38%	13.56%	4.94%	43.43%
<b>2020</b>	100%	3.61%	4.24%	0.14%	3.81%	28.86%	15.24%	4.82%	39.28%
<b>2030</b>	100%	3.52%	4.33%	0.13%	3.78%	30.50%	17.13%	4.61%	36.01%

SOURCE: Portland State University Population Research Center, February 2009. "AAGR" – average annual growth rate.

\* Prescott not forecasted; 2020 and 2030 figures are the same as those estimated for 2010.

## High Growth Forecast 2010-2030: Columbia County, OR Cities & Unincorporated Area

	Columbia Co.	Clatskanie	Columbia City	Prescott*	Rainier	St. Helens	Scappoose	Vernonia	UNINCORP
<b>2010 HIGH GROWTH</b>									
<b>Population Total</b>	<b>49,234</b>	<b>1,810</b>	<b>1,979</b>	<b>75</b>	<b>1,871</b>	<b>13,073</b>	<b>6,698</b>	<b>2,418</b>	<b>21,310</b>
<i>AAGR 2000-2010</i>	1.2%	0.8%	2.3%	0.4%	1.0%	2.6%	2.9%	0.5%	0.0%
Pop. in Group Quarters	292	28	6	0	0	197	39	0	22
Pop. in Households	48,942	1,782	1,973	75	1,871	12,876	6,659	2,418	21,288
Housing Units	20,133	821	817	33	823	5,079	2,724	934	8,902
<i>AAGR 2000-2010</i>	1.3%	0.9%	2.4%	0.0%	1.1%	2.3%	3.1%	0.3%	0.5%
Households	18,926	770	773	29	761	4,759	2,591	864	8,379
Occupancy Rate	94.0%	93.8%	94.6%	87.9%	92.5%	93.7%	95.1%	92.5%	94.1%
Average Household Size	2.59	2.31	2.55	2.59	2.46	2.71	2.57	2.80	2.54
<b>2020 HIGH GROWTH</b>									
<b>Population Total</b>	<b>56,807</b>	<b>2,034</b>	<b>2,398</b>	<b>75</b>	<b>2,180</b>	<b>16,457</b>	<b>8,934</b>	<b>2,787</b>	<b>21,942</b>
<i>AAGR 2010-2020</i>	1.4%	1.2%	1.9%	0.0%	1.5%	2.3%	2.9%	1.4%	0.3%
Pop. in Group Quarters	365	35	7	0	0	246	49	0	28
Pop. in Households	56,442	1,999	2,391	75	2,180	16,211	8,885	2,787	21,914
Housing Units	23,669	924	1,038	33	935	6,445	3,715	1,090	9,489
<i>AAGR 2010-2020</i>	1.6%	1.2%	2.4%	0.0%	1.3%	2.4%	3.2%	1.6%	0.6%
Households	22,249	869	976	29	879	6,058	3,492	1,025	8,921
Occupancy Rate	94.0%	94.0%	94.0%	87.9%	94.0%	94.0%	94.0%	94.0%	94.0%
Average Household Size	2.54	2.30	2.45	2.59	2.48	2.68	2.54	2.72	2.46
<b>2030 HIGH GROWTH</b>									
<b>Population Total</b>	<b>63,704</b>	<b>2,257</b>	<b>2,787</b>	<b>75</b>	<b>2,451</b>	<b>19,661</b>	<b>11,193</b>	<b>3,068</b>	<b>22,212</b>
<i>AAGR 2020-2030</i>	1.2%	1.0%	1.5%	0.0%	1.2%	1.8%	2.3%	1.0%	0.1%
Pop. in Group Quarters	431	42	9	0	0	291	57	0	33
Pop. in Households	63,273	2,215	2,778	75	2,451	19,370	11,136	3,068	22,179
Housing Units	26,966	1,023	1,217	33	1,061	7,910	4,758	1,247	9,717
<i>AAGR 2020-2030</i>	1.3%	1.0%	1.6%	0.0%	1.3%	2.1%	2.5%	1.4%	0.2%
Households	25,348	962	1,144	29	997	7,435	4,473	1,172	9,136
Occupancy Rate	94.0%	94.0%	94.0%	87.9%	94.0%	94.0%	94.0%	94.0%	94.0%
Average Household Size	2.50	2.30	2.43	2.59	2.46	2.61	2.49	2.62	2.43
<b>SHARES OF COUNTY TOTAL (Population)</b>									
<b>2010</b>	100%	3.68%	4.02%	0.15%	3.80%	26.55%	13.60%	4.91%	43.28%
<b>2020</b>	100%	3.58%	4.22%	0.13%	3.84%	28.97%	15.73%	4.91%	38.63%
<b>2030</b>	100%	3.54%	4.37%	0.12%	3.85%	30.86%	17.57%	4.82%	34.87%

SOURCE: Portland State University Population Research Center, February 2009. "AAGR" – average annual growth rate.

\* Prescott not forecasted; 2020 and 2030 figures are the same as those estimated for 2010.



## **Appendix C**

### ***City and Unincorporated Area Housing-Unit Capacity Constrained Forecast Under Medium Growth: An Illustration***

## **City and Unincorporated Area Housing Unit Capacity-Constrained Forecasts Under Medium Growth: An Illustration\***

*\*NOTE: This illustration is based on preliminary medium growth forecasts submitted for review in December, which have since been revised. Among other things, the revision includes different medium and high growth forecasts for Columbia City that consider a housing capacity limited by real-world physical constraints (the preliminary results included only a single scenario for Columbia City, for both medium and high, as well as this capacity-constrained version). The 'regular' medium growth forecasts presented below for comparison thus represent an earlier, out-dated version, while the new forecasts for Columbia City consider analysis presented below. Revised housing data for Scappoose resulted in higher forecast totals than shown below. Originally, this illustration was primarily intended to highlight constraints in Columbia City and the potential effects on the forecasts; preserving the original here preserves the additional analysis that influenced Columbia City's final forecasts, as well as related changes elsewhere.*

Based on zoning and vacant buildable lands, housing unit capacity-constrained forecasts consider the housing unit capacity cities have and whether those capacities can accommodate forecasted growth and/or will affect forecasted growth. This illustration considers limited capacities in only Columbia City and Scappoose: medium growth surpasses Columbia City's urban growth area capacity shortly after 2010 and Scappoose's incorporated capacity some time between 2020 and 2030. Note that the nature of the two places' capacities are different. Columbia City faces real-world physical constraints to development, such as being hemmed-in by the Columbia river on one side, the St. Helens urban growth area on another, limited redevelopment potential, and so forth. Scappoose can annex more territory and grow into its current UGB. Capacities in other cities are assumed to be unconstrained simply because no capacity information was collected from them or developed at PRC. As such, 'overflow' forecasted growth in Columbia City and Scappoose are proportionally distributed to the other Cities. This is not entirely a real-world scenario, but rather an illustration that should help the Cities and County think about the forecasts and related policy discussions.

Housing unit capacity figures reflect information reported in documents obtained from Columbia City and Scappoose and on PRC updates to those figures. Reported "additional capacity" figures are converted to total housing unit capacities, and total housing unit capacities are converted to total population capacities. If we had *current* estimates of additional capacity, we would simply convert them to total capacity by adding total existing housing units and then convert total units to total population. Since we only have

past estimates of capacity, we need to subtract the number of units that have been built since then, i.e. the amount of the past estimate of additional capacity that has already been used. We convert the housing capacities to populations by using 95% occupancy rates and forecasted household sizes in 2010, 2020, and 2030, and we compare the forecasted populations to the capacity populations. If forecasted populations are greater than capacity populations, forecasted populations are replaced with capacity populations and the residual (the 'overflow') is shifted to the other cities and the unincorporated area. Capacity derivations are outlined below, followed by related forecasts.

### ***Columbia City Housing Unit & Related Population Capacity***

Additional Capacity in 2001:

"The total number of housing units for the City's urban growth area is ... 214 units"  
-Cogan Owens Cogan, *Columbia City Buildable Lands Inventory and Needs Analysis, Final Report*, May 29, 2001.

Capacity used since then, mid-2001 through mid-2010: 162 housing units

Year-2010 housing unit forecast: 817 housing units

Estimated total capacity in mid-2010:  $817 + (214 - 162) = 869$  housing units

Conversions to population, 870 housing units:

@ 2010 forecasted average household size = 2.55, 95% occupancy, 6 group quarters persons: **2,117**

@ 2020 forecasted average household size = 2.45, 95% occupancy, 7 group quarters persons: **2,031**

@ 2030 forecasted average household size = 2.43, 95% occupancy, 8 group quarters persons: **2,015**

*Note: The housing unit capacity figure relevant for Columbia City might also include capacity beyond the UGB – an additional 78 housing units (Cogan Owens Cogan report cited above, page 39). Environmental & geographical constraints tend to delimit an absolute capacity threshold in the Columbia City area. As such, capacity populations in the model might include a housing unit base of  $870 + 78$ , or 948 units. In 2010, that base produces a population capacity of approximately **2,303** residents.*

### ***Scappoose Housing Unit & Related Population Capacity***

Additional Capacity in 2003:

Table V.3 Projected Residential Units on Net Buildable Land – City Limits

Total units=1,476 -The Beckendorf Associates Corp, *City of Scappoose Land Use Needs Analysis*, June 25, 2003

*Note: The total appears to be for city limits only. Urban area capacity is the relevant figure for UGB expansion; city limits capacity is the relevant figure for annexations.*

Capacity used since then, mid-2003 through mid-2010: 357 housing units

Year-2010 housing unit forecast: 2,587 housing units

Estimated total capacity in mid-2010:  $2,587 + (1,476 - 357) = 3,706$  housing units

Conversions to population, 3,710 housing units:

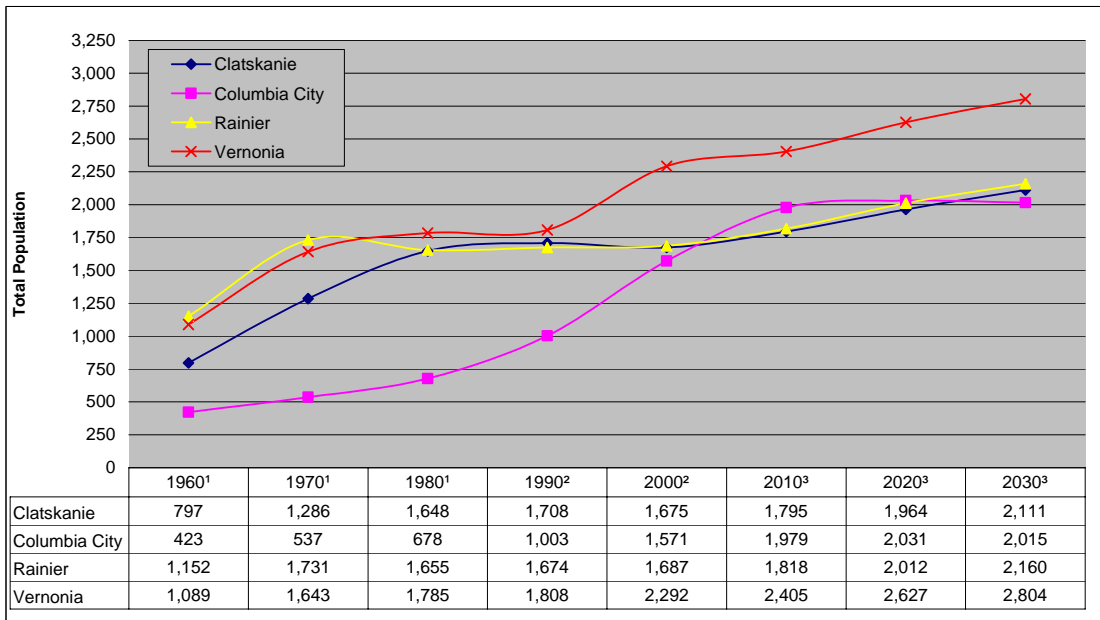
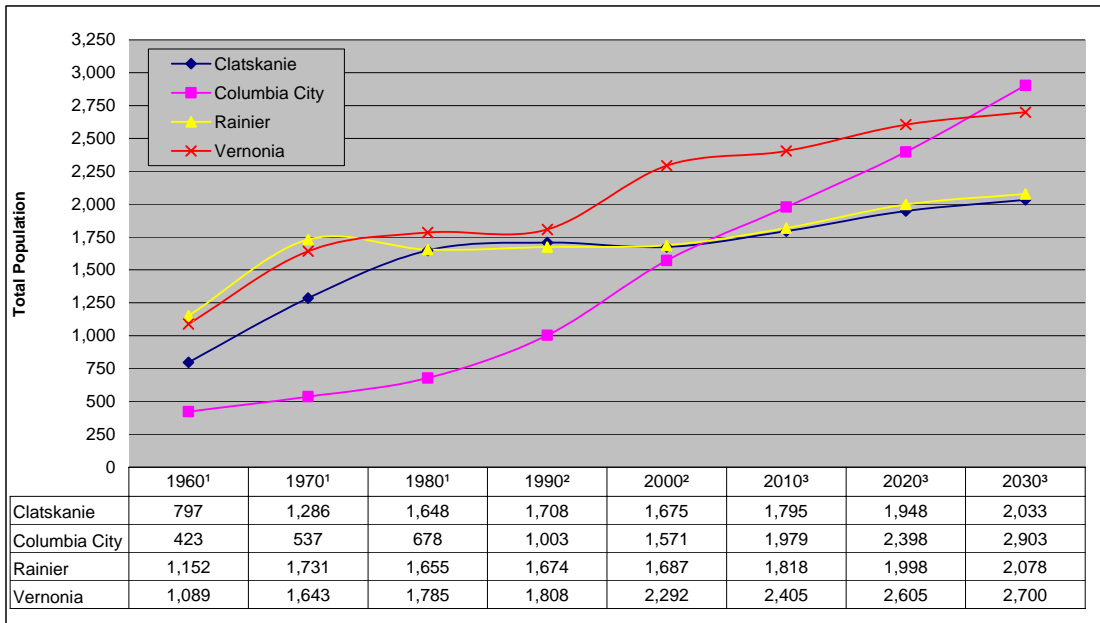
@ 2010 forecasted average household size = 2.54, 95% occupancy, 39 group quarters  
persons: **8,984**

@ 2020 forecasted average household size = 2.47, 95% occupancy, 47 group quarters  
persons: **8,747**

@ 2030 forecasted average household size = 2.43, 95% occupancy, 54 group quarters  
persons: **8,605**

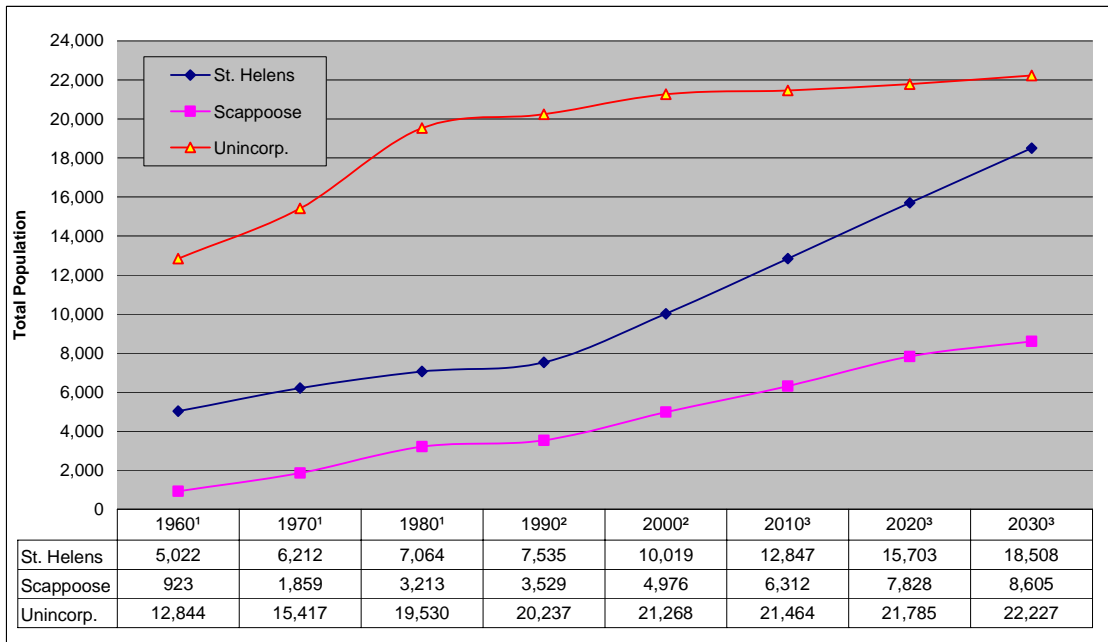
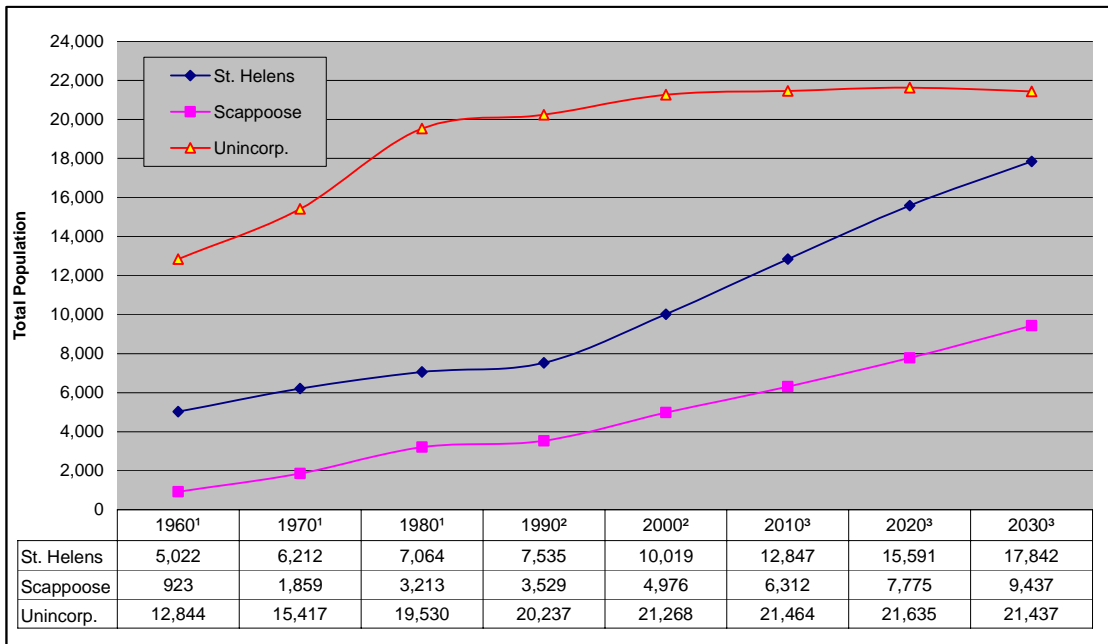
Charts on the following pages compare the ‘regular’ city and unincorporated area forecasts under medium growth to the constrained version. Overflow population is distributed to the other cities and unincorporated area in proportion to each area’s forecasted population size at the 2010, 2020, or 2030 dates. Columbia City’s forecasted population in 2020 exceeds the capacity for 2020; therefore the 2020 population capacity figure above replaces the regular medium growth forecasted population figure. Scappoose’s forecasted population in 2030 exceeds the capacity figure for 2030; therefore the 2030 population capacity figure above replaces the regular medium growth forecasted population figure. Total population beyond the two cities’ capacities is distributed to the other cities and unincorporated area – even though unmet demand for housing in one place typically would not shift evenly to other places within a large area, such as the county.

**‘Regular’, Preliminary Unconstrained Medium Growth Forecasts (TOP CHART) and Constrained Version (BOTTOM CHART), Columbia County’s Four Smaller Cities**



(1) Decennial Census 100% count (2) Decennial Census 100% count; adjusted figures for Clatskanie (1990 & 2000), Vernonia (2000), & unincorporated area (1990 & 2000), see Appendix F. (3) Preliminary forecasts, medium growth.

**‘Regular’, Preliminary Unconstrained Medium Growth Forecasts (TOP CHART) and Constrained Version (BOTTOM CHART), Columbia County’s Two Largest Cities and Unincorporated Area**



(1) Decennial Census 100% count (2) Decennial Census 100% count; adjusted figures for Clatskanie (1990 & 2000), Vernonia (2000), & unincorporated area (1990 & 2000), see Appendix F. (3) Preliminary forecasts, medium growth.

Looking at the 2020 figures, Columbia City’s total population is held to the 2020 total capacity population of 2,031, rather than reaching its unconstrained forecasted population of 2,398. The residual is distributed to the other areas. By 2030, both Columbia City and

Scappoose constraints are in effect. Columbia City's population slightly shrinks due to forecasted decline in average household size. Scappoose's total population is held to the 2030 total capacity population of 8,605 rather than reaching its unconstrained forecasted population of 9,437. Again, the residual, the overflow, is distributed to the other areas, which see gains in population relative to the regular, medium growth forecast numbers. The table below presents more detailed data for this illustration.

**Medium Growth 2010-2030, Housing Unit Capacity Considered in Columbia City and Scappoose**

	Columbia Co.	Clatskanie	Columbia City	Prescott*	Rainier	St. Helens	Scappoose	Vernonia	UNINCORP
<b>2010 CAPACITY ILLUSTRATION, MEDIUM GROWTH</b>									
<b>Population Total</b>	<b>48,695</b>	<b>1,795</b>	<b>1,979</b>	<b>75</b>	<b>1,818</b>	<b>12,847</b>	<b>6,312</b>	<b>2,405</b>	<b>21,464</b>
AAGR 2000-2010	1.1%	0.7%	2.3%	0.4%	0.7%	2.5%	2.3%	0.5%	0.1%
Pop. in Group Quarters	290	28	6	0	0	195	39	0	22
Pop. in Households	48,405	1,767	1,973	75	1,818	12,652	6,273	2,405	21,442
Housing Units	19,894	816	817	33	805	5,001	2,587	931	8,904
AAGR 2000-2010	1.2%	0.9%	2.4%	0.0%	0.9%	2.1%	2.5%	0.3%	0.5%
Households	18,760	766	773	29	750	4,686	2,472	861	8,423
Occupancy Rate	94.3%	93.9%	94.6%	87.9%	93.2%	93.7%	95.6%	92.5%	94.6%
Average Household Size	2.58	2.31	2.55	2.59	2.42	2.70	2.54	2.79	2.55
<b>2020 CAPACITY ILLUSTRATION, MEDIUM GROWTH</b>									
<b>Population Total</b>	<b>54,025</b>	<b>1,964</b>	<b>2,031</b>	<b>75</b>	<b>2,012</b>	<b>15,703</b>	<b>7,828</b>	<b>2,627</b>	<b>21,785</b>
AAGR 2010-2020	1.0%	0.9%	0.3%	0.0%	1.0%	2.0%	2.2%	0.9%	0.1%
Pop. in Group Quarters	350	34	7	0	0	236	47	0	26
Pop. in Households	53,675	1,930	2,024	75	2,012	15,467	7,781	2,627	21,759
Housing Units	22,671	895	870	33	888	6,213	3,345	1,025	9,402
AAGR 2010-2020	1.3%	0.9%	0.6%	0.0%	1.0%	2.2%	2.6%	1.0%	0.5%
Households	21,379	844	827	29	837	5,858	3,153	967	8,864
Occupancy Rate	94.3%	94.3%	95.1%	87.9%	94.3%	94.3%	94.3%	94.3%	94.3%
Average Household Size	2.51	2.29	2.45	2.59	2.40	2.64	2.47	2.72	2.45
<b>2030 CAPACITY ILLUSTRATION, MEDIUM GROWTH</b>									
<b>Population Total</b>	<b>58,505</b>	<b>2,111</b>	<b>2,015</b>	<b>75</b>	<b>2,160</b>	<b>18,508</b>	<b>8,605</b>	<b>2,804</b>	<b>22,227</b>
AAGR 2020-2030	0.8%	0.7%	-0.1%	0.0%	0.7%	1.7%	1.0%	0.7%	0.2%
Pop. in Group Quarters	403	39	8	0	0	271	54	0	31
Pop. in Households	58,102	2,072	2,007	75	2,160	18,237	8,551	2,804	22,196
Housing Units	25,054	968	870	33	966	7,609	3,710	1,112	9,786
AAGR 2020-2030	1.0%	0.8%	0.0%	0.0%	0.8%	2.0%	1.0%	0.8%	0.4%
Households	23,626	912	827	29	910	7,164	3,525	1,047	9,212
Occupancy Rate	94.3%	94.2%	95.1%	87.9%	94.2%	94.2%	95.0%	94.2%	94.1%
Average Household Size	2.46	2.27	2.43	2.59	2.37	2.55	2.43	2.68	2.41
<b>SHARES OF COUNTY TOTAL (Population)</b>									
<b>2010</b>	100%	3.69%	4.06%	0.15%	3.73%	26.38%	12.96%	4.94%	44.08%
<b>2020</b>	100%	3.63%	3.76%	0.14%	3.72%	29.06%	14.49%	4.86%	40.34%
<b>2030</b>	100%	3.60%	3.44%	0.13%	3.69%	31.63%	14.71%	4.79%	38.01%

SOURCE: Portland State University Population Research Center, November 2008. "AAGR" – average annual growth rate.  
 \* Prescott not forecasted; 2020 and 2030 figures are the same as those estimated for 2010.

## **Appendix D**

*Housing Growth Trends: Year-to-year*

*Permitted Residential Units*

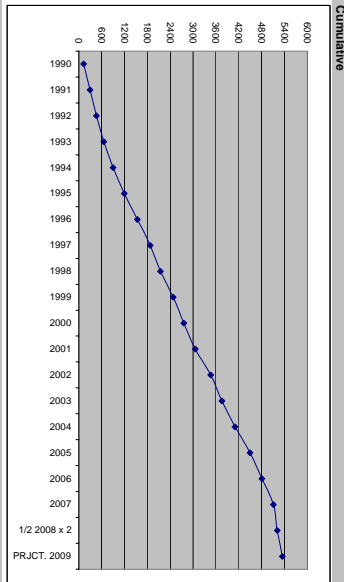
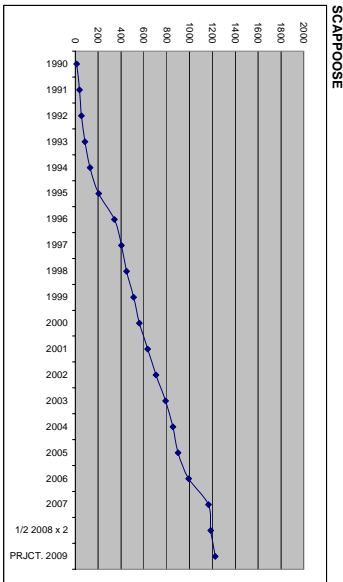
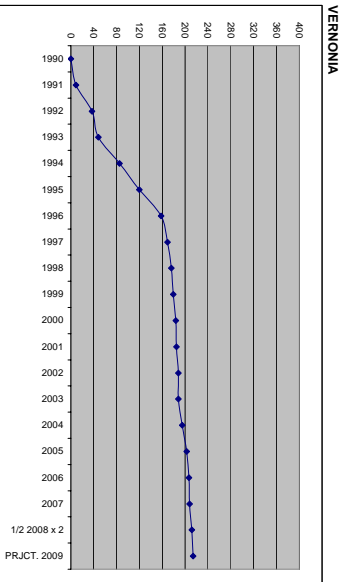
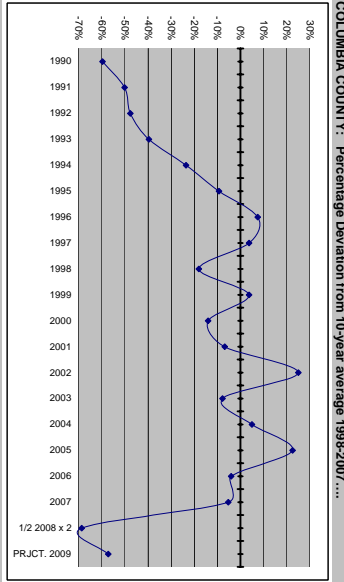
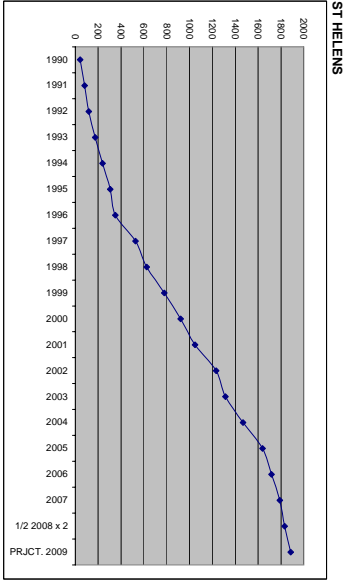
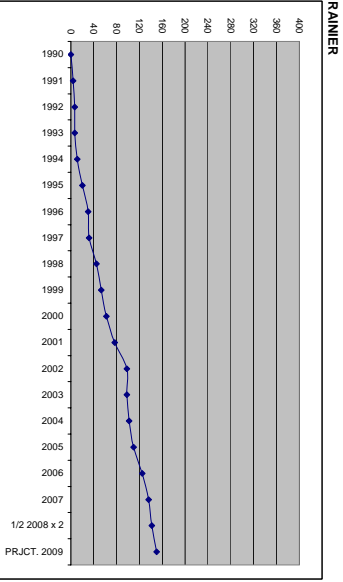
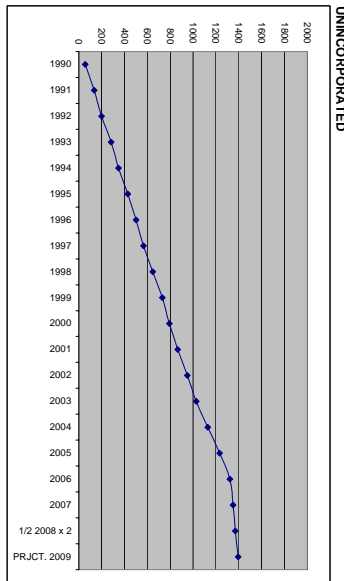
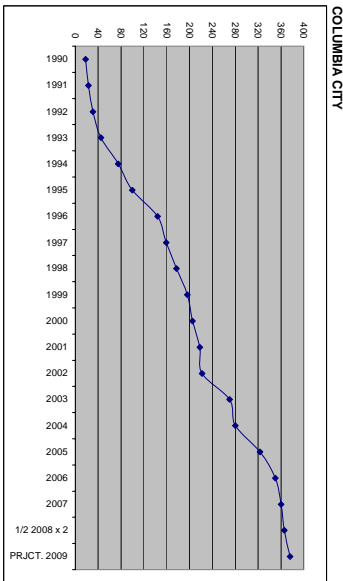
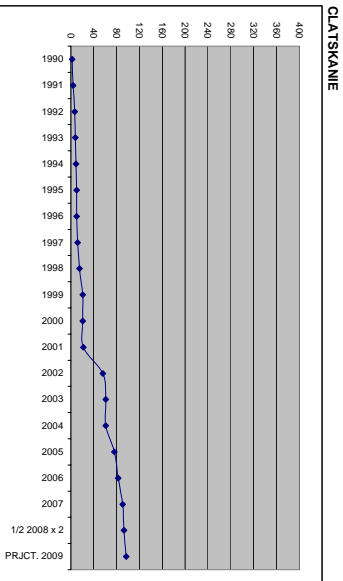


## **Housing Growth Trends: Year-to-year Permitted Residential Units**

Since housing permit data for small areas are usually more readily available on an annual, up-to-date basis than population counts, they are typically used to forecast growth in small areas, such as Columbia County cities. Housing growth rates applied to a stock at base-year produces a stock at forecast-year, while estimates/projections of occupancy rates and average household sizes produce population numbers once multiplied by the stock. City housing projections in this study primarily rely on housing growth rates during the 1990s, 2000s, or the 1990 to 2010 period, based on stocks reported at (or adjusted from, see Clatskanie and Vernonia) Census 1990 and 2000, and estimated/partially projected for 2010.

The decision to use 10- or 20-year average growth rates mainly follows from forecasts with a roughly 20-year forecast horizon, reported in 10-year increments. It is easiest to comprehend growth in the following decade, say 2010 to 2020, expressed relative to the previous decade, 2000 to 2010, or some previous decade (or perhaps growth from 2010 to 2030 expressed relative to the previous 20-year period, 1990 to 2010). Examination of year-to-year growth based on permitted residential units informed decisions about intra-decennial trends, such as whether one city or another had been growing faster or slower during recent or earlier years between the decennials.

For each city, the county, and the unincorporated area, graphs on the following page show cumulative permitted residential units from 1990 through the first half of 2008. The second half of 2008 is based on doubling what occurred during the first half (hence the label "1/2 2008 X2"). 2009 totals reflect an assumption that the number of additional units permitted in 2009 will be a little more than the number estimated for 2008 ("Prjct 2009"). An additional graph for the county shows how year-to-year permits deviate from the 10-year average between 1998-2007: it shows how permitting was slow during the early 1990s; how it fluctuated between about 1995 and 2007, with a peak in 2002; and then how it quickly declined in 2008, where permitted units are about 70% below the 10-year average.



## **Appendix E**

### ***Persons per Household by Age and County Headship Rates***

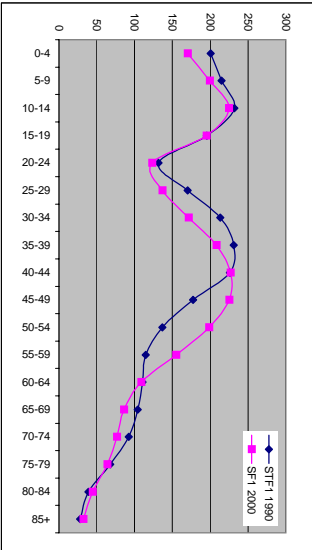
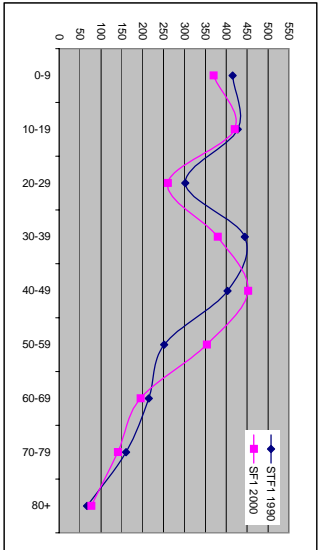
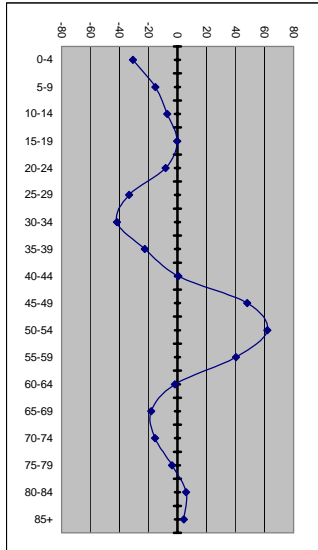
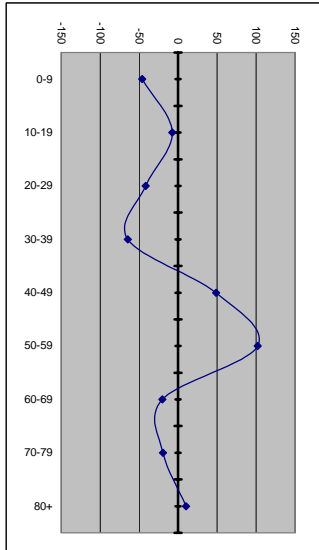
## Persons per Household by Age

Household size is closely tied to population age structure. A given area's age structure, that is, population divided into age groups and the size of those groups, carries momentum. Events such as household formation, fertility, and mortality are tied to age, and these events affect household size. For example, an area with a relatively young population age structure typically has a large average household size – because more children occupy its households. Examining city population age structure, with respect to household size, provides evidence for existing, and to some extent future, trends.

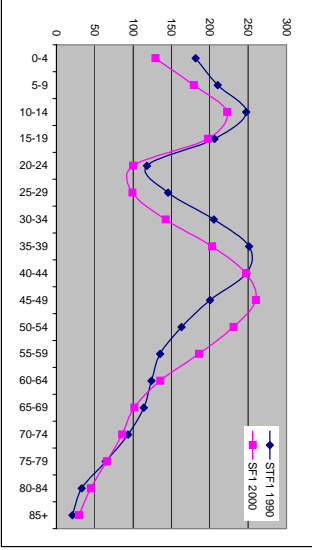
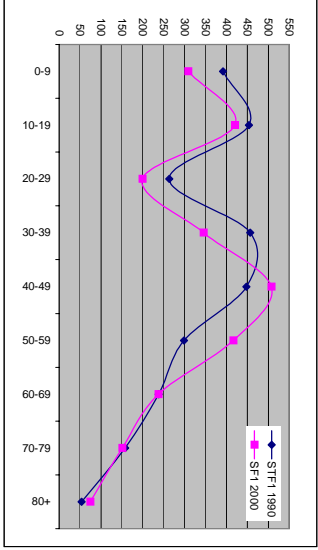
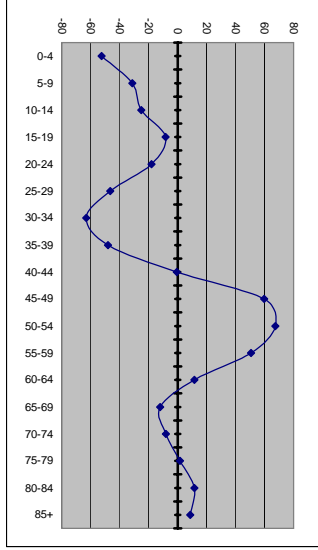
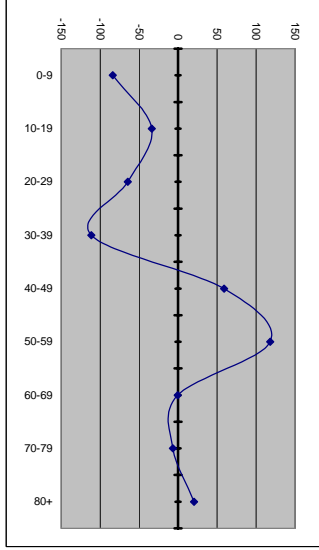
As promised in the body of the report, where Columbia City was used as an example, 1990 and 2000 graphs of persons per household by age are included here for all cities, the county, and the unincorporated area. There are four graphs for each area (see following pages). The top two show average number of persons per 1,000 households – the top one by 5-year age groups, the second one by 10-year age groups. Using the larger groups in the second graph can clarify trends for the smallest cities, which have fewer persons in each 5 year age group. Where the light pink 2000 curve is above the dark blue 1990 curve, those specific age groups contributed more to household size in 2000 than 1990. The bottom two graphs show *change* in the average number of persons per 1,000 households, by 5- and 10-year age groups. These graphs reflect the subtraction of 1990 values from 2000 values presented in the top two graphs; they provide a simpler representation of change. If a given data point is above the middle, no-change line, then the age group it represents grew between 1990 and 2000 (normalized by households).

One of the more important ways to think about the graphs is in terms of cohorts aging. For example, persons age 50-54 in 2000 were only age 40-44 in 1990. In 2010 they will be age 60-64. In general, if the family-age cohorts are growing, the population age structure carries momentum for larger households. If the older cohorts are growing, the population age structure carries momentum for smaller households. Once the age structure becomes older-old, more people die and a demographic transition becomes likely – as housing turns over to new, younger, occupants.

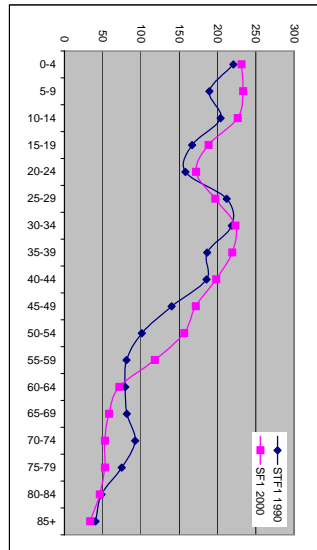
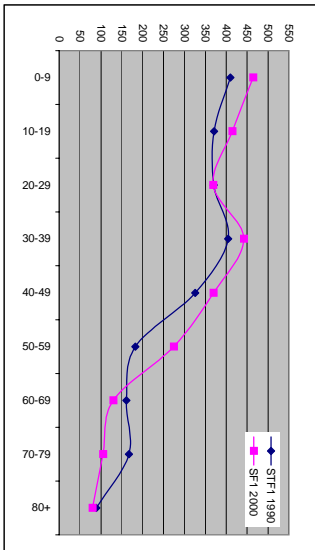
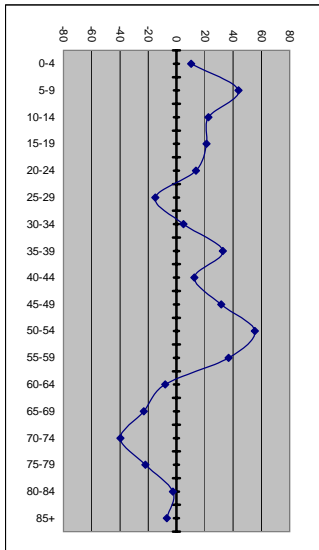
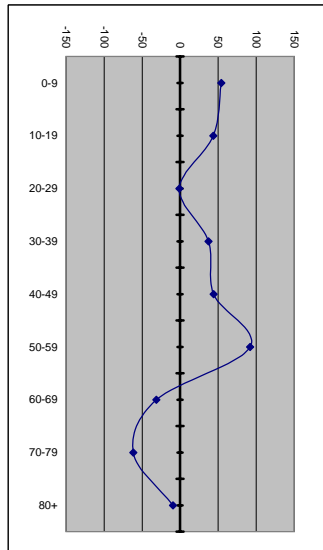
COLUMBIA COUNTY



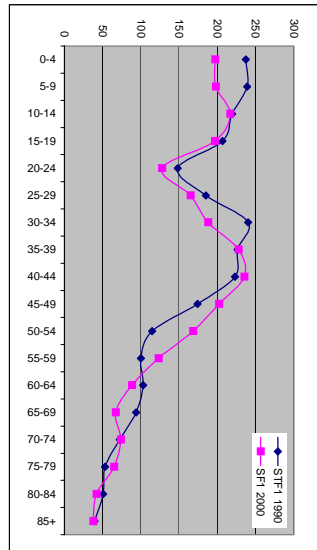
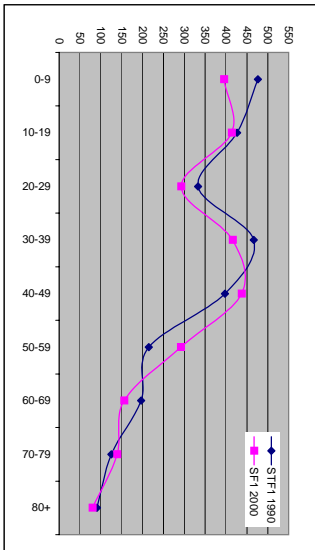
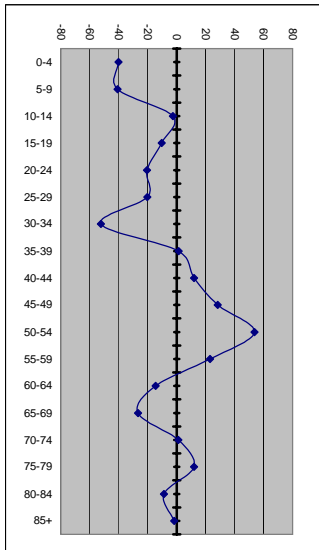
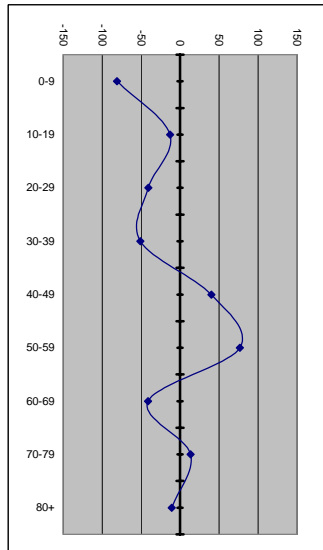
UNINCORPORATED COLUMBIA CO.



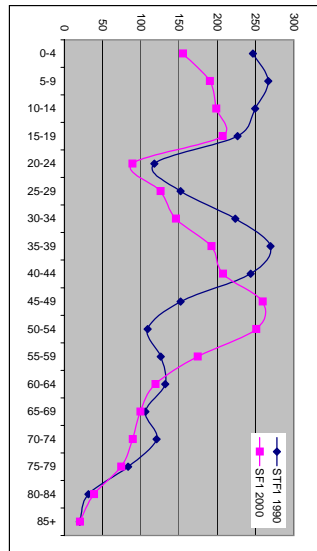
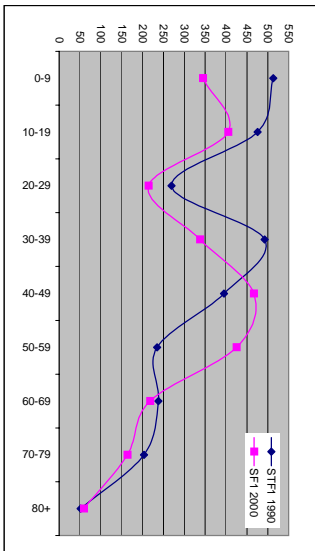
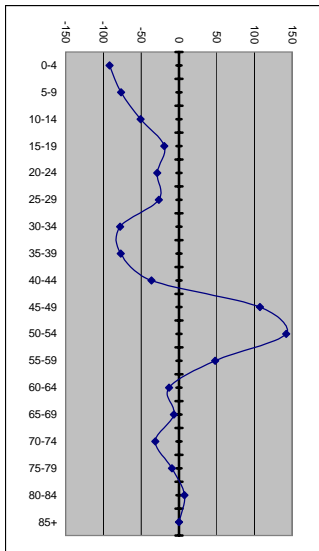
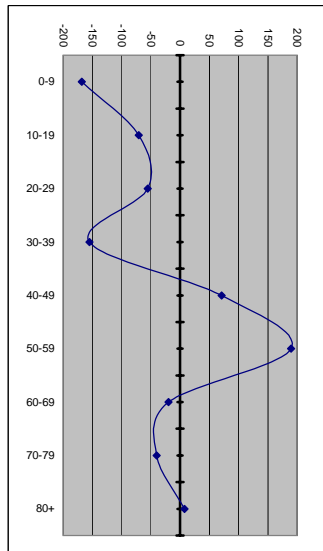
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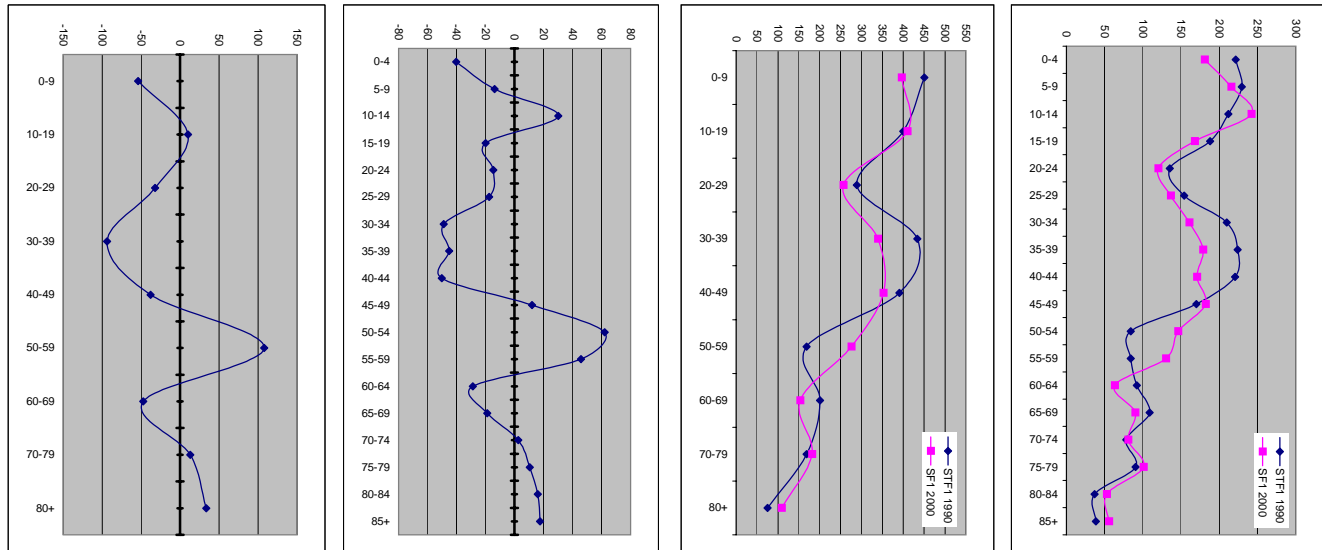
SCAPPOOSE



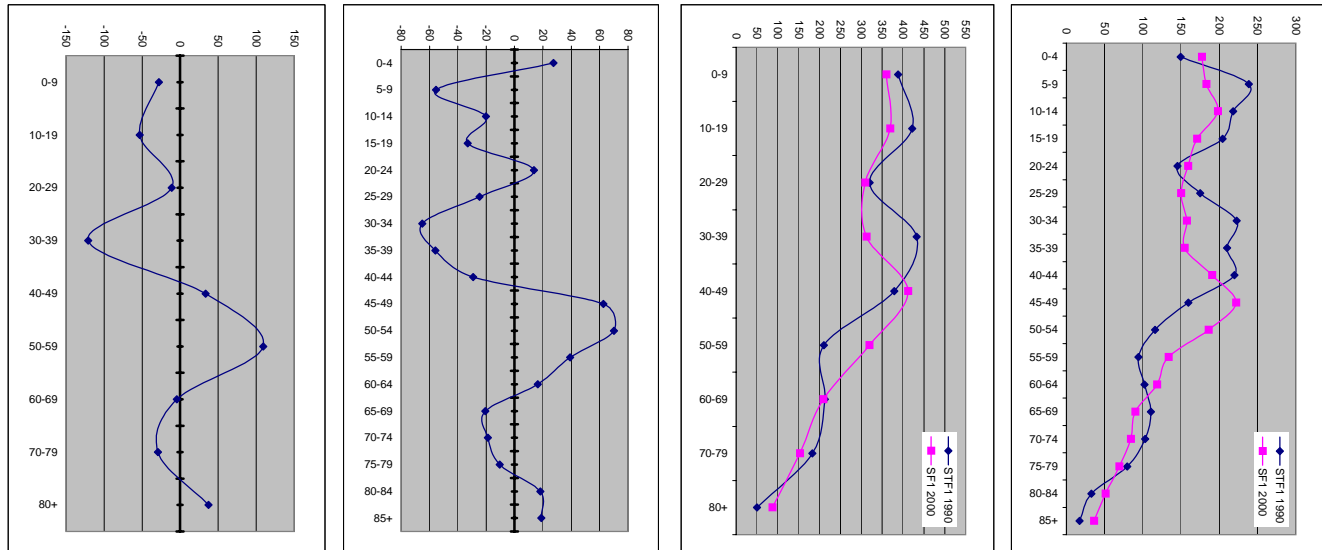
COLUMBIA CITY



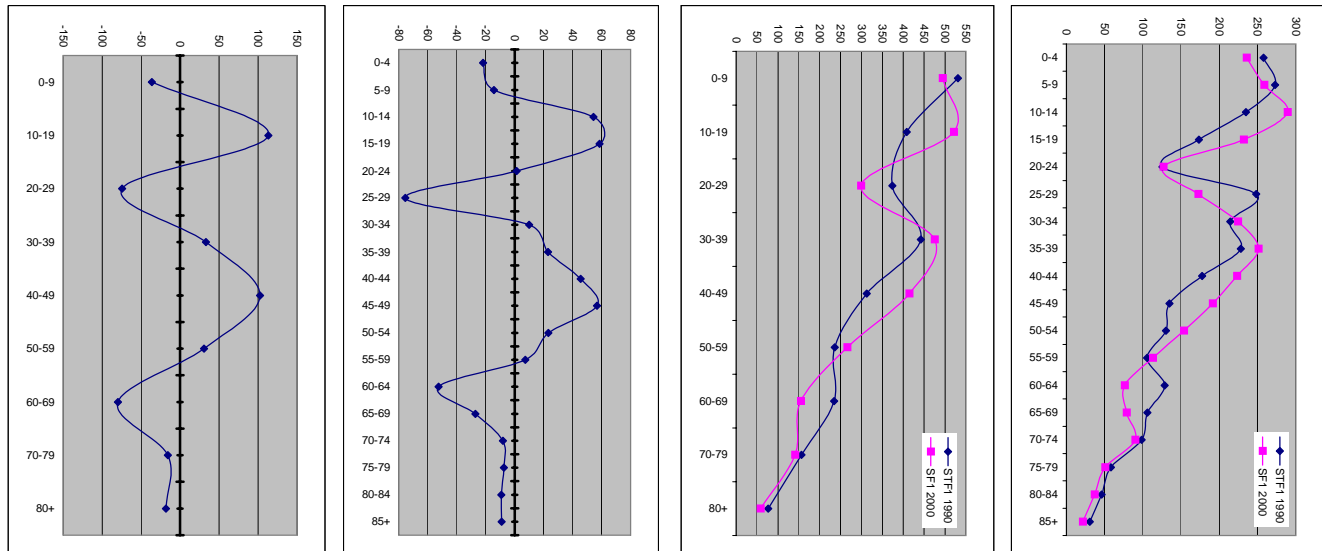
CLATSKANIE



RAINIER



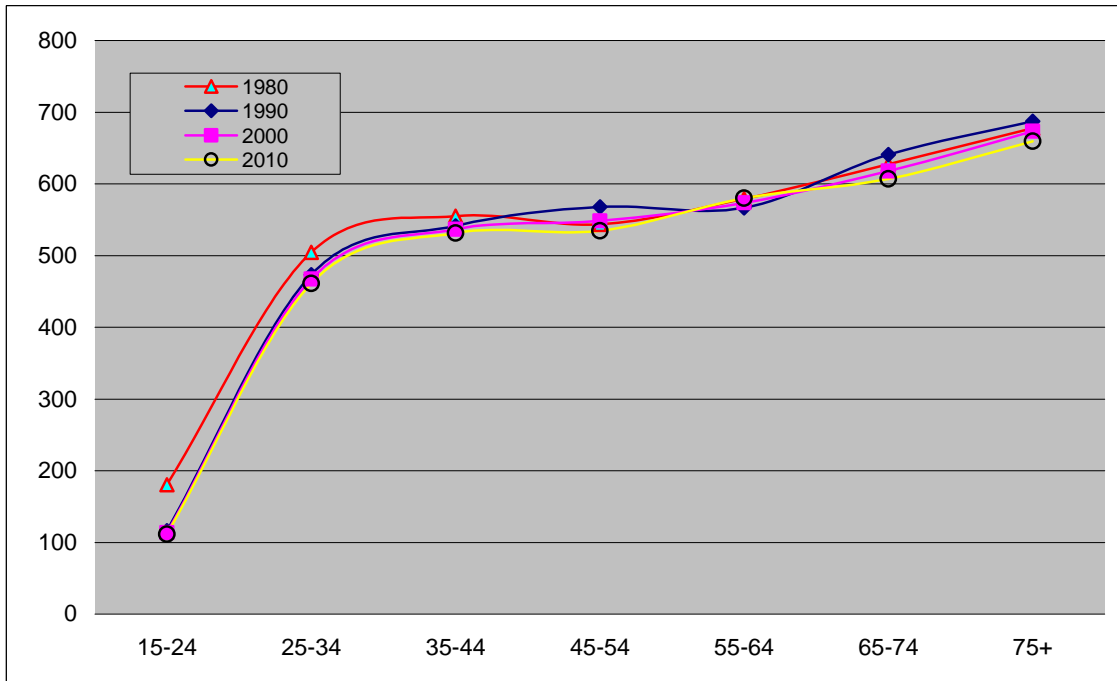
VERNONIA



## Headship Rates, Columbia County

Age-specific headship rates – the propensity for persons at different ages to form households (i.e. to become a ‘householder’) – were utilized to convert populations forecasted by the cohort-component model in 2010, 2020, and 2030 to total households. 1980, 1990, and 2000 population and household data show fairly stable rates; slight trending produced 2010 rates, which were assumed to remain the same for 2020 and 2030 household forecasts. The graph and table below show headship rates by 10-year age groups for historic decennials 1980 to 2000, and estimated for 2010. Rates are reported in number of householders (households) per 1,000 persons.

**1980-2010: Headship Rates by 10-Year Age Groups, Columbia County, OR**



AGE	1980			1990			2000			2010 Rate
	Pop.	HHldrs	Rate	Pop.	HHldrs	Rate	Pop.	HHldrs	Rate	
15-24	5,472	987	180	4,556	529	116	5,225	595	114	110
25-34	5,945	2,999	504	5,359	2,537	473	5,071	2,370	467	460
35-44	4,307	2,390	555	6,386	3,458	541	7,158	3,840	536	530
45-54	3,386	1,840	543	4,385	2,490	568	6,974	3,825	548	530
55-64	3,428	1,985	579	3,144	1,782	567	4,336	2,486	573	580
65-74	2,435	1,528	628	2,804	1,797	641	2,717	1,679	618	610
75+	1,495	1,013	678	1,916	1,317	687	2,346	1,580	673	660

SOURCE: input data U.S. Census Bureau 100% count 1980-2000; calculations Portland State University Population Research Center.



A similar method was utilized to forecast group quarters populations for the county in 2010, 2020, and 2030. These forecasts were allocated to cities and the unincorporated area based on their year-2000 shares. Subtracting forecasted group quarters populations from forecasted populations produces household populations in 2010, 2020, and 2030. Dividing forecasted household populations by forecasted households produces forecasts for average household sizes in 2010, 2020, and 2030, county-wide. Average household sizes at the county-level, primarily for 2020 and 2030 forecasts, then serve as targets to which aggregated city and unincorporated household data must match.

## **Appendix F**

### ***Adjustments Made to Clatskanie & Vernonia Census Figures***

## **Adjustments to Clatskanie and Vernonia Census Figures**

Examination of the various sources of housing stock data for Columbia County cities raised questions about the accuracy of some of the figures reported in the decennial censuses. In order to produce the most accurate forecasts, it is necessary to use data that most accurately reflects the housing stock in each city. Census figures reported in 1990 and 2000 (Clatskanie) and in 2000 (Vernonia) are not the same as those used in this study.

### ***Clatskanie***

In 1991 the City of Clatskanie asked the Population Research Center to complete an enumeration of the city's housing and population, challenging results reported in the 1990 Census (see *April 17, 1991*, attached). The City's primary contention was that a multi-family structure was not included in the Census. Census 1990 recorded a total of 677 housing units: 415 single-family detached or attached, 136 multi-family, and 126 mobile/other units. One year later, PRC enumerated a total of 734 housing units, or 57 additional units: 436 single-family detached or attached, 161 multi-family, and 137 mobile/other units. According to permitted units documented in the previous Columbia County city-county coordinated forecasts ("Urbanization, amended 7-98 and 3-00," page 75, table 21), only two units were permitted in 1990. To make accounting consistent, we subtracted those two units from the mobile/other stock to produce the final adjusted 1990 stock (PRC Estimates Program permit data documents 138 mobile/other units in 2007, and, along with other data, subtracting the 2 units from the mobile stock makes the 1990 number consistent with the 2007 one).

Unfortunately, adjustments like this can ripple through the entire dataset, making other adjustments necessary. There is a tension between conservation of the Census numbers, making as few adjustments as possible, on the one hand, and in the absence of definitive proof, making adjustments that do not penalize the jurisdiction whose numbers are being adjusted, on the other.

In the first instance, for example, with changes to Clatskanie one might ask, ‘Wouldn’t it change the county total?’ In the real-world it might. But we decided to conserve county totals and let the unincorporated area absorb any changes. With additional housing units ‘discovered’ in Clatskanie, the county total remains unchanged, but the unincorporated total shrinks, in 1990 by 55 units. In the second instance, other adjustments were needed for Clatskanie, described below.

The 1991 PRC enumeration also documents occupancy rates, household size, and total population. Faced with other figures with which the final 1990 ones must also square, the current project adopted the reported Census 1990 occupancy rates, yet the PRC-recorded household sizes, and applied those against the PRC enumerated stock to produce total household population and ultimately, total population. Census 1990 reported a total of 1,629 persons. PRC 1991 enumerated a total of 1,778 persons. The current study’s adjusted 1990 figure is 1,708 persons. The decision to utilize the mix of Census 1990 occupancy rates and PRC household sizes in part follows from the low population figure reported by Census in 2000: Given the 1991 enumeration, final adjusted figures, permitted units during the 1990s, and a conservative interpretation of household demographic shifts during the 1990s, the 2000 housing and population figures become suspect as well. The mix of Census occupancy rates and PRC household sizes produces results most consistent with final adjusted 2000 numbers, along with the other data. We suspect the same information that led Census to undercount in 1990 was utilized in 2000.

For 2000, Census reported a total of 1,528 persons and a total of 659 housing units: 449 single-family detached or attached, 122 multi-family, and 88 mobile/other units (note: unlike Census 1990, housing by type in 2000 is a sample-based variable, which means it is not as reliable). Based on the same city-county study mentioned above, which reports permitted units from 1990 to 1997; on Census Bureau residential construction permits; and on post-2000 PRC Estimates Program permits; all the permitted units would have to have been replacement units, with an extra 18 units demolished (or 75 demolished using our 1990 adjusted stock) in order for the reported Census 2000 housing stock to be correct. No such data available to us document that many demolitions/replacement units; thus we resolved that the 2000 Census figures were not correct.

Reviewing permit data and final 1990 numbers, we concluded that the 2000 single-family figure, 449 units, is correct. We concluded that the number of multi-family units in 2000 remained the same as the adjusted 1990 figure, at 161 units. And we concluded that the number of mobile/other units in 2000 must be about the same as the 1990 adjusted figure – plus the two units subtracted from the 1991 PRC enumeration figure, for a total of 137 mobile/other units (as mentioned above, the city reported a total of 138 mobiles in 2007, to the PRC Estimates Program). The final adjusted 2000 figure for the housing stock is thus a total of 747 housing units. The same procedures used to adjust the 1990 population figure were used to adjust the 2000 population figure – except Census 2000 occupancy rates *and* average household sizes were utilized – producing a total of 1,675 persons rather than 1,528 reported at Census 2000.

### ***Vernonia***

The case of adjustments to Census numbers for Vernonia is simpler than that for Clatskanie. Based on a 2006 PRC household survey (see *Results of City of Vernonia Household Survey, April 2006*, attached) and on permitted residential construction, Census 2000 total housing units was adjusted up, from 880 to 904, and total population was adjusted up, from 2,228 to 2,292. The survey's occupancy rate and average household size were used to inform decisions about likely changes during the 2000-2010 period, rather than relying solely on the 1990 and 2000 Census figures.

The 2006 PRC survey documents 923 housing units and estimates 2,340 persons, an occupancy rate of 92.9 percent, and an average household size of 2.73. Permitted units after Census 2000 through 2005, which roughly accounts for units built up to the time the 2006 survey was completed, total 24 units. 880 units at Census 2000 plus 24 permitted units post-2000 equals only 904 units: assuming the Census 2000 total housing unit count, adding permitted units after that does not produce the housing stock recorded in the 2006 PRC survey. In addition, an estimate of residential units based on U.S. Postal Service residential addresses in June 2008 (928 addresses) corroborates the year-2006 housing stock figure.

Instead of 880 housing units at Census 2000, our adjusted figure is 904 units (PRC Estimates Program documents 5 demolitions during the post-2000 period: 923 units in 2006 minus 24 permitted constructions less 5 demolitions equals 904 units in 2000). Using Census 2000 occupancy rates and average household sizes (by type), with the 904 units produces a total population of 2,292 persons (no group quarters), rather than the 2,228 recorded at Census 2000.

### ***Conclusion***

As mentioned above, upward adjustments to these Columbia County cities produce downward adjustments to the residual of [County total minus incorporated total equals unincorporated area total], that is, the unincorporated figures derived from county and city Census data will be different from the unincorporated totals derived from county and city data used in our study.

The table on the following page shows Census 1990 and 2000 figures along side this study's adjusted figures, followed by copies of the 1991 Clatskanie enumeration and the 2006 Vernonia household survey.

**Comparison of Census figures to adjusted figures used in the Columbia County,  
OR city-county coordinated forecasts, 2008**

	CLATSKANIE		VERNONIA		UNINCORP.		
	<i>Census</i>	<i>this Study</i>	<i>Census</i>	<i>this Study</i>	<i>Census</i>	<i>this Study</i>	
<b>1990</b>							
<b>TOTAL POPULATION</b>	1,629	1,708	1,808		20,316	20,237	
<b>HOUSING UNITS:</b>							
SFR-DA	415	436	609		5,261	5,240	
MFR	136	161	50		131	106	
MOBO	126	135	54		2,333	2,324	
<b>OCCUPIED:</b>							
SFR-DA	395	415	562		5,018	4,998	
MFR	132	156	45		124	100	
MOBO	100	107	45		2,209	2,202	
<b>OCCUPANCY RATES:</b>							
SFR-DA	0.952	0.952	0.923	NO DIFFERENCE	0.954	0.954	
MFR	0.971	0.971	0.900		0.947	0.941	
MOBO	0.794	0.794	0.833		0.947	0.947	
<b>HOUSEHOLD POP:</b>							
SFR-DA	1,102	1,145	1,601			14,445	14,402
MFR	274	317	93			271	228
MOBO	239	224	112			5,576	5,591
<b>AVHHSZ:</b>							
SFR-DA	2.79	2.76	2.85			2.88	2.88
MFR	2.08	2.03	2.07			2.19	2.28
MOBO	2.39	2.09	2.49		2.52	2.54	
<b>ALL:</b>							
HU	677	732	713		7,725	7,670	
OCCUPIED	627	678	652		7,351	7,300	
OCCUPANCY RATES	0.926	0.927	0.914		0.952	0.952	
HOUSEHOLD POP	1,615	1,687	1,806		20,292	20,220	
AVHHSZ	2.58	2.49	2.77		2.76	2.77	
<b>2000</b>							
<b>TOTAL POPULATION</b>	1,528	1,675	2,228	2,292	21,479	21,268	
<b>HOUSING UNITS:</b>							
SFR-DA	449	449	722	736	6,065	6,051	
MFR	122	161	59	59	259	220	
MOBO	88	137	99	109	2,269	2,210	
<b>OCCUPIED:</b>							
SFR-DA	426	426	653	665	5,716	5,703	
MFR	110	145	45	45	239	204	
MOBO	73	113	91	101	2,123	2,073	
<b>OCCUPANCY RATES:</b>							
SFR-DA	0.948	0.948	0.904	0.904	0.942	0.943	
MFR	0.900	0.900	0.759	0.759	0.924	0.929	
MOBO	0.824	0.824	0.923	0.923	0.936	0.938	
<b>HOUSEHOLD POP:</b>							
SFR-DA	1,150	1,153	1,852	1,890	15,587	15,546	
MFR	211	278	105	103	412	346	
MOBO	144	220	271	299	5,462	5,357	
<b>AVHHSZ:</b>							
SFR-DA	2.71	2.71	2.84	2.84	2.73	2.73	
MFR	1.92	1.92	2.30	2.30	1.76	1.70	
MOBO	1.95	1.95	2.97	2.97	2.57	2.58	
<b>ALL:</b>							
HU	659	747	880	904	8,593	8,481	
OCCUPIED	608	683	789	811	8,078	7,981	
OCCUPANCY RATES	0.923	0.915	0.897	0.897	0.940	0.941	
HOUSEHOLD POP	1,504	1,651	2,228	2,292	21,460	21,249	
AVHHSZ	2.47	2.42	2.82	2.83	2.66	2.66	

NOTE: SFR-DA single-family detached or attached, MFR multi-family 2 or more units, MOBO mobile/other units, may include manufactured units; AVHHSZ – average household size.

# Portland State University

P.O. Box 751, Portland, OR 97207-0751

April 17, 1991

Bill McDonald  
City Administrator  
City of Clatskanie  
P.O. Box 9  
Clatskanie, OR 97016

Dear Mr. McDonald:

Enclosed are the results of the population enumeration of the City of Clatskanie conducted by the Center for Population Research and Census in March, 1991. The results of this enumeration were certified in the March 31, 1991 Population Supplement submitted to the Secretary of State. The City contained 1778 residents and 739 housing units. The certified population submitted to the Secretary of State was 1780.

The report contains detail on population by housing unit type and by tenure (owner/renter) as well as population by age and sex. Median age in the City is estimated to be 33.7 years of age. This is only an estimate because age information was not collected for 11% of the City's residents.

The Center for Population Research and Census would like to thank you and your staff for your support during this project. Please contact me if you have any questions regarding these results.

Sincerely,



Charles Rynerson  
Center for Population Research and Census



ATTACHMENT B  
 ENUMERATION AREA SUMMARY SHEET

City: Clatskanie      County: Columbia      Date of Enumeration: March, 1991  
 Area Enumerated:      City of Clatskanie  
 Certified Population:      1780      Enumerated Population:      1778

TYPE OF UNIT	HOUSING		POPULATION			
	Occupied	Vacant	TOTAL ALL INHABITABLE UNITS	Occupancy Rate	Total Population	Average Household Size
Single Family Units	423	13	436	97.0%	1166	2.76
Multiple Family Units	151	10	161	93.8%	307	2.03
Mobile Homes	136	1	137	99.3%	284	2.09
Group Quarters	5	0	5	100.0%	21	4.20
<b>TOTAL ALL UNITS</b>	<b>715</b>	<b>24</b>	<b>739</b>	<b>96.8%</b>	<b>1778</b>	<b>2.49</b>

Attachment B (continued)  
 Clatskanie  
 March, 1991  
 page 2

Owner-Occupied Units:	442	Population:	1133
Single Family	342		
Multiple Family	2		
Mobile Homes	98		
Renter-Occupied Units:	257	Population:	600
Single Family	71		
Multiple Family	149		
Mobile Homes	37		
Unknown Tenure:	11	Population:	24
Single Family	10		
Multiple Family	0		
Mobile Homes	1		
Group Quarters Facilities:	5	Population:	21

SIZE OF HOUSEHOLD  
 (Number of households by number of persons per household)

1:	194	2:	248	3:	100	4:	103	5:	48	6:	18
7:	4	8:	0	9:	0	10:	0	11:	0	12+:	0



## Results of City of Vernonia Household Survey, April 2006

The Portland State University Population Research Center (PRC) conducted a door-to-door household survey in the City of Vernonia, Oregon, with fieldwork occurring during the period between April 19 and April 29, 2006. The survey was requested by the City in order to estimate Median Household Income, to determine the number of persons below 80% of the Portland-Vancouver Median Family Income (MFI), and to estimate the population and age distribution. The survey instrument is included in this report as Appendix A.

PRC researchers documented each housing unit in the City, and included just under half of the City's housing units in a random sample, using random numbers generated in advance of the fieldwork. In all, 432 units were sampled, of which 26 were confirmed vacant or seasonal by PRC researchers conducting the survey. Of the remaining 406 housing units, there were 307 households in which the householder responded to all of the questions in the survey. Four of these households contained an additional member who was not related to the householder and was not available to respond to the income question. There were 22 householders contacted who refused to participate in the survey. An additional 13 householders answered questions on household size and age of household members, but refused to respond to the income question. There were 64 housing units where PRC researchers could not find a householder at home after three attempts, including a weekday and a Saturday. The response is shown in Table 1 below.

Total Housing Units	923	
Sampled Housing Units	432	46.8%
Confirmed Vacant or Seasonal	26	
Attempted to contact householder	406	
Completed survey -- family income	307	75.6%
Completed survey -- household income	303	74.6%
Refused to participate	22	5.4%
Refused income question	13	3.2%
Unable to contact householder	64	15.8%

The first question in the survey was "Including yourself, how many people live in your household?" Based on responses to this question and the estimated occupancy rate for the City, 858 of the City's 923 housing units were occupied, with an estimated population of 2,340. No group quarters facilities were counted by the Census Bureau in 2000, and none were encountered by PRC researchers conducting this survey, so the group quarters population is zero. Total population estimated for the city is 2,340, as shown in Table 2 on the next page.

**Table 2**  
**Estimate of Total Population**  
**City of Vernonia**

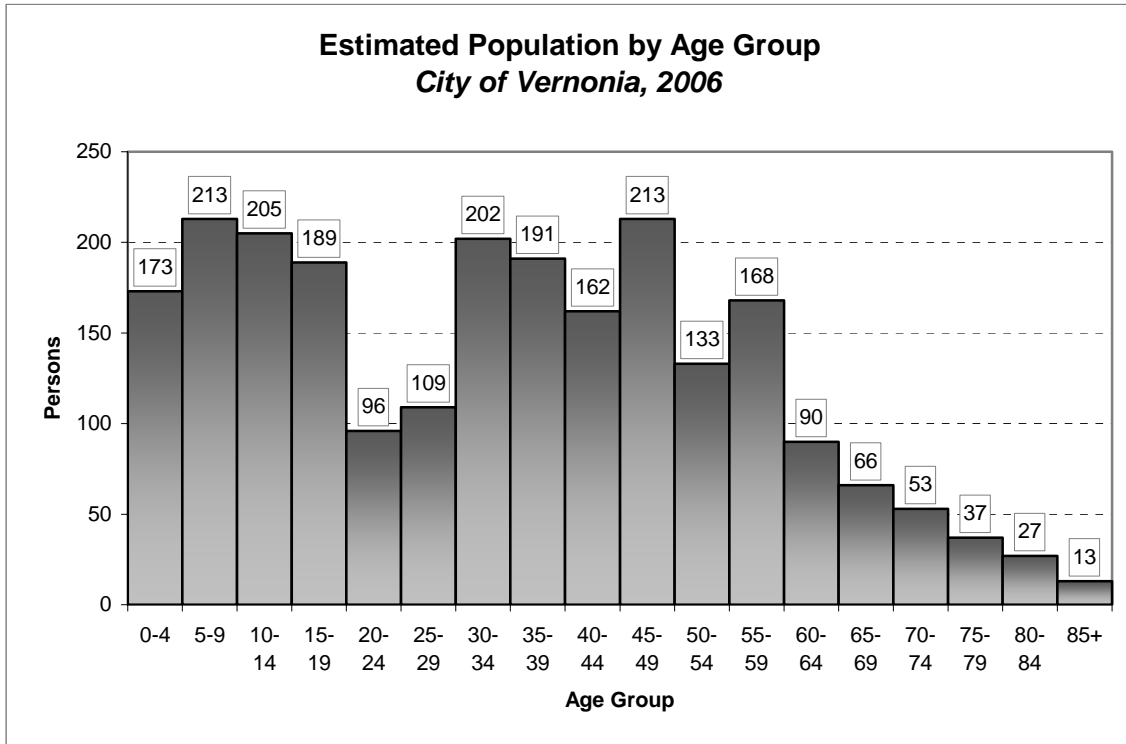
Total Housing Units	923
Average Household Size	2.73
Occupancy Rate*	92.9%
Occupied Housing Units	858
Household Population	2,340
Group Quarters Population	0
<b>Total Population</b>	<b>2,340</b>

*\*Occupancy rate estimated from households contacted and housing units confirmed vacant or seasonal; excludes units in which householder was unable to be contacted.*

The next question on the survey was “What is the age of each of the members of your household?” There were a total of 880 persons whose ages were identified by respondents. Based on the population estimate of 2,340, the estimates of population by age group are shown in Table 3 below and on the chart on the next page.

**Table 3**  
**Estimated Population by Age Group**  
**City of Vernonia**

Age Group	Population
0-4	173
5-9	213
10-14	205
15-19	189
20-24	96
25-29	109
30-34	202
35-39	191
40-44	162
45-49	213
50-54	133
55-59	168
60-64	90
65-69	66
70-74	53
75-79	37
80-84	27
85+	13
<b>Total</b>	<b>2,340</b>



Because the survey was designed to estimate *family* income in addition to *household* income, the number of household members who were related to the householder was established. In four households, the number of family members was less than the number of persons in the household. The number of family members cross tabulated by the response to the final question, “For all of the members of your family currently living in your home, what was their total income in 2005?” is shown in Table 4 on the next page.

Table 4 summarizes the number of families and single person households below the 80% of MFI income thresholds (194 of 307), and the number of persons in those 194 families and single person households (547 of 859, or 63.7%). These thresholds are from the FY 2006 income limits published by the U.S. Department of Housing and Urban Development at <http://www.huduser.org/datasets/il/il06/index.html>. A page from the document that contains the Portland-Vancouver MSA limits is included in this report as Appendix B.

**Table 4**  
**Family Income by Family Size**  
**City of Vernonia, Completed Surveys**

Family Income	Family Size							Total	
	1	2	3	4	5	6	7		8
\$38,000 or less	46	54	15	13	8	2		3	141
\$38,001 to \$43,450	4	9	4	4	5	2	1		29
\$43,451 to \$48,900	3	12	5	5	4		1		30
\$48,901 to \$54,300	3	9	4	4	2	3	1		26
\$54,301 to \$58,650		8	1	2	1	1			13
\$58,651 to \$63,000	1	6	3	2	6	1			19
\$63,001 to \$67,350		4	3		3	1			11
\$67,351 to \$71,700	4	2		3	2				11
\$71,701 or more	1	7	8	6	2	1	2		27
<b>Total families</b>	<b>62</b>	<b>111</b>	<b>43</b>	<b>39</b>	<b>33</b>	<b>11</b>	<b>5</b>	<b>3</b>	<b>307</b>
<b>Total persons</b>	<b>62</b>	<b>222</b>	<b>129</b>	<b>156</b>	<b>165</b>	<b>66</b>	<b>35</b>	<b>24</b>	<b>859</b>

**Families below low-income thresholds (80% of Portland-Vancouver, OR-WA PMSA FY 2006 MFI)**

Number	Family Size							Total	
	1	2	3	4	5	6	7		8
46	2	63	24	26	20	9	3	3	194

**Persons below low-income thresholds (80% of Portland-Vancouver, OR-WA PMSA FY 2006 MFI)**

Number	Family Size							Total	
	1	2	3	4	5	6	7		8
46	126	72	104	100	54	21	24	547	
Percent	74.2%	56.8%	55.8%	66.7%	60.6%	81.8%	60.0%	100.0%	63.7%

PRC estimated median family income for 2005 from the results of the survey, using responses from the 245 families (two or more related persons) included among the 307 completed surveys. Estimates for the number of families in the City of Vernonia by income group, and the City's median family income, are shown in Table 5 below.

**Table 5**  
**Estimated Median Family Income**  
**City of Vernonia**

<b>Families</b>	<b>685</b>
\$38,000 or less	266
\$38,001 to \$43,450	70
\$43,451 to \$48,900	75
\$48,901 to \$54,300	64
\$54,301 to \$58,650	36
\$58,651 to \$63,000	50
\$63,001 to \$67,350	31
\$67,351 to \$71,700	20
\$71,701 or more	73
<b>Median Family Income*</b>	<b>\$43,926</b>

*\* A family is two or more related persons.*

PRC estimated median household income for 2005 from the results of the survey, using responses from the 303 households for which income from all household members was reported. Estimates for the number of households in the City of Vernonia by income group, and the City's median household income, are shown in Table 6 below.

**Table 6**  
**Estimated Median Household Income**  
**City of Vernonia**

<b>Households*</b>	<b>858</b>
\$38,000 or less	394
\$38,001 to \$43,450	82
\$43,451 to \$48,900	85
\$48,901 to \$54,300	74
\$54,301 to \$58,650	31
\$58,651 to \$63,000	54
\$63,001 to \$67,350	31
\$67,351 to \$71,700	31
\$71,701 or more	76
<b>Median Household Income</b>	<b>\$40,330</b>

*\* Each occupied housing unit contains one household.*

For questions about the survey and its results, please contact the Principal Investigator, Charles Rynerson, at Portland State University, Population Research Center, (503)-725-5157, or [rynerson@pdx.edu](mailto:rynerson@pdx.edu).



APPENDIX A

# City of Vernonia Household Survey -- April, 2006

Seq. No. \_\_\_\_\_

Interviewer \_\_\_\_\_

Date/Time \_\_\_\_\_ CB \_\_\_\_\_ CB \_\_\_\_\_ CB \_\_\_\_\_

Hello:

I am a research assistant with the Population Research Center, Portland State University. We are conducting a brief survey on behalf of the City of Vernonia, assisting the city to apply for grants for community development projects. The results of the survey will be reported only in summary form, and individual responses will be kept confidential. The interview should take less than two minutes. If this is your primary residence and you are a householder, are you able to participate at this time?

Including yourself, how many people live in your household? \_\_\_\_\_

What is the age of each of the members of your household?

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_ 6. \_\_\_\_\_

How many of these are members of your family [related to you]? \_\_\_\_\_

For all of the members of your family currently living in your home, what was their total income in 2005? Please choose from the following ranges:

- |  |  |
|--|--|
| 1. <input type="checkbox"/> \$38,000 or less     | 6. <input type="checkbox"/> \$58,651 to \$63,000 |
| 2. <input type="checkbox"/> \$38,001 to \$43,450 | 7. <input type="checkbox"/> \$63,001 to \$67,350 |
| 3. <input type="checkbox"/> \$43,451 to \$48,900 | 8. <input type="checkbox"/> \$67,351 to \$71,700 |
| 4. <input type="checkbox"/> \$48,901 to \$54,300 | 9. <input type="checkbox"/> \$71,701 or more     |
| 5. <input type="checkbox"/> \$54,301 to \$58,650 |  |

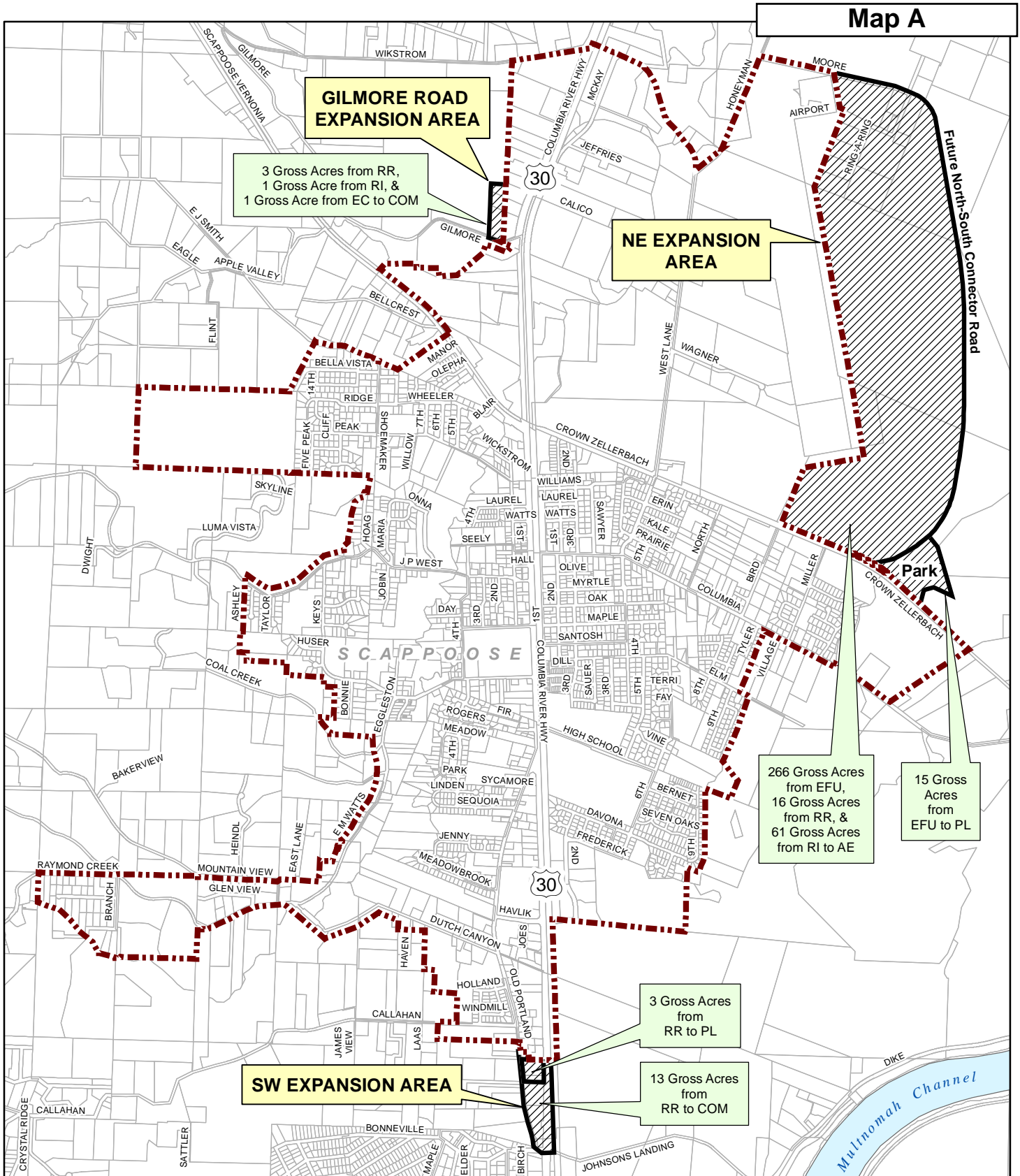
Thank you for participating. *[If you have any questions about the Population Research Center, call 503-725-3946. If you have questions for the City of Vernonia, please contact Robyn Bassett, City Administrator, at 503-429-5291].*



**POPULATION RESEARCH CENTER**  
*Population Forecasts for Columbia County Oregon,  
Its Cities & Unincorporated Area 2010-2030*

Portland State University  
Population Research Center  
Post Office Box 751  
Portland, Oregon 97207-0751  
Tel: 503.725.3922




[www.pdx.edu/prc](http://www.pdx.edu/prc)



**CITY OF SCAPPOOSE**

**Urban Growth Boundary Amendment**

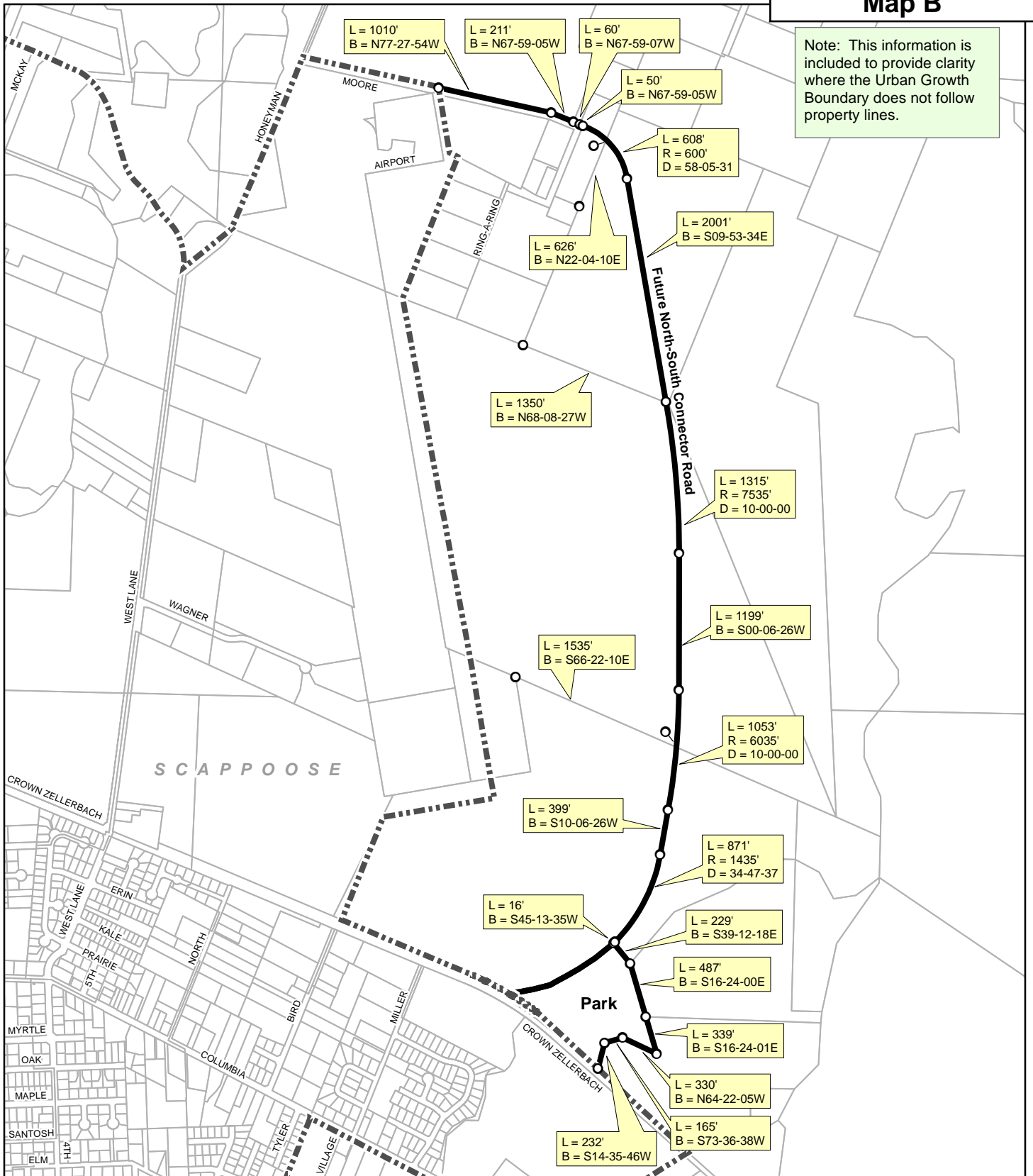
**Legend**

-  Urban Growth Boundary
-  Urban Growth Boundary Expansion
-  Tax Lot



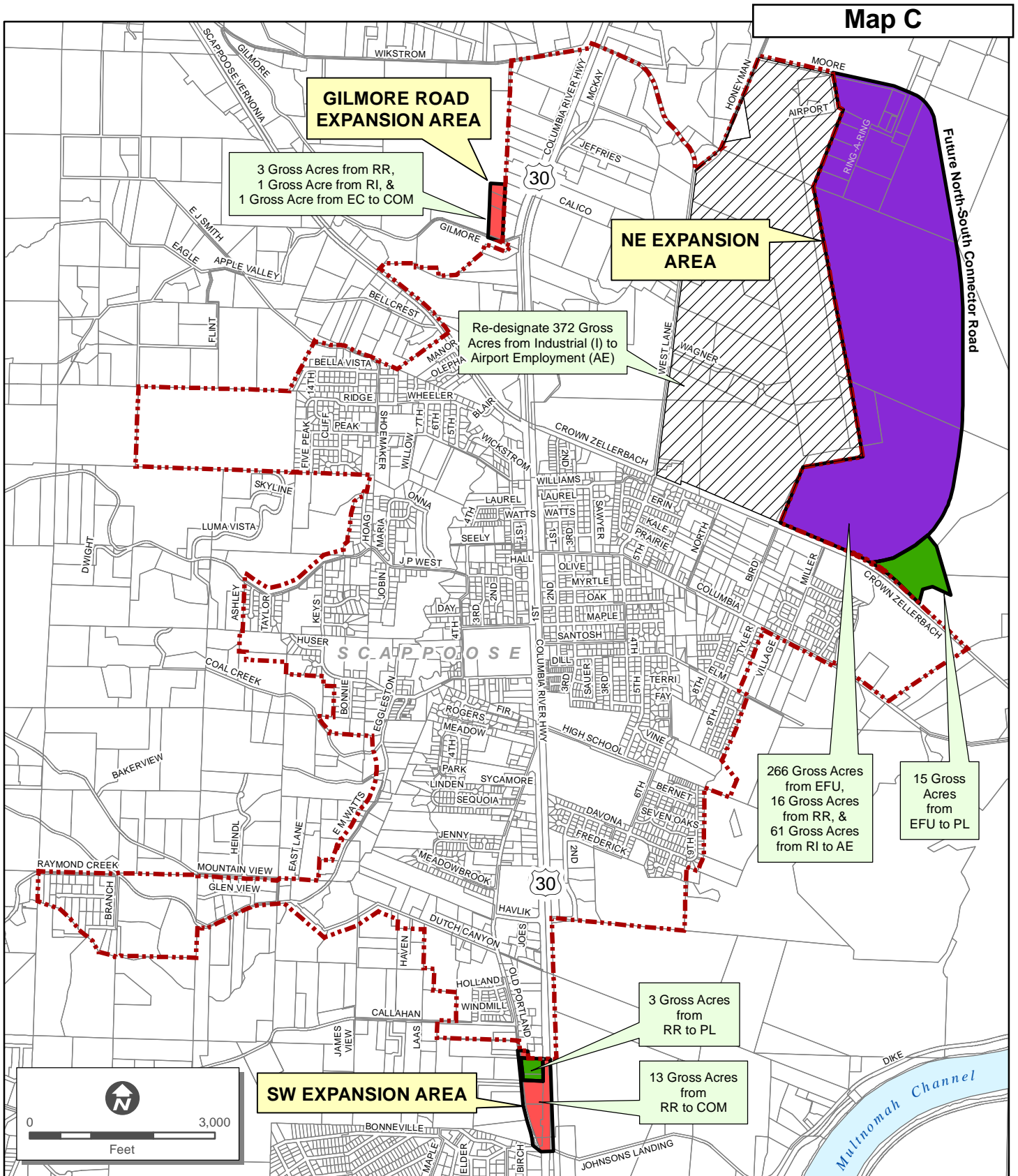
# Map B

Note: This information is included to provide clarity where the Urban Growth Boundary does not follow property lines.



## CITY OF SCAPPOOSE

### Urban Growth Boundary Amendment: Northeast Expansion Area



**CITY OF SCAPPOOSE**

**Urban Growth Boundary Amendment & Comprehensive Plan Amendment**

**Legend**

- Existing Urban Growth Boundary (UGB)
- Airport Employment within Existing UGB
- UGB Expansion
- Tax Lot

**Comprehensive Plan Designation**

- Airport Employment
- Commercial
- Public Lands



MEMORANDUM

To: Scappoose Project Team
From: Jesse Winterowd
Date: January 14, 2010
Re: Scappoose Draft Vacant and Potential Redevelopment Lands

Contents

Introduction ..... 1
Scappoose UGB Plan Designations ..... 2
Industrial Topographically-Suitable Land Supply ..... 2
Industrial Developed (Redevelopable) Land Supply ..... 3
Commercial Vacant Suitable Land Supply ..... 3
Commercial Developed Lands ..... 4
Summary ..... 4
Limitations and Refinement of Buildable Lands Information ..... 5
Map 1: Draft Commercial / Industrial Vacant Lands Map ..... 6
Data Sources ..... 7

Introduction

This memorandum presents the second draft suitable lands data and map for review and feedback. The focus of this topographically suitable<sup>1</sup> lands analysis is vacant or redevelopable land planned for Commercial or Industrial use. The initial draft has been revised in coordination with City of Scappoose planner Brian Varricchione.

This draft suitable lands analysis is a summary of “vacant” and “developed” commercial and industrial lands as defined in the Goal 9 administrative rule.

<sup>1</sup> OAR 660-009-005(12) defines "Suitable" as “serviceable land designated for industrial or other employment use that provides, or can be expected to provide the appropriate site characteristics for the proposed use.”

**OAR 660-009-005(14) defines Vacant Land as “a lot or parcel: a) Equal to or larger than one half-acre not currently containing permanent buildings or improvements; or b) Equal to or larger than five acres where less than one half-acre is occupied by permanent buildings or improvements.”**

**OAR 660-009-005(1) defines Developed Land as “non-vacant land that is likely to be redeveloped during the planning period”.**

The results are shown visually on Map 1: Draft Commercial / Industrial Developable Lands Map.

### **Scappoose UGB Plan Designations**

Table 1 shows the gross acreage (in tax lots outside of public rights-of-way) in each comprehensive plan designation in the City of Scappoose Urban Growth Boundary (UGB). As shown on Table 1, the existing UGB contains 216 gross<sup>2</sup> acres of Commercial land, 657 gross acres of Industrial land, 242 gross acres of Public land, 1,022 gross acres of Suburban Residential land, 229 gross acres of General Residential land, and 105 gross acres of Manufactured Home land. The Scappoose UGB has a total of 2,471 gross acres – or about 3.86 square miles – in tax lots. Just over a third (36%) is designated for employment uses.

**Table 1: UGB Acres by Plan Designation**

<b>Plan Designation</b>	<b>Gross Acres</b>	<b>Percent of Total</b>
Commercial	216	9%
Industrial	657	27%
Public Lands	242	10%
Suburban Residential	1,022	41%
General Residential	229	9%
Manufactured Home	105	4%
<b>Total</b>	<b>2,471</b>	<b>100%</b>

### **Industrial Topographically-Suitable Land Supply**

As shown on Table 2, analysis of tax assessor data indicates the UGB contains 5 “vacant” tax lots with the Industrial comprehensive plan designation, ranging from 2 to 60 gross topographically-suitable<sup>3</sup> acres in size. These vacant industrial tax lots total about 81 gross suitable acres. This means that approximately 12% of the City’s Industrial land supply is considered vacant and suitable for employment purposes.

<sup>2</sup> Gross acres include both suitable and constrained land (steep slopes, flood plain, wetlands, riparian area, etc). No land is removed for future right-of-way.

<sup>3</sup> Excludes floodplain and slopes over 10%.

**Table 2: Industrial Vacant Land Supply**

<b>Size</b>	<b>Number of Tax Lots</b>	<b>Total Topo-Suitable Acres</b>
1 to 5 Acres	3	9
5 to 20 Acres	1	12
20 to 40 Acres	0	0
40 Acres +	1	60
<b>Totals</b>	<b>5</b>	<b>81</b>

**Industrial Developed (Redevelopable) Land Supply**

As defined by the Goal 9 Rule, “Developed” land is non-vacant land that is likely to redevelop within the planning period. Winterbrook assumed that non-vacant Industrial tax lots 5 acres or larger, with residential or farm improvements, would qualify as likely to redevelop during the planning period.

As shown on Table 3, the UGB contains 5 “developed” (redevelopable) tax lots with the Industrial comprehensive plan designation, ranging from 7 to 30 gross topographically-suitable acres in size. These “developed” industrial tax lots total about 72 gross suitable acres. This means that approximately 11% of the City’s Industrial land supply is considered developed but likely to redevelop and potentially suitable for employment purposes.

**Table 3: Industrial Developed (Redevelopable) Land Supply**

<b>Size</b>	<b>Number of Tax Lots</b>	<b>Total Topo-Suitable Acres</b>
1 to 5 Acres	0	0
5 to 20 Acres	4	42
20 to 40 Acres	1	30
40 Acres +	0	0
<b>Totals</b>	<b>5</b>	<b>72</b>

**Commercial Vacant Suitable Land Supply**

As shown in Table 4, the UGB contains 9 vacant tax lots with a Commercial comprehensive plan designation, none over 7 gross acres in size, totaling about 26 gross acres. This means that about 12% of the City’s Commercial land supply is considered vacant or partially-vacant.

**Table 4: Commercial Vacant Land Supply**

<b>Size</b>	<b>Number of Lots</b>	<b>Total Topo-Suitable Acres</b>
1 to 5 Acres	5	7
5 to 20 Acres	3	17
20 to 50 Acres	0	0
50 Acres +	0	0
<b>Totals</b>	<b>8</b>	<b>24</b>



### **Commercial Developed Lands**

Winterbrook worked with City of Scappoose planner Brian Varricchione to identify developed commercial tax lots likely to redevelop – commercial lots currently occupied by a relatively low value house or commercial development, or lots with owners actively pursuing redevelopment. As shown in Table 5, ten small tax lots, comprising a total of 7 gross acres, were identified through this process.

**Table 5: Commercial Developed (Redevelopable) Land Supply**

<b>Size</b>	<b>Number of Lots</b>	<b>Total Topo-Suitable Acres</b>
1 to 5 Acres	10	7
5 to 20 Acres	0	0
20 to 50 Acres	0	0
50 Acres +	0	0
<b>Totals</b>	<b>10</b>	<b>7</b>

### **Summary**

As shown on Tables 6 and 7, Winterbrook identified a total of 10 Industrial tax lots comprising 153 topographically-suitable vacant and developed (redevelopable) acres, and 19 Commercial tax lots comprising 33 topographically-suitable vacant and developed (redevelopable) acres.

**Table 6: Industrial Vacant and Developed (Redevelopable) Land Supply**

<b>Size</b>	<b>Number of Tax Lots</b>	<b>Total Topo-Suitable Acres</b>
1 to 5 Acres	3	9
5 to 20 Acres	5	54
20 to 40 Acres	1	30
40 Acres +	1	60
<b>Totals</b>	<b>10</b>	<b>153</b>

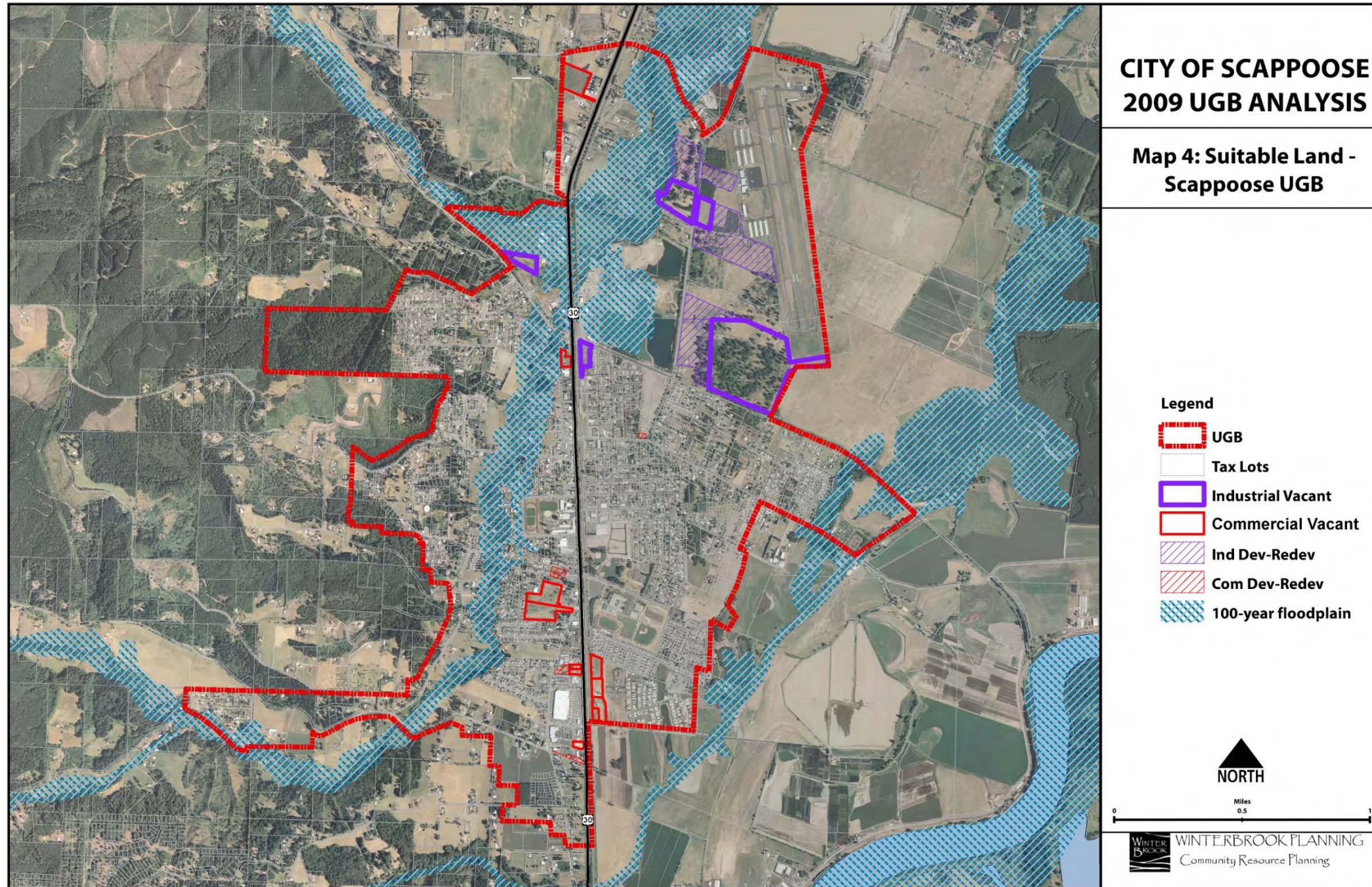
**Table 7: Commercial and Developed (Redevelopable) Land Supply**

<b>Size</b>	<b>Number of Lots</b>	<b>Total Topo-Suitable Acres</b>
1 to 5 Acres	15	14
5 to 20 Acres	3	17
20 to 50 Acres	0	0
50 Acres +	0	0
<b>Totals</b>	<b>18</b>	<b>31</b>

### **Limitations and Refinement of Buildable Lands Information**

This assessment of vacant and developed (redevelopable) employment land provides a summary of topographically-suitable employment land within the UGB. Winterbrook anticipates that feedback from City staff and the TAC will result in additional refinement.

Map 1: Draft Commercial / Industrial Suitable Lands Map



Winterbrook Planning  
310 SW Fourth Avenue, Suite 1100  
Portland, OR 97204  
503.827.4422 ■ 503.827.4350 (fax)  
jesse@winterbrookplanning.com

## **Data Sources**

- Columbia County Tax Assessor Data – Taxlots, Buildings shape files and data
- City of Scappoose – draft UGB, Comprehensive Plan shape files
- Oregon Explorer – Aerial photographic raster data

---

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**Summary of Scappoose Land Need & Supply Issues** (Winterbrook, January 12, 2010)

**Contents**

Introduction ..... 1

Section 1: Economic Opportunities Analysis (Johnson-Reid) and Suitable Sites Inventory (Winterbrook) ..... 1

Section 2: Locational Considerations:..... 3

January 2010 Ad Hoc Economic Opportunity Analysis Advisory Committee (AHEOAAC) Meeting..... 4

**Introduction**

This memo summarizes the basis for determining employment land need and supply over the 20-year planning period, and how to meet identified land deficits.

**Section 1: Economic Opportunities Analysis (Johnson-Reid) and Suitable Sites Inventory (Winterbrook)**

The draft Johnson-Reid EOA shows a need for the following employment categories. Some of the proposed employment categories have specific site size and locational requirements. All have general locational requirements identified in Section 2.

1. **Commercial (Land Need = 115 Acres).** After accounting for existing vacant commercial acres within the UGB (24 acres) and potential redevelopment (7 acres), there is an unmet need for about 84 acres. This deficit can be met in the following ways:
  - a. **Mixed Use Employment (MUE)** (office, service, limited retail) in a Business Park setting) – re-designate approximately 50 acres of Industrial land within the UGB to MUE.
  - b. **Highway Commercial / Office** shopping center with direct access to US 30 – reserve approximately 17 acres for a retail shopping center in one of two locations outside the UGB, 7 acres for a medium commercial site, and 5 acres for office uses. Total 29 acres.
  - c. **Intensification of Existing Commercial land uses** – assume approximately 5 acres of the need for commercial land will be met through intensification of existing developed areas.

2. **Airport Related Uses (Need = 144 Acres)**. Additional land is needed and should be reserved *specifically* for airport-related employment and semi-public uses.
  - a. **Airport (A)** (business park with uses that require access to airport runway and ample right-of-way) – re-designate approximately 54 acres of Industrial land within the UGB to A. [Note: this is a need *in addition to* commercial and industrial employment uses; it is important that this highly specific use be justified and that zoning protect land reserved for this use.]
  - b. **Runway Extension** (south of existing runway) – reserve approximately 50 contiguous acres outside the UGB
  - c. **Hangar Reserve** (requested by Port east of runway) – reserve approximately 40 contiguous acres outside the UGB.
3. **Industrial (Need = 215 Acres)**. **Industrial Need is identified as 130 Acres for Medium and Large Sites (one 30 and two 50-acre sites), and 85 acres for Small Sites (typically ~7 acres)**. The existing UGB has about 153 vacant suitable industrial acres. Some 104 acres are proposed for MUE and A uses (see above). The remaining 49 vacant industrial acres within the UGB are suitable for small-site industrial uses. This leaves a deficit of about 36 acres (85 acre need less 49 vacant suitable acres) for small site industrial uses.

There is also a shortage of large industrial sites within the UGB. This deficit can be met in the following ways:

- a. **Regional Large-Site Industrial** (approximately 3 large sites to accommodate uses that require sites of 30 to 50 acres) – reserve approximately 130 (one 30-acre and two 50-acre sites) acres outside the UGB. A new large-site industrial overlay district will be required to protect land for these large-site industrial uses.
  - b. **Small site industrial** (approximately 5-6 small sites to accommodate a need for 36 acres of small site industrial).
4. **Institutional** (Need = 20 acres). Portland Community College – approximately 20 acres – may need to be met outside the UGB.

**TOTAL UNMET EMPLOYMENT NEED = 305 ACRES WITH REQUIRED SITE CHARACTERISTICS**

LAND USE	IDENTIFIED NEED	SUPPLY INSIDE UGB	REDESIGNATE TO MEET NEED INSIDE UGB	ADDITIONS TO MEET NEED OUTSIDE UGB
Commercial	115 Acres	31 Acres (+5 Acres Intensification)	50 Acres MUE (from Industrial)	29 Acres Highway Com/Office
Airport Related	144 Acres	0 Acres	54 Acres A (from Industrial)	50 Acres Runway Ext. 40 Acres Hangars
Industrial	215 Acres	49 Acres (After MUE and A changes)	0 Acres	130 Acres (2 X 50+ acre sites and 1 X 30-acre site) 36 Acres (Smaller Sites ~2-10 acres)
Institutional	20 Acres	0 Acres	0 Acres	20 Acres (PCC Site)
<b>Total</b>	<b>494 Acres</b>	<b>80 Acres (+5 Acres Com Intensification)</b>	<b>104 Acres (from Industrial inside UGB)</b>	<b>305 Acres</b>

**Section 2: Locational Considerations:**

In addition to meeting the specific locational requirements listed above, *all* employment uses require the following site characteristics:

5. **Topography:** sites must be
  - a. **Flat** (< 10% slope)
  - b. **Suitable** (free of wetlands, floodplains and riparian constraints)
6. **Proximity:** in addition to proximity requirements listed in Section 1, employment sites must have direct access to an existing or planned collector street without driving through established or planned residential areas
7. **Site Size and Configuration:** site must be large enough and appropriately shaped to accommodate efficiently planned large site users and development types
8. **Compatibility:** sites must not abut urban residential areas on more than one side and must include sufficient land, natural or artificial features to provide effective buffers
9. **Serviceability:** sites must be serviceable in the short- to intermediate-term (within 5-10 years) with transportation, sanitary sewer, water, and storm drainage facilities. Electric service is an important consideration for many targeted industrial firms.
10. **Agricultural Land Impacts:** as required by ORS 197.298 Priorities for urban growth boundary expansion and Goal 14 (Urbanization) location criterion 4 (agricultural land compatibility) sites must have:

- a. **Relatively poor agricultural soils** (we have determined that rural exception areas do not have required parcel size, topographical and proximity characteristics required to meet identified needs)
- b. **Natural or artificial boundaries from adjacent agricultural land** (such as arterial roads, rural exception areas, or riparian corridors)

### **January 2010 Ad Hoc Economic Opportunity Analysis Advisory Committee (AHEOAAC) Meeting**

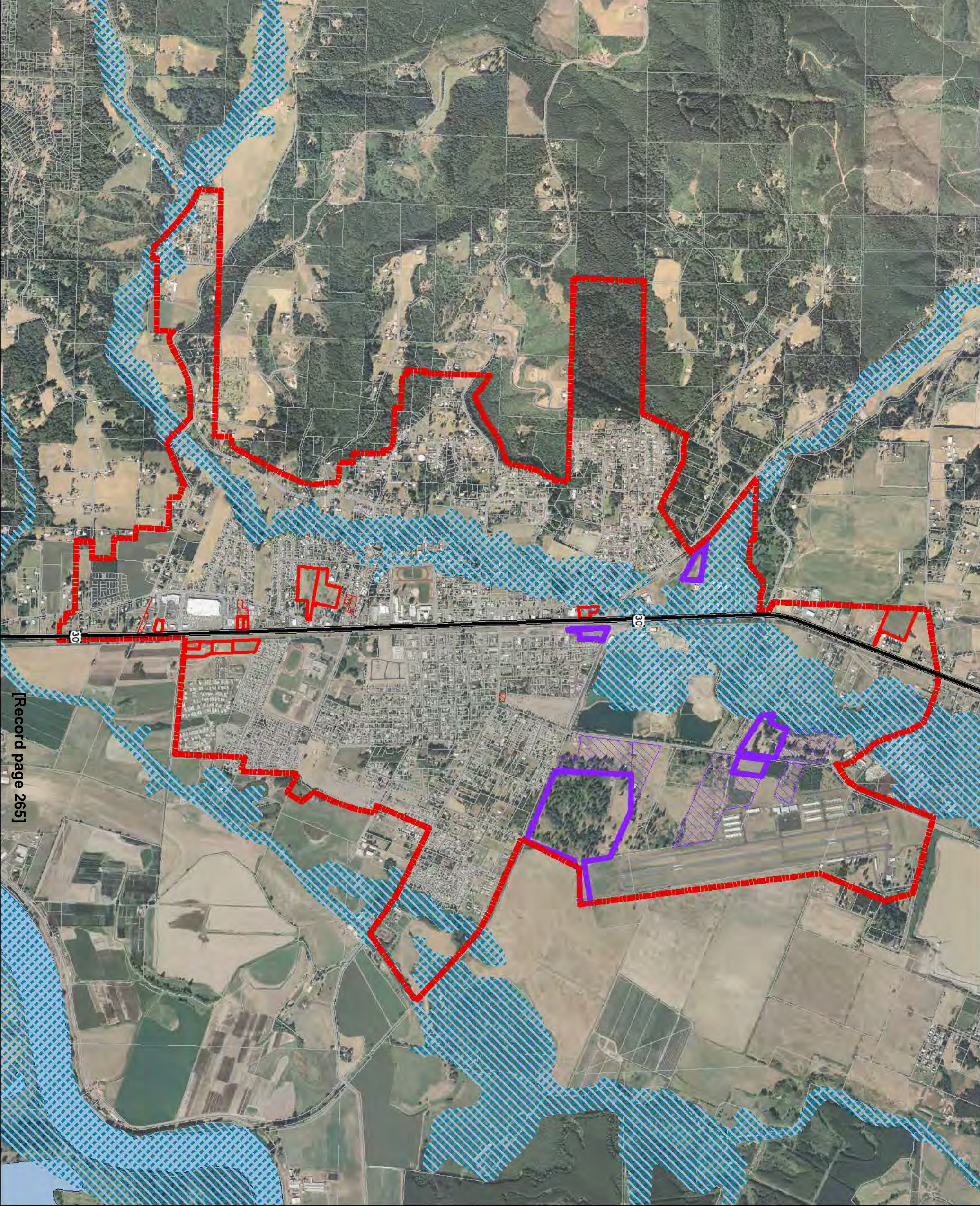
The fifth Scappoose AHEOAAC meeting is scheduled for January 26<sup>th</sup>, 2010. The following draft documents must be reviewed by City, Business Oregon, the Department of Land Conservation and Development (DLCD), and the Governor's Economic Revitalization Team (ERT) staff prior to being finalized and forwarded to the AHEOAAC at least a week in advance of the scheduled meeting.

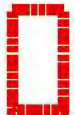






- Draft *Scappoose Economic Opportunities Analysis* (Johnson-Reid 2010) including:
  - Targeted Employment Types, Development Forms, and Site Requirements (Johnson-Reid/Winterbrook 2010)
  - Draft Scappoose Suitable Employment Sites Inventory with GIS maps (Winterbrook 2010)
  - Comparison of Employment Site Needs and Supply (Winterbrook 2010)

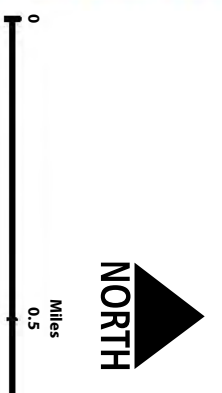


# CITY OF SCAPPOOSE 2009 UGB ANALYSIS

## Map 4: Suitable Land - Scappoose UGB



- Legend**
-  UGB
  -  Tax Lots
  -  Industrial Vacant
  -  Commercial Vacant
  -  Ind Dev-Redev
  -  Com Dev-Redev
  -  100-year floodplain





## MEMORANDUM

To: Scappoose EOA Advisory Committee  
 From: Jesse Winterowd  
 Date: May 7, 2010  
 Re: **Scappoose UGB Alternatives Recommendation**

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### INTRODUCTION AND BACKGROUND

The Scappoose Ad Hoc Economic Opportunity Analysis Advisory Committee (Committee) was formed in July 2008 for the purpose of reviewing the Economic Opportunities Analysis (EOA) and advising the Scappoose Planning Commission and City Council on the need to add land into Scappoose's Urban Growth Boundary (UGB).<sup>1</sup>

The *Economic Opportunities Analysis* (EOA)<sup>2</sup> identified a 20-year need for employment lands. The *Scappoose Draft Vacant and Redevelopable Lands Memorandum*<sup>3</sup> indicated that the land supply within the current UGB was not sufficient to meet the employment needs identified in the EOA.

<sup>1</sup> See Resolution No. 08-10, Section 2: Responsibility.

<sup>2</sup> Johnson-Reid, revised February 2010

<sup>3</sup> Winterbrook memorandum, revised January 2010.

The general purpose of this memorandum is to:

- a) Provide background key findings in the overall EOA and Ad Hoc Committee process;
- b) Identify relevant and updated documents in the Committee packet;
- c) Explain the types of employment needs identified in the EOA and their requirements;
- d) Provide a summary of land characteristics relevant to the analysis; and
- e) Review potential Urban Growth Boundary (UGB) expansion alternatives for the identified unmet employment land needs. This analysis will primarily rely on UGB expansion priorities provided by state law (ORS 197.298) and Goal 14 (UGB Administrative Rule (OAR 660-024).

Also informing this memorandum are memoranda dated March 23, 2010 from Johnson-Reid, DKS, and Otak, relating to a distribution center site, transportation impacts, and public facility feasibility respectively.

### **Committee Meetings**

The Committee has met six times. The meeting results are summarized below:

#### **Meeting 1: December 8, 2008.**

- Introductions of Committee members.
- Discussion of EOA process by Cheri Davis and Tom Hogue.
- Preliminary review of City zoning and infrastructure.

#### **Meeting 2: February 24, 2009.**

- More specific outline of EOA process, tasks, and timeframe by Greg Winterowd.
- Importance of an end result that can be adopted – previous process derailed due to land use regulations.
- Discussion of enterprise zones and community input on target industries.

#### **Meeting 3: May 5, 2009.**

- Preliminary Suitable Lands Inventory (SLI) based on County data. It was determined that the preliminary mapping lacked floodplain information, and was inaccurate regarding development data. Mapping needed to be revised with City assistance from the City and based on field observation.
- Preliminary economic data. Discussion of Scappoose existing and potential industries.

#### **Meeting 4: January 26, 2010.**

- Committee chair elected.
- Presentation of draft EOA and community economic vision.
- Discussion of overall employment land need versus supply.

#### **Meeting 5: March 2, 2010.**

- Review modifications to EOA based on January 26 meeting comments. The Committee tentatively approved the draft EOA.
- Public Facilities Study – implications of general growth directions. The Committee tentatively approved the general public facilities study.
- Review of Statutory Priorities for determining the direction of growth. Need to expand onto exception areas first, then to lower-value farmland, and finally to higher-value farmland.
- Proposed northeast area industrial and airport-related expansion.
- Commercial lands alternatives around the UGB. Discussion of southeast expansion.
- The Committee requested additional alternatives review.

#### **Meeting 6: April 6, 2010.**

- Transportation implications for growth. Committee concerns related to potential transportation improvements in southwest.
- Public facilities analysis of commercial growth options to southwest. Committee may not want to pursue land west of Old Portland for commercial growth.
- Potential distribution center in southeast (Havlik property). Committee does not want distribution center.
- Alternative growth analysis. Statutory priorities. Discussion regarding southeastern expansion for commercial/mixed employment uses.

#### **Committee Packet Documents**

The Committee already has Items (maps and documents) 1-6 below. Maps 1-6 (Items 7-12) are similar to maps that the Committee has seen before, but include revisions to correct previous mapping errors and for clarity.

- 1) Economic Opportunities Analysis (Johnson-Reid, February 2010)
- 2) Scappoose UGB Transportation Impacts (DKS, March 2010)
- 3) Technical Memorandum – Infrastructure (Otak, March 2010)
- 4) Existing UGB Report (Otak, December 2009)
- 5) Scappoose Draft Vacant and Redevelopable Lands (Winterbrook, January 2010)
- 6) Scappoose Need and Supply Summary (Winterbrook, January 2010)
- 7) **Map 1: Soil Types (Winterbrook, May 2010)**
- 8) **Map 2: Slopes and Soils (Winterbrook, May 2010)**
- 9) **Map 3: Floodplain, Slopes, and Soils (Winterbrook, May 2010)**
- 10) **Map 4: Suitable Lands (Winterbrook, May 2010)**
- 11) **Map 5: Exception Areas (Winterbrook, May 2010)**
- 12) **Map 6: Expansion Alternatives (Winterbrook, May 2010)**

#### **EMPLOYMENT NEEDS**

There are several categories of targeted employment identified in the EOA:

- 1) Industrial

- 2) Airport-Related Employment
- 3) Commercial / Office
- 4) Highway Commercial

The EOA approved by the Committee determined that approximately 384 acres are needed to meet identified employment needs through 2030. The Department of Land Conservation has commented that this acre need figure is “moderate”.

The Goal 14 Rule requires that City’s look first to employment land within the existing UGB to meet identified employment needs. As discussed in the January 26, 2010 Committee meeting, and described in the Summary of Scappoose Need & Supply Issues memorandum<sup>4</sup>, about half (189 suitable acres) of the City’s long-term employment land needs can be met within the existing UGB. After accounting for suitable land within the existing UGB, there is an unmet need for:

- About 29 acres for Highway Commercial and Office;
- Three large industrial sites (two 50+ acre sites and one 30+ acre site);
- About 36 acres for smaller industrial sites of 2-10 acres in size; and
- An airport runway extension and hangar facilities (about 90 acres).

At the March 2, 2010 meeting, the Committee also considered the need for a Portland-serving warehouse and distribution facilities on the south side of town. While not originally a targeted industry identified by the EOA for Scappoose, Johnson-Reid evaluated the site requirements for a distribution facility<sup>5</sup>. On further review at the April 6, 2010 Committee meeting, the Committee indicated that such a distribution facility should not be considered a target industry for Scappoose.

## **SCAPPOOSE SOILS, TOPOGRAPHY AND ZONING**

The next step in the process is to determine *where* the UGB should be expanded to meet identified needs for Highway Commercial and Office (29 acres), large industrial sites (130 acres), and smaller industrial sites (36 acres). This section briefly discusses the characteristics of land surrounding the Scappoose UGB to provide context and reference for the alternatives analysis. The general characteristics most relevant to this analysis are soil types, topographic constraints, and zoning.<sup>6</sup>

### **Scappoose Soil Types**

As shown on Map 1: Soil Classes, Scappoose is surrounded by soils of Classes I-IV, and VI (lower soil class number indicates higher agricultural capability). The Class I-III soils are generally found to the northwest, east, and southeast of Scappoose, while the lower capability IV and VI soils are found to the west and southwest.

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<sup>4</sup> Winterbrook, January 12, 2010

<sup>5</sup> Johnson-Reid memorandum, March 23, 2010

<sup>6</sup> Soil types and topographic constraints were discussed in the Scappoose *UGB Industrial Expansion Direction Considerations* memorandum (Winterbrook, February 23, 2010)

### **Scappoose Topographic Constraints**

The EOA determined that employment land should be relatively flat and outside the floodplain. The major topographic constraints on lands near Scappoose are slopes and floodplain (as indicated in the Site Specific Needs section below, employment sites for targeted industries require flat sites out of the floodplain). As shown on Map 2: Slopes, and Soils, Class IV and VI soils to the west and southwest of Scappoose are associated with sloped areas (i.e. hills).

As shown on Map 3: Floodplain, Slopes and Soils, floodplain overlaps with some Class III soils to the northwest, west, and east of Scappoose. It also covers the only relatively flat Class IV soils in the area – to the north of Scappoose.

### **County Zoning Characteristics**

The primary concern when reviewing zoning in the context of this alternatives analysis is the location of exception areas, as these areas are the highest statutory priority for expansion around Scappoose. As shown on Map 5: Exception Lands, a large amount of rural residential exception (non-farm and non-forest) land lies to the west, northwest, and southwest of Scappoose. There are also some rural residential parcels to the northeast of the airport.

Of note, rural residential lands were originally zoned for rural residential use due to existing development patterns that made the land unsuitable for commercial agricultural or forestry use. They are generally characterized by small lots (relative to the resource-zoned lands), developed residential investment (houses, garages, driveways, roadways, etc), and multiple individual owners.

## ALTERNATIVES ANALYSIS

A step-by-step methodology for conducting a UGB “Boundary Location Alternatives Analysis” is provided in OAR 660-024-0060.<sup>7</sup>

In summary:

- The highest priority of land for UGB expansion is land not zoned for farming or forestry (“exception” land).
- Poor agricultural land should be included before good agricultural land. That is to say, agricultural land of lower agricultural capability (based on “soil class” as determined by the Natural Resources Conservation Service) is higher priority

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<sup>7</sup> (1) When considering a UGB amendment, a local government must determine which land to add by evaluating alternative boundary locations. This determination must be consistent with the priority of land specified in ORS 197.298 and the boundary location factors of Goal 14, as follows:

(a) Beginning with the highest priority of land available, a local government must determine which land in that priority is suitable to accommodate the need deficiency determined under OAR 660-024-0050.

(b) If the amount of suitable land in the first priority category exceeds the amount necessary to satisfy the need deficiency, a local government must apply the location factors of Goal 14 to choose which land in that priority to include in the UGB.

(c) If the amount of suitable land in the first priority category is not adequate to satisfy the identified need deficiency, a local government must determine which land in the next priority is suitable to accommodate the remaining need, and proceed using the same method specified in subsections (a) and (b) of this section until the land need is accommodated.

(d) Notwithstanding subsection (a) to (c) of this section, a local government may consider land of lower priority as specified in ORS 197.298(3).

(e) For purposes of this rule, the determination of suitable land to accommodate land needs must include consideration of any suitability characteristics specified under section (5) of this rule, as well as other provisions of law applicable in determining whether land is buildable or suitable.

(2) Notwithstanding OAR 660-024-0050(4) and subsection (1)(c) of this rule, except during periodic review or other legislative review of the UGB, a local government may approve an application under ORS 197.610 to 197.625 for a UGB amendment proposing to add an amount of land less than necessary to satisfy the land need deficiency determined under OAR 660-024-0050(4), provided the amendment complies with all other applicable requirements.

(3) The boundary location factors of Goal 14 are not independent criteria. When the factors are applied to compare alternative boundary locations and to determine the UGB location, a local government must show that all the factors were considered and balanced.

(4) In determining alternative land for evaluation under ORS 197.298, “land adjacent to the UGB” is not limited to those lots or parcels that abut the UGB, but also includes land in the vicinity of the UGB that has a reasonable potential to satisfy the identified need deficiency.

(5) If a local government has specified characteristics such as parcel size, topography, or proximity that are necessary for land to be suitable for an identified need, the local government may limit its consideration to land that has the specified characteristics when it conducts the boundary location alternatives analysis and applies ORS 197.298.

(6) The adopted findings for UGB adoption or amendment must describe or map all of the alternative areas evaluated in the boundary location alternatives analysis. If the analysis involves more than one parcel or area within a particular priority category in ORS 197.298 for which circumstances are the same, these parcels or areas may be considered and evaluated as a single group.

(7) For purposes of Goal 14 Boundary Location Factor 2, “public facilities and services” means water, sanitary sewer, storm water management, and transportation facilities.

(8) The Goal 14 boundary location determination requires evaluation and comparison of the relative costs, advantages and disadvantages of alternative UGB expansion areas with respect to the provision of public facilities and services needed to urbanize alternative boundary locations. This evaluation and comparison must be conducted in coordination with service providers, including the Oregon Department of Transportation with regard to impacts on the state transportation system. “Coordination” includes timely notice to service providers and the consideration of evaluation methodologies recommended by service providers. The evaluation and comparison must include:

(a) The impacts to existing water, sanitary sewer, storm water and transportation facilities that serve nearby areas already inside the UGB;

(b) The capacity of existing public facilities and services to serve areas already inside the UGB as well as areas proposed for addition to the UGB; and

(c) The need for new transportation facilities, such as highways and other roadways, interchanges, arterials and collectors, additional travel lanes, other major improvements on existing roadways and, for urban areas of 25,000 or more, the provision of public transit service.

from inclusion within a UGB than agricultural land with higher agricultural capability.

- State law requires that UGBs expand onto higher priority land before lower priority land, unless the higher priority land cannot accommodate the identified need, services cannot be reasonably provided, or the lower priority lands are needed to provide service to higher priority lands.
- Goal 14 location factors are applied to determine which land should be included, when choosing between alternatives of equal priority.

## Study Areas

As shown on Maps 1-3 and 5-6, Winterbrook looked at lands within a mile of the existing UGB, in every direction.<sup>8</sup> These lands were broken into four major “study areas”:

- **Study Area 1** – Northwest of the existing UGB, bounded on the southwest by Scappoose-Vernonia Highway, and on the east by Highway 30. Study Area 1 contains a small unconstrained residential exception area at the intersection of Wickstrom Road and Highway 30, as well as some large, flat, unconstrained resource areas. As shown on Map 5, the large, unconstrained resource areas are predominantly Class II farmland.
- **Study Area 2** – Northeast of the existing UGB, bounded on the west by Highway 30, and on the south by Columbia Road. Study Area 2 contains some residential and industrial exception areas adjacent to the airport, and large, unconstrained resource areas extending from the existing UGB approximately ½-¾ miles to the floodplain. The resource areas are predominantly Class III soils adjacent to the existing UGB, with some areas of Class II near the floodplain.
- **Study Area 3** – Southeast of the existing UGB, bounded on the north by Columbia Road and the west by Highway 30. Study Area 3 contains large, flat, unconstrained resource areas near Highway 30, extending approximately ¼ mile east of Highway 30 to the floodplain. Beyond the floodplain are additional large, flat, unconstrained resource areas. Resource areas near Highway 30 and adjacent to the UGB are predominantly Class II soils. Resource areas east of the floodplain are a mix of Class II and III soils.
- **Study Area 4** – West and southwest of the UGB, bounded on the east by Highway 30 and the north by S-V Highway. Study Area 4 consists of predominantly constrained (sloped) residential exception and resource areas. Unconstrained areas include a small portion of small-lot residential exception land to the south of the existing UGB.

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<sup>8</sup> Land within and beyond the Columbia River was not included in the study areas.



## Site Specific Needs

OAR 660-024-0060(5) allows “specified characteristics necessary for an identified need” to be used in evaluating alternative areas. *Land that does not meet these siting characteristics does not need to be evaluated in the analysis.* As described in the EOA, all employment uses require the following site characteristics:

1. Topography: sites must be
  - a. Flat (< 10% slope)
  - b. Suitable (free of wetlands, floodplains and riparian constraints)
2. Proximity: employment sites must have direct access to an existing or planned collector street without driving through established or planned residential areas
3. Site Size and Configuration: site must be large enough and appropriately shaped to accommodate efficiently planned large site users and development types
4. Compatibility (industrial): sites must not abut urban residential areas on more than one side and must include sufficient land, natural or artificial features to provide effective buffers
5. Serviceability: sites must be serviceable in the short- to intermediate-term (within 5-10 years) with transportation, sanitary sewer, water, and storm drainage facilities. Electric service is an important consideration for many targeted industrial firms.

In addition to the general requirements:

- 1) Airport-related uses requiring runway access must be adjacent to the airport; and
- 2) Highway commercial areas must have access within ¼ mile of the Highway and be visible from the Highway.

Applying the required site characteristics to the expansion priorities results in a limited set of alternative sites within the study areas to consider for meeting identified employment needs.

- **Highway commercial** – these uses can generally afford to consolidate land in order to create a site, so the ownership patterns and smaller lot sizes of exception areas are not as limiting as they are to industrial users. Commercial uses serve and are more compatible with residential uses than industrial uses. In Scappoose, the highest priority options include exception areas adjacent to and on the west side of Hwy 30, (a) to the north of Scappoose, and (b) to the south of Scappoose. (Map 6 - Exception areas NW, and SW 1-3)

Analysis by Otak<sup>9</sup> indicates that sewer and water services can be reasonably provided to smaller-scale employment uses in all these exception areas. Transportation impacts analyzed by DKS<sup>10</sup> indicate that, while none of these areas is suitable for larger scale employment uses, the southern exception area is preferable to the northern exception area in terms of transportation impacts.

At its April 6, 2010 meeting, the Committee recommended pursuing a southern expansion to meet commercial needs – rather than expanding to the north.

- **Office Uses** – generally do not have restrictive site requirements, but do need to be serviceable and accessible from major streets. Highest priority options include exception areas to the west of Hwy 30, or exception areas adjacent to the northeast of the airport (i.e. most of the exception areas shown on Map 6). An additional option for unmet office land need could be to delay allocation of land toward this need until a residential analysis has been completed, allowing for possible rezoning of residential land in the southwestern portion of the existing UGB, as discussed in the February and March Advisory Committee meetings.
- **Large site industrial** – The exception lands to the north, west, and south of Scappoose are generally characterized by smaller lots, mixed ownership patterns, an inefficient pattern of existing development, poor transportation access, and slopes. They also primarily adjoin residential areas in the UGB. As a result, small, developed exception area parcels do not have the characteristics required by large site industrial users; the only sites capable of meeting the large site needs near the Scappoose UGB are resource lands. The highest priority for this need is therefore lower capability class resource land.<sup>11</sup> The only area with large sites adjacent to the UGB containing primarily Class III soils is to the east of the Airport. (Map 6 – Class III Resource Site NE).

The Committee recommended the area east of the Airport to meet this need.

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<sup>9</sup> See memorandum titled *Infrastructure to Service the Potential South Scappoose UGB Expansion*, Otak, March 23, 2010

<sup>10</sup> See memorandum titled *Scappoose UGB Expansion Transportation Impacts*, DKS, March 23, 2010

<sup>11</sup> The highest priority soils for expansion would be Class VI, followed by Class IV. However, Class IV and VI soils around Scappoose are located in the hills to the west of the City (i.e. not meeting the requirement for flat land). Therefore, the highest priority soil class around Scappoose that meets employment siting requirements is Class III soils.

- **Smaller-site industrial** – needs cannot reasonably be met on west-side exception areas, due to incompatibility with existing residential uses, limited highway accessibility, and steep slopes. Therefore, the highest priority for this need is lower capability class agricultural land (i.e, land with primarily Class III soils). There are two areas that potentially meet identified site requirements: (a) via a pan-handle configuration on land to the southeast of Scappoose, east of the Havlik Road –Highway 30 intersection, and (b) also on land east of the Airport.

The Committee recommended against pursuing the pan-handle option to the southeast, and land east of the airport is superior for transportation and compatibility (not adjacent to residential) objectives.

## CONCLUSIONS AND RECOMMENDATIONS

Oregon land use priorities, site characteristics necessary for various employment uses, Scappoose’s topography, and existing development patterns inside and especially outside the UGB limit expansion directions and alternatives. Since site requirements for highway commercial and office uses can reasonably be met in serviceable exception areas, ORS 197.298 priorities require that the City grow into exception areas to meet identified needs.

However, Scappoose’s exception areas do *not* meet the required siting characteristics for industrial and distribution uses (site size, compatibility, proximity, and topography), and neither do Scappoose’s lowest capability soils (Class IV+) due to topography. This means that a UGB expansion for industrial and distribution uses in Scappoose can only locate on Class II-III soils. And, as we have seen, areas with predominantly Class III soils are higher priority for expansion than areas with predominantly Class II soils.<sup>12</sup> This analysis leads to the following conclusions:

- **Highway commercial employment can be located on exception areas to the north and south of Scappoose. Both areas are serviceable. The south area is better from a transportation perspective. The Committee recommended pursuing the southern option.**
- **Office commercial employment can also locate on exception areas to the north and south of Scappoose. Both are serviceable. The south area is better from a transportation perspective.**

**The Committee expressed interest in looking at potential rezoning of residential to accommodate this use inside the UGB, in the January 26, 2010 meeting. However, a**

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<sup>12</sup> Note that soil types when mapped are generally amoeba-like and often do not provide for logical site configuration patterns, and a soil priorities exception exists to allow for inclusion of lower priority lands to include or serve higher priority lands. This typically means that sites of *predominantly* Class III soils are higher priority than sites of predominantly Class II soils.

**residential land need and supply study is required before considering rezoning of residential land. It's possible to reserve some of this need until a residential study is completed. The Committee did not discuss the reserving option at the April 6, 2010 meeting. This option would allow for potential rezoning of existing residential areas (a) south of Fred Meyer and/or (b) near the downtown commercial core, in the future.**









- **Large site industrial lands can't locate on exception areas or the lowest capability Class IV-VI soils because these lands are too steep. The highest priority for this use is therefore Class III soils. The only predominantly Class III large site option is land east of the Airport. Development of large scale employment in this area is also best from a transportation perspective. The Committee recommended meeting these needs east of the Airport.**
- **Smaller site industrial can't locate on west-side exception areas. Possible predominantly Class III configurations for smaller site industrial uses exist east of the Airport and in a pan-handle configuration near the Havlik Road – Hwy 30 intersection. The northeast area is better from a transportation and compatibility perspective. The Committee recommended against the pan-handle option, leaving areas east of the Airport as the highest priority option for this use.**
- **While Class II farmland currently limits expansion options along Highway 30 to the southeast, the Committee can recommend that future urban studies continue to pursue opportunities to provide a north-south connection to Johnson's Landing Road.**

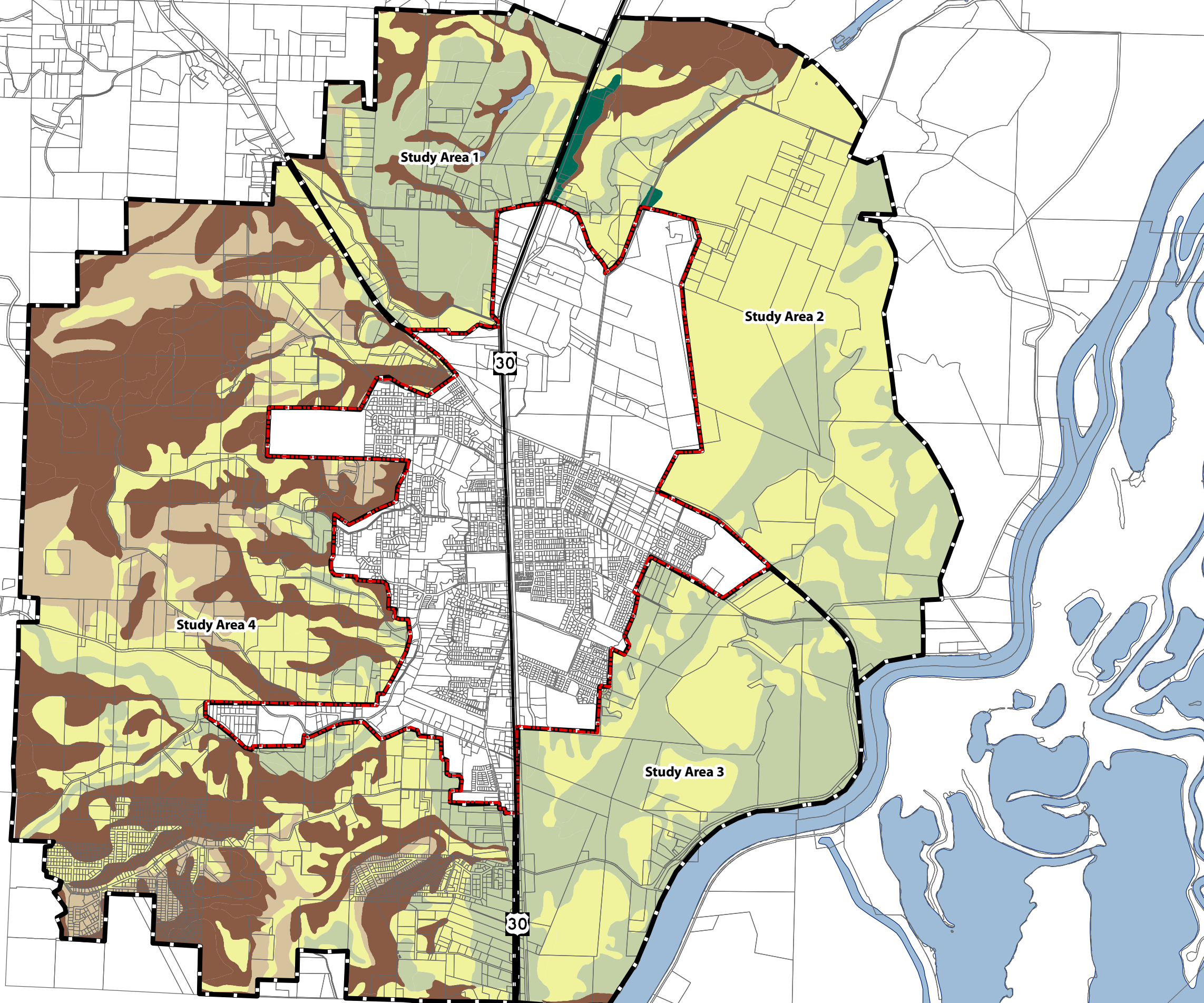
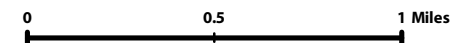
# CITY OF SCAPPOOSE 2009 UGB EXPANSION

## Map 1: Soil Types

### Legend

#### Soil Classification

-  I
-  II
-  III
-  IV
-  VI
-  UGB
-  Study Areas
-  Tax Lots






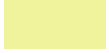




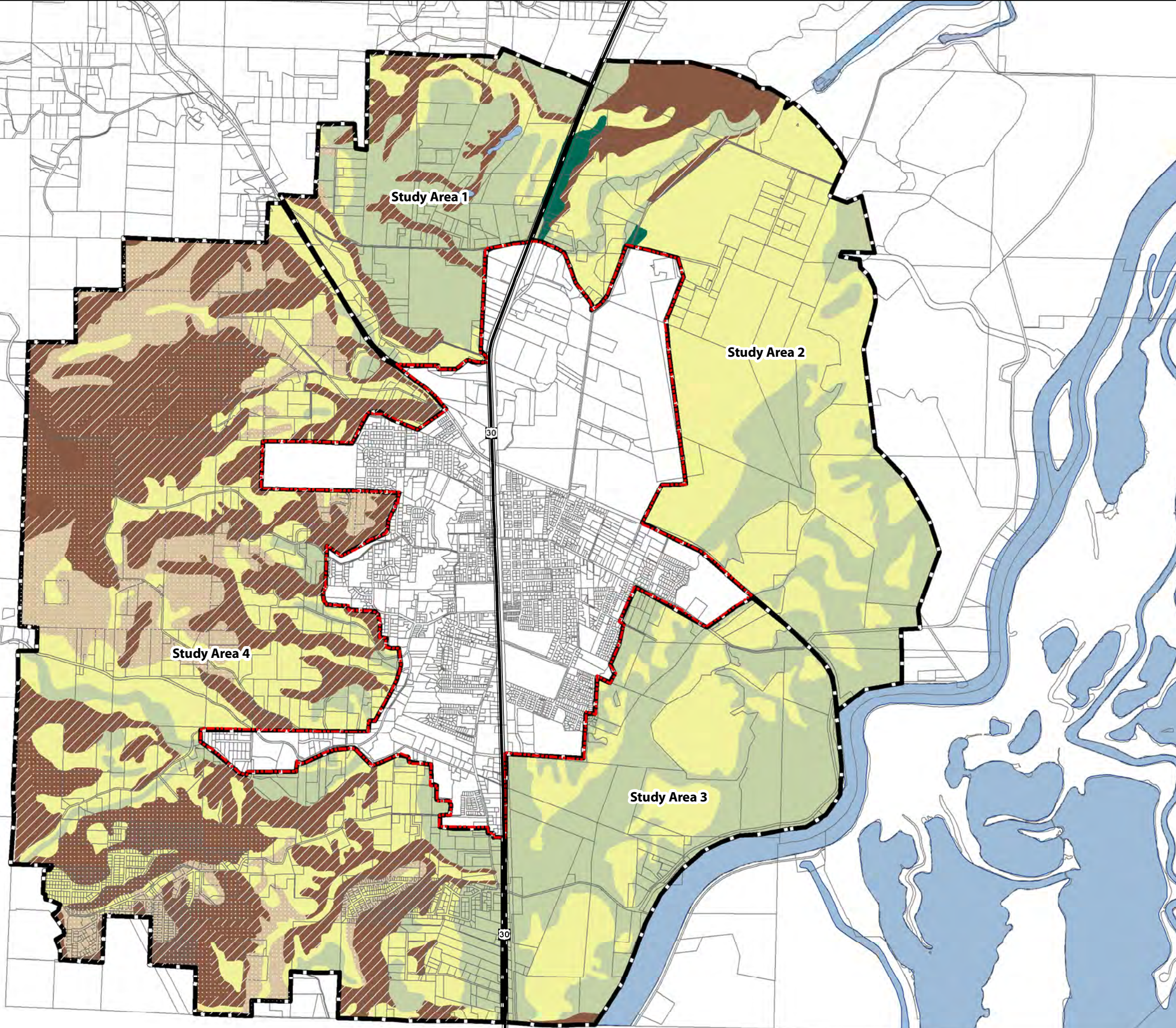
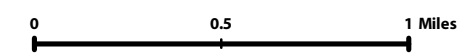
# CITY OF SCAPPOOSE 2009 UGB EXPANSION

## Map 2: Slopes and Soils

White dots represent slopes 15-25%  
White hash marks represent slopes 25%+

### Legend

-  UGB
-  Study Areas
-  Tax Lots
- Soil Classification**
  -  I
  -  II
  -  III
  -  IV
  -  VI








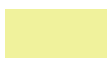




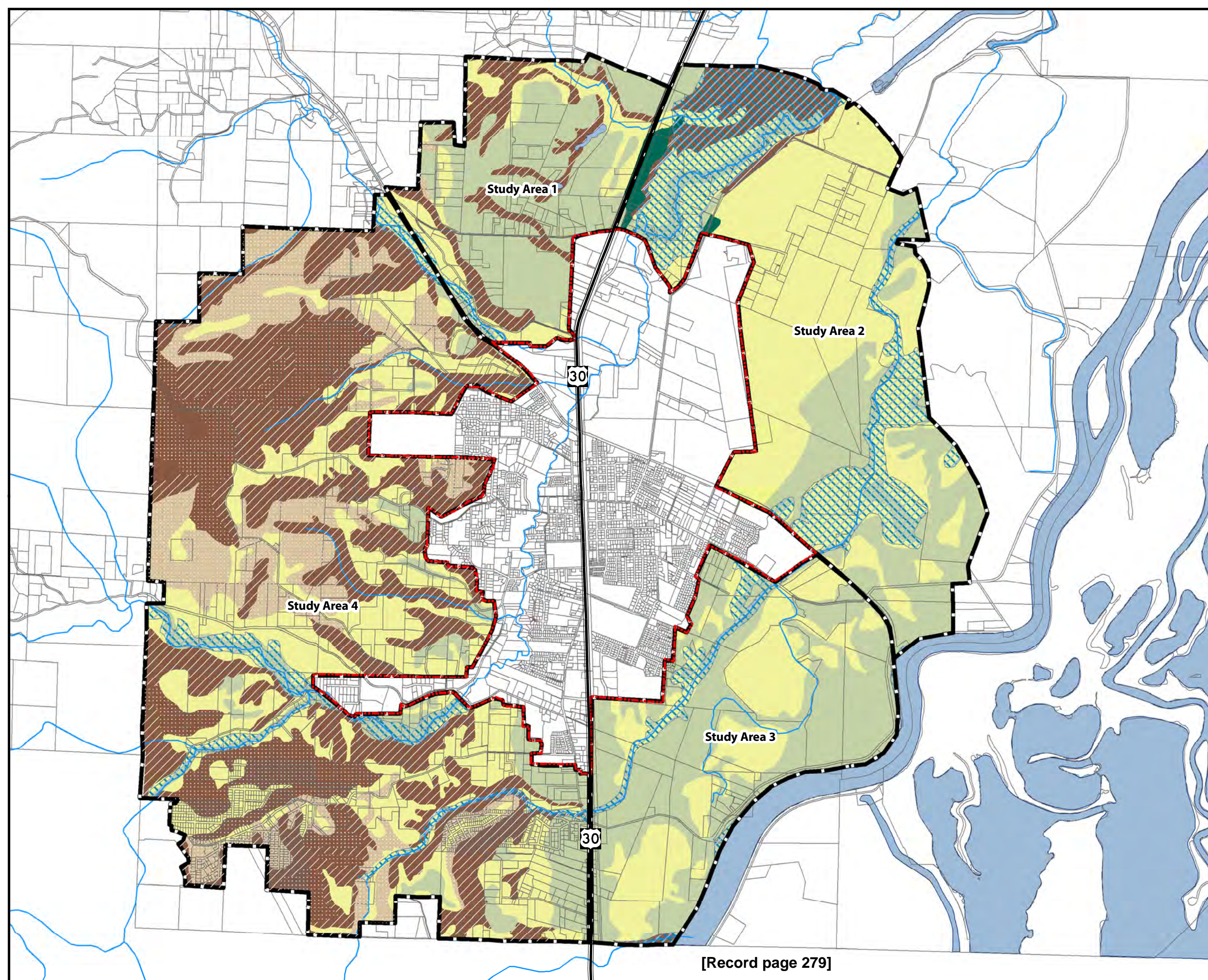
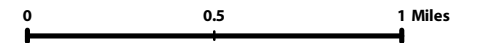
# CITY OF SCAPPOOSE 2009 UGB EXPANSION

## Map 3: Floodplain, Slopes and Soils

White dots represent slopes 15-25%  
White hash marks represent slopes 25%+

### Legend

-  UGB
-  Study Areas
-  Tax Lots
-  Rivers
-  100-year floodplain
- Soil Classification**
  -  I
  -  II
  -  III
  -  IV
  -  VI










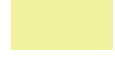




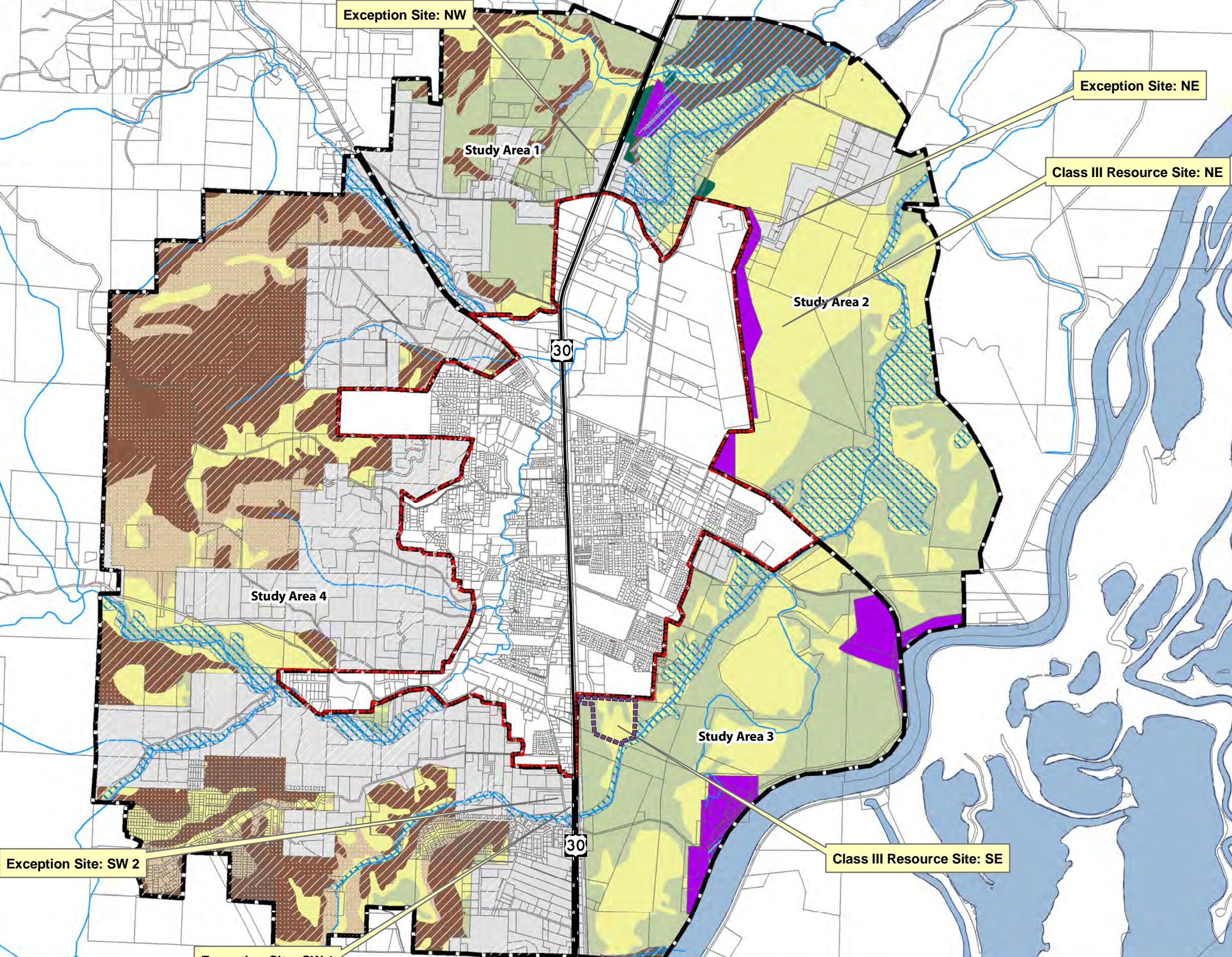
# CITY OF SCAPPOOSE 2009 UGB EXPANSION

## Map 5: Exception Areas (Annotated)

White dots represent slopes 15-25%  
White hash marks represent slopes 25%+

### Legend

-  UGB
-  Study Areas
-  Tax Lots
-  Rivers
-  100-year floodplain
- County Zoning**
-  Rural Industrial
-  Rural Residential
- Soil Classification**
-  I
-  II
-  III
-  IV
-  VI





# CITY OF SCAPPOOSE 2009 UGB EXPANSION


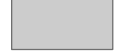




## Map 6: Expansion Alternatives

White dots represent slopes 15-25%  
White hash marks represent slopes 25%+

### Legend

#### Expansion Alternatives

##### Type

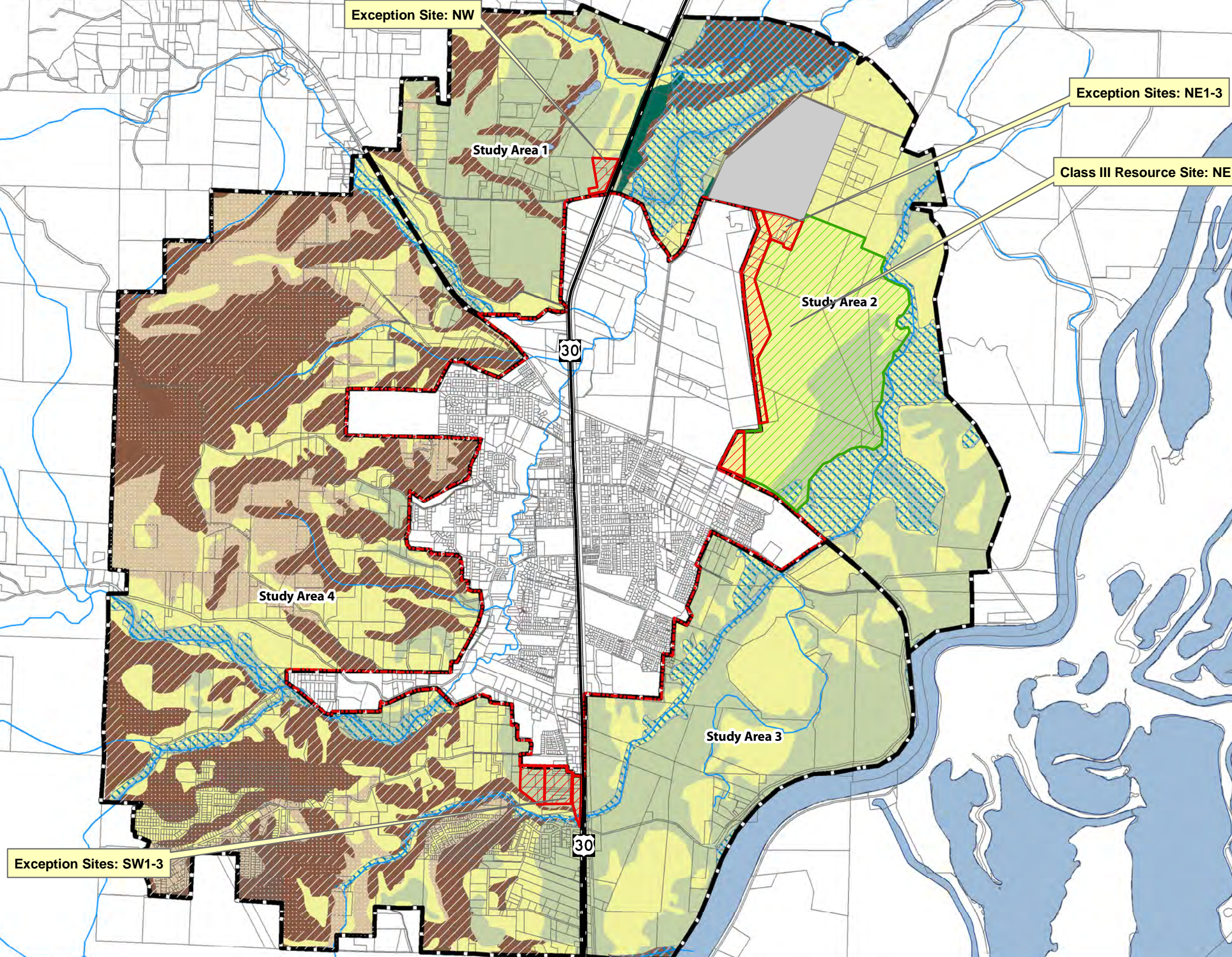
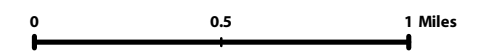
-  Exception
-  Quarry
-  Resource
-  UGB
-  Study Areas
-  Tax Lots

##### Rivers

-  Rivers
-  100-year floodplain

#### Soil Classification

-  I
-  II
-  III
-  IV
-  VI



Exception Sites: SW1-3

Exception Site: NW

Study Area 1

Exception Sites: NE1-3

Class III Resource Site: NE

Study Area 2

Study Area 4

Study Area 3

30

30

## Scappoose UGB Amendment Infrastructure Report

**Submitted to:**  
City of Scappoose, Oregon

**Prepared by:**  
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Otak, Inc.  
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Lake Oswego, OR 97035  
Otak Project No. 13928



November 17, 2010

# Scappoose UGB Infrastructure Report

## November 17, 2010

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### Introduction

This report analyzes the existing infrastructure within the City of Scappoose, as well as potential improvements required to support future growth. Part 1 of the report identifies existing areas within the Scappoose urban growth boundary (UGB) that may not be served by existing utilities, have insufficiencies in current utility infrastructure to serve additional developments in the UGB, and experience deficiencies in existing networks. It is not the intent of Part 1 to identify proposed improvements, but to identify remaining projects outlined in previous infrastructure master plans and highlight areas that may need additional services in order to be developed.

Part 2 of the report normalizes the data presented in the various utility master plan studies previously completed for the City due to the different timelines in which they were completed, and summarizes the utility master plan projections to a current 20 year time horizon out to the year 2030. The updated projections are compared against the recommendations made in the utility master plans in order to analyze the effects on the water, wastewater, and storm drainage systems due to the development expected to occur within the UGB by the year 2030. Projects completed to date, as well as required projects yet to be completed from the capital improvement plans outlined in the previous master plans, are identified.

Part 3 of the report analyzes the improvements to the water, wastewater, and storm drainage systems that would be necessary to expand the existing UGB. Exception sites and proposed expansion areas have been identified through the UGB amendment study process, and the infrastructure improvements needed to serve each of these areas will be analyzed and compared.

The City of Scappoose commissioned utility master plan studies – many of which were completed in the latter part of the 1990s – that were used to identify infrastructure deficiencies and identify areas for further expansion or upgrades. Each of these plans were completed for a 20-year timeline and some of the proposed improvement projects have yet to be completed. Master plan studies were completed for the following: Water (April 1997, amended August 2001), Wastewater (June 1998, amended January 2005), Storm Drainage (November 1998), and Transportation System Plan (October 1996, amended October 2002). These are used in conjunction with Scappoose GIS information to identify areas for improvement. In addition to the infrastructure master plans, FEMA FIRMs were compiled to determine areas within the UGB that lie in the 100-year flood plain. This report studies water, wastewater, and stormwater plans and also gives a brief summary of the transportation system. For more detailed analyses of the transportation system, please refer to the *Scappoose UGB Alternative Expansion Area Analysis (March 11, 2010)* and *Scappoose UGB Expansion Transportation Impacts (March 23, 2010)* memorandums by DKS Associates.

## Part I – Existing Infrastructure Deficiencies within the Current UGB

Four main areas have been identified within the current Scappoose UGB that are not served by existing infrastructure. These areas can be seen in Figures 1-4. Area A is located in the southwest portion of the UGB near Dutch Canyon Road and Glen View Lane. The area is approximately 84 acres and is designated Suburban Residential per the current City of Scappoose Comprehensive Plan Map. Area B is located in the northern portion of the UGB, west of the Columbia River Highway and north of the Scappoose-Vernonia Highway. It is approximately 115 acres and designated for commercial and industrial development. Area C is also located in the northern portion of the UGB, but is east of the Columbia River Highway and west of West Lane Road. Area C is approximately 313 acres, with portions of the area designated as industrial, suburban residential, and public lands. Area D is approximately 160 acres in the eastern portion of the UGB located between Crown Zellerbach Road and Columbia Avenue. This area is primarily designated suburban residential and public lands, with a small area designated as manufactured home.

### Water

A Water Master Plan study was performed by Economic and Engineering Services, Inc. in August 1997. An update of this document was completed by Lee Engineering, Inc. in August 2001 with targeted build-out year 2020. The master plan targets four main areas of the Scappoose water network for potential improvements including source, transmission, storage, and distribution.

### General

There are three surface water sources and four wells that supply Scappoose with water. South Scappoose Creek, Gourlay Creek, and Lazy Creek contribute to the surface water supply, while the Dutch Canyon Well and three wells located at the Miller Road water treatment plant contribute to the groundwater supply. Transmission lines transport the source water to two treatment plants located in the City – one located near Keys Road and one adjacent to the Miller Road Well. Distribution lines transmit the potable water to the City, where five pressure zones serve the City – one for customers below 80 feet in elevation; one for customers between 80 feet and 260 feet in elevation; one for Glen View Lane area; one for Dutch Canyon Road west of Raymond Creek Road; and one for Veterans Park and the Columbia River View Estates subdivision. See Figure 1.

Many of the City's transmission and distribution lines are aging, and a pipe replacement program was recommended for all steel lines. See page 5-7 of the *2001 Water Master Plan Update*.

#### **Area A (Glen View Lane/Dutch Canyon Road)**

A potable water network currently extends to Area A. The recently-completed Dutch Canyon Water Line project installed a 12 inch line in Dutch Canyon Road to serve the Raymond Creek area and constructed a booster pump station to serve Glen View Lane and a new 8-inch line in Dutch Canyon Road west of Raymond Creek Road.

#### **Area B (Scappoose-Vernonia Highway/Columbia River Highway)**

A potable water network does not exist for this area. From Figure 5-2 in the *2001 Water Master Plan Update*, new 16-inch water line extensions will be necessary. The project is included in the Capital Improvements Plan listed on page 5-9 in the *2001 Water Master Plan Update*, but funding for the project is expected to come from developers since it is an extension to an unserved area – see page 5-7 of the master plan.

#### **Area C (West Lane Road/Columbia River Highway)**

While a 18-inch distribution line extends north along West Lane Road to Honeyman Road, a potable water network does not exist for the interior of this area. From Figure 5-2 in the *2001 Water Master Plan Update*, a new 16-inch water line will need to extend from Honeyman Road to Columbia River Highway. This project is included in the Capital Improvements Plan listed on page 5-9 in the *2001 Water Master Plan Update*, but funding for the project is expected to come from developers since it is an extension to an unserved area – see page 5-7 of the master plan.

#### **Area D (Crown Zellerbach Road/Columbia Avenue)**

A potable water network currently extends to Area D. From Figure 5-2 in the *2001 Water Master Plan Update*, additional 8-inch lines will need to extend east as growth dictates. Additional 8-inch lines will also need to be constructed in the interior of the area. These projects are included in the Capital Improvements Plan listed on page 5-9 in the *2001 Water Master Plan Update*, but funding for the projects are expected to come from developers since they are an extension to an unserved portion of the area – see page 5-7 of the plan.

#### **Sanitary Sewer**

A Wastewater Master Plan was completed June 1998 by KCM, Inc. The master plan targeted two categories for improvements – collection system and treatment facilities. An update for the wastewater treatment plant was performed by Kennedy/Jenks Consultants in January 2005.

#### **General Description**

The wastewater system serving the City of Scappoose consists of gravity collection lines, force mains, gravity interceptor lines, six pump stations and a wastewater treatment plant. Individual properties discharge wastewater to gravity lines that connect to larger interceptor lines. Pump













# Scappoose UGB Infrastructure Report

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intersection of Columbia Avenue with Columbia River Highway for improvement. Expansive development may require an upgrade of this intersection to meet additional traffic volumes. As aforementioned, the intersection of Crown Zellerbach Road with Columbia River Highway has been improved to meet the *Rail Corridor Study* recommendations.

### Area South (Havlik Drive/Columbia River Highway)

The existing Havlik Drive intersection at the south end of town is currently signalized with an improved access to the west (Fred Meyer). By the winter of 2010/2011 the east access should be completed. The east leg is currently being extended to connect to SE 2<sup>nd</sup> Street and is intended to provide access to Highway 30 for the southeast portion of the City.

### Conclusion

Four main areas are identified within the Scappoose UGB that are currently under-served by City infrastructure. Each area will require additional infrastructure improvements prior to development, and some of these improvements are identified within various infrastructure master plans and included within a capital improvements plan.

## Part 2 – Improvements Required to Serve the Existing UGB by 2030

### Normalize Existing Data

In order to prepare the water, wastewater, and transportation master plans, population and demand projections were required. Each report was completed at a different time and used a different methodology to project the population. Table 1 below summarizes when each of the reports were completed and what the population for the year 2010 was projected to be.

Table 1 – Existing Master Plan Projection Summary

Report Description	Report Date	Projected 2010 Population
City of Scappoose Water Master Plan Update	August 2001	6,338
City of Scappoose, Oregon Wastewater Master Plan	June 1998	8,051
Scappoose Transportation System Plan, Draft	October 1996	7,007

In February 2008, the Portland State Population Research Center published the document *Population Forecasts for Columbia County Oregon, it's Cities & Unincorporated Area 2010 to 2030*. The

# Scappoose UGB Infrastructure Report

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medium growth forecast presented in the document (adopted by the County), is used in this report, and has been summarized in the table below.

**Table 2 – Population Projection to the Year 2030**

Year	Population
2010	6,601
2020	8,234
2030	10,022

### Water

The Water Master Plan Update was completed in 2001 with a targeted build-out year of 2020. The anticipated population for the year 2020 was 7,961 and the peak water demand was estimated to be 1,140 gallons per minute (gpm), or 2.07 million gallons per day (MGD). Table 3 below lists the revised water demands based on the updated population projections to the year 2030. The calculations assume a demand of 124 gallons/capita/day and a peaking factor of 2.1 as stated in the Water Master Plan Update, both based on historical data. This demand includes commercial, industrial, and public uses.

**Table 3 – Forecasted Future Water Demand**

Year	Avg. Water Demand (gpm)	Avg. Water Demand (MGD)	Peak Water Demand (gpm)	Peak Water Demand (MGD)
2020	709	1.02	1489	2.14
2030	863	1.24	1812	2.61

Two main pressure zones are identified within the Water Master Plan Update. The high zone (Zone 2) covers mainly residential areas that lie within 80 feet to 260 feet in elevation. Demand in this zone is estimated as 19% of the City’s total demand. This same estimate is maintained within this report.

### Supply



# Scappoose UGB Infrastructure Report

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The City's treatment capacity is between 2,140 gpm and 2,410 gpm, depending on the water quality of future groundwater sources. The anticipated filtration requirement by the year 2030 is 1,812 gpm. The treatment system has adequate capacity to serve the anticipated demand by the year 2030.

### Storage

The second priority listed in the *2001 Water Master Plan Update* was to provide adequate storage. Storage deficiencies were identified in the *2001 Water Master Plan Update*, and a new storage reservoir was recommended for each of the City's two primary pressure zones. Both of the recommended reservoirs have since been constructed, however their storage capacity was designed to meet the City's needs until 2020. Currently, the total storage provided for Zone 1, the lower pressure zone which serves approximately 80% of the City, is 3.3 MG. The total storage provided for Zone 2 is 0.6 MG. By the year 2030, additional storage of 0.20 MG will be required for Zone 1 and 0.17 MG will be required for Zone 2. While these deficiencies have been identified and highlighted in Table 5, the amounts are very negligible.

**Table 5 – Forecasted Water Storage Needs**

Year	Zone 1 Requirements (MG)	Zone 1 Deficiency (MG)	Zone 2 Requirements (MG)	Zone 2 Deficiency (MG)
2020	2.96	N/A	0.64	0.04
2030	3.50	0.20	0.77	0.17

Assumptions stated in the *2001 Water Master Plan Update* were used to determine the required storage. Reservoirs shall provide storage for three times the average day demand plus volume for fire flow. Residential fire flow requirements are taken to be 1,000 gpm for a duration of 60 minutes requiring a storage volume of 0.06 MG, while commercial/industrial fire flow is taken as 3,000 gpm for a duration of 180 minutes requiring a storage volume of 0.54 MG.

### Distribution

A pipe replacement program was recommended in the Water Master Plan Update, and is currently in process. Increased demands anticipated by the year 2030 will not impact this program required for general maintenance. New distribution lines were identified to support future growth anticipated within the UGB and were included in the capital improvements plan.

### Sanitary Sewer

The Wastewater Master Plan was completed in 1998 with a targeted build-out year of 2018 and an assumed population by that time of 10,841, exceeding the current projection for the year

# Scappoose UGB Infrastructure Report

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2030. Improvements identified in the *1998 Wastewater Master Plan* can now be implemented at a later date than originally recommended due to the slower population growth rate. The revised 2010 population estimate of 6,601 was predicted to occur in 2006. Based on the revised population and demands, improvements recommended prior to 2006 would be required to meet the current demand. Projects recommended to be completed in the Master Plan between the years 2007 and 2010 should be completed by the year 2020, and improvements recommended in the Wastewater Master Plan to occur between the years of 2011 and 2014 can now be completed by the year 2030. Refer to the Wastewater Master Plan for a list of specific projects and recommended completion dates included in the capital improvement plan.

**Table 6 – Forecasted Sewer Flow**

Year	Revised Population Projection	Peak Flow (MGD)	Peak Flow (gpm)	Year Estimated by 1998 Wastewater Master Plan
2010	6,601	4.43	3,080	2006
2020	8,234	5.08	3,526	2010
2030	10,022	5.78	4,013	2014

The flows in Table 6 account for the residential and commercial portion of the City's total wastewater flow. The *1998 Wastewater Master Plan* also estimated a peak industrial flow of 1.2 MGD based on an assumed value of 6,000 gallons per day (gpd)/acre for peak flows and 200 acres of developed industrial land within the UGB by 2018. This report proposes using the 2002 City of Scappoose Public Design Standards to assume a value of 3,640 gpd/acre for industrial flows, resulting in a revised industrial flow estimate of 0.73 MGD. Adding this revised industrial estimate to the projected residential and commercial demand by 2030, the new total peak day flow is 6.51 MGD. The *1998 Wastewater Master Plan* assumed a total peak flow of 7.28 MGD.

### Conclusion

The development of a new water source to provide adequate supply during the summer months is the primary infrastructure improvement required to serve the existing Scappoose UGB until the year 2030. The City's water filtration and storage facilities currently have adequate capacity. The sanitary sewer system analysis and recommendations from the *1998 Wastewater Master Plan* are still valid, and should be implemented as required by current flows.

### Part 3 – Infrastructure Improvements Required to Expand the UGB













# Scappoose UGB Infrastructure Report

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likely reach Crown Zellerbach Road east of the necessary connection point to the 18" sewer line located in Bird Road that conveys flows to the City's treatment plant. A pump station would likely be required to convey flows west along Crown Zellerbach Road to the 18" gravity sewer line connection. These improvements will be dictated by development and are not included in the capital improvements plan.

### **Storm**

The Resource Site generally drains southeast towards Jackson Creek. The NE Exception Sites and the airport are located uphill and may also contribute storm water flows to the site. Uphill of the airport is South Scappoose Creek, limiting additional offsite flows. There is no existing storm drainage infrastructure to serve the area. Conveyance pipes are shown in the Storm Drain System Master Plan running from the southern end of the resource site east towards Jackson Creek. These improvements would be required to serve the site, in addition to onsite conveyance, detention, and water quality facilities. The type of detention facility allowed may be limited due to concern surrounding open water ponds in the vicinity of the airport. These improvements will be dictated by development and are not included in the capital improvements plan.

### **Feasibility**

Large infrastructure improvements would be required to serve the site, including significant lengths of water and storm pipes, storm drain outfalls to Jackson Creek, and a sanitary sewer pump station. However, the resource site is able to provide the land area needed for industrial development to help offset the required infrastructure costs.

### **Exception Site SWI**

This exception site is located south of the existing UGB. The site is bordered by SW Old Portland Road to the west, the Columbia River Hwy to the east, and Bonneville Drive to the south. The total site area is approximately 8 acres including a 3-acre existing cemetery, leaving approximately 5 acres of land suitable for proposed commercial development. See Figure 10 for a summary of anticipated development potential compared to the ability to serve the parcel with basic infrastructure.

### **Water**

An existing water line is located in SW Old Portland Road. The existing line is 12" in diameter until the intersection with Dutch Canyon Road, where an existing 8" line extends south to the existing UGB. It is anticipated that the existing 8" line would need to be upsized to a 12" line and extended adjacent to the proposed site. It may be possible to extend the existing 8" line to serve the site, depending on the developed use and the capacity of the line. These improvements are not included in the capital improvements plan and will be dictated by











# Scappoose UGB Infrastructure Report

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line located in Bird Road that conveys flows Columbia Ave and then to the City's treatment plant. See Figure 9. These improvements will be dictated by development and are not included in the capital improvements plan.

### Storm

The site generally slopes to the southeast, draining towards Jackson Creek. There is currently no storm drain infrastructure to serve the site. An offsite conveyance system would likely be required to convey flows to Jackson Creek. Onsite detention and water quality facilities would also be required. The type of detention facility allowed may be limited due to concern surrounding open water ponds in the vicinity of the airport.

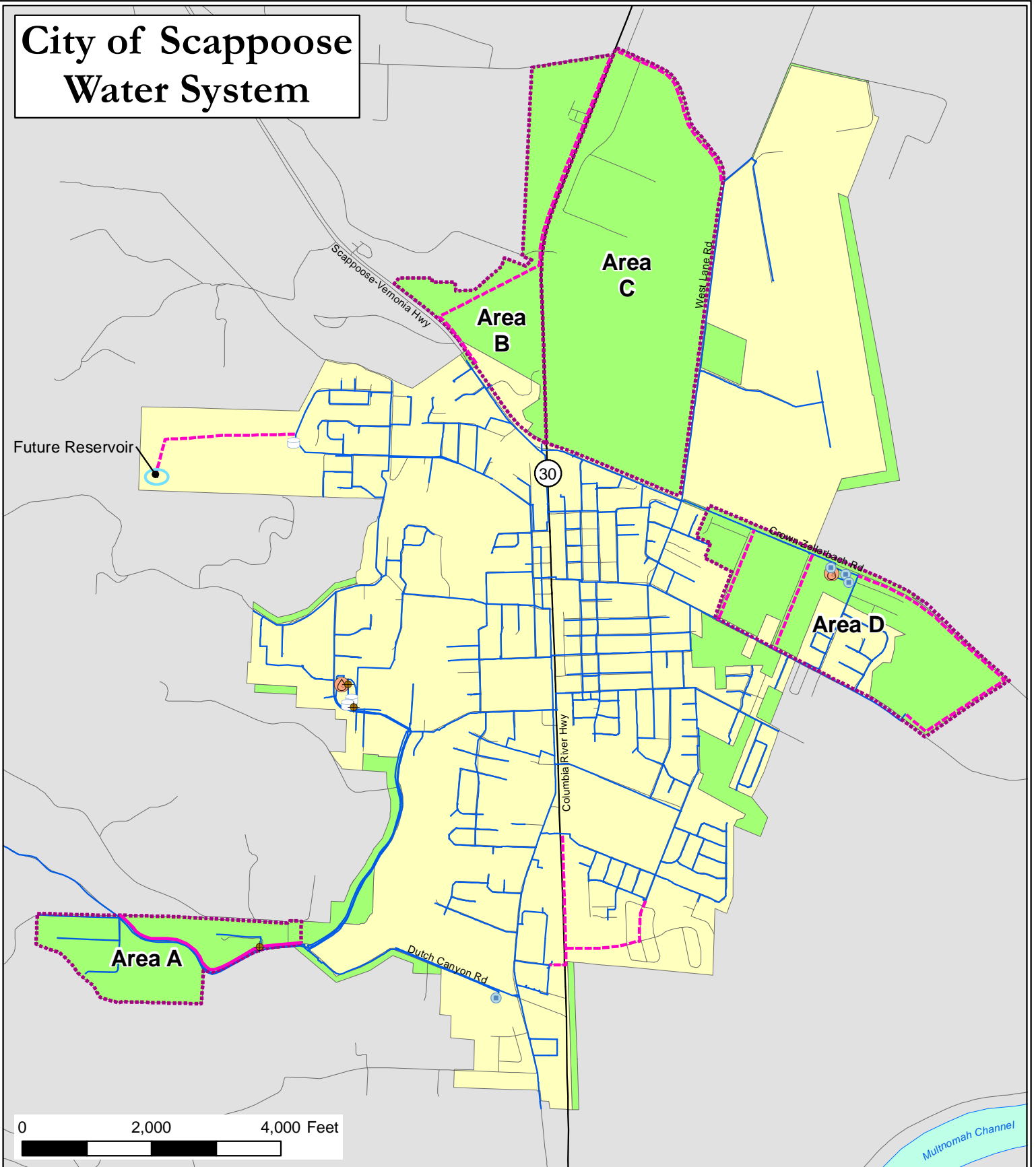
### Conclusion

The City of Scappoose Staff Report and Preliminary Findings (August 31, 2010) and Economic Opportunities Analysis (EOA) have identified an unmet commercial need of 17 acres outside the existing UGB. Exception Site NW and Exception Sites SW1, 2, and 3 have been identified as possible locations for the commercial expansion, with the combination of Exception Sites SW1 and SW2 being the preferred option, providing 23 acres for commercial development. Water and sewer line extensions will be required to serve any of these areas, in addition to a new waste water pump station, unless septic systems are implemented.

The Staff Report and EOA have also identified an unmet need of 281 acres of industrial, institutional, and airport land outside the existing Scappoose UGB. In order to meet this need, the preferred option is to pair the northeast exception sites with a portion of the resource site for a total net area of 299 acres. Efforts have been made to minimize the amount of Class II soils within the resource site to be included in the proposed UGB expansion. Infrastructure requirements for development of this option include water and sewer line extensions, additional water storage, a new waste water pump station, and potential incremental upgrades to the waste water treatment plant depending on actual future flows.











# City of Scappoose Water System



**Proposed Water Line Upgrade**

- Included in CIP
- - - As Development Requires
- Existing Water Main

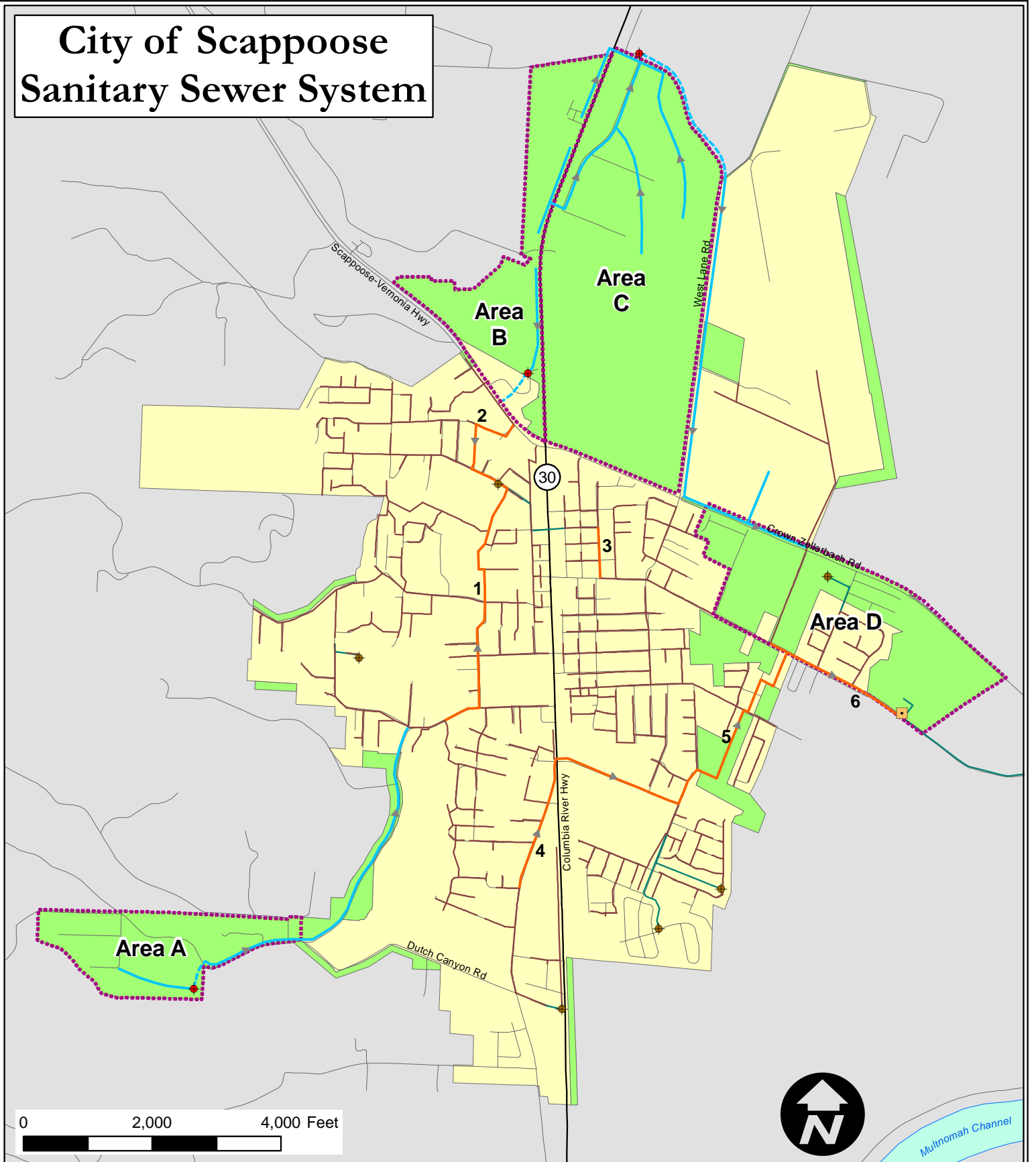
-  Water Treatment Plant
-  Reservoir
-  Supply Well
-  Pump Station

-  Area of Potential Development
-  Streets
-  Scappoose City Limits
-  UGB

11/09/2010



# City of Scappoose Sanitary Sewer System



## Proposed Sewer Line Upgrade

- Included in CIP (Gravity Main)
- As Development Requires (Gravity Main)
- As Development Requires (Force Main)
- ▶ Direction of Flow

- Existing Gravity Main
- Existing Force Main
- Treatment Plant
- ◆ Pump Station (Existing)
- ◆ Pump Station (Proposed)

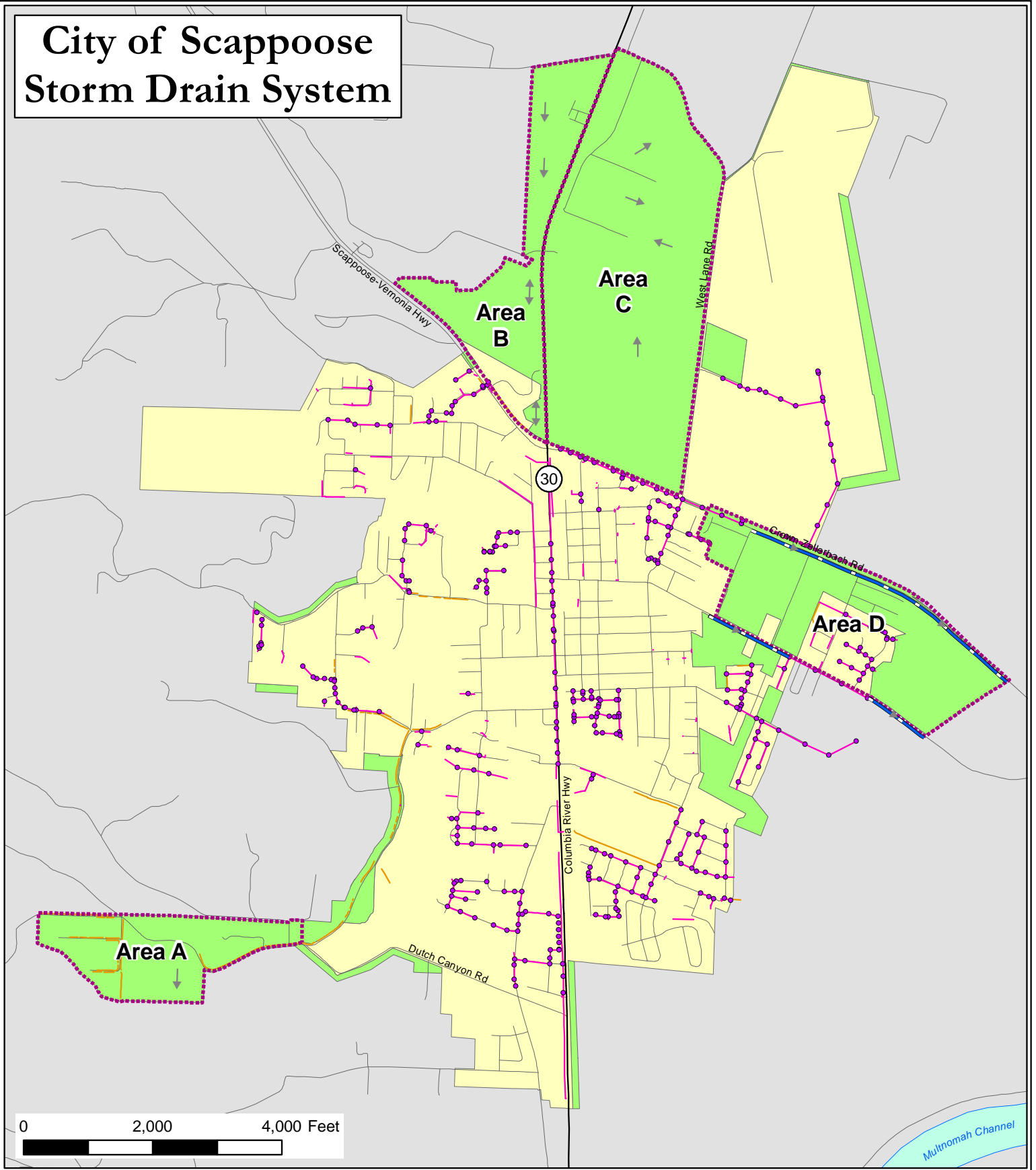
- Area of Potential Development
- Streets
- Scappoose City Limits
- UGB










[Record page 309]

Figure 2

11/09/2010

# City of Scappoose Storm Drain System



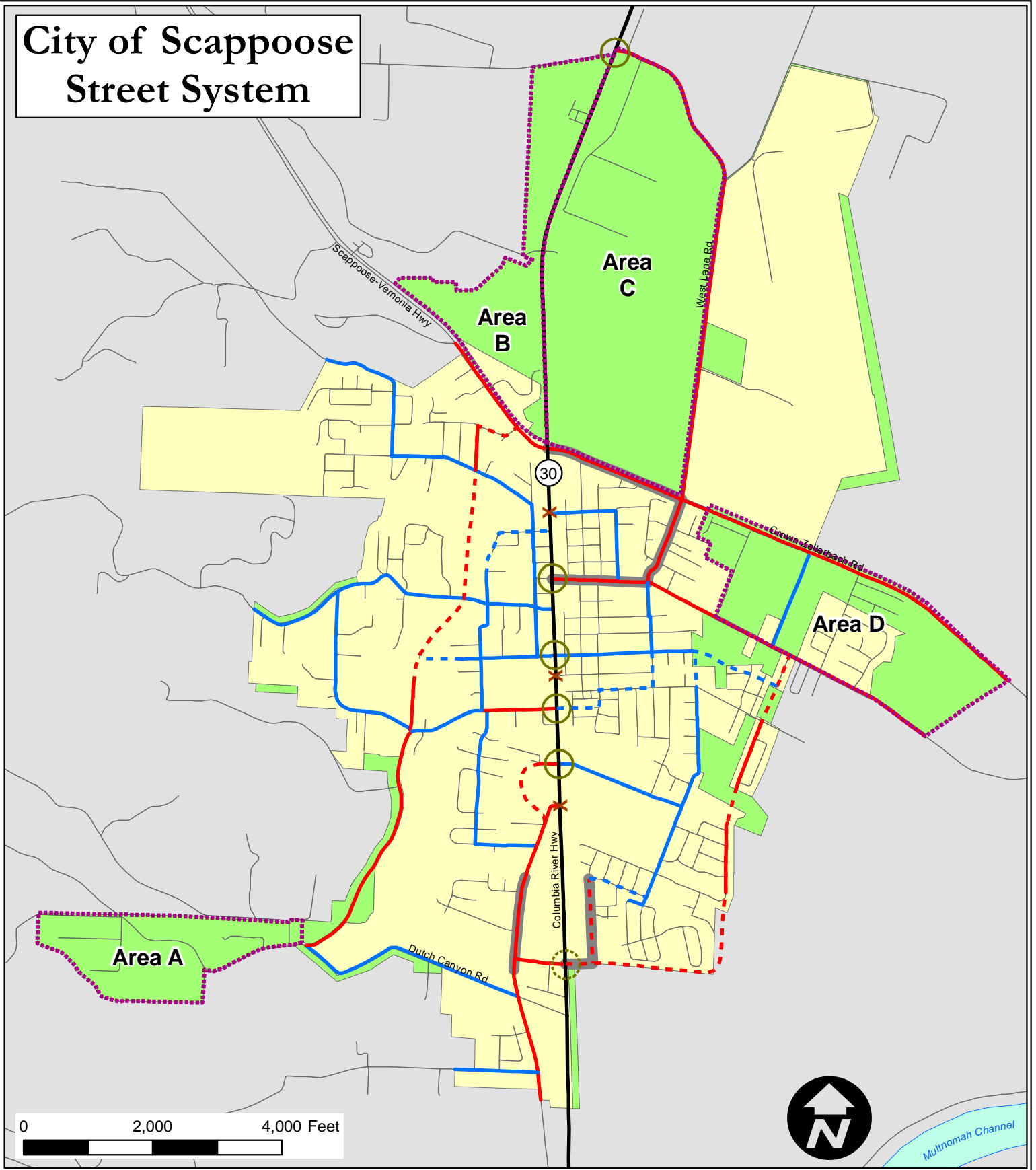
-  CIP Storm Pipe Project
-  Manhole
-  Existing Storm Pipe
-  Existing Ditch
-  Direction of Flow
-  Area of Potential Development
-  Streets
-  Scappoose City Limits
-  UGB

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Figure 3

# City of Scappoose Street System



**Street Functional Classification**

- Major Collector
- Minor Collector

**Proposed in TSP**

- - - Major Collector
- - - Minor Collector

Under Construction or Improved Street

Intersection Improvement

Intersection Improvement (Under Construction)

Local Street

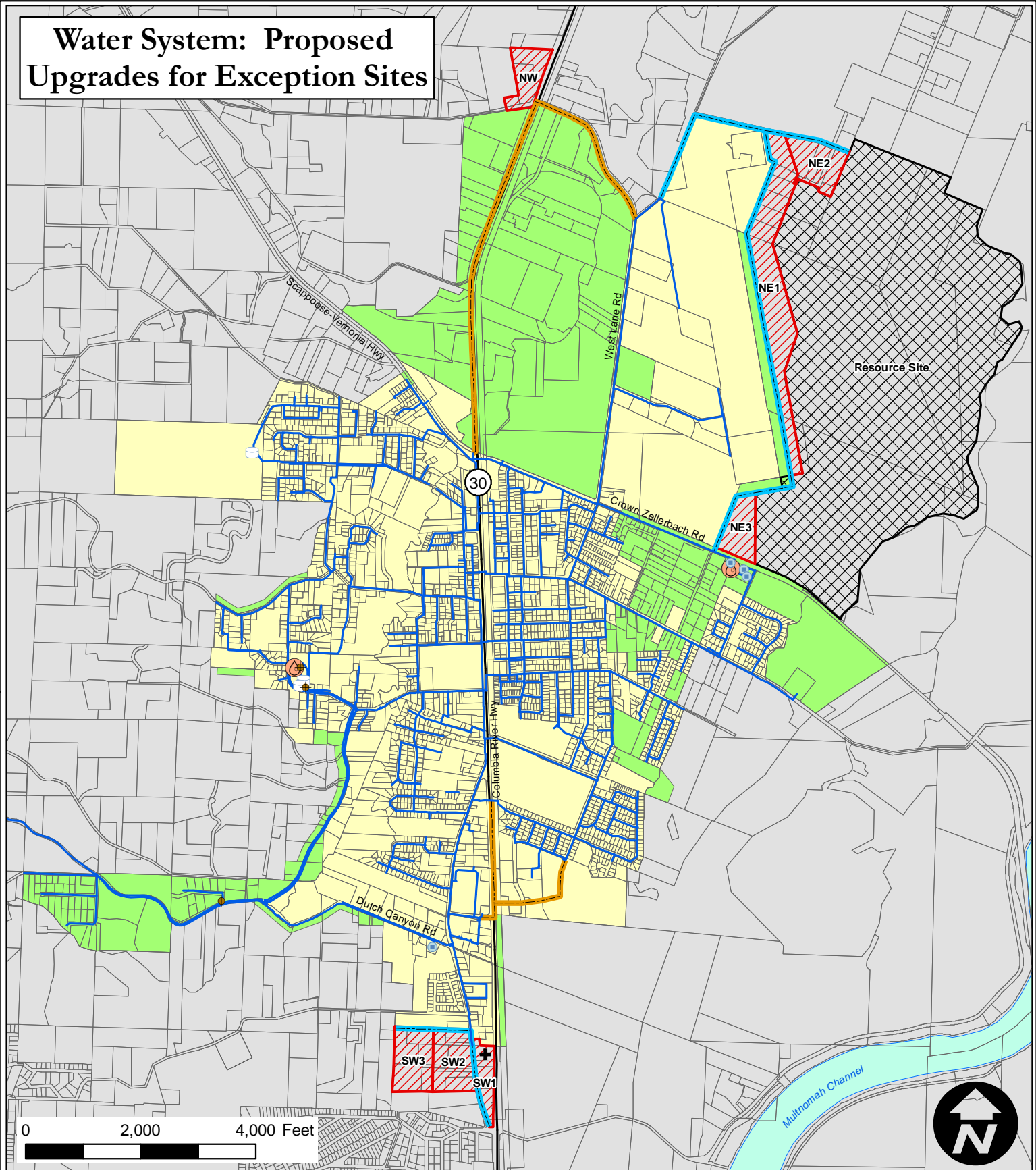
Area of Potential Development

✕ Intersection Closure

Scappoose City Limits






UGB

# Water System: Proposed Upgrades for Exception Sites



## Proposed Water Line Distribution Project

- As Development Requires (Included in CIP)
- As Development Requires
- Existing Water Main
- Exception Site
- Resource Site

-  Water Treatment Plant
-  Reservoir
-  Supply Well
-  Pump Station
-  Cemetery

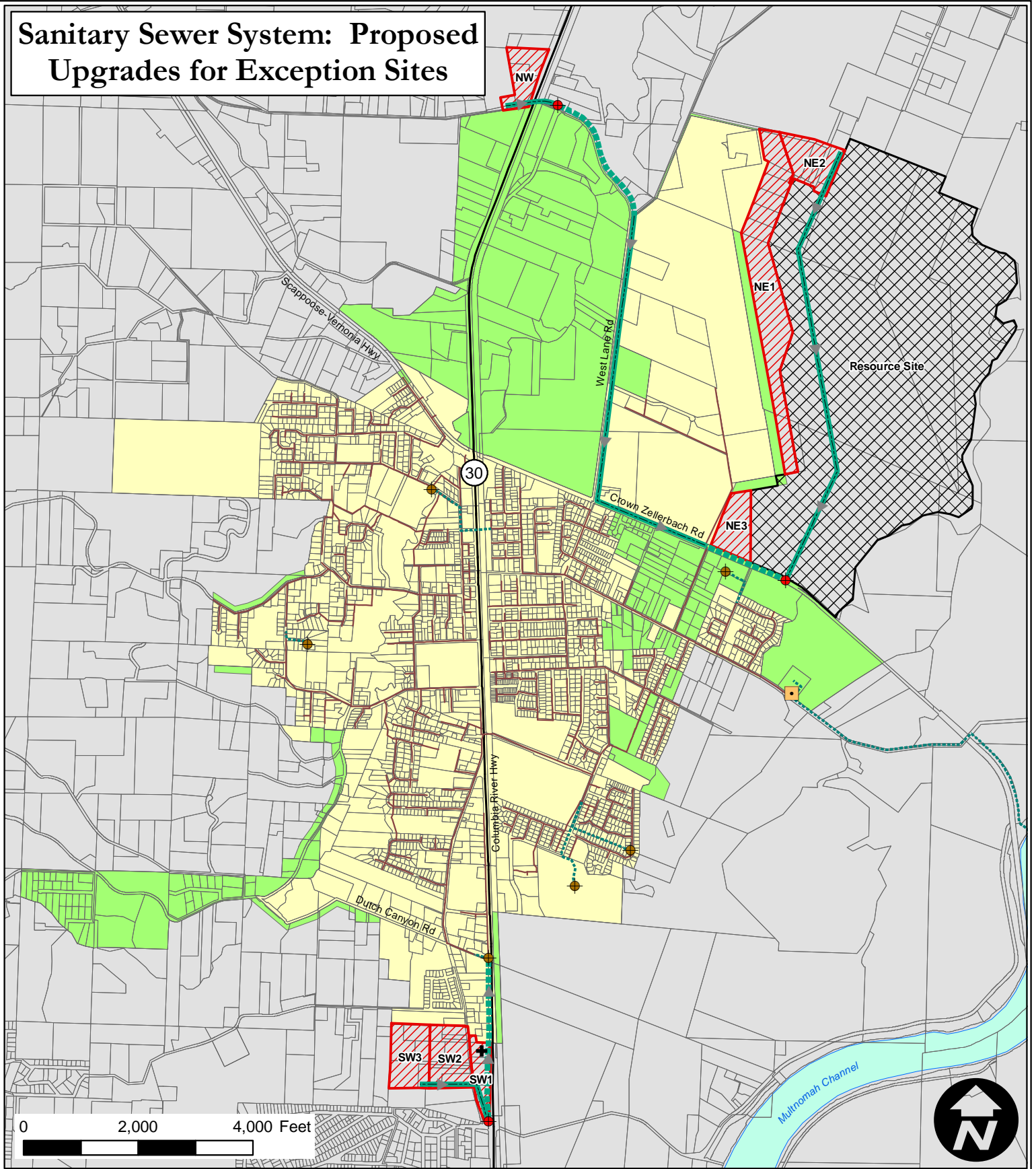
- Tax Lots
- Scappoose City Limits
- UGB

11/09/2010

Figure 5



# Sanitary Sewer System: Proposed Upgrades for Exception Sites



## Proposed Sewer Line Project

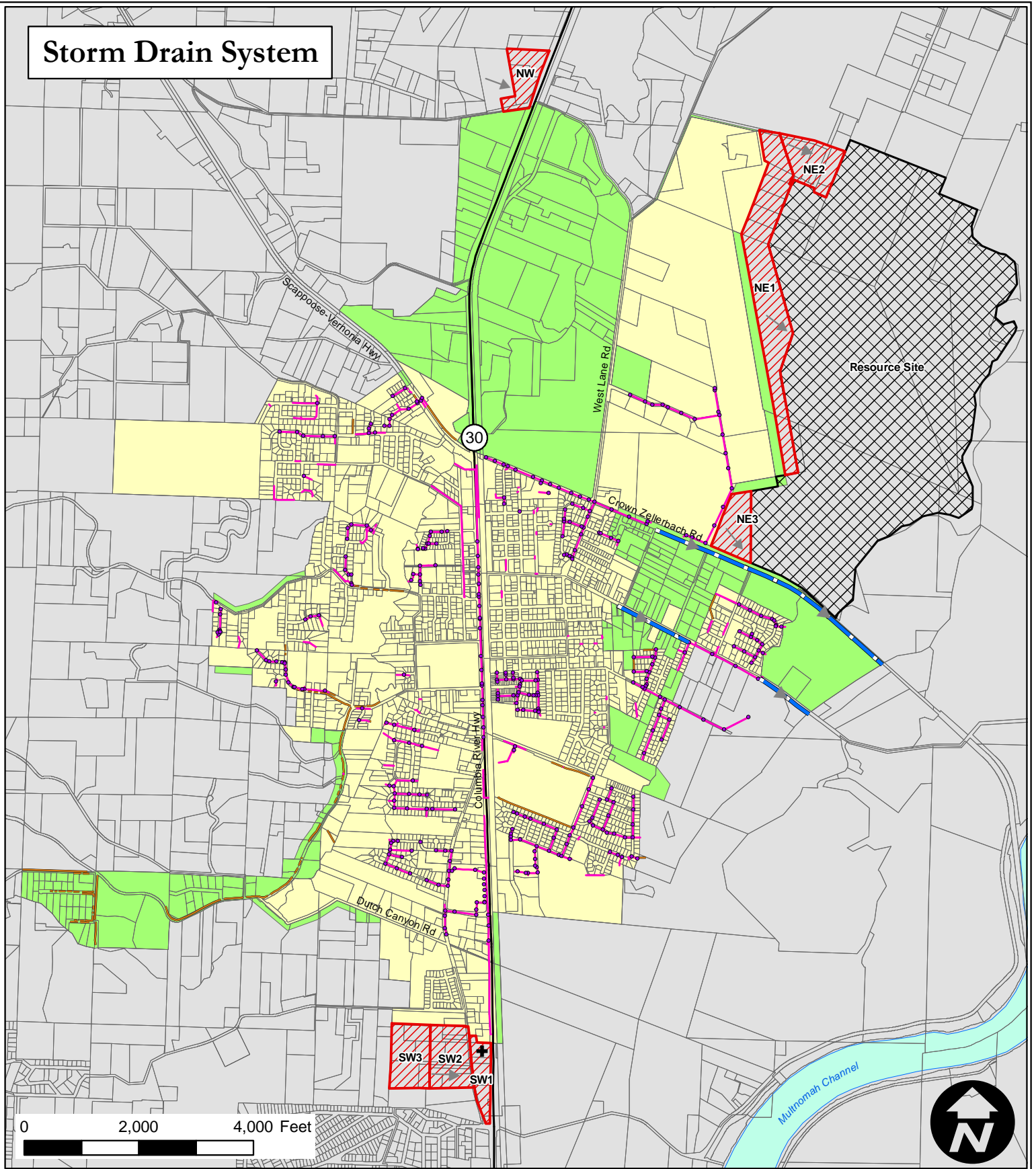
- As Development Requires (Gravity Main)
- As Development Requires (Force Main)
- Direction of Flow

- Existing Gravity Main
- Existing Force Main
- Treatment Plant
- Pump Station (Proposed)
- Pump Station (Existing)

- Exception Site
- Resource Site
- Tax Lots
- Scappoose City Limits
- UGB

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# Storm Drain System



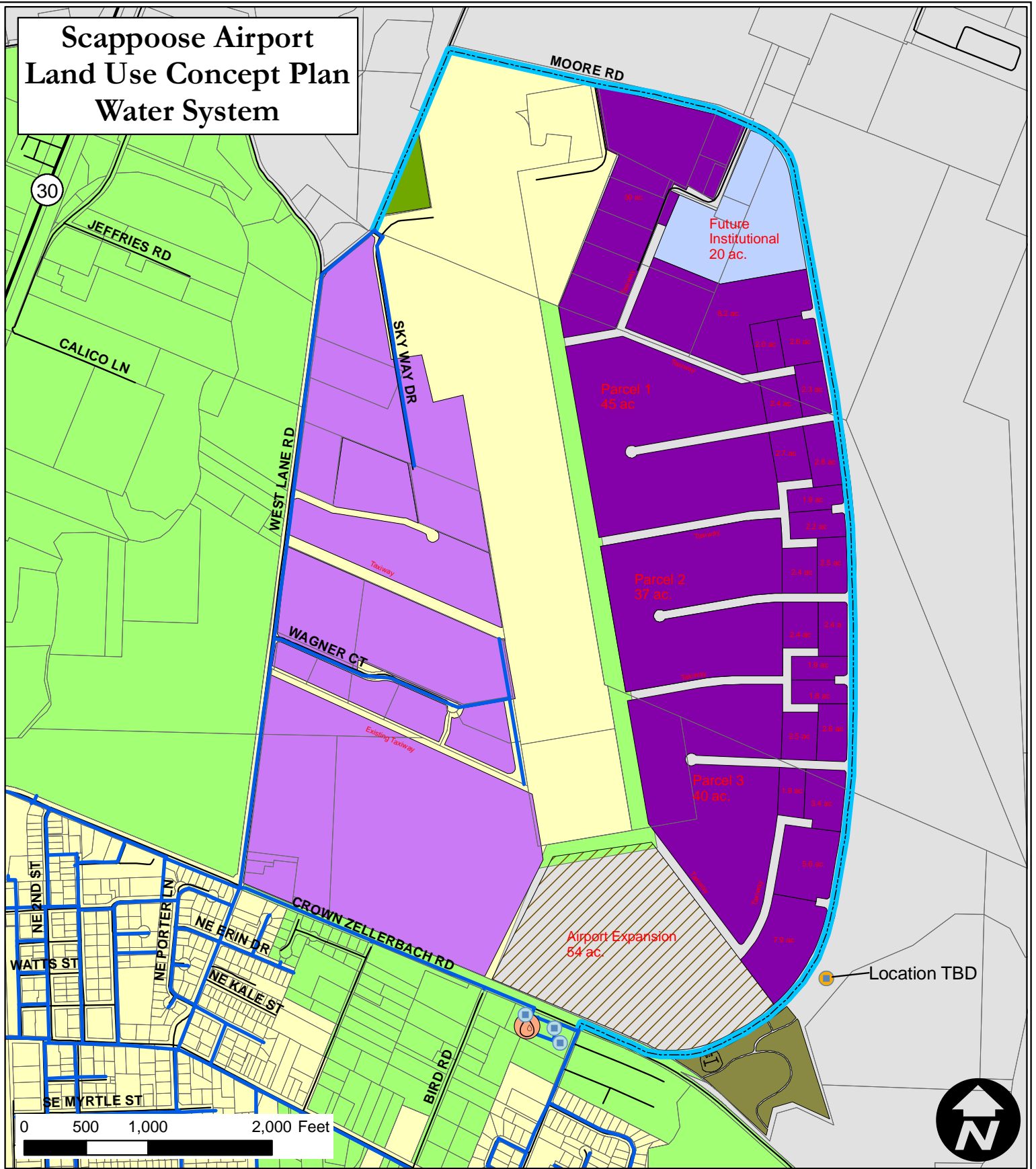
11/09/2010

- |                        |                       |          |
|------------------------|-----------------------|----------|
| CIP Storm Pipe Project | Exception Site        | Cemetery |
| Manhole                | Resource Site         |          |
| Existing Storm Pipe    | Tax Lots              |          |
| Existing Ditch         | Scappoose City Limits |          |
| Direction of Flow      | UGB                   |          |

[Record page 314]

Figure 7

# Scappoose Airport Land Use Concept Plan Water System



- Proposed Water Line Distribution Project
- Existing Water Main
- Supply Well (Proposed)
- Supply Well (Existing)
- Water Treatment Plant

- Airport Land Use**
- UGB Expansion - Future Institutional
  - UGB Expansion - Industrial
  - UGB Expansion - Airport
  - Airport Employment (In UGB)
  - Public Land (In UGB)

- Tax Lots
- Streets
- Scappoose City Limits
- UGB

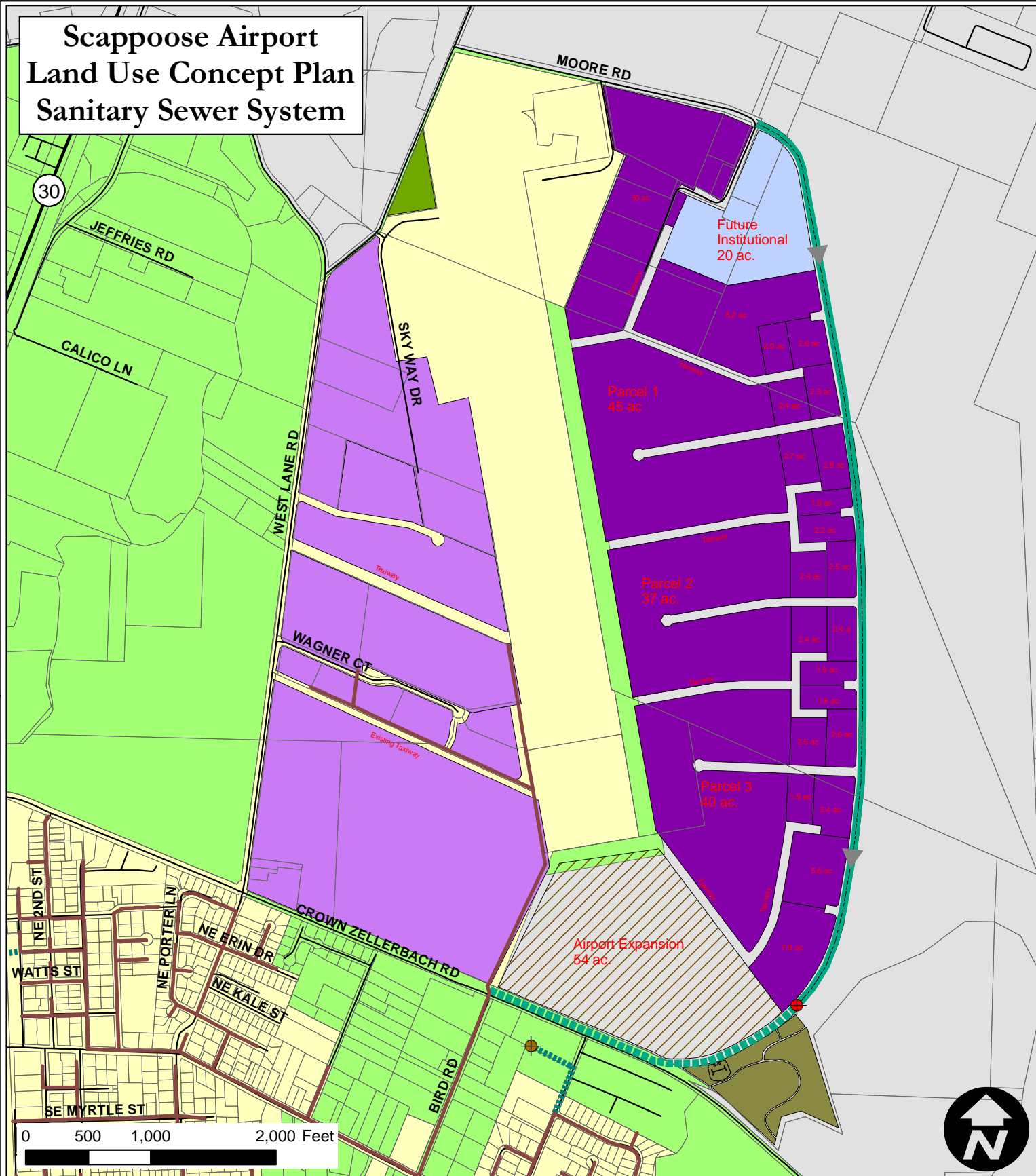
0 500 1,000 2,000 Feet



11/09/2010

Figure 8

# Scappoose Airport Land Use Concept Plan Sanitary Sewer System



### Proposed Sewer Line Project

- Gravity Main
- Force Main
- Existing Gravity Main
- Existing Force Main
- Pump Station (Proposed)
- Pump Station (Existing)

### Airport Land Use

- UGB Expansion - Future Institutional
- UGB Expansion - Industrial
- UGB Expansion - Airport
- Airport Employment (In UGB)
- Public Land (In UGB)
- Regional Park

- Tax Lots
- Streets
- Scappoose City Limits
- UGB
- Direction of Flow

[Record page 316]

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Figure 9

Figure 10

Area Description	NW	NE1	NE2	NE3	Resource	SW1	SW1 and SW2	SW1,2, and 3	Composite NE Area
Parcel Size (acres)	11	48	16	13	222	5	23	38	299
Proposed Use	Commercial	Industrial	Industrial	Industrial	Industrial	Commercial	Commercial	Commercial	Mixed
Additional City Water Source/Filtration Required?	N	N	N	N	N	N	N	N	N
Additional City Water Storage Required?	N	N	N	N	N	N	N	N	Y
Water Distribution Extensions Required?	Y	Y	Y	N	Y	Y	Y	Y	Y
New Wastewater Treatment Plant Upgrades Required?	N	N	N	N	N	N	N	N	Y*
New Wastewater Pump Station Required?	Y	Y	Y	Y	Y	Y***	Y	Y	Y
Wastewater Distribution Extensions Required?	Y	Y	Y	N	Y	Y***	Y	Y	Y
Services Likely to be Provided based on Funding and Feasibility if Site is Developed?	N**	Y	N	N	Y	Y***	Y	Y	Y

\* Incremental upgrades of identified improvements are likely required

\*\* Unlikely to support needed infrastructure unless infrastructure is upgraded for properties within the current UGB also

\*\*\* Septic services may be a viable alternative to conventional centralized network extensions which would decrease infrastructure costs.

## Technical Memorandum

**Date:** March 11, 2010

**To:** Winterbrook Planning

**From:** Carl Springer, PE  
Kevin Chewuk

**Subject:** **Scappoose Transportation Study**  
**Scappoose UGB Alternative Expansion Area Analysis**

**P09152-000-001**

This memorandum provides a summary of strategies used in evaluating the transportation system impacts associated with the potential Urban Growth Boundary (UGB) expansion in the city of Scappoose. The purpose of this analysis is to identify locations around the city that would be suitable for meeting the expected employment growth demand, while still providing effective transportation operations.

### Introduction

The city of Scappoose is located in Columbia County along US 30 between St. Helens to the north and Portland to the south. US 30 provides access to businesses along the corridor and serves as a major transportation route between Portland and Astoria.

A recent survey of land inside the city limits and UGB of Scappoose showed a shortfall in available commercial and industrial land uses<sup>1</sup>. This has created a need to evaluate the possible expansion of the Scappoose UGB to accommodate the expected shortfall in land use. Due to the size and anticipated development potential of the expansion lands, a detailed transportation analysis is required to ensure that appropriate multimodal facilities are identified with the expansion of the UGB. This memorandum summarizes the first task of the transportation study, which investigates alternative locations for expansion of the UGB and attempts to identify the sites with the least potential transportation operational and infrastructure impacts.

### Assumptions

The purpose of this section is to outline key assumptions that will be used to help identify the areas of the city most suitable for UGB expansion. Areas of interest covered in this section are the expected future land use needs outside of the current UGB, average daily traffic volumes, and trip distribution.

### Land Use Need

Land use is a key factor in developing a functional transportation system. The amount of land that is planned to be developed, the type of land uses, and how the land uses are mixed together have a direct relationship to the expected demands on the transportation system. Understanding the amount and type of land use is critical to maintaining or enhancing transportation system operations.

The Scappoose Economic Opportunities Analysis (EOA) identified that the current UGB is not large enough to accommodate a 20-year supply of buildable land. Based upon employment forecasts and current land use patterns, the EOA suggests that an additional 308.5 acres will be needed outside of the existing UGB for development over the next 20 years. As shown in Table 1, this includes nearly 30 acres of highway

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<sup>1</sup> Scappoose Economic Opportunities Analysis and Long-Term Urban Land Needs Assessment, February 2010

commercial/retail, three acres of lodging, 20 acres of institutional, 90 acres of airport related expansion (50 acre runway, and 40 acres of hangars), and 166 acres of industrial.

Table 1 indicates that employment demand in Scappoose is expected to increase significantly in the coming decades. Many residents in Scappoose are currently traveling throughout the region for employment, with approximately 80 percent of forecasted Scappoose trips having one trip end outside of the city<sup>2</sup>. With increased employment in the city, the jobs to housing ratio will be improved meaning less traffic from Scappoose will be traveling outside of the city to employment.

**Table 1: Expected Land Use Need Outside of UGB**

Land Use	Size (acres)
Highway Commercial/Retail	29.5
Lodging	3.0
Institutional	20.0
Airport Runway Extension	50.0
Airport Hangar Reserve	40.0
Industrial	166.0
<b>Total Acreage Needed</b>	<b>308.5</b>

## Average Daily Traffic Volumes

The average daily traffic volumes (ADT) on US 30 through the city were estimated using ODOT's 2028 future volume tables. ADT volumes on US 30 in 2007 were used by ODOT to forecast future 2028 volumes. This data was then used to determine the historical trend, which suggests that the traffic volumes will increase approximately 1.6 percent annually (from 32,600 in 2007 to 43,500 in 2028). The data used to determine the growth rate is summarized in Table 2. Using the annual growth rate of 1.6 percent, the US 30 ADT for 2035 was estimated. As shown, average daily traffic on US 30 through the city is expected to increase over the next 28 years by nearly 13,000, to 45,450.

**Table 2: Background Traffic Growth Rate Calculation**

Location	Count Data (ADT)		Annual Growth rate	Estimated 2035 ADT
	2007	2028		
US 30: 0.01 miles north of E.M. Watts Road	32,600	43,500	1.6%	45,450

Source: 2028 Future Volumes Table, ODOT, [http://www.oregon.gov/ODOT/TD/TPAU/A\\_Data.shtml](http://www.oregon.gov/ODOT/TD/TPAU/A_Data.shtml)

## Trip Distribution

Trip distribution involves estimating how site generated traffic will leave and arrive at the proposed site and what roads those trips will take. The trip distribution for the potential UGB expansion was estimated based on regional population distribution.

It is estimated that 60% of UGB expansion traffic would arrive from the south using US 30, 20% from the north along US 30, 2% from the west along Scappoose Vernonia Highway, and 18% from within the city limits of Scappoose.

<sup>2</sup> Forecasted 2015 Weekday PM Peak Hour Traffic Volumes, Scappoose Transportation System Plan

## Employment Growth Implications

Since the major population centers are generally located to the south of the city, it is expected that the majority of the future employees (60 percent) in the expansion areas will arrive via US 30 from the south. If the UGB expansion employment is located in the northern part of the city (north of Scappoose Vernonia Highway-Crown Zellerbach Road) traffic arriving from the south would traverse nearly all intersections on US 30 through the city, generally in the opposite direction of the peak traffic flow.

When the UGB expansion employment growth is coupled with the expected increase in ADT volumes along the US 30 corridor through the city, it is expected that much of the available roadway capacity will be used. Therefore, the farther north in the city the UGB expansion employment is located, the greater the transportation operational impacts will be (vehicle trips generated from the employment growth if located to the south of the city would not impact as many US 30 intersections). The UGB employment expansion should be located in areas that balance the needs of site location characteristic requirements while still providing efficient transportation system operations.

## Alternatives Development and Analysis

This section provides the results of the alternative UGB expansion area analysis. Included is a summary of the UGB expansion areas, the analysis criteria used in evaluating the alternative UGB expansion areas, and the results of the alternative expansion area analysis.

### UGB Expansion Areas

The city of Scappoose was broken into four quadrants to assess the possibility of UGB expansion and to identify the associated transportation system impacts in these areas. The potential expansion areas can roughly be split at the US 30/Scappoose Vernonia Highway-Crown Zellerbach Road intersection (the northeast quadrant is northeast of this intersection, the northwest quadrant is northwest, the southeast quadrant is southeast, and the southwest quadrant is southwest).

### Analysis Criteria

Each potential expansion area was ranked on four factors:

- Opportunity for local trips traveling between the expansion areas to avoid using US 30  
This factor considers the benefits associated with vehicle trips of expansion area employees originating or ending in the city and traveling between the expansion areas on roadways other than US 30. These trips will have little to no impact to transportation operations on US 30. A well connected grid of roadways, with relatively direct routes between the expansion areas is required for local trips to benefit from avoiding US 30.
- Non-local trips (those originating or ending outside of the city) between the expansion areas have minimal impact to US 30  
This factor will take into account how much impact site generated trips will have on US 30 based on the location of the potential UGB expansion area.
- Transportation infrastructure surrounding the expansion areas  
This factor evaluates the roadways surrounding the potential UGB expansion areas. Factors such as functional classification, roadway right-of-way, roadway cross-section, lane widths, posted speed, and on-street parking were considered.
- Accessibility of motor vehicles and large trucks to the expansion areas  
This factor considers the roadways connecting the potential UGB expansion areas to the major transportation route (US 30) and the potential for infrastructure enhancements or alternative US 30 routes.



### Opportunity for local trips traveling between the expansion areas to avoid using US 30

In the city, the residential areas on the east side of US 30 generally have well connected roadways with direct routes between the northeast and southeast quadrants. In addition, a few east-to-west connections are available across US 30 providing limited connections between the residential areas on the both sides of US 30 and the northeast, southeast, and southwest quadrants. The northeast and southeast quadrants were ranked “high” on this factor.

The southwest quadrant has connected roadways, but no direct routes between the residential areas and potential UGB employment expansion areas, therefore the potential for local trips to avoid US 30 is lower than that on the east side of US 30 (ranked “medium”).

The northwest quadrant is disconnected from the residential areas of the city. No direct connections to this potential employment area are currently available without utilizing US 30. A potential new connection across Scappoose Vernonia Highway between the northwest quadrant and residential areas on the west side of US 30 would be difficult due to topography and environmental constraints. If the US 30/West Lane Road intersection is signalized, then West Lane Road would provide a local alternative route for the residential areas on the east side of US 30 and the northwest quadrant. For this reason, the northwest quadrant was ranked “medium” on this criteria.

### Non-local trips to these areas have minimal impact to US 30

Since the major population centers are generally located to the south of the city, it is expected that the majority of the future employees in the expansion areas will arrive via US 30 from the south. Expansion areas located to the north (northeast and northwest quadrants) will have greater transportation operational impacts to US 30 than those in the south (southeast and southwest quadrants). This is because a majority (60%) of UGB expansion generated trips will begin or end south of the city. Therefore, UGB expansion generated trips traveling between areas farther north in the city (northeast and northwest quadrants) will traverse nearly all intersections on US 30 through the city, while those trips between the southeast and southwest quadrants will only travel through a few intersections.

### Existing Transportation infrastructure surrounding the expansion areas

Characteristics of the major roadways surrounding and connecting the potential UGB expansion areas were documented and presented in Table 3. Data collected included functional classification, roadway right-of-way, roadway cross-section, lane widths, posted speed limits, and on-street parking. These characteristics define roadway capacity and operating speeds throughout the city.

Through the entire city US 30 maintains a continuous five-lane cross-section (i.e. two through lanes in each direction and a center turn lane), providing good north to south motor vehicle circulation through the city. All remaining roadways in the city have a two-lane cross-section (one lane in each direction) with the exception of Crown Zellerbach Road, Havlik Road, and a portion of Old Portland Road which have three-lane cross-sections (one lane in each direction and a center turn lane).

Besides US 30, most of the remaining roadways in the city are collectors serving as neighborhood connections to US 30, such as east Columbia Avenue, EM Watts Road, High School Way, and Maple Street. While these roadways provide good connections to US 30 for trips between the residential neighborhoods, they would not provide good routes for non-local UGB expansion generated motor vehicle trips. These roadways not only traverse established residential neighborhoods, they generally do not have enough capacity to serve the expected employment generated traffic. The exceptions are West Lane Road, Crown Zellerbach Road, Scappoose Vernonia Highway, Havlik Drive, Honeyman Road, and Wikstrom Road. These roadways would generally be suitable for the employment generated trips as they do not impact residential areas of the city and provide good circulation with limited driveways and connected routes.

As shown in Table 3, the northeast quadrant has the best motor vehicle circulation of the potential expansion areas with three site adjacent major collector roadways suitable for employment generated trips (Crown

Zellerbach Road, Honeyman Road, and West Lane Road). The northwest quadrant has two major roadways suitable for employment generated trips (Scappoose Vernonia Highway and Wikstrom Road), while the southwest quadrant has only one major roadway suitable for employment generated trips (Havlik Drive) adjacent to the potential expansion areas. The southeast quadrant currently has no site adjacent roadways suitable for employment generated trips, but will when the Havlik Road extension is complete.

**Table 3: Existing Roadway Characteristics**

Street Name	Jurisdiction	Scappoose <sup>3</sup> / ODOT/ Columbia County <sup>4</sup> Classification	Cross Section	ROW Width (feet)	Lane Widths (feet)	Posted Speed (mph)	On-Street Parking
US 30	ODOT	Statewide Highway	5 lanes	100	12	35-45	Portions of West Side
<b>Roadways surrounding Northeast Quadrant</b>							
Crown Zellerbach Road	Scappoose	Major Collector	3 lanes	60	10	35	None
Honeyman Road	Columbia County	Major Collector	2 lanes	40	10	25	None
West Lane Road	Columbia County	Major Collector	2 lanes	40-60	10	25	None
<b>Roadways surrounding Northwest Quadrant</b>							
Scappoose Vernonia Highway	Columbia County	Minor Arterial	2 lanes	40	10	45	None
Wikstrom Road	Columbia County	Major Collector	2 lanes	40	10	35	None
<b>Roadways surrounding Southeast Quadrant</b>							
Havlik Drive Extension	Scappoose	Minor Collector	-	-	-	-	-
<b>Roadways surrounding Southwest Quadrant</b>							
Havlik Drive	Scappoose	Major Collector	3 lanes	60	12	25	None
<b>Other Roadways</b>							
East Columbia Avenue	Columbia County	Major Collector	2 lanes	60	12	25	Both Sides
EM Watts Road	Columbia County	Major Collector	2 lanes	40	10	20	Portions of North Side
High School Way	Scappoose	Minor Collector	2 lanes	60	12	25	None
Maple Street	Scappoose	Minor Collector	2 lanes	60	10-12	25	Both Sides
Old Portland Road	Scappoose	Major Collector	2 to 3 lanes	60	10-12	35	Portions
SE 4 <sup>th</sup> Street	Scappoose	Minor Collector	2 lanes	50-60	12	25	Both Sides

<sup>3</sup> Scappoose Transportation System Plan, October 1997

<sup>4</sup> Columbia County Rural Transportation System Plan, June 1998

In addition to the motor vehicle characteristics, pedestrian and bicycle circulation potential was evaluated between the potential UGB expansion areas and residential areas as presented in Table 4. As shown, US 30 maintains continuous bike lanes through the entire city. Sidewalks are available on the west side of US 30 from Havlik Drive to Scappoose Vernonia Highway-Crown Zellerbach Road. However, no sidewalks are available on US 30 between Scappoose Vernonia Highway-Crown Zellerbach Road and West Lane Road.

Beyond US 30, limited pedestrian and bicycle circulation is available between the residential areas and the potential UGB expansion areas. Overall, there are considerable sidewalk and bicycle facility coverage gaps that could be in-filled to provide greater and safer pedestrian and bicycle connectivity to the potential employment areas. Continuous pedestrian or bicycle connections to the potential employment areas can offer a safe and more convenient alternative to motor vehicles trips.

As shown in Table 4, the northeast, southeast, and southwest quadrants have limited pedestrian connections to the residential neighborhoods in the city. The northwest quadrant has limited sidewalks available on Scappoose Vernonia Highway, however, no direct connections are available to the residential areas of the city. In addition, only the northeast and southeast quadrants have limited bicycle connections between the residential areas.

**Table 4: Existing Pedestrian and Bicycle Characteristics**

Street Name	Sidewalks	Bike Facilities
<b>US 30</b>		
Havlik Drive to High School Way - Walnut Street	West Side	Bike Lanes
High School Way – Walnut Street to East Columbia Avenue	Both Sides	Bike Lanes
East Columbia Avenue to Scappoose Vernonia Highway – Crown Zellerbach Road	West Side	Bike Lanes
Scappoose Vernonia Highway – Crown Zellerbach Road to West Lane Road	None	Bike Lanes
<b>Facilities on roadways surrounding Northeast Quadrant</b>		
Crown Zellerbach Road	South Side	Bike Lanes
Honeyman Road (West Lane Road to Moore Road)	None	None
West Lane Road	Both Sides south of Crown Zellerbach Road	None
<b>Facilities on roadways surrounding Northwest Quadrant</b>		
Scappoose Vernonia Highway	Intermittent Sidewalks	None
Wikstrom Road	None	None
<b>Facilities on roadways surrounding Southeast Quadrant</b>		
Havlik Drive Extension	Both Sides	Bike Lanes
<b>Facilities on roadways surrounding Southwest Quadrant</b>		
Havlik Drive	Both Sides	None
<b>Facilities on other roadways</b>		
EM Watts Road (US 30 to SW 4 <sup>th</sup> Street)	North Side	Shared Roadway
East Columbia Avenue (US 30 to West Lane Road)	Intermittent Sidewalks	None
High School Way	South Side	Shared Roadway
Maple Street	Portions of South Side	None
Old Portland Road	Intermittent Sidewalks	None
SE 4 <sup>th</sup> Street	None	Shared Roadway

Overall, the existing transportation infrastructure was ranked “high” in the northeast quadrant, “medium” in the northwest quadrant, and “low” in the southeast and southwest quadrants.

## Accessibility

Since the potential employment areas are expected to generate motor vehicle and large truck trips from around the region, good connections are needed between US 30. As discussed in the prior section, the only roadways in the city suitable for serving employment generated trips are West Lane Road, Crown Zellerbach Road, Scappoose Vernonia Highway, Havlik Drive, Honeyman Road, and Wikstrom Road. Each of these roadways, with the exception of Honeyman Road, provides connections to US 30. Therefore, two routes to US 30 are available for the northeast quadrant (West Lane Road and Crown Zellerbach Road), and the northwest quadrant (Scappoose Vernonia Highway and Wikstrom Road), while only one route is available for the southeast quadrant (Havlik Drive extension) and southwest quadrant (Havlik Drive). These routes would not impact residential areas of the city.

In addition to current access to US 30, the potential was evaluated for new connections, infrastructure enhancements and alternative US 30 routes. The purpose for these improvements would generally be to distribute some of the employment generated trips to alternative routes other than US 30, or different intersections along US 30 to maintain intersection capacity.

The east side of US 30 has the greatest potential for an alternative US 30 route. This area has no topography constraints and existing development patterns would allow for a relatively direct route to be constructed between the potential employment areas in the northeast and southeast quadrants. The potential roadway could connect with US 30 near Havlik Drive to the south and West Lane Road to the north.

The west side of US 30 has topography constraints which would generally not allow a direct route between the northwest and southwest quadrants. A direct route is needed to save drivers time, and entice potential expansion area employees to take the route.

In the northeast quadrant, the potential for a loop roadway connection between Crown Zellerbach Road and Moore Road would improve circulation in the area, and also provide better accessibility to West Lane Road. This could potentially distribute site generated US 30 trips between two intersections (Crown Zellerbach Road and West Lane Road at US 30). The West Lane Road connection to US 30 could potentially be enhanced by signalization and realigning West Lane Road to connect with Moore Road at the Honeyman Road intersection.

Accessibility in the northwest quadrant would be improved by realigning Wikstrom Road to connect with US 30 at West Lane Road and signaling the intersection. In addition, to make the Scappoose Vernonia connection to US 30 more desirable, a new roadway connection between Wikstrom Road and Scappoose Vernonia Road could be constructed.

In the southeast and southwest quadrants, existing residential neighborhoods and access spacing prevents additional US 30 connections for potential expansion area employees north of Havlik Drive. South of Havlik Drive, a potential connection with US 30 would be required to meet established Oregon Department of Transportation (ODOT) access spacing standards. The Oregon Highway Plan establishes access management spacing standards for US 30 that reflect the management objectives associated with the Statewide Highway designation. These standards vary depending on the posted speeds and the character of the surrounding land uses. In this area, the required access spacing is 990 feet. To meet the spacing standard, a new access point on US 30 would need to be between Dutch Canyon Road and Callahan Road.

Since both the northeast and northwest quadrants have more than one potential access point to US 30, they were ranked "high" on this factor. The southeast quadrant has one potential direct route to US 30 (Havlik Drive extension) with the potential for another if an additional access point south of Havlik Drive is constructed, and was ranked "medium." The southwest quadrant has an existing route to US 30 via Havlik Drive, but it is not direct as potential employees would need to utilize Old Portland Road. It also has the potential for a direct route via an additional connection to US 30 south of Havlik Drive, but was ranked "low."

### Alternative Expansion Area Analysis

This section provides the summary of the alternative expansion area analysis presented in the previous sections. It should be noted that the airport related employment uses (airport runway extension, airport hangar reserve, institutional, and industrial) need to be located near the airport where other site characteristics are met. The site characteristics include topography (slopes, wetlands, floodplains, and riparian constraints), site size and configuration, and land use compatibility. The only location that adequately met these requirements is the northeast quadrant, near the Scappoose Industrial Airport. Therefore, for the purpose of the alternatives analysis, the potential UGB employment expansion was broken into two categories, airport related uses and non-airport related uses (as shown in Table 5).

**Table 5: UGB Expansion Land Use Categories**

Land Use	Category
Highway Commercial/Retail	Non-airport related
Lodging	Non-airport related
Institutional	Airport related
Airport Runway Extension	Airport related
Airport Hangar Reserve	Airport related
Industrial	Airport related

As shown in Table 6, the northeast quadrant ranked the highest in meeting the analysis criteria, followed closely by the southeast quadrant. The southwest and northwest quadrants tied for third and fourth.

Since the site characteristics requirements are met, and it has the highest ranking from the alternatives analysis, it is recommended that the airport related land uses be located in the northeast quadrant. This location has the best transportation infrastructure, good accessibility, and has the opportunity for local trips to avoid US 30.

Overall, the non-airport related land use would have the least transportation impacts in the southeast quadrant. This location has the opportunity for local trips to avoid US 30, non-local UGB expansion generated trips will have limited impact on US 30, and has decent accessibility. While the northwest quadrant has good accessibility to US 30, and decent transportation infrastructure, the area would have the highest impact to US 30 for local and non-local site generated trips. The southwest quadrant is not recommended for UGB expansion due to existing development patterns and the lack of existing transportation infrastructure and accessibility to US 30.

**Table 6: Evaluation of Potential UGB Expansion Areas**

UGB Expansion Area	Local trips to these areas avoiding US 30	Non-local trips to these areas have minimal impact to US 30	Existing transportation infrastructure	Accessibility	Rank
Northeast Quadrant	High	Low	High	High	1
Southeast Quadrant	High	High	Low	Medium	2
Southwest Quadrant	Medium	High	Low	Low	3-Tie
Northwest Quadrant	Low	Low	Medium	High	3-Tie

# Technical Memorandum

**Date:** March 23, 2010  
**To:** Winterbrook Planning  
**From:** Carl Springer, PE  
 Kevin Chewuk  
**Subject:** **Scappoose Transportation Study**  
**Scappoose UGB Expansion Transportation Impacts**

P09152-000-001

This memorandum presents our review of the transportation system and discusses possible impacts with the potential Urban Growth Boundary (UGB) expansion in the city of Scappoose. The purpose of this initial analysis is to identify the transportation system impacts and to develop potential improvements that would maintain effective transportation system operations with the employment growth associated with the UGB expansion. A more detailed transportation impact study will follow at a later date.

## Introduction

Prior analysis<sup>1</sup> attempted to determine the locations around the city that would be most suitable for large-scale employment growth. Large scale employment is generally referring to large clusters of employment that will generate more motor vehicle trips and require better transportation infrastructure. For the UGB expansion this would generally be industrial and airport related land uses (encompassing about 280 acres of the 310 acres needed outside of the UGB). The city was evaluated in quadrants (northeast, northwest, southeast, and southwest) as shown in the figure to the right.

The prior analysis determined that the northeast “quadrant” (roughly northeast of the US 30/Scappoose Vernonia Highway-Crown Zellerbach Road intersection) as the most suitable site for large-scale employment growth and associated motor vehicle or large truck trip generation. This location had the best transportation infrastructure, good accessibility, and had the opportunity for local trips to avoid US 30.

The second most suitable site for large-scale employment growth was the southeast “quadrant” (roughly southeast of the US 30/Scappoose Vernonia Highway-Crown Zellerbach Road intersection). This location had the opportunity for local trips to avoid US 30, non-local UGB expansion generated trips would have limited impact on US 30, and had decent accessibility.

The northwest and southwest quadrants (roughly northwest and



<sup>1</sup> Scappoose UGB Alternative Expansion Area Analysis, March 11, 2010, DKS Associates

southwest of the US 30/Scappoose Vernonia Highway-Crown Zellerbach Road intersection) were the least suitable sites for large-scale employment growth, and would have the highest transportation impacts. While the northwest quadrant had good accessibility to US 30, and decent transportation infrastructure, the area would have the highest impact to US 30 for local and non-local site generated trips. The southwest quadrant is not suitable for large scale UGB employment growth due to existing development patterns and the lack of existing transportation infrastructure and accessibility to US 30. These sites would generally be more suitable for smaller scale employment growth.

This new analysis builds upon the prior UGB Alternative Expansion Area Analysis described above and assumes suitable land uses for the expansion areas. The large-scale employment growth was assumed in the northeast quadrant (industrial and airport related land uses); while more distribution related industrial land uses were assumed in the southeast quadrant. Smaller-scale commercial land uses were assumed in the northwest and southwest quadrants. Assuming these potential land uses, the preliminary transportation impacts and potential improvements were identified.

## Potential Impacts and Improvements

This section provides a summary of the possible transportation impacts associated with employment growth in each of the potential UGB expansion areas. Each of the identified impacts is supported with possible improvements that could enhance transportation system operations.

### Northeast Quadrant

This area was determined to be the most suitable for large-scale employment growth. Large-scale employment growth will generally need to be supported by roadways that provide good circulation within and surrounding the site, and accessibility for both local and non-local trips. Roadways leading to and surrounding the site will need to be sufficient to serve site generated motor vehicle and large truck trips. The large-scale employment impacts and potential improvements in the northeast quadrant can be seen in Table 1.

Large-scale employment growth in this area may create operational problems at the US 30/Scappoose Vernonia Highway- Crown Zellerbach Road intersection. During the AM peak hour, vehicles inbound to job sites (eastbound through, northbound right and southbound left vehicle movements) will be increased at this intersection. During the PM peak hour, vehicles commuting back home (westbound left, through and right vehicle movements) will be increased. This will take traffic signal green time away from the other movements at the intersection, which will decrease intersection capacity and make operations worse overall. For this reason, the existing unsignalized US 30/West Lane Road intersection could be improved to provide an alternative site access point. This alternative access point could potentially be a more attractive route for site generated traffic if West Lane Road was realigned to connect with Moore Road at the Honeyman Road intersection.

In addition, large-scale employment growth will generate many non-local trips from outside of the Scappoose city limits. Site generated trips between areas to the north or west of the city would have little impact to US 30 through Scappoose, however, trips generated between areas south of the city (estimated to be 60% of site generated trips) will cause significant impacts to most highway intersections through the city. The site generated trips will generally travel against peak hour traffic flows on US 30 through Scappoose, however, this means green time at the traffic signals would be taken from the peak directional movements, decreasing capacity and making intersection operations worse. A potential solution would be to create an alternative route to the east of US 30. This alternative route would divert vehicle trips from US 30 between areas south of the city and the northeast quadrant, increasing capacity and improving operations at US 30 intersections through Scappoose.



**Table 1: Potential Employment Generated Impacts and Transportation Solutions in the Northeast Quadrant**

Potential Impact	Solution	Potential Improvement(s)
Capacity constraints at the US 30/ Vernonia Highway- Crown Zellerbach Road intersection	Alternative access to US 30 at West Lane Road	Improve the US 30/ West Lane Road intersection with a traffic signal (when signal warrants are met) and capacity enhancements.
		Realign West Lane Road to connect with Moore Road at the Honeyman Road intersection.
Non-local trips between areas south of the city and the northeast quadrant may impact US 30 through Scappoose	Alternative route to US 30	Construct or provide a connection to a future major north-to-south roadway between Havlik Drive and Crown Zellerbach Road.
Capacity constraints on site adjacent roadways	Capacity enhancements	Capacity enhancements on Crown Zellerbach Road, Honeyman Road, and Moore Road.

**Southeast Quadrant**

This area was determined to be the second most suitable location for large-scale employment growth. Since this location is also highway adjacent, it is generally suitable for distribution type industrial land uses. This type of development will generally need good access to US 30, and wide local roadways for large truck circulation. The UGB employment related impacts and potential improvements in the southeast quadrant can be seen in Table 2.

The motor vehicle and large truck trips generated from the distribution related land uses may create capacity constraints and queuing issues at the US 30/ Havlik Drive intersection. Since the distance between US 30/ Havlik Drive and the Havlik Drive/ 2<sup>nd</sup> Street intersections is only 450 feet, and with the railroad tracks generally encompassing 100 feet of this distance, vehicle queuing may become an issue. To prevent queue blockage, the Havlik Drive/2<sup>nd</sup> Street intersection should be located as far east as possible from US 30. In addition, an alternative access point could be provided by constructing a roadway between Havlik Drive and Johnson’s Landing Road. The US 30/ Johnson’s Landing Road intersection could potentially be signalized when signal warrants are met, creating two signalized access points to the southeast quadrant.

In addition, employment growth will generate non-local trips from outside of the Scappoose city limits. Site generated trips between areas to the south the city would have little impact to US 30 through Scappoose, however, trips generated between areas west and north of the city (estimated to be 22% of site generated trips) will cause significant impacts to most intersections through the city. The site generated trips will generally travel with peak hour traffic flows on US 30 through Scappoose. This means additional traffic would be added to the peak directional movements at the intersections, further decreasing capacity and making intersection operations worse. A potential solution would be to create an alternative route to the east of US 30 between Havlik Drive and Crown Zellerbach Road. This route would provide alternative access between areas south and north of the city, and the northeast and southeast quadrants. In addition, neighborhoods on the east side of US 30 would have an alternative means of access for local and non-local trips.

**Table 2: Potential Employment Generated Impacts and Transportation Solutions in the Southeast Quadrant**

Potential Impact	Solution	Potential Improvement(s)
Capacity constraints at the US 30/ Havlik Drive intersection	Alternative access to US 30	Roadway connection between Havlik Drive and Johnson's Landing Road.
Queuing vehicles blocking potential intersection to southeast quadrant at 2 <sup>nd</sup> Street	Driveway access spacing	Position the site driveway as far east as possible from the US 30/ Havlik Drive, and Havlik Drive/2 <sup>nd</sup> Street intersections by extending Havlik Drive to the east of 2 <sup>nd</sup> Street.
Non-local motor vehicle and large truck trips between areas north of the city and the southeast quadrant may impact US 30 through Scappoose	Alternative route to US 30	Construct or provide a connection to a future major north-to-south roadway between Havlik Drive and Crown Zellerbach Road.

### Northwest Quadrant

The transportation system in the northwest quadrant is generally not suitable for large-scale employment growth. For this reason, this quadrant was analyzed for smaller scale employment growth such as commercial uses. The small-scale commercial employment growth will generally need to be supported by lower classified roadways that provide good access to businesses to lessen the need for direct property access to US 30. These lower classified roadways should also provide the primary means of access to US 30. The UGB employment related impacts and potential improvements in the northwest quadrant can be seen in Table 3.

As shown in Table 3, the employment growth in the northwest quadrant would create capacity constraints at the US 30/ Wikstrom Road unsignalized intersection. Since Wikstrom Road should generally provide the primary means of access to US 30, the roadway should be realigned to the north to connect with West Lane Road at US 30, and upgraded to major collector roadway cross section standards. This connection could further be enhanced with a traffic signal when signal warrants are met. In addition, a roadway along the western boundary of US 30 adjacent properties could be constructed and extended to the south to connect with Scappoose Vernonia Highway. The intersections of this potential roadway with Wikstrom Road and Scappoose Vernonia Highway should be positioned away from US 30 as required by applicable access spacing standards. This roadway could serve as the primary means of access for US 30 adjacent properties.

**Table 3: Potential Employment Generated Impacts and Transportation Solutions in the Northwest Quadrant**

Potential Impact	Solution	Potential Improvement(s)
Capacity constraints at the US 30/ Wikstrom Road unsignalized intersection	Capacity enhancements	Realign Wikstrom Road to the north to connect with West Lane Road at US 30
		Improve the US 30/ West Lane Road- Wikstrom Road intersection with a traffic signal (when signal warrants are met) and capacity enhancements.
Safety issues at site access points along US 30	Access Management/ Alternative access points	Limit site accesses to lower classified roadways such as Wikstrom Road. Unsignalized site access points allowed on US 30 should generally be limited to right-in right-out access.
		Construct a roadway along the western boundary of US 30 adjacent properties between Wikstrom Road and Scappoose Vernonia Highway for primary access to US 30 adjacent properties.
Capacity constraints on site adjacent roadways	Capacity enhancements	Capacity enhancements on Wikstrom Road.
Queuing vehicles from the US 30/ Wikstrom Road intersection blocking potential intersection to northeast quadrant	Driveway access spacing	Position the site driveways as far to the west possible from the US 30/ Wikstrom Road intersection.

### Southwest Quadrant

The transportation system in the southwest quadrant is generally not suitable for large-scale employment growth. For this reason, this quadrant was analyzed for smaller scale employment growth such as commercial uses. The small-scale commercial employment growth will generally need to be supported by lower classified roadways that provide good access to businesses to lessen the need for direct property access to US 30. These lower classified roadways should also provide the primary means of access to US 30. The UGB employment related impacts and potential improvements in the southwest quadrant can be seen in Table 4.

As shown in Table 4, access to the southwest quadrant could potentially be enhanced with an extension of Callahan Road to connect with US 30. This new potential intersection at US 30, and the US 30/ Bonneville Drive intersection could further be enhanced with traffic signals once signal warrants are met. US 30 adjacent properties should have primary access off Old Portland Road. Old Portland Road would provide connections to several potentially signalized intersections (US 30 at Bonneville Drive, Callahan Road, Wikstrom Road and Walnut Street), limiting the need for direct property access to US 30. To improve the access spacing between the US 30/ Bonneville Drive and Bonneville Drive/ Old Portland Road intersections, Old Portland Road should be realigned to the west to connect with Birch Avenue.

**Table 4: Potential Employment Generated Impacts and Solutions in the Southwest Quadrant**

Potential Impact	Solution	Potential Improvement(s)
Capacity constraints at the US 30/ Bonneville Drive unsignalized intersection	Capacity enhancements	Improve the US 30/ Bonneville Drive intersection with a traffic signal (when signal warrants are met) and capacity enhancements.
Capacity constraints on site adjacent roadways	Capacity enhancements	Capacity enhancements on Old Portland Road and Bonneville Drive.
Poor access to US 30	Alternative US 30 access point	Extend Callahan Road to connect with US 30 and add a traffic signal (when signal warrants are met). Remove the existing unsignalized access point at Dutch Canyon Road.
Queuing vehicles from the US 30/ Bonneville Drive intersection blocking potential intersection at Old Portland Road	Realign Old Portland Drive	Realign Old Portland Road to the west to connect with Birch Avenue at Bonneville Drive.
Safety issues at site access points along US 30	Access Management	Limit site accesses to lower classified roadways such as Old Portland Road. Unsignalized site access points allowed on US 30 should generally be limited to right-in right-out access.

## Summary

Overall, the large-scale employment, no matter where in the city it is located, will likely require an alternative route to US 30, capacity enhancements of site adjacent roadways, and good accessibility and circulation. A summary of the potential transportation improvements can be seen in Figure 1.

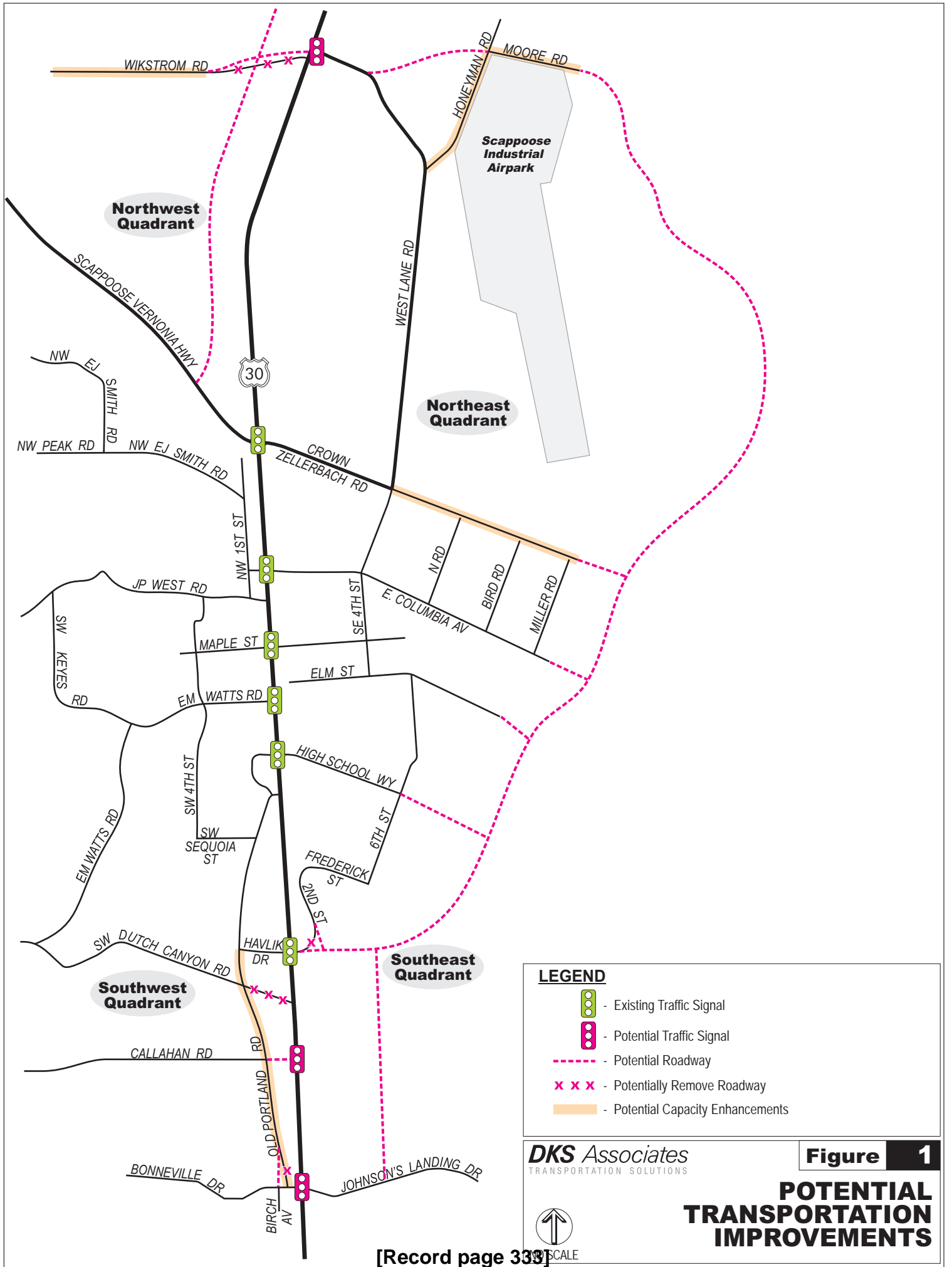
The existing transportation infrastructure and the ability for enhancements make the northeast quadrant the most suitable area of the city to support large scale employment and the associated vehicle trips generated.

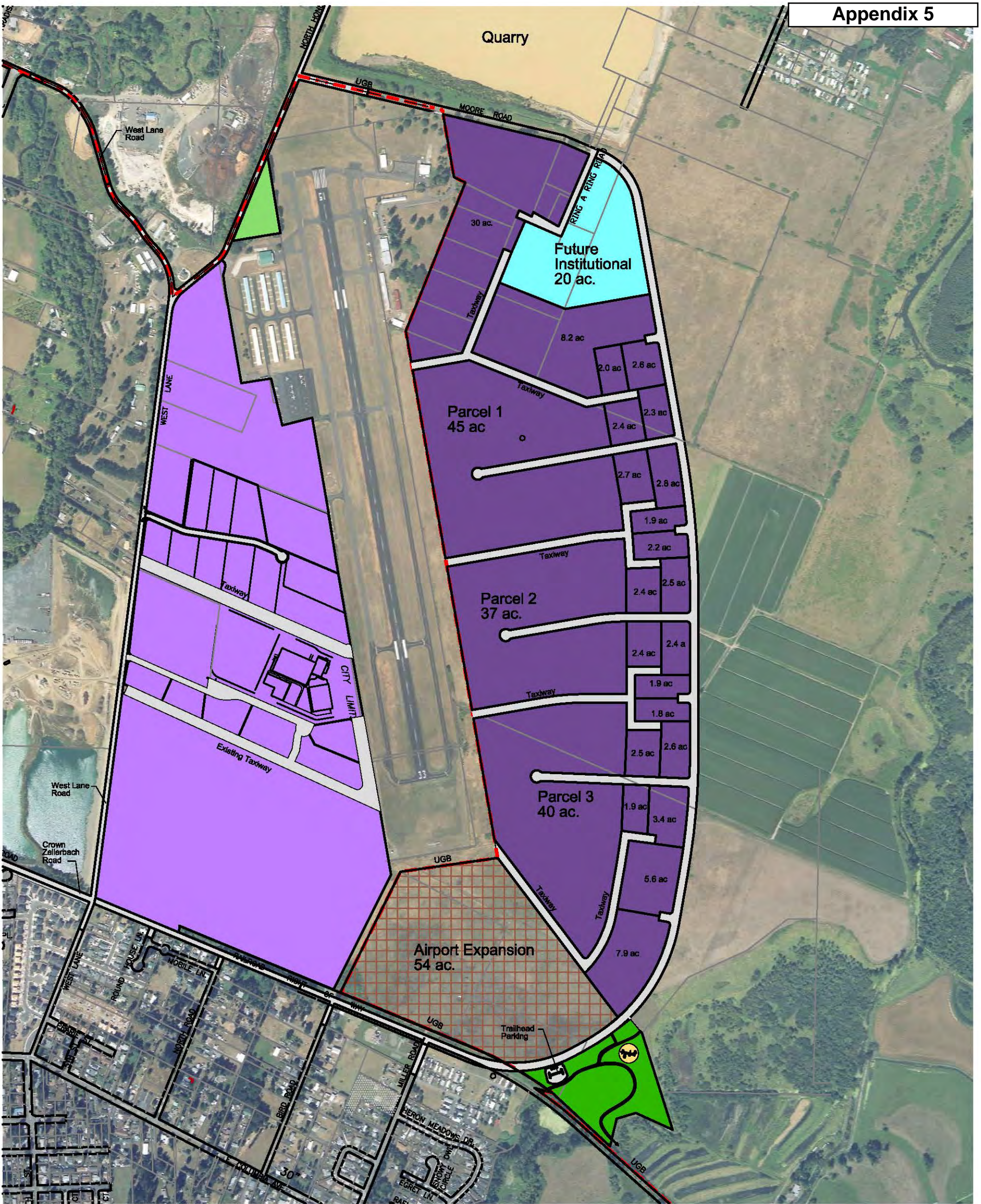
Potential large-scale distribution type employment in the southeast quadrant would likely require modifications to the Havlik Drive/ 2<sup>nd</sup> Street intersection to limit potential queuing conflicts from the US 30/ Havlik Drive intersection. A solution would be to extend Havlik Drive to the east so that any potential site or roadway access to the southeast quadrant is taken away from the Havlik Drive/2<sup>nd</sup> Street intersection.

In addition, Havlik Drive could provide a potential alternative route to US 30 if extended to Crown Zellerbach Road. This route would not only benefit the northeast and southeast quadrants, but the city as a whole. The route would provide neighborhoods on the east side of US 30 alternative access, and lower the dependence on US 30 for local trips within the city.

The northwest and southwest quadrants were determined in prior analysis to not be suitable for large-scale employment growth, and were analyzed for smaller-scale commercial employment growth. Overall, the northwest quadrant would generally require more transportation improvements than the southwest quadrant to support smaller-scale commercial employment growth. For this reason, the southwest quadrant is generally preferred over the northwest quadrant for small-scale commercial development from a transportation perspective.

The southwest quadrant already has Old Portland Road to provide the primary means of access to US 30 adjacent properties, and could potentially connect the southwest quadrant to several signalized intersections. The northwest quadrant would likely require construction of a roadway along the western site boundaries of US 30 adjacent properties to provide the primary means of access, and lower the need for direct property access to US 30. This roadway could also link the northwest quadrant with Scappoose Vernonia Highway if extended to the south.





**Development Legend**

	UGB Expansion - Future Institutional	20 Ac.
	UGB Expansion - Industrial	225 Ac.
	UGB Expansion - Airport	54 Ac.
	Airport Employment (In UGB)	190 Ac.
	Regional Park and Trail System	12 Ac.
	Public Lands (In UGB)	3 Ac.
	Existing UGB	

Note:  
This map is conceptual in nature.  
The locations of roads and parcel  
sizes are approximate and subject  
to change.



L:\Project\113900\13928\Zmisc\UGB-Expansion.dwg

# Scappoose Airport

## Land Use Concept Plan



May 7th, 2010

Project #13928



**PORT OF ST. HELENS**

Mailing Address: P.O. Box 598, St. Helens, Oregon 97051  
Office Location: 100 E Street, Columbia City, Oregon 97018  
Telephone: (503) 397-2888 • Fax: (503) 397-6924  
Web Page: [www.portsh.org](http://www.portsh.org)

May 18, 2010

Ad-Hoc Economic Opportunity Analysis Advisory Committee  
Council Chambers of Scappoose City Hall  
33568 E. Columbia Avenue  
Scappoose, OR 97056

Re: City of Scappoose EOA

Dear Ad-Hoc Economic Opportunity Analysis Advisory Committee:

We are pleased to extend our support of the work performed by the advisory committee and consultant team for the Economic Opportunity Analysis. This effort will help determine the City's economic goals, policies and land needs concerning commercial and industrial development within the City limits and the Urban Growth Boundary.

The plan is a good start in addressing some of the Port's concerns regarding additional land for a future runway extension at the airport and additional land needs for aviation related growth.

The Port is and has always been interested in working with the City and developers to make the City of Scappoose a very viable business destination by supporting the growth of local and future businesses.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gerald Meyer', with a long horizontal flourish extending to the right.

Gerald Meyer  
Executive Director  
Port of St. Helens

## Scappoose Drainage Improvement Company

## TRANSMITTAL

53466 East Honeyman Road

Scappoose, Oregon 97056

(503) 543-2064

Fax (503) 543-8936

August 9, 2010

Brian Varricchione  
 City Planner  
**City of Scappoose**  
 33568 E Columbia Avenue  
 Scappoose, OR 97056

Phone: +1 (503) 543-7146 x 1

**RE: Proposed amendment to the Comprehensive Plan**The following is sent to you for **your review & comment**.

Copies	Date	No.	Description
1	08/09/10	CPA1-10	Land Use Action Referral
1	09/11/08		FEMA letter
1	06/14/10		Todd Dugdale email

**Comments:**

In reviewing the documents provided August 4, 2010 (printed and on CD) we have the following concerns:

1. FEMA flood map updating currently in process requires certification per federal regulations. Although the Scappoose Drainage District is currently shown by FEMA as providing 100 year flood protection with a high rating, this will not be the case if decertified. At this point in time, SDIC has not been successful getting the certification updated.

Currently it appears that the FEMA remapping process is proceeding faster than the certification process. We are working with closely with Columbia County on this issue. Referring to the attached email from Todd Dugdale, the current dead line is July 2011 for certification to be provided to FEMA mapping.

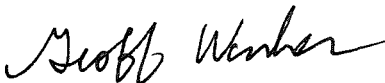
We started on the certification process in 2007. It has been a difficult process to say the least. SDIC is currently trying to work out an agreement with the US Army Corp of Engineers to review and document certification of the Scappoose Drainage District per the federal regulations.

**If decertified, some of the land in the existing and proposed UGB will not be shown on the FEMA maps as protected to a 100 year flood.**

2. As usual, the SDIC is concerned that any development that increases the hard surfaces within or that drain into the drainage district be mitigated from increasing water quantity that must be pumped out by the SDIC. We are also concerned with water quality.

Please call with questions.

Respectfully,



Geoff Wenker  
 President  
 Scappoose Drainage Improvement Company

cc: File





**FEMA**

September 11, 2009

*Geoff*  
~~George~~ Wenker  
President, Scappoose Drainage Improvement Company  
53466 East Honeyman Road  
Scappoose, Oregon 97056

RE: City of Scappoose, Oregon – Levee Certification Application

Dear Mr. Wenker:

Thank you for your submittal of the levee certification documentation received July 15, 2009, in support of your request to accredit the Multnomah Channel levee system, pursuant to the requirements set forth in the National Flood Insurance Program (NFIP) under 44 CFR 65.10 and the Provisionally Accredited Levee (PAL) agreement between the city of Scappoose and the Federal Emergency Management Agency (FEMA).

After an initial screening, FEMA currently deems the submitted certification documentation incomplete, as summarized below. The PAL agreement expired on July 26, 2009. We will initiate a new flood study to revise the maps within approximately two to six weeks. During the onset of the study, we will be in contact with the city and other stakeholders to discuss the study process. Additionally, during this time and up to either the community adoption of the Digital Flood Insurance Rate Map (DFIRMs), or prior to the four-month period that would precede the effective date of the revised maps (whichever comes first), we will accept additional certification documentation and data in support of your objectives to certify the levee, allowing us to show the area landward as protected. Generally, the mapping process from start to finish will take no less than 18 months.

#### **Summary of Incomplete Certification Documentation**

- 1) Please forward certification by a registered professional engineer of all submitted data and documentation supporting compliance with 44 CFR 65.10 by including a statement accompanied by the signed and dated professional engineer stamp(s) of the individual(s) certifying, or a statement from an authorized Federal agency with responsibility for levee design, certifying that the Multnomah Channel levee system continues to be adequately designed and constructed to provide protection from the 100-year (one-percent annual chance) base flood. Certification of the levee system reflects the following:

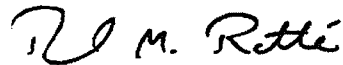
- Certification by a registered professional engineer or other party does not constitute a warranty or guarantee of performance, expressed or implied.
  - Certification of data is a statement that the data are accurate to the best of the certifier's knowledge.
  - Certification of analyses is a statement that the analyses have been performed correctly and in accordance with sound engineering judgement.
  - Certification of structural works is a statement that the works are designed in accordance with sound engineering practices to provide protection from the base flood.
  - Certification of as-built conditions is a statement that the structure(s) has been built according to the plans being certified, is in place, and is fully functioning.
- 2) Although not required to meet 65.10, FEMA recommends that evaluation of the freeboard includes validation of the effective hydrologic and hydraulic analyses to provide some assurance that, with future updates to the engineering and mapping conducted by FEMA or a third party, the levee system will likely continue to meet freeboard requirements.
- 3) Please submit supporting documentation, as necessary, addressing:
- a. Closures
  - b. Embankment protection
  - c. Embankment and foundation stability
  - d. Settlement
  - e. Interior Drainage
  - f. Other Design Criteria
- 4) Please submit the operation and maintenance manual adopted under the jurisdiction of Federal, State, or local community participating in the NFIP. A formal plan of operation should include specific actions, and assignments of responsibility by individual name or title, and the maintenance plan should specify in detail the activities to be performed, the frequency of their performance, and the name or title of the person responsible for their performance.
- 5) Please include documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities; and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure and activation of the drainage systems' mechanized portions.

Mr. Wenker  
September 11, 2009  
Page 3

For additional information regarding certification requirements, please refer to the enclosed Fact Sheets entitled "Requirements for Mapping Levees: Complying with Section 65.10 of the NFIP Regulations" and "Meeting the Criteria for Accrediting Levee Systems on NFIP Flood Maps: How-to-guide for Floodplain Managers and Engineers," both dated November 2008. Additionally, I enclosed a checklist that you can use for your own quality control check.

Please send any additional certification documentation to my attention. If you have questions regarding the certification requirements, engineering, and/or floodplain mapping, please contact me by telephone at (425) 487-4657 or by e-mail at [david.ratte@dhs.gov](mailto:david.ratte@dhs.gov).

Sincerely,



David M. Ratté, P.E.,  
Regional Flood Engineer  
Mitigation Division

Enclosures

cc: Brian Varricchione, Planner, City of Scappoose  
The Office of Senator Jeff Merkley  
The Office of Senator Ron Wyden  
The Office of Congressman David Wu  
Christine Shirley, State Floodplain Coordinator, Oregon Department of Land Conservation and Development  
Jerry Christensen, U.S. Army Corps of Engineers, Portland District  
Denise Atkinson, Floodplain Management Specialist, FEMA  
Jen Meyer, Risk Analyst, FEMA

DMR:bb

**Geoff Wenker**

**From:** Todd Dugdale [Todd.Dugdale@co.columbia.or.us]  
**Sent:** Monday, June 14, 2010 11:19 AM  
**To:** Jon Hanken; Greg Hinkelman; Lars Gare; Midland District; Magruder District; Marshland District; Beaver Drainage District<rick.stonex@gwrglobal.com; jtslape@hotmail.com; Scappoose Drainage District; Geoff Wenker; oorancher@YAHOO.COM  
**Cc:** Jan Greenhalgh; Rita Bernhard; Robin McIntyre; Tony Hyde  
**Subject:** Fwd: Columbia County Levee Certification Project

All:

A quick update on levee certification for Levee Districts who have expressed their intent to proceed with Levee Certification with the Corps of Engineers(Beaver, Marshland, Midland, Rainier, Scappoose, Magruder, Webb).

**Likely Increase in Cost for CORPS To Do Certification Work**

I have been informed by the CORPS, that they have received direction from their Washington office that they strictly follow federal guidance for conduct of levee certification evaluations ie seismic and structural analysis etc. Apparently this is not new guidance, but it was **not** used in the work the CORPS previously done for Multnomah County when the CORPS certified their levees.

What this means for Columbia County Levee Districts is that instead of \$30-40,000, the cost of the CORPS levee certification work will now likely go up for participating levee districts(we have at least six participating Levee Districts). Any significant increase in the cost for this work will set back our efforts to find a way to have the CORPS do our certification studies and avoid remapping levee protected areas as floodprone by FEMA. NRCS, the Federal partner that enables us to use the CORPS, has committed up to \$12,000(assuming \$1500 or 5% for six participating levee districts). So based on what the CORPS is now telling us about the increase in cost to do the certification work, fewer Districts, the first Districts to proceed with certification work, will use all the NRCS money currently allocated to Columbia County by NRCS. I have informed our Federal Congressional representatives of this development and have asked for their assistance in resolving this potential financial roadblock to getting participating District's levees certified. I would encourage District's to inform their memberships of the need to contact our Federal representatives to help us address the cost of the CORPS levee certification work. Contact information in listed below.

**Scope of Certification Work Related to Results of Annual Inspections**

The actual cost for the levee certification work for each participating District will be based on guidance in Federal regulations and the results of the annual CORPS inspections of the levees being conducted in June and July. The CORPS advises that all maintenance and other modifications to levees identified in the annual inspection reports will need to be addressed to qualify the District for certification.

**Contact The CORPS To Discuss Your District's Certification Work**

As I previously advised you, you will need to contact Kristie Hartfeil at the CORPS(503-808-4861 or 503-706-7960 or by e-mail at [kristie.m.hartfeil@usace.army.mil](mailto:kristie.m.hartfeil@usace.army.mil) ) to begin discussions of the scope of work and related costs for the CORPS levee certification work. The necessary interagency funding agreement between the CORPS and NRCS is expected to be signed very soon, so as soon as your District's annual CORPS inspections have been completed, Districts should contact Kristie at the CORPS regarding the support agreements, scopes of work and costs for proceeding with the work.

**Status of FEMA's Remapping Of Levee Protected Lands**

I have been advised by FEMA Region 10 that the 18 month process for revising the Flood Plain maps (flood insurance rate maps or FIRMS) will begin next month(July 2010). This will mean that Districts seeking assistance from the CORPs to accomplish certification will have to have completed and submitted certification documentation to FEMA by the time preliminary FIRMS are issued or by July 2011 at the latest. Although this gives us a year to accomplish certification before the FIRM maps are revised,

the certification funding problem discussed above must be addressed before most of our participating Districts can expect to proceed with the work.

**Congressional Contacts:**

David Wu  
Oregon Office  
Steve Marx  
503-326-2901  
[steven.marx@mail.house.gov](mailto:steven.marx@mail.house.gov)

Ron Wyden  
Oregon Office  
Fritz Graham  
503-589-4555  
[fritz\\_graham@wyden.senate.gov](mailto:fritz_graham@wyden.senate.gov)

Jeff Merkley  
Washington DC Office  
Peter Gaulke  
202-224-3753  
Oregon Office  
Marc Siegel  
503-326-3386  
[marc\\_siegel@merkley.senate.gov](mailto:marc_siegel@merkley.senate.gov)

Let me know if you have any questions. Please advise me if and when you contact the CORPS about your certification scope of work and costs. I would like to keep our Federal representatives informed.



# Oregon

Theodore R. Kulongoski, Governor

## Appendix 6.C

### Department of Transportation

Region 1  
123 NW Flanders Street  
Portland, OR 97209-4037  
503.731.8200  
FAX 503.731.8259

September 9<sup>th</sup>, 2010

City of Scappoose  
33568 E Columbia Ave  
Scappoose, OR 97056

ATTN: Brian Varricchione, City Planner

RE: Scappoose UGB and Comprehensive Plan Map amendments: US 30

We have reviewed the applicant's proposal to amend the Scappoose UGB and Comprehensive Plan Map. The site is in the vicinity of US 30. ODOT has jurisdiction of this State highway facility and an interest in assuring that the proposed comprehensive plan map amendment is consistent with the identified function, capacity and performance standard of this facility. According to the 1999 Oregon Highway Plan (OHP), this facility is classified a Statewide highway and the performance standard ranges from 0.80 to 0.70 volume to capacity (v/c) ratio.

For zone changes and comprehensive plan amendments, local governments must make a finding that the proposed amendment complies with the Transportation Planning Rule (TPR), OAR 660-012-0060. There must be substantial evidence in the record to either make a finding of "no significant effect" on the transportation system, or if there is a significant effect, require assurance that the land uses to be allowed are consistent with the identified function, capacity, and performance standard of the transportation facility. The staff report addresses the TPR on page 37 and 38. While the suggested condition addresses the UGB amendment, it is not adequate to make a finding of no significant effect regarding the comprehensive plan map amendment.

In order to determine whether or not there will be a significant effect on the State transportation system, ODOT requests that the City of Scappoose require the applicant to prepare a traffic impact study (TIS) prepared by a transportation engineer registered in Oregon. The analysis should address the following:

1. A comparison between the land use with the highest trip generation rate allowed outright under the proposed zoning/comp plan designation and the land use with the highest trip generation rate allowed outright under the existing zoning/comprehensive plan designation (this is commonly referred to as the "reasonable worst case" traffic analysis). The analysis should utilize the current edition of Institute of Transportation Engineers (ITE) *Trip Generation* manual, unless otherwise directed. To determine the maximum amount of building square footage that could be put on the site the analyst should look at the number of parking spaces, building height, and required landscaping in the local development code.

Note: It is important that the applicant's transportation engineer provide ODOT the opportunity to review and concur with the mix of land uses and square footage they propose to use for the "reasonable worst case" traffic analysis for both existing and proposed zoning prior to commencing the traffic analysis, particularly if the applicant chooses to perform their

analysis using a trip generation rate determined by any means other than ITE *Trip Generation*.

2. Analysis may rely on existing and planned transportation improvements in which a funding mechanism is in place including but not limited to projects identified in:
  - State Transportation Improvement Program (STIP),
  - Local/County Capital Improvement Plans (CIP)
3. The analysis should apply the highway mobility standard (volume-to-capacity ratio) identified in the OHP over the planning horizon in the adopted local transportation system plan of the area or 15 years from the proposed date of amendment adoption, whichever is greater (OHP Action 1F2).
4. In situations where the highway facility is operating above the OHP mobility standard and transportation improvements are not anticipated within the planning horizon to bring performance to standard, the performance standard is to avoid further degradation. If the proposed zone change or comprehensive plan amendment increases the volume-to-capacity ratio further, it will significantly affect the facility (OHP Action 1F6).
5. The analysis should not include any existing or proposed approaches on the highway unless the proposed site is landlocked<sup>1</sup>. If landlocked, the analysis should only use one approach to the highway.

Prior to commencing the TIS, the applicant should contact Avi Tayar, ODOT Region 1 Traffic Analyst, at 503-731-8221 to obtain ODOT concurrence with the scope of the study.

Thank you for providing ODOT the opportunity to participate in this land use review. If you have any further questions regarding this matter, please contact me at 503-731-8234.

Sincerely,



Seth Brumley  
Development Review Planner

C: Avi Tayar, ODOT Region 1 Traffic  
Marah Danielson, ODOT Region 1 Planning

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<sup>1</sup> A parcel is considered 'landlocked' if it has no other reasonable access other than to a state highway. Burden of proof is on the applicant to provide justification as to why access to a road other than a state highway is not reasonable.



# Oregon

Theodore R. Kulongoski, Governor

## Appendix 6.D

### Department of Transportation

Region 1  
123 NW Flanders Street  
Portland, OR 97209-4037  
503.731.8200  
FAX 503.731.8259

September 21, 2010

City of Scappoose  
33568 E Columbia Ave  
Scappoose, OR 97056

ATTN: Brian Varricchione, City Planner

RE: Scappoose UGB and Comprehensive Plan Map amendments: US 30

Since our letter dated September 9th, 2010, ODOT in consultation with Gary Fish at the Department of Land Conservation and Development has determined the Transportation Planning Rule (TPR) OAR 660-012-0060 is not applicable at the time of the UGB and Comprehensive Plan amendments. Since annexation is not considered a land use regulation amendment annexation is not subject to OAR 660-012-0060. A zone change is a land use regulation amendment and is subject to OAR 660-012-0060. ODOT supports the staff report recommended condition with the following modification:

"Prior to approval of ~~annexation and/or~~ a zone change of any property included within the UGB as a result of this ordinance, the applicant shall prepare an ODOT scoped and approved Traffic Impact Analysis and comply with provisions of the Transportation Planning Rule (OAR 660-012-0060). If analysis indicates significant affect per OAR 660-012-0060, applicant shall mitigate associated traffic impacts, as permitted and approved by ODOT."

The technical memorandum from DKS dated March 23<sup>rd</sup> 2010, identifies potential traffic impacts on US 30 and the surrounding street system associated with the proposed amendments. While traffic impacts are associated with all four potential expansion areas, the memo identifies capacity constraints on the highway and local roads due to development in the NE Quadrant and capacity constraints, poor access, and safety issues at site access points along the highway in the SW quadrant. The memo suggests a number of potential improvements to address these impacts, but the cost is unknown and the feasibility of many improvements is uncertain.

Although a detailed traffic impact study (TIS) is not required at this time, ODOT encourages the City to require a TIS to determine if there is adequate capacity within the existing transportation system to accommodate the proposed UGB expansion. Conducting a detailed traffic impact study at this time would allow for identification of mitigation for the cumulative impact of the UGB expansion on the transportation system providing the City with the opportunity to identify funding sources and a fair cost sharing method for transportation improvements. Otherwise, parcels may change zoning one at a time until one zone change has a significant effect on the transportation system and is solely responsible for mitigation that may not be proportional to the size of their parcel. One way to reduce the impact of new urban development on the transportation system and the need for costly mitigation is to develop and apply Transportation



Demand Management (TDM) strategies. TDM strategies as a tool to reduce impacts on the transportation system are more likely to be effective when done for the entire area proposed to come into the UBG rather than a parcel by parcel basis.

ODOT has jurisdiction of US 30 and an interest in assuring that the proposed land use changes are consistent with the identified function, capacity and performance standard of this facility. ODOT looks forward to continuing to work closely with the City and applicant to identify transportation system impacts and identifying solutions. Prior to commencing the TIS, the applicant should contact Doug Baumgartner, ODOT Region 1 Traffic Analyst, at 503-731-8225 to obtain ODOT concurrence with the scope of the study.

Thank you for providing ODOT the opportunity to participate in this land use review. If you have any further questions regarding this matter, please contact me at 503-731-8234.

Sincerely,



Seth Brumley  
Development Review Planner

C: Elaine Smith, ODOT Region 1 Planning Manager  
Doug Baumgartner, ODOT Region 1 Traffic  
Marah Danielson, ODOT Region 1 Planning  
Gary Fish, DLCD  
Deborah Jacob, Columbia County Planning

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**From:** BRUMLEY Seth A [Seth.A.BRUMLEY@odot.state.or.us]  
**Sent:** Thursday, September 23, 2010 2:30 PM  
**To:** Brian Varricchione  
**Subject:** UGB amendment language

Hi Brian,

In my letter dated 9/21/10 I suggested changing the staff report language to:

"Prior to approval of ~~annexation and/or~~ a zone change of any property included within the UGB..."

It has been brought to our attention that the Scappoose code requires the zone to be changed at the time of mitigation. Based on this information we would suggest changing the language to:

"Prior to approval of annexation **and** zone change" or "Prior to approval of annexation/zone change"

Sorry for the confusion,

Seth Brumley  
Associate Planner  
ODOT Region 1 Planning  
(503) 731-8234  
fax (503) 731-8259

COLUMBIA COUNTY



OREGON

**DEPARTMENT OF LAND DEVELOPMENT  
SERVICES**

Columbia County Courthouse, St. Helens, Oregon 97051

Phone: (503)397-1501 Fax: (503)366-3902

glen.higgins@co.columbia.or.us

December 29, 2010

City of Scappoose  
c/o Brian Varricchione  
33568 E. Columbia Ave.  
Scappoose, OR. 97056

RE: Question about 3 Properties near Gilmore Road

Dear Brain:

We received an e-mail from you earlier this month titled "Question about three properties near Gilmore Road". An Assessors Sub-Map was created which split these parcels into two tax lots each. One of the three properties has split zoning; as, the east portions of all three ownerships are in the Scappoose Urban Area and the west portions are in Columbia County Rural designations. Your question involved the west half of these parcels - whether the City could include the western half of these parcels in the Urban Growth Area without taking an Exception to Resource Lands?

The parcels identified by Tax Map Nos. are:

	<u>Owner</u>	<u>Tax Map No.</u>	<u>County Zoning</u>
1)	Settle	3201-00-00300	Rural Residential (RR-5)
	Settle	3201-A0-01300	Light Industrial (M-2)
2)	Lenske	3201-00-00302	Exist Commercial (EC)
	Lenske	3201-A0-01302	Exist Commercial (EC)
3)	Wickum	3201-00-00301	Rural Industrial (RIPD)
	Wickum	3201-A0-01301	Rural Industrial (RIPD)

All of the above parcels were identified in the Comprehensive Plan, Part XI Commercial Section as lands that were committed to commercial use prior to the initial zoning in 1973.

Map 15 "Commercial Lands North Scappoose", identify both halves of the Tax Lot maps for all three parcels. The Plan categorizes all three as Rural/Urban Commercial where these uses fall within close proximity to an incorporated area or urban growth boundary and support both rural and urban population. These Rural/Urban Commercial uses are typically located along a major arterial. Clearly, the original 1984 county Comprehensive Plan identified these parcels as Rural/Urban Commercial. An Exception to resource use is therefore not necessary.

If I can be of any additional help, don't hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Glen Higgins", written over the word "Sincerely,".

Glen Higgins,  
Planning Division Manager

cc: File 2010 City of Scappoose UGB Expansion

**CITY OF SCAPPOOSE**

33568 E. COLUMBIA AVE.  
SCAPPOOSE, OREGON 97056  
(503) 543-7184  
FAX: (503) 543-5679

**Memorandum**

**To:** City Council  
**From:** Brian Varricchione, PE, City Planner & Assistant City Engineer  
**Date:** January 28, 2011  
**Re:** Background information on Crown Zellerbach Road

During the hearings process for Docket # CPA1-10/CPTA1-10/DCTA3-10 (Economic Opportunities Analysis and UGB expansion proposal), members of the public have expressed concern about the City's long-term plans to convert a portion of the Crown Zellerbach trail into a collector street. This memo provides background information for Council in light of the City's adopted plans and Columbia County's 2007 Crown Zellerbach Trail Development Concept Plan.

As a point of clarification, it should be noted that the conversion of the Crown Zellerbach trail into a roadway is not a decision issue of this application. No changes are proposed to its planned use as a collector street as identified in the 1997 Transportation System Plan. This street has been planned to provide secondary access and a gridded circulation system by connecting to North Road, Bird Road, and Miller Road. If the road is also used to access industrial areas, then design choices can be made to limit truck traffic through existing residential streets.

The City of Scappoose, Port of St. Helens, and Columbia County have cooperated on the acquisition and development of the Crown Zellerbach roadway for a number of years. In 1996, these three parties signed a Memorandum of Understanding (**attached**) regarding the portion of the logging road between Highway 30 and Chapman Landing on Multnomah Channel. This MOU allocated financial contributions among the parties and outlined the intended uses of different sections. Among other things, this MOU recognized that the City intended to create a public road out of the portion between Highway 30 and Columbia Avenue/Honeyman Road. The MOU stated that the County could designate the road as a public footpath and bicycle trail, and that "At the time of development of the private logging road, or any portion thereof by the City as a public road, the City shall cause a separate bicycle path to be developed and maintained by the City parallel to the City road." In 1997 the Port of St. Helens purchased the logging road between Highway 30 and the Multnomah Channel.

The City's 1997 Transportation System Plan (TSP), adopted pursuant to land use hearings and incorporated into the Scappoose Comprehensive Plan, identified three capital improvement projects to improve segments of the Crown Zellerbach Road (which is referred to as "Forest Road" in the TSP).<sup>1</sup> The portion west of West Lane was classified as a major collector and the portion east of West Lane was classified as a minor collector.

---

<sup>1</sup> The TSP project list (Table 14) plans for improvements to the Crown Zellerbach Road in three sections: Project #33 (Highway 30 to West Lane), Project #57 (West Lane to Bird Road), and Project #58 (Bird Road to UGB).

In accordance with the 1996 MOU, the City purchased the portion between Highway 30 and Columbia Avenue/Honeyman Road from the Port in 2001 (**see attached deed**). The City then improved Crown Zellerbach Road from Highway 30 to West Lane, with construction completed around 2004. This roadway has bicycle lanes in both directions and a sidewalk along the south side. A portion of the north side also has a sidewalk where topography allows.

In 2005, Columbia County convened an advisory committee and developed the Crown Zellerbach Trail Development Concept Plan. City Manager Jon Hanken was a member of the advisory committee. The Board of County Commissioners adopted the Crown Zellerbach Trail Development Concept Plan (dated May 2007) on April 25, 2007 as part of the consent agenda with no discussion. According to Glen Higgins, Chief Planner for Columbia County Land Development Services, no land use hearings were held on the Concept Plan by either the County Planning Commission or the County Board of Commissioners. The Concept Plan has not been adopted as a land use document or incorporated into the County Comprehensive Plan.

Consistent with the terms of the MOU, County planning staff have no objections to converting the existing trail east of West Lane to a roadway, provided that the City installs a new trail of sufficient width to replace the existing trail.

The County's Concept Plan recognizes that "In the Scappoose area (from Highway 30 to Chapman Landing), significant portions of the historic logging road were previously paved with asphalt. The character of the trail through this section is urban and an asphalt surface is preferred. Therefore, an asphalt surface will be retained through this section and the trail will be developed with a more urban character" (page 21).

The Planning Commission recommended preserving the Crown Zellerbach trail to the extent possible. It is clear from the public testimony that many area residents have strong opinions about maintaining the trail as close to its current state. Staff would recommend that Council establish a means for community members to provide input on the design of the Crown Zellerbach Road and of the parallel trail.

MEMORANDUM OF UNDERSTANDING

THIS AGREEMENT is made this 18th day of December, 1996, between the PORT OF ST. HELENS, a municipal corporation of the State of Oregon (the "Port"), the CITY OF SCAPPOOSE, a municipal corporation of the State of Oregon (the "City"), and COLUMBIA COUNTY, a political subdivision of the State of Oregon (the "County").

WHEREAS, the Willamette Columbia Timber Co., an Oregon corporation ("Willamette"), has announced its desire to sell the Chapman Landing located near Scappoose, Oregon, along the Multnomah Channel, and the private logging road which provides access to the site; and

WHEREAS, the site was initially described as consisting of approximately 20.9 acres including 5,575 feet of river frontage and a 2,145 foot private logging road; the developed portion of the site contains about 3.5 acres with about 850 feet of river frontage; and

WHEREAS, in addition to the site initially described, the private logging road offered for sale extends westerly approximately an additional mile to U.S. Highway 30 in Scappoose, Oregon; and

WHEREAS, the Chapman Landing and private logging road offered for sale are described as Parcel I, including the riverfront property itself and that portion of the private logging road located within Section 17, Township 3 North, Range 1 West, Willamette Meridian, Parcel II, consisting of that portion of the private logging road located within Sections 7 and 8, T.3N., R.1W., W.M., and Parcel III, consisting of that portion of the private logging road located within Section 12, T.3N., R.2W., W.M., Columbia County, Oregon, and are further described on Exhibit "A" which is attached hereto and incorporated herein by this reference; and

WHEREAS, the Port, the City, and the County agree that, for a number of compelling reasons, it is in the public interest to make an offer to the Willamette to acquire Parcels I, II and III for public ownership, and are each willing to contribute to their acquisition; and

WHEREAS, the City has put up earnest money for the acquisition of Parcels I, II and III in the amount of \$22,500.00; and

WHEREAS, this Memorandum of Understanding is entered into to briefly set forth the various agreements and understandings the parties have with regard to this proposed acquisition;

MEMORANDUM OF UNDERSTANDING

Page 1

Return to:  
Amerititle  
P.O. Box 519  
300 Ellsworth St S.W.  
Albany, OR 97321-0151

I hereby certify that the within instrument was received for record and recording in the County of Columbia State of Oregon.

20608 '97 JUN 22 AM 12:25

ELIZABETH HUSEE, County Clerk

By: [Signature]

Receipt # 4516

Page 1 of Pages 1  
Fees \$ 20.00

RECORDED BY K653068  
AMERICAN TITLE INSURANCE

THIS DOCUMENT IS BEING RE-RECORDED TO ADD THE EXHIBIT I, AS DISCLOSED IN THIS DOCUMENT. (LEGAL DESCRIPTION)

NOW, THEREFORE, THE PORT, THE CITY, AND THE COUNTY HEREBY AGREE as follows:

1. The Port agrees to contribute \$95,000.00 toward the purchase of Parcels I, II and III.

2. The City agrees to contribute an additional \$57,500.00 towards the purchase of Parcels I, II and III.

3. The County agrees to contribute \$50,000.00 towards the purchase of Parcels I, II and III.

4. All purchase amounts contributed are contingent upon assurance from the parties' respective legal counsel that such contributions are consistent with the Oregon Constitution, statutes, administrative rules, ordinances and charter provisions which apply to each such party.

5. In consideration of its contribution, it is intended that the Port shall acquire ownership of Parcel I and that portion of Parcel II southeast of its intersection with Columbia Avenue East (Honeyman Road) for the eventual development of a waterfront recreational facility. If the Port determines to develop the property for uses in addition to recreational facilities, such development shall be compatible with the recreational facilities. This paragraph is not intended to preclude the existing use by Foss Maritime.

6. In consideration of its contribution, it is intended that the City shall acquire ownership of Parcel III and that portion of Parcel II northwest of its intersection with Columbia Avenue East (Honeyman Road) for the eventual development of a public road.

7. In consideration of its contribution, it is intended that the County shall be entitled to eventually designate the private logging road from its beginning at U.S. Highway 30 in Scappoose, Oregon, to its terminus along the Multnomah Channel as a public footpath and bicycle trail. Notwithstanding this goal, the parties agree that the portion of Parcel III between U.S. Highway 30 and West Lane Road is not currently suitable for a footpath and bicycle trail and will not be designated as such until it is suitable. In addition, the portion of Parcel II southeast of its intersection with Columbia Avenue East (Honeyman Road) and the portion of the private logging road on Parcel I may not be currently suitable for a footpath and bicycle trail. The Port and County will utilize their best efforts to make that portion of the private logging road suitable for a footpath and bicycle trail as soon as is reasonably practicable.



However, the portion of the private logging road between West Lane Road and Columbia Avenue East (Honeyman Road) shall be designated as a public footpath and bicycle trail on or before June 30, 1997, to ensure proper expenditure of County footpath and bicycle trail funds. At the time of development of the private logging road, or any portion thereof by the City as a public road, the City shall cause a separate bicycle path to be developed and maintained by the City parallel to the City road.

8. In the event the Port should desire to sell the riverfront portion of the property, and its portion of the road, the City and the County shall jointly have the first option to purchase the riverfront portion of the property and the Port's portion of the road for a mutually agreed upon price. Such price shall be determined by the property being appraised by at least two independent appraisers retained individually by each party.

9. In the event the City should desire to sell its portion of the road, the Port and the County shall jointly have the first option to purchase the City's portion of the road for a mutually agreed upon price. Such price shall be determined by the property being appraised by at least two independent appraisers retained individually by each party.

10. In order to expedite the purchase of Parcels I, II and III, the parties agree to purchase all of the property as tenants in common with undivided interests in the whole in accordance with each parties' share of the purchase price. The parties shall share the expenses of closing equally. After the purchase of the Parcels is consummated, the parties agree to execute in as timely manner as is possible and practicable all documents necessary to effectuate the purposes of this Memorandum of Understanding. Each party shall responsible for its own attorneys fees incurred in the consummation of these transactions.

PORT OF ST. HELENS

By: *Robert Williams*  
Port Manager

CITY OF SCAPPOOSE, OREGON

By: *Gene E. Jacobson*  
Mayor

Attest: *Samuel Tedlock*  
City Recorder

BOARD OF COUNTY COMMISSIONERS  
FOR COLUMBIA COUNTY, OREGON

By: *William R. Donald*  
Chair

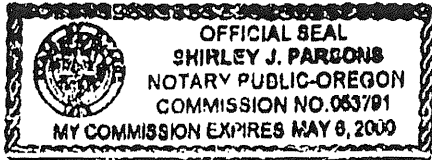
By: *Charles A. Smith*  
Commissioner

By: *Gene P. Gaylor*  
Commissioner

ACKNOWLEDGEMENTS

STATE OF OREGON )  
 )  
County of Columbia ) ss.

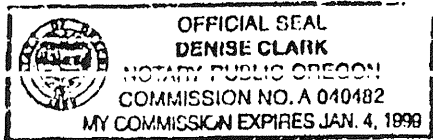
This instrument was acknowledged before me on January 14, 1997, by Peter K. Williamson, Port Manager for the Port of St. Helens, on behalf of whom this instrument was executed.



Shirley J. Parsons  
Notary Public for Oregon  
My Commission expires: 5-8-2000

STATE OF OREGON )  
 )  
County of Columbia ) ss.

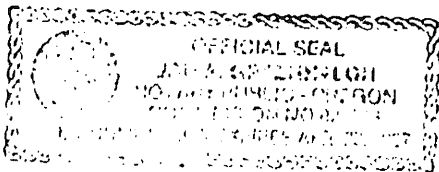
This instrument was acknowledged before me on January 14th, 1997, by Glenn E. Dorschler, Mayor of the City of Seaside, on behalf of whom this instrument was executed.



Denise Clark  
Notary Public for Oregon  
My Commission expires: 1-4-99

STATE OF OREGON )  
 )  
County of Columbia ) ss.

This instrument was acknowledged before me on January 15, 1997, by Jack R. Peterson, Joel R. Yarbber and Anthony C. Hyde, the Board of Commissioners of Columbia County, on behalf of whom this instrument was executed.



Jack R. Peterson  
Notary Public for Oregon  
My Commission expires: 4-22-97

**TICOR TITLE INSURANCE**

Report No. K653068-KH

**LEGAL DESCRIPTION**

**PARCEL 1:** Portion of Section 17, Township 3 North, Range 1 West of the Willamette Meridian, Columbia County, Oregon described as:

That portion of Section 17 as described in Parcels 1 through 8 of deed from PORTLAND AND SOUTHWESTERN RAILROAD COMPANY to CROWN ZELLERBACH CORPORATION dated December 30, 1947 recorded in B 97 Page 473; ALSO, That portion of Section 17 as described by metes and bounds in Parcels A and B of deed dated January 16, 1947 recorded in Book 91 Page 515; ALSO, That portion of Section 17 as described by metes and bounds in deed dated February 6, 1964 recorded in Book 154 Page 251.

EXCEPTING THEREFROM any portion lying below the high water line of the Willamette Slough and Multnomah Channel.

**PARCEL 2:** Those portions of Sections 7 and 8 in Township 3 North Range 1 West of the Willamette Meridian, in the County of Columbia and State of Oregon as described in Parcels 1 through 8, in deed from PORTLAND AND SOUTHWESTERN RAILROAD COMPANY TO CROWN ZELLERBACH CORPORATION dated December 30, 1947 recorded in Book 97 Page 473, Deed Records.

**PARCEL 3:** That portion of Section 12, Township 3 North, Range 2 West of the Willamette Meridian, in the County of Columbia and State of Oregon, described in Parcels 9, 10 and 42 in deed from PORTLAND and SOUTHWESTERN RAILROAD COMPANY to CROWN ZELLERBACH CORPORATION dated December 30, 1947 recorded in Book 97, Page 473, Deed Records, LYING EAST OF THE EAST RIGHT OF WAY LINE OF STATE HIGHWAY 30.

I hereby certify that the within instrument was received for record and recorded in the County of Columbia, State of Oregon.

1444 '97 FEB -7 AM 42

*Record*

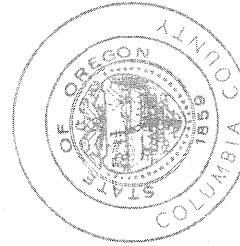
ELIZABETH HUSER, County Clerk  
By: *[Signature]* Deputy  
Receipt # *1122* of Pages *5*  
FEES \$ *22.00*

After recording return to:  
Olsen, Horn L.L.C.  
Attorneys at Law  
PO Box 688  
St. Helens, OR 97051

All tax statements are to be sent to:  
City of Scappoose  
P.O. Box "P"  
Scappoose, OR 97056

I hereby certify that the within instrument was received for record and recorded in the County of Columbia, State of Oregon.

08446 '02 JUN 21 AM 1:49



ELIZABETH HUSEL, County Clerk

By: *[Signature]* Deputy

Receipt # 35088 # of Pages

FEES \$ 36.00

## STATUTORY BARGAIN AND SALE DEED

### RECITALS

**WHEREAS**, on January 22, 1997, the Columbia County Clerk recorded as Instrument No. 97-00606 a Bargain and Sale Deed from Willamette Valley Lumber Company to the Port of St. Helens of certain property located between U.S. Highway 30 and the Multnomah Channel in Columbia County, Oregon; and

**WHEREAS**, the Port of St. Helens wishes to convey a portion of the property to the City of Scappoose in conformance with the Memorandum of Understanding between the Port of St. Helens, the City of Scappoose and Columbia County dated December 18, 1996 and recorded as Instrument No. 97-00608 and re-recorded as Instrument No. 97-01444, in the records of the County Clerk, Columbia County, Oregon; now, therefore,

### GRANT

The **PORT OF ST. HELENS**, a municipal corporation of the State of Oregon, Grantor, conveys to the **CITY OF SCAPPOOSE**, a municipal corporation of the State of Oregon, Grantee, the following described real property:

**PARCEL 1:** That portion of the following described tract lying Northwest of its intersection with Columbia Avenue East (Honeyman Road): Those portions of Sections 7 and 8 in Township 3 North Range 1 West of the Willamette Meridian, in the County of Columbia and State of Oregon as described in Parcels 1 through 8, in deed from Portland and Southwestern Railroad Company to Crown Zellerbach Corporation dated December 30, 1947 recorded in Book 97, Page 473, Deed Records.

**PARCEL 2:** That portion of Section 12, Township 3 North, Range 2 West of the Willamette Meridian, in the County of Columbia and State of Oregon, described in

Parcels 9, 10 and 42 in deed from Portland and Southwestern Railroad Company to Crown Zellerbach Corporation dated December 30, 1947 recorded in Book 97, Page 473, Deed Records, lying East of the East right-of-way line of State Highway 30.

Tax Account No: 3200-000-00100 and 3100-000-00200.

The true and actual consideration for this conveyance is \$80,000.00.

**THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THE INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930 (ORS 93.040).**

This Deed is given pursuant to the terms of a Memorandum of Understanding hereinabove described.

DATED this 28<sup>th</sup> day of February, 2001.

**PORT OF ST. HELENS**

By

President

By

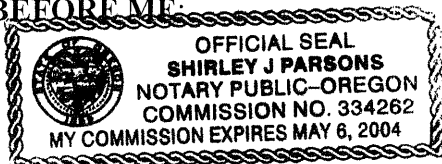
Secretary

STATE OF OREGON )  
 )  
County of Columbia )

ss.

On this 28<sup>th</sup> day of February, 2001, personally appeared before me the above named Michael Sykes, who being first duly sworn, did say that he is President of the Port of St. Helens, and Agnes M. Petersen, who being first duly sworn, did say that she is the Secretary of the Port of St. Helens, and they did say that they signed the foregoing on behalf of said corporation by authority of its Board of Directors; and they acknowledged said instrument to be its voluntary act and deed.

**BEFORE ME:**



Shirley J. Parsons  
NOTARY PUBLIC for Oregon

Parcels 9, 10 and 42 in deed from Portland and Southwestern Railroad Company to Crown Zellerbach Corporation dated December 30, 1947 recorded in Book 97, Page 473, Deed Records, lying East of the East right-of-way line of State Highway 30.

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This Deed is given pursuant to the terms of a Memorandum of Understanding hereinabove described.

DATED this 28<sup>th</sup> day of February, 2001.

Read and approved as  
to form and content:  
City of Scappoose

By: [Signature]  
Name:  
Title:  
Date:

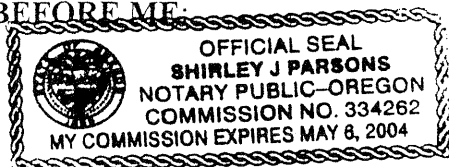
**PORT OF ST. HELENS**

By [Signature]  
President  
By [Signature]  
Secretary

STATE OF OREGON                    )  
  )  
County of Columbia                )     ss.

On this 28<sup>th</sup> day of February, 2001, personally appeared before me the above named Michael Sykes, who being first duly sworn, did say that he is President of the Port of St. Helens, and Agnes M. Petersen, who being first duly sworn, did say that she is the Secretary of the Port of St. Helens, and they did say that they signed the foregoing on behalf of said corporation by authority of its Board of Directors; and they acknowledged said instrument to be its voluntary act and deed.

**BEFORE ME:**



[Signature]  
NOTARY PUBLIC for Oregon



JOHNSON REID  
LAND USE ECONOMICS

March 1, 2011

Brian Varricchione  
CITY OF SCAPPOOSE

SUBJECT: Clarification on Elements of the City's EOA

Dear Brian:

This letter is intended to provide you with additional background materials that I hope can clarify some components of the City's EOA.

## EMPLOYMENT FORECASTS

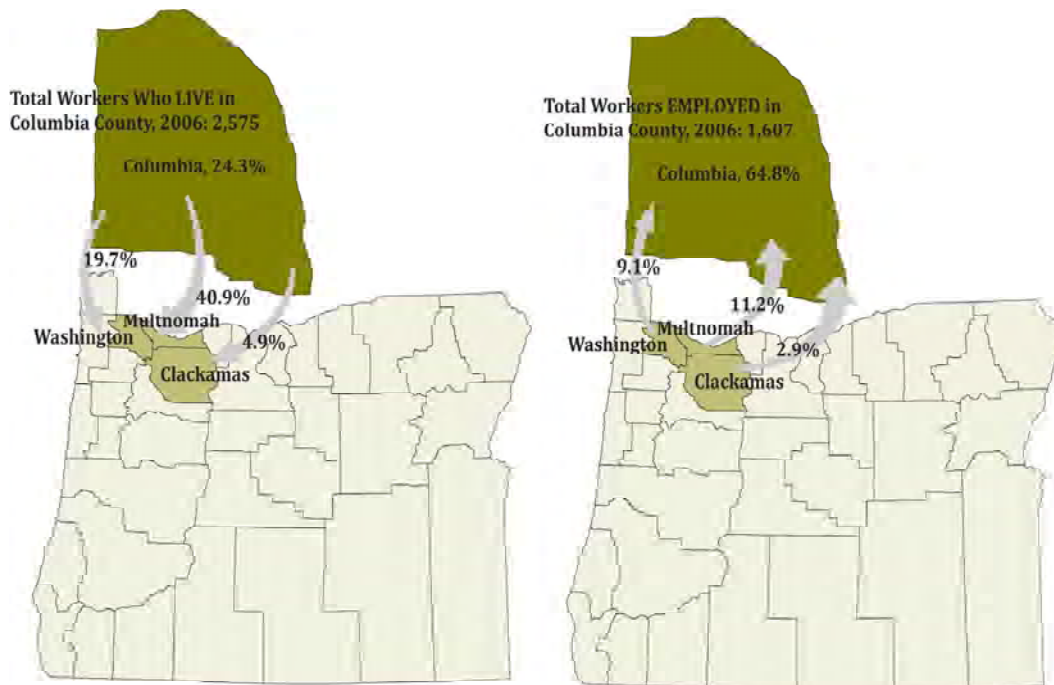
We have submitted written materials addressed questions with respect to the employment forecasts at Planning Commission and City Council. An average annual employment growth rate of 7.6% was projected for the City of Scappoose. As a stand-alone estimate, ignoring the City's regional context, we would agree that this rate of growth would be implausible to assume. The projections are defensible though in light of the City's geographic position within the Portland-Vancouver Principal Metropolitan Statistical Area (PMSA).

- The broader regional economy is projected to add close to 500,000 jobs over the next twenty years, and the projected 8,069 jobs contained in the EOA would represent a 1.7% share of regional growth.
- Metro, the regional governmental agency that controls many of the jurisdictions within the Oregon portion of the Portland-Vancouver metro area, has modeling that anticipates a substantial share (25%) of projected new employment growth will locate outside of the UGB they control, primarily to satellite communities such as Scappoose, North Plains, Newberg. The model assumed 25% will locate outside of the Metro area boundaries. The employment forecast in the EOA reflects a 7.0% to 9.5% share of the growth assumed to be captured outside of the Metro UGB.
- The forecast was not "artificially created", but derived through evaluation of the City's current and prospective role within the broader region and detailed evaluation of targeted industries. The numbers reflect the aspirational yet reasonable and defensible goals of the City as developed with the Technical Advisory Committee (TAC) over an extended period of outreach.



## POPULATION-EMPLOYMENT RELATIONSHIP

- The commute patterns of workers in Scappoose and Columbia County show that the local area is integrated into the Portland economy. Only about one-quarter of working Scappoose residents work in Columbia County, while three-quarters commute to jobs outside the County. The largest portion—41%—commute to Multnomah County. About 20% commute to Washington County and 5% to Clackamas County. The remainder commutes to a wide assortment of destinations, including Clark County, Washington, Yamhill County, Marion County, and even more distant areas.



SOURCE: US Census Bureau, LED Origin-Destination Data Base

- The City's modest population growth projection and robust employment projection reflects economic development goals and policies of Scappoose. The city's existing employment to population ratio is 1:2.7; that is, there are 2.7 people for every job in Scappoose. As a matter of public policy, the City intends to redress the jobs/housing imbalance.
- If both the coordinated population projection and EOA employment projection are accurate, the City will achieve an employment to population ratio 1:1 in 2030. If population growth is somewhat faster, as we believe it may be, the ratio would be slightly less than one job per person. This change would reflect the transition of Scappoose from functioning as a bedroom community to a more self-sufficient employment center, providing jobs for local residents and the surrounding area. One of the aspirations expressed in the EOA is that there would be a reduced need for local residents to commute into Portland for employment.





## EMPLOYMENT BY INDUSTRY

There has been substantial discussion regarding employment projections at the sectoral level, and the definitions of those sectors. I have included as an appendix to this letter a listing of detailed industries and their groupings under the North American Industrial Classification System.

I would also like to make sure that there is an understanding of the economic linkages embedded in the forecast. The forecast begins with baseline informed by historic trends in Scappoose, and then adds additional employment based on specific targeted industries and their associated needs. Projected growth in the target industries in the report, most notably Aviation Manufacturing and Services, require substantial additional services in the local economy. Johnson Reid utilizes IMPLAN (IMPact for PLANning)<sup>1</sup> input/output multiplier model methodology to estimate increased economic activity associated with growth in the targeted industries.

The IMPLAN model seeks to assess changes in overall economic activity within a specific geographic area as a result of a change in one or many specific activities. The ripple effect of a gain or loss in economic activity is identified in three stages: *Direct Impacts*, *Indirect Impacts* and *Induced Impacts*.

- *Direct Impacts*: The actual change in activity affecting a local economy. For example, if a new manufacturer is located in the area, direct economic impacts include employment and payroll associated with construction of the facility as well as the manufacturer's ongoing employment and wages.
- *Indirect Impacts*: The response of all other local businesses within the geographic area to the direct impact. Continuing the previous example, indirect impacts of construction comprise revenues for project vendors, i.e. building materials wholesalers, subcontractors, etc., and the jobs and labor income thereby generated. For the manufacturer, this may include key component suppliers, operational suppliers such as fuel and materials and technical services such as legal and accounting.
- *Induced Impacts*: The response of households within the geographic area affected by direct and indirect impacts. In the given example, induced impacts would be the increase in all categories of spending by households in the geography directly or indirectly employed by office building construction activities.

The following table presents a brief example of how the model addresses aircraft parts and equipment manufacturing activity:

---

<sup>1</sup> Minnesota IMPLAN Group (MIG), Inc., Stillwater, Minnesota.



Industrial Classification	Employment			
	Direct	Indirect	Induced	Total
Natural Resources	0.0	1.1	9.1	10.2
Construction	0.0	6.3	2.9	9.2
Manufacturing	500.0	23.9	5.7	529.6
Wholesale Trade	0.0	75.8	31.9	107.7
Retail Trade	0.0	4.0	103.8	107.8
T.W.U. 1/	0.0	1.7	1.1	2.8
Information	0.0	6.3	5.7	12.0
Financial Services	0.0	27.4	44.5	71.9
Professional & Business Services	0.0	131.7	50.2	181.9
Education & Health Services	0.0	0.6	127.1	127.7
Leisure & Hospitality	0.0	22.2	77.5	99.7
Other Services	0.0	6.8	43.9	50.7
Public Administration	0.0	3.4	6.8	10.2
Total	500.0	311.2	510.2	1,321.4

1/ Transportation, Warehousing and Utilities

In this case, 500 direct jobs in manufacturing support 311.2 indirect jobs in support industries, and an addition 510.2 jobs in induced activity associated with the generally greater level of economic activity in the area. In other words, the overall employment associated with a new manufacturer is 2.64 times the direct manufacturing employment. Indirect employment is concentrated in professional & business services and wholesale trade, while induced employment is concentrated in education & health services and retail trade.

For aviation manufacturing, studies in the Puget Sound area have shown a multiplier of 3.96, much higher than the estimate we used. In other words, every direct job in aviation manufacturing leads to an overall addition of just under 4 jobs when indirect and induced employment is factored in. The relatively high impact is attributable to manufacturing position as an export industry, bringing new money into the community. As an example, the manufacturing employment supports the following industries:

- grocery and clothing store clerks, cashiers and other retail workers; cooks and waiters at local restaurants
- building contractors and sub-contractors;
- architects
- lawyers
- long-haul truck drivers
- nurses, doctors, and other health care workers
- teachers, counselors, school administrators and other education workers
- linemen, technicians and other utility workers



I hope this additional material is helpful, and I am more than happy to assist in clarifying any issues further.

Sincerely,

A handwritten signature in black ink, appearing to be "JJ", on a light blue background.

Jerry Johnson  
Principal  
Johnson Reid, LLC



## **APPENDIX**

### **OVERVIEW OF NORTH AMERICAN INDUSTRIAL CLASSIFICATIONS** Detailed Employment Types

## NAICS CODE DETAIL

### 23 - Construction

		Number-US
23	Construction	
236115	New Single-Family Housing Construction (except Operative Builders)	306,749
236116	New Multifamily Housing Construction (except Operative Builders)	53,140
236117	New Housing Operative Builders	8,888
236118	Residential Remodelers	91,993
236210	Industrial Building Construction	16,065
236220	Commercial and Institutional Building Construction	57,193
237110	Water and Sewer Line and Related Structures Construction	17,632
237120	Oil and Gas Pipeline and Related Structures Construction	2,327
237130	Power and Communication Line and Related Structures Construction	3,017
237210	Land Subdivision	36,963
237310	Highway, Street, and Bridge Construction	27,842
237990	Other Heavy and Civil Engineering Construction	3,040
238110	Poured Concrete Foundation and Structure Contractors	35,189
238120	Structural Steel and Precast Concrete Contractors	3,561
238130	Framing Contractors	39,662
238140	Masonry Contractors	28,982
238150	Glass and Glazing Contractors	8,439
238160	Roofing Contractors	44,152
238170	Siding Contractors	7,901
238190	Other Foundation, Structure, and Building Exterior Contractors	1,562
238210	Electrical Contractors	84,083
238220	Plumbing, Heating, and Air-Conditioning Contractors	116,995
238290	Other Building Equipment Contractors	2,915
238310	Drywall and Insulation Contractors	35,496
238320	Painting and Wall Covering Contractors	90,865
238330	Flooring Contractors	26,393
238340	Tile and Terrazzo Contractors	20,690
238350	Finish Carpentry Contractors	9,495
238390	Other Building Finishing Contractors	9,277
238910	Site Preparation Contractors	45,383
238990	All Other Specialty Trade Contractors	114,332

## NAICS CODE DETAIL

### 31-33 - Manufacturing

Codes	Titles	
31-33	Manufacturing	658,871
311111	Dog and Cat Food Manufacturing	387
311119	Other Animal Food Manufacturing	1,876
311211	Flour Milling	503
311212	Rice Milling	132
311213	Malt Manufacturing	31
311221	Wet Corn Milling	146
311222	Soybean Processing	134
311223	Other Oilseed Processing	34
311225	Fats and Oils Refining and Blending	246
311230	Breakfast Cereal Manufacturing	185
311311	Sugarcane Mills	47
311312	Cane Sugar Refining	46
311313	Beet Sugar Manufacturing	48
311320	Chocolate and Confectionery Manufacturing from Cacao Beans	621
311330	Confectionery Manufacturing from Purchased Chocolate	206
311340	Nonchocolate Confectionery Manufacturing	1,219
311411	Frozen Fruit, Juice, and Vegetable Manufacturing	285
311412	Frozen Specialty Food Manufacturing	554
311421	Fruit and Vegetable Canning	1,227
311422	Specialty Canning	661
311423	Dried and Dehydrated Food Manufacturing	243
311511	Fluid Milk Manufacturing	541
311512	Creamery Butter Manufacturing	69
311513	Cheese Manufacturing	491
311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing	678
311520	Ice Cream and Frozen Dessert Manufacturing	1,244
311611	Animal (except Poultry) Slaughtering	2,450
311612	Meat Processed from Carcasses	1,241
311613	Rendering and Meat Byproduct Processing	261
311615	Poultry Processing	687
311711	Seafood Canning	289
311712	Fresh and Frozen Seafood Processing	537
311811	Retail Bakeries	18,623
311812	Commercial Bakeries	4,590
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing	169
311821	Cookie and Cracker Manufacturing	781
311822	Flour Mixes and Dough Manufacturing from Purchased Flour	158
311823	Dry Pasta Manufacturing	357
311830	Tortilla Manufacturing	720
311911	Roasted Nuts and Peanut Butter Manufacturing	156
311919	Other Snack Food Manufacturing	652
311920	Coffee and Tea Manufacturing	680
311930	Flavoring Syrup and Concentrate Manufacturing	269
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing	429
311942	Spice and Extract Manufacturing	835
311991	Perishable Prepared Food Manufacturing	334

311999	All Other Miscellaneous Food Manufacturing	2,317
312111	Soft Drink Manufacturing	1,977
312112	Bottled Water Manufacturing	360
312113	Ice Manufacturing	590
312120	Breweries	1,129
312130	Wineries	31,440
312140	Distilleries	205
312210	Tobacco Stemming and Redrying	36
312221	Cigarette Manufacturing	223
312229	Other Tobacco Product Manufacturing	353
313111	Yarn Spinning Mills	571
313112	Yarn Texturizing, Throwing, and Twisting Mills	145
313113	Thread Mills	322
313210	Broadwoven Fabric Mills	3,503
313221	Narrow Fabric Mills	484
313222	Schiffli Machine Embroidery	197
313230	Nonwoven Fabric Mills	204
313241	Weft Knit Fabric Mills	90
313249	Other Knit Fabric and Lace Mills	261
313311	Broadwoven Fabric Finishing Mills	1,410
313312	Textile and Fabric Finishing (except Broadwoven Fabric) Mills	274
313320	Fabric Coating Mills	359
314110	Carpet and Rug Mills	1,127
314121	Curtain and Drapery Mills	1,280
314129	Other Household Textile Product Mills	1,541
314911	Textile Bag Mills	465
314912	Canvas and Related Product Mills	2,411
314991	Rope, Cordage, and Twine Mills	338
314992	Tire Cord and Tire Fabric Mills	53
314999	All Other Miscellaneous Textile Product Mills	13,453
315111	Sheer Hosiery Mills	125
315119	Other Hosiery and Sock Mills	401
315191	Outerwear Knitting Mills	1,058
315192	Underwear and Nightwear Knitting Mills	143
315211	Men's and Boys' Cut and Sew Apparel Contractors	333
315212	Women's, Girls', and Infants' Cut and Sew Apparel Contractors	34
315221	Men's and Boys' Cut and Sew Underwear and Nightwear Manufacturing	62
315222	Men's and Boys' Cut and Sew Suit, Coat, and Overcoat Manufacturing	342
315223	Men's and Boys' Cut and Sew Shirt (except Work Shirt) Manufacturing	1,211
315224	Men's and Boys' Cut and Sew Trouser, Slack, and Jean Manufacturing	210
315225	Men's and Boys' Cut and Sew Work Clothing Manufacturing	586
315228	Men's and Boys' Cut and Sew Other Outerwear Manufacturing	1,449
315231	Women's and Girls' Cut and Sew Lingerie, Loungewear, and Nightwear	545
315232	Women's and Girls' Cut and Sew Blouse and Shirt Manufacturing	754
315233	Women's and Girls' Cut and Sew Dress Manufacturing	1,624
315234	Women's and Girls' Cut and Sew Suit, Coat, Tailored Jacket, and Skirt Manufacturing	354
315239	Women's and Girls' Cut and Sew Other Outerwear Manufacturing	2,076
315291	Infants' Cut and Sew Apparel Manufacturing	7
315292	Fur and Leather Apparel Manufacturing	450
315299	All Other Cut and Sew Apparel Manufacturing	864
315991	Hat, Cap, and Millinery Manufacturing	641
315992	Glove and Mitten Manufacturing	238
315993	Men's and Boys' Neckwear Manufacturing	157
315999	Other Apparel Accessories and Other Apparel Manufacturing	2,525

316110	Leather and Hide Tanning and Finishing	715
316211	Rubber and Plastics Footwear Manufacturing	158
316212	House Slipper Manufacturing	22
316213	Men's Footwear (except Athletic) Manufacturing	198
316214	Women's Footwear (except Athletic) Manufacturing	79
316219	Other Footwear Manufacturing	182
316991	Luggage Manufacturing	621
316992	Women's Handbag and Purse Manufacturing	566
316993	Personal Leather Good (except Women's Handbag and Purse) Manufacturing	468
316999	All Other Leather Good Manufacturing	1,732
321113	Sawmills	3,437
321114	Wood Preservation	697
321211	Hardwood Veneer and Plywood Manufacturing	353
321212	Softwood Veneer and Plywood Manufacturing	108
321213	Engineered Wood Member (except Truss) Manufacturing	77
321214	Truss Manufacturing	1,301
321219	Reconstituted Wood Product Manufacturing	396
321911	Wood Window and Door Manufacturing	1,658
321912	Cut Stock, Resawing Lumber, and Planing	1,676
321918	Other Millwork (including Flooring)	10,582
321920	Wood Container and Pallet Manufacturing	3,965
321991	Manufactured Home (Mobile Home) Manufacturing	859
321992	Prefabricated Wood Building Manufacturing	1,864
321999	All Other Miscellaneous Wood Product Manufacturing	6,231
322110	Pulp Mills	436
322121	Paper (except Newsprint) Mills	2,294
322122	Newsprint Mills	46
322130	Paperboard Mills	808
322211	Corrugated and Solid Fiber Box Manufacturing	1,790
322212	Folding Paperboard Box Manufacturing	259
322213	Setup Paperboard Box Manufacturing	170
322214	Fiber Can, Tube, Drum, and Similar Products Manufacturing	374
322215	Nonfolding Sanitary Food Container Manufacturing	119
322221	Coated and Laminated Packaging Paper and Plastics Film Manufacturing	386
322222	Coated and Laminated Paper Manufacturing	874
322223	Plastics, Foil, and Coated Paper Bag Manufacturing	335
322224	Uncoated Paper and Multiwall Bag Manufacturing	183
322225	Laminated Aluminum Foil Manufacturing for Flexible Packaging Uses	17
322226	Surface-Coated Paperboard Manufacturing	
322231	Die-Cut Paper and Paperboard Office Supplies Manufacturing	103
322232	Envelope Manufacturing	253
322233	Stationery, Tablet, and Related Product Manufacturing	387
322291	Sanitary Paper Product Manufacturing	271
322299	All Other Converted Paper Product Manufacturing	1,678
323110	Commercial Lithographic Printing	
323111	Commercial Gravure Printing	963
323112	Commercial Flexographic Printing	177
323113	Commercial Screen Printing	5,729
323114	Quick Printing	5,575
323115	Digital Printing	
323116	Manifold Business Forms Printing	697
323117	Books Printing	602
323118	Blankbook, Looseleaf Binders, and Devices Manufacturing	1,527
323119	Other Commercial Printing	17,513



323121	Tradebinding and Related Work	1,361
323122	Prepress Services	2,079
324110	Petroleum Refineries	1,778
324121	Asphalt Paving Mixture and Block Manufacturing	1,412
324122	Asphalt Shingle and Coating Materials Manufacturing	497
324191	Petroleum Lubricating Oil and Grease Manufacturing	693
324199	All Other Petroleum and Coal Products Manufacturing	136
325110	Petrochemical Manufacturing	799
325120	Industrial Gas Manufacturing	1,157
325131	Inorganic Dye and Pigment Manufacturing	162
325132	Synthetic Organic Dye and Pigment Manufacturing	180
325181	Alkalies and Chlorine Manufacturing	183
325182	Carbon Black Manufacturing	52
325188	All Other Basic Inorganic Chemical Manufacturing	2,043
325191	Gum and Wood Chemical Manufacturing	100
325192	Cyclic Crude and Intermediate Manufacturing	114
325193	Ethyl Alcohol Manufacturing	164
325199	All Other Basic Organic Chemical Manufacturing	1,408
325211	Plastics Material and Resin Manufacturing	1,747
325212	Synthetic Rubber Manufacturing	229
325221	Cellulosic Organic Fiber Manufacturing	31
325222	Noncellulosic Organic Fiber Manufacturing	229
325311	Nitrogenous Fertilizer Manufacturing	386
325312	Phosphatic Fertilizer Manufacturing	109
325314	Fertilizer (Mixing Only) Manufacturing	543
325320	Pesticide and Other Agricultural Chemical Manufacturing	791
325411	Medicinal and Botanical Manufacturing	1,012
325412	Pharmaceutical Preparation Manufacturing	5,185
325413	In-Vitro Diagnostic Substance Manufacturing	32
325414	Biological Product (except Diagnostic) Manufacturing	815
325510	Paint and Coating Manufacturing	2,627
325520	Adhesive Manufacturing	1,047
325611	Soap and Other Detergent Manufacturing	1,339
325612	Polish and Other Sanitation Good Manufacturing	2,237
325613	Surface Active Agent Manufacturing	231
325620	Toilet Preparation Manufacturing	2,621
325910	Printing Ink Manufacturing	783
325920	Explosives Manufacturing	185
325991	Custom Compounding of Purchased Resins	195
325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	569
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	3,168
326111	Plastics Bag Manufacturing	338
326112	Plastics Packaging Film and Sheet (including Laminated) Manufacturing	122
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	876
326121	Unlaminated Plastics Profile Shape Manufacturing	210
326122	Plastics Pipe and Pipe Fitting Manufacturing	381
326130	Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	495
326140	Polystyrene Foam Product Manufacturing	43
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing	1,254
326160	Plastics Bottle Manufacturing	300
326191	Plastics Plumbing Fixture Manufacturing	372
326192	Resilient Floor Covering Manufacturing	258
326199	All Other Plastics Product Manufacturing	10,726
326211	Tire Manufacturing (except Retreading)	604

326212	Tire Retreading	199
326220	Rubber and Plastics Hoses and Belting Manufacturing	337
326291	Rubber Product Manufacturing for Mechanical Use	282
326299	All Other Rubber Product Manufacturing	2,160
327111	Vitreous China Plumbing Fixture and China and Earthenware Bathroom Accessories Manufacturing	151
327112	Vitreous China, Fine Earthenware, and Other Pottery Product Manufacturing	1,670
327113	Porcelain Electrical Supply Manufacturing	142
327121	Brick and Structural Clay Tile Manufacturing	405
327122	Ceramic Wall and Floor Tile Manufacturing	727
327123	Other Structural Clay Product Manufacturing	126
327124	Clay Refractory Manufacturing	206
327125	Nonclay Refractory Manufacturing	207
327211	Flat Glass Manufacturing	772
327212	Other Pressed and Blown Glass and Glassware Manufacturing	1,641
327213	Glass Container Manufacturing	229
327215	Glass Product Manufacturing Made of Purchased Glass	3,559
327310	Cement Manufacturing	628
327320	Ready-Mix Concrete Manufacturing	6,548
327331	Concrete Block and Brick Manufacturing	1,109
327332	Concrete Pipe Manufacturing	208
327390	Other Concrete Product Manufacturing	4,770
327410	Lime Manufacturing	202
327420	Gypsum Product Manufacturing	1,167
327910	Abrasive Product Manufacturing	579
327991	Cut Stone and Stone Product Manufacturing	2,930
327992	Ground or Treated Mineral and Earth Manufacturing	396
327993	Mineral Wool Manufacturing	322
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing	572
331111	Iron and Steel Mills	3,096
331112	Electrometallurgical Ferroalloy Product Manufacturing	65
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	549
331221	Rolled Steel Shape Manufacturing	545
331222	Steel Wire Drawing	566
331311	Alumina Refining	60
331312	Primary Aluminum Production	154
331314	Secondary Smelting and Alloying of Aluminum	77
331315	Aluminum Sheet, Plate, and Foil Manufacturing	254
331316	Aluminum Extruded Product Manufacturing	357
331319	Other Aluminum Rolling and Drawing	215
331411	Primary Smelting and Refining of Copper	40
331419	Primary Smelting and Refining of Nonferrous Metal (except Copper and Aluminum)	283
331421	Copper Rolling, Drawing, and Extruding	169
331422	Copper Wire (except Mechanical) Drawing	208
331423	Secondary Smelting, Refining, and Alloying of Copper	5
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	425
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	270
331511	Iron Foundries	517
331512	Steel Investment Foundries	229
331513	Steel Foundries (except Investment)	434
331521	Aluminum Die-Casting Foundries	329

331522	Nonferrous (except Aluminum) Die-Casting Foundries	228
331524	Aluminum Foundries (except Die-Casting)	561
331525	Copper Foundries (except Die-Casting)	404
331528	Other Nonferrous Foundries (except Die-Casting)	301
332111	Iron and Steel Forging	944
332112	Nonferrous Forging	145
332114	Custom Roll Forming	24
332115	Crown and Closure Manufacturing	47
332116	Metal Stamping	3,385
332117	Powder Metallurgy Part Manufacturing	51
332211	Cutlery and Flatware (except Precious) Manufacturing	685
332212	Hand and Edge Tool Manufacturing	1,858
332213	Saw Blade and Handsaw Manufacturing	180
332214	Kitchen Utensil, Pot, and Pan Manufacturing	84
332311	Prefabricated Metal Building and Component Manufacturing	1,871
332312	Fabricated Structural Metal Manufacturing	7,706
332313	Plate Work Manufacturing	1,846
332321	Metal Window and Door Manufacturing	2,218
332322	Sheet Metal Work Manufacturing	6,319
332323	Ornamental and Architectural Metal Work Manufacturing	3,311
332410	Power Boiler and Heat Exchanger Manufacturing	219
332420	Metal Tank (Heavy Gauge) Manufacturing	357
332431	Metal Can Manufacturing	368
332439	Other Metal Container Manufacturing	426
332510	Hardware Manufacturing	1,962
332611	Spring (Heavy Gauge) Manufacturing	217
332612	Spring (Light Gauge) Manufacturing	288
332618	Other Fabricated Wire Product Manufacturing	1,819
332710	Machine Shops	24,582
332721	Precision Turned Product Manufacturing	1,258
332722	Bolt, Nut, Screw, Rivet, and Washer Manufacturing	933
332811	Metal Heat Treating	734
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services	3,621
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	3,369
332911	Industrial Valve Manufacturing	695
332912	Fluid Power Valve and Hose Fitting Manufacturing	421
332913	Plumbing Fixture Fitting and Trim Manufacturing	602
332919	Other Metal Valve and Pipe Fitting Manufacturing	648
332991	Ball and Roller Bearing Manufacturing	366
332992	Small Arms Ammunition Manufacturing	205
332993	Ammunition (except Small Arms) Manufacturing	99
332994	Small Arms Manufacturing	546
332995	Other Ordnance and Accessories Manufacturing	214
332996	Fabricated Pipe and Pipe Fitting Manufacturing	953
332997	Industrial Pattern Manufacturing	881
332998	Enameled Iron and Metal Sanitary Ware Manufacturing	203
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing	2,965
333111	Farm Machinery and Equipment Manufacturing	2,779
333112	Lawn and Garden Tractor and Home Lawn and Garden Equipment	633
333120	Construction Machinery Manufacturing	3,214
333131	Mining Machinery and Equipment Manufacturing	577
333132	Oil and Gas Field Machinery and Equipment Manufacturing	1,283
333210	Sawmill and Woodworking Machinery Manufacturing	894
333220	Plastics and Rubber Industry Machinery Manufacturing	342

333291	Paper Industry Machinery Manufacturing	349
333292	Textile Machinery Manufacturing	774
333293	Printing Machinery and Equipment Manufacturing	970
333294	Food Product Machinery Manufacturing	1,234
333295	Semiconductor Machinery Manufacturing	260
333298	All Other Industrial Machinery Manufacturing	2,626
333311	Automatic Vending Machine Manufacturing	782
333312	Commercial Laundry, Drycleaning, and Pressing Machine Manufacturing	261
333313	Office Machinery Manufacturing	867
333314	Optical Instrument and Lens Manufacturing	
333315	Photographic and Photocopying Equipment Manufacturing	1,270
333319	Other Commercial and Service Industry Machinery Manufacturing	4,488
333411	Air Purification Equipment Manufacturing	940
333412	Industrial and Commercial Fan and Blower Manufacturing	419
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing	731
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	2,506
333511	Industrial Mold Manufacturing	1,680
333512	Machine Tool (Metal Cutting Types) Manufacturing	2,398
333513	Machine Tool (Metal Forming Types) Manufacturing	
333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	4,932
333515	Cutting Tool and Machine Tool Accessory Manufacturing	2,223
333516	Rolling Mill Machinery and Equipment Manufacturing	143
333518	Other Metalworking Machinery Manufacturing	867
333611	Turbine and Turbine Generator Set Units Manufacturing	400
333612	Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing	244
333613	Mechanical Power Transmission Equipment Manufacturing	514
333618	Other Engine Equipment Manufacturing	797
333911	Pump and Pumping Equipment Manufacturing	1,285
333912	Air and Gas Compressor Manufacturing	561
333913	Measuring and Dispensing Pump Manufacturing	81
333921	Elevator and Moving Stairway Manufacturing	344
333922	Conveyor and Conveying Equipment Manufacturing	1,052
333923	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing	527
333924	Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing	1,445
333991	Power-Driven Handtool Manufacturing	489
333992	Welding and Soldering Equipment Manufacturing	527
333993	Packaging Machinery Manufacturing	798
333994	Industrial Process Furnace and Oven Manufacturing	654
333995	Fluid Power Cylinder and Actuator Manufacturing	196
333996	Fluid Power Pump and Motor Manufacturing	231
333997	Scale and Balance (except Laboratory) Manufacturing	300
333999	All Other Miscellaneous General Purpose Machinery Manufacturing	5,969
334111	Electronic Computer Manufacturing	2,309
334112	Computer Storage Device Manufacturing	634
334113	Computer Terminal Manufacturing	484
334119	Other Computer Peripheral Equipment Manufacturing	2,568
334210	Telephone Apparatus Manufacturing	1,481
334220	Radio and Television Broadcasting and Wireless Communications Equipment	3,570
334290	Other Communications Equipment Manufacturing	1,485
334310	Audio and Video Equipment Manufacturing	2,623 #
334411	Electron Tube Manufacturing	113
334412	Bare Printed Circuit Board Manufacturing	
334413	Semiconductor and Related Device Manufacturing	2,910

334414	Electronic Capacitor Manufacturing	157
334415	Electronic Resistor Manufacturing	97
334416	Electronic Coil, Transformer, and Other Inductor Manufacturing	540
334417	Electronic Connector Manufacturing	428
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	1,380
334419	Other Electronic Component Manufacturing	4,046
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	2,188
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	1,582
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	1,106
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	2,096
334514	Totalizing Fluid Meter and Counting Device Manufacturing	392
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	2,176
334516	Analytical Laboratory Instrument Manufacturing	1,481
334517	Irradiation Apparatus Manufacturing	297
334518	Watch, Clock, and Part Manufacturing	422
334519	Other Measuring and Controlling Device Manufacturing	2,571
334611	Software Reproducing	
334612	Prerecorded Compact Disc (except Software), Tape, and Record Reproducing	3,950
334613	Magnetic and Optical Recording Media Manufacturing	926
335110	Electric Lamp Bulb and Part Manufacturing	319
335121	Residential Electric Lighting Fixture Manufacturing	755
335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing	575
335129	Other Lighting Equipment Manufacturing	1,243
335211	Electric Housewares and Household Fan Manufacturing	617
335212	Household Vacuum Cleaner Manufacturing	233
335221	Household Cooking Appliance Manufacturing	247
335222	Household Refrigerator and Home Freezer Manufacturing	96
335224	Household Laundry Equipment Manufacturing	117
335228	Other Major Household Appliance Manufacturing	375
335311	Power, Distribution, and Specialty Transformer Manufacturing	768
335312	Motor and Generator Manufacturing	1,431
335313	Switchgear and Switchboard Apparatus Manufacturing	1,000
335314	Relay and Industrial Control Manufacturing	2,044
335911	Storage Battery Manufacturing	380
335912	Primary Battery Manufacturing	99
335921	Fiber Optic Cable Manufacturing	204
335929	Other Communication and Energy Wire Manufacturing	145
335931	Current-Carrying Wiring Device Manufacturing	796
335932	Noncurrent-Carrying Wiring Device Manufacturing	432
335991	Carbon and Graphite Product Manufacturing	180
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	6,287
336111	Automobile Manufacturing	1,611
336112	Light Truck and Utility Vehicle Manufacturing	84
336120	Heavy Duty Truck Manufacturing	441
336211	Motor Vehicle Body Manufacturing	1,104
336212	Truck Trailer Manufacturing	1,139
336213	Motor Home Manufacturing	104
336214	Travel Trailer and Camper Manufacturing	1,313
336311	Carburetor, Piston, Piston Ring, and Valve Manufacturing	310

336312	Gasoline Engine and Engine Parts Manufacturing	272
336321	Vehicular Lighting Equipment Manufacturing	189
336322	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	988
336330	Motor Vehicle Steering and Suspension Components (except Spring)	141
336340	Motor Vehicle Brake System Manufacturing	194
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	542
336360	Motor Vehicle Seating and Interior Trim Manufacturing	377
336370	Motor Vehicle Metal Stamping	660
336391	Motor Vehicle Air-Conditioning Manufacturing	47
336399	All Other Motor Vehicle Parts Manufacturing	3,776
336411	Aircraft Manufacturing	1,517
336412	Aircraft Engine and Engine Parts Manufacturing	710
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	2,010
336414	Guided Missile and Space Vehicle Manufacturing	115
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts	81
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment	54
336510	Railroad Rolling Stock Manufacturing	553
336611	Ship Building and Repairing	975
336612	Boat Building	3,686
336991	Motorcycle, Bicycle, and Parts Manufacturing	1,421
336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing	197
336999	All Other Transportation Equipment Manufacturing	913
337110	Wood Kitchen Cabinet and Countertop Manufacturing	15,046
337121	Upholstered Household Furniture Manufacturing	1,540
337122	Nonupholstered Wood Household Furniture Manufacturing	5,018
337124	Metal Household Furniture Manufacturing	591
337125	Household Furniture (except Wood and Metal) Manufacturing	912
337127	Institutional Furniture Manufacturing	2,694
337129	Wood Television, Radio, and Sewing Machine Cabinet Manufacturing	151
337211	Wood Office Furniture Manufacturing	1,251
337212	Custom Architectural Woodwork and Millwork Manufacturing	1,339
337214	Office Furniture (except Wood) Manufacturing	640
337215	Showcase, Partition, Shelving, and Locker Manufacturing	1,331
337910	Mattress Manufacturing	862
337920	Blind and Shade Manufacturing	1,668
339111	Laboratory Apparatus and Furniture Manufacturing	611
339112	Surgical and Medical Instrument Manufacturing	3,311
339113	Surgical Appliance and Supplies Manufacturing	3,663
339114	Dental Equipment and Supplies Manufacturing	1,211
339115	Ophthalmic Goods Manufacturing	1,216
339116	Dental Laboratories	12,860
339911	Jewelry (except Costume) Manufacturing	5,355
339912	Silverware and Hollowware Manufacturing	513
339913	Jewelers' Material and Lapidary Work Manufacturing	1,190
339914	Costume Jewelry and Novelty Manufacturing	1,731
339920	Sporting and Athletic Goods Manufacturing	7,516
339931	Doll and Stuffed Toy Manufacturing	1,114
339932	Game, Toy, and Children's Vehicle Manufacturing	4,075
339941	Pen and Mechanical Pencil Manufacturing	207
339942	Lead Pencil and Art Good Manufacturing	922
339943	Marking Device Manufacturing	915
339944	Carbon Paper and Inked Ribbon Manufacturing	605
339950	Sign Manufacturing	22,595
339991	Gasket, Packing, and Sealing Device Manufacturing	740

339992	Musical Instrument Manufacturing	1,818
339993	Fastener, Button, Needle, and Pin Manufacturing	530
339994	Broom, Brush, and Mop Manufacturing	423
339995	Burial Casket Manufacturing	182
339999	All Other Miscellaneous Manufacturing	21,674

## NAICS CODE DETAIL

### 42 - Wholesale Trade

Codes	Titles	Number-US
42	Wholesale Trade	743,751
423110	Automobile and Other Motor Vehicle Merchant Wholesalers	10,536
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	27,056
423130	Tire and Tube Merchant Wholesalers	4,736
423140	Motor Vehicle Parts (Used) Merchant Wholesalers	6,685
423210	Furniture Merchant Wholesalers	13,349
423220	Home Furnishing Merchant Wholesalers	17,929
423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers	18,633
423320	Brick, Stone, and Related Construction Material Merchant Wholesalers	13,874
423330	Roofing, Siding, and Insulation Material Merchant Wholesalers	3,553
423390	Other Construction Material Merchant Wholesalers	4,953
423410	Photographic Equipment and Supplies Merchant Wholesalers	1,290
423420	Office Equipment Merchant Wholesalers	8,687
423430	Computer and Computer Peripheral Equipment and Software Merchant	18,478
423440	Other Commercial Equipment Merchant Wholesalers	13,372
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	22,504
423460	Ophthalmic Goods Merchant Wholesalers	612
423490	Other Professional Equipment and Supplies Merchant Wholesalers	5,392
423510	Metal Service Centers and Other Metal Merchant Wholesalers	14,492
423520	Coal and Other Mineral and Ore Merchant Wholesalers	680
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment	23,765
423620	Electrical and Electronic Appliance, Television, and Radio Set Merchant Wholesalers	5,732
423690	Other Electronic Parts and Equipment Merchant Wholesalers	21,866
423710	Hardware Merchant Wholesalers	8,791
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	11,146
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant	6,772
423740	Refrigeration Equipment and Supplies Merchant Wholesalers	2,953
423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant	13,199
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers	11,015
423830	Industrial Machinery and Equipment Merchant Wholesalers	45,776
423840	Industrial Supplies Merchant Wholesalers	22,095
423850	Service Establishment Equipment and Supplies Merchant Wholesalers	21,570
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant	5,787
423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers	
423920	Toy and Hobby Goods and Supplies Merchant Wholesalers	6,343
423930	Recyclable Material Merchant Wholesalers	8,149
423940	Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers	15,083
423990	Other Miscellaneous Durable Goods Merchant Wholesalers	38,772
424110	Printing and Writing Paper Merchant Wholesalers	1,712
424120	Stationery and Office Supplies Merchant Wholesalers	10,396
424130	Industrial and Personal Service Paper Merchant Wholesalers	5,750
424210	Drugs and Druggists' Sundries Merchant Wholesalers	11,371
424310	Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers	6,411
424320	Men's and Boys' Clothing and Furnishings Merchant Wholesalers	5,949
424330	Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers	9,323
424340	Footwear Merchant Wholesalers	3,800
424410	General Line Grocery Merchant Wholesalers	10,030



424420	Packaged Frozen Food Merchant Wholesalers	1,462
424430	Dairy Product (except Dried or Canned) Merchant Wholesalers	2,869
424440	Poultry and Poultry Product Merchant Wholesalers	1,276
424450	Confectionery Merchant Wholesalers	3,751
424460	Fish and Seafood Merchant Wholesalers	6,086
424470	Meat and Meat Product Merchant Wholesalers	3,691
424480	Fresh Fruit and Vegetable Merchant Wholesalers	6,690
424490	Other Grocery and Related Products Merchant Wholesalers	21,034
424510	Grain and Field Bean Merchant Wholesalers	5,948
424520	Livestock Merchant Wholesalers	7,469
424590	Other Farm Product Raw Material Merchant Wholesalers	4,916
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	2,867
424690	Other Chemical and Allied Products Merchant Wholesalers	11,907
424710	Petroleum Bulk Stations and Terminals	3,384
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and	11,947
424810	Beer and Ale Merchant Wholesalers	2,606
424820	Wine and Distilled Alcoholic Beverage Merchant Wholesalers	4,684
424910	Farm Supplies Merchant Wholesalers	16,371
424920	Book, Periodical, and Newspaper Merchant Wholesalers	5,537
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers	10,279
424940	Tobacco and Tobacco Product Merchant Wholesalers	2,175
424950	Paint, Varnish, and Supplies Merchant Wholesalers	4,054
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	51,034
425110	Business to Business Electronic Markets	
425120	Wholesale Trade Agents and Brokers	670

## NAICS CODE DETAIL

### 44-45 - Retail Trade

Codes	Titles	Number-US
44-45	Retail Trade	1,946,230
441110	New Car Dealers	48,181
441120	Used Car Dealers	63,813
441210	Recreational Vehicle Dealers	4,304
441221	Motorcycle Dealers	11,325
441222	Boat Dealers	8,905
441229	All Other Motor Vehicle Dealers	10,606
441310	Automotive Parts and Accessories Stores	48,148
441320	Tire Dealers	25,539
442110	Furniture Stores	51,239
442210	Floor Covering Stores	34,372
442291	Window Treatment Stores	7,138
442299	All Other Home Furnishings Stores	22,783
443111	Household Appliance Stores	18,902
443112	Radio, Television, and Other Electronics Stores	39,695
443120	Computer and Software Stores	38,585
443130	Camera and Photographic Supplies Stores	2,995
444110	Home Centers	37,738
444120	Paint and Wallpaper Stores	12,309
444130	Hardware Stores	25,546
444190	Other Building Material Dealers	28,427
444210	Outdoor Power Equipment Stores	4,955
444220	Nursery, Garden Center, and Farm Supply Stores	18,261
445110	Supermarkets and Other Grocery (except Convenience) Stores	115,679
445120	Convenience Stores	62,417
445210	Meat Markets	8,634
445220	Fish and Seafood Markets	3,319
445230	Fruit and Vegetable Markets	7,284
445291	Baked Goods Stores	16,926
445292	Confectionery and Nut Stores	8,066
445299	All Other Specialty Food Stores	20,852
445310	Beer, Wine, and Liquor Stores	35,782
446110	Pharmacies and Drug Stores	50,238
446120	Cosmetics, Beauty Supplies, and Perfume Stores	19,934
446130	Optical Goods Stores	20,103
446191	Food (Health) Supplement Stores	19,056
446199	All Other Health and Personal Care Stores	15,327
447110	Gasoline Stations with Convenience Stores	
447190	Other Gasoline Stations	65,592
448110	Men's Clothing Stores	16,354
448120	Women's Clothing Stores	75,096
448130	Children's and Infants' Clothing Stores	10,296
448140	Family Clothing Stores	18,940
448150	Clothing Accessories Stores	22,927
448190	Other Clothing Stores	27,939
448210	Shoe Stores	31,334
448310	Jewelry Stores	49,638

448320	Luggage and Leather Goods Stores	2,397
451110	Sporting Goods Stores	55,351
451120	Hobby, Toy, and Game Stores	29,745
451130	Sewing, Needlework, and Piece Goods Stores	17,290
451140	Musical Instrument and Supplies Stores	10,421
451211	Book Stores	20,012
451212	News Dealers and Newsstands	2,534
451220	Prerecorded Tape, Compact Disc, and Record Stores	16,051
452111	Department Stores (except Discount Department Stores)	10,988
452112	Discount Department Stores	12,694
452910	Warehouse Clubs and Supercenters	1,545
452990	All Other General Merchandise Stores	39,628
453110	Florists	41,432
453210	Office Supplies and Stationery Stores	10,873
453220	Gift, Novelty, and Souvenir Stores	93,607
453310	Used Merchandise Stores	62,237
453910	Pet and Pet Supplies Stores	19,201
453920	Art Dealers	7,944
453930	Manufactured (Mobile) Home Dealers	6,975
453991	Tobacco Stores	7,762
453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)	126,567
454111	Electronic Shopping	
454112	Electronic Auctions	4,147
454113	Mail-Order Houses	17,281
454210	Vending Machine Operators	14,902
454311	Heating Oil Dealers	5,402
454312	Liquefied Petroleum Gas (Bottled Gas) Dealers	6,689
454319	Other Fuel Dealers	1,121
454390	Other Direct Selling Establishments	16,082

## NAICS CODE DETAIL

### 48-49 - Transportation, Warehousing & Utilities (TWU)

Codes	Titles	Number-US
48-49	Transportation and Warehousing	279,855
481111	Scheduled Passenger Air Transportation	1,825
481112	Scheduled Freight Air Transportation	382
481211	Nonscheduled Chartered Passenger Air Transportation	237
481212	Nonscheduled Chartered Freight Air Transportation	131
481219	Other Nonscheduled Air Transportation	2,324
482111	Line-Haul Railroads	2,031
482112	Short Line Railroads	17
483111	Deep Sea Freight Transportation	401
483112	Deep Sea Passenger Transportation	97
483113	Coastal and Great Lakes Freight Transportation	286
483114	Coastal and Great Lakes Passenger Transportation	
483211	Inland Water Freight Transportation	385
483212	Inland Water Passenger Transportation	516
484110	General Freight Trucking, Local	63,454
484121	General Freight Trucking, Long-Distance, Truckload	36,244
484122	General Freight Trucking, Long-Distance, Less Than Truckload	284
484210	Used Household and Office Goods Moving	6,333
484220	Specialized Freight (except Used Goods) Trucking, Local	10,165
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance	4,539
485111	Mixed Mode Transit Systems	
485112	Commuter Rail Systems	135
485113	Bus and Other Motor Vehicle Transit Systems	684
485119	Other Urban Transit Systems	1,117
485210	Interurban and Rural Bus Transportation	1,061
485310	Taxi Service	5,882
485320	Limousine Service	7,842
485410	School and Employee Bus Transportation	2,337
485510	Charter Bus Industry	2,107
485991	Special Needs Transportation	
485999	All Other Transit and Ground Passenger Transportation	4,349
486110	Pipeline Transportation of Crude Oil	487
486210	Pipeline Transportation of Natural Gas	1,139
486910	Pipeline Transportation of Refined Petroleum Products	355
486990	All Other Pipeline Transportation	95
487110	Scenic and Sightseeing Transportation, Land	337
487210	Scenic and Sightseeing Transportation, Water	475
487990	Scenic and Sightseeing Transportation, Other	422
488111	Air Traffic Control	1,234
488119	Other Airport Operations	3,596
488190	Other Support Activities for Air Transportation	2,268
488210	Support Activities for Rail Transportation	2,964
488310	Port and Harbor Operations	216
488320	Marine Cargo Handling	692
488330	Navigational Services to Shipping	841
488390	Other Support Activities for Water Transportation	1,496
488410	Motor Vehicle Towing	14,590

488490	Other Support Activities for Road Transportation	2,242
488510	Freight Transportation Arrangement	18,896
488991	Packing and Crating	1,438
488999	All Other Support Activities for Transportation	11,652
491110	Postal Service	25,908
492110	Couriers	3,489
492210	Local Messengers and Local Delivery	1,672
493110	General Warehousing and Storage	14,838
493120	Refrigerated Warehousing and Storage	1,179
493130	Farm Product Warehousing and Storage	1,085
493190	Other Warehousing and Storage	11,084

## NAICS CODE DETAIL

### 51 - Information

Codes	Titles	Number-US
51	Information	217,508
511110	Newspaper Publishers	12,094
511120	Periodical Publishers	7,846
511130	Book Publishers	8,612
511140	Directory and Mailing List Publishers	1,179
511191	Greeting Card Publishers	688
511199	All Other Publishers	11,004
511210	Software Publishers	14,540
512110	Motion Picture and Video Production	28,777
512120	Motion Picture and Video Distribution	750
512131	Motion Picture Theaters (except Drive-Ins)	3,721
512132	Drive-In Motion Picture Theaters	147
512191	Teleproduction and Other Postproduction Services	1,611
512199	Other Motion Picture and Video Industries	1,546
512210	Record Production	
512220	Integrated Record Production/Distribution	
512230	Music Publishers	959
512240	Sound Recording Studios	2,893
512290	Other Sound Recording Industries	6,189
515111	Radio Networks	
515112	Radio Stations	10,161
515120	Television Broadcasting	2,890
515210	Cable and Other Subscription Programming	4,561
517110	Wired Telecommunications Carriers	1,160
517210	Wireless Telecommunications Carriers (except Satellite)	
517410	Satellite Telecommunications	250
517911	Telecommunications Resellers	
517919	All Other Telecommunications	
518210	Data Processing, Hosting, and Related Services	22,626
519110	News Syndicates	1,025
519120	Libraries and Archives	18,187
519130	Internet Publishing and Broadcasting and Web Search Portals	
519190	All Other Information Services	5,199

## NAICS CODE DETAIL

### 52 - Financial Services

Codes	Titles	Number-US
52	Finance and Insurance	471,196
521110	Monetary Authorities - Central Bank	7
522110	Commercial Banking	50,981
522120	Savings Institutions	10,291
522130	Credit Unions	11,997
522190	Other Depository Credit Intermediation	
522210	Credit Card Issuing	
522220	Sales Financing	1,999
522291	Consumer Lending	13,718
522292	Real Estate Credit	7,707
522293	International Trade Financing	2,163
522294	Secondary Market Financing	12
522298	All Other Nondepository Credit Intermediation	12,564
522310	Mortgage and Nonmortgage Loan Brokers	49,853
522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	2,511
522390	Other Activities Related to Credit Intermediation	8,766
523110	Investment Banking and Securities Dealing	2,267
523120	Securities Brokerage	25,214
523130	Commodity Contracts Dealing	2,339
523140	Commodity Contracts Brokerage	720
523210	Securities and Commodity Exchanges	331
523910	Miscellaneous Intermediation	20,180
523920	Portfolio Management	6,312
523930	Investment Advice	19,407
523991	Trust, Fiduciary, and Custody Activities	9,268
523999	Miscellaneous Financial Investment Activities	1,981
524113	Direct Life Insurance Carriers	6,408
524114	Direct Health and Medical Insurance Carriers	3,639
524126	Direct Property and Casualty Insurance Carriers	5,962
524127	Direct Title Insurance Carriers	4,471
524128	Other Direct Insurance (except Life, Health, and Medical) Carriers	2,041
524130	Reinsurance Carriers	174
524210	Insurance Agencies and Brokerages	156,733
524291	Claims Adjusting	4,404
524292	Third Party Administration of Insurance and Pension Funds	1,363
524298	All Other Insurance Related Activities	6,239
525110	Pension Funds	473
525120	Health and Welfare Funds	463
525190	Other Insurance Funds	126
525910	Open-End Investment Funds	1,904
525920	Trusts, Estates, and Agency Accounts	2,067
525990	Other Financial Vehicles	6,900
488320	Marine Cargo Handling	692
488330	Navigational Services to Shipping	841
488390	Other Support Activities for Water Transportation	1,496
488410	Motor Vehicle Towing	14,590

488490	Other Support Activities for Road Transportation	2,242
488510	Freight Transportation Arrangement	18,896
488991	Packing and Crating	1,438
488999	All Other Support Activities for Transportation	11,652
491110	Postal Service	25,908
492110	Couriers	3,489
492210	Local Messengers and Local Delivery	1,672
493110	General Warehousing and Storage	14,838
493120	Refrigerated Warehousing and Storage	1,179
493130	Farm Product Warehousing and Storage	1,085
493190	Other Warehousing and Storage	11,084

### **53 - Real Estate and Rental and Leasing**

Codes	Titles	
53	Real Estate and Rental and Leasing	487,675
531110	Lessors of Residential Buildings and Dwellings	82,288
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	42,375
531130	Lessors of Miniwarehouses and Self-Storage Units	8,565
531190	Lessors of Other Real Estate Property	40,298
531210	Offices of Real Estate Agents and Brokers	201,668
531311	Residential Property Managers	3,750
531312	Nonresidential Property Managers	
531320	Offices of Real Estate Appraisers	22,015
531390	Other Activities Related to Real Estate	2,821
532111	Passenger Car Rental	9,257
532112	Passenger Car Leasing	1,243
532120	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing	10,811
532210	Consumer Electronics and Appliances Rental	3,852
532220	Formal Wear and Costume Rental	2,532
532230	Video Tape and Disc Rental	16,583
532291	Home Health Equipment Rental	2,855
532292	Recreational Goods Rental	2,218
532299	All Other Consumer Goods Rental	10,202
532310	General Rental Centers	655
532411	Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing	1,271
532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing	4,876
532420	Office Machinery and Equipment Rental and Leasing	842
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	14,761
533110	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	1,937



## NAICS CODE DETAIL

### 54 - Professional and Business Services

Codes	Titles	Number-US
54	Professional, Scientific, and Technical Services	1,237,476
541110	Offices of Lawyers	210,870
541120	Offices of Notaries	
541191	Title Abstract and Settlement Offices	9,741
541199	All Other Legal Services	6,340
541211	Offices of Certified Public Accountants	46,910
541213	Tax Preparation Services	28,521
541214	Payroll Services	1,848
541219	Other Accounting Services	51,387
541310	Architectural Services	32,635
541320	Landscape Architectural Services	35,883
541330	Engineering Services	76,608
541340	Drafting Services	2,219
541350	Building Inspection Services	5,663
541360	Geophysical Surveying and Mapping Services	
541370	Surveying and Mapping (except Geophysical) Services	1,015
541380	Testing Laboratories	3,058
541410	Interior Design Services	37,791
541420	Industrial Design Services	2,380
541430	Graphic Design Services	37,979
541490	Other Specialized Design Services	1,345
541511	Custom Computer Programming Services	39,575
541512	Computer Systems Design Services	73,459
541513	Computer Facilities Management Services	685
541519	Other Computer Related Services	2,840
541611	Administrative Management and General Management Consulting Services	97,747
541612	Human Resources Consulting Services	17,242
541613	Marketing Consulting Services	28,140
541614	Process, Physical Distribution, and Logistics Consulting Services	2,585
541618	Other Management Consulting Services	119,176
541620	Environmental Consulting Services	2,464
541690	Other Scientific and Technical Consulting Services	40,914
541711	Research and Development in Biotechnology	
541712	Research and Development in the Physical, Engineering, and Life Sciences (except	
541720	Research and Development in the Social Sciences and Humanities	13,036
541810	Advertising Agencies	22,170
541820	Public Relations Agencies	14,758
541830	Media Buying Agencies	792
541840	Media Representatives	3,565
541850	Display Advertising	2,462
541860	Direct Mail Advertising	6,392
541870	Advertising Material Distribution Services	1,272
541890	Other Services Related to Advertising	11,976
541910	Marketing Research and Public Opinion Polling	9,044
541921	Photography Studios, Portrait	33,128
541922	Commercial Photography	13,627
541930	Translation and Interpretation Services	4,862

541940	Veterinary Services	27,233
541990	All Other Professional, Scientific, and Technical Services	41,431
<b>55 - Management of Companies and Enterprises</b>		
Codes	Titles	
55	Management of Companies and Enterprises	11,044
551111	Offices of Bank Holding Companies	649
551112	Offices of Other Holding Companies	10,395
551114	Corporate, Subsidiary, and Regional Managing Offices	
<b>56 - Administrative and Support and Waste Management and Remediation Services</b>		
Codes	Titles	
56	Administrative and Support and Waste Management and Remediation Services	617,644
561110	Office Administrative Services	10,268
561210	Facilities Support Services	2,048
561311	Employment Placement Agencies	21,360
561312	Executive Search Services	
561320	Temporary Help Services	23,958
561330	Professional Employer Organizations	757
561410	Document Preparation Services	7,623
561421	Telephone Answering Services	3,622
561422	Telemarketing Bureaus	1,903
561431	Private Mail Centers	1,685
561439	Other Business Service Centers (including Copy Shops)	3,463
561440	Collection Agencies	5,450
561450	Credit Bureaus	1,380
561491	Repossession Services	1,631
561492	Court Reporting and Stenotype Services	8,614
561499	All Other Business Support Services	164,609
561510	Travel Agencies	28,149
561520	Tour Operators	6,122
561591	Convention and Visitors Bureaus	1,209
561599	All Other Travel Arrangement and Reservation Services	3,653
561611	Investigation Services	8,027
561612	Security Guards and Patrol Services	6,691
561613	Armored Car Services	2,749
561621	Security Systems Services (except Locksmiths)	11,691
561622	Locksmiths	10,145
561710	Exterminating and Pest Control Services	18,421
561720	Janitorial Services	73,009
561730	Landscaping Services	90,386
561740	Carpet and Upholstery Cleaning Services	18,649
561790	Other Services to Buildings and Dwellings	17,103
561910	Packaging and Labeling Services	2,632
561920	Convention and Trade Show Organizers	3,013
561990	All Other Support Services	29,196
562111	Solid Waste Collection	3,660
562112	Hazardous Waste Collection	302
562119	Other Waste Collection	293
562211	Hazardous Waste Treatment and Disposal	3,240
562212	Solid Waste Landfill	1,378
562213	Solid Waste Combustors and Incinerators	38
562219	Other Nonhazardous Waste Treatment and Disposal	3,121
562910	Remediation Services	2,234
562920	Materials Recovery Facilities	4,973
562991	Septic Tank and Related Services	8,412



## NAICS CODE DETAIL

### 61 - 62 - Educational & Health Services

Codes	Titles	Number-US
61	Educational Services	214,343
611110	Elementary and Secondary Schools	104,251
611210	Junior Colleges	1,974
611310	Colleges, Universities, and Professional Schools	14,033
611410	Business and Secretarial Schools	709
611420	Computer Training	2,765
611430	Professional and Management Development Training	
611511	Cosmetology and Barber Schools	1,796
611512	Flight Training	1,055
611513	Apprenticeship Training	289
611519	Other Technical and Trade Schools	5,485
611610	Fine Arts Schools	19,045
611620	Sports and Recreation Instruction	20,923
611630	Language Schools	1,309
611691	Exam Preparation and Tutoring	3,362
611692	Automobile Driving Schools	3,727
611699	All Other Miscellaneous Schools and Instruction	24,720
611710	Educational Support Services	8,900
62	Health Care and Social Assistance	824,110
621111	Offices of Physicians (except Mental Health Specialists)	209,966
621112	Offices of Physicians, Mental Health Specialists	10,284
621210	Offices of Dentists	107,558
621310	Offices of Chiropractors	37,103
621320	Offices of Optometrists	16,924
621330	Offices of Mental Health Practitioners (except Physicians)	22,988
621340	Offices of Physical, Occupational and Speech Therapists, and Audiologists	15,583
621391	Offices of Podiatrists	8,446
621399	Offices of All Other Miscellaneous Health Practitioners	21,615
621410	Family Planning Centers	1,478
621420	Outpatient Mental Health and Substance Abuse Centers	5,255
621491	HMO Medical Centers	955
621492	Kidney Dialysis Centers	2,734
621493	Freestanding Ambulatory Surgical and Emergency Centers	978
621498	All Other Outpatient Care Centers	12,888
621511	Medical Laboratories	9,050
621512	Diagnostic Imaging Centers	1,268
621610	Home Health Care Services	17,391
621910	Ambulance Services	4,568
621991	Blood and Organ Banks	1,345
621999	All Other Miscellaneous Ambulatory Health Care Services	16,746
622110	General Medical and Surgical Hospitals	9,178
622210	Psychiatric and Substance Abuse Hospitals	4,217
622310	Specialty (except Psychiatric and Substance Abuse) Hospitals	1,473
623110	Nursing Care Facilities	21,459
623210	Residential Mental Retardation Facilities	7,281
623220	Residential Mental Health and Substance Abuse Facilities	
623311	Continuing Care Retirement Communities	6,834

623312	Homes for the Elderly	3,491
623990	Other Residential Care Facilities	13,940
624110	Child and Youth Services	13,322
624120	Services for the Elderly and Persons with Disabilities	13,573
624190	Other Individual and Family Services	83,260
624210	Community Food Services	590
624221	Temporary Shelters	1,047
624229	Other Community Housing Services	99
624230	Emergency and Other Relief Services	2,442
624310	Vocational Rehabilitation Services	10,587
624410	Child Day Care Services	106,194

## NAICS CODE DETAIL

### 71 - 72: Leisure and Hospitality

Codes	Titles	Number-US
71	Arts, Entertainment, and Recreation	
711110	Theater Companies and Dinner Theaters	1,790
711120	Dance Companies	168
711130	Musical Groups and Artists	7,175
711190	Other Performing Arts Companies	13,542
711211	Sports Teams and Clubs	1,759
711212	Racetracks	1,902
711219	Other Spectator Sports	2,504
711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities	3,946
711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities	9,316
711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	27,982
711510	Independent Artists, Writers, and Performers	23,433
712110	Museums	14,870
712120	Historical Sites	1,443
712130	Zoos and Botanical Gardens	832
712190	Nature Parks and Other Similar Institutions	408
713110	Amusement and Theme Parks	3,964
713120	Amusement Arcades	2,183
713210	Casinos (except Casino Hotels)	
713290	Other Gambling Industries	876
713910	Golf Courses and Country Clubs	13,997
713920	Skiing Facilities	
713930	Marinas	6,025
713940	Fitness and Recreational Sports Centers	53,423
713950	Bowling Centers	5,435
713990	All Other Amusement and Recreation Industries	12,957
Codes	Titles	of US
72	Accommodation and Food Services	489,007
721110	Hotels (except Casino Hotels) and Motels	54,706
721120	Casino Hotels	672
721191	Bed-and-Breakfast Inns	10,346
721199	All Other Traveler Accommodation	3,731
721211	RV (Recreational Vehicle) Parks and Campgrounds	2,929
721214	Recreational and Vacation Camps (except Campgrounds)	12,245
721310	Rooming and Boarding Houses	2,620
722110	Full-Service Restaurants	186,408
722211	Limited-Service Restaurants	148,736
722212	Cafeterias	3,262
722213	Snack and Nonalcoholic Beverage Bars	759
722310	Food Service Contractors	1,018
722320	Caterers	17,361
722330	Mobile Food Services	1,774
722410	Drinking Places (Alcoholic Beverages)	42,440

## NAICS CODE DETAIL

### 81 - Other Services (except Public Administration)

Codes	Titles	Number-US
81	Other Services (except Public Administration)	1,335,415
811111	General Automotive Repair	106,194
811112	Automotive Exhaust System Repair	6,747
811113	Automotive Transmission Repair	7,975
811118	Other Automotive Mechanical and Electrical Repair and Maintenance	30,175
811121	Automotive Body, Paint, and Interior Repair and Maintenance	51,443
811122	Automotive Glass Replacement Shops	6,648
811191	Automotive Oil Change and Lubrication Shops	4,639
811192	Car Washes	18,923
811198	All Other Automotive Repair and Maintenance	13,605
811211	Consumer Electronics Repair and Maintenance	6,785
811212	Computer and Office Machine Repair and Maintenance	13,312
811213	Communication Equipment Repair and Maintenance	914
811219	Other Electronic and Precision Equipment Repair and Maintenance	24,006
811310	Commercial and Industrial Machinery and Equipment (except Automotive and	32,834
811411	Home and Garden Equipment Repair and Maintenance	6,745
811412	Appliance Repair and Maintenance	25,032
811420	Reupholstery and Furniture Repair	16,487
811430	Footwear and Leather Goods Repair	4,799
811490	Other Personal and Household Goods Repair and Maintenance	31,228
812111	Barber Shops	29,307
812112	Beauty Salons	185,070
812113	Nail Salons	24,088
812191	Diet and Weight Reducing Centers	1,415
812199	Other Personal Care Services	28,367
812210	Funeral Homes and Funeral Services	17,218
812220	Cemeteries and Crematories	10,956
812310	Coin-Operated Laundries and Drycleaners	11,377
812320	Drycleaning and Laundry Services (except Coin-Operated)	34,890
812331	Linen Supply	1,702
812332	Industrial Launderers	924
812910	Pet Care (except Veterinary) Services	21,648
812921	Photofinishing Laboratories (except One-Hour)	8,443
812922	One-Hour Photofinishing	
812930	Parking Lots and Garages	3,673
812990	All Other Personal Services	71,781
813110	Religious Organizations	305,852
813211	Grantmaking Foundations	2,332
813212	Voluntary Health Organizations	1,495
813219	Other Grantmaking and Giving Services	462
813311	Human Rights Organizations	
813312	Environment, Conservation and Wildlife Organizations	2,062
813319	Other Social Advocacy Organizations	10,116
813410	Civic and Social Organizations	69,999
813910	Business Associations	23,276
813920	Professional Organizations	12,790
813930	Labor Unions and Similar Labor Organizations	16,312

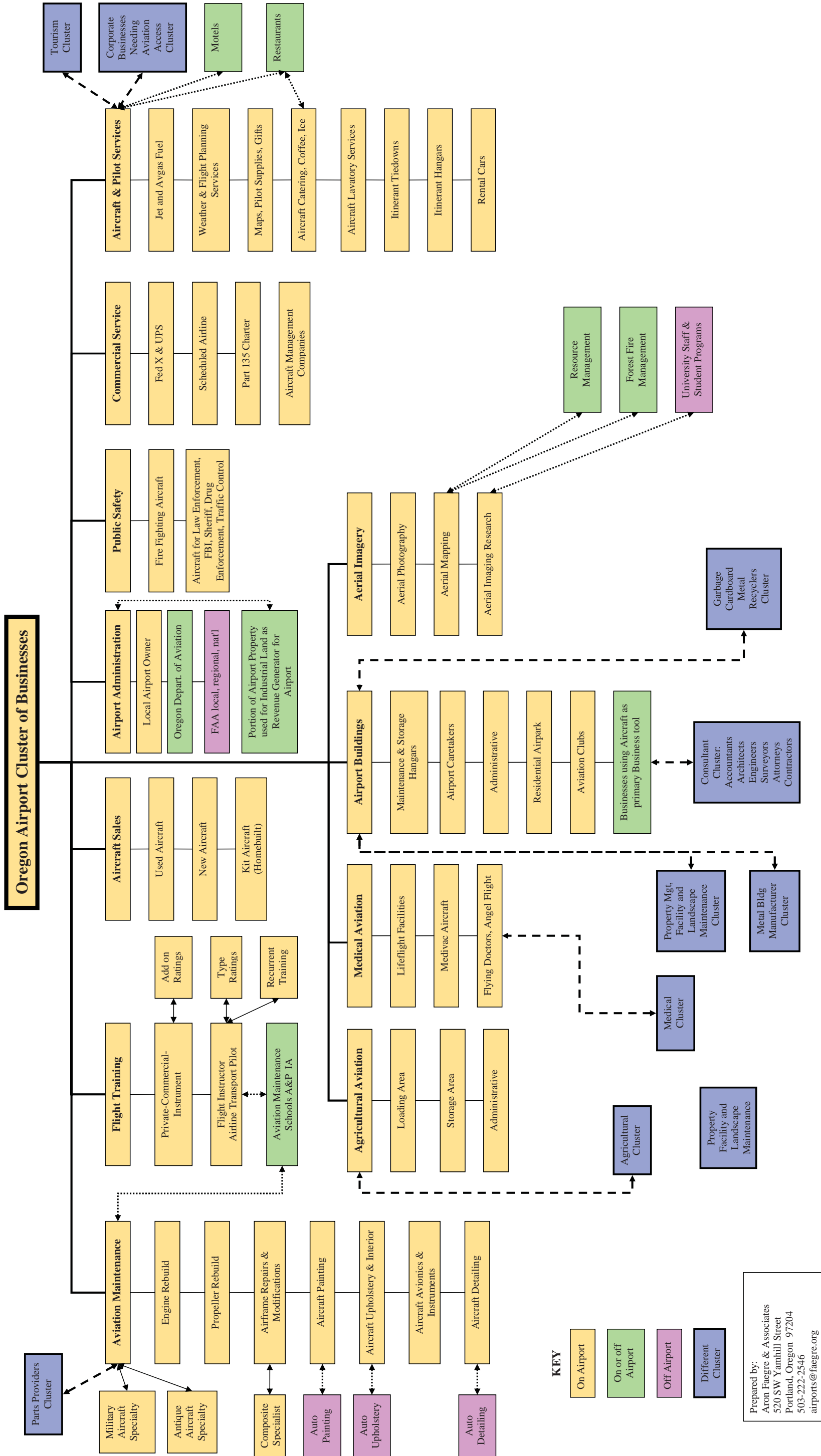
813940	Political Organizations	3,119
813990	Other Similar Organizations (except Business, Professional, Labor, and Political	28,250
814110	Private Households	



## NAICS CODE DETAIL

### 92 - Public Administration

Codes	Titles	Number-US
92	Public Administration	148,800
921110	Executive Offices	26,174
921120	Legislative Bodies	4,474
921130	Public Finance Activities	5,008
921140	Executive and Legislative Offices, Combined	894
921150	American Indian and Alaska Native Tribal Governments	4,942
921190	Other General Government Support	7,081
922110	Courts	9,695
922120	Police Protection	2,213
922130	Legal Counsel and Prosecution	3,574
922140	Correctional Institutions	1,527
922150	Parole Offices and Probation Offices	18,246
922160	Fire Protection	1,516
922190	Other Justice, Public Order, and Safety Activities	2,640
923110	Administration of Education Programs	5,677
923120	Administration of Public Health Programs	7,221
923130	Administration of Human Resource Programs (except Education, Public Health, and	1,286
923140	Administration of Veterans' Affairs	4,073
924110	Administration of Air and Water Resource and Solid Waste Management Programs	10,049
924120	Administration of Conservation Programs	4,362
925110	Administration of Housing Programs	1,400
925120	Administration of Urban Planning and Community and Rural Development	1,578
926110	Administration of General Economic Programs	7,155
926120	Regulation and Administration of Transportation Programs	876
926130	Regulation and Administration of Communications, Electric, Gas, and Other Utilities	4,325
926140	Regulation of Agricultural Marketing and Commodities	3,178
926150	Regulation, Licensing, and Inspection of Miscellaneous Commercial Sectors	65
927110	Space Research and Technology	8,519
928110	National Security	1,052
928120	International Affairs	25



**KEY**

- On Airport
- On or off Airport
- Off Airport
- Different Cluster

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